

# Numeratives in the languages of Asia and beyond

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This paper gives an overview of some of the conceptual issues that have arisen in the literature on sortal numeral classifiers. I propose the term *numerative* and offer a clear definition of the concept for purposes of comparative and general linguistics. I note that it is not very helpful to define numeratives as kinds of “classifiers”, and that it is best to characterize numeratives in contrast to mensuratives (or measure words), even though many languages (especially in East and Southeast Asia) use a very similar construction for both. The proposed definition includes elements that also occur in other adnominal loci, so that the numerative concept may not be very natural, but this reflects the history and current state of research, which has been heavily influenced by Asian languages.

## 1. Numeratives defined

Numeratives (or “numeral classifiers”) have been studied increasingly from a comparative perspective over the last 60 years (e.g. Berlin & Romney 1964; ; Greenberg 1972; Adams & Conklin 1973; Allan 1977; Croft 1994; Aikhenvald 2000; Gil 2005; Her et al. 2022). They are particularly well-known from languages of Asia, as illustrated in (1)-(4).

(1) Japanese

*san-bon no enpitsu*  
three-NUMV ATTR pencil  
‘three pencils’ (Denny 1979: 318)

(2) Nivkh

*mu mi-m*  
boattwo-NUMV  
‘two boats’ (Gruzdeva 2022: 400)

(3) Manchu

*ilan fesin loho*  
three NUMV sword  
‘three swords’ (Gorelova 2002: 206)

(4) Thai

*mánaaw sǎam lúuk*  
lemon three NUMV  
‘three lemons’ (Hundius & Kölver 1983: 167)

In this paper, I discuss numeratives primarily from a conceptual point of view. While “numeral classifier” is a well-known term, it has not been delimited clearly, and we will see that it can hardly be described as a subtype of “classifier” (§2). Thus, the term *numerative* seems more suitable for the type of element illustrated in (1)-(4). I propose the definition in (5).

(5) **numerative**

A numerative is a bound morph that is one of several which occur in complementary distribution next to an adnominal cardinal numeral (and possibly next to other adnominal modifiers), but not next to a predicating form, and whose choice is determined by the class of the numerated noun rather than contributing a meaning of its own.

This definition makes no reference to “classifier” and thus avoids the well-known problem with the term.<sup>1</sup> It is thus quite different from definitions of “numeral classifier” found in the literature, which usually presuppose that numeral classifiers are a subtype of classifier. The following definition is typical:

- (6) “**Numeral classifiers** are the most common, the largest and the best known systems of classifiers and are called *numeral* because they appear contiguous to numerals.”  
(Grinevald 2004: 1019)

But the question how we can delimit “classifiers” from other forms that classify or categorize nouns (such as gender markers, adjectives, or typifying adnominal nouns) has rarely been discussed in depth, and many linguists have been content with a vague notion of classifier.

By contrast, the definition in (5) is precise, and it can serve as a comparative concept because it can be applied to all languages using the same criteria. Having a precise definition is essential if we want to compare unrelated languages from around the world in a rigorous way (e.g. Gil 2005; Her et al. 2022), and if we want to formulate universal generalizations (see §8). The term *numerative* and its definition are thus proposed here as an alternative to the poorly defined traditional term “numeral classifier” (see §8 for more on terminology).

In the remainder of this paper, I first discuss the notion of “classifier” and motivate the decision to define numeratives independently of it (§2), and then I give examples of numeratives in different adnominal loci (§3). In §4, I discuss a number of further issues relating to the definition, in particular that numeratives are bound forms (§4.1), that they cannot be characterized as not showing “agreement” (§4.2), that they make no semantic contribution (§4.3), that there must be several of them (§4.4) and that they need not be obligatory (§4.5). Then §5 contrasts numeratives with mensuratives (or measure words), and §6 discusses various hypotheses for the function of numeratives, without a clear conclusion. In §7, I cite five universals of numeratives, and §8 ends with some concluding remarks about the terminology, its history, and the importance of distinguishing between general comparative concepts and language-particular categories.

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<sup>1</sup> For example, Kilarski & Allasonnière-Tang (2021: §2) observe: “Defining classifiers presents a considerable challenge in view of the variation exhibited by classifier systems as well as commonalities with gender and various forms of lexical categorization” (see also Grinevald 2015: 817).

## 2. Are numeratives a subtype of “classifier”?

The term *numerative* (adopted from Bloomfield 1933: 200; Haas 1942: n. 2) is preferred here because “numeral classifier” would be a good term only if numeratives were classifiers – but what exactly is a classifier?

The literature generally contains only vague characterizations of the notions “classifier” and “nominal classification”. For example, Aikhenvald (2017) defines “noun categorization devices” or “classifiers” as in (7) (largely following Allan 1977: 285).<sup>2</sup>

(7) “Noun categorization devices are morphemes which occur in surface structures under specifiable conditions, denoting some salient semantic characteristics of the entity to which an associated noun refers... These morphemes (referred to as ‘classifiers’ as an abbreviation) constitute a grammatical system.” (Aikhenvald 2017: 361)

Aikhenvald includes gender markers in this definition, which are not generally regarded as “classifiers” (though it is now widely recognized that they cannot be easily delimited from classifiers; Fedden & Corbett 2017). Moreover, her definition does not exclude adjectives or typifying nouns, which are perhaps the most salient forms that serve to classify nominal referents. One might say that classifiers are “grammaticalized” elements, in contrast to adjectives and nouns, but “grammaticalized status” is itself a vague notion.

In the proposed definition in (5), the “classifying” nature of numeratives is reflected by the specification that they do not contribute a meaning of their own and that their choice is determined by the class of the (e)numerated noun. This is what crucially distinguishes numeratives from adjectives or nouns (see §4.3 below).

But there is another, even more serious problem with the way “numeral classifiers” are typically characterized in the literature: They are often said to occur in two subtypes: “sortal numeral classifiers” and “mensural numeral classifiers”. For example, Zhang (2007) and van Breugel (2014: Ch. 12) introduce numeral classifiers in this way, giving the examples in (8) and (9).

(8) Mandarin Chinese (Zhang 2007: 45)

- a. 兩本書  
*liǎng běn shū*  
two NUMV book  
‘two books’ (numeral classifier)
  
- b. 兩箱書  
*liǎng xiāng shū*  
two box book  
‘two boxes of books’ (mensural classifier)

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<sup>2</sup> Allan (1977: 285) defines classifiers by two criteria: “(a) they occur as morphemes in surface structures under specifiable conditions; (b) they have meaning, in the sense that a classifier denotes some salient perceived or imputed characteristic of the entity to which an associated noun refers (or may refer).”

(9) Atong (van Breugel 2014: 205; 201)

- a. *gari goy? tham*  
vehicle NUMV three  
'three vehicles' (numeral classifier)
- b. *ca khap bəɾəy*  
tea cup four  
'four cups of tea' (mensural classifier)

This terminology appears to go back to Lyons (1977: 463), and it is often found in introductory sections when numeral classifiers are defined (e.g. Gil 2005: 226; Seifart 2010: 722; Nomoto 2013: 8; Aikhenvald 2017: 374; Doetjes 2017: 293; Her et al. 2022: 153).<sup>3</sup>

However, outside of such definitional passages, “mensural classifiers” are rarely treated as a type of numeral classifier. Gil (2005: 226) specifies that his *WALS* chapter is devoted to sortal numeral classifiers, but its title is “Numeral classifiers”. In the *WACL* database described by Her et al.’s (2022) (*World atlas of classifier languages*, <https://wacld.org/>), numeral classifiers are first said to be classifiers that occur in numeral constructions, as in Grinevald’s definition in (6), and then the authors describe two subtypes of numeral classifiers: sortal and mensural classifiers. However, later in the paper they make it clear that they only consider sortal numeral classifiers, and that a “classifier language” is a language that has sortal numeral classifiers (Her et al. 2022: 155).

The term “classifier language” is used quite often in the literature (e.g. Nomoto 2013; Csirmaz & Dékány 2014; Jenks 2015), and it always refers to languages that have numeratives, not to languages that have numeral or mensural classifiers or both. In fact, mensural classifiers are often said to be universal, so it is clear that “(numeral) classifier language” must refer to a language with sortal numeral classifiers. Using the more specific term *numerative*, we can be more precise and replace “classifier language” by *numerative language*.

Thus, we do not need to make use of the “classifier” concept in order to define numeratives and to compare them across languages. But of course, there are important similarities between numeratives and forms that have been called “classifiers”, and eventually we would like to have a terminological system that allows us to capture these similarities. But this is beyond the scope of the present article (see Haspelmath 2018 for some initial considerations).

### 3. Numeratives are not restricted to the numeral locus

In many languages, numeratives occur only next to cardinal numerals or closely related forms such as ‘how many’ interrogatives. For example, Japanese has numeratives only in these two types of contexts:

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<sup>3</sup> In Cheng & Sybesma (1998), the two types are called “count classifiers” and “mass classifiers” (or “massifiers”). These terms are often mentioned, but the terminology has rarely been adopted by other linguists.

## (10) Japanese

## a. 四冊の本

*yon-satsu no hon*  
four-NUMV ATTR book  
'four books'

## b. 何冊の本

*nan-satsu no hon?*  
what-NUMV ATTR book  
'how many books?'

However, in other languages (especially in Southeast Asia), numeratives also occur in other constructions, in particular with quantifiers, demonstratives and adjectives. Some examples are given in (11)-(14), where the (a) example shows a numerative with a cardinal numeral, and the (b) example shows a numerative in another locus. Mandarin also shows numeratives with demonstratives (as in 11b), Cantonese also in one type of adpossessionive construction (as in 12b), Vietnamese also as a kind of article (a “bare classifier” construction, as in (13b)), and Thai also with adjectives (as in 14b).

## (11) Mandarin Chinese

## a. 五個學校

*wǔ-ge xuéxiào*  
five-NUMV school  
'five schools' (cardinal numeral)

## b. 那個學校

*nà-ge xuéxiào*  
that-NUMV school  
'that school' (demonstrative)

## (12) Cantonese (Matthews &amp; Yip 2011: 449; 128)

a. *léuhng bún syū*  
two NUMV book  
'two books'

b. *kéuih bún syū*  
her NUMV book  
'her book'

## (13) Vietnamese (Nguyen 2004: 9-10)

a. *ba cuốn sách*  
three NUMV book  
'three books'

b. *cuốn sách*  
NUMV book  
'a/the book'

(14) Thai (Hundius & Kölver 1983: 172)

- a. *rôm sǎam khan*  
 umbrella three NUMV  
 ‘three umbrellas’
- b. *rôm khan sǐkhǐaw*  
 umbrella NUMV green  
 ‘the green umbrella(s)’

One might want to say that classifying elements which occur widely also in non-numeral constructions should not be called “numeratives”, and some authors have preferred other terms such as “noun classifier” for languages like Cantonese (e.g. Pacioni 2018). However, the term “(sortal) numeral classifier” for such elements is deeply entrenched in the literature, and the proposal to replace it by *numerative* will be successful only if numeratives are defined broadly with respect to the morphosyntactic locus.

However, there are limits to this breadth: When a classifying element also occurs with predicating forms such as verbs or predicative adjectives, it is not regarded as a numerative. For example, Bora (and its dialect Miraña) has classifiers in various loci, including verbs, as seen in (15b).

(15) Bora (Colombia; Seifart 2009: 372-373)

- a. *tsa-ʔo úhi-ʔo*  
 one-CLF banana-CLF  
 ‘one banana’
- b. *Ó-di ihka-:be tsa-pi o:ʔi-:be.*  
 I-POSS be-CLF one-CLF dog-CLF  
 ‘I have one dog.’ (Lit. ‘Mine is one dog.’)

Another language of this type is Yagua, spoken in Peruvian Amazonia and discussed by Payne (1986). Yagua has classifiers in predicative adjectives, as illustrated in (16b).

(16) Yagua (Payne 1986: 125; 122)

- a. *tá-juu-quiĩ tuváriy juvanú*  
 one-CLF-SG chicken egg  
 ‘one chicken egg’
- b. *Sámi-jey sújay.*  
 good-CLF cloth  
 ‘The clothes are clean.’

Of course, the decision to exclude classifier-like elements when they occur in a predicating form is quite arbitrary. A priori, it might seem to make more sense to use the label “numerative” only for forms that are restricted to numeral contexts (and maybe other quantifier contexts). However, this would exclude some prominent Asian languages such as Chinese, Vietnamese and Thai, which are particularly well-known for their “numeral

classifiers”. As I noted, the term *numerative* is intended to cover the same ground as “sortal numeral classifier”, and this is achieved by the definition in (5).

## 4. Further comments on the definition

### 4.1. Numeratives are bound forms

Numeratives (and other classifiers) are sometimes written together with an adjacent element and sometimes separately. It is often noted in the literature on numeratives that they can be “affixes or independent words” (e.g. Kilarski & Allasonnière-Tang 2021), or that they can be “bound morphemes or free morphemes” (e.g. Croft 1994: §2; Her et al. 2022: 155). Janhunen (2000) talks about “synthetic” and “analytic” numeral classifiers.

But what does this distinction entail? Numeratives are not “independent words” in the sense that they can occur independently of the numerals that they accompany. They are bound morphs that must occur together with (and next to) a cardinal numeral,<sup>4</sup> though not necessarily with a noun.<sup>5</sup> Thus, it seems that the difference between the two types boils down to the spelling. Croft (1994: §2) notes that we do not expect a substantial difference between the two because “free grammatical morphemes often evolve diachronically into bound ones”. But once a form has become a numerative, it is bound, so the development mentioned by Croft must refer to an earlier change (from a non-numerative to a numerative).

In most languages, the shape of the numerative is constant and never depends on the numeral, and vice versa, but in some languages, there is some variation. A striking example is Nivkh, as described by Gruzdeva (2004). In (17), we see the numerals ‘one’ through ‘five’ with four different numeratives (the forms are from Amur Nivkh).

(17) some Nivkh numerals with numeratives (Gruzdeva 2004: 312-317)

	boats (- <i>m</i> )	fishnets (- <i>vor</i> )	human (- <i>n</i> /(- <i>q</i> ) <i>r</i> )	paired objects (- <i>vasq</i> )	
1	<i>ñi-</i>	<i>ñi-m</i>	<i>ñ-vor</i>	<i>ñi-n</i>	<i>ñ-vasq</i>
2	<i>mi-</i>	<i>mi-m</i>	<i>me-vor</i>	<i>me-n</i>	<i>me-vsq</i>
3	<i>ʃe-</i>	<i>ʃe-m</i>	<i>ʃ-vor</i>	<i>ʃa-qr</i>	<i>ʃ-fasq</i>
4	<i>ny-</i>	<i>ny-m</i>	<i>n-vur</i>	<i>ny-r</i>	<i>n-vysq</i>
5	<i>t'o-</i>	<i>t'o-m</i>	<i>t'o-vor</i>	<i>t'o-r</i>	<i>t'o-vsq</i>

When two combined morphs are welded (showing segmental variation depending on a neighbouring morph; Haspelmath 2021), we are more likely to consider one of them as an affix. In the examples in (17), the numeratives can be considered as suffixes, or alternatively, one might consider the numerals as prefixes.<sup>6</sup> The difference does not

<sup>4</sup> A bound form is a form that does not occur in isolation (Bloomfield 1933: 160; Haspelmath 2021). There seems to be general agreement in the literature that numeratives never occur in isolation, and always together with a numeral.

<sup>5</sup> Numeral-numerative combinations such as Mandarin *liǎng běn* ‘two (e.g. books)’ can occur on their own, especially in an anaphoric context. It appears that this is so in all languages that have numeratives (see Universal 2 in §7).

<sup>6</sup> For example, Lehmann (2010) says that the Yucatec Maya numerals are prefixed to its numeratives.

matter for purposes of general linguistics, and it may not matter even for the description of Nivkh. A very unusual property of Nivkh is that occasionally, there are different suppletive forms depending on the numeral, e.g. *-n* vs. *-(q)r* (human numerative).<sup>7</sup>

Numeratives occur next to cardinal numerals, not separated from them by other elements. Occasionally it has been reported that they can occur between an adjective and a noun rather than next to a numeral (e.g. some Mandarin speakers seem to allow expressions like *yī dà běn shū* [one big NUMV book] ‘one big book’, Her & Hsieh 2010: 535; see also Ikoru (1994: 22) for a similar pattern in Kana, a language of Nigeria). These cases seem to be quite marginal.

#### 4.2. No need for lack of “agreement” as a criterion

The definition in (5) specifies that the choice of numerative is determined by the numerated noun, which is very similar to gender agreement patterns where an adnominal modifier includes a marker that is determined by the head noun. For example, in Modern Greek, adjectives and numerals agree in gender (and number) with the noun they modify: The nouns determine the choice of affix on the modifiers, as illustrated in (18)-(19).

(18) a. *aft-á*      *t-a*      *meýál-a*      *spítj-a*  
 these-N.PL   the-N.PL   big-N.PL   house(N)-PL  
 ‘these big houses’ (neuter plural)

b. *aft-és*      *i*      *meýál-es*      *pórt-es*  
 these-F.PL   the.F.PL   big-F.PL   door(F)-PL  
 ‘these big doors’ (feminine plural)

(19) a. *trí-a*      *spítj-a*  
 three-N.PL   house(N)-PL  
 ‘three houses’ (neuter plural)

b. *trí-s*      *pórt-es*  
 three-F.PL   door(F)-PL  
 ‘three doors’ (feminine plural)

Thus, one may wonder whether gender agreement markers such as *-a* and *-(e)s* both in (18) and (19) are numeratives, and whether Greek should count as a “classifier language”. This would be a very strange conclusion.

But recall that in the definition in (5), it is specified that a matching marker does not count as a numerative if it also occurs in a predicating form. And Greek *-a* and *-(e)s* do occur in predicative adjectives, as illustrated in (20). Thus, the Greek markers *-a* and *-(e)s* do not fall under the definition of *numerative*.

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<sup>7</sup> One might expect not only suppletive alternants of numeratives, but also distinct “cumulative” forms for the lower numerals, as one finds them in ordinals (e.g. *first* for ‘one-th’, *second* for ‘two-th’). However, this has not been reported in the literature, as far as I am aware.



- (20) *T-a spitj-a ine meɣál-a.*  
 the-N.PL house(N)-PL are big-N.PL  
 ‘The houses are big.’

Occasionally, linguists have treated the occurrence of numeratives as “agreement”. For example, Schapper (2020) says that Waima’a shows “numeral agreement” in (21a-b), by means of the human prefix *wuo-* and the nonhuman prefix *kai-*.

- (21) Waima’a (Austronesian; Schapper 2020: 412)
- a. *anuata wuo-hitu*  
 woman NUMV(HUM)-seven  
 ‘seven women’
- b. *kumu kai-hitu*  
 pigeon NUMV(NHUM)-seven  
 ‘seven pigeons’

Similarly, Shibatani (2023: 16) points out that “gender agreement” (as in German, in (22)) and “classifier choice” (as in Mandarin Chinese, as in (23)) are very similar. (22b) is bad because the modifiers show the wrong gender value (feminine, not masculine), and (23b) is bad because the modifier shows the wrong class value (“book” numerative, not “long” numerative).

- (22) German
- a. *ein-Ø groß-er Mann*  
 one-MASC big-MASC man(MASC)  
 ‘a tall man’
- b. *\*ein-e groß-e Mann*  
 one-FEM tall-FEM man(MASC)  
 ‘a tall man’
- (23) Mandarin Chinese
- a. *sān-zhī qiānbǐ*  
 three-NUMV(LONG) pencil(LONG)  
 ‘three pencils’
- b. *\*sān-běn qiānbǐ*  
 three-NUMV(BOOK) pencil(LONG)  
 ‘three pencils’

Thus, it is not sufficient to say that gender markers and numeratives differ in that only the former shows “agreement”, as is sometimes done (e.g. Corbett 1991: 5; Nichols 1992: 125; Kilarski & Allasonnière-Tang 2021: §2). Numeratives must be defined as elements that do not occur on predicating forms such as verbs. I leave it open here how “gender” might be defined.

### 4.3. No semantic contribution

Numeratives make no semantic contribution, but merely “classify” the nouns of a language. This is treated as definitional here, in line with the traditional term “classifier”.<sup>8</sup> In this way, numeratives are crucially different from nouns and adjectives, which normally add information.

However, the literature contains many remarks about the possibility of using different numeratives with the same noun, resulting in different meanings. For example, Benton (1968: 111) discussed Trukese (an Austronesian language of Micronesia) and noted that about one sixth of the nouns can occur with “contrasting numeral classifications”, e.g. *suupwa* ‘tobacco’:

(24) Trukese (Benton 1968: 111)

- |                          |                          |                        |
|--------------------------|--------------------------|------------------------|
| a. <i>e-fóc suupwa</i>   | [one-CYLINDICAL tobacco] | ‘cigarette’            |
| b. <i>e-túkúm suupwa</i> | [one-WRAPPED tobacco]    | ‘packet of cigarettes’ |
| c. <i>e-ew suupwa</i>    | [one-GENERAL tobacco]    | ‘carton of cigarettes’ |
| d. <i>e-pék suupwa</i>   | [one-STUMP tobacco]      | ‘a cigarette butt’     |
| e. <i>e-kis suupwa</i>   | [one-PORTION tobacco]    | ‘some tobacco’         |

Similarly, Lucy (1992: 43) gives the following examples for Yucatec Maya, where *ha*’s ‘banana’ can occur with multiple numeratives (cited from Lehmann 2010: n. 3):

(25) Yucatec

- |                           |                    |                         |
|---------------------------|--------------------|-------------------------|
| a. <i>hun-waal ha’s</i>   | [one-LEAF banana]  | ‘banana leaf’           |
| b. <i>hun-ts’iit ha’s</i> | [one-LINE banana]  | ‘banana fruit’          |
| c. <i>hun-kíul ha’s</i>   | [one-PLANT banana] | ‘banana tree’           |
| d. <i>hun-kíuch ha’s</i>  | [one-LOAD banana]  | ‘banana bunch’          |
| e. <i>hun-p’iit ha’s</i>  | [one-BIT banana]   | ‘a bit of banana fruit’ |

However, these examples do not represent the normal case. In many languages, nouns are polysemous, and it often makes good sense to treat cases such as *glass1* (the material) and *glass2* (a drinking glass) as two different expressions, for which different numeratives are expected. For trees and their fruit, this sort of polysemy is observed in many languages (e.g. German *Birne* ‘pear; pear tree’). And several of the examples in (24) and (25) seem to show “mensural classifiers”, not numeratives (e.g. ‘carton of cigarettes’, ‘bit of banana’). Lehmann (2010) observes that Lucy’s Yucatec example is not typical, as most nouns are associated with a particular numerative.

It is also important to note that the choice of numerative is often unpredictable, as noted for Cantonese by Matthews & Yip (2011):

“There are over sixty different classifiers, and the choice of classifier is often not predictable from the meaning of a noun: hence, dictionaries typically provide the appropriate classifier(s) in the entry for the noun.” (Matthews & Yip 2011: 109)

<sup>8</sup> Aikhenvald (2021) observes that many languages have unique numeratives, i.e. numeratives that occur only with one noun. Such numeratives do not really “classify” in the sense of creating true classes (as also noted by Grinevald 2015: 817), but they fall under the definition in (5).

This is the expected situation for numeratives, which is expressed in the definition in (5). If a language had a class of bound morphs that systematically contrast with each other and add different meanings (like adjectives) in numeral constructions, they would not be called numeratives.

#### 4.4. Several numeratives

Languages must have several numeratives, at least two, because if there were just a single numerative-like form, there would not be any “classification” (for a similar requirement, see Sinnemäki 2019: 141). In general, languages must have several contrasting morphs to establish a grammatical category, e.g. two contrasting case markers, two contrasting number markers, two contrasting gender markers, or two contrasting tense markers. If there is just a single marker, it may be questionable if we even have a grammatical system.

#### 4.5. Numeratives need not be obligatory

Numeratives have sometimes been said to be obligatory, as this is the case in Chinese, Japanese and Tzeltal, three languages that were particularly important in early research on numeratives. For example, according to Seifart (2010: 721):

“Numeral classifiers occur obligatorily in numeral constructions, always adjacent to the numeral (but not necessarily to the enumerated noun).”

Similarly, Lyons (1977: 461) says that it is typical of “classifier languages” that numeratives “are obligatory in phrases containing numerals” (see also Allan 1977: 286; Zhang 2007: 47). However, Gil (2005) showed that many languages have optional numeratives, and this is now widely recognized, so the definition in (5) says nothing about obligatoriness.

### 5. Numeratives versus mensuratives

In many languages, especially those of East and Southeast Asia, numeratives appear in constructions which are very similar to constructions with *mensuratives*, i.e. measure words such as ‘cup’ or ‘kilo’ that cooccur with cardinal numerals. In the examples in (26)-(28), the (a) expression shows a mensurative, and the (b) expression shows a numerative (see also the earlier examples in (8)-(9)).

(26) Nivkh (Gruzdeva 2004: 318; 309)

a. *ɲyju me-x*  
brook two-NUMV  
‘two brooks’

b. *ma ɲay-ar*  
dried.salmon six-bundle  
‘six bundles of dried salmon’

- (27) Lao (Enfield 2007: 120; 129)
- a. *Kuu3 sùù4 paa3 sòng3 too3.*  
 I buy fish two NUMV  
 ‘I bought two fish.’
- b. *Khòj5 sùù4 vaaj3 sòng3 toon3.*  
 I buy rattan two ton  
 ‘I bought two tons of rattan.’
- (28) Yucatec Maya (Lehmann 2018: §3.2.1)
- a. *óox-p’eel lool*  
 three-NUMV flower  
 ‘three flowers’
- b. *óox-cháach bu’l*  
 three-hand bean  
 ‘three handfuls of beans’

The most common grammatical term for mensuratives is *measure word* (e.g. Her 2012; Mathieu & Zareikar 2015; Doetjes 2017), but this has not been defined precisely, and it may be confusing because “measure” is a traditional term for a class comprising both numeratives and mensuratives in Mandarin Chinese (e.g. Hockett 1958: 224; Chao 1968: §7.9). Instead, I use the term *mensurative* here (adopted from Lehmann 2018) and define it as follows:

(29) **mensurative**

A mensurative is a morph that can denote a container or a standard unit of measurement and that occurs next to a cardinal numeral helping to specify the amount of a substance or a set of objects.

In the earlier literature on “classifier languages”, mensuratives have often been called “mensural classifiers” (as discussed in §2 above), and it has been suggested that they are different from measure words in languages like English. For example, Kilarski & Allasonnière-Tang (2021) say:

“it is important to differentiate between measure words, as in English *three boxes of books*, and numeral classifiers. Although measure words in English are nouns since they can take plural morphology and require the preposition *of*, classifiers quantify the noun directly without the presence of adpositions.”

However, the distinction between English-type mensuratives (as in *three boxes of books*) and mensuratives in other languages cannot be drawn in terms of plural marking or the use of adpositions. In some plural-marking languages, mensuratives do not occur with plural markers, as illustrated by (30) from German, where the noun *Glas* is plural-marked (*Gläs-er* ‘glasses’) when it occurs outside of a mensurative construction.

- (30) German  
*drei Glas Wein*  
 three glass wine  
 ‘three glasses of wine’

And it cannot be drawn in terms of genitival markers, because these occur with numeratives in other languages as well (e.g. Japanese in (1) above). Thus, *mensurative* must be defined in functional-semantic terms, as in (29).

It has often been noted that mensuratives and numeratives have a different syntactic behaviour, despite the similarities in the simple pairs that we saw in (26)-(28). In particular, mensuratives can typically be modified by adjectives, whereas this is not possible with numeratives, as illustrated in (31)-(32) from Vietnamese (Nguyen 2004: 22-23).

- (31) a. *ba muỗng đường*  
 three spoon sugar  
 ‘three spoonfuls of sugar’
- b. *ba [muỗng vơi] đường*  
 three spoon scant sugar  
 ‘three scant spoonfuls of sugar’
- (32) a. *hai cuốn [sách cũ]*  
 two NUMV book old  
 ‘two old books’
- b. \**hai [cuốn cũ] sách*  
 two NUMV old book

Another salient difference is the fact that numeratives can occur only with individual-object nouns, while mensuratives can occur both with individual-object nouns and with substance nouns, as illustrated in (33a) and (33b).

- (33) Cantonese (Matthews & Yip 2011: 117)
- a. *yāt lùhng jeukjái*  
 one cage bird  
 ‘a cage of birds’ (individual-object noun)
- b. *léuhng gwun bējáu*  
 two can beer  
 ‘two cans of beer’ (substance noun)

But the primary distinction between numeratives and mensuratives is that the choice of the former is determined by the numerated noun referent, whereas the choice of a mensurative is determined by its meaning. Many substances and objects can be measured by different types of containers (or container-like measures), so languages usually have multiple mensuratives with different meanings that can occur with the same noun. For

example, in addition to *vaaj3 sòòng3 toon3* [rattan two ton] ‘two tons of rattan’ (see (27b) above), Lao also allows *vaaj3 sòòng3 kòò4* [rattan two coil] ‘two coils of rattan’ and *vaaj3 sòòng3 mat1* [rattan two tie] ‘two ties of rattan’ (Enfield 2007: 129). Mensuratives are thus not “classifiers”: They add meanings, while numeratives do not.

Thus, the distinction made here in terms of the comparative concepts *numerative* vs. *mensurative* is a functional-semantic distinction. Morphosyntactically, some languages use very similar strategies for numeratives and mensuratives, so in a language-particular perspective, it may well make sense to treat them together. In a recent paper on Mandarin Chinese, Wang & Walther (2023) note:

“Given their apparent similarities and differences, typological and general linguistic studies have long debated whether sortal and mensural classifiers should be considered as the same syntactic category ... or two different categories ...” (Wang & Walther 2023: 81)

These debates cannot be resolved unless it is recognized that syntactic categories are language-particular, because the criteria for setting them up are specific to each language. The comparative concepts *numerative* and *mensurative* are not syntactic categories, but kinds of forms that can be identified by means of the same (functional or formal) criteria in all languages. In many particular languages, it may make good sense to say that they are subclasses of a larger syntactic class, but this is a matter of language-particular analysis, not of general linguistics.<sup>9</sup>

## 6. On the function of numeratives

If the function of numeratives were clear, a rigorous formal definition would not be so important, but what exactly is their function? Many linguists have claimed or presupposed that numeratives have the function of facilitating counting. Since Greenberg (1972) and Krifka (1989) (at the latest), it has been widely thought that “classifier languages” require numeratives because nouns for individual objects are not individuated, but are more like mass nouns in English. This idea is expressed by Denny (1986) as follows:

“What is common to the theories put forward by classifier researchers is the idea that the noun refers to some kind of mass and the classifier gives a unit of that mass.” (Denny 1986: 298)

It may be that the widespread view of numeratives as individuators has led to the relative neglect of the task of defining the term. The idea of the individuating function of numeratives has also informed some of the most prominent work on numeratives in which abstract formal models were proposed (e.g. Chierchia 1998; Borer 2005; see Wu & Her 2021 for a recent survey).

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<sup>9</sup> An example is Doetjes’s (2017: 292) statement that in Chinese-type mensurative constructions (e.g. (33) from Cantonese), “the measure word is *realized* as a classifier” [emphasis added]. This way of talking about “measure words” and “classifiers” makes it clear that “measure word” (i.e. mensurative) is understood as a general functional-semantic concept, and “classifier” is understood as a language-particular syntactic class of Chinese (because semantic concepts are *realized* as syntactic classes).

However, it has been recognized for some time that it is not true that there is no “count/mass”-like distinction in languages like Chinese (e.g. Cheng & Sybesma 1999), and that “sortal classifiers” and “mensural classifiers” often behave differently (as we saw in the preceding section). Moreover, Gil (2005) recorded the optionality of numeratives in many languages (as noted in §4.6), which is hardly compatible with the idea that numeratives are required because nouns are not individuated. Another argument against the older view is that there are some languages (or perhaps many languages) which do not make an English-like count/mass distinction but which nevertheless do not require numeratives (e.g. Wilhelm 2008). And more recently, some authors have highlighted the fact that in some languages, some numerals occur with numeratives, and others do not. For example, Lehmann (2010: §3) points out that in Yucatec Maya, traditional numerals like *óox*- ‘three’ require a numerative, while Spanish-derived numerals like *cinco* ‘five’ do not allow a numerative.

(34) Yucatec Maya

a. *óox-tíul xib*  
 three-NUMV man  
 ‘three men’

b. *cinco xib-o’b*  
 five man-PL  
 ‘five men’

Lehmann concludes that numeratives in Yucatec cannot have the function of individuation, and he suggests that “the primary function of this form class is purely structural: its members serve as props for the numerals, which are affixes.” But he admits that he cannot answer the question why numerals need such “props” and cannot combine directly with nouns. Bale & Coon (2014) report on the analogous situation in the Mayan language Chol and hypothesize that numeratives do not serve to individuate nouns, but to provide a “measure function” for numerals. But this functional explanation is not very convincing either, because it leads one to ask why many languages completely lack numeratives.<sup>10</sup>

It thus seems that we do not have a good understanding of what the function of numeratives might be. Since “classifiers” are similar to gender markers (as noted in §4.2), this is perhaps not so surprising, also because we do not really know what the function of gender marking is. Corbett (1991: 1) expressed this in the memorable opening sentence: “Gender is the most puzzling of the grammatical categories.” But I will briefly note two other possible functions of numeratives.

First, it has often been suggested or implied that the function of numeratives, and of classifiers more broadly, is to “categorize” noun referents. Quite a few general works on classifiers start out with the idea that classifiers serve to put nouns or noun referents into categories, e.g.

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<sup>10</sup> Little et al. (2022) propose that numeratives have different functions in different languages. This is possible, but their hypothesis does not entail strong typological predictions. As Doetjes (2021: 224) notes, “it is rather difficult to provide conclusive semantic arguments in favour of one type of approach or the other”. Formal semanticists offer hypotheses about semantic composition, but there are usually a range of different possibilities that all give the same results.

“Noun categorization devices are a means of classifying referents in terms of their semantic features. They vary in their expression, and the contexts in which they occur. Large sets of numeral classifiers in the languages of East Asia are used with number words and in quantifying expressions. Numeral classifiers divide into two subgroups, sortal and mensural. Sortal classifiers categorise the referent in terms of its intrinsic properties.” (Aikhenvald 2021: 232-233)

Similar statements can be found in Dixon (1986: 208), Grinevald (2004: 1016), and Senft (2007: 676-678). However, noun referents are already categorized by nouns, in a much more specific and informative way than by classifiers. If numeratives are defined as elements that do not contribute meanings of their own (as in the definition in (5), as discussed in §4.3), then their “categorizing” function is redundant. It may be that this additional redundant information is useful in some way, but this has not been demonstrated.

Second, Shibatani (2023) has suggested that the primary function of numeratives is to turn a cardinal numeral into a nominal that can stand on its own (he relates this to his larger ideas about nominalization; Shibatani 2019). He notes that there are some languages where a numerative-like element only occurs when a cardinal numeral is used in a nominal without a noun, as in Marathi. In this language, the question ‘How many boys came?’ can be answered as in (35a) or (35b). If the noun *mule* ‘boys’ is not omitted, as in (35a), the “classifier” *-jaṇ* cannot occur.

(35) Marathi (Shibatani 2023: 11; judgement from Prashant Pardeshi)

- a. *Don(\*-jaṇ) mule āl-e.*  
two-CLF boys came-PL  
‘Two boys came.’
- b. *Don-jaṇ āl-e.*  
two-CLF came-PL  
‘Two came.’ (i.e. ‘two boys came’)

Shibatani’s reason for saying that *-jaṇ* is a numeral classifier is that a cognate form occurs as a classifier in other languages, but on the basis of the paradigm in (35), one would not say that it is a numerative. As defined in (5), a numerative must be able to occur next to an adnominal cardinal numeral. If it occurs only next to a cardinal numeral when the noun is absent (“in NP use”, as Shibatani calls it), then it does not fall under the definition (see also Lehmann 2000). Shibatani may well be right that numeratives develop from substantivizing uses as in (35b) (see Lehmann 2010: §3 for a similar suggestion), but this does not imply that “nominalization” is their current function.

## 7. Universals

Let us now briefly look at a few cross-linguistic generalizations about numeratives, mainly as an illustration of the kinds of patterns that we may find robust evidence for and that will eventually have to be explained if they are confirmed. All authors have emphasized the striking areal patterns (especially the concentration of numeratives in



Southeast Asia; e.g. Comrie 2007; Her et al. 2022: §4), but these areal patterns will probably have a historical (and thus non-universal) explanation. Below I briefly discuss five potential universals of numeratives, which may eventually be explainable in terms of universal factors and thus have relevance for general linguistics.

The first universal concerns the semantic categories that play a role in numerative classes, the topic that has been of greatest interest to anthropological linguists such as Burling (1965) and Denny (1979).

**(36) Universal 1**

Numeratives almost always involve shape categories. (Nichols 1992: 132)

It seems that this hypothesis has not yet been systematically tested, perhaps because it seems obviously true. Comparing the semantic categories across languages is difficult, because the scattered descriptions of numerative classes are hard to compare both in terms of their scope and in terms of their concepts.<sup>11</sup>

The second universal concerns constructions in which the numerated noun is absent, as in anaphoric contexts of the kind illustrated in (35b) above.

**(37) Universal 2**

If a language has numeratives in numerated nominals, then it also has nounless numerative-numeral combinations. (Lehmann 2010: §3)

This universal is not very strong, because it seems that almost all languages have nounless constructions with cardinal numerals. I am not aware of a language where it is not possible to answer “three” when asked “how many people came?” Thus, Universal 2 only rules out languages which use numeratives in adnominal position but do not use them in nounless constructions.

The third universal is the most famous one, going back to Greenberg (1972) and Sanches & Slobin (1973) (and apparently first named by Doetjes 2008).

**(38) Universal 3: The Greenberg-Sanches-Slobin generalization**

If a language has numeratives, it does not have obligatory plural marking on nouns.

This universal has played an important role in more recent proposals for UG-based explanations of the distribution of numeratives and plural markers (e.g. Borer 2005: 86-135). It has often been mentioned and presupposed, and since Aikhenvald (2000: 100; 249), it has been known that there are exceptions (see also Bisang 2012). More recently, Tang & Her (2019) examined the hypothesis from a quantitative perspective and found it strongly supported. However, they note some conceptual issues, such as what exactly counts as obligatory plural marking and what exactly counts as “(sortal) numeral classifier”.

The next two universals concern cases of “differential numerative marking”, i.e. situations where the occurrence of a numerative depends on the numeral or the noun.

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<sup>11</sup> For one region, Matthis (2022) carried out a useful survey, but a lot more of this kind of work is needed.

**(39) Universal 4**

If a language has numeratives only with some of its numerals, the occurrence of a numerative is more likely for lower numerals than for higher numerals.

This hypothesis should be readily testable, but I am not aware of any systematic study. The formulation in (39) is based on Aikhenvald's (2000: 100) impressionistic observation that "classifiers are likely to be restricted to use with smaller numbers. In many languages they are obligatory with small numbers, and optional with larger ones."

Occurrence of numeratives has also been observed to depend on the noun, in a recent paper by Holz (2022):

**(40) Universal 5: The classifiability universal (Holz 2022)**

If a language has numeratives only with some of its nouns, the occurrence of a numerative is more likely for nouns higher on the classifiability scale:  
human > animate > inanimate > unit of time > unit of currency > unit of measure

The scale is called "classifiability scale" because a noun (or noun meaning) is called "classifiable" if the noun can occur with a sortal numeral classifier. (Given the terminology proposed in the present paper, "numerativizability" would be a more transparent term.) The hypothesis has been tested by Holz (2022) on the basis of a sample of 32 languages from eight different world regions. Holz proposes that the generalization can be explained with reference to frequency of use: Nouns higher on the scale are less likely to occur with a cardinal numeral, so it appears that numerative marking also has the function of signaling a less likely situation.

## **8. Concluding remarks on *numerative* as a term and comparative concept**

In this paper, I have surveyed a range of conceptual issues concerning numeratives and I have made a concrete proposal for a definition, in (5) in §1, that avoids some of the problems of earlier characterizations of "(sortal) numeral classifiers". Most importantly, the definition does not make reference to a "classifier" notion (§2), it keeps numeratives clearly separate from mensuratives (§5), it makes clear which additional loci numeratives can occur in (§3), and it specifies that numeratives make no semantic contribution (§4.3). The definition is intended as a general (or comparative) concept, for purposes of finding generalizations across languages (§7), and it should be clear that numeratives in specific languages are usually defined in different ways, using language-particular criteria.

The term *numerative* has not often been used for sortal numeral classifiers in the earlier literature, though it was already mentioned by Haas (1942: n. 2), in the same paper that popularized the term *numeral classifier*.<sup>12</sup> After Becker (1975), *numerative* was used very

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<sup>12</sup> It appears that *numeral classifier* became widely known once it had jumped from the Asian context to Mesomerica with the publication of Berlin & Romney (1964) and Berlin (1968). The papers by Greenberg (1972), Adams & Conklin (1973) and Allan (1977) were further important early references. Numeratives were often described in earlier works on particular languages, but rarely in a general context (though Malinowski 1920 was an early account in an anthropological context). Bloomfield's (1933: 200) discussion

little in English, though it has been in fairly common use in Russian (e.g. Lander 2001; Bojko 2022) and by linguists working in Russia (e.g. Gorelova 2002: §3.8; Majzina 2019).<sup>13</sup> The term has also sometimes been used in German (e.g. Chen 1996; Murelli 2017). Sackmann (2000) used *numerative* for Mandarin Chinese, and I am proposing here to revive this usage.<sup>14</sup>

Numeratives have not gone unnoticed in the earlier literature and have been described clearly since the 19th century for quite a few languages. The focus in the early literature was of course on their peculiar semantic nature, but in the structuralist period, there were proposals for precise morphosyntactic definitions for particular languages. For example, Burling (1965) provides the following definition for Burmese:

“The class of all classifiers can be given a clear syntactical definition: in Burmese it includes all morphemes which follow directly and in close juncture *behna*, ‘how many,’ or the numbers *ta-*, ‘one,’ *hna-*, ‘two,’ *Odun-*, ‘three,’ etc., up to *kôu-*, ‘nine.’” (Burling 1965: 245).

This is fine for the particular purposes of describing Burmese, but what are numeratives in general? Downing (1996: 8) quotes Burling’s definition and remarks that “definitions of this type are, of course, possible only for individual languages, leaving us with the question of how to recognize a new numeral classifier language when we see one.” She thus clearly acknowledges that one needs separate definitions for comparative purposes.

In order to be able to use *numerative* as a comparative concept (and thus to be able to “recognize a numerative language when we see one”), we need a definition that can be applied to all languages, and this is what I proposed in this paper. In the earlier literature, there are few other concrete proposals, and when a definition was offered (as in (6) above), it usually made reference to other terms that are not clearly defined (such as “classifier”). It is also quite common to find handbook articles where the term is not defined at all. For example, Doetjes (2021) begins her discussion of numeratives by saying: “In so-called numeral classifier languages, numerals require or permit the insertion of a numeral classifier when they combine with a noun.” She goes on to give a typical example (from Mandarin Chinese), so that readers get a rough idea, but what exactly the boundaries of the concept are remains unclear.

Some linguists have suggested that grammatical concepts should be thought of as prototypes, with more or less central members, and this has been suggested explicitly for numeratives by Grinevald (2000: 80):

“One would take, for instance, some of the major South East Asian systems – such as the Thai or the Burmese systems – as prototypical numeral classifier systems...

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of Mandarin numeratives was not often cited in later work, maybe because he used the term “numerative” also in a different sense, for quantifiers including cardinal numerals (Bloomfield 1933: 205).

<sup>13</sup> A common Russian counterpart that is often equated with *numerativ* is *sčëtnoe slovo* ‘count word’. (It should be noted, however, that these terms are not defined precisely in the Russian and German literature either.)

<sup>14</sup> For completeness, I note that “numerative” has sometimes been used in the sense of *adnumerative*, for a form of the noun that is used when the noun is modified by a cardinal numeral (e.g. Nurmio & Willis 2016; Kim 2022). The term *adnumerative* is more transparent and thus clearly preferable for this rare phenomenon.

Less typical numeral classifier systems would be, for instance, more grammaticalized ones...”

However, the choice of prototype would seem to be quite arbitrary, and based on the fact that numeratives were first described prominently for East and Southeast Asian languages. Thai and Burmese are big national languages, so they are well-known to linguists, but there is no reason why they should be treated in a privileged way.

The definition of *numerative* that I offered in (5) is of course also based on the tradition of research in the 20th century, where the big Asian languages have played an outsize role. But I am not suggesting that it represents a “prototype” or anything else with deeper significance (least of all an innate category of Universal Grammar). The definition and the term are merely intended to help linguists orient themselves in the web of terminology, and it is explicitly noted that some of its features (such as the exclusion of classifier-like forms that occur in predicating position) are quite arbitrary. More generally, comparative and general linguistics must be based on conventional (and partly arbitrary) comparative concepts, at least until we know more about the possible innate building blocks of grammar.

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