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PLURALITY AND OTHER SEMANTIC ASPECTS OF COMMON NOUNS IN KOREAN

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1. Introduction

This paper aims to give the semantics of Korean common nouns in light of Link's (1983) algebraic semantic theory on denotations of plurals and mass terms. First, I will show that the semantic domains of Korean count nouns are much like those of English count nouns except that the denotation of a syntactically singular count noun in Korean may include a semantically plural domain. Further, I will show that the semantic domains of common nouns are much more flexible than may be thought, so that a possible semantic treatment of Korean classifiers as domain shifters will be provided. The problems of kinds, genericity, and topicality are closely related with the interpretation of common nouns. Most of the latter part of this paper will be dedicated to the discussion about how these notions are related in the theory which allows flexible interpretive domains of common nouns.

2. Count and Mass Nouns in Korean

In English, as in other European languages, the count/mass distinction of common nouns is a very prominent syntactic and semantic feature. Semantically, the distinction was captured by Link (1983) as a difference in the algebraic structures claimed to be denotations of common nouns. Namely, the semantic domains of count nouns are atomic join-semilattices, but those of mass nouns are (possibly non-atomic) join-semilattices. The count/mass distinction is sometimes arbitrary and language-dependent, and there seem to be languages that do not distinguish these domains but treat all nouns as mass nouns. Frequently, languages that adopt classifiers have been regarded as such by some semantic typologists(e.g., Gil 1989).

Korean adopts classifiers and, as the following examples show, does not seem to distinguish count and mass nouns syntactically.

(1) a. sakwa twu kay
apple two Cl(item) [Cl = Classifier]
'two apples'
b. mwul twu can
water two Cl(glass)
'two glasses of water'

Notice the parallel structures for NPs with the semantically count noun sakwa, and NPs with the semantically mass noun mwul. The structure shown in the examples, namely the "CN(Nominal)-Numeral-Classifier" structure, has been claimed or assumed to be the most unmarked quantificational structure in Korean (Lee 1989, Choe 1987, Kim 1984, and Im 1991, among others).

Also, there are many quantifiers (determiners or adjectives) that can go with any common nouns, irrespective of semantic countability. For example, manhun ('many/much') and cekun ('a few/a little') can be used with both kinds of nouns.

(2) a. manhun sakwa 'many apples'
b. manhun mwul 'much water'
(3) a. cekun sakwa 'a few apples'
b. cekun mwul 'a little water'

Above considerations seem to indicate the complete lack of distinction of count and mass nouns in Korean; however, there are many constructions which show that the distinction is in part maintained in Korean as in English. Most of the following observations are not new (Choe 1971, Kim 1984, Choe 1987, Lee 1989, among others). Here, I put these scattered observations together in order to set the stage for the semantic analysis to be given in later sections.

First, as commonly observed by traditional Korean linguists including Choe (1971), the plural marker -tul can be attached only to count nouns.

(4) a. sakwa-tul 'apples'
b.*mwul-tul 'waters'

Second, there are quantifiers (determiners, adjectives) that are sensitive to the count/mass distinction, such as kak ('each') and yele ('several').

(5) a. kak / yele sakwa 'each apple / several apples'
b.*kak / yele mwul 'each water / several waters'

As a special case of quantifiers, numerals cannot precede mass nouns but can precede some (human) count nouns.

(6) a. sey haksayng(-tul) (cf. *sey sakwa(-tul))

three student(-Plural)

b.*sey mwul(-tul)

three water(-Pl)

Third, some suffix particles denoting distributivity can be attached only to count nouns.

(7) a. sakwa-mata 'each apple'

b.*mwul-mata 'each water'

Fourth, numerals behaving as floated quantifiers are allowed only for (human) count nouns.

(8) a. haksayng(-tul)-i seys tochakhayssta.

student(-Pl)-Nom three arrived

'Three students arrived.'

b.*mwul-i seys nemchyessta.

water-Nom three overflowed

'Three waters overflowed. / Water overflowed three times.'

The above observations may not indicate the strong syntactic distinction between count and mass nouns attested by such pairs as shoes and footwear in English, as pointed out by a JEAL reviewer. However, the data clearly (but to a lesser degree than in English) show the syntactic manifestation in Korean of the semantic distinction between the count and mass domains. If Korean common nouns were completely indifferent to this distinction, there should exist no syntactic constructions which would show the differences of grammaticality judgments shown above. In this connection, one might claim that the syntactic distinction follows directly from and solely dependent on the ontological (semantic, non-linguistic) distinction of the count and mass domains. However, that this is not the case, namely that this distinction is still language-dependent to some extent can be shown with some Korean count nouns that may be translated as mass nouns in other languages. For example, Korean cengpo ('information') and chwunggo ('advice') for English information and advice, respectively.

(9) cengpo-tul / kak cengpo / cengpo-mata

Pl each each

Cf. *informations / *each information / *every information

(10) chwunggo-hana mos tulessta

advice-one not receive

'I have received no piece of advice.'

Cf. *I have not received an advice.

3. Semantics of Count Nouns

Now that we have distinguished count and mass nouns in Korean, we may expect that semantic domains of count nouns are atomic join-semilattices and those of mass nouns are (possibly) non-atomic join-semilattices, as claimed by Link (1983) for English cases. Yet, since some constructions do not differentiate the two kinds of nouns, exactly what is the semantic domain of a count noun, say sakwa or sakwa-tul? In English, as exemplified by Link (1983, 1987), Landman (1989), Bach (1989) and others, the singular apple denotes a set of singular individuals (apples) and the plural apples denotes an atomic join-semilattice based on the set of individual apples, minus that set of apples. In Link's LPM(logic for plurals and mass terms), apple denotes |apple'| and apples denotes |*apple'| - |apple'|, |.| being the

denotation (valuation) function. Here, |apple'| is the set of (singular) individual apples and |*apple'| is the atomic join-semilattice based on those individual apples. In Link's LPM, for any predicate P, |P| being a set of atomic (i.e. singular) individuals (entities), *P denotes an atomic join-semilattice based on the set |P|. Therefore, |*P| consists of singular individuals (i.e. |P|) and plural individuals, and |*P| - |P| consists of only plural individuals. See Link (1983).

Then, are we to consider the Korean sakwa to denote |apple'| and the Korean sakwa-tul to denote |*apple'|-|apple'|? The following examples seem to suggest that the answer should be in the affirmative.

(11) a. i / ce / ku sakwa
b. i / ce / ku sakwa-tul
this/that/the apple-Pl

When a demonstrative (or the definite determiner ku derived from a demonstrative ku) is used with a singular noun, the NP should denote a singular individual, and when it is used with a plural noun, the NP should denote a group of individuals (a plural individual). The simplest semantics to achieve this semantic effect is to assume that a singular noun denote a set of singular individuals and a plural noun, a set of plural individuals.

However, we need to consider more. Unlike the English counterparts, Korean singular nouns can be used in some plural contexts.

(12) a. sakwa hana / sakwa han kay / *sakwa-tul han kay
apple one apple one Cl apple-Pl one Cl
b. sakwa twul / sakwa twu kay / sakwa-tul twu kay
apple two apple two Cl apple-Pl two Cl

(13) a. han haksayng / *han haksayng-tul ('one student')
b. twu haksayng / twu haksayng-tul ('two students')

As can be seen, the syntactically singular sakwa and haksayng are used in both semantically singular and plural contexts. This suggests that, unlike the English counterpart, the semantic domain of a Korean singular noun should not be restricted to a set of singular individuals. It seems that the semantic domain should include both singular and plural individuals. On the other hand, the semantic domain of a plural noun (with -tul)
seems to be the same as the English counterpart, as evident from the ungrammatical expressions shown above. We can say *han haksayng ('one students') no better than we can say *one boys in English. All told, the singular sakwa denotes |*apple'| and the plural sakwa-tul denotes |*apple'|-|apple'|, namely a set of plural individuals. Further evidence for this semantic treatment may be provided by some sentences with indefinite NPs.

(14) a. sakwa-ka chayksang wui-ey issta.
apple-Nom desk top-at exist
'There is/are apple(s) on the desk.'
b. sakwa-tul-i chayksang wui-ey issta.
apple-Pl-Nom desk top-at exist
'There are apples on the desk.'

While the plural sakwa-tul implies more than two apples, the singular sakwa implies one or more apples.

Then, demonstratives and definites may cause a problem. If sakwa denotes |*apple'|, namely a set including both singular and plural individuals, why does i/ce/ku sakwa denote only a singular individual (object), not a group of individuals? The solution might be to

assume that demonstratives look into the domain of CN denotations, which clearly discern singular objects from plural objects. Although sakwa denotes |*apple'|, when it is used with the demonstrative i/ce/ku, only |apple'|, which is included in |*apple'|, is relevant. As for the syntactically (morphologically) plural, i/ce/ku sakwa-tul, it only denotes a group of apples, so i/ce/ku in this case is different from those with singular CNs. In other words, one kind of i/ce/ku is singular in that it is used with a (syntactically) singular CN and concerns only a (semantically) singular domain within the general (singular/plural) domain provided by the CN; and the other is syntactically plural in that it is used with a syntactically plural CN and concerns the semantically plural domain that is provided by the plural CN.

The point of this analysis is that a Korean singular CN (without -tul) provides a general semantic domain including both singular and plural individuals, and that many constructions such as the [CN-Numeral-Classifier] construction exploit this general semantic domain in a simple way, but other constructions such as demonstrative ones use this domain to get the needed singular (or plural) domain contained in the general domain. We have seen a case where a singular domain is selectively used, and possibly we may have a case in which only a plural domain is used. For example,

(15) a. ?i-tul/ce-tul/ku-tul sakwa
this-Pl/that-Pl/the-Pl apple
b. ?i-tul/ce-tul/ku-tul haksayng
this-Pl/that-Pl/the-Pl student

These expressions seem rather marked but can be used as follows.

(16) a. i-tul sakwa-ka cham masisse pointa.
this-Pl apple-Nom very delicious look
'These apples look very delicious.'
b. ce-tul haksayng-ul com poseyyo.
that-Pl student-Acc please look-at
'Please look at those students.'

Here, when i-tul / ce-tul / ku-tul is used with a syntactically singular CN, which denotes the general domain including singular and plural individuals, it selects only the domain of plural individuals for interpretation.

Before leaving this section, I wish to outline a semantic analysis with a general semantic domain given above for singular CNs with numerals.

(17) a. han haksayng-i / haksayng hana-ka oassta.
one student-Nom student one-Nom came
'One student came.'
b. twu haksayng-i / haksayng twul-i oassta.
two student-Nom student two-Nom came
'Two students came.'

If we adopt Link's (1987) analysis of plurality based on Generalized Quantifier theory (Barwise and Cooper 1981), the NPs in the above sentences are indefinites with the following translations, respectively.

(18) a. \P-]x[P(x) & *student'(x) & Cardi(x) = 1]
b. \P-]x[P(x) & *student'(x) & Cardi(x) = 2]

Here, x ranges over both singular and plural individuals, P ranges over predicate denotations composed of both singular and plural individuals, and Cardi(x) means the number of atomic individual parts (singular individuals) which a singular or plural individual x is composed of.

Notice that since haksayng is assumed to denote |*student'|, not |student'|, these syntactically identical sentences can be analyzed in a parallel fashion with exactly the same mechanism: any "Num + CN(singular)" or "CN(singular) + Num" constructions are translated as follows.

(19) \P-]x[P(x) & *CN'(x) & Cardi(x) = Num']

In a theory where indefinites have no quantificational force, such as Kamp's (1981) and Heim's (1982) Discourse Representation Theory, the discourse representation structure (DRS) would be as follows. (I give the notation of the DRT now in anticipation of relating my analysis to the discussions in the next section (section 4) and section 6.)

(20) Num + CN(sg) or CN(sg) + Num

```
_____________
. x
  *CN'(x)
  Cardi(x) = N
_____________
```

I have not given the semantics for constructions with classifiers such as haksayng han myeng, which ultimately should have a similar semantic treatment as han haksayng. This general construction for numerical quantification, which include mass nouns, will be handled later. Before that, in the next section, let us consider more about the point made earlier: a general semantic domain can be exploited selectively in certain constructions. In fact, we will see that natural language allows more than this. In certain constructions, a semantic domain can be manipulated in a more active way. This point can be made with respect to Partee's (1988) discussion of the English quantifier many.

4. Many in English and Flexible Interpretive Domains

Partee (1988) semantically distinguishes two meanings of many in English, one proportional and the other cardinal. For example,

(21) Many students arrived.

This sentence has two readings: 1) Among (the) students, many of them, i.e. a large percentage of them, arrived (proportional reading); 2) The number of students who arrived is large enough, above some standard (cardinal reading). In the former reading, that many students arrived does not imply that many people arrived, while in the latter the implication holds. The latter is a fact of persistency of determiner meanings (Barwise and Cooper 1981). Partee also points out the differences between the two many's in terms of "positive strong", "weak", and "intersective" properties.

All told, the two many's should be differentiated and be given different logical forms. Partee's proposal in the framework of Kamp-Heim style discourse representation theory is given below for the above sentence.

(22) DRS for proportional (quantificational) reading
[notation adjusted]

```
   OPERATOR          RESTRICTOR        MATRIX SCOPE
_____________    _____________
     . x
```

many student'(x) arrived'(x)

(23) DRS for cardinal reading: existential quantifier implicit

. x
**student' (x)
many (x)
arrived' (x)

(Above, |**student'| = |*student'| - |student'|.) There are several things to note. 1) The DRS for proportional reading is essentially the tripartite structure which is assumed for any quantificational structure in a Kamp-Heim style discourse representation theory. Its interpretation is as follows: many instances (of individuals) satisfying the restrictor also make the matrix true, hence the proportional reading. 2) This is as good as treating many on a par with other quantificational determiners such as every, and each. 3) The DRS for cardinal reading assumes some semantic theory allowing plural individuals, such as Link's, which is assumed in this paper. The interpretation is: there is some plural individual (a group) of students whose cardinality is many and which arrived.

But the most remarkable thing which I notice is that for the proportional reading, even though the plural students provides only a plural domain |*student| - |student'|, the singular domain |student'| is crucially used. This is as much as to say that the proportional many looks into the domain of plural individuals and get the singular domain from this. This is more than selecting the singular domain from the general domain as with Korean singular CNs. Certainly, a singular domain can be recoverable from a plural domain because the latter is a join-semilattice based on the former.

Similar facts can be observed in Korean, too.

(24) a. manhun haksayng-i oassta.
many student-Nom came
b. manhun haksayng-tul-i oassta.
many student-Pl-Nom came

Both of these sentences have two readings, proportional and cardinal. As in the case of English many, manhun triggers semantic domain shift no matter what semantic domain the CN provides directly.

In this section, I have argued mostly on the basis of the representations of DRS that Partee used. We may not want to adopt the theory and proceed more in line of the classical Generalized Quantifier Theory as Link (1987) pursued. But the point is that no matter what framework we adopt, the two readings Partee observed should be recognized, in Korean as well as in English. Moreover, to give a successful semantics, we need some kind of mechanism allowing semantic domain selection or shift. Broadly speaking, this seems to be an instance of type shifting frequently occurring in natural language semantics (Partee 1987). This kind of flexibility of the CN denotations may be more graphically revealed in the semantics of classifiers in Korean, as will be discussed in the next section.

5. Semantics of Classifiers

As mentioned in the first part of this paper, the canonical quantificational construction in Korean is: "CN(Nominal) + Numeral + Classifier". This structure is for both count and mass nouns. In an earlier section, I gave an outline of the semantics for count nouns with numerals, but not for those with classifiers. Here, I will try to give a semantics for classifiers both for count and mass nouns. For example,

(25) a. mwul twu can
water two Cl(glass)
b. chayk twu kwen
book two Cl(volume)

Basically, I treat classifiers as the semantic domain shifters in the following sense. The semantic domain |water'| is a (possibly) non-atomic join-semilattice composed of bits of water. The classifier can('glass') shifts this domain to a new one composed of glasses of water (or bits of water measured by the glass), the latter being an atomic join-semilattice. This shift is a major one from a mass domain to a count domain. Compared with this, kwen shifts an already count domain (atomic join-semilattice) to the same domain, i.e. an identity mapping, where the effect of the classifier is minimal. But even a count domain may be mapped to a different count domain as follows.

(26) a. chayk twu mukkum
book two Cl(bundle)
'two bundles of books'
b. sakwa twu sangca
apple two Cl(box)
'two boxes of apples'

When an inappropriate classifier is used we have an awkward expression with respect to both mass and count nouns.

(27) a.*mwul twu kwen
water two Cl(volume)
b.*chayk twu can
book two Cl(glass)

Therefore, we can regard the denotation of a classifier as a function from an "appropriate" domain to another (count) domain. For example, the meaning of can is a function from some semantic domain of liquid such as water, wine, or milk to a count domain of glasses of liquid. The domain of books is not an appropriate argument for this function. Similarly, the meaning of kwen is a function whose domain includes the domains of books, notebooks, and journals but does not include the domain of water.

To use a logical notation, mwul twu can and chayk twu kwen may be translated as follows.

(28) a. \x[fcan(water')(x) & Cardi(x) = 2]
a. \x[fkwen(*book')(x) & Cardi(x) = 2]

Then, the Numeral-Classifier parts (twu can, twu kwen) can be translated as follows.

(29) a. \P \x[fcan(P)(x) & Cardi(x) = 2]
a. *P \x[fkwen(*P)(x) & Cardi(x) = 2]

Here, the functions fcan and fkwen are what the classifiers provide as semantic domain shifters. (fkwen here happens to be an identity mapping.)

The semantic treatment of classifiers as essentially domain shifters makes possible an

appropriate handling of our semantic intuitions on classifier mismatches. The mismatch of a classifier and a common noun is not a matter of truth condition, because, for instance, when there are three books, the following sentence is not judged false even though it is not judged to be true either.

(30) *chayk sey can-i issta.
book three Cl(glass)-Nom exist
'There are three books.'

Nor does it seem to be a matter of pure grammaticality. The above sentence does not seem to be judged wrong as much as, or in the same way as, the following clearly ungrammatical sentence.

(31) *sey chayk kwen-i issta
three book Cl(volume)-Nom exist

I feel that the mismatch between a common noun and a classifier is neither a matter of truth condition nor a matter of grammaticality. It is more like semantic anomaly of sentences such as *Sincerity admires John. Namely, it is not so much a matter of grammaticality as a matter of selectional restriction. This intuition is well captured by my analysis because in this analysis appropriateness of the semantic domain for a function (domain shifter) is relevant, as with other cases of selectional restriction. For example, *The stone loves John is anomalous because stones are not in the domain of an appropriate argument for loves John.

6. Common Nouns, Kinds, and Genericity

Until now, we have seen examples where common nouns denote (sets of) individuals, singular and/or plural. Sometimes, common nouns seem to denote kinds rather than individuals (entities).

(32) sakwa-nun kwail-ui ilcong-ita.
apple-Topic fruit-Gen one-kind-be
'Apples are a kind of fruits.'

(33) sakwa-nun mas-issta / ppalkahta.
apple-Topic delicious / red
'apples are delicious / red.'

(34) kay-nun cicnunta.
dog-Topic bark
'Dogs bark.'

The first sentence means that the kind apple is a subkind of the kind fruit, and here sakwa seems to denote the kind apple. The next examples are a little different. These are related with genericity: generally, apples are delicious/red and generally, dogs bark. Although Carlson (1977) treated these cases (of English bare plurals) as kind-denoting, this may not be necessary in light of the semantic mechanisms that we are using. In addition, we notice that in all the above examples, the subjects are marked with the topic marker -nun. So, in discussing these examples, we need to consider topicality, too.

Carlson's (1989) recent "Relational" theory of genericity seems to shed light on this issue. His former theory (Carlson 1977) was an instance of "subject-predicate" analysis: Generic sentences arise out of a predicate to be predicated of an individual-denoting subject. The individual-denoting subject can be a kind-denoting one such as English bare plurals. In this case, the subject is interpreted (pseudo-) universally, and genericity and (pseudo-)

universality go together. However, Carlson notices many examples which cannot be explained by this theory of genericity. Simply, there are many generic sentences with non-universal subjects. For example,

(35) Hurricanes arise in this part of the Pacific.
[this example being ascribed to Milsark]

Here, there is a reading in which hurricanes is interpreted existentially, as well as the improbable reading that all the (or most) hurricanes arise at a specific spot of the ocean. To take another example,

(36) Robots build the new cars.

Here, we have a reading that most new cars are built by (some) robots. (Robots are used in other parts of the industry.) Moreover, there are generic sentences without an individual-denoting subject.

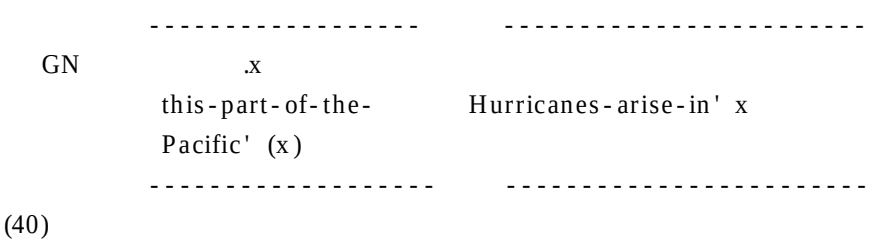
(37) It rains 50" a year here.

Carlson's conclusion is that generic sentences arise out of two elements: 1) a nongenerically interpreted sentence or predicate containing the sentence main verb, and 2) "something else". The latter can be a locative adverbial, an object, or the subject (in the most unmarked case). Even a discourse topic can be this "something else", as the following example shows.

(38) (TOPIC: What happens in the event of a fire?)
An alarm sounds.

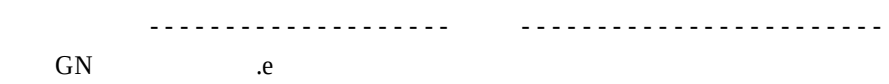
Carlson's relational theory of genericity can be directly incorporated into the tripartite structure of quantification in Discourse Representation Theory that we mentioned earlier. In the tripartite structure of quantification, we always need a restrictive clause and a nucleus scope besides the quantifier. In other words, the quantifier "relates" the restrictive clause and the scope. If we translate Carlson's idea into this theory, the nongenerically interpreted sentence or predicate containing the sentence main verb constitutes the nucleus scope part, and "something else" constitutes the restrictive clause part. We can assume that the quantifier in this case is a generic quantifier GN. For example, we may have the following semantic structures for Carlson's examples given above.

(39)



(40)

(41)



a-fire-arise-in' e an-alarm-sounds-in' e

The interpretation of the generic operator GN is not be so simple and may require some complex interpretation rule (cf. Schubert and Pelletier 1987, Lee 1992), but here, let us just note that for the generic sentences, we do not need a kind-denoting NP. Furthermore, a kind-denoting NP can be dispensed with even in the case of the subject since we can have the following structure for Dogs bark.

(42)

GN .x
dog' (x)
bark' (x)

The above analysis implies that for Korean cases, we ultimately need a set, rather than the kind, of dogs for interpretation. Namely, a Korean generic sentence like (34) may be represented with the DRS (42) and in this DRS we have dog', which denotes the set of individual dogs, not the kind dog. In Korean, the most relevant part for the generic interpretation is the topic marker used with bare plural NPs. This topic marker indicates the restrictive clause in the generic tripartite structure. Compare the following sentences.

(43) a. lopotu-nun catongcha-lul mantunta.
robot-Topic car-Acc make
'Robots build cars.'
b. catongcha-nun lopotu-ka mantunta.
car-Topic robot-Nom make
'Robots build cars. / Cars are build by robots.'

The first sentence roughly means that the general function of robots is to make cars, and the second means that most cars are made by robots.

The topic-restrictor mapping may be further illustrated with the following examples:

(44) a. Thayphwung-un i ciyek-eyse palsaynghanta
typhoon-Topic this area-in arise
'Most typhoons arise in this area.'
b. i ciyek-eyse-nun thayphwung-i palsaynghanta.
this area-in-Topic typhoon-Nom arise
'In most part of this area, typhoons arise.'

These sentences are not ambiguous, as the English counterpart is (Typhoons arise in this area). The topic is unambiguously mapped to the restrictor in the tripartite structure of quantification.

An implicit topic is relevant in Korean, too.

(45) (TOPIC: What happens in case of fire?)
cong-i wullinta
alarm-Nom sound
'An alarm sounds.'

Here, the discourse topic "in case of fire" constitutes the restrictor.

Of course, the topic marker is neither a sufficient nor a necessary condition for the

generic interpretation. When the NP is not a bare NP, even when the topic marker is used, the quantificational force is determined by the determiner, as in (46). In embedded sentences, when the stative verb is used, the topic marker is not necessary for genericity, as shown in (47).

(46) etten sakwa-nun masissta.
some apple-Topic delicious
'Some apples are delicious'

(47) a. ku-nun sakwa-ka masissta-ko malhayssta.
he-Topic apple-Nom delicious-Comp said
'He said that apples are delicious.'

b. ku-nun kay-ka cicnunta-ko malhayssta.
he-Topic dog-Nom bark-Comp said
'He said that dogs were barking.'

When a stative verb such as masiss- ('be delicious') is predicated to an NP with the subject marker, we certainly have a generic reading as well as the non-generic reading. But it is not clear whether we have the generic reading when an action verb such as cic- ('bark') is concerned. The fact that the topic marker is a strong indicator of genericity can be noticed if we replace the subject marker with the topic marker in the latter case.

(48) ku-ka kay-nun cicnunta-ko malhayssta.
he-Nom dog-Topic bark-Comp said
'He said that dogs bark.'

To sum up, the topic maker used with bare NPs in Korean is a strong indicator of genericity and it is natural with respect to the relational theory of genericity proposed by Carlson, for topic usually supplies the restrictive clause of the tripartite structure of quantification. Then does it imply that Korean common nouns do not need to refer to kinds at all?

From the theoretical point of view we may want bare NPs in Korean to refer to kinds rather than sets because NPs generally denote individuals (e.g. John) or generalized quantifiers (e.g. every man), not sets which are usual denotations of CNs. In this case, what we need is a means to get the set of dogs from the kind dog. This is provided by the property theory of Chierchia (1982), who identified kinds with nominalized property. To use his notation, the kind dog denotes |ndog'|, the individual correlate of the property |dog'|. So we can claim that dogs in dogs bark denotes |ndog'| and it will not be a long way to get |dog'| from it. The same treatment is possible in Korean (cf. Kang 1988).

As a matter of fact, we have cases where bare NPs should denote kinds and cannot be related with genericity.

(49) a. sakwa-nun i ciyek-ey nelli phecie issta.
apple-Topic this area-in widely spread be
'Apples are widespread in this area.'

b. sakwa-nun i ciyek-ui thuksanmwul-ita.
apple-Topic this area-Gen special product-be
'Apples are the special product of this area.'

The kind apple can be widespread, but it cannot be the case that generally an (individual) apple is widespread. So, bare NPs of this constructions really denote kinds. But this does not lead to the conclusion that common nouns in these constructions should denote kinds rather than sets, since sets can be related with kinds if the latter are considered to be

nominalized properties. In short, there is no evidence yet that Korean common nouns should denote kinds or that they are ambiguous (i.e. kind-denoting and set-denoting).

Let us direct our attention to another reading. Lee (1982) observed some examples which seem to cause us to consider subkinds of kinds.

(50) i sakwa-ka masissta.
this apple-Nom delicious
'This apple is delicious.'

(51) i chayk-un 5000 won-ita.
This book-Topic 5000 won-be
'This book is 5000 won.'

Apparently these sentences are ambiguous. Either this particular apple is delicious or the apples of this kind are delicious. Either this particular book I am pointing at is 5000 won or books of this kind, say any book entitled Scarlett, written by Ripley, is 5000 won per copy.

Additional similar examples are as follows:

(52) motun sakwa-ka masissta
all apple-Nom delicious
'All apples (individual, subkind) are delicious'

(53) hankwuk-ey-nun sakwa-ka manhta
Korea-in-Topic apple-Nom many
'In Korea, there are many apples (individual, subkind).'

We have similar different readings in other languages. Repeating all the translated English sentences given above, we have similar cases of ambiguity.

(54) a. This apple is delicious.
b. This book is 5000 won.
c. All apples are delicious.
d. In Korea, there are many apples.

However, in Korean and in English, there are some constructions where this ambiguity disappears. For example,

(55) There are three apples.

(56) sakwa-ka seys issta
apple-Nom three exist
'There exist three apples'

(57) ku-nun sakwa seys-lul mekessta.
he-Topic apple three-Acc ate
'He ate three apples.'

With three apples, we do not mean three kinds of apples, and the situation is the same in Korean. Also, we can get rid of this ambiguity by means of different classifiers.

(58) a. na-nun sakwa yele kaci/conglyu-lul mekessta
I-Topic apple several Cl(sort)/Cl(kind)-Nom ate
'I ate several sorts/kinds of apples.'

b. na-nun sakwa yele kay/sangca-lul mekessta
I-Topic apple several Cl(item)/Cl(box)-Nom ate
'I ate several apples. / I ate several boxes of apples.'

All told, the different readings of CNs are permitted according to various syntactic constructions. These different readings are not random, but constitute a case of type flexibility (cf. Partee 1987) in the following sense. Each common noun is related with several

types: set of entities, set of kinds, set of subkinds, etc. In unmarked cases, the set-of-entities reading is readily available, and in some constructions, it is the only reading available; the set-of-kinds reading is available in some other constructions. In other words, the basic denotation of a common noun is a set of entities (singular or plural) and a derived reading is invoked by a sort of domain shifting. This is comparable to the domain shifting caused by classifiers discussed earlier. For example, in the domain of dogs, we can group individual dogs according to the subspecies of dogs and this constitute a new shifted domain of dogs. What is important is that the domain is flexible, and domain shifting is made possible because of the algebraic structure of the domain.

To sum up, we have examined three seemingly different readings of a common noun in Korean, kind, set of entities, and set of subkinds. All the three readings are required for some constructions but not in others. I have proposed that all the three readings are related with each other by means of domain shifting or type shifting operations operative on the algebraic structures of the denotations. This applies not only to Korean but also to other languages such as English, and it is comparable to the domain shifting by means of Korean classifiers discussed earlier.

7. Conclusions

The major point of this paper is that the semantic domains of common nouns in Korean (and English) are flexible. I started with the necessity of distinguishing count and mass domains for common nouns in Korean. Regarding the count domain, I analyzed the semantic domain of a singular noun in such a way that it included not only singular individuals but also plural ones. That allowed us to give a simple semantic analysis for "Numeral + CN(sg/pl)" or "CN(sg/pl) + Numeral" constructions. Some determiners, e.g., kak ('each'), seem to look into the general semantic domain and select a (singular) subdomain for its quantificational domain. This notion of domain selection needed to be extended to a more general notion of domain shifting when we considered proportional readings of English many and Korean manhun ('many'). In the join-semilattice domain of individuals envisaged by Link, this kind of domain shift is just natural. In this connection, the semantic contribution of a classifier could be appropriately handled: the classifiers function as domain shifters. This conceptualization enabled us to capture the semantic anomaly occurring from the mismatch of a common noun and a classifier.

I also discussed some important related problems. One such problem is "genericity" (Carlson 1977, 1989) exemplified by the following sentence.

(59) sakwa-nun masissta.
apple-Topic delicious
'Apples are delicious.'

As many, including Lee (1989), point out, sakwa here seems to mean the kind of apple, not an individual apple or apples. Then, is the singular sakwa ambiguous, i.e. kind denoting and count domain denoting? It may be handled as ambiguous or not. The important point is that in some quantificational constructions, and in the tripartite structure analysis of Carlson's (1989) relational theory of genericity, the count domain is needed anyway and this count domain should be available even if we decide to make sakwa basically denote the kind of apple. The kind apple and the count domain of apples can be related with each other with the help of the nominalization operator of Property Theory in semantics (Chierchia and

Turner 1988). The domain shifting analysis is further evidenced by another reading of common nouns, the subkind reading as in the following example.

(60) i sakwa-ka masissta.
this apple-Nom delicious
'This apple / this kind of apple is delicious.'

The shifting is possible since the domain of subkinds of apples is available from the algebraic structure of individual apples.

Notes

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PLURALITY AND OTHER SEMANTIC ASPECTS OF COMMON NOUNS IN KOREAN

Abstract

In this paper, I try to give the semantics of Korean common nouns in light of Link's (1983) semantic theory on denotations of plurals and mass terms. First, I show that the

semantic count/mass distinction of common nouns is as important in Korean as in English, despite the fact that the distinction is blurred in some constructions such as the canonical quantification structure of [CN(Nominal + Numeral + Classifier]. Then, the semantic domains of Korean count nouns are shown to be much like those of English count nouns except that the denotation of a syntactically singular count noun in Korean may include a semantically plural domain as well as a singular domain. For instance, using Link's Logic of Plurals and Mass Terms, sakwa in Korean denotes |*apple'|, rather than |apple'|, the latter being the denotation of English apple. Further, it is shown that the semantic domains of common nouns are much more flexible than may be thought, in Korean and even in English in some cases. This claim is made with respect to the proportional reading of English many, which was discussed by Partee (1988), and Korean manhun. In this connection, a possible semantic treatment of Korean classifiers as domain shifters is provided. This enables us to capture our semantic intuition about anomalous expressions such as *chayk ('book') - han ('one') - can (CL: 'glass'). Also, some problems closely related with the interpretation of common nouns, namely the problems of kinds, genericity and topicality are discussed. It is shown how these notions are related in the theory which allows flexible interpretive domains of common nouns.