

# Optimal Forms of Generics in Korean\*

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**Kwak, Eun-Joo. (2013). Optimal Forms of Generics in Korean.** *The Linguistic Association of Korea Journal*, 21(1), 69-94. In delivering intended meanings, languages may put more weight on linguistic economy and minimize the specification of functional meanings such as definiteness and plurality, or languages may prefer distinct forms to express different meanings. This difference is encoded by a set of constraints and different ordering of their optimality in the OT analysis. In this framework, I have considered different forms of generics in accord with their genericity categories. I have argued that the morphological forms of generics are consistent with their semantic number and proposed a more subcategorized faithfulness constraint for plurality  $FPL_{GEN}$ , which should be ranked over the markedness constraint \*FunctN. An apparent counterexample of a non-human characterizing generic does not pose a problem to the current analysis when the mass properties of non-human nouns are postulated as Kwak (2009b) discusses.

**Key Words:** optimality, faithfulness constraint, markedness constraint, genericity, plurality, kind, subkind, characterizing generic, normative generic

## 1. Introduction

The interpretations of noun phrases (henceforth NPs) are divided into two parts: lexical information contributed by nouns and other content expressions in the phrases, and functional information including definiteness, countability, and plurality. Languages adopt different strategies for the marking of functional information, e.g., number morphology, definite/indefinite articles, Case-markers,

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etc. As for the marking of plurality, English is a language which specifies distinctly for plurality through the use of the plural morpheme ‘-s.’

- (1) a. a human/humans  
 b. inkan/inkan-tul  
 human/human-Pl  
 ‘a human or humans/humans’

The singular-formed *human* and the plural *humans* are not used interchangeably. At first glance, Korean seems to adopt the same strategy as English in plural marking. The occurrence of the plural morpheme ‘-tul’ in (1b), *inkan-tul*, shows the plurality of the NP. Unlike in English, however, this plural morpheme is optional in Korean. Both of the NPs in (1b) are legitimately used to denote a group of individuals. Hence, Korean is more flexible than English in specifying the plurality of NPs.

Interestingly, relative flexibility between English and Korean is reversed in generic sentences. In addition to the grammatical meanings enumerated above, NPs may convey generic or kind readings. However, languages do not posit markers exclusively used for genericity. Thus, grammatical markers designed for other functions, e.g., plurality or definiteness, are conducive to the specification of generic NPs. English allows various nominal forms for generic construal. Both the singular *a human* and the bare plural *humans* are appropriate to denote the kind reading of human beings.

- (2) a. A human is a mammal.  
 b. Humans are mammals.  
 (3) Inkan/\*inkan-tul-un phoyuryu-ta.  
 human/human-Pl-Top mammal-be  
 ‘Humans are mammals.’

In contrast, the morphology of generic NPs in Korean is more restricted. Only the singular-formed *inkan* is licensed in the generic sentence of (3) to deliver a kind reading.

The different flexibility of English and Korean raises a few theoretical

questions. First, why is Korean liberal in the specification of plurality despite the existence of the plural morpheme? Second, are there any theoretical grounds for the reversed flexibility between the nominal forms of episodic and generic sentences? Third, are there any semantic relations between nominal forms and their generic interpretations?

This study addresses these questions and aims to provide a unified account for the idiosyncratic patterns of nominal forms. For this purpose, I resort to the Optimality Theory (henceforth OT) proposed by de Swart & Zwarts(2009, 2010). I argue that English and Korean follow different hierarchical ordering for a set of constraints, which results in different patterns of plurality between the two languages. Indefiniteness is crucial for generic NPs in English while semantic plurality also plays an important role to trigger generic readings in Korean. This different strategy makes different sets of nominal forms available in English and Korean.

## 2. Optimality—theoretic Semantics

### 2.1. A Markedness Constraint and Faithfulness Constraints

The notion of 'optimality' has been originally developed as a theoretical framework for phonology by Prince & Smolensky (1993). Later, Optimality Theory (henceforth OT) has turned out to be useful to account for linguistic data in other areas such as syntax, semantics, and pragmatics. No matter which category of data an OT analysis deals with, the notion of optimization, a key principle of OT, is sustained. Speakers are supposed to take the optimal form for a given meaning and hearers are supposed to take the optimal interpretation for a given form.

Although the notion of optimization appears to be simple and clear, the optimal procedure of speakers may not coincide with that of hearers. Basically, two main drives are postulated behind linguistic rules. One is a drive for economy, which opts for a simpler expression than a complex one. Although rules based on linguistic economy make a speaker pay a less effort in making a form, a hearer may take a more burden to interpret the meaning. The other

drive is faithfulness, according to which a speaker selects different forms for different meanings. Faithful rules put a more burden on the side of a speaker while a hearer saves cognitive effort to figure out meanings.

The discrepancy of demands between speakers and hearers leads to a conflicting set of constraints in determining optimal forms and meanings. If we assume that linguistic rules or constraints are not violable, it is not easy to resolve this conflict. Hence, rules or constraints are assumed soft and violable in an OT analysis. When low-ranked rules are in conflict with more important or highly ranked rules, they are violated.

A representative constraint following linguistic economy is the general markedness constraint \*FunctN, which is proposed by de Swart & Zwarts (2009, 2010).

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

\*FunctN states that a nominal structure which does not include any functional category is the most preferred. The number of functional categories in a given NP amounts to its complexity and the degree of the violation of \*FunctN.

In addition to the general markedness constraint, de Swart & Zwarts (2009, 2010) argue that faithfulness constraints are also operative in determining optimal nominal forms. A faithfulness constraint is required to reflect the optimality of nominal forms that are distinguished by plurality.

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

According to FPL, singulars and plurals should be morphologically distinguished, and plural NPs take marked forms. Since explicit marking is required only for plural NPs, languages do not necessarily postulate an independent morpheme to mark singularity.

Definiteness is another factor to attribute different degrees of optimality for NPs. A definite article is used to represent uniqueness, maximality, or familiarity. To accommodate these diverse functions, de Swart & Zwarts adopt

the term 'discourse uniqueness' and propose the faithfulness constraint FDEF as follows:

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

FDEF states that definite and indefinite NPs are morphologically distinguished, and explicit representation is required only for definite NPs. Hence, definite NPs are considered marked, and indefinite articles are dispensable.

## 2.2. The Optimality of Noun Phrases in English and Korean

English is a language in which the grammatical notions of plurality and definiteness are explicitly marked in nominal forms.

- (4) a. I saw a bear/bears.  
 b. I saw the bear/the bears.

The NPs in (4) are distinguished from each other by the occurrence of the plural morpheme and the definite/indefinite articles. To make the specification possible, the markedness constraint, \*FunctN, needs to be overruled by the faithfulness constraint. Otherwise, the distinguished forms as to plurality and definiteness, which violate \*FunctN, are not regarded as optimal. Hence, FPL and FDEF are ranked over \*FunctN. (cf. de Swart & Zwarts 2009, 2010)

◆ {FPL, FDEF} >> \*FunctN (English)

Since NPs are marked for both plurality and definiteness, the relative ordering between FPL and FDEF is not hierarchically distinguished as shown by the use of the bracket.

Given the ordering of the constraints, optimal forms for plural NPs are derived as follows:

Table 1. Plural Marking in English

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

The first column of Table 1 shows the intended meaning, which equals to say 'I saw bears,' and the second column includes two possible forms to convey this meaning. Since the bare-formed *bear* is not followed by plural morphology, it violates FPL but satisfies \*FunctN. The plural-marked *bears* meets FPL while it violates \*FunctN. Although the number of constraints *bear* and *bears* violate is identical, *bear* violates the highly ranked constraint. Thus, the plural form is judged optimal in English, which is represented by the point hand ( $\Rightarrow$ ).

Unlike English, Korean has a long inventory of nominal forms for plural NPs. Korean has the plural morpheme, *-tul*, to mark the plurality of NPs, so *haksayng-tul* in (5) is used only for denoting a group of individuals.

- (5) *haksayng/haksayng-tul*  
 student/student-Pl  
 'a student or (the) students/(the) students'

However, the plural denotation is not exclusively reserved for the marked NP. The unmarked *haksayng* is also used for a group reading in addition to an atomic reading. The explicit specification of the plurality means that FPL is not lower than \*FunctN in the constraint ranking. However, the alternate form without the plural morpheme is available only when FPL is ranked equal to \*FunctN. Definiteness is also optionally marked in Korean. In spite of the existence of the demonstrative, *ku*, the unmarked NPs in (5) may also be used to convey definite readings. Hence, both FPL and FDEF appear to be co-ranked with \*FunctN. (cf. Kwak 2012)

◆ {\*FunctN, FDEF, FPL} (Korean)

In spite of the co-ranking of the constraints, the optionality of the plural morpheme is not allowed in some cases. When NPs are preceded by *ku*, plural readings are available only in plural forms.<sup>1)</sup>

- (6) *ku haksayng/ku haksayng-tul*  
 the student /the student-Pl  
 'the student/the students'

The atomic reading only for *ku haksayng* sharply contrasts with the ambiguity of *haksayng*. To deal with the distinct plural readings between the indefinite and definite NPs, FPL is subcategorized into FPL<sub>DEF</sub> and FPL<sub>INDEF</sub>. The mandatory use of the plural morpheme for definite NPs is achieved only when FPL<sub>DEF</sub> is ranked over \*FunctN. Here is the revised ranking of the constraints proposed by Kwak (2012).

◆ FPL<sub>DEF</sub> >> {\*FunctN, FDEF, FPL<sub>INDEF</sub>} (Korean)

FPL<sub>INDEF</sub> remains in the co-ranked position with \*FunctN, which makes the plural morpheme optionally marked in indefinite NPs.

### 2.3. An Optimality Analysis of Generics

According to de Swart & Zwarts (2009), bare nominals are used in generic sentences in languages where bare nominals are widely used in diverse contexts (e.g., Mandarin, Polish, Hindi, etc.). On the other hand, when languages include plural morphology and distinct forms for definite and indefinite NPs in their grammar, two different patterns are observed. One is to allow bare generic plurals as in English and the other is to use definite generic

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1) The compulsory use of the plural morpheme does not hinge on the occurrence of the definite marker like *ku*. Kwak (2012) argues that unmarked definite NPs show the same rigidity in interpretations and other categories of definite NPs, i.e., NPs with the demonstratives *i* 'this' and *ce* 'that' and pronouns, show the same restriction in their construal.

plurals as in Romanian.

- (7) a. Dogs are intelligent. (English)  
 b. Căinii sînt intelegenți. (Romanian)  
    dog-def are intelligent  
    'Dogs are intelligent.'

The sentences in (7) deliver a generalization over dogs, namely being intelligent. For this purpose, the indefinite plural *dogs* is used in English while the definite *căinii* occurs in Romanian. Dutch shows the same pattern as English whereas Romance languages such as Spanish, Italian, and Portuguese use definite plurals in generic sentences like Romanian.

As for the distinct patterns of genericity, Farkas & de Swart (2007) argue that generic NPs have ambivalent properties. In one sense, the referent of a generic NP is not old in discourse because it ranges over individuals across time and possible worlds. This fits the indefiniteness of a generic. However, the referent of a generic NP is maximal because it covers the entire kind of its description. This maximality is properly captured by the definiteness of a generic. Given the conflicting demands on generics, languages adopt different strategies to express genericity. One is to give a priority to non-familiarity in discourse in determining optimal forms and the other is to the maximality of their referents.

Here are two faithfulness constraints for the optimality of generic forms. (cf. de Swart & Zwarts 2009)

- ◆ \*DEF/[-FAM]: Avoid non-familiar definites.
- ◆ MAXMAX: Reflect maximality features of the referent in the nominal structure.

According to \*DEF/[-FAM], non-familiar definites are not used, and thus indefinite generic plurals are ranked over definite plural generics. In contrast, MAXMAX requires the maximality should be morphologically encoded. Hence, definite plural generics are preferred. de Swart & Zwarts further argue that 'high familiarity' languages like English adopt the ranking like (8a) while 'high



maximality' languages like Romanian adopt the ranking of (8b).

- (8)a. English: \*DEF/[-FAM] >> MAXMAX  
 b. Romanian: MAXMAX >> \*DEF/[-FAM]

Along with bare plural generics, singular NPs are also used in generic sentences in English, which is not discussed by de Swart & Zwarts.

- (9)a. A dog is intelligent.  
 b. The dog is intelligent.

As shown by the two forms in (9), singular generics are indifferent to definiteness. Moreover, the singularity of the NPs does not reflect the maximality of their referents. This means that the two faithfulness constraints \*DEF/[-FAM] and MAXMAX are not relevant in singular generics. Considering the fact that English is classified as a high-familiarity language, it is clear that familiarity is not at issue when generic sentences are not concerned with maximality.

## 2.4 Optimal Forms of Generics in Korean

Korean has a plural morphology and a definite marker, which are optionally used. Since distinctive forms are allowed for plurality and definiteness, it is possible to classify Korean as either a high-familiarity language or a maximality language. To see which is the proper category, let us consider a generic sentence. To express a generalization over individuals, two forms of generic NPs may be considered as exemplified in (10).

- (10) Haksayng-tul/#ku haksayng-tul-un swuhak-ul silhehanta.  
 student-Pl / the student-Pl-Top mathematics-Acc dislike  
 'Students dislike mathematics.'

As shown by the distinct acceptability judgment, the bare plural *haksayng-tul* is legitimate in the generic sentence while its definite counterpart *ku*

*haksayng-tul* is not. The acceptability here is in the same line with English, in which definite plural generics are not allowed. Hence, it is concluded that Korean is a high familiarity language like English and that non-familiarity is ranked over maximality.<sup>2)</sup> Hence, FDEF is not relevant and NPs with the definite articles are not used as generic NPs.

When maximality is not at issue, both definite and indefinite forms are used in generic sentences in English. Thus, no further argument is required for singular-formed generics. Unlike English, however, Korean does not allow singular generics no matter whether they are definite or indefinite.<sup>3)</sup>

- (11) #Haksayng/#ku haksayng-un swuhak-ul silhehanta.  
 student / the student-Nom mathematics-Acc dislike  
 'Students dislike mathematics.'

The unacceptability of the singular generics in (11) does not follow from the optimality ranking discussed above. This means that an additional constraint is needed to block singular generics in Korean.

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2) Definite NPs in Korean may not be marked by the definite marker. However, acceptability for marked and unmarked NPs are not distinguished. If marked definite NPs are not allowed, unmarked ones are also not allowed. The fact that the explicitly marked definite NPs are not used to deliver generic readings supports that unmarked generic NPs are all indefinite.

3) The generic sentence in (11) should be construed as a characterizing generic, namely a generalization over individuals. The indefinite singular *haksayng* is not acceptable in this sense. However, if the sentence is interpreted as a normative generic, i.e., a rule or regulation, the indefinite singular is appropriate. This is discussed in section 3.3 in details. When non-human nouns are used in characterizing generic sentences, singular forms are more preferred, contrasting with the awkwardness of (11). For example, the singular *say* 'bird' is appropriate in the generic sentence *Say-nun nanta* 'Birds fly'. Contrasts between human and non-human generics are more discussed in section 3.6.

### 3. Optimal Forms of Generics in Korean

#### 3.1 Diverse Interpretations of Generic Sentences

Before moving to the discussion of optimal generic forms in Korean, we will consider diverse categories of generic sentences. Sentence interpretations may involve specific objects or individuals whose identities are restricted by time and space. For example, *dinosaurs* in (12a) denotes specific dinosaurs that are specified by the time of the past tense and the place denoted by *this valley*.

- (12) a. Dinosaurs are discovered in this valley. (episodic)  
       b. Dinosaurs are extinct. (kind)  
 c. Dinosaurs were huge. (characterizing generic)

When sentence interpretations are made with specific objects like *dinosaurs* in (12a), they are called episodic sentences and do not make part of genericity. Apart from episodic sentences, sentence interpretations may require a special type of entity 'kind.' *Dinosaurs* in (12b) does not refer to a set of specific dinosaurs. Rather, it denotes the whole kind of dinosaurs, and (12b) asserts that the species of Dinosauria is extinct.<sup>4)</sup> *Dinosaurs* in (12c) is assumed to denote a kind individual, which is distinguished from ordinary objects for episodic sentences. Along with kind sentences, genericity may be represented by a regularity that summarizes a set of particular episodes or facts.<sup>5)</sup> *Dinosaurs* in

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4) The lexical properties of predicates play an important role in inducing kind readings. For instance, *be extinct* is a predicate which takes only a kind argument. Hence, sentences accompanied by this predicate have kind or subkind readings but not episodic readings.

5) The characterizing generic sentence in (12c) is a generalization over individuals. A generalization is also possible over events as well as individuals.

(i) John smokes a cigar after dinner.

(i) does not concern one instance of event. Rather it conveys a habitual reading of John's smoking after dinner, which is a generalization over events. Events are treated like individuals although they are assigned different types. This is why a habitual sentence like (i) is also classified as a characterizing generic. Although the same argument for characterizing generics may apply to habitual sentences, the plurality of generics is not

(12c) refers to neither specific objects nor a kind individual. It denotes manifestations of the kind *Dinosauria* in general, and the sentence asserts that dinosaurs in general were huge. Since the assertion in (12c) applies to dinosaurs in general, it allows miscellaneous exceptions which do not make a significant group of individuals. This category of genericity is called a ‘characterizing sentence.’

Kinds are unique maximal entities, generated from the maximal sets of their realizations. The uniqueness of kinds may not be maintained when they occur in counting contexts.

(13) Two whales, namely the blue whale and the fin whale, were put under protection. (subkind)

The numeral meaning of *two* requires that its argument should denote a set of sums constituted of two members. The plurality requirement for its argument does not accord with the uniqueness of a kind. Hence, *whales* in (13) cannot refer to a kind individual. Instead, *two whales* is construed as two subspecies of the kind whale. This category of genericity is called a ‘subkind’ or ‘taxonomic’ sentence.

A regularity delivered by generic sentences is not confined to cases that are based on facts in the real world. Even if the real world does not include a single instance, a rule or regulation also conveys a regularity that has to be realized in an ideal world. (cf. Lawler 1973, Burton-Roberts 1977, Greenberg 1998, and Cohen 2001) Although (14a) and (14b) assert regularities accompanied by the same predicate *open doors for ladies*, they have different interpretations.<sup>6</sup>

- (14) a. Gentlemen open doors for ladies. (characterizing generic)  
 b. A gentleman opens doors for ladies. (normative generic)

(14a), with the bare plural, asserts a regularity that summarizes real instances in the world, i.e. gentlemen’s opening doors for ladies. If a majority

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morphological encoded. Hence, habitual sentences are not discussed in this study.

6) Cohen (2001) argues that bare plurals may deliver both characterizing and normative generics in English while indefinite singulars are restricted to normative generics.

of people denoted by *gentlemen* do not behave in this way, (14a) is judged to be false. On the other hand, the truth of (14b) does not hinge on how many gentlemen show the behavior of opening doors for ladies. It is about a 'moral necessity,' describing an ideal behavior for people denoted by gentlemen. Even though there is no gentleman who follows this rule in the real world, the ideal property of the behavior is not affected. Hence, (14b) is true when the rule or social norm described by the sentence is in effect. In contrast with the characterizing generic sentence of (14a), the genericity conveyed by (14b) is called 'normative generic.'

### 3.2 Optimal Forms for Kind and Subkind Readings

Given the diverse classification of generic sentences, let us consider what are the optimal forms to express each category of generics. The first category to discuss is kind sentences, which take kind individuals in their arguments. The sentences in (15) are kind sentences where the subject NPs denote kind individuals.

- (15) a. Inkan /\*inkan-tul-un yuinwen-eyse cinhwahassta.  
 human/human-PI-Top great ape-Loc evolved  
 'Humans evolved from great apes.'
- b. Thomatho-nun/\*thomatho-tul-un chayso-ta.  
 tomato-Top / tomato-PI-Top vegetable-be  
 'Tomatoes are vegetables.'

As noted in footnote 4, the lexical properties of predicates are crucial in determining kind or episodic sentences, and the predicates in (15) take kinds in their argument positions.<sup>7)</sup> Each of the predicates is preceded by two forms of NPs, a singular and a plural, and shows a consistency in its acceptability. Only the singulars are judged to be legitimate in the kind sentences. The singular

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7) What evolved from great apes cannot be specific individuals and what is a vegetable can be either specific objects or kinds. When predicates are ambiguous like *chaysota* 'be vegetables', the tense of a sentence and the generality of a sentence description determine genericity. The present tense and the general description in (15b) are conducive to trigger a kind reading.

*inkan* properly denotes the kind human and naturally occurs with the kind-level predicate. Similarly, the singular *thomatho* is an appropriate argument in the kind sentence. However, their plural counterparts are not allowed. Then, it is concluded that optimal forms for kind entities are singular in Korean.

A more scrutiny reveals the fact that subkind sentences show different preferences in their optimality.

- (16) a. Sakwa-nun/\*sakwa-tul-un wensanci-ka tayanghata.  
 apple-Top /apple-Pl-Top origin-Nom diverse  
 'Apples have diverse origins.'
- b. Sakwa-tul-un/\*sakwa-nun wensanci-ka selo taluta.  
 apple-Pl-Top /apple-Top origin-Nom each other different  
 'Apples have different origins from each other.'

The predicate in (16a) applies to the whole kind. Having diverse origins is true with the whole kind of apples. On the other hand, the reciprocal expression *selo* 'each other' in (16b) blocks an application to the whole kind. Kind individuals are atoms, which are not subject to the distributivity of the reciprocal. Hence, the subject of (16b) cannot denote a kind but subkinds of the kind apple. Note that the distinct interpretations of the subjects are reflected in their morphological forms. While the kind reading of apple is properly expressed by the singular generic in (16a), it is the plural generic that conveys the subkind reading in (16b). The singular *sakwa* is not allowed in (16b). This means that optimal forms for subkinds are plural in contrast with the singularity of kinds.

An optimal form for a given meaning results from the trade-off between the strategy of a speaker and that of a hearer. Depending on which strategy is more involved in determining a form, either a markedness constraint or a faithfulness constraint is postulated. Then, to see how optimal forms for kinds and subkinds are determined, it is necessary to consider an interpretation domain and the semantic representations of kinds and subkinds.

Since Carlson (1977)'s seminal work on genericity, bare plurals in kind readings are assumed to denote atomic entities of kinds.<sup>8)</sup> Link (1983) suggests

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8) Although there is a consensus about the atomicity of kinds, it is debatable how to deal

a lattice-theoretic domain for individuals, which consists of atoms and sums generated from atoms by the join operation '+'. This lattice-theoretic view is extended to kinds, which are also assumed make a lattice structure independent of individuals. Chierchia (1998) argues that individuals and kinds make separate lattices and that properties of individuals and kinds are interrelated by operators. Based on this lattice-theoretic argument, Nomoto (2010) proposes that a kind is a group of its subkinds. According to Landman (1989), a group is an atom which is generated from its members, and a group and its members are interrelated by the group formation function ' $\uparrow$ ' and the member specification function ' $\downarrow$ '. Nomoto argues that although kinds are atoms, they have subspecies entities internally. For instance, the atomic kind of whale includes subspecies like blue whale and fin whale in its denotation. The kind atom whale is mapped to a sum of its subspecies by the member specification function. In other words, although the kind whale is atomic, its members denote a plural entity of a sum of subspecies.

The lattice-theoretic domain with kinds provides a clue for the optimality of kind and subkind generics in Korean. Semantically, kinds are atomic while subkinds are non-atomic sums. To put it in another way, kinds are semantically singular and subkinds are semantically plural. As observed above, the optimal forms for kinds are morphologically singular while those for subkinds are morphologically plural. Then, it is obvious that the semantic number of kinds and subkinds is reflected in their morphological forms or faithfully marked in their optimal forms. The optimality of kinds and subkinds is determined by a faithfulness constraint in Korean.

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with the ambiguity of bare plurals between indefinite objects and kinds and whether to allow 'stages,' specific instantiations of a kind. Carlson (1977, 1989) and Chierchia (1998) argue that bare plurals are assigned only kinds and indefinite object readings are derived by operators. On the other hand, other researchers propose that both objects and kinds should be assigned to bare plurals. (cf. Wilkinson 1991, Diesing 1992, Gerstner & Krifka 1993, and Kratzer 1995) Although a variable for stages was proposed by Carlson (1977), it is not accepted by many of his followers.

### 3.3 Optimal Forms for Characterizing Generics

Generic sentences in kind and subkind readings deliver assertions about kinds or sums of subkinds, and thus predications which are similar predications to individuals are made in these sentences. Hence, the semantic number of kinds and subkinds is decided by their atomicity. Unlike kind or subkind sentences, characterizing generics involve a generalization over individuals, which requires a generic operator. Since an operator itself cannot be said to have a semantic number, the semantic number of a characterizing generic hinges on the number of a variable for the operator.

First, characterizing generics in Korean take plural forms.<sup>9)</sup>

- (17) a. *Haksayng-tul/#haksayng-un swuhak-ul silhehanta.*  
 student-Pl / student-Top mathematics-Acc dislike  
 'Students dislike mathematics.'
- b. *Ai-tul-un /#ai-nun khemphyuthe keyim-ul cohahanta.*  
 child-Pl-Top/ child-Top computer game-Acc like  
 'Children like computer games.'

(17a) and (17b) are characterizing generic sentences because they convey generalizations over students and children, respectively. (17a) is construed that students in general dislike mathematics. The truth of (17a) is affirmed by whether a majority of students dislike mathematics. Possible exceptions to this generalization are allowed as far as they do not make a meaningful group to cancel it. The way of confirming truth and its possible exceptions are major characteristics of characterizing generics, and thus (17a) is judged to be a characterizing generic sentence. A similar argument applies to (17b). As shown by the acceptability judgements in (17), the plurals *haksayng-tul* and *ai-tul* are properly used in these characterizing generic sentences. However, their singular counterparts of *haksayng* and *ai* are not allowed.

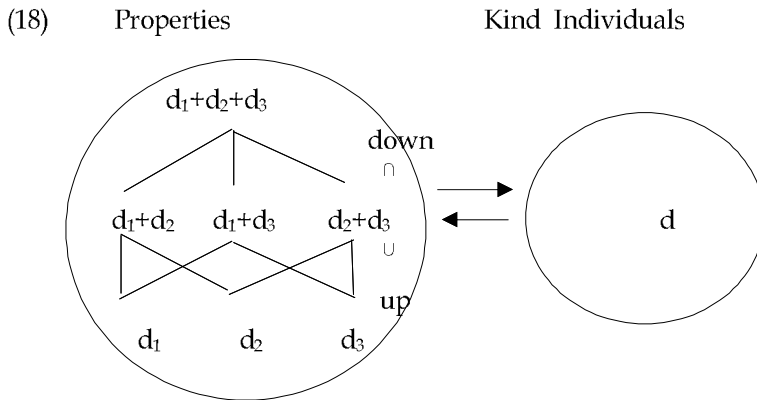
To understand why plural NPs are appropriate carriers of characterizing

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9) The singular NPs in (17) may be legitimately used when they carry episodic singular readings. (17a) with *haksayng* is construed that a student dislikes mathematics, and (17b) with *ai* is interpreted that a child likes computer games.



generics, we need to overview their semantics. In English, bare plurals are representative forms for characterizing generics, and the semantics of bare plurals is discussed by two influential theories, Chierchia (1998) and Krifka (2004). Part of the basic agreements of these theories is that bare plurals denote kinds generated from properties of individuals and that kinds and properties are interrelated by operators. In the lattice-theoretic framework of Link (1983), Chierchia argues that a property of individuals, which is represented by a lattice of atoms and sums in a given world, is mapped to a kind by the down operator ' $\cap$ ' and that a kind is mapped to a property or a set of sums of its instantiations by the up operator ' $\cup$ '. In a world  $w$  where there are only three individuals for dogs, namely  $d_1$ ,  $d_2$ , and  $d_3$ , three atoms for these individuals make a lattice, which is mapped to the kind *dog*  $d$  in a kind domain by ' $\cap$ '. The reverse mapping is made by ' $\cup$ '.



In this domain, a characterizing generic sentence like (19) is assigned an interpretation with a generic operator GEN.

(19) [[Dogs are intelligent]]  
 = intelligent( $\cap$ dogs)  
 = GEN<sub>x</sub>[ $\cup$  $\cap$ dogs(x)][intelligent(x)]

The kind denotation of the bare plural *dogs*, i.e., ' $\cap$ dogs', does not fit with the type requirement of the predicate *intelligent*, i.e., a set of objects. Hence, a

type-shifting is allowed to *dogs*, which is mapped to a set of sums in the dog property by  $\cup$ . Then, (19) is assigned an interpretation such that it is generally true that if  $x$  is of dogs, then  $x$  is intelligent. Here, the semantic number of the operator GEN cannot be discussed due to its quantificational property. Then, the semantic number of *dogs* is determined by the number of the variable for the operator. As for the denotation of the type-shifted entity by  $\cup$ , Chierchia states as follows:

(20) Let  $d$  be a kind. Then for any world/situation  $s$ ,

(i)  $\cup d = \lambda x[x \leq d_s]$ , if  $d_s$  is defined

(ii)  $\cup d = \lambda x[\text{FALSE}]$ , otherwise

where  $d_s$  is the plural individual that comprises all of the atomic members of the kind.

As explicitly stated in (i), the type-shifted kind  $\cup d$  is a set of all sums that are part of the maximum of its members. This is exactly the denotation of a plural according to Link (1983). Therefore, the variable of GEN in (19) is semantically plural.

The plurality of the variable is further supported by a plural anaphora for a characterizing generic as in (21).

(21) Dogs are dangerous when they are hungry.

If we assume that the variable of *dogs* is plural, then the semantics of *they* in (21) is in the ordinary sense. On the other hand, if we assume that the variable is singular, then the anaphora *they* should be assigned two interpretations depending on whether it occurs in episodic sentences or generic sentences. No matter how it is determined, it is not easy to avoid an ad-hoc stipulation in this case.

Given the plurality of a characterizing generic, let us consider an optimal form for a characterizing generic in Korean. As observed in (17), only the plural forms are allowed in the characterizing generic sentences. This means that the morphology of the generics faithfully reflects their semantic number. Hence, it is concluded that a faithfulness constraint intervenes in determining

optimal forms for characterizing generics in addition to kinds and subkinds.

### 3.4 Optimal Forms for Normative Generics

The final category of genericity to consider is a normative generic sentence. When a sentence describes a rule or regulation, it is classified as normative generic. For instance, the lexical property of the predicate in (22) may induce either characterizing or normative generic construal.

- (22) *Sinsa-nun/sinsa-tul-un*                      *swuknye-lul wihay mwun-ul*  
gentleman-Top/gentleman-Pl-Top lady-Acc      for      door-Acc  
yelecwunta.  
open  
'A gentleman/gentlemen open(s) doors for ladies.'

Opening doors for ladies may constitute part of generalizations over gentlemen or part of social norms required to gentlemen. The interpretation of the predicate is disambiguated by the plurality of its argument. When the plural *sinsa-tul* occurs in the sentence, it is understood as a characterizing generic. On the other hand, the singular *sinsa* contributes to the normative generic reading

Kwak (2009a) argues that the Constitution of the Republic of Korea is a representative text where normative generics are used because it states rules and regulations. The constitution includes 70 occurrences of 21 human nouns in normative generic sentences. None of them are accompanied by the plural morpheme. All normative generics in the constitution are of singular forms as exemplified in (23).

- (23) *Kwukhoyuywen-un*                                      *chenglyem-uy*  
members of the National Assembly-Top integrity-Poss  
uymwu-ka issta.  
duty-Nom have  
'A Member of the National Assembly has the duty of  
integrity.'

(cf. Article 46-1, the Constitution of the Republic of Korea)

Stating duty of the members of the National Assembly, (23) includes the normative generic *kwukhoyuywen*, which is singular.

For the interpretations of normative generics, Cohen (2001) introduces a predicate 'in-effect,' whose extension is the set of all rules which are in effect. He also postulates an operator '!', which maps a formula to the rule it describes if there is such a rule, and is undefined otherwise. Then, the normative generic sentence 'A gentleman opens doors for ladies' is construed as in (24).

(24) in-effect(!(*gentleman*(x)  $\Rightarrow$  *open\_doors\_for\_ladies*(x)))

(24) states that it is in effect (in this case, socially accepted) that if x is a gentleman, then x opens doors for ladies. (24) does not state that this rule is actually obeyed. It asserts that opening doors for ladies is part of the social norms required to gentlemen. Note that there is no sign for the plurality of the variable. The condition in (24) is not required to quantify over plural entities. Hence, the semantic number of the normative generic is singular.

Given the singularity of the variable of a normative generic, it can be argued that optimal forms for normative generics in Korean faithfully reflect their semantic number just like other categories of genericity.

### 3.5 The Optimality of Generics in Korean

As for the optimality of generics, de Swart & Zwarts (2009, 2010) argue that the semantics of generics involves ambivalent properties, namely non-familiarity in discourse and maximality. Non-familiarity is morphologically realized by indefiniteness while maximality is by the definiteness of plural generics. According to which property takes a higher order in an optimality ranking, de Swart & Zwarts categorize languages into high-familiarity and maximality languages. Since definite NPs are not used in generic sentences, Korean is classified as a high-familiarity language like English. However, optimal forms of generics appear to be subject to a more constraint in Korean.

To see what constraint works in determining the optimality of generics in Korean, morphological forms of generics are observed by their categories of

genericity such as kinds, subkinds, characterizing generics, and normative generics. The semantic numbers of these categories are not identical. However, the morphology of these distinct categories of generics follows the same constraint such that they faithfully reflect the semantic number of generics. Kinds are basically atomic entities while subkinds are sums of members of kinds. Hence, the semantic numbers of kinds and subkinds are singular and plural respectively. Likewise, the semantic numbers of characterizing and normative generics are distinct. Characterizing generics are semantically plural because the variable for the operator GEN quantifies over plural individuals. However, the variable for the conditional operator is singular in normative generic interpretations. Kinds and normative generics allow singular forms while subkind and characterizing generics take plural forms.

To incorporate the faithfulness shown in the optimality of generics, the faithfulness constraint FPL needs to be divided into more local constraints in Korean. The semantic plurality of generics should be faithfully marked. To achieve this purpose, I propose  $FPL_{GEN}$ , according to which the plurality of generics is explicitly marked. Moreover,  $FPL_{GEN}$  should be ranked over \*FunctN to make it effective in the morphology of generics. Therefore, the optimality ranking of the constraints is revised as follows:

$$\blacklozenge \{FPL_{DEF}, FPL_{GEN}\} \gg \{*FunctN, FDEF, FPL_{INDEF}\}$$

The higher ranking of  $FPL_{GEN}$  over \*FunctN ensures that optimal forms of generics are faithfully marked for their plurality.

### 3.6 Genericity with Non-human NPs

All categories of generic NPs show consistency in their plurality marking, which is properly accounted for by the revised optimality ranking of the constraints. In spite of the consistency, there is a group of nouns that do not accord with this pattern. Although characterizing generics are supposed to take plural forms, non-human NPs occur in singular forms.

- (25) a. *Kamca-nun/#kamca-tul-un kkepcil-i cal peskyecinta.*  
 potato-Top/ potato-Pl-Top skin-Nom well peel  
 'Potatoes peel well.'
- b. *Nothupwuk/#nothupwuk-tul-un sayonghakika*  
 notebook computer/notebook computer-Pl-Top use  
 phyenhata.  
 easy  
 'Notebook computers are easy to use.'

(25a) and (25b) are characterizing generic sentences. (25a) asserts that potatoes in general peel well, and it allows exceptions to this generalization. Similarly, (25b) is about a generalization over notebook computers which possibly accepts exceptions. According to the optimality of generics, the preferred forms should be the plurals *kamca-tul* and *nothupwuk-tul*. However, these plurals are not allowed in the characterizing generic interpretations. Instead, the singulars are the legitimate expressions in (25). The same observation holds with other non-human NPs in characterizing generic readings. Then, non-human NPs in characterizing generics make serious counter-examples to the current analysis.

As for the semantics of non-human nouns, Kwak (2009b) provides an interesting analysis on their countability. Kwak argues that human and non-human nouns are distinctively used in several aspects. First, human nouns may be preceded by a numeral directly while non-human nouns may not.

- (26) *sey haksayng-tul/\*sakwa-tul/\*mwul-tul*  
 three student-Pl /apple-P l /water-Pl  
 'three students/apples/water'

The numeral *sey* 'three' may precede the human noun *haksayng* but not the non-human noun *sakwa* and the material *mwul*. Apparently, *sakwa* is a count noun because its reference of apple is countable in the real world. However, Chierchia (1998) discusses the fact that grammatical countability is a distinct notion from physical countability. Moreover, the direct modification of a numeral is one of the important criteria to prove that modified nouns are count

nouns. *Sakwa* behaves like the mass noun *mwul* in this aspect. It is not modified by the numeral directly but requires the occurrence of a classifier in counting readings.

Second, the plural morpheme *-tul* does not occur with non-human nouns freely.

- (27) a. ??/\**sakwa-tul-ul sassta*.  
           apple-Pl-Acc bought  
           ‘(pro) bought apples.’  
 b. *Yeki ceki-se sakwa-tul-ul sassta*.  
       here there-Loc apple-Pl-Acc bought  
       ‘(pro) bought apples here and there.’

In a situation that more than one apple was bought, the preferred form is the singular *sakwa* rather than the plural *sakwa-tul* as shown in (27a). When it is accompanied by a distributive expression like *yeki ceki-se* ‘here and there,’ the plural form is natural. However, Kwak (2009b) argues that *-tul* in (27b) is a distributive marker rather than a plural marker. More evidence for the singularity of *sakwa-tul* comes from the fact that it may be followed by the singular anaphora *kukes* ‘it.’ This sharply contrasts with human NPs with *-tul* like *haksayng-tul*, which cannot be referred to by the singular anaphora *ku* but must be followed by the plural anaphora *ku-tul*.

Under the assumption that non-human nouns in Korean are mass nouns, plural marking is not relevant for them. In other words, FPL does not apply to non-human NPs, and thus the apparent counterexamples in (25) do not pose a problem to the current analysis. Note that the mass properties of non-human nouns do not affect the plurality of non-human NPs in subkind readings as in (16b). The plural *sakwa-tul* may denote a sum of subspecies of the kind apple. Regardless of the countability of their entities in the object domain, kinds and subkinds in the kind domain are countable. Even materials like wine make a lattice generated from atoms in the kind domain, and thus *wines* may denote different kinds of wine. Therefore, non-human NPs may take plural forms in their subkind readings while they are always singular in characterizing generic sentences.

## 4. Concluding Remarks

Languages adopt different strategies in delivering intended meanings. Linguistic economy may be prior to other principles and make expressions simple without the morphological specification of functional meanings. Or faithfulness is weighed over other principles and functional meanings such as definiteness and plurality are distinctively marked in nominal expressions. The former strategy is captured by the markedness constraint \*FunctN in the OT analysis of de Swart & Zwarts (2009, 2010). The latter is ensured by diverse faithfulness constraints. Although languages are under the same set of constraints, their different morphological patterns are the results of different ordering of the constraints in optimality ranking.

In the framework of the OT analysis, I have considered the morphological pattern of generics in Korean. Although the plural morpheme *-tul* is optionally used in episodic sentences, the plurality of generics is more restricted. To disentangle complex uses of singular and plural generics, I have observed generic sentences in accord with their categories, namely kinds, subkinds, characterizing generics, and normative generics. Consistently, singular forms are used in kind and normative generic sentences whereas plural ones are used in subkind and characterizing generic sentences. Based on this observation, I have argued that the semantic number of kinds and normative generics is singular while that of subkinds and characterizing generics is plural. This shows that the morphological forms of generics are consistent with their semantic number. Therefore, I have proposed that the faithfulness constraint for plural marking FPL is further subcategorized as to genericity and that FPL<sub>GEN</sub> is ranked over \*FunctN.

This revised optimality ranking of the constraints appears to confront counterexamples with non-human generics because they take singular forms in characterizing generic sentences. I have adopted Kwak (2009a)'s argument for the mass properties of non-human nouns in Korean. When non-human NPs are mass, the faithfulness constraint for plurality FPL is not relevant to them in characterizing generic sentences. Thus, the singularity of non-human characterizing generics naturally follows from the current analysis.



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