Numeral Classifiers and Count Nouns

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Abstract

Classifier languages regularly use numeral classifiers, special expressions without counterparts in non-classifiers languages in numeral noun phrases relating to the number (e.g., counterparts of ‘three cows’). To explain the use of classifiers, many linguists and philosophers hold that all classifier language nouns are mass nouns (the mass noun thesis), while taking classifiers to have the same semantic function as measure words (the measure word account). This paper argues against this dominant view, and presents an alternative conception of classifiers and classifier language nouns. It argues that classifier languages, too, have count nouns as well as mass nouns (the count noun thesis), and that classifiers are paranumerals for one, namely, cousins of numerals for one figuring as mere syntactic peers of measure words (the paranumeral account). To substantiate these accounts, the paper discusses the Korean classifier system in detail, and formulates syntactic criteria for Korean count nouns by invoking Korean counterparts of various English devices matching only count nouns: ‘countless’, the adverbial use of ‘each’, etc. Many of those devices have direct counterparts in other classifier languages (e.g., Chinese and Japanese) that yield syntactic criteria for counts nouns of those languages.
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1. Introduction

Most Indo-European languages have a large group of common nouns that can combine directly with numerals. The English ‘cow’, for example, can do so to yield numeral noun phrases pertaining to the numbers of cows, such as the following:

(1) a. three cows

In this respect, English and other similar languages differ from a large and diverse group of languages that include, among others, Chinese, Japanese, and Korean. Common nouns of these languages do not usually combine directly with numerals. Typical translations of (1a), for example, into the languages include special expressions that meditate the combination of their counterparts of ‘three’ (numerals) with those of ‘cow’ (nouns). Consider the usual Korean translations of (1a):¹

(2) a. so sey mali
cow three CL
‘three cows’

b. sey mali-uy so
three CL-GEN cow
‘three cows’

¹To romanize Korean, I use the Yale romanization system. For the system, see, e.g., Sohn (1999, 2-3) or http://en.wikipedia.org/wiki/Yale_Romanization.
These phrases have an expression with no counterpart in (1a), mali, that accompanies the numeral sey ‘three’ while matching the noun so ‘cow’. Such special expressions are called *numeral classifiers* (in short, classifiers). And languages with a substantial system of numeral classifiers are called *numeral classifier languages* (in short, *classifier languages*).

What is the reason for the difference between classifier languages and the other, *non-classifier* languages? Why does Korean, for example, employ classifiers while a majority of languages of the world can do without them? And what is the function of classifiers?

Most contemporary accounts of classifiers approach these questions by taking classifier languages to differ radically from the other languages (e.g., English) in the system of common nouns. They hold that while non-classifier languages have two kinds of common nouns, *count nouns* and *mass nouns*, classifier languages have only one of the two kinds, mass nouns. That is, they hold a thesis about classifier languages that I call the *mass noun thesis*:

2The particle -uy in (2b) is a genitive case marker. It differs from the English preposition ‘of’ in that it is a postpositive marker; the English translation of ku ai-uy emma [that child-GEN mother], for example, is ‘that child’s mother’, not ‘that child of (the) mother’. So (2b) does not draw a syntactic parallel with English measure word phrases, e.g., ‘three cups of milk’.

3Classifiers accompanying numerals are called *numeral classifiers*. They are the most commonly recognized kind of classifiers, but there are other kinds: noun classifiers, verbal classifiers, etc. See, e.g., Allan (1977), Craig (1994), and Aikhenvald (2000). I do not discuss classifiers of the other kinds. So most of the time, I use classifier interchangeably with numeral classifier, and accordingly classifier languages with numeral classifier languages.

4See Aikhenvald (2000, 121ff) and Gil (2008, §3) for distribution of classifier languages. Although most Indo-European languages do not have a classifier system, some of them used in Asia (e.g., India) do. See, e.g., Emeneau (1964) and Aikhenvald (2000, 102).

5Hansen uses the term “the mass noun hypothesis” (1983, Ch. 2) in presenting his view of Chinese common nouns. Prominent proponents of the thesis include Allan (1977, 293f), Sharvy (1978), Hansen (1983), Lucy (1992, 89), Gil (1992, 324), Krifka (1995), Link (1998, 214ff), Chierchia (1998), and Borer (2005, 93f). Among these, Sharvy (1978) and Borer (2005) hold a stronger thesis: all common nouns of all languages are mass nouns. See also Quine (1969, 35ff) and
Mass Noun Thesis:

(a) Classifier languages have no count nouns; and (b) all the common nouns of the languages are mass nouns.

This thesis yields an explanation of why classifier languages employ classifiers in numeral noun phrases. No classifier language nouns can combine directly with numerals, because mass nouns (e.g., ‘water’) cannot do so. And this explanation leads to an account of the semantic function of classifiers. Mass nouns require measure words to mediate their combination with numerals, as in

(1) b. three liters of milk

where the measure word ‘liter’ specifies the unit for measuring the quantity of milk. Similarly, classifier language nouns would require measure words to mediate their combination with numerals. If so, classifiers matching them might be considered measure words. So the mass noun thesis is commonly held together with the thesis about classifiers that I call the measure word thesis:

The measure word thesis about classifiers:

Numeral classifiers are a kind of measure words, that is, they have the same semantic function as the measure words that can be found in non-classifier languages.

The two theses, the mass noun thesis and measure word thesis, form the standard conception

Greenberg (1972), who hold views congenial to the mass noun thesis. It is notable that Gil, who holds the thesis in his (1992), rejects it in his later work, Gil (2008) (see §5.5).
of classifiers in contemporary linguistics. Most accounts of the syntax and semantics of classifiers and of classifier language nouns assume both. Those accounts can be seen to differ from each other in giving different analyses of (a) what distinguishes between mass and count nouns of non-classifier languages, and of (b) what are the functions of measure words. I think such accounts are fundamentally mistaken because both theses are wrong.

It is wrong to take common nouns of classifier languages to be homogeneous. I think classifier languages, like other languages, have count nouns as well as mass nouns. Some who agree to this might still hold that classifier languages draw a distinction between mass and count nouns only as a *semantic* distinction that is not reflected in their *morphology* or *syntax*. I disagree. I think classifier languages, like others, draw a morphosyntactic distinction between mass and count nouns.

So I propose a thesis opposite to the mass noun thesis:

\textit{Count Noun Thesis}:

\begin{itemize}
\item [(C1)] Classifier languages have count nouns as well as mass nouns.
\item [(C2)] Classifier languages have morphosyntactic devices for distinguishing count nouns from mass nouns.
\end{itemize}

For example, the Korean \textit{so} ‘cow’ is a count noun. And it can be distinguished syntactically from Korean mass nouns: \textit{mwul} ‘water’, \textit{wuywu} ‘milk’, \textit{sokoki} ‘beef’, etc. Unlike mass nouns, it can

\textsuperscript{6}Doetjes (1996) reaches a view close to this, but ends up holding a version of the mass noun thesis. She holds that count nouns of classifier languages are a special kind of mass nouns: “count mass nouns”, nouns that are “syntactically mass” albeit “semantically count” (\textit{ibid.}, 34). See also Cheng & Sybesma (1999, 520) and Chierchia (2010, 143). Their views are discussed in §2.3.1 and §3.2.
combine directly with quantifiers that relate specifically to the number: *mwuswuhan* ‘countless’, *swuman(h)un* ‘very many’, etc. (see (3a)–(3b) in §2).

If so, what is the function of the classifier *mali* figuring in (2a)–(2b)? Why does the noun *so* ‘cow’ take the classifier in these phrases while the English ‘cow’ combines directly with ‘three’?

To answer these questions, it is important to distinguish classifiers from their various syntactic peers, which include measure words. Proponents of the measure word thesis take classifiers and all their syntactic peers to be *semantically* as well as syntactically, *homogeneous*, and identify their common semantic function as that of measure words. But the assumption of semantic homogeneity is clearly wrong. Syntactic peers of classifiers include not only (a) measure words, which are themselves of various kinds, but also (b) *paranumerals*, cousins of numerals. These are classifier language counterparts of paranumerals of non-classifier languages, such as the English ‘pair’, ‘couple’, ‘brace’, ‘dozen’, ‘score’, etc. The English paranumerals can mediate the combination of nouns with numerals, as in the following:

(1)  
   c. three **pairs** of gold rings  
   d. three **brace** of deer  
   e. three **dozens** of pencils  
   f. three **scores** of men

These phrases draw parallels to measure word phrases (e.g., (1b)), and the paranumerals figuring

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7Some use ‘(numeral) classifier’ broadly to apply it to measure words as well. I use it in the strict sense, and contrast classifiers in this sense with their various syntactic peers. I use ‘numerative’ for a broader class that includes classifiers and their syntactic peers. See §§4.3-4.4.
in them can be considered syntactic peers of measure words (e.g., ‘liter’). But the paranumerals cannot be taken to have the same semantic function as measure words. They have clear semantic ties to numerals for 2, 12, and 20. So they can match only count nouns, just as (regular) numerals can directly combine only with count nouns. And the numeral noun phrases involving paranumerals differ from those involving measure words in that they relate to the numbers of some things, not to the amounts thereof. (1c), for example, relates to the number of gold rings, whereas (1b) relates to the amount of milk. It is the same with classifier language counterparts of English paranumerals: they have semantic ties to numerals and differ semantically from measure words.

How about classifiers? They are closer to paranumerals than to measure words. They can match only count nouns, and (2a)–(2b), for example, relate to the number of cows, not to the amount thereof. The reason, I think, is that classifiers are also paranumerals. They differ from the usual paranumerals in that they relate to the number one while the usual paranumerals relate to larger numbers. Now, let me use the term ‘numerative’ for the broad syntactic class that includes measure words, paranumerals, and various kinds of syntactic peers thereof. Then the above account of numeral classifiers can be formulated as follows:

The *paranumeral account* of classifiers

Numeral classifiers are paranumerals for the number one serving as numeratives.

On this account, classifier languages differ from non-classifier languages in that they (a) introduce paranumerals for one as syntactic peers of measure words and of other paranumerals, and (b) employ them regularly in numeral noun phrases relating to the number.

The paranumeral account matches well with the count noun thesis. They support each other,
and form the core of an alternative to the standard conception of classifiers and of classifier language nouns. It is this alternative conception that I propose and develop in this paper. To do so, I present analyses of nouns and classifiers of Korean, the classifier language I am familiar with, and suggest how the analyses can be extended to other classifier languages.

In the next section, §2, I argue that the usual criteria for count nouns stemming from Jespersen (1924) are not applicable to classifier languages, but that we can extend one of them, the quantifier criterion, to support the count noun thesis. In §3, I elaborate on the count noun thesis by discussing the nature of count nouns of classifier languages. I argue against those who, like Doetjes (1996) and Chierchia (2010), compare those nouns to pseudo-mass nouns of English (e.g., ‘furniture’), which I think are hybrids between mass and count nouns, and argue that they are robust count nouns, namely, count nouns that can be distinguished from mass nouns by syntactic criteria comparable to those one can use to draw the mass/count distinction for non-classifier languages. In the next two sections, §§4-5, I discuss one specific classifier language, Korean, in detail to substantiate both the count noun thesis and the paranumeral account. In §4, which has an overview of Korean classifiers and numeratives, I propose and defend the paranumeral account of the function of classifiers. In §5, I substantiate the count noun thesis by discussing various Korean devices with transparent connections to English devices that yield syntactic criteria for count nouns: ‘countless’, the adverbial use of ‘each’, ordinal numerals, etc. In §6, I conclude with remarks that unite discussions in the earlier sections from a broader perspective.

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8See also my (2008; 2009; 2010; 2011a; 2011b).

9Many of the Korean devices have direct counterparts in Chinese and Japanese. See notes at the ends of §§5.1-5.5.
2. Classifier Languages and the Mass/Count Distinction

The distinction between mass and count nouns stems from Otto Jespersen’s work on English.\textsuperscript{10} In *The Philosophy of Grammar* (1924), a work devoted to the principles of grammar that focuses on English while relating it to some other European languages, he distinguishes “mass words” or “uncountables” from “thing-word[s]” or “countables” (*ibid.*, 198f & 240). He says, (a) “the notion of [grammatical] number” is “logically inapplicable to mass-words” (*ibid.*, 200), and (b) “While countables are ‘quantified’ by means of such words as *one, two, many, few*, mass-words are quantified by means of such words as *much, little, less*” (*ibid.*, 198). These remarks yield the usual criteria for distinguishing count nouns from mass nouns:\textsuperscript{11}

(A) the *morphological criterion*:

Count nouns have singular and plural forms; mass nouns do not.

(B) the *numeral criterion*:

Count nouns can directly combine with numerals; mass nouns cannot.

(C) the *quantifier criterion*:

Count nouns, unlike mass nouns, can directly combine with ‘many’ and ‘few’; mass nouns, unlike count nouns, can directly combine with ‘much’, ‘little’, ‘less’.

\textsuperscript{10}Edkins anticipates the distinction in his studies of Chinese (1857, 108-111; 1864, 115-118; 1868, 81) although his distinction is mostly semantic. See §4.4.

\textsuperscript{11}See, e.g., Pelletier & Schubert (2003, 250) and Bunt (1985, 12f) for elaborations of the criteria.
These criteria are formulated for English and other similar languages, and invoke devices specific to the languages. Can we apply them to classifier languages?¹²

The quantifier criterion, as it stands, is not applicable to most classifier languages. The languages do not have exact counterparts of ‘many’ and ‘few’, nor of ‘much’, ‘little’, and ‘less’. Instead of ‘many’ and ‘much’, Korean, for example, has one word, man(h)-, that covers the territories of both. That is, its English counterpart is ‘a lot’ or ‘a lot of’, which can combine with both mass and count nouns, as in ‘a lot of milk’ and ‘a lot of cows’.¹³ How about the other criteria? Common nouns of most classifier languages do not take singular or plural forms. And their nouns usually take classifiers, measure words, or other numeratives to combine with numerals. Can we then conclude that all classifier language nouns are mass?

2.1. The Quantifier Criterion

¹²Chierchia (1998) gives much weight to a different kind of criterion: count nouns cannot figure as “bare singular nouns”, that is, they cannot form noun phrases unless they take plural forms or are supplemented by determiners. He uses this criterion, the bare noun criterion, to conclude that all classifier language nouns are mass nouns. See also Quine (1960, 95-100), who notes that mass nouns can figure like proper names or “singular terms”, and Longobardi (1994), who holds that “singular nouns that allow a count interpretation . . . are excluded from the articleless construction” (ibid., 633). But the bare noun criterion holds for most contemporary European languages because they have a substantial determiner system that includes articles essentially as noun markers. If fails for, e.g., classical Latin. The language, which has no articles, allows bare singular nouns:

    poēta recitābat. [Phinney et al. (1988, 91)]
    poet.sg.NOM was.reciting
    ‘A poet was reciting’

Similarly, classifier language nouns (including count nouns) can figure without determiners.

¹³But Korean has a phrase that means many: swu-ka man(h)- ‘a lot in number’. See §5.1.
I think not. Although the Korean man(h)- ‘a lot’ combines with both mass and count nouns, Korean has other quantifiers that relate specifically to the number: swuman(h)un ‘very many’, mwuswuhan ‘countless’, etc. And some Korean nouns (e.g., so ‘cow’) can directly combine with those quantifiers, while others (e.g., wuywu ‘milk’) cannot:

(3) a. swuman(h)un so
   very.many cow
   ‘very many cows’

b. mwuswuhan so
   countless cow
   ‘countless cows’

(3*) a. *swuman(h)un wuywu
   very.many milk
   ‘*very many milk’

b. *mwuswuhan wuywu
   countless milk
   ‘*countless milk’

So it is straightforward to extend the quantifier criterion, (C), to reach the conclusion that Korean has count nouns.

Invoking the quantifier msuswuhan ‘countess’, for example, we can formulate a complete syntactic criterion for Korean count nouns:
[KC1] The ‘mwuswuhan’ criterion:

A common noun of Korean is a count noun if and only if it can combine directly with mwuswuhan ‘countless’ (without shifting to a subsidiary or deviant use).

The justification for this as a criterion for count nouns should be clear. It is the Korean counterpart of a criterion for English count nouns:

The ‘countless’ criterion:

A common noun of English is a count noun if and only if it can combine directly with ‘countless’ (without shifting to a subsidiary or deviant use).

And this is clearly an alternative to the usual criterion for English count nouns that invokes ‘many’:

The ‘many’ criterion:

A common noun of English is a count noun if and only if it can combine directly with ‘many’ (without shifting to a subsidiary or deviant use).

And one can apply [KC1] to Korean nouns to conclude that so ‘cow’, for example, is count while wuywu ‘milk’ is not. For (3b) is well-formed while (3*b) is not.

Some might object that [KC1] is not a good criterion for count nouns because (3*b), for example, is also well-formed. For one can use wuywu ‘milk’, like its English cousin, to mean, e.g., cups of milk in some contexts (e.g., in restaurants). But this does not raise a problem for [KC1]. The primary meaning of wuywu, like that of its English cousin, is milk, and this explains why (3*a)
strikes one as ill-formed unless one has a second thought. Although one might give an interpretation of the noun that renders the phrase well-formed as the objection suggests, one can do so only by having the noun shift to a subsidiary or deviant use. By contrast, so ‘cow’ can combine directly with the quantifier *mwuswuhan* ‘countless’ without shifting to such a use. So [KC1] correctly rules *wuwyu* ‘milk’ as non-count while ruling so ‘cow’ as count.¹⁴

2.2. The Numeral Criterion

Although the usual quantifier criterion does not directly apply to Korean, we have seen, it is straightforward to modify the criterion to conclude that Korean has count nouns, such as so ‘cow’. If so, why does this noun, for example, take a classifier, *mali*, to combine with numerals in (2a)–(2b)? And why does it not take a plural form in (3a)–(3b)?

The answer to the first question lies in the paranumeral account:¹⁵ the reason that so ‘cow’ takes a classifier in (2a)–(2b) is not the same as the reason that the mass noun ‘milk’ takes ‘liter’ in (1b), because classifiers differ semantically from measure words. Korean, as a classifier language, introduces *paranumerals for one* as numeratives (viz., as classifiers), and employs them in numeral noun phrases relating to the number. Now, the classifier *mali* can be taken by so ‘cow’ to yield such

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¹⁴Note that the parenthetical qualification is required in the ‘many’ and ‘countless’ criteria as well, because the English ‘milk’ also has count uses. Some might argue that all common nouns of all languages have both mass and count uses and, moreover, that they cannot be distinguished into core and subsidiary uses. See, e.g., Gleason (1965, 134-137), Pelletier (1975), and Borer (2005, Ch. 4). I do not think this view is correct: the English ‘water drop’ and its classifier language counterparts, for example, have no mass noun uses that are on a par with their primary, count noun uses. See my (2010, §4.5).

¹⁵The answer given below assumes the paranumeral account, which is defended in §4.4.
noun phrases (e.g., (2a)–(2b)) because it is a paranumeral matching the noun. And (2a)–(2b) mean *three cows* because three times *one* is three just as (1d), ‘three *brace* of deer’ (where ‘brace’ is a paranumeral for two), means *six deer* because three times *two* is six.

2.3. Plural Morphology

Similarly, the answer to the second question is: the reason that the Korean *so* ‘cow’ does not take a plural form is not the same as the reason that the English ‘milk’ does not. The English ‘milk’ has no plural form because it is not a noun that relates to *individuals belonging to a kind* to which *numbers* (e.g., one, two, three) are applicable. This explains why it can *neither* directly combine with numerals, *nor* take paranumerals, *nor* directly combine with quantifiers specifically relating to numbers: ‘*three {pairs, dozens}* of milk’ and ‘*countless milk*’ are as ill-formed as ‘*three milk*’. The reason that the Korean *so* has no plural form cannot be the same. Although it usually takes classifiers in numeral noun phrases, it can directly combine with counterparts of ‘very many’ and ‘countless’, as in (3a)–(3b), and take paranumerals, as in the following: 16

(2) c. so sey ssang

  cow three pair

  ‘three pairs of cows’

d. sey ssang-uy so

  three pair-GEN cow

\[\text{16And the noun can directly combine with some numerals. See §4.1 and §5.6.1.}\]
‘three pairs of cows’

If so, what is the reason that the noun does not take a plural form?17

The reason is two-fold. First, common nouns of most classifier languages, whether mass or count, have neither singular nor plural forms because the languages do not have a **grammatical number system**. Second, count nouns of languages without a grammatical number system18 are (semantically) **neutral** about the number of things they denote.19 That is, they can denote (a) any **two or more** of the individuals they denote as well as (b) any **one** of them. Let me explain.

### 2.3.1. Languages Without a Grammatical Number System

17The morphological criterion fails also for languages that allow plural forms of mass nouns by assigning a different function to pluralization. Greek mass nouns take plural forms without shifting to count nouns (their plural forms cannot take numerals), according to Tsoulas (2006, §§4-5). He suggests that the pluralization of mass nouns have a different function from the usual pluralization (which applies only to count nouns), and Chierchia suggests that the former functions like “an intensifier like ‘a lot of’” (2010, 109). Note that the English ‘water’ also has the plural form ‘waters’ that the *Oxford English Dictionary* says “is often used instead of the sing. esp. with reference to flowing water or to water moving in waves” while mentioning its cousins in other languages: the French *eaux*, Latin *aqua*, and Greek *όδος τόξων* (OED 1989). See also Jespersen (1924, 199) and McCawley (1975, 172f).

18Such languages include most, if not all, classifier languages, but not vice versa.

19I use ‘denote’ essentially as Mill (1891, Bk. 1, Ch. 2) does, while using ‘relate to’ more broadly (and ambiguously) for a variety of semantic relations. While Mill applies ‘denote’ essentially to singular forms of count nouns (which he does not distinguish from the nouns themselves) or, as he calls them, “general names”, I apply the term to their plural forms (and to the nouns themselves) as well. While the singular form ‘cow’ denotes any one cow and cannot denote two or more cows (taken together), on my view, the plural form ‘cows’ (and the noun itself) can denote two or more cows (taken together) as well. For this view of the semantics of plural constructions, see, e.g., my (1995; 1996). See also footnote 25.
Common nouns of most classifier languages do not take plural forms because the languages do not have the singular/plural morphology. Some might take this to mean that those nouns always take singular forms. Doetjes, for example, assumes this to conclude that all classifier language nouns are “syntactically mass”, namely, that they are like English mass nouns in that their “bare noun form is a singular” (1996, 34):^20

In languages such as Chinese [i.e., classifier languages] all nouns behave syntactically as mass nouns. In the first place, there is no real plural morphology in Chinese. A bare singular form can be used both for a singular and for a plural . . . shu [means] book(s) [i.e., a book or books] . . . . (Ibid., 41; my underline)^21

But it is one thing to say that classifier language nouns do not take plural forms, quite another to say that they are singular in form. One can take the English mass noun ‘water’, for example, to be singular (or might even take it to always take the singular form), because it has singular concords, as in ‘Water is heavy’ or ‘Three liters of water is heavy.’ This is because English has a grammatical number system, which treats most mass nouns syntactically on a par with singular forms of count nouns. But most classifier languages, including Korean, Chinese, and Japanese, have no

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^20See also, e.g., Cheng & Sybesma (1999, 21) and Chierchia (2010), where he holds that in classifier languages, “every noun has a macro syntax similar to that of mass nouns in English” (ibid., 107), and that “classifier languages . . . display a class of cognitively count nouns with the morphosyntax of mass nouns” (ibid., 111; my italics).

^21Doetjes gives another reason to support the conclusion: nouns of Chinese (and other classifier languages) require classifiers (or other numeratives) to combine with numerals. But this does not yield the conclusion, as we have seen in §2.2. Moreover, many classifier languages have optional classifiers or incomplete classifier systems. See §4.1.
grammatical number system whatsoever. In particular, they do not have a singular/plural morphology. This means not only that they have no “plural morphology”, but also that they have no “singular morphology”, either.

So Korean nouns, for example, have no singular or plural forms for the same reason that Korean verbs have no such forms. Consider, for example, the Korean counterparts of ‘He likes music’ and ‘They like music’:

(4) a. Ku-ka umak-ul co(h)aha-nta.
   He-NOM music-ACC like-DECL
   ‘He likes music.’

   b. Ku-tul-i umak-ul co(h)aha-nta.\(^{22}\)
   He-PL-NOM music-ACC like-DECL
   ‘They like music.’

In these sentences, the Korean verb *co(h)aha*—‘like’, unlike its English counterpart, does not take different forms. In particular, it does not take a singular form in (4a). This does not mean that the verb carries along its *plural form* even to combine with the “singular” subject *ku* ‘he’. The verb itself (taking the declarative ending *-nta*) figures without taking a singular or plural form in

\(^{22}\text{In (4b), the particle *-tul* is suffixed to the pronoun *ku* ‘he’ to yield a pronoun amounting to ‘they’. I follow the usual practice in using ‘PL’ to gloss the particle, although I think it must be clearly distinguished from the morphemes used to make plural forms in languages with the singular/plural morphology (e.g., the English ‘-s’). The particle is discussed in §5.5.}\)
Even in languages with a grammatical number system (e.g., English), verbs do not always take singular or plural forms. The past tense ‘liked’, for example, is neither singular nor plural.

But not always. The ‘foot’ in ‘three-foot tall’, for example, can be considered neither the singular nor the plural form of the noun.

23 Even in languages with a grammatical number system (e.g., English), verbs do not always take singular or plural forms. It is the noun itself, not its singular or plural form, that figures in (3a), (3b), and any other constructions.

2.3.2. Number Neutrality

In having no singular or plural forms, count nouns of languages without a grammatical number system do not differ from mass nouns thereof. This, to be sure, does not mean that there is no difference between the two kinds of nouns in such languages. Korean count nouns, we have seen, differ syntactically from its mass nouns in combining directly with swuman(h)un ‘very many’, mwuswuhan ‘countless’, etc. They can do so partly because they are nouns that, like English count nouns, denote individuals of a certain kind (e.g., cows) to which numbers (not: grammatical numbers) are applicable. If so, why do they differ from English count nouns, which cannot combine with counterparts of those quantifiers (e.g., ‘countless’) without taking plural forms?

English count nouns must take plural forms to combine with ‘countless’, because (i) they must usually take either singular or plural forms while (ii) their singular forms do not accord with ‘countless’. The singular form of ‘cow’, for example, does not accord with ‘countless’, because it cannot denote two or more of the things the noun denote (viz., cows). It denotes this cow (one) and denotes that cow (another), but it does not denote the two cows taken together. And this semantic feature of singular forms is reflected in their syntax so that (5b) below, unlike (5a) below, is ill-

\[23\]

\[24\]
formed:

(5)  

a. That is a cow.

b. *Those are a cow.

While (5b) is ill-formed, replacing the singular form ‘cow’ (or ‘a cow’) in the phrase with the plural form ‘cows’ yields a well-formed sentence:

(5)  

c. Those are cows.

And this can be true while ‘those’ is used to refer to many cows (taken together), because the plural ‘cows’, unlike the singular, can denote two or more of the cows (taken together).25

It is different with count nouns of languages with no grammatical number system. They need not, and cannot, take singular or plural forms, as discussed above. Moreover, they do not have the semantic or syntactic restrictions imposed on the singular forms of English count nouns. They are neutral about the number of things they can denote. That is, they can not only (a) denote any one of the things of the relevant kind, but also (b) denote any two or more of those. To see this, consider the Korean counterparts of (5a) and (5c):

__________________________

25The plural forms can denote one of the things their singular forms denote as well; ‘Cicero and Tully are Romans’, which is logically implied by ‘Cicero is a Roman and Tully is a Roman’, are true even if Cicero and Tully are the same person. So the plural forms of English count nouns, in my view, have the same semantic profile as the nouns themselves, which conflicts with Chierchia (1998)’s analysis of mass nouns as semantically neutral nouns on which he bases his mass noun thesis (see footnote 30). See my (1995, 478-485; 1996, 267).
In both sentences, which are equally well-formed, the noun so ‘cow’ occurs without taking a singular or plural form. Still, the sentences can both be true—while cekes ‘that’ and cekes-tul ‘those’ are used to refer to (a) some one cow and (b) many cows, respectively. This means that the noun is neutral about the number of cows it can denote. It denote two or more cows (for (5*b)) as well as one cow (for (5*a)). Thus the noun, unlike the singular form of its English counterpart, accords well with Korean counterparts of ‘very many’, ‘countless’, etc., as we can see in (3a)–(3b).

3. Count Nouns of Classifier Languages

The usual criteria for distinguishing count nouns from mass nouns, we have seen, do not apply directly to classifier languages. The criteria are formulated for the likes of English, namely, languages that (a) have a singular/plural morphology as part of a grammatical number system, (b) do not have a substantial system of classifiers as paranumerals for one, and (c) draw contrasts between ‘many’ and ‘few’, one the one hand, and ‘much’ and ‘little’, on the other. But most classifier languages do not have a grammatical number system while having a substantial system of classifiers; nor do they have exact counterparts of ‘many’, ‘few’, and the like. This, we have
seen, does not mean that classifier languages have no count nouns; nor does it mean that the mass/count distinction is not applicable to those languages. One can formulate straightforward extensions of the usual criteria that are applicable to languages with none of the features invoked in the usual formulations of the distinction stemming from Jespersen’s work. For the distinction runs through a much wider range of constructions than is suggested by those formulations.

3.1. The Count Noun Thesis

It is straightforward, we have seen, to extend the usual quantifier criterion for count nouns. While the criterion invokes ‘many’ and ‘few’, one can formulate an equally good criterion by invoking ‘very many’, ‘countless’, etc. By invoking Korean counterparts of these, as discussed above, we can formulate criteria for Korean count nouns, such as the following:

\[ KC1 \] *The ‘mwuswuhan’ criterion:*

A common noun of Korean is a count noun if and only if it can combine directly with *mwuswuhan* ‘countless’ (without shifting to a subsidiary or deviant use).

And we can apply this criterion to conclude that Korean has count nouns as well as mass nouns. For example, *so* ‘cow’ is count while *wuywu* ‘milk’ is mass. It is the same with Chinese and Japanese. They have cognates of *mwuswuhan* ‘countless’: *wu.shu* (Chinese) and *mu.suu-no* (Japanese). These yield Chinese and Japanese counterparts of [KC1]: the *wu.shu* criterion and the *mu.suu-no* criterion. And we can apply these criteria to conclude that the languages, like Korean, have count nouns: the Chinese *niu* ‘cow’ and Japanese *ushi* ‘cow’, for example, are count.
This does not conflict, we have seen, with the fact that (a) Chinese, Japanese, and Korean count nouns have no singular or plural forms, and that (b) they have matching classifiers. For (a) and (b), individually or jointly, are not sufficient for the nouns to be mass, because the languages in question differ from English in that (a*) they have no grammatical number system, and (b*) employ classifiers as mere syntactic peers of measure words. In such languages, no noun whatsoever has a singular or plural form, and count nouns might take classifiers, paranumerals for one, to enter numeral noun phrases relating to the number.

This suffices to refute the mass noun thesis, which holds that all common nouns of classifier languages are mass: some classifier languages, including some of the most intensively studied ones, have count nouns. How about classifier languages with counterparts of neither ‘many’ nor ‘countless’? For such languages, one cannot formulate counterparts of [KC1] just as one cannot formulate counterparts of the usual quantifier criterion. This still does not mean that the languages have no count nouns. They might have suitable counterparts of other devices of non-classifier languages that match only count nouns: ‘each’, ordinal numerals, etc. I think that they must have such devices, and that those devices suffice to yield a morphosyntactic distinction between mass and count nouns. So I propose a thesis diametrically opposite to the mass noun thesis:

**Count Noun Thesis:**

(C1) Classifier languages have count nouns as well as mass nouns.

(C2) Classifier languages have morphosyntactic devices for distinguishing count nouns from mass nouns.

### 3.2. Comparison with Pseudo-mass Nouns
Those who agree that classifier language count nouns differ from usual mass nouns (e.g., ‘milk’) might deny that they are comparable to robust count nouns of non-classifier languages (e.g., ‘cow’). To do so, they might argue that putative count nouns of classifier languages are hybrids between robust count nouns and usual mass nouns because they are akin to a special kind of mass nouns: ‘furniture’, ‘footwear’, ‘cutlery’, etc. Doetjes calls these “count mass nouns” while calling usual mass nouns “mass mass nouns” (1996, 44). And she argues that although Chinese nouns admit “a mass/count distinction”, it is merely “a semantic distinction between two types of syntactic mass nouns” (ibid., 44; my italics). Consequently, on her view, Chinese count nouns are like the English ‘furniture’ in that they are “syntactically mass” albeit “semantically count” (ibid., p. 34). In their well-known study of Chinese classifiers, Cheng and Sybesma follow Doetjes to hold that “Chinese count nouns . . . are count mass nouns (count nouns with no number morphology)” (1999, 520).

In his influential work that propounds the mass noun thesis, Chierchia (1998) suggests a similar view:

> . . . saying that all members of category NP [of classifier languages] are masslike does not mean saying that something resembling the mass/count distinction cannot be found in [those] languages . . . . Obviously, liquids or ‘granular’ substances (like rice, sand, etc.) have important structural properties in common . . . and this may well be registered in aspects of the syntax of the corresponding nouns (e.g., in the classifier system). (1998, 355; my italics)

In his later work, Chierchia (2010) might seem to disavow the thesis. He holds that “the mass/count distinction is . . . active in [the] grammar” of classifier languages (ibid., 107). Like Doetjes, however, he holds that “all Chinese count nouns are analogous to furniture, and hence, if you wish,
fake mass” (ibid., 143). By “fake mass”, he means Doetjes’s count mass nouns, nouns that, as he puts it, are “cognitively count but have the [syntactic] distribution of mass ones” (ibid., 110).

While rejecting the usual, semantic version of the mass noun thesis, we have seen, Doetjes, Cheng and Sybesma, and Chierchia hold its syntactic version. To do so, they hold that all classifier language “count nouns” are akin to the English ‘furniture’.

I agree that English mass nouns are quite heterogeneous, and that ‘furniture’ and the like differ substantially from usual mass nouns, which form the core group of the mass noun class. They can be considered pseudo-mass (or para-count) nouns (see §5.5). But there is no reason to take classifier language count nouns to be closer to pseudo-mass nouns than to robust count nouns of non-classifier languages. And we can see that they differ from pseudo-mass nouns by applying syntactic criteria for classifier language count nouns (e.g., [KC1]).

Note that applying those criteria to some classifier languages (e.g., Chinese, Japanese, and Korean) yields the argument presented above against the mass noun thesis. And the argument applies to the syntactic version of the thesis as well as the semantic version. Classifier language nouns that can combine directly with counterparts of ‘very many’ or ‘countless’, like English nouns that can combine directly with these quantifiers, must be count nouns in the syntactic sense. Doetjes, for example, argues that Chinese count nouns, as well as its mass nouns, must be syntactically mass by applying the morphological criterion and the numeral criterion: those nouns (a) have no plural forms, and (b) require classifiers or other numeratives to combine with numerals. As we have seen, however, these criteria are not applicable to languages that do not have a grammatical number system while having a substantial classifier system. It is not sufficient for nouns of such languages to be syntactically mass that they lack plural forms while having matching classifiers. For example, the Chinese niu ‘cow’ satisfies the two conditions, but it must be
considered count because it can combine directly with \textit{wu.shu} ‘countless’. Moreover, it must be considered \textit{syntactically} count, because whether or not a noun can combine directly with this quantifier is a syntactic issue.

By applying the same criteria, moreover, we can see that count nouns of Chinese, Japanese, Korean, etc. differ \textit{syntactically} from pseudo-mass nouns of English. While ‘furniture’ cannot directly combine with ‘countless’, count nouns of those classifier languages can combine directly with the counterparts of ‘countless’ in the languages. So classifier language count nouns cannot be considered pseudo-mass nouns. Nor can the mass/count distinction among classifier language nouns be taken to amount to a distinction among mass nouns of non-classifier languages.

3.3. Robust Count Nouns of Classifier Languages

In proposing the count noun thesis, I hold that count nouns of classifier languages are comparable to robust count nouns of non-classifier languages. Neither riding on the singular/plural morphology nor lacking matching classifiers, I think, is a basic character of robust count nouns. Differences between the English ‘cow’ and the Korean so ‘cow’, for example, derive from differences between English and Korean that are independent of the basic characters of their count noun systems: (a) whether the languages have a grammatical number system, and (b) whether the languages have a system of classifiers as syntactic peers of measure words. These differences do not affect the basic characters of their count nouns any more than does the fact that Korean differs from English in having no exact counterparts of ‘much’ and ‘little’.
To see this, it is useful to compare the languages to Tagalog,26 which has neither a singular/plural morphology nor a classifier system. Because Tagalog does not have a classifier system, one can apply the numeral criterion to distinguish its count nouns from mass nouns.27 When the count nouns combine with numerals, however, they take no plural marker.28 Compare the Tagalog counterparts of ‘one child’ and ‘ten children’:

(1*)

a. isang anak  
   one child  
   ‘one child’

b. sampung anak [Schachter & Otanes (1972, 112)]
   ten child  
   ‘ten children’

---

26Tagalog is an Austronesian language spoken by a third of the population of the Philippines. Its standardized version, called Filipino, is the national language of the Philippines. Archaic Chinese is like Tagalog in having neither a singular/plural morphology nor a classifier system. On the development of the Chinese classifier system, see, e.g., Wang (1994) and Peyraube (1998).

27Blake, for example, says that in Tagalog, “mass nouns differ from count nouns in that a numeral cannot precede them without a quantifier in between” (1925, 19). He formulates another criterion: “mass nouns cannot be preceded by the pluralizer mga” (ibid., 19). On this particle, see note 28. For the mass/count distinction for Tagalog nouns, see also Schachter & Otanes (1972, 112).

28Tagalog has a “pluralizer”, mga, which can be added to count nouns, as in mga anak [PL child, ‘children’]. But it is more like the Korean particle -tul, which is often called the “plural suffix”, than the English plural morpheme ‘-s’. The Tagalog mga anak ‘children’ is not the plural form of the noun anak, at least not one that contrasts with a singular form (which the noun does not have). And the use of mga, which is not limited to nouns, is rarely mandatory. Moreover, its absence is mandatory when count nouns combine with numerals. As noted in footnote 27, however, mga yields another criterion of count nouns: mass nouns cannot take it. See Schachter & Otanes (1972, 111-113). The Korean -tul is discussed in §5.4.
In both phrases, anak ‘child’ combines directly with a numeral without taking any marker that indicates whether it denotes one child or more than one; nor does it take a classifier. Does this mean that Tagalog count nouns differ radically from those of both English and classifier languages?

The answer is no. I do not think that Tagalog count nouns differ radically from Korean ones just because they have no matching paranumerals for one. Nor do I think that they differ fundamentally from their English counterparts simply because they do not take plural forms to combine with numerals. The classifier system or grammatical number system might be gradually added to Tagalog without affecting the core characters of its noun system.\(^{29}\)

Tagalog count nouns have the same semantic profile as count nouns of classifier languages. They can combine with both the numeral for one, as in (1*a), and those for larger numbers, as in (1*b). One of the two numeral noun phrases would have to be ill-formed or contradictory, if the noun anak ‘child’ either cannot denote one child or cannot denote two or more children. Tagalog count nouns, like their Korean cousins, are neutral about the number of things they can denote.

Would they differ from count nouns of languages with a singular/plural morphology? The singular form of the English noun ‘cow’, for example, differs from its Korean and Tagalog cousins in that it cannot denote two or more cows (taken together). But this does not mean that the English noun itself differs semantically from its Korean or Tagalog cousin. For the noun differs semantically from its singular form in being neutral about the number of things it can denote.

To see this, it is necessary to distinguish English count nouns clearly from their singular or plural forms. The noun ‘cow’, for example, is phonologically indistinguishable from its singular form, but this does not mean that there is no difference between them. The plural form ‘cows’ result

\(^{29}\)Contemporary Chinese results from adding classifiers gradually to Archaic Chinese, which, like Tagalog, had neither a grammatical number system nor a classifier system.

26
from adding the plural morpheme ‘-s’ to the noun, not to its singular form, just as the first-person present-tense singular form ‘likes’ of the verb ‘like’ results from adding the morpheme ‘-s’ to the verb, not to its first-person present-tense plural form, which is phonologically indistinguishable from the verb. To distinguish the verb and its first-person present plural form, one might take the latter to result from adding a phonologically silent marker, a null morpheme, to the verb. Similarly, one might take the singular form of ‘cow’ to result from adding to the noun a null morpheme, ‘-ϕ’: the singular form, then, is ‘cow-ϕ’, where ‘ϕ’ is silent. Despite its silence, I think, the singular morpheme has a substantial semantic, as well as syntactic, function.

Although the noun ‘cow’ must take a singular or plural form to enter most contexts, the noun itself is neutral with regard to the grammatical number. It accords no more with the singular forms of verbs (e.g., ‘likes’) than with the plural forms, or with ‘that’ than with ‘those’. It takes the singular form to accord with ‘that’ and ‘likes’, as in ‘That cow (viz., cow-ϕ) likes grass’, and the plural form to accord with ‘those’ and ‘like’ (viz., ‘like-ϕ’), as in ‘Those cows like grass’. Similarly, the noun is semantically neutral about the numbers of things it can denote. It is only its singular form, ‘cow-ϕ’, that is subject to the restriction that it cannot denote more than one cow (taken together). While yielding a form that works only in the singular environment, the null morpheme imposes a semantic restriction on the denotation as well.

English count nouns, we have seen, have the same semantic profile as their Korean and Tagalog cousins. Their apparent difference from these does not come from their central semantic profile, but from peripheral environments surrounding them in their home language.

To sum up, then, count nouns of classifier languages are robust count nouns. They have the same semantic profile as English or Tagalog count nouns. Like these, they relate to individuals
belonging to a kind to which numbers are applicable. Moreover, this is reflected in their syntax.

3.4. Interlude: Substantiating the Count Noun Thesis

Some classifier languages, we have seen, have robust count nouns. Chinese, Japanese, and Korean, for example, have counterparts of ‘countless’. So it is straightforward to formulate for those languages counterparts of the ‘countless’ criterion, and this is a close sibling of one of the usual criterion for English count nouns: the ‘many’ criterion. This is sufficient to refute the mass noun thesis, and renders substantial support for the count noun thesis. But it falls short of establishing the latter, which, like the former, is a very strong thesis that concerns all classifier languages. Some classifier languages might have counterparts of neither ‘many’ nor ‘countless’. In proposing the count noun thesis, I put forward the conjecture that such languages have other morphosyntactic devices sufficient for distinguishing their count nouns from mass nouns. Although it would be hard to prove this without examining all the other classifier languages, I think we can make significant

\[30\] Greenberg (1972) and Chierchia (1998) hold that classifier language nouns with matching classifiers are semantically neutral. But they take this to be a feature characterizing nouns other than count nouns: collective nouns (Greenberg) or mass nouns (Chierchia). Greenberg holds that “the ‘true collective’ is semantically neither singular nor plural. It is a transnumeral category” (1972, 182). Similarly, Chierchia (1998), who takes ‘furniture’ as a paradigm for mass nouns, argue that “mass nouns are quite literally the neutralization of the singular/plural distinction” because “a mass noun, such as, say, furniture will be true in an undifferentiated manner of singular pieces of furniture, as well as pluralities thereof” (ibid., 347). They assume these analyses of collective or mass nouns to conclude that nouns with matching classifiers are collective nouns or mass nouns. But I think the analyses are wrong. On the analyses, Tagalog count nouns would also have to be collective or mass nouns. And English count nouns are also semantically neutral, as we have seen. Greenberg and Chierchia fail to see this by failing to distinguish the nouns from their singular forms. Moreover, plural forms of English count nouns are also semantically neutral, as Chierchia concedes in his later article (2010, 145), where he rejects the version of the mass noun thesis put forward in his earlier article (1998). See footnote 25.
progress towards the aim by elucidating the wide range of devices that match only count nouns. And we can get an idea of how widespread such devices are by examining various devices of some classifier languages that, like classifier language counterparts of ‘countless’, have transparent connections to English devices matching only count nouns. So I devote the next two sections to clarifying various such devices of a specific classifier language, Korean.

4. The Korean Classifier System

Korean is the mother tongue of all natives of the Korean peninsula. Like two prominent languages spoken in the vicinity of the peninsula, Chinese and Japanese, the language has a rich system of classifiers. And it has, as we shall see, a wide range of devices that match only count nouns. I present an overview of the Korean classifier system in this section, and discuss various Korean devices matching only count nouns in the next.

4.1. Complete yet Non-mandatory

The Korean classifier system is as extensive as those of Chinese and Japanese. This is due in part to the fact that the Korean system, like the Japanese one, was heavily influenced by the Chinese system through linguistic contact, although Korean, like Japanese, has no genetic ties to Chinese.

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31 For lists of Korean classifiers and other numeratives, see Martin (1992, 179-188) and Jeng (1998). Unterbeck (1994), which studies Korean classifiers (in the proper sense), gives a list concentrating on classifiers.

32 Burnell conjectures that Japanese and Korean classifiers are “possibly not indigenous, but an adoption from Chinese” (1903, 633), probably because many Japanese and Korean classifiers
Still the Korean system differs from the contemporary Chinese system in some important respects. One of the most important differences is that the Korean system is not mandatory while the contemporary Chinese system is usually, and with much plausibility, considered mandatory.

The Korean classifier system is not completely mandatory in that it allows some nouns to combine directly with some numerals.  

(6)  

a. haksayng seys [Lee & Ramsey (2000, 97)]  
student three  
‘three students’  
b. pyel seys  
star three  
‘three stars’  
c. mwul.pang.wul seys  
water.drop three  
‘three water drops’

(like many other words of the languages) are of Chinese origin. But further study is needed to see whether or not the Korean classifier system itself is indigenous. See Downing (1996, Ch. 2) for a survey of studies of the origin of the Japanese classifier system.

For lists of Korean numerals, see Martin (1992, 174-179). Korean has two kinds of numerals: native Korean and Sino-Korean numerals. The native Korean numerals (han(a) ‘one’, twu(l) ‘two’, sey(s) ‘three’, etc.) have adjective forms (han, twu, sey, etc.) and noun forms (hana, twul, seys, etc.). When the numerals are used to modify nouns or numeratives, as in (7a)–(7c) and (8a)–(8b) below, they take adjective forms. They take noun forms in (6a)–(6d), where the numeral do not modify the nouns. The use of numerals in these phrases is comparable to the use of the English numeral ‘three’ in, e.g., ‘three of the students’, although (6a), for example, is usually translated by a phrase in which the numeral ‘three’ figures as an adjective: ‘three students’. (Sino-Korean numerals have no noun or adjective forms.)
d. namwu.kaci hana [cf. Martin (1992, 172f)]
  tree.branch one
  ‘one tree branch’

(7) a. sey haksayng [Lee & Ramsey (2000, 97)]
  three student
  ‘three students’

b. sey {nala, hak.kyo} [Lee & Ramsey (2000, 97)]
  three {country, school}
  ‘three {countries, schools}’

c. twu tho.kki [Lee & Ramsey (2000, 97)]
  two rabbit
  ‘two rabbits’

Nouns combine directly with subsequent numerals in (6a)–(6d), and with preceding numerals in (7a)–(7c). That is, the two groups of numeral noun phrases fall under two forms:

\[ [\text{NNP1}] \quad \text{N} - \text{Num}_n \]
\[ [\text{NNP2}] \quad \text{Num} - \text{N} \]

where ‘N’ and ‘Num’ are for common nouns and numerals, respectively.

\[ \text{34The subscript } n \text{ for the numeral in [NNP1] indicates that the noun form of a native Korean numeral must be used. [NNP2] requires the adjective form of a native Korean numeral. Sino-Korean numerals cannot figure in instances of [NNP1] or [NNP2].} \]
These are marked forms with considerable restrictions on the nouns and numerals that can enter them: the nouns must be count, etc. Still they are used widely enough to be considered two of the four standard forms of Korean numeral noun phrases. The other two forms are those under which (2a)–(2b), the counterparts of ‘two cows’ mentioned in the introduction, fall:

\[
\begin{align*}
\text{[NNP3]} & \quad \text{N – [Num – CL*]} \\
\text{[NNP4]} & \quad \text{[Num – CL*]-uy – N}
\end{align*}
\]

where ‘CL*’ is for numeratives, which include classifiers and their syntactic peers (measure words, parnumeral numeratives, etc.), and -uy is the postpositive genitive particle. In (2a), so sey mali, for example, the numeral sey ‘three’ combines with the classifier mali to form a *numeral-numerative phrase* (viz., sey mali [three CL, ‘three (for animals)’]), and this combines with the noun so ‘cow’. Why does Korean allow some nouns to combine directly with numerals? Some classifier languages do so because their classifier systems are not extensive enough, that is, *incomplete*. Vietnamese, for example, has the so-called “unclassified” nouns (e.g., cháu ‘continent’), a count noun that has no matching classifier and thus combines directly with numerals. It is not so with

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35Sino-Korean numerals cannot enter these forms (see however §5.6.3), and only numerals for small numbers (e.g., those smaller than ten) usually enter the forms. See §5.6.1.

36Among the four forms, [NNP3], which contains the post-nominal numeral-numerative phrase, is the least marked and most widely used in contemporary Korean. The last form, [NNP4], where the numeral-numerative phrase figures as a pre-nominal modifier of the noun, is the least natural in colloquial speech. The two numerative-free forms, [NNP1] and [NNP2], where the noun combines directly with a numeral, are used frequently both in writing and in colloquial speech. For discussions of various forms of Korean numeral noun phrases, see, e.g., Martin (1992, 171ff), Sohn (1999, 352f), Lee & Ramsey (2000, 97ff), and Lee & Chay (2002, 143).

37See Emeneau for a list of “nonclassified nouns” of Vietnamese (1951, 100).
Korean. Its classifier system is *fully extensive* or *complete*. That is, any Korean common nouns to be “classified” (viz., count nouns\(^{38}\)) have a matching classifier.

The Korean classifier system, which is as rich as the Chinese system, is extensive enough to cover even nouns that can combine directly with numerals. For example, *haksayng* ‘student’, which figures in (6a) and (7a), can take the classifier *myeng* for humans to figure in numeral noun phrases of the two standard forms [NNP3] and [NNP4]:

\[
\begin{align*}
\text{(8) a. } & \quad \text{haksayng sey myeng} \\
& \quad \text{student three CL}_{\text{human}} \ \\
& \quad \text{‘three students’}
\end{align*}
\]

\[
\begin{align*}
\text{b. } & \quad \text{sey myeng-uy haksayng} \\
& \quad \text{three CL}_{\text{human}-\text{GEN}} \text{ student} \\
& \quad \text{‘three students’}
\end{align*}
\]

Similarly, the nouns figuring in (6b)–(6d) and (7b)–(7c) have matching classifiers. All those except *tho.kki* ‘rabbit’, which takes the classifier *mali* (for animals), can take the general classifier *kay*.\(^{39}\)

The Korean classifier system, we have seen, is complete yet non-mandatory. While it

\(^{38}\)For nouns with matching classifiers must be count. See §4.4.

\(^{39}\)General (or generic) classifiers are classifiers matching a wide variety of nouns, while specific (or non-general) classifiers have a relatively small range of matching nouns. The existence of a general classifier in a classifier system helps to make the system complete or comprehensive, because they can be used when nouns that should have classifiers (viz., count nouns) have no matching specific classifiers (they can also replace some specific classifiers). General classifiers, like other classifiers, match only count nouns (see §4.4 and §6). Chinese, Japanese, and Korean have general classifiers stemming from the Chinese *ge*. For more on general classifiers, see Zubin & Shimojo (1993), Shimojo (1997), and my (2009, §3; 2010, §5.2). See also §4.4.
provides a classifier, *myeng*, for the noun *haksayng* ‘student’, for example, it does not require the noun to take the classifier to combine with numerals.

Note that Korean is by no means a rare exception among classifier languages in having a non-mandatory classifier system. Gil (2008), who considers the distribution of classifiers in about 400 languages, rightly distinguishes two groups of classifier languages: (a) those with mandatory classifier systems, and (b) those whose classifier systems are not mandatory. He takes 62 of those languages to belong to the second group while taking 78 to belong to the first. Moreover, many of the languages he assigns to the first group actually belong to the second. For example, Korean and Vietnamese, which he assigns to the first group,\(^{40}\) have non-mandatory classifier systems, as we have seen. The same holds for contemporary Japanese. Despite what most accounts suggest, Japanese also allows some nouns to combine directly with some numerals. In the Japanese translation of ‘There are 12 stories in the book’, for example, the native Japanese noun *hanashi* ‘story’ combines directly with the Sino-Japanese numeral *jyuuni* ‘twelve’ (and *no* classifier can be added).\(^{41}\) Although Chinese is usually, and with much plausibility, considered a mandatory classifier language, this would hold at best for the Chinese of the relatively recent period. Historical studies of Chinese classifiers make it clear that the virtually mandatory classifier system of contemporary Chinese is the result of a long period of expansion, and strengthening, of a classifier

\(^{40}\)Gil (*ibid.*) refers to no work to support those assignments. Although some authors might give cursory statements suggesting that Korean is a mandatory classifier language (e.g., Unterbeck [1994, 367] and Yi [1983, 270]), this is clearly denied in substantial discussions of Korean numeratives. See, e.g., those listed in footnote 36.

\(^{41}\)See the example (6c) in Zubin & Shimojo (1993). Note that *hanashi* ‘story’ has a matching classifier. It must take the general classifier *tsu* to combine with native Japanese numerals (which do not reach beyond 10 in contemporary Japanese).
Neither is Korean exceptional in allowing some “classified” nouns, nouns with matching classifiers, to combine directly with numerals. In contemporary Malay, classifiers are optional (except when they occur with the prefix form se- of the numeral satu ‘one’). Khmer also has nouns with non-mandatory classifiers. The Khmer nouns ko:n ‘child’ and sdac ‘king’, for example, can combine directly with numerals in colloquial speech although they have matching classifiers. It is the same with Japanese. The Japanese classifier ko in isu jyuunana ko [chair 17 CL, ‘17 chairs’], for example, can be omitted, as Zubin & Shimojo (1993) note.

A wide range of classifier languages, we have seen, do not have mandatory classifier systems. But most accounts of classifier languages imply that classifier language nouns cannot

42 For a discussion of problems with taking Japanese and even contemporary Chinese to be mandatory classifier languages, see, e.g., Yi (2010, §2.5; 2011, §4). About Japanese numeral noun phrases without numeratives, see, e.g., Zubin & Shimojo (1993), Downing (1996, 73), Shimojo (1997), and Kobuchi-Philip (2011, §3.2). For historical studies of the Chinese classifier system, see, e.g., Peyraube (1998) and Wang (1994). See also Schafer (1948), who analyzes the use of numeratives in a 9th Century literary work by Tuan Ch’eng-shi. This work, on Shafer (ibid., 408f), still uses the two types of numerative-free numeral noun phrases found in Korean: N – Num and Num – N.

43 Personal exchanges with Hiroki Nomoko. Omar (1972) describes Malay classifiers as mandatory, but notes that some of them are becoming optional in some contexts, and attributes this to the influence of neighboring languages, Bahasa Indonesia and Javanese (ibid., 96). But Nomoko points out that Sejarah Melayu, which dates back to the 16th century, has examples of optional classifiers (personal exchange, 10/15/2011). Note that the Malay classifier system is incomplete; some count nouns (e.g., those for body parts that do not occur in pairs) have no matching classifiers, as Omar notes (ibid., 93 & 94).

44 See Jacob (1965, 145). Korean, unlike Khmer, does not limit phrases resulting from nouns combining directly with numerals (e.g., (6a)–(6d) and (7a)–(7c)) to colloquial speech.

45 See their examples (6b) and (6c), and Table 11, which lists (a) native Japanese nouns that optionally take the Sino-Japanese general classifier ko to combine with Sino-Japanese numerals over 10, and (b) those that must combine directly with such numerals.
directly combine with numerals at all. Chierchia (1998), for example, gives an account of classifiers that leaves no room for non-mandatory classifier systems. The account is based on a typological theory that distinguishes all languages into three kinds on the basis of the character of the noun system, and this theory, the “nominal-mapping parameter” theory, implies that classifier language nouns cannot combine directly with numerals because they must all be mass nouns.46 And Doetjes (1996; 1997), who holds that classifier languages have “semantic count” nouns, argues that numerals (except those for one) cannot combine with count nouns unless their count character is made “syntactically visible” by the presence of plural forms or classifiers (1997, 191).47 As we have seen, however, Korean, for example, has nouns that can combine with numerals without aid of classifiers or plural forms (or plural markers of other kinds), as in (6a)–(6d) and (7a)–(7c).48

Borer, who holds that “All nouns, in all languages, are mass”, agrees with Doetjes in holding that plural markers of, e.g., English has the same function as classifiers (2005, 93). In her view, they both have the “dividing function” while figuring with common nouns in “dividing structures”, and numerals and other quantifiers with the “counting function” (e.g., ‘a’, ‘one’, ‘many’) must combine with dividing structures to figure in determiner phrases (ibid., 110f). If so, how can Korean nouns, for example, combine directly with numerals with no plural markers? She explains this by assigning

46Chierchia (2000) acknowledges the existence of languages with non-mandatory classifier systems, but does not explain how his theory can make room for such languages. He says, “It remains to be seen how such languages would fit in a theoretically interesting typology of nominal systems, and there is little point in venturing further speculations on this score here” (ibid., 51). He adds that Wilhelm (2008) makes “an interesting attempt” (ibid., 51), but she also assumes that classifier languages must have mandatory classifier systems. See footnote 135.

47See also Cheng & Sybesma (1999, 517).

48See also the Tagalog (1*a)–(1*b) in §3.3. Tagalog is also a counterexample to Chierchia (1998)’s typology as well. Greenberg acknowledges that his account has difficulties in coping with languages like Tagalog and those with non-mandatory classifier systems (1972, 189). See §4.4.
double duty to the numerals that combine directly with such nouns. They, like the English ‘a’, ‘one’, ‘each’, etc., she argues, are “portmanteau morphemes” (*ibid.*, 114), which supply the unapparent dividing structure with the dividing function while serving its superstructure with the counting function. On her view, then, there are three kinds of devices that have the “dividing function” and the three kinds of devices must exclude each other.49 In Korean, however, classifiers do not exclude the “plural” marker -tul:50

\[
(2) \quad \text{e.} \quad \text{i haksayng-tul sey myeng} \\
\text{This/These student-PL three CL}_{\text{human}} \\
\text{‘These three students’} \\
\text{f.} \quad \text{wuy-uy sey myeng-uy haksayng-tul} \\
\text{(the) above-GEN three CL}_{\text{human}}\text{-GEN student-PL} \\
\text{‘The above(-mentioned) three students’}
\]

It is the same, according to Allan (1977), with Yucatec Mayan and Algonquin.51

49She holds that “classifier inflection and plural inflection are in complementary distribution” (*ibid.*, 92) while referring to T’sou (1976, 1216). See also Sanchez & Slobin (1973) and Greenberg (1972, 177).

50See http://www.21stcbc.org/gnuboard4/bbs/board.php?bo_table=pray&wr_id=1609 (for (2f)) and http://blog.daum.net/hessed2/147 (for (2e)).

51See also the Mandarin Chinese example (4) in Iljic (1994, 93).
4.2. Pristine Classifier System

Numeral classifiers usually combine directly with numerals and other closely related expressions. In (2a), *so sey mali*, for example, the classifier *mali* combines with the numeral *sey* to form a phrase that combines with the noun *so* ‘cow’: the numeral-numerative phrase *sey mali* ‘three (for animals)’.

In some classifier languages, however, classifiers can be used in other contexts as well. In Chinese, for example, classifiers can figure in demonstrative phrases without combining with numerals:

(9) a. zhe tou niu

    this/these CL-animal cow

    ‘this cow’

So some might take numeral classifiers to be invariably used in such other contexts as well. Allan, for example, says “In *all* numeral classifier languages, the classifiers occur in anaphoric or deictic expressions as well as in expressions of quantity . . . so the label ‘numeral classifier’ is something of a misnomer” (1977, 286; my italics). But his suggestion is not correct.

Numeral classifiers cannot directly follow demonstratives in Korean. Korean classifiers “are not modified by *i* ‘this’, *ku* ‘that’, *kulen* ‘such’”, etc., as Martin says (1992, 171). To see this,

52 In this section, I avoid the shorthand ‘classifier’ for numeral classifiers to emphasize that they are used primarily with co-occurring numerals.

53 Korean classifiers, for example, combines with *yele* ‘several’, *myech* ‘a few, how many’, etc. as well. Martin aptly calls such expressions “quasi-numerals”, and lists some Korean quasi-numerals (1992, 174). See note 116.

54 It is the same with Japanese (personal exchange with Hiroki Nomoko, 10/15/2011).
consider the Korean counterpart of (9a):

(9)  b.  i so \\
    this cow \\
    ‘this cow’.

While the classifier *tou is essential in the Chinese (9a), the Korean (9b) has no classifier matching ‘cow’. And one cannot add such a classifier, *mali, to (9b); *i mali so [this CL<sub>animal</sub> cow] is ill-formed. To add *mali, it is necessary to add the numeral *han ‘one’ as well:

(9)  c.  i so *(han) mali \\
    this cow one CL<sub>animal</sub> \\
    ‘this one cow’

d.  i *(han) mali-uy so \\
    this one CL<sub>animal</sub>-GEN cow \\
    ‘this one cow’

In these phrases, to be sure, the classifier *mali combines with the numeral *han ‘one’.

Combining with demonstratives, we have seen, is not an essential feature of numeral classifiers. If so, why do they combine with demonstratives in some classifier languages? Greenberg suggests that in such languages, numeral classifiers have come to have other uses than their proper use, the numeral classifier use. He says, “One of the lines of development of [numeral classifier] systems is by syntactic spread to other constructions than the numeral classifier
And he continues, “The synchronic universal seems to hold that whenever a numeral classifier construction is also used in non-quantifier constructions, the construction with demonstratives is one of these, often the only one” (1972, 192). Aikhenvald distinguishes numeral classifiers from “deictic classifiers”, which occur with “deictic elements such as articles and demonstratives” (2000, 176-183). On this classification, contemporary Chinese numeratives are used as deictic classifiers as well but Japanese and Korean numeratives are not.

So is Japanese. There are a couple of limited contexts in which some Korean classifiers and numeratives are used without numerals or quasi-numerals. They are used before swu ‘number’ or tang ‘per’, as in (chayk) kwen swu [(book) CL_book number, ‘the number of books’] and kwen tang [CL_book per, ‘per volume’. See, e.g., Martin (1992, 171) and Sohn (1999, 205).

The term ‘numerative’ was introduced by Edkins (1857, 119f; 1864, 127) for the broad class.

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4.3. Classifiers and Other Numeratives: Syntactic Criteria

Classifiers, as noted above, belong to a larger syntactic class that includes not only classifiers but also various kinds of syntactic peers thereof. I call expressions belonging to this larger class numeratives, while limiting classifier (or numeral classifier) to numeratives of a special kind. So to study the syntax and semantics of classifiers, it is necessary first to consider the nature of numeratives. We can then consider what distinguishes classifiers from other numeratives. So I formulate syntactic criteria for Korean numeratives in this subsection, and discuss what distinguishes classifiers from the other numeratives in the next.
Numeratives other than classifiers can be found in non-classifier languages as well. They include measure words and paranumerals, which figure in numeral noun phrases: ‘three liters of milk’, ‘three cups of water’, ‘three pairs of cows’, etc. In addition to counterparts of these numeratives, classifier languages have classifiers as numeratives of a special kind. And they can figure in numeral noun phrases to draw syntactic parallels with other numeratives.

Consider, for example, the following numeral noun phrases of Korean:\footnote{Sam ‘three’, used in (10f), is the Sino-Korean numeral for three. Sino-Korean numerals are used with some Sino-Korean numeratives and most measure words stemming from English or other European languages (e.g., \textit{lithe} ‘liter’). Sino-Korean numerals, unlike native Korean numerals, do not have adjective or noun forms. See \footnote{33}.}

\begin{itemize}
  \item[(10)]
    \begin{itemize}
      \item a. haksayng sey myeng \textit{[the same as (8a)]}
        \begin{itemize}
          \item cow three CL_{human}
          \item ‘three cows’
        \end{itemize}
      \item b. so sey ssang \textit{[the same as (2c)]}
        \begin{itemize}
          \item cow three pair
          \item ‘three pairs of cows’
        \end{itemize}
      \item c. so sey \{conglywu, mwuli\}
        \begin{itemize}
          \item cow three \{kind, group\}
          \item ‘three \{kinds, groups\} of cows’
        \end{itemize}
      \item d. mwul sey pang.wul
        \begin{itemize}
          \item water three drop
          \item ‘three drops of water’
        \end{itemize}
      \item e. mwul sey can
    \end{itemize}
\end{itemize}
water three cup
‘three cups of water’
f. mwul sam lithe
water three liter
‘three liters of water’

The underlined expressions in these phrases are numeratives, and one of them, *myeng*, is a classifier. The classifier, unlike the other numeratives, has no English counterpart, which is reflected in the lack of a counterpart thereof in the English translation of (10a). Nonetheless, (10a) draws syntactic parallels with the other numeral noun phrases.

They all fall under one of the two standard forms of numeral noun phrases with numeratives:

\[ \text{[NNP3]} \quad N - \text{[Num – CL*]} \]

It is the same with numeral noun phrases falling under the other of the two forms:

\[ \text{[NNP4]} \quad \text{[Num – CL*]-uy} – N \]

That is, Korean classifiers can figure in numeral noun phrases falling under this form (e.g., (8b)) to draw syntactic parallels with numeral noun phrases of the same form that contain other kinds of numeratives (e.g., (2d)). Accordingly, classifiers belong to a wide syntactic class, the class of numeratives, with other numeratives.

If so, what is the syntactic criterion for numeratives? One might take the above two forms
See, e.g., Lee & Ramsey (2000, 86 & 104-5) and Sohn (1999, 204f). So Aikhenvald (2000, §4.2.2) is wrong to take Korean classifiers to be suffixes to numerals. Note that it is reflected in Korean orthography that numeratives are not suffixes—the orthography requires a space between numeratives and preceding numerals.

For example, the noun *so* ‘cow’ has no modifier in the following sentence:

*Ceki so-ka kanta.*
There cow-NOM go
‘There goes a cow’ (Or ‘There go some cows.’)

Chierchia (1998) argues that such nouns, which can figure as bare nouns, must be mass nouns. But the Korean *so* ‘cow’, for example, can figure as a bare noun because Korean, like Latin, does not have articles, not because it is a mass noun. See footnote 12.

Lee & Ramsey say that “bound nouns” are nouns that “do not appear independently in the sentence but must instead be preceded by a modifier” (2000, 86). They are also called “incomplete nouns” or “dependent nouns”. Note that in Korean, which is a head-final language, modifiers of nouns must precede the nouns.

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special kind of bound nouns. They differ from other bound nouns in that they can be preceded by numerals.\footnote{Not all bound nouns are numeratives. For example, \textit{kes} ‘thing’ is a bound noun that cannot take numerals but can take demonstratives, as in \textit{i kes} [this thing, ‘this thing’].} That is, numeratives are \textit{bound nouns} that can be modified by \textit{preceding numerals}.

This suggests a partial syntactic criterion for numeratives:

\begin{center}
\text{[CL*1]} \quad \text{A Korean noun is a numerative only if it can combine directly with a preceding numeral.}
\end{center}

The underlined expressions in (10a)–(10f) satisfy this criterion. The phrases, which fall under the form \[\text{[NNP3]},\] include phrases of the following form:

\begin{center}
\text{[N-CL*]} \quad \text{Num – CL*}
\end{center}

(Call instances of this form \textit{numeral-numerative phrases}.\footnote{Not all bound nouns are numeratives. For example, \textit{kes} ‘thing’ is a bound noun that cannot take numerals but can take demonstratives, as in \textit{i kes} [this thing, ‘this thing’].}) But not all nouns that can take preceding numerals are numeratives. In Korean, as noted above, some robust (i.e., non-bound) common nouns can also combine directly with preceding numerals. In (7a)–(7c), for example, \textit{haksayng} ‘student’, \textit{nala} ‘country’, \textit{hak.kyo} ‘school’, and \textit{tho.kki} ‘rabbit’ do so. How can we distinguish these and other similar nouns from numeratives?

Call nouns, bound or not, that can be modified by preceding numerals \textit{numerative-like}, and robust common nouns that can be so modified \textit{pseudo-numeratives}. Pseudo-numeratives can combine with some numerals to form numerative-free numeral noun phrases of the first form:
Now, pseudo-numeratives can also enter the other of the two numerative-free forms:

\[ \text{[NNP1]} \quad N - \text{Num}_n \]

For example, *haksayng* ‘student’, which takes a preceding numeral to yield (7a), can also take the postposed numerals, as in (7b). Numeratives, by contrast, cannot combine with postposed numerals. Although they can combine with preceding numerals, as in (10a)–(10b), *myeng* and *ssang* ‘pair’, for example, cannot take postposed numerals; *myeng seys* and *ssang seys* are ill-formed.

So we can formulate the following criterion for Korean numeratives:

\[ \text{[CL*2]} \quad \text{A numerative-like noun of Korean is a *numerative* if and only if it cannot combine directly with postposed numerals.} \]

This, together with [CL*1], which says that Korean numeratives must be numerative-like, yields a complete criterion for Korean numeratives. We can use them to conclude, for example, that *mwul* ‘water’ is not a numerative (it violates [CL*1]), and that the underlined nouns in (10a)–(10f) are numeratives while the nouns figuring in (6a)–(6d) and (7a)–(7c) are not.

Now, we have practical difficulties in applying the criterion formulated above to nouns that are used sometimes as robust common nouns and sometimes as classifiers (e.g., *salam* ‘person’).
To deal with such nouns, it is useful to invoke a subsidiary criterion:\footnote{Note that [CL*3], unlike [a], does not require numeratives to figure in instances of [NNP3] or [NNP4].}

[C\text{L*3}] A numerative-like noun of Korean is a numerative, if the phrase resulting from its combining with a preceding numeral can combine with other nouns to figure in numeral noun phrases (viz., instances of [NNP3] and [NNP4]).

Let me explain.

Consider the following constructions:

(11)  
\begin{align*}
\text{a. } \quad \text{Ceki salam-i kanta} & \quad \text{there person-NOM go} \quad \text{‘There goes a person (or there go some people).’} \\
\text{b. } \quad \text{salam seys} & \quad \text{person three} \quad \text{‘three people’} \\
\text{c. } \quad \text{sey salam} & \quad \text{three person} \quad \text{‘three people’} \\
\text{d. } \quad \text{haksayng sey salam} & \quad \text{student three CL_{\text{human}}} \quad \text{‘three students’}
\end{align*}
e.  *haksayng sey haksaying
student three student
‘*three students student(s)’
f.  salam sey salam
person three CL_{human}
‘three people’

In (11a), salam is used as a robust noun that means people. And in (11b), it combines directly with the postposed numeral sey(s) ‘three’ (which takes the noun form seys or the adjective form sey). So it seems reasonable to take the same noun to combine with the preceding numeral sey(s) ‘three’ in (11c). But one cannot take the same noun to be used in (11d). For numeral-noun phrases (viz., instances of [NNP2]) do not combine with preceding nouns to figure in more complex numeral noun phrases. The numeral-noun phrase (7a), sey haksaying ‘three students’, for example, cannot combine with preceding nouns; (11e), for example, is ill-formed. So (11d) must be considered a phrase that includes sey salam as a numeral-numericative phrase. This means that salam figures in (11a) as a numericative (specifically, a classifier for humans). And (11f) can be given the same analysis: salam is used as a classifier after the numeral (the underlined), but as a robust noun before the numeral. So we must distinguish the two uses of salam as amounting to two homonymous nouns: (a) a robust count noun for people (or humans), and (b) a classifier for humans.  

The above analysis of different uses of salam invokes the principle that numeral-noun phrases cannot combine with other nouns to figure in more complex numeral noun phrases. This  

\[ \text{64} \]  

Compare this with distinguishing the two uses of ‘cup’ in ‘three of those cups’ and ‘three cups of coffee’.
principle is equivalent to [CL*3]. So we can use this criterion to see that the noun *salam* following
the numeral in (11d) and (11f) is a numerative. Similarly, we can use it to see that the nouns directly
following numerals in instances of [NNP4] (e.g., (8b)\(^65\)) are numeratives.

The criterion [CL*3] is useful, as we have seen, but it is not always applicable. Some
numeratives cannot at all figure in instances of [NNP3] or [NNP4]. For example, the bound noun
*pen* ‘time’ can combine with preceding numerals, as in *sey pen* [three time, ‘three times’], to figure
in, e.g., the Korean translation of ‘I got across him *three times* today.’ But *sey pen* ‘three times’
cannot combine with nouns to figure in numeral noun phrases. So we cannot apply [CL*3] to
conclude that it is a numerative. But we can apply the other criteria, [CL*1] and [CL*2], to reach
this conclusion: *pen*, which can take preceding numerals, cannot combine with postposed numerals.
It is the same with other numeratives that do not figure in instances of [NNP3] or [NNP4]. So
[CL*1] and [CL*2] remain the primary criteria.

### 4.4. Classifiers as Paranumerals: Semantics

Numeratives of classifiers languages, which include classifiers, form a syntactic class. Korean
numeratives, for example, are traditionally considered bound nouns modifiable by numerals. And
we can give a syntactic characterization of Korean numeratives based on this view. If so, what

\(^{65}\)Here is (8b):

(8)  b.  *sey myeng-uy haksayng*
   three CL\_human-GEN student
   ‘three students’

In this phrase, the numeral-numerative phrase (which is a kind of noun phrase) modifies the noun
by taking the genitive particle *-uy*.
distinguishes classifiers from other numeratives? Do they form a smaller syntactic class under the class of numeratives? Or are they distinguished from other numeratives by non-syntactic criteria?

While drawing syntactic parallels, numeratives are not semantically homogeneous. Even among numeratives others than classifiers, we can distinguish various kinds. And the distinctions are drawn mostly on semantic grounds. Accordingly, the distinction between classifiers and the other numeratives, I think, is primarily a semantic distinction.

To see this, it is useful to distinguish numeratives into several classes. Yuen Ren Chao gives the most thorough classification of numeratives in his influential study of Chinese, A Grammar of Spoken Chinese (1968). In this work, he distinguishes Chinese numeratives into nine groups (ibid., 584-620). We may put aside four of the nine groups, which are peripheral, for the present purpose. Here are the other five, the core groups:

(A) “classifiers”: tou (CL_animal), ben (CL_book), etc.

(B) “group” numeratives:

(i) qun ‘group, flock’, zu ‘section, group’, etc.

(ii) zhong ‘kind, species’, lei ‘kind, category’, etc.

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66 Chao calls numeratives “measure words” (or “measures”), using the usual translation of the traditional term in Chinese grammar, liàngcí, whose literal translation is ‘quantity word’. But he uses the term “measure words” in an attenuated sense just for what I call numeratives. Chao does not take classifiers to relate to units or standards for measuring quantity, and hold, correctly on my view, that classifiers match only count nouns, which he calls “individual nouns” to contrast with “mass nouns” (1968, 505-509).

67 They are for either (a) numeratives matching verbs or (b) (regular) nouns reclassified as numeratives because they are used in special ways to combine directly with numerals.

68 The examples given below are from Chao (1968, 584-620), but contemporary pinyin is used to romanize them.
(iii)  


(C)  “partitive” numeratives: pian ‘slice’, di ‘drop’, etc.

(D)  “container” numeratives: bei ‘cup’, xiang ‘box’, etc.

(E)  “standard” numeratives: bang ‘pound’, li ‘(Chinese) mile’, etc.

All the numeratives except classifiers can be found in non-classifier languages as well. Classifier languages, by contrast, have classifiers as well. In particular, Korean, like Chinese, has classifiers as well as numeratives of all the other kinds.69

To compare classifiers with the other numeratives, it is useful to refine Chao’s classification. Among the various groups of numeratives, the second group, the group of “group” numeratives, is much less homogeneous than the others. So it is useful to distinguish numeratives of the group into three kinds.70

(i)  collective numeratives: qun ‘group, flock’, zu ‘section, group’, etc.

(ii)  kind/manner numeratives: zhong ‘kind, species’, lei ‘kind, category’, etc.


69They are:

(C*)  cokak ‘slice, piece’, pang.wul ‘drop’, etc.
(D*)  can ‘cup’, sangea ‘box’, etc.
(E*)  kun ‘(Korean) pound’, li ‘(Korean) mile’, etc.

70Edkins distinguishes between collective and kind/manner numeratives (1857, 119-135; 1864. 127f; 2868, 81-89). He lists dui ‘pair, couple’ and shuang ‘pair, couple’ among collectives.
Classifiers, as we shall see, are closely related to numeratives of the third kind, namely, paranumeral numeratives.

Now, are classifiers simply a kind of measure words, as the measure word thesis holds? The term ‘measure word’ is used for a wide range of numeratives. Although only standard numeratives are measure words in the strict sense, expressions specifying the units or standards for measuring quantity (or amount), as Chao notes (ibid., 604), it is usual to use the term broadly to include partitive and container numeratives as well. But not all numeratives can be considered measure words. One cannot take Chao’s “group” numeratives to be measure words even in the broadest sense. One would not take English paranumerals (e.g., ‘pair’, ‘couple’, ‘dozen’, ‘score’) to relate to units or standards, precise or rough, for measuring quantity. Nor can their classifier language counterparts be taken to relate to such units or standards. While measure words relate to measuring quantity, paranumerals relate to counting. They have transparent relations to (regular) numerals, and relate to the numbers of some things. It is the same with classifiers.

Classifiers, I think, are siblings of the usual paranumerals. These, which Chao counts among “group” numeratives, are variants of numerals figuring as syntactic peers of measure words. So they can be considered grammaticalized cousins of numerals serving as numeratives. It is the same, I suggest, with classifiers. That is, they are paranumerals of a special kind. Although they draw syntactic parity with measure words, they have little semantic affinity with measure words. Like the usual paranumerals, classifiers also relate to the numbers of some things that the nouns matching them relate to. They differ from the usual paranumerals only in that they relate to the number one while the usual paranumerals relate to larger numbers: 2, 12, 20, etc. So just as sey ssang [three pair,
For example, the English 'head', 'sail', and 'stem', which figure in 'three head of {cattle, Shorthorns}', 'three sail of ships', and 'three stems of roses', respectively, might be considered paranumerals for one, but the phrases involving them are considered exceptions. See footnote 133.

On this account of classifiers, the paranumeral account, classifier languages differ from non-classifier languages in that they have paranumerals for one that accord with various kinds of nouns, and employ them regularly in numeral noun phrases relating to the number, such as counterparts of (1a), ‘three cows’. Non-classifier languages, by contrast, have only paranumerals for larger numbers (or, if they have paranumerals for one, they are not regularly used so that numeral noun phrases involving them are considered rare exceptions72).

Now, most classifier languages have multiple classifiers. Why do they not have just one classifier if classifiers are paranumerals for one? The reason, I think, is essentially the same as the reason that English has multiple paranumerals for two: ‘pair’, ‘couple’, and ‘brace’. Although these have a common character by relating to two, they are restricted to different kinds of linguistic or non-linguistic contexts: ‘pair’ and ‘couple’ accord with different kinds of nouns, and ‘brace’ is used mostly in hunting or shooting. Similarly, multiple classifiers of the same classifier language are distinguished from each other because they have restrictions in their use.73 Despite the resulting difference, however, they have a common character. They are different paranumerals for one, just as the English ‘pair’, ‘couple’, and ‘brace’ are different paranumerals for two.

What is the reason for holding the paranumeral account? There are two kinds of justification

72For example, the English ‘head’, ‘sail’, and ‘stem’, which figure in ‘three head of {cattle, Shorthorns}’, ‘three sail of ships’, and ‘three stems of roses’, respectively, might be considered paranumerals for one, but the phrases involving them are considered exceptions. See footnote 133.

73The multiplicity of classifiers in classifier languages is comparable to the multiplicity of names for groups of animals in English: ‘herd’, ‘swarm’, ‘shoal’, etc.
for the account. First, it yields good explanations of important general features of classifiers:

(a) While drawing syntactic parallels with measure words, classifiers having little semantic affinity with measure words.

(b) Classifiers do not accord with mass nouns; they accord only with count nouns.

(c) In many languages, some classifiers can be omitted with little difference in meaning.

Second, there is some direct evidence that relates classifiers to the number one.

Those who hold the measure word account deny (a) because they take all kinds of numeratives to be measure words. This is clearly wrong, considering that numeratives include paranumerals. And classifiers have much more semantic affinity with the usual paranumerals than with measure words. One can explain this by taking classifiers to be a special kind of paranumerals.

Classifiers differ from measure words in that they do not accord with mass nouns. In this respect, too, they are like the usual paranumeral numeratives. So the following, for example, are equally ill-formed:

(12) a. *{mwul, wuywu, koki} sey ssang
    {water, milk, meat} three pair
    ‘*three pairs of {water, milk, meat}’

b. *{mwul, wuywu, koki} sey kay
    {water, milk, meat} three \text{CL}_{\text{general}}
    ‘*three {water, milk, meat}’
The phrases in (12a) are ill-formed because ssang ‘pair, couple’, being a paranumeral, does not accord with mass nouns: mwul ‘water’, wuywu ‘milk’, koki ‘meat’, etc. Those in (12b) are ill-formed for the same reason. Mass nouns, which have no specific classifiers, do not accord with the general classifier kay, either, although this can be used for “classifiable” nouns without specific classifiers.

Mass nouns, we have seen, are not “classifiable”. That is, they can have no matching classifiers, general or specific. Thus nouns with matching classifiers must be count. This is flatly denied by proponents of the mass noun thesis. But the thesis, we have seen, is flagrantly wrong. And the observation that only count noun can take classifiers (in the proper sense) dates almost as far back as study of classifiers. In his 19th century grammar of Mandarin Chinese, Joseph Edkins distinguishes “appellative nouns” (i.e., count nouns) from “material nouns” (i.e., mass nouns), and characterizes “distinctive numeral particles” (i.e., classifiers) as numeratives “appropriated to appellative nouns” (1857, 121; 1864, 128; 1868, 81). More recently, Chao also distinguishes Chinese count nouns (which he calls “individual nouns”) from mass nouns, and relates classifiers to count nouns. “Mass nouns”, he says, “do not have . . . classifiers” (1968, 508), whereas “[i]ndividual nouns are associated with . . . classifiers” (ibid., 507).

This observation is ignored by Greenberg in his influential study of classifiers across a wide range of languages, where he takes the use of classifiers to be due to some semantic deficiency of nouns matching them: those nouns, unlike count nouns, lack specification of “some method of individuation” (1972, 189), and call for expressions specifying the methods, classifiers, to combine

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74See my (2011, §§2-3) for a discussion of Edkins’s classification.
with numerals.\textsuperscript{75} After three decades of subsequent typological studies of classifiers, however, Aikhenvald returns to the generalization reached by Edkins and Chao. She says, “The use of numeral classifiers may depend on the countability of a noun; classifiers tend to be employed with countable rather than mass nouns” (2000, 249; my italics). I think the reservation she seems to suggest (“may” and “tend to”) results from failing to distinguish classifiers clearly from other numeratives. Classifiers proper, which contrast with measure words, can match only count nouns.\textsuperscript{76}

And the paranumeral account yields a straightforward explanation of this. Just as regular numerals can directly combine only with count nouns, so can paranumeral numeratives, including classifiers, accord only with count nouns.

Unlike most who are influenced by his account of classifiers, Greenberg rightly notes that the account has difficulties in coping with non-mandatory classifier systems (1972, 189). It conflicts with the existence of optional classifiers, such as the Korean myeng. The noun haksayng ‘student’, for example, can take this classifier to combine with numerals, as in (8a)–(8b), although it can also combine directly with numerals, as in (6a)–(7a). But the noun could not combine directly with numerals, if the reason it takes the classifier in (8a)–(8b) were that it lacks some semantic feature common to count nouns. The paranumeral account, by contrast, has no difficulty in coping with languages with optional classifiers. On this account, classifiers are paranumerals used as mere syntactic peers of measure words, not devices for making up for some deficiency in the semantic

\textsuperscript{75}So he holds that “the classifier is an individualizer” (\textit{ibid.}, 184), which leads to a version of the measure word account. See also Allan (1977, 294). For more on Greenberg’s and Allan’s analyses of (numeral) classifiers, see my (2010, §§6-7).

\textsuperscript{76}Some languages might have numeratives akin to classifiers that match mass nouns. Most of such numeratives, which must be considered pseudo-classifiers, would result from genuine classifiers being used homonymously as numeratives of other kinds (e.g., measure words) as well.
character of matching nouns. If so, there is no reason that languages with classifiers must require them in numeral noun phrases with nouns matching them.

Moreover, the account explains why omitting optional classifiers leads to little difference in meaning. The numeral-classifier phrase figuring in (8a)–(8b), sey myeng [three CLhuman, ‘three (for humans)’], for example, is essentially an alternative to numerals for three, on the account, because three times one is three; and this is the number indicated by the numeral preceding the numeral sey(s) ‘three’. So sey myeng and seys, like ‘three dozen’ and ‘thirty six’, have little difference in meaning.77 It is the same with other classifiers. Omitting them would not lead to much difference in meaning, because their primary semantic function is to yield phrases that indicate the same numbers as those indicated by the numerals that combine with them.

The paranumeral account, we have seen, yields explanations of important features of classifiers that cannot be squared with alternative accounts. This renders strong support for the account. Furthermore, there is some evidence that directly relates classifiers to the number one.

First, the Korean classifier ccak means one of a pair, and is used for some things that usually form a pair, as in kwutwu sey ccak [shoe three CLone.of.a.pair, ‘three odd/unmatched shoes’] (see Martin [2004, 436]). So it relates clearly to the number one just as the paranumerals ssang ‘pair, couple’ and kyeley ‘pair, couple’ do to the number two. Similarly, its Chinese and Japanese cousins, zhi (Chinese) and seki (Japanese),78 which also mean one of a pair, relate to the number one while

77 So (8a) is interchangeable with (6a), haksayng seys [student three, ‘three students’], and (8b) with (7a), sey haksayng [three student, ‘three students’].

78 They are among the most commonly used classifiers in Japanese and Chinese. Downing lists seki as one of the 26 most commonly used Japanese classifiers (1996, 20). Chao lists zhi as the third in his list of 51 Chinese classifiers (1968, 590), and Wang says that the Wu dialect of Chinese uses it as a general classifier (1994, 228). See also Ahrens (1994, 206 & 228).
It derives from the Chinese general classifier ge, which stems from a noun denoting bamboo stalks. See Wang’s account of its origin (1996, 157ff).

Second, the Korean general classifier kay is also taken to relate to one although it is not etymologically related to a numeral. It is a Sino-Korean word associated with a Chinese character, and Korean lexicons for Chinese characters gloss the Chinese character for kay with nath. This is a native Korean word that means one or, more precisely, one thing considered as belonging to many things of the same kind. The Burmese general classifier -khu, it seems, has a more clear and direct relation to one. Burling says, “Burmese speakers sometimes include -khu in the same series as the [numerals] for the powers of ten: she, ‘ten,’ ya, ‘hundred,’ thaun, ‘thousand,’ etc.” (1965, 262). That is, the classifier is regarded by Burmese speakers as a numeral for one. While being used mostly as a classifier in contemporary Burmese, -khu seems to retain its origin as a numeral.

Not all classifiers, to be sure, have as transparent relations to numerals as those discussed above. The Korean classifier mali, for example, stems from a noun that means heads. In being recruited as a numerative matching nouns for animals, however, it is related to counting such things (e.g., cows), and relates to the numbers thereof. This is understood by its users, and is reflected in dictionaries. The Yonsei Korean Dictionary, for example, defines it as a bound noun (viz., numerative) that relates to “the unit for reckoning the number of animals, fish, insects, etc.” (Yonsei ILIS 1998, 643; my italics). This definition, which relates the classifier to counting, contrasts it with

79 It derives from the Chinese general classifier ge, which stems from a noun denoting bamboo stalks. See Wang’s account of its origin (1996, 157ff).

80 See, e.g., Martin et al. (1967, 1), which incorporates Sino-Korean dictionaries.

81 According to the Yonsei Korean Dictionary, nath means “each one (hana.hana) of some things that can be counted” (Yonsei ILIS 1918, 349), where the word translated as ‘each one’, hana.hana, is the reduplication of the native Korean numeral for one, han(a). (All translations from Korean are mine.) It also has an old usage as a classifier (for, e.g., grains). See Scott (1893, 46), Underwood (1914, 58), and Gale (1911, 182).
measure words, such as *lithe* ‘liter’, which the dictionary defines as a bound noun for “the basic unit used to *measure* the *quantity* of mainly gas or a liquid tantamount to the quantity of 1000 cubic centimeters of water at 4 degree centigrade” (*ibid.*, 638; my italics). The definition of *mali* has no clause that helps to distinguish the classifier from the usual paranumeral numeratives, which the dictionary also relates to counting. From the definitions of usual paranumerals, however, we can see how classifiers differ from them. The paranumeral *ssang* ‘pair, couple’, for example, is defined as a bound noun for “the unit for counting [things] by pairing [them] *two by two*” (*ibid.*, 1191; my italics). If so, what distinguishes classifiers from the paranumeral is that they relate to counting things *one by one*. Although dictionaries fail to make this explicit, it is understood by their readers.

If so, why can we use classifiers to count things one by one while we cannot use other numeratives to do so? We can use *ssang* ‘pair, couple’ to count things two by two because it relates to the number two. Similarly, we can use classifiers to count things one by one because they relate to the number one. That is, they are paranumerals for one as *ssang* is a paranumeral for two. So when one counts cows, for example, as *han mali* [one CL\_animal], *twu mali* [two CL\_animal], *sey mali* [three CL\_animal], etc., one essentially says “one times one”, “two times one”, “three times one”, etc. The so-called “units” for counting are “units” of natural numbers, and the most basic among them, the one for the default way of counting, is the number one. Classifiers, we have seen, are variants of numerals for this “unit”.

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82The word ‘unit’ is multiply ambiguous, and one of its meanings is *the number one*, which it means in “A number is a multitude composed of units” (Euclid 2002, 157). See, e.g., the *Oxford English Dictionary* (1989). So Emeneau, for example, makes an equivocal use of “unit” when he says “classifiers” (i.e., numeratives) mean “one unit quantity or number of that denoted by the noun that precedes” (1951, 93). By “one unit . . . number”, he means simply a *number* (especially, the number one), by “one unit quantity” a *unit for measuring quantity* (e.g., a liter).
5. Criteria for Korean Count Nouns

Korean, we have seen, is a classifier language that has count nouns. And the language has a wide range of morphosyntactic devices for distinguishing count nouns from mass nouns. It would be useful to discuss several kinds of such devices to substantiate the count noun thesis.\(^3\)

5.1. Quantifiers relating to the number

The English quantifiers ‘many’ and ‘much’ relate exclusively to the *number* and the *quantity*, respectively. In this respect, they differ from ‘a lot (of)’ and their common comparative form ‘more’, which have a duality in relating to both the number and the quantity. The Korean word commonly used to translate both ‘many’ and ‘much’, *man(h)-*, has the same number/quantity duality, and its strict English counterpart is ‘a lot (of)’. This, to be sure, does not mean that Korean has no device for distinguishing between number and quantify. It has many quantifiers that specifically relate to the number, and they yield complete syntactic criteria for count nouns.

The Korean *man(h)-*, like the English ‘a lot’, is ambiguous. Its adjectival form, *man(h)-un* ‘a lot of’, can combine with both mass and count nouns, as in the following:

\[(13) \quad \text{a. man(h)-un so a.lot.of cow} \]

And speakers of Korean can understand the number/quantity duality of *man* (*h*)—‘a lot (of)’—without relating it to other quantifiers that relate specifically to the number (e.g., those discussed below). See my (2010, 4.4.2).

Both are Sino-Korean words. The Sino-Korean *yang*, like its Chinese cognate, is more strict than ‘quantity’ in that it is never used for the number. 84

Korean, like English, has abstract nouns for the number and the quantity: *swu* ‘number’, and *yang* ‘quantity (i.e., amount)’. 85 And combining *swu* ‘number’ with *man(h)*- yields a quantifier phrase amounting to ‘many’. 86

\[
\begin{align*}
\text{[a]} & \quad \text{swu-ka man(h)-} \\
& \quad \text{number-NOM a.lot}
\end{align*}
\]

84 And speakers of Korean can understand the number/quantity duality of *man(h)*—‘a lot (of)’—without relating it to other quantifiers that relate specifically to the number (e.g., those discussed below). See my (2010, 4.4.2).

85 Both are Sino-Korean words. The Sino-Korean *yang*, like its Chinese cognate, is more strict than ‘quantity’ in that it is never used for the number.

86 Combining *yang* ‘quantity’ with *man(h)*- also yields a quantifier phrase: *yang-i man(h)*-[quantity-NOM a.lot, ‘a large quantity (of)’]. This does not quite amount to ‘much’, because it matches count nouns as well. The Korean translation of ‘Hana’s water drops are *a lot in quantity*’, for example, is as well-formed as that of ‘Hana’s water is *a lot in quantity*’, although it has the count noun *mwul.pang.wul* ‘water drop’. (This noun is count, although *mwul* ‘water’ is mass. See (6c) in §4.1.)
The phrase matches only count nouns because it relates specifically to the number. Consider:

(13*) a. Hana-nun so-ka [swu-ka man(h)-ta].
Hana-TOP cow-NOM number-NOM a.lot-DECL
‘Hana has many cows.’ (Lit., ‘Hana’s cows are a lot in number.’)

b. *Hana-nun wuywu-ka [swu-ka man(h)-ta].
Hana-TOP milk-NOM number-NOM a.lot-DECL
‘*Hana has many milk.’ (Lit., ‘Hana’s milk is a lot in number.’)

(13*b) results from (13*a) by replacing so ‘cow’ with wuywu ‘milk’, but it is ill-formed. For mass nouns cannot match the quantifier phrase [a], which relates specifically to the number.

The phrase [a] is used mostly as a predicate, as in (13*a), and rarely as a determiner phrase, as in swu-ka man(h)-un so ‘many cows [= cows that are a lot in number]’. But Korean has a compound word stemming from the phrase that can figure as a determiner:

[b] swu.man(h)- ‘very many, a great number’.

This results from removing the case marker -ka in (a). But it does not quite mean many, as (a) does,

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87 The phrase is awkward, but it is not quite ill-formed.
but rather *very many*, as noted above (§2.1). And it usually takes the adjectival form *swu.man(h)-un* to figure as a pre-nominal determiner, as in (3a):

(3) a. *swu.man(h)-un* so very many cow ‘very many cows’

Despite such differences from [a], this quantifier also match only count nouns because it relates specifically to the number by involving the abstract noun *swu* ‘number’. So replacing *so* ‘cow’ in (3a) with mass nouns (e.g., *wuywu* ‘milk’) yields ill-formed phrases (e.g., (3*a)).

Korean has other quantifiers that can combine only with count nouns for the same reason:

[c] *mu.swu.ha-* ‘countless’

[d] *tay.ta.swu* ‘a great majority (in number)’

The quantifier [c], whose adjectival form *mu.swu.ha-n* is discussed above (§2.1), results from adding the predicate forming suffix -*ha-* to a compound with two Sino-Korean morphemes: *mu* ‘no, -less’, and *swu* ‘number’. And [d] consists of three Sino-Korean morphemes: *tay* ‘big, large’, *ta* ‘a lot’ (the Sino-Korean sibling of *man(h)-*), and *swu* ‘number’. Both [c] and [d] call for count nouns for the same reason that (a) and (b) do. For example, *mu.swu.ha-n so* ‘countless cows’ (i.e., (3b))

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88See, e.g., Yonsei ILIS (1998, 1112) and Martin (1992, 785).

89The last syllable of *swu.man(h)-un* is the suffix -(u)n that turns the stem of some predicates (viz., adjectives) to their adjectival forms. The same suffix figures in *mu.swu.ha-n* ‘countless’.
In tay.ta.swu-uy so ‘a great majority of cows’ are well-formed, but *mu.swu.ha-n wuywu ‘*countless milk’ (i.e., (3*b)) and *tay.ta.swu-uy wuywu ‘*a great majority of milk’ are not.

Now, we can use any of the quantifiers [a]–[d] to formulate a complete syntactic criterion for Korean count nouns, such as the Korean counterpart of the ‘countless’ criterion discussed above:

\[ KC1 \] The ‘mwuswuhan’ criterion:

A common noun of Korean is count if and only if it can combine directly with mwuswuhan ‘countless’ (without shifting to a subsidiary or deviant use).

For those quantifiers cannot match mass nouns while they can match any count nouns.

5.2. Distributive Operators

English has distributive operators (e.g., ‘each’ and ‘every’), and they yield criteria for English count nouns because they match only count nouns. Similarly, Korean has distributive operators that we can invoke to formulate complete syntactic criteria for Korean count nouns.

Both ‘each’ and ‘every’, being distributive, can match only count nouns. While ‘every’ is

\[ 90 \] In tay.ta.swu-uy, the genitive particle -uy is added to the noun tay.ta.swu ‘a great majority’ to make an adjectival phrase.

\[ 91 \] The Sino-Korean swu ‘number’ has Chinese and Japanese cognates: shu (Chinese) and su or kazu (Japanese). Accordingly, Chinese and Japanese have counterparts of [c]–[d]. The Chinese wu.shu [no.number, ‘countless’] and the Japanese mu.suu [no.number, ‘countless’] are cognates of [c]; the Chinese dai.duo.shu ‘a great majority’ and Japanese dai.ta.su ‘a great majority’ are cognates of [d]. And Japanese has a quantifier of the same structure as [b]: kazu-ooku [number-a.lot], which means many or very many (see Kodansha International [1995, 94] and Japan Foundation JLI [1986, 328] for this word). See my (2010, §4.4.1) and Kobuchi-Philip (2011, 307ff).
used only as a pre-nominal determiner, ‘each’ can be used adverbially or post-nominally as well:
(a) “They have each decided, haven’t they?” (adverbial), and (b) “She kissed them each on the forehead” (post-nominal). Korean has many counterparts of the adverbial use of ‘each’: kak.kak, cey.kak.kak, kak.ki, cey.kak.ki, kak.ca, etc. And the Korean suffix -mata, a particle that can replace case markers, also has the force of ‘each’. It might be compared to the post-nominal use of ‘each’.

All these, like ‘each’, rule out mass nouns.

To see this, consider the following:

(14) a. So-nun kak.kak (ta) etinka isanghata.
    Cow-TOP each (all) in.some.respects be.strange-DECL
    ‘Each cow is strange in one way or another.’

    b. So-mata (kak.kak) etinka isanghata.
    Cow-each (each) in.some.respects be.strange-DECL
    ‘Each cow is strange in one way or another.’

Replacing the underlined noun so ‘cow’ in (14a) or (14b) with mass nouns (e.g., wuywu ‘milk’) yields ungrammaticalities, such as the following:

\[92\text{Note that ‘all’ can also be used in these ways as well: ‘They have all passed through’, and ‘One ring to rule them all’.}\]

\[93\text{All of them, like ‘each’, can be used as nouns as well. The last, kak.ca, is used only for people. The other four are interchangeable, but kak.ki is used mostly in kak.ki taluta [each different, ‘each of . . . is different’]. Another counterpart is hana.hana, which results from reduplicating the native Korean numeral for one, han(a), but it usually figures in somewhat different constructions.}\]
(14*) a. *Wuywu-nun **kak.kak** (ta) etinka isanghata.

milk-TOP each (all) in.some.respects be.strange-DECL

‘*Each milk is strange in one way or another.’

b. *Wuywu-**mata** (kak.kak) etinka isanghata.

milk-each (each) in.some.respects be.strange-DECL

‘*Each milk is strange in one way or another.’

These are ill-formed because the distributive operators, -**mata** and **kak.kak**, cannot be anchored by mass nouns. They cannot be anchored by the mass noun wuywu ‘milk’, while they can be anchored by the count noun so ‘cow’. So we can invoke the operators to formulate a criterion for Korean count nouns:

**[KC2] The Distributive Operator Criterion:**

(a) A common noun of Korean is *count* if and only if it can anchor the distributive operators -**mata** and **kak.kak** (without shifting to a subsidiary or deviant use).

(b) A common noun of Korean is *count* if and only if it can replace so ‘cow’ in, e.g., (14a)–(14b) to yield a well-formed sentence (without shifting to a

94So removing the operators yield well-formed sentences, such as the following:

(14*) c. **Wuywu-nun** etinka isanghata.

milk-TOP in.some.respects be.strange-DECL

‘Milk is strange in one way or another.’

(To remove -**mata** in (14*b), it is necessary to replace it with a case or topic marker. Replacing it with the topic marker -**nun** yields (14*c).)

65
The first part of the criterion, (a), gives a general formulation of the criterion; the second, (b), specifies its implementation by appealing to the particular constructions (14a)–(14b). 96

5.3. Ordinal Numerals

Among numerals, we can distinguish cardinal numerals (in short, cardinals) and ordinal numerals (in short, ordinals). Korean ordinals, like English ordinals, can directly combine with count nouns, but not with mass nouns. 97 This yields a complete syntactic criterion for Korean count nouns.

Discussions of the mass/count distinction usually focus on cardinal numerals. But ordinal numerals can also combine with common nouns:

(15) a. the first cow (in the barn)

Note that the criterion does not require the sentence resulting from replacing so in (14a) or (14b) with a noun to be true. Whether or not all the cows are strange in one way or another, the criterion rules so ‘cow’ as count as long as (14b) is well-formed.

The Chinese counterpart of the Korean kak.kak ‘each’ is ge ‘each’, and the Japanese sorezore ‘each’. So we can invoke their adverbial uses, which involve no classifiers, to formulate distributive operator criteria for Chinese and Japanese count nouns. The Japanese construction dore ... mo ‘every, whichever’, like the Korean -mata ‘each’, also yields such a criterion, as does dore ‘which’ by itself. See Martin (2004, 176ff), who draws a mass/count distinction for Japanese nouns.

Note also that Korean cardinal numerals do not take classifiers or other numeratives when they are used, as in arithmetic, purely for abstract numbers:

i tehaki sam-un o-ita
two plus three-TOP five-be-DECL
‘Two plus three is five’
b. the second child

c. the third symphony

d. the fourth water drop (on the leaf)

And they help to distinguish count nouns from mass nouns: they can directly combine only with count nouns.98 So replacing the nouns in (15a)–(15d) with mass nouns yields ill-formed phrases:

(15*) a. *the first beef
   b. *the second milk
   c. *the third music
   d. *the fourth water

It is the same with native Korean ordinals: ches.ccay ‘first’, twul.ccay ‘second’, seys.ccay ‘third’, neys.ccay ‘fourth’, etc.99 They can directly combine with count nouns:

(16) a. ches.ccay so [first cow, ‘the first cow’]
   b. twul.ccay a.i [second child, ‘the second child’]
   c. seys.ccay kyohyangkok [third symphony, ‘the third symphony’]

98So Bunt contrasts ‘the third symphony’ with ‘*the third music’ (1985, 3).

99For a list of Korean numerals, see, e.g., Martin (1992, 176-9). The suffix -ccay figuring in the ordinals is a particle that turns native Korean cardinals (e.g., twu(l) ‘two’) to ordinals. (One exception is ches.ccay ‘first’, which results from suffixing the particle to ches, which by itself means the first, not to the cardinal han(a) for one.) The suffix differs from numeratives in that it is not a (bound) noun.
Korean has another series of ordinals, the Sino-Korean ordinals that result from prefixing *cey-* to Sino-Korean cardinals: *cey.il ‘first’, *cey.i ‘second’, *cey.sam ‘third’, etc. It also has “impure” ordinals, which result from inserting some numeratives into native ordinals, as in the following:

- se *ccay sokoki [fourth water drop, ‘the fourth water drop’]
- *twul.ccay wuywu [second milk, ‘*the second milk’]
- *seys.ccay umak [third music, ‘*the third music’]
- *neys.ccay mwul [fourth water, ‘*the fourth water’]

So we can invoke native Korean ordinals\textsuperscript{100} to formulate a complete criterion for Korean count nouns:

\[\text{KC3] The Ordinal Criterion:}\]

A common noun of Korean is count if and only if it can combine directly with native Korean ordinals (without shifting to a subsidiary or deviant use).\textsuperscript{101}

\textsuperscript{100}Korean has another series of ordinals, the Sino-Korean ordinals that result from prefixing *cey-* to Sino-Korean cardinals: *cey.il ‘first’, *cey.i ‘second’, *cey.sam ‘third’, etc. It also has “impure” ordinals, which result from inserting some numeratives into native ordinals, as in the following:

- se *ccay
  - three cup/glass *ccay
  - ‘the third glass/cup of’.

(This can be used in translating into Korean ‘Hana is drinking the third glass of wine.’) I think both Sino-Korean and “impure” ordinals can be used with mass nouns as well by relating to how many times an event (e.g., drinking a glassful of wine) takes place.

\textsuperscript{101}Malay ordinals, like Korean ones, can combine with numerals without mediation of numeratives, which must yield a criterion for count nouns. But (Mandarin) Chinese and Thai
5.4. The para-plural particle -tul

Korean has a particle akin to the English plural morpheme ‘-s’: -tul. One may suffix the para-plural particle to some nouns to indicate that more than one of the things the nouns denote are in question. Although it differs from the English ‘-s’ in several important respects, the particle can be added only to count nouns in its primary use. This yields a complete criterion for count nouns.

Compare the following:

\[(17) \quad \text{a. Ku so-nun isanghata.} \]
\[\text{that/those cow-TOP be.strange-DECL} \]
\[\text{‘That cow is strange.’} \]

\[\text{b. Ku so-tul-un isanghata.} \]
\[\text{that/those cow-PL-TOP be.strange-DECL} \]
\[\text{‘Those cows are strange.’} \]

These sentences differ only in that (17b) has the particle -tul suffixed to so ‘cow’, but the difference in meaning between them amounts to that between ‘That cow is strange’ and ‘Those cows are strange’.
strange. According to the particle is often called a plural marker. And Kang (1994, 3) and Noma (2002, 276f & 292f), who distinguish Korean nouns into mass and count, suggest that it cannot be added to mass nouns. This is not correct, as is well-known, because the particle has different uses. By distinguishing the different uses, however, we can see that their suggestion is not far off the mark.

The particle -tul can be attached to mass nouns, as in the following:

(17) c. Wuywu-tul-ul man(h)i masy-ess-ta. [Cf. Song (1998b, 20)]
    milk-PL-ACC a.lot drink-PAST-DECL
    {We, You, They} drank a lot of milk.

In (17c), however, it is not used in the same way as in (17b): it does not indicate that more than one of the things denoted by the noun it is suffixed to are involved, but that many subjects, which are implicit, are involved in drinking what the noun relates to, milk. So we can refine the criterion suggested by Kang and Noma by considering the use of the particle in contexts that rule out the secondary use. (17b), for example, provides such a context. The noun it is added to, so ‘cow’, figures in an explicit subject phrase in the sentence, and mass nouns cannot replace it. Replacing

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102 Accordingly, -tul is mandatory in (17b), although it is usually optional. Removing it turns (17b) to (17a), which states that the one cow in question is strange. See Song (1988c).

103 See also Song (1988c, 308f).

104 See, e.g., Song (1988b, 20) and Lee (2000, 117).

105 For more on the uses of -tul, see, e.g., Song (1998b; 1998c), Martin (1992, 829ff), Sohn (1999, 348f), and Im (2000). Martin notes that the second use of -tul “seems to be a recent addition to the spoken language, unnoticed until 1937 (Choy Hyenpay)”, referring to Choy (1937). Sohn distinguishes the two uses of -tul as the “plural particle” (the first) and “plural suffix” (the second) (ibid., 348f).
it with wuywu ‘milk’, for example, yields an ill-formed sentence:


that/those cow-PL-TOP be.strange-DECL

‘*{That, Those} milks are strange.’

So we can invoke the para-plural particle to formulate a complete syntactic criterion for Korean count nouns:

[KC4] *The `-tul’ Criterion:

(a) A common noun of Korean is count if and only if it can take the particle -tul as used in the primary way (without shifting to a subsidiary or deviant use).

(b) A common noun of Korean is count if and only if it can replace so ‘cow’ in, e.g., (17a) (without shifting to a subsidiary or deviant use).

In ruling (17c) as ill-formed, it is assumed as usual that the underlined noun, wuywu ‘milk’, is used in its primary sense (viz., for milk). One might count (17c) as well-formed by taking the noun to be used for, e.g., cups of milk, as one might consider ‘three milks’ (as used in restaurants) well-formed by taking ‘milk’ to be used in the same sense. But this does not mean that the noun wuywu ‘milk’ is count, because to use it to mean cups of milk is not to use it in its primary sense. The noun cannot replace the underlined so ‘cow’ in (17b) without shifting to a subsidiary or deviant
use. Count nouns, by contrast, can do so while retaining their primary senses.¹⁰⁶

5.5. Size and Shape Adjectives

Mass nouns have an interesting feature ignored in most discussions of the mass/count distinction. They do not admit modification by size adjectives: *small beef, *mid-sized gold, and *big oil are ill-formed while small cows, mid-sized cars, and big oil drops are fine. It is the same with shape adjectives: long, short, tall, flat, thick, slim, spherical, oval, round, cubic, etc. For example, *long beef, *flat gold, *round milk, and *spherical wine are ill-formed while long cows, flat cars, round lakes, and spherical wine bottles are not.¹⁰⁷

Similarly, Korean mass nouns do not admit modification by adjectives indicating size or shape. So wuywu ‘milk, sokoki ‘beef’, kum ‘gold’, kilum ‘oil’, for example, cannot take cakun ‘small’, khun ‘big’, twungkun ‘round’, pyengpyenghan ‘flat’, etc. By contrast, so ‘cow’, catong.cha ‘automobile’, kilum.pang.wul ‘oil drop’, for example, can take those adjectives, because they are count nouns.

So we can formulate a criterion for Korean count nouns as follows:

¹⁰⁶Chinese and Japanese also have para-plural particles: men (Chinese), and tachi, domo, etc. (Japanese). They differ from the Korean -tul in that their use is restricted to a small group of count nouns. Korean has another plural particle, -ney, which has a similarly restricted usage. See Martin (1992, 711f). The Tagalog mga, like -tul, can be used with all count nouns in its primary use while having deviant uses. Note that even in languages with a singular/plural morphology, too, pluralization (e.g., the English ‘waters’) might have deviant uses (see footnote 17).

¹⁰⁷See Quine (1960, 104), McCawley (1975), Bunt (1985), Gil (2008), and Chierchia (2010). Bunt distinguishes adjectives into mass and count adjectives while including size/shape adjectives among count adjectives. The distinction is criticized by, e.g., Pelletier & Schubert (2003, 252), because very few adjectives, as Bunt himself notes (1985, 211), remain in the mass adjective category. But their criticisms do not apply to the view that taking size/shape modification is a sufficient condition for count nouns.
[KC5] *The size/shape modification criterion (for Korean):*

(a) A common noun of Korean is count if it admits modification by size or shape adjectives (without shifting to a subsidiary or deviant use).

(b) A common noun of Korean is count if it admits modification by *cakun* ‘small’, *khun* ‘big/large’, and *cwungkan kuki-uy* ‘mid-sized’ (without shifting to a subsidiary or deviant use).

This, unlike the criteria discussed above, is a *partial* criterion. It gives only a sufficient condition for count nouns. We cannot turn it to a complete criterion, one that gives a necessary condition as well. Some count nouns (e.g., abstract ones) might not admit size or shape modification because size and shape do not pertain to the things they denote (or for some other reason). Most concrete nouns that do not admit size or shape modification, however, do not do so because they are mass nouns. We can confirm this by applying to those nouns other criteria for count nouns. For example, *wuywu* ‘milk’ and *sokoki* ‘beef’, which fail [KC5], fail the other criteria formulated above as well.

It would be useful to discuss some apparent counterexamples to the size/shape modification criterion: (a) the Korean *mwul* ‘water’, (b) the English ‘money’ and its cousins in other languages, and (c) pseudo-mass nouns of English (e.g., ‘furniture’).

Although *mwul* ‘water’ is a mass noun, it takes *khun* ‘big, large’. For the noun, like ‘water’, is ambiguous. It sometimes means *water*, sometimes *rivers*, *seas*, etc. It is used as a mass noun in

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108 See the discussion of *khun.mwul* ‘flood’ in note 110.

109 Takashi Iida noted these cases while confirming that the Japanese counterpart of [KC5] holds as well (personal conversation).
the first sense (mwul₁), but as a count noun in the second (mwul₂). So the noun that can take size adjectives is mwul₂ (rivers etc.), not mwul₁ (water). And khun mwul₂ is also used figuratively for big areas for career or living (for a large river, for example, is a big area for fish).¹¹⁰

The English ‘money’ and Korean ton ‘money’, for example, are mass nouns, but they can take some size adjectives, as in ‘big money’ and khun ton [big money, ‘big money’]. I think these are both idiomatic phrases in which the adjectives are used somewhat figuratively. So it is not usual to use ‘small money’ or its Korean counterpart,¹¹¹ and extremely rare to use ‘mid-sized money’ or its Korean counterpart (as in ‘mid-sized money, for a full-sized Buick’¹¹²). Even to take size adjectives as used figuratively, however, it seems that ‘money’ and ton ‘money’ must take subsidiary or deviant senses, which are count (so ‘a big money’ and ‘big moneys’ are well-formed). They are used to mean, roughly, amounts of money one can earn (or get across) in one’s life (or, in the Buick case, amounts of money one might pay for cars [i.e., car prices]). If so, ‘big money’ and its cousins in other languages are tokens of a familiar phenomenon: the count shift of mass nouns.

¹¹⁰Note also that khun.mwul (big.water) is a compound noun that means flood. While the adjective khun has a long vowel, it is pronounced with a short vowel in the compound noun. The native Korean noun has a Sino-Korean synonym, hong.swu ‘flood’, which results from combining the Sino-Korean morphemes hong (which means big) and swu (which means water). The Sino-Korean compound can take khun ‘big’ to yield khun hong.swu [big flood, ‘big flood’]. Interestingly, however, the native Korean khun.mwul does not seem to admit size modification: *kun khun.mwul [big flood, ‘big flood’], *cakun khun.mwul [small flood, ‘small flood’], etc. seem ill-formed. Incidentally, pi ‘rain’ and cicin ‘earthquake’ can also take the size adjective khun ‘big, large’.

¹¹¹But the phrase, cakun ton [small money, ‘small money’], is commonly used in negative contexts, such as the Korean translation of ‘One million won is not a small (amount of) money.’

Let me turn to pseudo-mass nouns of English. As McCawley observes, they admit size modification “much more readily than hard-core mass nouns such as rice”: ‘large furniture’, for example, is well-formed (1975, 170).113 This, I think, indicates that those nouns differ considerably from regular mass nouns because they are hybrids between count nouns and regular mass nouns.114 They might be considered count nouns disguised as mass nouns. Now, not all languages have pseudo-mass nouns. In many European languages (e.g., French and German), analogues of, e.g., ‘furniture’ are robust count nouns. And languages without the grammatical number system, including most classifier languages, cannot disguise analogues of, e.g., ‘furniture’ as mass nouns by imbuing them with the mass noun morphology. So the Korean analogue of ‘furniture’, kakwu, for example, is a robust count noun that means chairs, tables, etc. It satisfies not only [KC5] but also other criteria for count nouns. So it is closer to ‘furnishings’ or ‘piece (or article) of furniture’ than ‘furniture’, and to the French and German analogues of ‘furniture’ than the English ‘furniture’. I think it is the same with analogues of ‘furniture’ in other classifier languages.115

5.6. Paranumerals and Bare Numeral Noun Phrases

Korean has two forms of bare numeral noun phrases, where nouns combine directly with numerals,

113See also Bunt (1985, 200 & 207ff), who discusses ‘There is small furniture in the doll’s house’, and Chierchia (2010).

114See also Barner & Snedeker (2005), who show cognitive difference between robust mass and pseudo-mass nouns of English.

115Gil argues that classifier languages (e.g., Mandarin Chinese) have count nouns because “the Mandarin noun pingguo”, which means apples, for example, satisfies the size/shape modification criterion (2008, §4), and Takashi Iida confirms that the criterion holds for Japanese as well (personal conversation). I think it must hold for all languages, including classifier languages.
and paranumeral numeratives. These devices yield partial criteria for Korean count nouns.

5.6.1. Bare Numeral Noun Phrases

The Korean classifier system, though complete, is not quite mandatory, as discussed in §4.1. It allows two standard forms of bare numeral noun phrases:

\[ [\text{NNP1}] \quad \text{N} \rightarrow \text{Num}_n \]
\[ [\text{NNP2}] \quad \text{Num} \rightarrow \text{N} \]

These forms yield a criterion for count nouns: only count nouns can enter the forms (without shifting to subsidiary or deviant uses). So we can see that *haksayng* ‘student’, *pyel* ‘star’, *mwul.pang.wul* ‘water drop’, and *namwu.kaci* ‘tree branch’, for example, are count because they can enter [NNP1] (see (6a)–(6d) in §4.1), and that *nala* ‘country’, *hak.kyo* ‘school’, and *tho.kki* ‘rabbit’, for example, are also count because they can enter [NNP2] (see (6b)–(6c) in §4.1).\(^{116}\)

The bare forms yields only a partial criterion for count nouns, because not all count nouns can enter them. Still a substantial range of nouns can enter them to combine directly with some numerals. All nouns for humans (e.g., *salam* ‘human’, *ai* ‘child’, *haksayng* ‘student’) can enter both forms. Many nouns for animals can enter the post-nominal bare form [NNP1], which is more permissive than the pre-nominal one, [NNP2]. For example, *so seys* [cow three, ‘three cows’] is fine

\(^{116}\)The numeral slots in the bare forms admit quasi-numerals: *yele(s)* ‘several’, *myech* ‘a few, how many’, *myech.myech* ‘a few’, etc. (see note 53). These, too, can combine only with count nouns to yield instances of the forms: *yele salam* ‘several people’, *salam yeles* ‘several people’, *myech salam* ‘a few people, how many people’, *myech.myech salam* ‘a few people’, etc.
but "sey so [three cow, ‘three cows’] seems unnatural. (But (7b), twu tho.kki [two rabbit, ‘two rabbits’] is commonly used, as Lee & Ramsey [2000, 99] observe.) Neither form is hospitable to nouns for inanimates. Still they admit mwul.pang.wul ‘water drop’, namwu.kaci ‘tree branch’, pyel ‘star’, nala ‘country’, hak.kyo ‘school’, etc. (see (6b)–(6d) and (7b)–(7c)).

An apparent counterexample to the bare numeral noun phrase criterion comes from the restaurant speech. To make orders in restaurants or food stalls, one might use instances of [NNP1] featuring mass nouns for food: ccacangmyen hana [chao.mein one, ‘one chao mein’], kephi ses [coffee three, ‘three coffees’], etc. Such speech involves shifts of mass nouns to their subsidiary uses, and such uses of mass nouns are prevalent in both classifier and non-classifier languages.

5.6.2. Paranumeral Numeratives

117 And there are constraints on the numerals. See footnote 35. Despite the constraints, the bare forms are commonly used. Martin (1992, 172) notes that the post-nominal bare form [NNP1] is the second most commonly used form in modern Korean, next to [NNP3].

118 See Jeng (1998, 218), who notes that the phrases are ill-formed if used at home. Gil (2008, 5) notes that similar bare constructions are used even in languages usually taken to have mandatory classifier systems.

119 Korean mass nouns can take hana-to [one-even, ‘at all’] in negative contexts, as in the following:

(a) Ceki mwul-i hana-to eps-ta.
   There water-NOM one-even not.exist-DECL
   ‘There is no water at all’ (Lit. ‘There is not even a bit of water’)

Here, however, the mass noun mwul ‘water’ does not take han(a) ‘one’ as a numeral, because hana-to (which occurs only in negative contexts) is an idiom meaning ‘at all, even a bit of’ where han(a) is not used to relate to the number one. So (a) does not have an instance of [NNP1] (or its variant where the noun takes a case marker).
Mass nouns cannot take paranumerals, which are variants of numerals and relate to the numbers of some things. So English mass nouns cannot directly combine with paranumeral phrases: ‘a couple of’, ‘two pairs of’, ‘three braces of’, ‘four dozens of’ (or ‘four dozen’), ‘five scores of’, etc. Similarly, Korean mass nouns cannot take paranumeral numeratives: ssang ‘pair, couple’, kyel.ley ‘pair’, tasu ‘dozen’, etc. (see (12a) in §4.4). This yields a partial criterion for Korean count nouns: nouns that can take paranumerals (without shifting to subsidiary or deviant uses) are count. We can use this criterion to see that sasum ‘deer’ and yenphil ‘pencil’, for example, are count. They can take ssang ‘pair, couple’ and tasu ‘dozen’, respectively, as in the following:

(18) a. sasum twu ssang ; yenphil se tasu
   deer two pair ; pencil three dozen
   ‘two pairs of deer’ ; ‘three dozens of pencils’ (or ‘three dozen pencils’)

b. two ssang-uy sasum ; se tasu-uy yenphil
   two pair-GEN deer ; three dozen-GEN pencil
   ‘two pairs of deer’ ; ‘three dozens of pencils’ (or ‘three dozen pencils’)

5.6.3. Hybrids of Numerals and Paranumerals

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120 The Korean ssang ‘pair, couple’, like its English cousins, is restricted to count nouns denoting things that can be considered paired or coupled; tasu ‘dozen’ (a loan word from English) to pens, pencils, etc.; and kyel.ley ‘pair’ to socks, gloves, shoes, etc.

121 Chao (1968) lists Chinese paranumeral (e.g., dui ‘pair, couple’, shuang ‘pair, couple’, da ‘dozen’) among group numeratives (see §4.4). Japanese also has paranumerals: kumi ‘pair, group’, tsui ‘pair’, dassu ‘dozen’, etc. So one can formulate Chinese and Japanese cousins of this criterion.
One might take paranumeral numeratives to include not only cousins or siblings of numerals but also their identical twins. Consider the Korean *man* ‘ten.thousand’ that figures in the following:

(19)  *payk man hakdo*

  hundred ten.thousand student

  ‘one million students’

One might take this as a bare numeral noun phrase, an instance of [NNP2] that has the numeral *payk man* [hundred ten.thousand, ‘one million’]. But it differs from the usual instances of this form: these have only native Korean numerals for much smaller numbers (see footnote 35), while *payk man* is a Sino-Korean numeral. So Martin (1992, 171) gives an alternative analysis. He reclassifies the *man* in (19) as a special kind of paranumeral numerative, an identical twin of the regular numeral *man.* Chao (1968) gives the same analysis of apparent bare numeral noun phrases of Chinese: *ba shi ren* [8 ten man, ‘eighty people’], *wu bai luohan* [5 hundred arhat, ‘5 hundred arhats’], etc. So he lists among group numeratives Chinese numerals for powers of ten: *shi* ‘ten’, *bai* ‘hundred’, *quian* ‘thousand’, etc. And Burling includes among Burmese numeratives their Burmese cousins (*she* ‘ten’, *ya* ‘hundred’, etc.), because these can also figure in apparent bare numeral noun phrases

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122 In classifying Korean numeratives (which he calls “counters”), Martin calls such numeratives “numeral counters”. He distinguishes two other groups: “unit” and “measure” numeratives. The former are classifiers; the latter amount roughly to Chao’s standard, partitive, and container numeratives.

123 For they (as added to preceding numerals) can combine directly with nouns (albeit of a very restricted class).
One might give an alternative analysis of those phrases. One might regard (19) as an instance of [NNP2] of a special kind. Similarly, one might consider its Burmese and Chinese relatives as bare numeral noun phrases while counting the putative paranumerals as regular numerals. Chao and Burling support their analysis by invoking the principle that Chinese and Burmese, respectively, have mandatory classifier systems. But proponents of the alternative analysis might reply that the principle turns out not to hold even for those languages. I am sympathetic to this reply. So I do not think it is clear that Burling, Chao, and Martin give the correct analysis of the apparent bare numeral noun phrases. But I do not think they are simply wrong in proposing that numeratives include identical twins of numerals, either. Their analysis is as plausible as, if not superior to, the alternative analysis.

This means that there is no great gulf between regular numerals and numeratives. It also means that there no clear dividing line between bare numeral noun phrases and those with paranumerals, nor between mandatory and non-mandatory classifier languages. All these conflict with the standard conception of classifier languages, and support the alternative presented above, which comprehends the paranumeral account of classifiers and the count noun thesis for classifier language nouns. And we have seen many other reasons for accepting this conception.

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124 See also Greenberg (1972, 168 & 172).

125 Note that the phrases, on either analysis, yield counterexamples to the mass noun thesis because the nouns figuring in them must be count.

126 Cornyn (1944, 27) gives such an analysis of the Burmese phrases, as Burling notes (1965, 250).

127 For more on the two analyses, see my (2010, §2.5 & §5.1; 2011, §4).
6. Concluding Remarks: Classifiers and Count Nouns

The standard conception of classifier languages draws a simple picture of classifiers and classifier language nouns. It takes all numeratives to have the same semantic function, and common nouns of classifier languages to be homogeneous. It is straightforward to see that the simple picture is grossly inaccurate. Numeratives of classifier languages, while drawing syntactic parallels, cannot be semantically homogeneous. They include not only various kinds of measure words but also paranumeral numeratives, cousins of ‘pair’, ‘dozen’, ‘score’, etc. This also means that classifier language nouns are not homogeneous, either. Some of them (e.g., the Korean so ‘cow’) must be considered count nouns because they can take paranumerals. Moreover, a large group of classifier languages have non-mandatory classifier systems that allow some nouns to combine directly with numerals. Such nouns must also be considered count, and distinguished from counterparts of English mass nouns (e.g., the Korean wuywu ‘milk’).

Some might attempt to accommodate the diversity of classifier language nouns and numeratives with minor modifications of the standard conception. Doetjes (1996) and Chierchia (2010), for example, distinguish English mass nouns into two kinds: regular mass nouns (e.g., ‘milk’) and pseudo-mass nouns (e.g., ‘furniture’). And they argue that classifier language count nouns, like pseudo-mass nouns of English, are syntactically mass albeit semantically count. Unlike pseudo-mass nouns, however, they cannot be considered syntactic mass nouns. While pseudo-mass nouns can neither take paranumerals nor combine directly with numerals, a wide range of common nouns of, e.g., Korean (e.g., so ‘cow’) can take paranumeral numeratives and combine directly with numerals. Such nouns are syntactically, as well as semantically, count. Moreover, classifier languages have counterparts of various other devices of non-classifier languages that match only
robust count nouns (e.g., the Korean *musuhan* ‘countless’). Classifier language nouns matching those must also be robust count nouns.

The alternative to the standard conception presented above has a clear recognition of the diversity of classifier language nouns and numeratives. It has two pillars that replace the mass noun thesis and the measure word account: the count noun thesis and the paranumeral account. The latter presupposes semantic diversity of numeratives. The former holds that classifier languages have two quite different kinds of common nouns: robust count nouns and regular mass nouns.

Recognition of the diversity dates very far back. In his 19th century study of Chinese grammar, Edkins distinguishes Chinese common nouns into five kinds: “material”, “appellative”, “relative”, “abstract”, and “derivative” (1857, 108ff; 1864, 115ff; 1868, 81). The first two of these amount to mass and count nouns. And he distinguishes Chinese numeratives into five kinds (1857, 119-135: 1864, 127-128; 1868, 81-89). Among them, he regards the “distinctive” (i.e., classifiers) as numeratives matching “appellative” (i.e., count) nouns. His distinction between “material” and “appellative” nouns, which predates Jespersen’s mass/count distinction, is mostly semantic. In his influential grammar of Chinese, Chao formulates syntactic criteria for Chinese count nouns (or, as he calls them, “individual nouns”) (1968; 507ff & 588), while distinguishing Chinese common nouns into four kinds: “individual”, “mass”, “collective”, and “abstract” (*ibid.*, 505-513). And like Edkins, he distinguishes Chinese numeratives as well into several kinds (classifiers, group numeratives, standard numeratives, etc.), and relates classifiers to count nouns (*ibid.*, 584-603).128

Edkins and Chao, I think, set major milestones in the study of classifiers and of the mass/count distinction. But their accounts have limitations in relating Chinese count nouns to robust

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128 Chao calls classifiers “individual measures” as well (*ibid.*, 585).
count nouns of non-classifier languages (e.g., ‘cow’). Their syntactic criteria for Chinese count nouns have no affinity with the usual criteria stemming from Jespersen’s work on English.

Chao gives three syntactic criteria distinguishing between Chinese mass and count nouns:

[a] Mass nouns cannot take the general classifier ge (ibid., 508f).
[b] While most count nouns have specific (i.e., non-general) classifiers, mass nouns have no specific classifiers (ibid., 508).
[c] In the numeral noun phrase with a numerative, one may add the genitive particle de after the numerative if the noun is a mass noun, but not if the noun is a count noun.

Because Chinese count nouns with no specific classifiers can take the general classifier ge, [a]–[b] yield the following:

[d] A common noun is count if and only if it can take a classifier, general or specific.

This is what Edkins holds when he characterizes “distinctive” numeratives as numeratives matching “appellative” nouns. Now, all these criteria invoke Chinese devices that have no counterparts in non-classifier languages, and provide no basis for rejecting the Doetjes-Chierchia version of the mass noun thesis on which the mass/count distinction among classifier language nouns is merely a distinction among syntactic mass nouns. So they do not help to support the count noun thesis, which holds that classifier languages have robust count nouns.129

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129 One might raise other objections to the criteria. The second conjunct of [c] is incorrect. And it is not clear that [a]–[b] yield a complete syntactic criterion for count nouns. The general
Those who take the Edkins-Chao approach to the mass/count distinction for classifier languages might attribute the limitations of the approach to the nature of classifier language nouns. There must be a substantial gap between the mass/count distinction drawn for classifier languages and the distinction drawn for non-classifier languages, they might argue, because one cannot formulate syntactic criteria for classifier language count nouns without attending to the distinction between classifiers and other numeratives. Aikhenvald, who rightly holds that “The distinction . . . between countable and uncountable nouns . . . is important for both” classifier and non-classifier languages, suggests this view. She says, “In numeral classifier languages, the distinction . . . is realized through classifiers and quantifiers [i.e., other numeratives]” (2003, 249).\(^{130}\) Cheng and Sybesma (1998; 1999; 2005) hold a similar view: “in a language without number morphology [e.g., Chinese], the semantic [character] of count nouns is not made visible (except by using classifiers)” (1999, 520; my italics).\(^{131}\) And they endorse Doetjes’s view of classifier language count nouns as syntactic mass nouns (1999, 520), as noted above (§3.2).

\(^{130}\)To support this view, she refers to De Leon (1987)’s work on Mixtec and Tzotzil (\textit{ibid.}, 249).

\(^{131}\)They give syntactic criteria for distinguishing Chinese \textit{numeratives} into mass and count (i.e., “mass-classifiers” and “classifiers” or “count-classifiers”), but deny that a syntactic mass/count distinction can be drawn for Chinese \textit{nouns}. They hold that “in Chinese, the count-mass distinction is grammatically encoded at the level of the classifier [i.e., \textit{numerative}], but not “at the nominal level” (1998, 410). If their syntactic criteria for classifiers are correct, however, one can add the Edkins-Chao condition [d] to those criteria to obtain syntactic criteria for count nouns. (I do not think their criteria for classifiers are correct. See \textbf{footnote 129}.)
It is clearly wrong, however, to take the limitations of the Edkins-Chao approach to reflect a fundamental difference between count nouns of classifier languages and those of non-classifier languages. The limitations are not imposed by a disparity between the two kinds of nouns, but results from failing to attend to various kinds of devices matching only count nouns that run across the boundary between classifier and non-classifier languages. Such devices, we have seen, yield good reasons for rejecting the Doetjes-Chierchia version of the mass noun thesis as well as the usual version of the thesis, and for taking classifier language count nouns to be robust count nouns.

Both versions of the mass noun thesis are wrong, we have seen, because classifier languages have counterparts of various non-classifier language devices matching only robust count nouns: paranumerals, quantifiers relating to the number, distributive operators, etc. Chinese, Japanese, and Korean, for example, have counterparts of ‘pair’, ‘countless’, the adverbial use of ‘each’, etc. Just as English nouns matching these are robust count nouns, so are classifier language nouns matching their counterparts. And we can use these devices to formulate complete syntactic criteria for count nouns of those classifier languages (e.g., the counterparts of the ‘countless’ criterion).

If so, why do count nouns of classifier languages behave so differently from those of most other languages? Why do they, unlike English count nouns, have no singular or plural forms? And why do they regularly take classifiers to combine with numerals?

I think the syntactic differences between English count nouns and their Chinese, Japanese or Korean counterparts, for example, arise from different environments surrounding the nouns: the grammatical number system that imposes the singular/plural morphology, and the classifier system integrated into the numerative system. The nouns interact with the surrounding environments to give rise to different syntactic behaviors, but the environments do not change the basic character of the nouns themselves. In holding this, too, I depart from the standard conception, which takes those
syntactic differences to stem from intrinsic disparity between the two kinds of nouns.

This view, which underlies the standard conception, results from taking the usual criteria for count nouns due to Jespersen’s work on English and its ilk to be definitive criteria for count nouns applicable to any language whatsoever. Clearly, however, it is not an essential feature of count nouns that they figure in a language with an exact counterpart of ‘many’ or ‘few’. Similarly, it is not an essential feature of count nouns that they are subject to a singular/plural morphology. Tagalog, for example, has no grammatical number system, but it is straightforward to distinguish its common nouns into mass and count (see §3.3). Now, we can imagine Tagalog to change into a language with a singular/plural morphology. Similarly, we can imagine English to change into a language that, like Tagalog, has no grammatical number system. Such changes would not cause changes in the nature of the count nouns of the languages. They would merely place the nouns in different morphological environments. For example, the noun ‘cow’ would lose both its singular and plural forms (viz., ‘cow-∅’ and ‘cows’), but the noun itself would remain. And we can still distinguish it syntactically from mass nouns just as we can draw a syntactic mass/count distinction for Tagalog: ‘cow’, unlike ‘milk’, can combine directly with numerals, ‘countless’, ‘each’, etc.

The numeral criterion for count nouns also presupposes an hospitable environment: the lack of mandatory classifiers in the language. Count nouns, unlike mass nouns, can denote some things belonging to a certain kind, and numbers are applicable those things. So count nouns can combine directly with numerals in a majority of languages of the world, and the numeral criterion is applicable for those languages. But the criterion yields wrong results if applied to languages with mandatory classifiers. Such languages employ classifiers as syntactic peers of measure words, and require some of them in numeral noun phrases with matching nouns that relate to the number. By requiring classifiers in such phrases, the languages suppress manifestations of count nouns. But this
does not annihilate the nouns or change their basic character. Contemporary Chinese, for example, results from a language that, like Tagalog, has no classifiers. Archaic Chinese, by gradually adding mandatory classifiers. Still the language, as we have seen, has counterparts of various English devices matching only count nouns: ‘countless’, ‘a majority of’, the adverbial use of ‘each’, etc. And many of them yield complete syntactic criteria for Chinese count nouns.

The singular/plural morphology and the classifier system, we have seen, do not give rise to or annihilate count nouns. They only provide environments that amplify or suppress manifestations of the count character of the nouns. If so, why does a large group of languages belonging to various language families employ classifiers to suppress manifestations of count nouns?

Languages without a classifier system highlights the semantic difference between numeral noun phrases relating to the number and those relating to the quantity with syntactic disparity. The English (1a), ‘three cows’, for example, clearly differs syntactically from (1b), ‘three liters of milk’. The syntactic disparity is removed or mitigated in classifier languages. (2a), a Korean counterpart of (1a), for example, draws syntactic parallels with a Korean counterpart of (1b):

(1a) wuywu sam lithe
    milk three liter
    ‘three liters of milk’

Like (1b*), (1b), which has the classifier mali, falls under [NNP3]: N – [Num – CL*]. It is an orientation toward such syntactic parallelism, I think, that drives the inception, expansion, and

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132See my (2011a, §5), which describes adding to English paranumerals for one as syntactic peers of measure words. And see below for English analogues of classifiers.
strengthening of the classifier system as an integral part of the numerative system.

The orientation is facilitated by numeral noun phrases involving usual paranumerals. (1d), “three brace of deer”, for example, is semantically close to (1a) but draws syntactic parallels with (1b). By adding paranumerals for one, one might turn the likes of (1a) into numeral noun phrases that, like (1d), relate to the number while drawing syntactic parallels with (1b). We can find siblings or analogues of such paranumerals in English. In ‘eight head of Shorthorns’, ‘twenty head of black men’, ‘three sail of ships’, and ‘three stems of roses’, for example, I think ‘head’, ‘sail’, and ‘stem’ serve as paranumerals for one that help the phrases to draw syntactic parallels to (1a) and (1d). While English employ such paranumerals as exceptions to the norm, classifier languages employ them regularly and systematically by integrating a system thereof into their numerative systems. By doing so, the languages consolidate syntactic structures of various kinds of numeral noun phrases. Making count nouns less transparent is a side-effect of the syntactic consolidation. Some languages tolerate the side effect, because it affects only the visibility of those nouns, not their basic character.

Greenberg (1972) recognizes the orientation to syntactic consolidation as an important factor in the development of classifiers. He proposes that classifier languages “have modelled the unit counter [i.e., the classifier] construction after preexisting measure and non-unit count constructions”

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133 The first of these examples is from Judd (1886, 428), the second from Olmsted (1856, 219). The *Oxford English Dictionary* cites the latter while explaining that ‘head’ is used for “a unit in numbering cattle, game, etc.” (OED 1989; my italics). So it is wrong to regard the ‘head’ in, e.g., ‘three head of cattle’ as a measure word matching mass nouns as Quine (1969, 36) and Greenberg (1972, 174), among others, do (later in the same article, Greenberg takes it to be a collective noun [*ibid.*, 183]). In this connection, note that ‘cattle’ is not a mass noun but a plural noun—‘The cattle are fed by grass and green.’ See my (2011a, §4, note 36).
(i.e., numeral noun phrases involving measure words or usual paranumerals) (1972, 173). But he seeks a further reason that those languages have classifiers, and argues that the reason lies in the nature of nouns with matching classifiers: those nouns “are like collectives . . . in their avoidance of a direct number construction” (ibid., 184). As he rightly notes, however, this account, like other accounts that attribute the presence of classifiers to the nature of classifier language nouns, conflicts with the existence of optional classifiers (see §4.4). Although the Korean haksayng ‘student’, for example, has matching classifiers, it can combine directly with numerals (see (6a) & (8a) in §4.1).

Instead of noun-based accounts, some might propose numeral-based accounts, which attribute the presence of classifiers to special characters of classifier language numerals. These numerals, on the accounts, differ from the usual numerals (e.g., English numerals) in requiring classifiers or other numeratives to combine with nouns. Such accounts, too, fail to make room for optional classifiers. Although the Korean sey(s) ‘three’, for example, figures in numeral-noun phrases involving classifiers, it can combine directly with nouns (see, again, (6a) & (8a)).

We can illustrate the reason why both the noun-based and numeral-based approaches fail by considering the use of ‘head’, ‘sail’, and ‘stem’ in ‘eight head of Shorthorns’, ‘three sail of ships’, ‘three stems of roses’, etc. One cannot attribute their presence in these phrases to special characters of the nouns or numerals figuring in the phrases, because those nouns and numerals can combine

134See also Greenberg (1975). He (1972, 173) attributes this thesis to Sen-Gupta, who says “We consider [measure words] as the basis of [classifiers]” (1970, 677f), and draws from the thesis the “synchronic implicational universal” that “The presence of unit counters implies the presence of measure and other non-unit counter type constructions” (ibid., 176f). He says that many Amerind languages (e.g., Hopi) have neither classifiers nor the other kinds of numeratives (ibid., 176).

135See Wilhelm (2008). While discussing Dene Suliné, an Athapaskan language that, like Tagalog, has neither a singular/plural morphology nor a classifier system, she holds that “languages like Chinese require classifiers because the numerals are semantically deficient” (ibid., 40).
directly as well: ‘eight Shorthorns’, ‘three ships’, ‘three roses’, etc. Similarly, one cannot regard classifiers as devices for compensating deficiencies of classifier languages nouns or numerals, because some classifiers accord with nouns and numerals that can directly combine with each other.

The reason for the development and use of the classifier system, I think, lies in the syntactic consolidation tendency. While recognizing this tendency, as noted above, Greenberg seeks further reason in the nature of elements of numeral noun phrases that figure with classifiers. Such attempts cannot succeed, as we have seen. This does not mean that we cannot explain the use of classifiers. Syntactic consolidation, I think, is an important factor that drives changes and stabilization in human languages. It is probably rooted in the capacities that humans have to acquire and use language. And this explain why some languages develop and maintain a classifier system: classifiers help to consolidate the syntax of various kinds of numeral noun phrases.

If so, why do some languages have no classifier system? It is one thing to say that human languages have a tendency to consolidate the syntax of numeral noun phrases, quite another to say that the tendency is inexorable. There are other factors operating in human languages, and in human linguistic capacities, that conflict with the tendency. Those factors might successfully suppress the tendency or limit its fulfilment. And various languages, in different stages, can strike different balances of the operant factors. This yields the variety of languages in the scales of the extent and strength of the classifier system: languages without classifiers, languages with an incomplete classifier system, languages with a complete but non-mandatory classifier system, languages with a complete and virtually mandatory classifier system, etc.

A major factor that opposes syntactic consolidation of numeral noun phrases is the mass/count distinction. A thorough consolidation would wipe out any syntactic difference between mass and count nouns; some syntactic difference remains among numeral noun phrases as long as
a syntactic distinction can be drawn among nouns figuring in them. And even the usual consolidation compatible with the mass/count distinction lowers its visibility. Although some languages tolerate this for consolidation of syntax, a majority of languages of the world do not. They give more weight to higher visibility of the mass/count distinction.

And the benefits of the consolidation might be worth less in some linguistic environments. In languages with a rigid singular/plural morphology, adding classifiers do not lead to much consolidation of the numeral noun phrase syntax. The plural form ‘roses’ in ‘three stems of roses’ and ‘three pairs of roses’, for example, distinguishes the phrases from ‘three liters of milk’. So it would be hard, if not impossible, to get the consolidation process off the ground. Accordingly, most languages with a substantial classifier system lack a grammatical number system.

The consolidation process, if it gets off the ground, is a gradual process. It leads to classifier systems of various breadths and strengths at different historical stages of the same language, not to an abrupt shift from a non-classifier language to a classifier language. And the process can be stalled to stabilize an incomplete or non-mandatory classifier system. Moreover, it can be reversed to result in the weakening, contraction, or decay of the classifier system. Thus the so-called classifier languages do not form a linguistic type with a sharp boundary. There is gradual transition from languages with no classifiers to languages with strong classifier systems, and there is substantial diversity in the extent and strength of classifier systems.

The conception of classifier languages presented above do justice to, and highlights, various kinds of diversity in human languages: diversity of numeratives, of common nouns, of factors shaping languages, etc. But it also locates a common factor figuring in both classifier and non-classifier languages: the mass/count distinction. This is a robust factor that prohibits thorough consolidation
of the numeral noun phrase syntax, and counteracts even the orientation to moderate consolidation thereof. The heavy weight given to the distinction, I think, is rooted in human psychology. Humans perceive or conceive *individuals* belonging to a kind (e.g., cows) differently from various kinds of *stuff* (e.g., milk). And they reflect the perceptual or conceptual difference into human language with a robust distinction between two kinds of common nouns: mass and count nouns.\textsuperscript{136}

In his study of English and related European languages, Jespersen set a major milestone in the study of the distinction. Another milestone was set by Edkins and Chao in their studies of Chinese. But their initiatives have serious limitations. They focus on local manifestations of the distinction due in part to ambient environments, and fail to reach the underlying current running through Chinese and English, classifier and non-classifier languages alike. The underlying current should not be confused with the waves it gives rise to along different shores. I hope this work to advance their initiatives by helping to reach into the sea of human language to locate, examine, and clarify the current running through it.

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\textsuperscript{136}Quine (1960, 92-95) suggests that children acquire the stuff/individual distinction by learning linguistic devices for distinguishing mass and count nouns (e.g., the plural morpheme ‘-s’). But many psychological studies of human infants (and animals) suggest that humans conceive and perceive individuals differently from stuff independently of learning language, and recent studies show that both English- and Japanese-speaking children of two years of age use their grasp of the stuff/individual distinction to learn meanings of nouns. See, e.g., Soja et al. (1991) and Imai & Gentner (1997).


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