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SYSTEMS OF NOMINAL CLASSIFICATION

EDITED BY

GUNTER SENFT

Max Planck Institute for Psycholinguistics, Nijmegen

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A morphosyntactic typology of classifiers

Colette Grinevald

Dynamique du Langage, Université Lumière-Lyon2

This typology takes stock of recently accumulated knowledge on the subject of nominal classification and calls attention to the wealth of one particular type: the classifier systems. It aims primarily to encourage further documentation and discussion of the phenomenon of classifiers by distinguishing some of the issues to be considered in their description.

The paper contains (1) a rationale for proposing a typology of classifier systems today and (2) a brief survey of the major types of nominal classification systems, in order to situate the classifier systems in this wider context. The proposal (3), with data to illustrate the three major types of classifiers to be distinguished, is backed up by arguments (4). A discussion of the shared function of all classifier systems and of the various functions of each particular type follows (5). Finally, (6) the proposal is considered within a functional–typological framework, in order to acknowledge the numerous dynamics at work in classifier systems.

I RATIONALE FOR A NEW TYPOLOGY

1.1 *Recent attention given to classifiers*

In the last few years classifiers have attracted the attention of an increasing number of general linguists and have provided a productive testing ground for a number of questions about the nature of language. Old data have been reassessed and considerable new data have been added, all connected to some particular theoretical approach.

Included are proposals on the semantic structure of classifiers (Adams and Conklin 1973; Lakoff 1986, 1987), their pragmatic use (Becker 1986; Carpenter 1986; de León 1988; Hopper 1986), the role they play in the grammar (Craig 1987, 1992; Downing 1986; Hopper 1986; Lehman 1979; Seiler 1986; Serzisko 1981), their origin and path of development

(Craig 1990a; DeLancey 1986; Greenberg 1972; Mithun 1986), their acquisition (Carpenter 1988; Demuth 1988; Erbaugh 1986; Matsumoto 1993) and loss (de León 1987; Gandour, Buckingham and Dardarananda 1985).

Implicitly, such approaches acknowledge the potential significance of classifier studies to various fields of linguistic inquiry. It was in this context that the need to recognize the diversity of classifier systems became apparent. This diversity is not clearly perceived by non-descriptivists. In particular, cognitive theoreticians are generally unaware of it. But their ignorance actually reflects a confusion that exists within the field of descriptive linguistics itself. There is no typology to date that encompasses the old and the new data, or that puts into perspective the different types identified by investigators working on the morphosyntax, semantics, discourse use and function, grammaticalization process, emergence and loss of nominal classification.

The main aim of this study is therefore to produce a research tool that might foster the production of more thorough and more comparable descriptions of classifier systems which would then facilitate more comprehensive and sophisticated typological studies of the phenomenon. It is an invitation to fieldworkers faced with the description of lesser-known languages – which we know are all to some degree threatened languages today – to describe the classifier systems they might encounter, and to place them within the context of the larger phenomenon of nominal classification.

1.2 *Previous typological work on classifiers*

Earlier attempts at typologies of classifier systems dealt with aspects of their semantics and morphosyntactic status. Three seminal articles have shaped the discussions of the commonalities found in the categorization systems of classifiers (Adams and Conklin 1973; Denny 1976; Allan 1977), while two pioneering works have attracted the attention of general linguists to the origins and grammatical characteristics of classifier systems (Greenberg 1972 and Dixon 1982b, reworked in 1986).

Adams and Conklin (1973) dealt with the classifier systems of Southeast Asia and identified three major shapes identified in classifier systems: long-rigid/flat-flexible/round, pointing in addition to their common lexical origin in the plant world (as terms for tree/trunk, leaf and fruit, respectively). Denny (1976), writing from the perspective of a psychologist, addressed the issue of the apparent semantic redundancy

of classifiers, in a now classic paper entitled 'What are classifiers good for?' Why in numeration, for instance, would one have to specify by means of a classifier that an orange is round, a pencil long and rigid, or a blanket flat and flexible? His proposal is that the categories marked by classifiers are a reflection of the interactions speakers have with the objects of their environments, and that these fall into three major types: (a) social interactions (categorizing humans by social status, sex, age, and distinguishing them sometimes from deities and other entities endowed with special powers); (b) physical interactions (categorizing objects of the world by either material/essence or by shape and consistency); (c) functional interactions (categorizing items by their use, such as food or transportation for instance).

Allan (1977) set out to look for the shared semantics of the first extensive worldwide database of so-called 'classifier' systems. The data base included fifty languages of Asia, Oceania and Australia, Africa and North America for which nominal classification systems had been documented. The study did not distinguish, however, between various types of nominal classification, in particular between noun classes and classifiers, or between mensural and sortal classifiers (see below for definitions of those types). He nevertheless extracted a list of seven basic semantic categories which have been used repeatedly in classifier studies. These categories are the following: 1. material, 2. shape, 3. consistency, 4. size, 5. locus, 6. arrangement in space, 7. quantity. Of these, the first four are certainly, and the fifth maybe, characteristics of classifiers in the sense which will be proposed in this survey.

Dixon (1982b, 1986) specifically addressed the issue of distinguishing between noun class systems (akin to gender, see 2.1 below) and classifier systems. The original data on which he based his discussion were from two genetically related languages of Australia: Dyirbal and Yidiny. The 1982b paper actually includes a section on various types of classifiers (numeral, noun, genitive, verbal), but does not set them up as different types with different labels. In fact it does not underline specifically that the Yidiny system is an instance of noun classifiers (to be distinguished from the better-known numeral classifiers, the major type discussed until then in the literature). Nevertheless the following discussion on the origin and evolution of classifier systems owes much to Dixon's detailed studies of the Australian systems (1982a, b) as well as to the pioneering work of Greenberg (1972).

Efforts at distinguishing among classifier systems came later. The existence of genitive classifiers as a particular type with specific semantics is

presented in Lichtenberk (1983) and Carlson and Payne (1989), while the existence of noun classifiers, as a type distinct from numeral classifiers, is argued in Craig (1986b, 1987). Earlier versions of the typology proposed here are found in Craig (1992, 1994, to appear). Meanwhile the various types of nominal classification systems, including various kinds of classifiers, were included in the discussions of the Cologne Project on Universals on the major functions of language, among them the strategies of individuation within the domain of 'apprehension' (Seiler 1985, 1986; Seiler and Lehmann 1982; Seiler and Stachowiak 1982; and Serzisko 1981).

The need for distinguishing various types of classifiers arises from confusion in work on classifiers by linguists using classifier data second-hand. For instance, the famous discussion of Dyirbal classifiers by Lakoff (1986, 1987) actually deals, strictly speaking, with noun classes. Likewise, the discussion of the cognitive basis of classifier systems by Lee (1987) uses Jakaltek noun classifiers as data for a discussion of supposedly numeral classifiers. The discussion of semantic universals of classifier systems by Croft (1994) does not distinguish types either, at the cost of missing interesting generalizations and being downright confusing in places. The need to distinguish types of classifiers also exists, at a purely descriptive level, for the field linguists facing the daunting task of accounting for sometimes rather complex and elusive systems of nominal classification. This seems to be the case in recent times with many Amazonian languages which appear to challenge established notions about what classifier systems look like.

1.3 Issues to be faced in establishing a typology of classifiers

Following is a list of the issues that were considered in the process of building this typology of classifiers:

- a) The inclusion/exclusion issue
Classifiers are only one of several types of nominal classification systems, and this typology specifically focuses on the subclassification of various types of classifier systems. However, it is clear that the study of classifier systems must be done ultimately in the context of all systems of nominal classification, partly because of the semantic as well as morphosyntactic overlap that exists between the various systems. Section 2 below will offer an overview of all the systems of nominal classification inventoried so far to identify better the place that the classifier

systems hold in a continuum of systems arranged along a lexical-to-grammatical axis.

b) The terminological issue

There appears to be a well-entrenched tradition of lumping together types of nominal classifications and even types of classifiers which translates into a currently confused and confusing terminology. There is for instance a pervasively ambiguous use of some of the most basic terms such as class/classifier, numeral/noun classifier. There is also a proliferation of terms which goes beyond the needed number: gender, class, noun class, noun marker, classifiers, class terms, numeral-, genitive-, possessive, -verbal-, predicate-, concordial-, locative classifiers, etc. The same system may also have been labelled in multiple ways through time, as shown by the list of all the different labels given the Thai numeral classifiers provided by Carpenter (1988). The goal of the proposed typology would be among other things to begin to bring the terminological confusion into some order.

c) Typology-conceived-by-whom-and-for-what-purpose issue

This typology is conceived by a field linguist concerned with the adequate description of nominal classification systems, focusing here on classifier systems, with the awareness that one of the first issues to be resolved is whether one is faced with a classifier system or another kind of nominal classification system. And if one identifies a classifier system as such, the next issue is to push the analysis further and to determine its actual type. All this is done with a functional-typological perspective which recognizes systems as more or less prototypical, and at various stages of development and disintegration. It is clear that no two systems resemble each other entirely, that we are dealing with extreme variation in the specificities of each language or dialect even, and that one of the characteristics of these systems is their fluidity and intermediate status between lexical and grammatical systems.

d) Typology-and-then-what issue

A typology that is a useful guide for descriptive fieldworkers already justifies itself. However, the ultimate purpose of a typology lies in the further questions it raises. In the first place, one can ask what is the function common to all classifier systems, which distinguishes them from other systems of nominal classification? Furthermore, if several

types of classifiers are identified, further questions should address the issue of whether the various morphosyntactically defined types correspond in turn to various more specific functions. Ideally such typological and functional issues of classifier systems should be clarified first by the general linguists, before cognitivists and other researchers interested in the phenomenon work on the wider issue of what type of categorization process the classifier systems represent. Classifier systems are indeed attractive material for those interested in investigating the relation between language and culture, and language and cognition, as the universalist vs relativist debate is reopened.

2 AN OVERVIEW OF NOMINAL CLASSIFICATION SYSTEMS

Before focusing on classifier systems, a brief overview of other kinds of nominal classifications systems found in the languages of the world will be presented. Its main point is to show how the classifiers can be placed at a mid-way point on a lexical-grammatical continuum of systems. 'Lexical' here means (a) part of the lexicon and its word-building dynamics and (b) semantically compositional, while 'grammatical' means part of the morphosyntax of a language. The inventory to be considered includes two lexical systems – measure terms and class terms – and a major grammatical system discussed in the literature under two labels – gender and noun class system.

2.1 Grammatical end of the continuum: gender and noun class

Although presented separately here, to reflect their chronological order of appearance in the linguistic literature, gender and noun class systems are in fact considered one and the same phenomenon in much of the contemporary literature, in particular in Corbett (1991).

2.1.1 Gender

The major characteristic of a gender system is that it is a type of nominal classification which is not always overt in the noun itself but is echoed in other elements of the clause which vary according to the language. These elements could be, in decreasing order of likelihood: (a) within the NP, such as adjectives, demonstratives, articles, numerals, or possessives; (b) within independent pronominal forms such as personal pronouns, relative pronouns or wh- question words; (c) within the

predicate as 'agreement' markers of the core arguments; (d) elsewhere within the sentence, rarely, adverbs, adpositions, or complementizers. These more or less extensive systems of agreement are also sometimes called 'concord', and have been included as 'concordial' systems of classifiers.

Gender is assigned to all nouns of the language and is obligatorily marked. It is the most limited system of nominal classification in terms of the number of its classes. Indo-European gender has two or three classes: masculine, feminine, neuter. The limited semantic motivation of assignment to classes beyond that linked to the sex of animates is illustrated by the different gender assignments of the name of common objects in French and Spanish below:

- | | | |
|--------------------------|-----------------------|-------------|
| (1) French | Spanish | |
| <i>la fourchette</i> (F) | <i>el tenedor</i> (M) | 'the fork' |
| <i>une chaussure</i> (F) | <i>un zapato</i> (M) | 'a shoe' |
| <i>le balai</i> (M) | <i>la escoba</i> (F) | 'the broom' |
| <i>un mur</i> (M) | <i>una pared</i> (F) | 'a wall' |

Limited semantic motivation does not mean that gender is not largely predictable, mostly on morphological grounds, in languages such as French and Russian. See Zubin and Köpcke (1986) for a demonstration on German, and consider the gender assignment of some French endings below:

(2) French

a. Masculine:

-*(i)er* ('male worker') *charcutier, cuisinier, boulanger*
 -*eur* ('male worker') *professeur, balayeur, facteur*
 -*ier* ('fruit tree') *pommier, cerisier, amandier*

b. Feminine:

-*(i)ère* ('female worker') *charcutière, boulangère*
 -*ière* ('machine') *cuisinière, cafetière, serpillière*
 -*ette* ('object') *baguette, fourchette, silhouette, couette*
 -*ure* ('object') *ceinture, voiture, chaussure, couverture*

Corbett (1991) cites cases of strictly semantic systems of gender which do not appeal to the semantic feature of sex, such as the system of Tamil (Dravidian, p. 8) with rational/non-rational genders.

It has been argued that gender is more characteristic of fusional languages like Indo-European languages, which means that it is often marked in those languages through portemanteau morphemes which combine other grammatical categories such as number and case.

2.1.2 Noun class systems

As noted, gender and noun classes are treated as one major system of nominal classification. Both Dixon and Corbett argue for this lumping, and contrast this major gender/noun class type with classifiers. The tradition is to call gender those systems which rely on the feature of sex, and to take the systems of Indo-European languages as the prototypical cases, while labelling 'noun classes' the larger systems which are considered more 'exotic' from a Eurocentric point of view.

Noun class systems are typical of languages of the Niger-Congo linguistic stock, especially the Bantu family. Bantu noun class systems have from a dozen to twenty morphological classes, which when combined in pairs of singular and plural add up to about half the number of genders. They exhibit more or less widespread agreement patterns within the NP and across to the predicate. Below is an example of Bantu noun classes:

(3) Sesotho (Demuth, Faraclas and Marchese 1986: 456):

- a. *mo-tho* *é-mo-holo* -*rata* *Ø-ntjā* *é-ntle* *éá-hae*
 1 1 1 1 9 9 9 1
 person big he/she-like dog beautiful of-his/her
 'The old man/woman likes his/her beautiful dog.'
- b. *ba-tho* *bá-ba-holo* *ba-rata* *lí-ntjā* *tsé-ntle* *tsá-bona*
 2 2 2 2 10 10 10 2
 people big they-like dogs beautiful of-them
 'The old people like their beautiful dogs.'

The examples show that class is marked on the nouns, the adjectives, the verbs and the possessives. While each number corresponds to an agreement class – 1 and 9 being singular classes, 2 and 10 their respective plural ones – it is pairs of singular/plural classes that are said in the Bantuist tradition to constitute 'genders', so that the combination 1/2 is said to be the gender for humans, and 9/10 that for animals.

Bantu noun class systems are found today at different stages of stability and disintegration, with very limited semantic motivation left of what is hypothesized to have been originally an entirely semantically motivated classifier-type system (Denny and Creider 1986; Givón 1970; Heine 1982). They represent complex morphosyntactic systems with many irregularities: not all classes have an overt class marker, the agreement is not always an alliterative concord system with markers of agreement resembling markers of classes on nouns, and some genders seem composed of arbitrary matchings of singular and plural markers, probably as a result of the loss of some classes.

The issue of identifying noun class systems is an important one for the description of the classification systems of Amazonian languages. Those languages seem very rich in nominal classification systems, including traditional-looking gender systems coexisting with extensive other systems variously called concordial or classifier systems. Much remains to be done to account for the exact nature of these still partially described systems, in order to distinguish between co-existence of various classifier types or existence of one complex noun class system with irregularities in its morphology, reminiscent of the variations found in the Bantu systems.

2.2 Lexical end of the continuum

The two systems of nominal classification treated here as 'lexical' are of a different nature. Measure terms are lexical in the sense that they are semantically compositional/analytic noun phrases, and class terms are lexical in the sense that they operate like derivational or compounding morphology at word level.

2.2.1 Measure terms

Measure terms exist in all the languages of the world and express quantities, either of mass nouns for which they identify units, or of count nouns for which they specify particular arrangements:

(4) English

a. measure terms of mass nouns:

*a glass of water, a pound of sugar, a slice of bread
a head of cattle, a herd of cattle*

b. measure/arrangement terms of count nouns:

*a pile of books, a group of children, a line of cars
a gaggle of geese (on the ground), a skein of geese (flying)*

Those measure terms are sometimes labelled classifiers, in such a way that English is said to be a classifier language.

In languages with true classifiers, classifiers and measure terms typically belong to the same syntactic category but are considered separately, as sortal and mensural classifiers. They are also sometimes labelled non-quantitative vs quantitative classifiers, respectively. 'Sortal' classifiers categorize by some inherent characteristic of the referent, such as its shape (and texture, or material etc.). The different semantics of mensural and sortal classifiers are patterned below:

- | | |
|------------------------------------|---------------------------------|
| (5) a. [MENSURAL classifier] | b. [SORTAL classifier] |
| <i>two [bags of] oranges</i> | <i>two [ROUND] oranges</i> |
| <i>a [stack of] shirts</i> | <i>a [FLAT, FLEXIBLE] shirt</i> |
| <i>three [circles of] children</i> | <i>three [HUMAN] children</i> |

Although they fill out the same morphosyntactic slot, the difference between sortal and mensural classifiers matters beyond semantics in some systems of numeral classifiers. They can behave differently in agreement patterns, as discussed below in section 3.1.

2.2.2 Class terms

Class terms are classifying morphemes which participate in the lexico-genesis of a language. Although their existence and classifying function are easily identified in a language, their description is often limited to a few illustrative examples. The difference between derivational morphemes and class terms that are used in compounding processes is not always worked out, and both have been labelled 'classifiers' at times.

Class terms are classifying morphemes of clear lexical origin and show varying degrees of productivity in the lexicon of a language. One of the most common semantic domains of class terms is that of the plant world where languages specify the difference between trees and fruits by a compounding process: *X-fruit/round* vs *X-tree/long-rigid*. The equivalent of such class terms in a language like English would be morphemes like *-berry* or *tree*, as in the following sets of words:

- (6) a. *strawberry, blueberry, raspberry, boysenberry, gooseberry, marionberry* etc.
b. *apple tree, banana tree, orange tree, cherry tree, olive tree, palm tree* etc.

English also relies on a combination of clearly derivational morphology and class term compounding to designate various classes of 'agents':

- (7) a. derivational morphemes:
-ist: cardiologist, chemist, novelist
-er: carpenter, baker, singer
b. class term compounding:
-man: mailman, policeman, garbage man

Some languages have been said to have classifiers on the basis of having such class terms. Such is the case for the Rama language, said to have classifiers (originally by Lehmann (1911) and often repeated since), when in fact it has class terms. Examples of such class terms include:

- (8) Rama (Chibcha, Nicaragua; Craig 1990b,c)
a. *-up* 'round' from the noun for 'eye/seed', fairly productive for round objects:

<i>kwiik-up</i>	'hand-round=finger'
<i>kahn-up</i>	'kidney'
<i>uria-up</i>	'orange'
<i>kuul-up</i>	'avocado'
<i>iskala-up</i>	'newborn'
<i>pwatpa-up</i>	'sugar-round=candy'

- b. *-ri/li* 'liquid', semantics clear but etymology not so, and not productive
- | | |
|-----------------|--|
| <i>upsi-ri</i> | 'tears' |
| <i>ngwai-ri</i> | 'spit' |
| <i>ai-ri</i> | 'corn+liquid=pop' |
| <i>a-rii</i> | 'soup' (with phonological compensatory lengthening of vowel) |
- c. *-kaas* 'meat/flesh', for fleshy objects
- | | |
|--------------------|---------------------------|
| <i>ap-kaas</i> | 'body flesh, human flesh' |
| <i>suli-kaas</i> | 'animal meat' |
| <i>kiing-kaas</i> | 'brains=head+flesh' |
| <i>ngut-kaas</i> | 'check=face+flesh' |
| <i>muunik-kaas</i> | 'cloud=day+flesh' |
- d. *-kat* 'tree' for trees and long rigid objects
- | | |
|-------------------|-------------------|
| <i>patang-kat</i> | 'mangrove tree' |
| <i>iibu-kat</i> | 'ibo tree' |
| <i>sumuu-kat</i> | 'banana tree' |
| <i>kiing-kat</i> | 'neck=head+stick' |
| <i>kwiika-kat</i> | 'arm=hand+stick' |

Although these classifying morphemes are semantically akin to classifiers, they are typically not used in quantifying expressions or in any other morphosyntactic constructions.

The close relation between class terms and classifiers has led to some confusion of these two types of nominal classification. The relation is in fact very close. Classifiers originated as class terms in the Tai family of languages in which both systems still co-exist, as documented by DeLancey (1986). Another overlapping between class term morphemes and noun class markers exists also. It is a well-known fact that some of the class markers of some Niger-Congo languages fulfill a derivational function, as illustrated below with data from Tswana and Temne (Creissels 1991 and p.c.):

- (9) Tswana (Bantu)
- | | | |
|---------------------|---------|------------------------------|
| a. <i>mo-tswana</i> | class1 | 'Tswana person' |
| <i>se-tswana</i> | class7 | 'Tswana language or customs' |
| <i>bo-tswana</i> | class14 | 'Tswana territory' |
| b. <i>mo-sadi</i> | class1 | 'woman' |
| <i>se-sadi</i> | class7 | 'female behaviour' |
| <i>bo-sadi</i> | class14 | 'femininity' |

(10) Temne (Atlantic)

- | | |
|-------------------|----------------------|
| a. <i>a-lemre</i> | 'orange' |
| <i>ka-lemre</i> | 'orange tree' |
| b. <i>u-temne</i> | 'a Temne person' |
| <i>ka-temne</i> | 'the Temne language' |
| <i>ma-temne</i> | 'the Temne customs' |

The same overlap between derivational and inflectional use of classificatory morphemes was also noted for many languages of lowland South America by Payne (1986, 1987).

2.3 Intermediate lexico-grammatical systems: classifiers

The characteristic of classifier systems is that they constitute grammatical systems of nominal classification in the intermediate range between lexical and morphosyntactic extremes, as illustrated in figure 2.1 below.



Figure 2.1. Systems of nominal classification

Classifiers constitute overt systems of nominal categorization of clear lexical origin used in specific morphosyntactic constructions. They distinguish themselves from purely lexical systems in their marking categories of nouns beyond the noun word itself, in independent morphemes or in affixes on other elements of the clause. They are distinct from noun class-gender systems however in their incomplete grammaticalization, in remaining of a lexical nature and in having a discursive use within specific syntactic configurations.

The list of criteria for distinguishing the different grammatical status of classifier and noun class-gender systems given in table 2.1 below is a somewhat reorganized presentation of the criteria discussed in Dixon (1982b, 1986), where each point is illustrated by specific examples not repeated here:

Table 2.1. *Gender vs classifier systems*

Noun class-gender systems	Classifier systems
1. classify <i>all</i> nouns	do not classify all nouns
2. into a smallish number of classes	into largish number
3. of a <i>closed</i> system	of an open system
4. fused with other grammatical categories (Def, Nb, Case)	independent constituent
5. can be marked on noun	not affixed to noun
6. realized in agreement patterns	marked once
7. N uniquely assigned to a class with no speaker variation	N possibly assigned to various classes at speaker's will
8. no variation in register	formal/informal uses

These criteria are those which help identify the most prototypical systems of both kinds – noun class and classifiers – and work best if one thinks of gender systems of Indo-European languages and noun class systems of Bantu languages on one hand, and numeral classifiers of East and Southeast Asian languages on the other hand. The range of variation encountered in both types of nominal classification systems in the languages of the world at large is due to the different origins and different degrees of evolution of the systems, as is discussed in section 6 below.

What follows is therefore a study of the intermediate lexico-grammatical system of nominal classification known as 'classifiers', principally in order to argue for the need to distinguish various types of these so-called classifier systems.

3 A MORPHOSYNTACTIC TYPOLOGY OF CLASSIFIERS

Anchoring the typology at the morphosyntactic level is simply a strategy for grasping the phenomenon from its most easily accessible aspect – its formal properties. Most of the terminology in use today is already morphosyntactically oriented in that it refers to the locus of the classifier, usually labelling the classifier by which morpheme it is closest or attached to. What follows is a list of proposed classifier types with their better-known characteristics and illustrative examples.

Four different types of classifiers are clearly established, three major ones which are well known – numeral, noun, genitive classifiers – and

one more complex in its expression and relatively less well known – verbal classifiers. Other minor types still in need of justification will also be mentioned.

3.1 Numeral classifiers

This is the most common and commonly recognized type. These classifiers are labelled 'numeral' because they occur in the context of quantification, either as free or as bound morphemes. A sample of the terminological variation gleaned from titles of publications includes, besides 'numeral', the following terms: numerative (Becker 1986), number (Sanchez 1973) and noun (Erbaugh 1986). This last label of 'noun classifier' for numeral classifiers is confusing, since it is also the one proposed here for a distinct type to be presented in section 3.2 below.

Numeral classifiers can vary morphologically from a free morpheme to an affix, to a fused morpheme (they may be infixes or realized through the process of reduplication, as in Squamish (Kuipers 1967)). Besides their occurring on quantifying words, they may also occur on demonstratives, and occasionally on adjectives too. They occur in all languages of mainland Southeast Asia (Thai, Burmese, etc.) and in many other East Asian languages such as Chinese and Japanese. They are also found in the Americas and Oceania. The sample of examples below shows numeral classifiers with different degrees of segmentability:

- (11) Chinese (Li and Thompson 1981:105)
- | | | |
|-------------------|---------------------|------------------------|
| <i>san-ge ren</i> | <i>nei-tiao niu</i> | <i>nei-liu-ben shu</i> |
| three-CL person | that-CL cow | that-six-CL book |
| 'three people' | 'that cow' | 'those six books' |
- (12) Japanese (Matsumoto 1993)
- | | |
|-----------------------|---------------------|
| <i>enpitsu ni-hon</i> | <i>hon ni-satsu</i> |
| pencil two-CL | book two-CL |
| 'two pencils' | 'two books' |
- (13) Ponapean (Micronesian; Rehg 1981: 130)
- | | | |
|-----------------|-----------------|-------------|
| a. <i>pwihk</i> | <i>riemen</i> | 'two pigs' |
| pig | 2+CL:animate | |
| b. <i>tuhke</i> | <i>riopwoat</i> | 'two trees' |
| tree | 2+CL:long | |
| c. <i>keh</i> | <i>rioumw</i> | 'two yams' |
| yam | 2+CL:baked | |

- (14) Cabecar (Chibchan; Richards 1983: 6)
- | | | | | | | |
|--------|--------|-------|---------|--------|---------|-------|
| Class: | Humans | flat | round | long | bundles | trees |
| 'one' | ʔéklá | ʔétká | ʔékláwö | ʔétabá | ʔéyeká | ʔélka |
| 'two' | ból | bótkö | bókwö | bótabö | bóyökö | bólká |

As mentioned earlier, numeral classifiers come in two semantic subtypes: sortal or true classifiers and mensural or quantitative classifiers which are akin to measure terms. In numeral classifier systems which are said to have a large number of classifiers, the majority are in fact mensural classifiers, while the sortal set is much more limited. This is the case, for instance, in Tzotzil, a sister language of Tzeltal which is well known for an extensive study of its numeral classifiers (Berlin 1965); in those languages there are scores of mensural classifiers, but only eight sortal numeral classifiers (for person; animal; tree; long-rigid; flat-flexible; rectangular-rigid-flat; round-flat; round-3D). A sample of these sortal classifiers is given below:

- (15) Tzotzil (Mayan; De León 1988: 68)
- a. *j-p'ej* *k'an-al* *alaxa*
 one-CL(round) yellow-ATTR orange
 'one round yellow orange'
- b. *j-ch'ix* *tzaj-al* *kantela*
 one-CL(longish) red-ATTR candle
 'one longish red candle'
- c. *ak'-b-on* *j-kot* *le'e*
 give-BEN-1A one-CL(four-legged) that
 'Give me that (animal)'

In some languages it can be demonstrated that sortal classifiers are grammatically distinct from mensural ones. This has been done for two Mayan languages, for instance. De León (1988) shows that they do not behave the same under anaphoric conditions in Tzotzil, and Zavala (this volume) that they do not follow the same agreement pattern in Akatek. Dixon (1982b: 226) also mentions (citing Greenberg) that Cebuano has different linking particles for the two kinds of classifiers.

3.2 Noun classifiers

These classifiers are realized as free morphemes standing in a noun phrase, next to the noun itself or within the boundaries of the noun phrase with other determiners of the noun. They are crucially found independently of the operation of quantification. They have been

documented and labelled so in languages of Meso-America (Kanjobalan branch of the Mayan family, Mixtec Otomanguan).

In Jakalteq noun classifiers fulfill two basic but probably related syntactic functions: determiner of the noun (16a,b), and independent third-person pronoun (16c,d), which makes them ubiquitous in the language:

- (16) Jakalteq (Mayan; Craig 1986a: 264)
- a. *xil naj xuwan no7 lab'a*
 saw CL(man) John CL(animal) snake
 '(man) John saw the (animal) snake'
- b. *kaj te7 tahnaj xpij*
 red CL(plant) ripe tomato
 'The ripe (plant) tomato is red'
- c. *xil naj no7*
 saw CL(man) CL(animal)
 'he (man non-kin) saw it (animal)'
- d. *kaj te7*
 red CL(plant)
 'it (plant) is red'

Kanjobalan noun classifiers (Jakalteq as described in Craig 1987, and Akatek described by Zavala, this volume) are the most syntacticized classifiers of this type apparently recorded. Noun classifiers appear to exist also in Australia, although in a more incipient, less grammaticalized stage (see section 6.1 below and Wilkins, this volume). The term used to refer to the Australian systems is often that of 'generic nouns':

- (17) Yidiny (Australian; Dixon 1982: 185)
- | | | | | |
|-------------|--------------|----------------|-------------------|---------------|
| <i>mayi</i> | <i>imirr</i> | <i>bama-al</i> | <i>yaburu-Ngu</i> | <i>julaal</i> |
| CL-ABS | yam-ABS | CL-ERG | girl-ERG | dig-PAST |
- 'The (person) girl dug up the (vegetable) yam'

Noun classifiers constitute a generally ignored type. In fact the original motivation for working out this typology was to give it a place in the context of the other recognized classifier types and to define its characteristics with respect to that of the other – better-known – systems. It is not a very common type, and the documented instances are still few.

A word of caution is in order: that the expression 'noun classifier' is often used in the existing literature to refer to all classifiers or sometimes specifically to numeral classifiers. It is proposed here that it be reserved for this particular type of classifier.

3.3 Genitive classifiers

This type is discussed in the literature under various labels such as: attributive (Benton 1968), genitive (Carlson and Payne 1989), possessive (Harrison 1989), or relational (Lichtenberk 1983).

As all the terms indicate, this type of classifier appears in possessive constructions. It is usually bound to the mark of the possessor while semantically classifying the possessed. This classifier system selects a limited set of nouns of the language for classification: they are nouns that appear to have high cultural significance and constitute a class akin to the 'alienable' nouns, to be determined for each language.

Genitive classifiers are a characteristic of many languages of Oceania, such as the Micronesian languages (Trukese, Ponapean, Kuseian etc.):

(18) Ponapean (Rehg 1981: 184)

- | | | |
|----------------------|---------------|-----------|
| a. <i>kene-i</i> | <i>mvenge</i> | 'my food' |
| CL (edible)-GEN/1 | food | |
| b. <i>were-i</i> | <i>pwolht</i> | 'my boat' |
| CL (transport)-GEN/1 | boat | |

They are also found in the Americas. In Panare, they correspond to generic nouns, and categorize foods, animals, weapons, vehicles and manufactured objects:

(19) Panare (Carib, Venezuela; Mattei-Muller 1974)

- | | | |
|----------------------|--------------|-------------------|
| a. <i>yu-kon</i> | <i>ka'ka</i> | 'my (weapon) bow' |
| GEN/1-CL (weapon) | bow | |
| b. <i>y-ung</i> | <i>anaka</i> | 'my (food) yuca' |
| GEN/1-CL (food yuca) | | |

Some of the claimed instances of genitive classifiers in South American languages may well turn out to need to be reviewed. They are likely to be in fact cases of agreement within possessive constructions as part of the agreement pattern of noun class systems rather than strictly speaking cases of classifiers. This would be the case for instance of the Tuyuca classifiers (Barnes 1989) which seem to include genitive classifiers which are probably better analysed as part of a noun class system, since the same classifying morphemes are also found in numerals and demonstratives, as well as in derivational function (see (33) in 6.1.2. below).

3.4 Verbal classifiers

Unlike the preceding types of classifiers which occurred within the NP structure, this type of classifier is to be found inside the verb form, hence its label. It does not classify the verb itself but rather one of the nominal arguments of the verb. Verbal classifiers have been described for a number of North American languages and have been accounted for under multiple labels in the literature. They are also been documented for a number of Australian languages.

There are two basic subtypes of verbal classifiers. One is an incorporated classifier construction, in which the classifier is still recognizable as a generic noun. The classifiers of this still transparent incorporation type are akin to noun classifiers. The other type of verbal classifier is more akin by its semantics to the numeral classifier type. It consists of verbal classifying affixes which are phonologically very eroded. A sample of illustrative examples is provided below:

(20) Cayuga (Iroquian, Ontario; Mithun 1986: 386-8)

- | | |
|-----------------------|-----------------------------|
| a. <i>ohon'atake:</i> | <i>ak-hon'at-ak</i> |
| it-potato-rotten | past/I-CL (potato)-eat |
| | 'I ate a rotten potato' |
| b. <i>so:wa:s</i> | <i>akh-nahskw-ae'</i> |
| dog | I-CL (domestic.animal)-have |
| | 'I have a (pet) dog' |
| c. <i>skitu</i> | <i>ake'-treht-ae'</i> |
| skidoo | I-CL (vehicle)-have |
| | 'I have a car' |

(21) Mundukuru (Tupi stock, Brazil; Sheffler 1978 in Mithun 1986: 381)

- | | | | | | | |
|-----------|--------------|--------------|-----------------------|-----------|-----------------|--|
| <i>ti</i> | <i>dojot</i> | <i>pwye,</i> | <i>o'-ti-mog</i> | <i>ip</i> | <i>baseya'a</i> | <i>be</i> |
| water | bring | when, | they-CL (water)-place | they | basin | in |
| | | | | | | 'When they brought water, they placed it in the basin' |

(22) Gunwinggu (Australia; Oates 1964 in Mithun 1986: 389)

- | | |
|-------------|----------------------|
| <i>gugu</i> | <i>ga-bo:-mangan</i> |
| water | it-CL (liquid)-fall |
| | 'water is falling' |

(23) Ngandi (Australia; Heath 1978: 215 in Mithun 1986: 389)

- | | |
|--------------------|-----------------------------|
| <i>gu-jark-yun</i> | <i>ba-ga-bun-nu-ni</i> |
| GU-water-ABS | 3pl-sub-CL (water)-eat-pcon |
| | 'and they drank water' |

- (24) Diegueño (Langdon 1970: 78)
- a. *a'mi* . . . 'to hang (a long object)'
 - p'mi* . . . 'to carry (like bucket)'
 - tumi* . . . 'to hang (a small round object)'
 - b. *a'vi* → 'to drag (a long object)'
 - c'vi* → 'to drag (a bunch of objects)'

Not included in this type of verbal classifier is the phenomenon of classificatory verb stems, considered to be a covert lexical means of nominal classification. This lexical classification phenomenon can be found in any language. Consider the English verbs of ingesting, which identify the consistency of the ingested material: to suck (a hard object) but to drink (a liquid) and to chew (a denser object) and similar sets of verbs of eating in Navajo (Landar 1964), Apache (Landar 1976) and Tzeltal (Berlin 1967, with a comparison to Navajo). The Athapaskan languages and their classificatory verbs which categorize by shape and texture of the objects have attracted steady attention (general Athapaskan, Davidson, Elford and Hojier (1963); Western Apache, Basso (1968), Chipewyan, Carter (1976); Athapaskan in contrast to Tlingit and Aida, Krauss (1968)).

Classificatory verbs were mentioned because they are sometimes subsumed under the label of verb classifiers. It is true that it is at times hard to tell if the unsegmentable variation in some classificatory verb stems is not the end result of the advanced erosion of fused classifying morphemes, at the fuzzy margin between the lexicalized classificatory verbs being excluded here and the verbal classifiers presented in this section. As for the subject of proposed verbal classifiers in sign languages, more study of the phenomenon is needed to distinguish between classifiers proper and a lexical phenomenon of class markers in productive verbal compounding (Suppalla 1986).

3.5 *On major types and minor types*

The types of classifiers presented above are the best-known ones; they have been amply described in the literature at this point and will be considered to be major types of classifiers. There remains the possibility of other minor types which have attracted less attention so far, either because they are rarer or because they are to be found in languages which are lesser known still.

One probable type is a demonstrative and/or 'article' classifier type independent of numeral classifiers. One instance of such a type is described

for two related languages of Argentina, Toba (Klein 1979) and Pilaga (Vidal 1995). The semantics of those systems include three basic body positions for humans which, when extended to classify objects, correspond to the three familiar basic shapes of classifiers: standing = one dimensional/long-rigid; lying = two dimensional/flat; sitting = three dimensional/round. Some claims have also been made for the existence of such classifiers for Siouan languages (Barron and Serzisko 1982).

One case of complex nominal classification system which has been involved in the discussion of classifier systems is that case of systems of numerous Amazonian languages discussed originally by Payne (1987) and Derbyshire and Payne (1990). The description of one such complex system can be found in the writings of Aikhenvald on the Tariana language of Brazil (1994, this volume). It remains to be solved whether these systems are actually to be considered classifier systems, of a very hybrid sort, or rather noun class systems of a less grammaticalized nature than the Niger-Congo systems. They are extensively concordial, with classifying morphemes that resemble class terms on the nouns themselves, and alliterative types of concord on various elements of the clause. In the case of Tariana, classifying morphemes appear on possessives, demonstratives and articles, numerals, and verbs. Within the framework of the typology proposed here, they would not be considered as co-existing types of classifiers, but rather as part of one and the same complex agreement system more akin to noun class systems. Cases of multiple classifier systems would be reserved for situations such as the ones discussed in section 4.1 below.

4 ARGUMENTS IN SUPPORT OF THE CLASSIFIER TYPOLOGY

At this point efforts will concentrate on the three major types of classifiers found in the NP structure: the numeral, noun and genitive classifier types, setting aside, on one hand, the more complex case of the verbal classifiers and, on the other, that of the minor types mentioned in the preceding section. Two arguments can be presented in support of the distinction between at least these three major classifier types.

4.1 *Argument 1: co-occurrence of types within a language*

A major and decisive argument for recognizing the existence of different types of classifiers is the very simple fact that in some languages several systems co-occur. This is the case for instance with the Micronesian

languages which have both numeral and genitive classifier systems, as distinct sets of classifiers, in distinct morphosyntactic loci, as illustrated in the Ponapean examples presented above, in (13) for numeral classifiers and in (18) for genitive classifiers.

Some of the best examples of languages with multiple classifier systems are to be found in the Kanjobalan branch of the Mayan family of languages, as described for Jakaltek (Craig 1986a, 1987) and Akatek (Zavala 1992, this volume). In the Kanjobalan languages – the only branch of the Mayan family to have such diversity of classification systems – NPs can exhibit concurrently up to four sets of classifying morphemes in the following pattern:

(25)	¹	²	³	⁴	
	Number+CLASS	Numeral Classifier	Plural Class	Noun Classifier	NOUN

1. **FUSED NUMERAL CLASSIFIERS.** They distinguish three categories: human/animal/inanimate and resemble gender agreement. They are totally grammaticalized in that they are obligatory and fused with the numeral. They can be shown to be derived from independent numeral classifiers (shown in 2).
2. **INDEPENDENT NUMERAL CLASSIFIERS.** They distinguish about a dozen of sortal classifiers, including categories of vertical/circular/round/three-dimensional flat and large classes. They are derived from positional roots, a particular class of words in Mayan languages marked by a suffix *-an*. They are less grammaticalized than the fused numeral classifiers. In contemporary Jakaltek, for instance, they are getting lost in the speech of the younger generations, and the size of the inventory varies with the age/native fluency of the speakers.
3. **PLURAL CLASSES.** The languages of the Kanjobalan branch of the Mayan family have sets of plural morphemes (of two or three markers) which distinguish between human/animal/inanimate. It is a highly grammaticalized system very reminiscent of gender systems.
4. **NOUN CLASSIFIERS.** This is an omnipresent classification system in those languages, and an innovation of this branch of the family (as argued in Craig 1990). The noun classifiers are totally independent of quantification and are found in two grammatical functions: that of determiner of the noun and that of anaphoric pronoun (see example (16) above). There are from a dozen to about twenty per language/dialect, with the shared ones being those for humans (M/F)/animal/wood-plants/corn/thread/stone/dirt/salt and water.

Kanjobalan languages, therefore, have two gender type of nominal classification (1 and 3) and two classifier systems, a numeral one (2) and a noun classifier one (4), all at different stages of evolution, as will be discussed in section 6 below.

4.2 *Argument 2: The semantics of the various types of classifiers*

A second argument in support of the existence of different types of classifiers consists in demonstrating that the different morphosyntactic types presented above correspond to different semantic categorization principles. This idea built up in a number of previous works on the semantics of classifiers already mentioned in section 1.2 above.

Denny (1976: 122) had articulated the view that 'the semantic function of classifiers is to place the objects within a set of classes different from and additional to those given by the nouns' and that 'these classes are concerned with objects as they enter into human interactions', identifying three basic kinds of interaction: physical, functional and social. Classifiers of physical interaction evoke physical aspects of the objects perceived as they are manipulated; those of functional interaction do not evoke inherent physical characteristics of the objects but rather the kind of use they are put to (food, clothing, transportation, religious observance etc.); and those of social interaction specify aspects of the organization of the society and the culture (like identifying honoured and respected, kin vs non-kin members of society as well as deities, etc.).

From Allan's (1977) work the idea was retained that the four basic semantic features of classifiers were those of material, shape, consistency and size, which corresponded more or less with Denny's division. The material semantic features fit both within the social interaction class (+/- animate, +/- human) and physical interaction (vegetal, mineral etc.). Those of shape, consistency and size all fit within the physical interaction, with shape as a primary feature, and consistency and size as secondary.

Initial attempts at linking specific semantic categories of classifiers with specific types of classifiers followed these writings. Carlson and Payne (1989) identified the semantics of a sample of genitive classifier systems from Oceania and South America as those of 'functional interaction', in Denny's sense. Meanwhile, the semantics of the newly described noun classifier systems of the Kanjobalan languages of the Maya family (Craig 1986a; Zavala 1992, this volume) were described as clearly falling somewhere between Allan's 'material/essence' category

for concrete objects and Denny's social interaction (or Allan's social status-material) category for humans and deities.

On the basis of such studies correlating classifier types and particular semantic categories, I formulated a hypothesis stipulating that a particular semantic profile corresponded to the major three types of classifiers, along the following lines:

- (26) a. numeral classifiers = physical categories
two-ROUND oranges
three-LONG RIGID pencils
four-FLAT FLEXIBLE blankets
- b. genitive classifiers = functional categories
my-EDIBLE food
his-DRINKABLE potion
their-TRANSPORT canoe
- c. noun classifiers = material/essence categories
an ANIMAL deer
the ROCK cave
MAN John

A preliminary study to evaluate the strength of this correlative claim was carried out by Olness (1991). It used a sample of thirteen languages containing fifteen instances of classifier systems between them, five of each one of the major types considered in this paper (numeral, noun and genitive classifiers), with two languages having two co-existing systems (noun and numeral in Kanjobalan, numeral and genitive in Micronesian).

All the various semantic categories identified in all the fifteen systems were regrouped into three major clusters of physical quality (shape, configuration, consistency, physical quality), material (animate, animal, gender, human for animates and material for inanimates), and function (including relationship, age, value for humans, and function, produced by human for inanimates). The resulting distribution of semantic features across types of classifiers is given in table 2.2 (from Olness 1991: 12).

The results support a semantic-morphosyntactic correlation, with a preference in numeral classifiers for the physical semantic cluster, in noun classifiers for the material semantic cluster and in genitive classifiers for the functional semantic cluster.

The numbers also reveal that the correlation between type of classifier and semantics holds more or less strongly. The genitive classifiers have the clearest semantic profile, with a high preponderance of classifiers of strictly functional semantics (86%). They are also the most

Table 2.2. *Distribution of semantics features in classifier types*

Semantic cluster	Morphosyntactic types of classifiers		
	Numeral	Noun	Genitive
Physical	63%	0%	2%
Material	11%	78%	12%
Functional	26%	22%	86%

Table 2.3. *Semantic contrast of co-existing systems of classifiers*

	Ponapean		Akatek	
	Num. CL / Gen. CL		Num. CL / Noun CL	
Physical	81%	0%	100%	0%
Material	11%	0%	0%	93%
Function	8%	100%	0%	7%

selective systems, with few well-defined classes of particular sets of items. Noun classifier systems have a somewhat less sharp semantic identity, but still have a large preference for one semantic cluster, that of material (78%), while admitting a substantial minority of classifiers better characterized as being of a functional nature (22%). The more mixed systems are those of the numeral classifiers, which are also the more extensive and open-ended systems of classifiers with sometimes scores of classifiers. These systems still maintain a particular semantic profile, however, with their marked tendency for preferring one process of categorization over the other – physical characteristics scoring 63%, with functional 26% and material 11% – and with the categorization by physical characteristics being specific to this type of classifier.

The correlation of classifier morphosyntactic type with semantic profile becomes even sharper when one contrasts co-existing systems within the same language, as shown in table 2.3 (from Olness 1991: 13).

Once again, the sharpest definition is that of genitive classifiers (only function), that of noun classifiers being of a more combined nature (material mostly and some function), while the Ponapean numeral classifier system (the Kanjobalan system is very limited and not as representative of the type, see Zavala this volume) remains the more mixed.

Much remains to be done in this domain, although some line of enquiry in the spirit of the pilot study mentioned above is probably worth pursuing. A caveat is in order here however: the whole enterprise of assigning semantic value to classifiers is a delicate endeavour, highly suspect of Eurocentric bias and with expected theoretical and methodological shortcomings.

5 FUNCTIONAL SIMILARITIES AND DIFFERENCES OF CLASSIFIER TYPES

The claim of this typology is double: on one hand that there exists a linguistic category of 'classifiers' in some languages of the world, which is distinct from other nominal classification systems of more grammatical (gender-noun classes) or more lexical nature (measure terms, class terms); and on the other hand that there exist also various types of classifiers, which seem to correlate with different semantic profiles. These claims beg two distinct questions about the function of such classifier systems: that of their common function as one type of nominal classification system, and, further, that of the distinct functions of the different types of classifier systems.

5.1 Functional similarity of classifiers: individuation of concept nouns

The function of classifiers, in contrast to that of the other nominal classification systems, has been said to be that of marking a process of individuation, a process that would be needed in languages in which classifiable nouns are in essence concept nouns. This idea is found in a number of publications, in particular in the writings of Dik (1989), of the Cologne Project on Universals (Seiler 1986), and more recently in Lucy (1992). This issue of the ontological relativity of nouns in languages with and without classifiers is presented as the main topic of interest in classifier studies in a recent textbook on anthropological linguistics (Foley 1997).

To understand the concept of what is claimed to be the semantic nature of nouns in a classifier language, one could step back and consider the situation in English first. In that language, nouns are divided into count nouns (most of them) and mass nouns (some), which differentiate themselves in certain grammatical constructions. In quantification, for instance, they take different sets of quantifiers, as shown in (27):

- (27) a. Count: *many/few cows, cookies, chairs*
b. Mass: *a lot of/little milk, bread, wind*

Therefore, mass nouns can be quantified two ways, as mass nouns or as count nouns individuated first by a measure term:

- (28) Mass vs Count
a lot of furniture vs *many pieces of furniture*
little sand vs *a few piles of sand*
little butter vs *an ounce of butter*
a lot of cattle vs *many heads of cattle*

When it comes to specifying quantity through counting, mass nouns undergo obligatory individuation through measure terms. These measure terms constitute a rich semantic domain of the language by themselves:

- (29) a. *two drops/glasses/gallons of milk*
b. *three slices/chunks/loaves of bread*
c. *a gust of wind*
d. *a speck of dust*
e. *a pinch of salt*

This categorization of nouns into classes of mass and count nouns is to a certain extent language specific, as shown by the difference between French and English for the following common words (a difference which makes for common language learners' mistakes):

- (30) English mass N French count N
**1,2,3 breads* *1,2,3 pains*
**5 furniture(s)* *5 meubles*

The claim is therefore that nouns in classifier languages are all of the English 'furniture' and 'bread' type, and are said to be 'concept' nouns which necessitate the use of a classifier for individuation. A closer approximation to the proper glossing of quantified NPs in classifier languages would therefore be:

- (31) a. numeral + CLASSIFIER CONCEPT NOUN
two FOUR-LEGGED unit *of the pig kind/idea*
three FLAT-FLEXIBLE unit *of the blanket kind/idea*
b. CLASSIFIER CONCEPT NOUN
MAN unit *of marimba player kind/idea*
ANIMAL unit *of sheep kind/idea*
c. possessive + CLASSIFIER CONCEPT NOUN
my EDIBLE unit *of fish kind/idea*
your TRANSPORT unit *of canoe kind/idea*

The question of whether all nouns in such classifier languages are concept nouns, or only the nouns that are overtly classified, will remain open for the moment.

Beyond their role as individuation markers, classifiers play an important discursive role in many languages as referent tracking devices. Many descriptions of classifier systems include a mention and sometimes ample illustration of this discursive function. In some cases it is even mentioned that classifiers are found essentially in anaphoric constructions. This is the case for instance of the Mam system of noun classifiers for humans (England 1983: 158–60) which are only used in an anaphoric function. In the neighboring Jakaltek language (of a different branch of the Mayan family) noun classifiers are used both in a determiner-like function and as pronominal forms (Craig 1986a, 1987), as shown in (16) above.

The pronominal use of numeral classifiers is a common part of the description of the classifier systems of Asia too. This is the case for instance of the Japanese numeral classifiers which are used, although more sparingly than the Jakaltek ones, as referent-tracking devices (Downing 1986). Meanwhile, recent descriptions of Australian classifier systems specify that classifiers do not always have such an anaphoric function (see Wilkins this volume). Much work remains to be done on determining the function of classifiers, as a type of nominal classification system. Classifiers clearly function partly for referent tracking but further research is needed to clarify the nature of the process of individuation.

5.2 *Functional differences of the various classifier types*

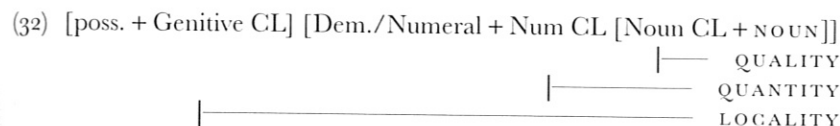
While the question of the individuating function of classifier systems in general needs to be explored further, an even less explored question remains to be addressed. It is that of considering what might be the functional differences of the various types of classifiers described above. If they all contribute to the process of individuation of concept nouns, how is it that the different types of classifiers appear to do it preferentially through different semantic categorization principles?

5.2.1 *A layered approach to classifier types*

An early attempt at addressing this question is found in Craig (1992) where the various classifier systems are conceived as different operators of successive layers of the noun phrase, in a framework derived from

Rijkhoff (1989, 1990). Rijkhoff's work aims at demonstrating the parallel layered nature of term (NP) and predication structures, and argues that, for both verbs and nouns, the successive layers of their operators correspond to a progression from quality to quantity to locality, in the realm of TIME for verbs and in the realm of SPACE for nouns. For verbs, the operators closer to the verb root are operators of quality and correspond to verbal aspects (of the Russian type), those of quantity are represented by aspects such as the iterative, while the third layer of operators, furthest from the verb itself, are the operators of locality and correspond to markers of tense. A similar layered approach to verbal morphology that recognizes the different degrees of semantic and morphological closeness of tense and aspect markers to verb roots can be found in Bybee (1985).

Rijkhoff proposes parallel layers of nominal morphology, with operators of quality such as nominal aspects, operators of quantity such as number and numeral classifiers and operators of locality such as demonstratives. While Rijkhoff's proposal does not handle the various types of classifiers, it situates at least the numeral classifiers as operators of quantity. The schema shown below expands on Rijkhoff's proposal and incorporates the three major types of classifiers into a layered approach to nominal morphology (taken from Craig 1992: 299):



According to this schema, the various classifier types are different operators which correspond to different modes of individuation manifested by their different semantics: noun classifiers and their predominantly material/essence semantics are operators of quality, numeral classifiers with their characteristic physical (shape, texture, size) semantics are operators of quantity, while genitive classifiers with their functional semantics are operators of locality. The association of possession and locality has been well documented in the grammar of many of the languages of the world.

5.2.2 *Matching of semantic profiles and functions*

It remains to see how the semantic differences found in the classification process of the different types of classifiers are a reflection of their different operator functions. Why would material and social status in

noun classifiers be more typical of quality operators, shape in numeral classifiers more typical of quantity operators, and function in genitive classifiers more typical of locality operators? Why not another way around, like shape for either noun or genitive classifiers, function for noun classifiers, or material for numeral classifiers? What follows are remarks on the possible motivations for the matching of the semantic classifying principles of the various types of classifiers with their operator functions.

a. *Numeral classifiers, quantification operators and physical semantics.* For numeral classifiers, the issue is what gets quantified and for what purpose: maybe for buying and selling primarily, building and making also, of inanimate and manipulable objects. Manipulation and quantification are closely related in the real world. In market activities, number determines price or condition of exchange, products change hands, and one does not handle sticks or pencils the way one handles cloth or fruits. In the handling part of the transaction the ultimate goal of the purchase does not enter into account. The absence of numeral classifiers in data from experimental decontextualized experiments of counting objects as reported for Tzotzil by de León (1988) would tend to support this view.

b. *Genitive classifiers, localizing operators, function semantics.* With genitive classifiers the situation to conjure up is one of the particular relation holding between agents and the objects they appropriate for themselves. What matters in such a relation does not seem to be so much the manipulation of the object itself as the goal of the appropriation of the object. Why would someone want to claim appropriation of a particular object if not to do something with it? Genitive classifier systems involve a limited selection of the objects of the world, selection which is largely culture specific in its details. These systems select particularly essential objects of the environment to be obtained or owned to attend to one's basic survival needs, such as food, clothing, shelter, and transportation which facilitates securing those. The suggestion that genitive classifiers function as operators of locality fits in with some general characteristics of possessive constructions in languages of the world. One is a familiar grammatical distinction between so-called alienable vs inalienable nouns found in the possessive constructions of many languages, which appeals to a similar notion of the selection of culturally relevant items. The other is the documented use of locative constructions to express possession.

c. *Noun classifiers, quality operators and material/essence semantics.* The situation with noun classifiers is not as easily graspable as it might be with the other two types of classifiers. The discursive functions of noun classifiers include that of providing a morphological mark of referentiality and highlighting, and that of providing an overt means for keeping track of referents. The means used by languages of the world for this anaphoric function – if a language avails itself of some – are generally semantically very bleached pronominal forms which provide minimum information on the referent, such as gender and number. Noun classifiers, in their anaphoric function, are also like bleached versions of the basic-level nouns they stand for. As they are generally derived from generic nouns they have more semantic content than usual pronouns, but they also respect the condition of minimal information, choosing in this case the semantic feature of material/essence characteristic of superordinate nouns (as in animals, plants and trees, liquids etc.). This is in contrast to the prototypical mental image that a basic noun (like 'pig' or 'pine tree') conjures up, with characteristic shape (as argued by Rosch and associates 1977, 1978).

The point of this section was to underline that, if all classifiers are taken to share a function of individuation, the different types of classifiers must actually do so in different ways, as hinted at by their different semantic categorization principles. It was suggested that the different types of classifiers might be viewed as different operators within the noun phrase. The attempt to sketch a rationale for the matching of particular semantic profiles of classifier types to particular operator functions must be seen mostly as an invitation to pursue such a line of enquiry into the study of classifier systems. What is needed at this point is a more comprehensive description of the various types of classifier systems and the design of appropriate experimental field studies that would reveal the categorizing principles behind the use of the different types of classifiers.

6 A FUNCTIONAL TYPOLOGY

The proposed typology of classifiers is conceived in a functional-typological perspective which takes into account the various dynamics at work in linguistic systems. The variation observed among classifier systems of the same type will be handled by first appealing to a prototypical model of categorization, and then by considering the diachronic dimension of classifier systems.

6.1 *Prototype approach to classifier systems*

No two systems of classifiers are the same. Classifier systems tend to be in fact so language and even dialect specific that one might be tempted not to embark on a typological search such as this one. However the claim of this paper is that some major types can be identified, with some specific systems standing as their best exemplars.

6.1.1 *Prototypical systems*

There appears to be a consensus among linguists about which systems constitute prototypical systems, which are taken to be those that show the most contrastive characteristics to the other types of systems. An extreme case of contrast can be found in languages with co-occurring systems, like the numeral and genitive systems of Micronesian languages and the numeral and noun classifier systems of the Kanjobalan languages discussed in section 5.1 above.

a. *Numeral classifiers.* 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, for the large number of their classifiers, the lexical nature of some of their classifiers (including the existence of repeaters), and the semantic heterogeneity of some of their classes (which is most likely the result of their long history). Less typical numeral classifier systems would be, for instance, more grammaticalized ones, the kind that begins to resemble a closed noun class system, like the Cabecar (Chibchan) numeral system illustrated earlier in (14), or the fused numeral classifiers of Kanjobalan languages shown in (25) above.

b. *Noun classifiers.* The Kanjobalan (Jakaltek, Akatek) systems would appear to be prototypical noun classifier systems almost by definition: they are clearly syntacticized and form a closed set that encompasses both animate and inanimate nouns. They can be contrasted, on one hand, with the less grammaticalized Australian systems of 'generic nouns' which represent more incipient noun classifier systems (see Wilkins this volume), and on the other hand with the syntacticized Mam system which is limited both to animate nouns and to an anaphoric function (England 1983).

c. *Genitive classifier systems.* The Micronesian systems are probably seen as prototypical genitive classifier systems. Within the Micronesian family

itself, one can observe how language specific the systems are in terms of the number of classifiers and classified nouns. South American systems like the Panaré system illustrated in (19) above are in fact said to be emergent systems, less grammaticalized than the Micronesian systems, with much discourse sensitivity in the use of the classifier construction.

d. *Verbal classifiers.* The issue of prototypes is again more difficult for verbal classifiers, which appear to divide themselves into two subtypes according to their semantics, source entities and behaviour: those akin either to numeral or to noun classifiers. The latter ones often appear to stand at the margin of classifier systems, emerging as such from a general syntactic process of noun incorporation, as argued in Mithun (1986).

It is clear that the above selection of prototypes of classifier systems follows an areal distribution that may be in fact more representative of the chronology of the documentation and recognition of those systems than the result of the analysis of an extensive typological database systematically set up to capture the state of today's knowledge of such systems. For the time being the geographic distribution will be allowed to stand, one which states that numeral classifiers are best exemplified by languages of Asia, noun classifiers by languages of Meso-America, genitive classifiers by languages of Oceania and the variety of verbal classifiers by languages of North America. An updated study of classifier languages must take into account more recent work in two areas of the world rich in nominal classification: the Australian continent (see Sands 1995) and Lowland South America (Payne 1987; Derbyshire and Payne 1990; and Aikhenvald's work). Incorporating data from these two areas is likely to demand refinements of the view of nominal classification systems developed earlier on the basis of data from the Indo-European territory, Asia, Africa and North America, as hinted at in several places in this paper.

6.1.2 *Fuzzy edges of the categories of classifier types*

Any typology of classifiers needs to address the issue of the fuzzy edges of all the types considered. Those fuzzy edges correspond to two levels of blending between systems: one is the blending of classifier systems among themselves, and the other the blending of classifier systems with other nominal classification systems, either more lexical or more grammatical ones.

An example of the blending between classifier systems would be the fusing of numeral and noun classifiers in a language like Newari (Shakya 1991). Examples of the blending between classifier systems and other systems of nominal classification are more numerous in the literature. For example, at the lexical end, there is the already mentioned fuzzy edge between measure terms and mensural classifiers in numeral classifier systems, or the blending of class terms into classifier systems in some languages, as is the case in the Tai family of languages documented by DeLancey (1986). At the grammatical end, examples would be the blending of gender and classifiers in the Squamish system of numeral classifiers (Kuipers 1967).

The more recent literature on Amazonian classifier systems also raises a number of questions about the typology of the systems of nominal classification encountered in that region of the world. The first remark is that nominal classification is an omnipresent and complex areal phenomenon. Amazonian languages appear to offer cases of co-existence of gender systems and other nominal classifying systems that are contrary to predictions stated in Corbett (1991). They may present in fact some argument for maintaining a distinction between gender and noun class systems, in that some of the systems that co-occur with gender systems are often labelled as classifier systems but are in fact more like noun class systems morphosyntactically. Like noun class systems, they are largely concordial. They also exhibit a pervasive blend of inflectional and derivational properties, in that some morphemes used in numeral or genitive classifier constructions are also used as nominalizing morphemes in relativization or verbal nominalization, or in noun compounding. However, like classifier systems, they have a strong semantic motivation and a marked discourse use. The Amazonian systems therefore share characteristics of classifiers, noun classes, and class terms. This is the situation described for Yagua (Payne 1986), Tariana (Aikhenvald 1994, this volume), or Tuyuca, as illustrated below:

(33) Tuyuca (Barnes 1989)

a. classifying morpheme <i>-da</i> :	iD.flexible	
-like numeral classifier:	<i>pia-da</i>	'two strings'
	two-CL (iD.flexible)	
-like genitive classifier	<i>bariya-ya-da</i>	'Mary's (string)'
	Mary-gen.sg-CL (iD.flexible)	
-like Class term	<i>yake-da</i>	'necklace'
	bead-CL (iD.flexible)	

b. classifying morpheme <i>-ki</i> : male		
-like numeral classifier:	<i>si-ki</i>	'one male'
	one-CL (male)	
-like genitive classifier:	<i>bariya-ya-gi</i>	'Mary's male'
	Mary-gen.sg-CL (male)	(god, bird)
-Relativizer/Nominalizer	<i>basoka yaa-gi</i>	<i>dii-yigi</i>
	people eat-CL (male)	be-3m.sg.past.ev
		'he was one who eats people'

A prototype approach to classifier systems therefore evokes a notion of prototypical classifier types as lexical systems of classification which have evolved to a certain degree of grammaticalization without being fully morphologized and without losing their semantic motivation. Non-prototypical systems are either incipient classifier systems which are still very sensitive to discourse conditions or systems which have evolved to an advanced degree of grammaticalization closer to that of noun class-gender systems. The process of emergence and evolution of classifier systems which accounts for the existence of prototypical and not so prototypical classifier systems is to be considered next.

6.2 Classifier typology in diachronic perspective

Classifier systems seem to be secondary grammatical systems which are derived from existing lexical material and syntactic constructions, and which have long or short histories, and varying degrees of dynamism built into them.

6.2.1 Origin of classifier systems

The sources of classifier systems seem to be in the prevalent lexical and syntactic patterns in the languages. Among the variety of sources and conduits that have been said to have facilitated the emergence of certain types one could cite the following cases. Sino-Tibetan languages, for instance, which have a predilection for noun compounding, have developed classifiers from compounding constructions through the use of class terms (DeLancey 1986). Meanwhile Kanjobalan languages must have developed noun classifiers for social interaction first, using the existing Mayan patterns of use of epithets and kinship terms, before expanding the system to the classification of concrete objects (Craig 1990a). Noun classifiers also developed in the neighbouring language Mam, from another branch of the Mayan family, although their development there was limited to the first stage of classifier creation, the

emergence of classifiers of social interaction (England 1983). Another instance of classifier systems developing from pre-existing grammatical patterns are the cases of some verbal classifier systems of North American languages, which developed in the context of a great propensity of the language for incorporation of lexical items into complex verb forms, as argued by Mithun (1986). Another pattern involving a rarer case of verbal origin of classifiers is presented in Seiler (1986).

6.2.2 Stage of development

One can identify emerging, young, old and decaying systems of classifiers. A characteristic of old systems is the semantic opacity of many of their classifiers and the existence of heterogeneous classes. Very old and extensive systems such as the Chinese or the Thai numeral classifier systems have had time to undergo thorough renewing of the set of classifiers and composition of the classes. See the Chinese case documented by Erbaugh (1986), which traces the evolution of the semantics of some of the classifiers, such as the case of one old general classifier – now lost – which came from the noun for the trunk of a bamboo tree, and of another general classifier for people – still in use today – which came from another term for bamboo. Another feature of old systems can also be their advanced degree of grammaticalization, as in the fused numeral classifiers of Kanjobalan languages, which co-exist with a newer set of numeral classifiers (see Zavala, this volume).

A newer system can be identified by the easily recognizable noun origin of its classifiers, and the semantic transparency of the categorization principles of the system, as argued for the Jakaltek noun classifier system in Craig (1986a, 1990a). For the case of an emergent noun classifier system, one could take the example of the special discourse use of some generic nouns in some Australian languages (see Wilkins this volume), and for an emergent genitive system, the discourse sensitive Panaré system (Mattei-Muller 1976).

6.2.3 Level of dynamism of a system

Independent of the stage of development of the classifier system, one can distinguish also between different degrees of dynamism of the systems. Dynamic systems are those in which the creation of classifiers, as well as the reshaping of the categories they define, is on-going. An example of such dynamism has been documented for the Thai language, with a case study of the continuous process of inclusion and exclusion of objects into the category headed by the classifier *tua*, sketched out below:

(34) Thai classifier <i>tua</i>				
stages:	a.	b.	c.	d.
	ladle			-ladle
	spoon			-spoon
	fork			-fork
	umbrella			
	ricksha	+bicycle	+motorcycle/ bus/car	
	string instr.		+guitar	

The evolution in this case appears to have been from a classifier for (a) long and rigid objects, i.e. a classification by shape, through a first extension of the class by a linking process to add classification by another shape: (b) round/circular, followed by a further extension (c) beyond a classification by shape to a classification by function, as can be inferred by the inclusion of bus and cars in the category, to arrive at a redefinition of the class altogether (d), and the subsequent exclusion of some of its original members (spoon, ladle and fork, with the originally characteristic long and rigid shape).

Meanwhile, an example of a frozen system seems to be the case of the Jakaltek noun classifier system documented in Craig (1986a). The system was dynamic enough at the time of the colonization to have incorporated the new items introduced by the Spaniards, by extending the 'rock' class to incorporate metal and glass objects, and the 'corn' class to accommodate the new wheat and wheat products. But the system seems to have ceased to be active in modern times since it does not accommodate into the established categorization scheme the more recent objects of daily use in the culture which are made of unfamiliar materials, such as bottled drinks like beer and coca-cola or objects made of plastic or nylon.

The process of classifier loss is generally that of the loss of the richness of the inventory and the simplification of the categorizing schemes rather than that of the loss of the classifier construction itself. The actual process of morphological decay is more typical of more grammaticalized systems, as the end point of an evolutionary scheme (from discourse to syntax to morphology to loss of that morphology). One can cite the loss of gender marking through the loss of case marking in English noun morphology, or the loss of many classes and of the regularity of agreement patterns in the noun class systems across the Bantu family of languages, or the simplification of the culturally marked noun class system of Dyirbal, described in Dixon (1982a, b) and

expanded upon in Lakoff (1986, 1987) into a three-way gender system in which the culturally specific classification is lost, as documented in Schmidt (1985).

The variation in the classifier systems is therefore a reflection of all the various dynamics at work in their emergence and evolution as intermediate lexico-grammatical systems, and of their level of dynamism at a given time, so that the description of classifier systems should include, to the extent possible, an assessment of such dynamics.

7 CONCLUSIONS

The subject of classifier systems is therefore far from closed and in fact warrants much more work. Further typological work will of course be conditioned on the production of new and extensive descriptions of classifier systems which will begin to answer some of the questions raised here. Both revisions and extensions of existing descriptions and descriptions of systems yet undescribed would be welcome, and it is believed that the present typology can be a useful tool for providing an initial orientation to this research.

This typology takes a purely morphosyntactic approach more for convenience sake than as a theoretical statement. The fact is that a morphosyntactic sketch is the first step in the description of a language, since morphosyntax is the most accessible part of unwritten and yet undescribed languages for fieldworkers; semantic and discourse issues are inherently less accessible and more difficult to handle. But one could eventually envision a more function-based approach to the study of classifiers, as the state of knowledge of the linguistic facts will permit it, not unlike the approach taken by the Seiler group on 'Apprehension'. Croft (1994) does not reach significant generalizations on the semantics of classifiers and shows in fact how the recognition of different classifier types within the many systems of nominal classification in existence is necessary before discussing their semantics. Much remains to be done to investigate the semantics and functions of the classifiers, before it will be possible to provide a functionally based comprehensive study of classifiers. Meanwhile much care will be needed to control for ethnocentric biases when producing appropriate field techniques to investigate the semantics and functions of classifiers, as warned by Lucy (1992).

The typology presented here is meant to begin to sort through in some systematic fashion the seemingly infinite variety of systems by proposing the initial recognition of several major types. These proposed

major types – numeral, noun, genitive and verbal classifiers – can be shown to co-occur in some languages where they stand in morphosyntactic and semantic contrast and are taken to constitute the more prototypical forms of the types. The present work falls short of being all inclusive of classifier systems on two accounts. First, it does not address appropriately yet the issue of the nature of verbal classifier systems, beyond acknowledging their existence and distinguishing two major subtypes – one semantically akin to numeral classifier systems, the other more to noun classifier systems. Second, it does not include a discussion of rarer types that may also exist, such as locative systems, or purely demonstrative systems, or various putative subtypes of genitive systems (Aikhenvald p.c.). Here again, lowland South American data may provide new material for extending the typology.

It has also been the explicit purpose of this chapter to focus on the phenomenon of classifier systems per se, while acknowledging the existence of various other nominal classification systems such as the more grammatical gender and noun class systems on one hand and the more lexical measure terms and class terms on the other. Here, too, it is hoped that future work will embrace the full scope of all systems of nominal classification. This is a requirement if one is to do justice to the more complex and mixed systems of Amazonian languages for instance.

This chapter reaffirms that the phenomenon of classifiers, as an instance of nominal classification, is a very rich one which can be approached from a number of angles. One could cite as possible areas of theoretical interest for which classifier data may provide new insights the following possibilities: a review of the recognized grammatical categories of languages, a reconsideration of the notion of noun and noun-ness, a new take within the philosophy of language on the notions of individuation, and further exploration of the phenomenon of categorization, including a reassessment of the notion of prototypes and of the internal organization of categories. This is not to mention the wealth of data that classifiers can provide for studies in the dynamics of language, including their historical evolution, their emergence as grammatical systems, and their acquisition or loss.

But the investigation of such issues is only thinkable provided adequate basic understanding of the functioning of these classifier systems arises and explicit descriptions of these functionings are made available. And since the phenomenon seems to exist in forms maybe not yet fully understood or described in many of the lesser-known languages of the world, in the Americas in particular, the burden is on

fieldworkers to provide this information. Considering that fieldworkers have to face all aspects of the language at once, this chapter is meant to be a guide to the basics on classifiers to facilitate their study, particularly for those who have no prior interest in or awareness of the phenomenon.

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Unusual classifiers in Tariana

Alexandra Y. Aikhenvald

Research Centre for Linguistic Typology, Australian National University

I GENERAL OBSERVATIONS

Five main types of nominal classification devices can be identified on the basis of their morpho-syntactic locus (for details see Aikhenvald forthcoming, and a somewhat different version in Craig 1992; Grinevald this volume):

- i. gender and noun class – grammaticalized agreement systems, based on certain core semantic characteristics (most often animacy and sex), marked within an NP or on the predicate but not necessarily on the noun itself;
- ii. numeral classifier – free or bound morphemes which appear in the context of quantification;
- iii. noun classifier – free or bound morphemes which occur next to the noun and characterize it independently of quantification or possession;
- iv. genitive or possessive classifiers – free or bound morphemes which appear in the context of possessive constructions and characterize a possessive relationship, or a possessed noun;
- v. verbal classifiers – bound morphemes which are affixed to the verb, or incorporated into the verb; they categorize a noun, which is typically in S/O function, in terms of its shape, consistency, and animacy (see Aikhenvald forthcoming, for discussion).

In general, this approach provides a very useful tool for describing systems of nominal classification. However, there are still a few problematic issues.¹

One of the problems for an over-all typology of classifiers is the existence of 'marginal' classifier types which appear in morphosyntactic loci other than indicated above. One of these 'marginal' types is classifier morphemes, variously known as 'demonstrative', 'article' and 'deictic' classifiers, which appear exclusively with deictic elements, indicating