Morphologie
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Ein internationales Handbuch zur Flexion und
Wortbildung
An International Handbook on Inflection and
Word-Formation

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97. Classifiers

1.   Introduction

Classifier systems are lexico-syntactic systems which provide an overt linguistic categorization of nominals. They come in different types that can be distinguished by their semantics, the size of their inventory, their morpho-syntactic status, and their pragmatic use. Classifier systems per se are part of a continuum of nominal categorization systems where they stand in an intermediate position between the two types of nominal classification systems found in European languages: the very grammaticalized gender systems (French *le fils* 'the son', *le couteau* 'the knife', *la fille* 'the girl', *la fourchette* 'the fork'; cf. Art. 98) and the lexical expressions of measure terms and unit counters (*a piece of paper*, *a cup of milk*, *a handful of candies*, *a pile of clothes*). Classifier systems are found in languages of Asia, Oceania, Australia, Africa, and the Americas.

2.   Semantic categorization

Classifiers offer a unique window into studying how human beings construct representations of the world and how they encode them into the words of their languages. Beyond a morphosyntactic variation to be discussed later, systems of classifiers share semantic features and categorization principles which yield remarkably similar prototypical members of categories across systems.

Classifier systems select basic universal semantic features of the major word classes from which they originate (mostly nouns and verbs) and extend them metaphorically to overtly express the various types of social, physical and functional interactions that human beings have with their world. The conventionalized perception of the world encoded in classifier systems spans from the most cognitive and universal to the most specific and esoterically cultural points of view.

2.1.   Universal semantic properties of classifiers

The earlier attempts at identifying universal semantic properties of classifiers are found in Adams & Conklin (1973), Denny (1976), and Allan (1977). Their complementary approaches offer a comprehensive overview of all the semantic features encountered across classifier systems of the world. What follows is a synthesis of their work which takes into account a greater variety yet of classifier systems.

Animacy is one of the prevalent semantic features of classifiers. Some languages grant special classification to humans and animals as opposed to objects of the inanimate world, while others treat humans separately and classify animals by their shape together with inanimates. The feature of humanness itself combines with one of two sets of semantic features. One set of features corresponds to the inherent properties of a person, such as sex, age, or kinship. The other corresponds to socio-cultural properties, such as social rank based on wealth, occupation, nobility or sacredness, and is sometimes labelled *features of social function*. Some constraints seem to hold between these sets of features. For instance, the prominent feature of sex does not determine a class by itself in classifier systems proper (as opposed to gender systems) and must combine with other features. Another constraint seems to be on relying either on inherent properties or on social factors when classifying humans, but rarely on both sets at once.

The inanimate domain is classified by a proliferation of semantic features divided between physical and functional sets. The two major features of the physical domain are **material** and **shape**, both cognitively oriented features. Basic material features classify objects by their essence, irrespective of the shape, consistency or use of the object. This type of semantic categorization is very semantically transparent but appears to be rare, having been documented primarily in noun classifier systems of the Americas. In such a classification, for instance, all plants and plant products are classified as plants, all animals and animal products as animals.

The domain labelled *shape* includes inherent and temporary physical characteristics of objects, such as shapes, consistencies, and configurations. The predisposition of classifier systems to use specifically shape (rather than color, size, weight or smell) reflects the selectiveness found in how humans categorize objects of the world according to basic cognitive categories. The primary semantic features of inherent shape that prevail around the world are the one-dimensional long shape, the two-dimensional flat shape, and the three-dimensional round shape.

The semantic features of **consistencies** (rigid, flexible, soft, hard) are secondary developments; they do not categorize objects by themselves but combine with one of the primary shapes. The feature of rigidity, for instance, can combine with a primary shape, yielding the possible combinations: one-dimensional/long + rigid and two-dimensional/flat + rigid. Included under the broad label of shape are **configurations** (in a pile, in a circle, in a straight line, evenly and unevenly scattered, etc.) which are temporary arrangements creating shapes. They, too, have a tendency to combine with other semantic features of shape and consistency, as well as "scores" of other physical characteristics. The result is more and more specific classes which proliferate in the large numeral classifier systems.

The semantic feature of **function** refers to the use to which the objects classified are put rather than to their shape or other physical characteristic. A basic set of functions marked by classifiers would include housing, transportation, edibles, clothing, and tools. Within the domain of function fall most of the categorizations of abstract nouns, such as concepts of time, writing and speech, and much that is very cultural specific and opaque in classifier systems.

2.2.   Types of classifiers and complexity of classes

The semantic structure of the class defined by a classifier varies from very simple to very complex and heterogeneous, according to the type of classifier that heads it.

Specific classifiers are the most common type. They head classes built around prototypical exemplar nouns from which the class generally extends into a more or less heterogeneous whole (see 2.3). The term *specific* is used here primarily to distinguish a type of classifier that covers a large spectrum between two extreme opposite types: unique and general classifiers. Specific classifiers correspond to various levels of specificity of no-

minal taxonomies, including generic and specific nouns. Commonly, the more specific the classifier, the more culturally relevant the class is assumed to be or have been. In Jacaltec (Mayan) languages, the plant domain includes three classifiers: *te'* is for all the plant world, while *ang* is more specifically for medicinal plants, and *ixim* for corn and corn products.

Unique classifiers define the simplest classes, in that they classify only one object, supposedly one that had or still has some particular cultural relevance. In Jacaltec (Mayan), there is a unique classifier *metx'* for the one noun *tx'i'* 'dog', next to the specific classifier *no'* for all the other animals. In Thai, *chyak* is the unique classifier of *čhaaŋ* 'elephant' in formal, honorific context, next to *tu*, the specific classifier for elephant and other animals in less formal speech. In Yagua (Macro-Carib) *na* is the unique classifier of standing banana tree trunk and *mu* of standing chambira palm trunk, next to the specific classifier *nu* for all other tree trunks.

General classifiers head the most inclusive classes. They are semantically very bleached, generally distinguishing classes on the basis of animacy. They are used as substitutes for more specific classifiers under certain developmental and pragmatic conditions, such as earlier stages of language acquisition and casual adult speech. Increase in the use of general classifiers is also a trait of language loss under language contact with non-classifier languages. General classifiers are most common in large numeral classifier systems, such as Tzotzil, Chinese, Japanese. Of the sixty classifiers of contemporary Indonesian (Austronesian) three are considered to be "general" classifiers: *scorang* 'human'; *seekor* 'animal'; *sebuah* 'the rest'.

Unique, specific, and general classifiers correspond to different stages of evolution of individual classifiers (see 4.1.2). Their existence underscores the extremely variable degree of semantic complexity of the classes of nouns defined by classifiers.

2.3.   Heterogeneity of a class

The analysis of the semantic structure of heterogeneous classes of nouns headed by specific classifiers often reaches challenging proportions, as illustrated by the example of the *hon* classifier of Japanese, which applies, among other things, to: pencils, sticks, threads, ropes, needles, bananas, carrots, pants, guitars, teeth, cassette tapes, type-

writer ribbons, camera films, telephone calls, letters, movies, TV programs, medical injections, and homeruns in baseball! (Lakoff 1986: 14; Matsumoto 1990: 10 f.)

Such heterogeneity is the combined result of various processes of extension which operate in the semantics of classifiers: prototype extension, chaining, and checklist. A checklist model predicts clear cut boundaries between classes and assumes extension of a category to any noun with a set of necessary and sufficient features, such as [+animate] and [−human]. A chaining model, the most prevalent in classifier systems, is based on sets of local analogies that create disjunctive classes with no identifiable common feature. In a prototype model, the members of the class are more or less closely resembling an abstract ideal member with which they share minimally one feature.

The class defined by the Thai classifier *tua* 'animate quadrupeds' has the kind of heterogeneity that requires appeal to all three types of extensions (Carpenter 1987: 17). A checklist analysis accounts for the inclusion in the class of all animals. A prototype analysis assigns 'dog', 'cat', and 'buffalo' a more central position in the class than non-limbed animates like 'snake' and 'fish' on one hand, and the limbed inanimates 'table' and 'trousers' on the other. But only a chaining analysis can account for the further inclusion in the class of 'shirt' (other limbed clothing), 'dress' and 'bathing suit' (unlimbed clothing). What all models of extension of the classes can do at best is to explain a posteriori the inclusion of certain nouns in a class, but they have very limited power of prediction (Allan 1977; Lakoff 1986).

2.4. Complexity of classifier systems

Beyond the varying complexity of the individual classes of a classifier system is the varying semantic complexity of the systems at large. Classifier systems are heterogeneous, non-hierarchical, non-taxonomic organizations which vary idiosyncratically from language to language and culture to culture. Most classifier systems are collections of unique, specific and general classifiers which combine varied semantic categorization. The degree of complexity of classifier systems is also tied to their ability to classify all nouns, including abstract ones such as time expressions and activities.

It is very common in the large numeral classifier systems to have classifiers for an ar-

ray of physical semantic features of basic shape and secondary shapes and consistencies, scores of configurations and multiple functions, with a combination of a few general classifiers, more or less familiar specific classifiers, and a large number of very language specific unique classifiers. This is the state of most large numeral classifiers from Asia.

3. A morphosyntactic typology

The literature on the typological diversity of the phenomenon of overt nominal classification has attracted attention to various subsets of classification systems, but a full picture of the phenomenon has yet to be produced (Allan 1977; Craig 1986; 1987; Dixon 1982; 1986; Carlson & Payne 1989; Serzisko 1981). There is so far no agreed upon set of criteria to determine unambiguously which systems qualify as classifier systems per se and which do not. The typology presented here is a synthesis of the early seminal work on classifier systems and more recent case studies of classifier systems and takes an inclusive rather than exclusive approach to the rather fluid phenomenon of nominal classification.

3.1. Rationale for the typology

Various factors contribute to the urgency of the task of establishing a typology. On one hand it could clear up a certain amount of terminological confusion. Numeral classifiers have been variously called *numerative, numerical* or *number classifiers* without much danger of confusion does not cause much problem (although the existence of a *number* classifier system distinct from numeral classifiers − admittedly rare but documented in some languages of Meso-America − should warrant standardizing the terminology. More importantly, there is a problem with the use of the expression *noun classifier* which has a variety of referents in the literature. Some use it to refer to all the classifier systems, including, but not restricting it to numeral classifier systems (Denny 1976), others use the expression to refer to numeral classifier systems themselves, while the existence of a type of noun classifiers distinct from numeral classifiers has been argued for (Craig 1986; 1987).

Another rationale for establishing a new **typology of classifiers** is precisely that a considerable amount of new classifier data and

classifier analysis has been produced since the eighties, both new case studies of specific classifier systems, particularly of Middle and South America, and typologizing and theorizing efforts using already published sources, such as the typological project in Cologne (Barron 1982; Serzisko 1981; H. Seiler 1986). A working typology incorporating the recent advances in classifier studies would have to take into account the rich data and amended proposals of such publications as Aikhenvald (2000), Grinevald (2000), and Senft (2000, ed.).

The typology being proposed here is morpho-syntactically based. Although it will consider issues of semantics, pragmatic use and grammaticalization, it identifies the different types of classifiers primarily on the basis of their morpho-syntactic locus. The terminology chosen for this typology responds to the following rationale: it relies as much as possible on currently used terminology in order to avoid the proliferation of new terms, while selecting among various terms in use the one that is most iconic with the morpho-syntactic locus of the classifier.

3.2. Nominal classification types

The following typology incorporated classification systems which are not universally considered as belonging to the core of the major classifier systems. The inclusiveness is dictated by a general approach to the study of classifier systems that includes both synchronic and diachronic dimensions and allows for tracing the paths of evolution of such systems, often relating minor or marginal systems to the core ones.

3.2.1. Gender and noun class

Gender is either not included in classifier typology or considered an extreme case of noun class system. **Gender systems**, which are common in European languages, have either two or three classes ('masculine'/'feminine' (/'neuter')) to which most nouns are assigned arbitrarily, beyond the recognition of sex differences for animate nouns (see Art. 98).

Noun class systems are more typical of languages of Africa and commonly have between five and twenty classes. More semantic content can be ascribed to noun classes than to genders, although it is more obvious for reconstructed Bantu classes than for most contemporary noun class systems:

(1) class 1/2   humans
    class 3/4   plants
    class 5/6   fruits
    class 6   liquids
    class 7/8   inanimates
    class 9/10   animals
    class 10/11   elongated objects
    class 12/13   small objects
    class 14   masses
    class 15   infinitive nominalizations
    class 15/6   paired body parts

Gender and noun class systems share the characteristic of forming part of elaborate agreement systems, as illustrated with examples from Europe and Africa:

(2) Gender in Spanish:
    esta flor   roja es bonita
    this.F flower(F) red.F is pretty.F
    'this red flower is pretty'

(3) Noun classes in Sesotho (Central Bantu; Demuth et al. 1986: 456):
    (a) *mo-tho é-mo-holo ó-rata Ø-ntjá*
        1   1 1   1   9
        person big   he/she-like dog
        é-ntle   eá-hae
        9   9 1
        beautiful   of-his/her
        'The old man/woman likes his/her beautiful dog.'
    (b) *ba-tho bá-ba-holo ba-rata   li-ntjá*
        2   2 2   2   10
        people big   they-like dogs
        tsé-ntle tsá-bona
        10 10 2
        beautiful of-them
        'The old people like their beautiful dogs.'

A characteristic of these systems is that the gender/class may or may not be marked on the noun itself, and may have some derivational uses, such as locative, augmentative and diminutive, derogative or agentive, as well as infinitive (Heine 1982).

3.2.2. Numeral classifiers

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. Morphologically speaking, they may be more or less bound and fused to the numeral:

(4) Japanese (Matsumoto 1990: 1, 7)
    enpitsu ni-hon ; hon ni-satsu
    pencil two-CL   book two-CL
    'two pencils'   'two books'

(5) Chinese (Li & Thompson 1981: 105)
sān-ge rén   ; nèi-tiáo niú;
three-CL person   that-CL cow
'three people'   'that cow'
nèi-liù-běn shū
that-six-CL book
'those six books'

(6) Cabecar (Chibchan; Richards 1983: 6)

CLASS:	'one'	'two'
humans	ʔéklá	ból
flat	ʔétká	bótkö
round	ʔékláwö	bólwö
long	ʔétabá	bótabö
bundles	ʔéyeká	bóyökö
trees	ʔélka	bólká

In rare cases, classifiers are morphologically infixed as in Yagua (Macro-Carib), or realized as reduplication, as in:

(7) Squamish (Salishan; Kuipers 1967):
nch'uʔ + NUM.CL.INAN 'one (inanimate)'
ninch'uʔ   'one (animal)'
nch'nch'uʔ   'one (human)'
t'akach + NUM.CL.INAN 'six (inanimate)'
t'at'k'ach   'six (animal)'
t'ek't'ak'ach   'six (human)'

Although labelled *numeral classifiers*, this type of classifiers may also appear on other elements than numerals, such as quantifying words and demonstratives.

A major distinction to be made among numeral classifiers is between sortal and mensural classifiers. **Mensural classifiers** are used for measuring units of both mass and count nouns (cf. Art. 101) and are a fairly large open-ended lexical class. Hundreds have been documented in classifier languages like Tzeltal, Thai, Chinese. They are familiar to everyone because they correspond to the measure terms of non-classifier languages, such as 'a pound of tobacco' (weight), 'a slice of bread' (shape), 'a handful of tomatoes' (contained measure), 'a sheet/ream of paper' (quanta), 'a pile of wood'/'a line of trees' (arrangement). Mensural classifiers classify both count and mass nouns. **Sortal classifiers** do not have a direct equivalent in non-classifier languages. They are morphemes that specify units (not quantity) in terms of which the referent of the head noun can be counted, although they may be used in contexts other than quantification (see also Grinevald 2000: 58 f.). They often appear to be semantically redundant, expressing one of the inherent semantic characteristics of the head noun. They may refer to the essence of the object, as in 'a man car-

penter', 'a woman teacher', 'an animal dog', 'a plant banana', 'a liquid river', or to its shape: 'a long tree/pencil/bone', a 'flat leaf/paper/sheet', 'a spherical orange/fist/baby'. They can also refer to its function: 'a transportation boat', 'a drinkable fruit juice'. In some languages they can refer to the social status or kinship relation of humans: 'honorable Mary', 'young male kin Peter'.

It has been argued on the basis of the existence of such sortal classifiers that nouns of classifier languages are neutral with respect to mass and count, being instead ensemble or concept nouns which are individuated by the presence of the classifier in discourse, as patterned below:

(8)

number	individuated sortal classifier	ensemble head nominal
one	animal-unit	(of) dog (kind)
two	flat-unit	(of) blanket (kind)
three	round-unit	(of) orange (kind)

The difference between measure terms and mensural classifiers is not always easy to draw. One defining criteria of mensural classifiers is that they co-exist in the language with sortal ones, in forming a complex and heterogeneous classifier system. By such a criterion English measure terms could not be taken as mensural classifiers, contrary to what some want to argue. In some languages, mensural and sortal classifiers behave differently. In Tzotzil (Mayan), for instance, of the several hundred numeral classifiers identified, only eight are sortal classifiers and both types can be distinguished by their anaphoric behavior: sortal but not mensural classifiers are used anaphorically. In Q'anjob'al (Mayan) the difference appears in agreement. Numbers carry a classifier which agrees with mensural classifiers, if one is present, but with the head noun if a sortal classifier is present (examples from Mayan languages are given in traditional orthography):

(9) Q'anjob'al (Mayan; Zavala 1989: 282):
(a) *ox-ep' tinan   ep'   naj winaj*
    3-NB.CL MENS.CL PL.CL N.CL noun
    INAN   group   HUM   man man
    'three groups of men'

(b) *ox-wan k'itan   ep'   naj winaj*
    3-NB.CL SORT.CL PL.CL N.CL noun
    HUM   separated HUM   man man
    'three separated men'

Numeral classifiers come generally in large inventories (from dozens to hundreds) and are found predominantly in Asia, but also in Oceania and the Americas. Some of the major systems of Asia are those of Thai (246 classifiers), Burmese (189 classifiers), Vietnamese (140 classifiers), although such large inventories include a majority of mensural classifiers (Goral 1978). Micronesian languages have from one to several dozen classifiers, while Chibchan languages of Central America like Cabecar (see (6)) have a small system, with a total of six classes.

Numeral classifiers have been the basic material for discussions of classifier systems and are central to any typology. The ones of particular interest are the sortal classifiers, which, unlike the mensural ones, do not have an equivalent in non-classifier languages and raise more questions because of their seemingly redundant semantic function.

3.2.3. Noun classifiers

Noun classifiers are a much rarer type. In fact, their existence as a distinct type has only been argued for in work on Meso-American languages (see Craig 1986; 1987; Zavala 1989 for descriptions of Q'anjob'alan Mayan systems; de León 1988 for one of Mixtecan systems). Their name comes from the fact that they are most intimately related to the noun in that their presence does not depend on the presence of another element of the noun phrase, such as a numeral or a demonstrative (see numeral classifiers in 3.2.2), or a possessor (see genitive classifiers in 3.2.4). Noun classifiers commonly stand alone with their referent noun, independent of quantification or possession. One of the major functions of noun classifiers is to serve as anaphoric pronouns for the referent nouns, as illustrated in the Jakaltek example below.

(10) Jakaltek (Craig 1986: 264)
(a) *xil   naj   xuvan no'*
    see.PAST CL.man John   CL.animal
    lab'a
    snake
    '(man) John saw the (animal) snake.'

(b) *xil   naj   no'*
    see.PAST CL.man CL.animal
    'he saw it (animal)'

(c) *caj te?   tahnaj ixpix*
    red CL.plant ripe   tomato
    'the ripe (plant) tomato is red'

(d) *caj te'*
    red CL.plant
    'it (plant) is red'

(11) Coatzoquitengo Mixtec (Otomanguean; de León 1988: 153):
(a) *xáhni ñá   María*
    kill.PAST CL.woman Mary
    ti   xuhu
    CL.animal goat
    'Mary killed the goat'

(b) *xahni-ña-rí*
    kill.PAST-CL.she-CL.it (animal)
    'she killed it'

The noun classifiers of Meso-America share several characteristics. They all include specific classifiers for humans, some being limited to them, and all have a prominent pronominal function. They also all classify inanimates primarily by material, a natural kind taxonomy which is not common in numeral classifier systems. Although they have not been identified as such in the literature, some noun classifier systems are found in Australia. Such is the case for the classifiers Dixon calls *generic markers* in Yidiny:

(12) Yidiny (Australian; Dixon 1982: 185)
mayi   jimirr
CL.vegetable(ABS) yam(ABS)
bama-al   yaburu-Ngu julaal
CL.person-ERG girl-ERG dig.PAST
'the (person) girl dug up the (vegetable) yam'

The identification of a distinct type of classifiers called here *noun classifiers* is practically the main point of the present typology. As already mentioned, not only is the existence of noun classifiers not always recognized, but, in addition, the term *noun classifier* is often used to refer to another type of classifiers, the numeral classifiers of 3.2.2.

3.2.4. Genitive classifiers

Genitive classifiers are a fairly well established type of classifiers. They have also been called *relational*, *possessive* or *attributive* classifiers. They resemble numeral classifiers in that they piggy-back an element of the noun phrase, in this case the possessor entity of a possessive construction (see Art. 103).

(13) Ponapean (Micronesian; Rehg 1981:
184)
  (a) *kene-i*   *mwenge*
      CL.edible-GEN/1 food
      'my food'
  (b) *were-i*   *pwoht*
      CL.transport-GEN/1 boat
      'my boat'

Genitive classifiers constitute one of the major typological characteristics of Micronesian languages where the inventories vary from the two classifiers of Manam (general and edible) to the twenty-one of Ponapean. They are also found in the Americas: in Yuman languages, they are minimal systems with as few as two classes (general and animal/pet). In Yucatec and Mam (Mayan) they are verbal in origin and examples given always deal with edibles. In Tuyuca (Tucanoan) the possessive construction is generally headless, with the possessor classifier attached to the possessor fulfilling a very widespread anaphoric role in discourse:

(14) Tuyuca (Tucanoan; Barnes 1990: 286)
  (a) *bãríya-ya-da*
      Maria-GEN-CL.long.flexible
      'Mary's (string)'
  (b) *kɨ̃ĩ paki-ya-wi*
      3   father-GEN-CL.hollow
      'his father's (canoe/car/blowgun)'

In all languages, genitive classifier constructions are restricted to a subset of possessed nouns commonly labelled *alienable* (see Art. 103), while the possessive constructions of *inalienable* nouns do not use classifiers. What determines (in)alienability is not always easy to identify, so that the term *alienable* must be taken to refer to a particular grammatical category rather than a semantic one. The categorization of nouns into either the alienable or the inalienable class is a matter of ethnolinguistic research which would aim at drawing the list of which parts of the body, which kinship and social relations, as well as which objects of the world are considered alienable in a particular language. For instance, the list of alienable nouns in Ponapean includes edibles, drinkables, children-pets-domestic animals, vehicles, buildings, hunting bounties, pillows, as well as nouns of humans who are commonly taken to be inalienable in other languages, such as siblings, relatives, maternal uncles, nephews and nieces, clan members. Of the twenty-one genitive classifiers of Panare (Cariban), one is general, three are

the familiar edible, drinkable and vehicle, and the others include the idiosyncratic musical instruments, body paint and artificial light (Carlson & Payne 1989).

3.2.5. Verbal classifiers

Verbal classifiers are called thus because they are morphologically part of verb words. As systems of nominal classification they rely on the same array of semantic features as the previously described classifier systems. There are various sub-types of verbal classifiers, depending principally on the age of the system and the lexical source of the classifiers. The above mentioned terminological problem surfaces here too. One extreme case of it is found in the literature on Athapaskan languages in which verbal elements with no noun classificatory function have been traditionally called *classifiers*, while others that should be called *classifiers* have been described instead with terms such as *class mark* or *extensor* which hide their classificatory function (Krauss 1968). Verbal classifiers have been documented for many North American languages, as well as Australian and Papuan languages (Mithun 1986; W. Seiler 1986) and American Sign Language (Supalla 1986).

One sub-type of verbal classifiers are **incorporated classifiers** which are still recognizable as incorporated words, generally nouns. Whether specific and generic nouns originally, all take on a generic meaning as classifiers. The free nouns corresponding to incorporated classifiers may still co-occur in the language, or they may have been replaced:

(15) Cayuga (Iroquian, Ontario; Mithun
1986: 386–388)
  (a) *ohon'atatke: ak-hon'at-a:k*
      it.potato.rotten PAST/I-CL.potato-eat
      'I ate a rotten potato'
  (b) *so:wa:s akh-nahskw-ae'*
      dog   I-CL.domestic.animal-have
      'I have a (pet) dog'
  (c) *skitu   ake'-treh-tae'*
      skidoo I-CL.vehicle-have
      'I have a car'

(16) Munduruku (Tupian, Brazil; Mithun
1986: 381):
  ti   dojot puye, o'-ti-mog
  water bring when they-CL.water-place
  ip   baseya'a be.
  they basin   in
  'when they brought water, they placed
  it in the basin'

(17) Ngandi (Australian; Heath .1978: 215;
see also Mithun 1986: 389):
  gu-jaɽk-yuŋ
  gu-water-ABS
  ba-ga-bun-ŋu-ni
  3.PL-SUB-CL.water-eat-PCON
  'and they drank water'

The semantics of incorporated verbal classifier systems vary from kinds of entities to qualities (shapes, functions) of objects. In the former they are closest to the semantics of noun classifiers, and in the latter to the semantics of numeral classifier systems. Intermediate systems classify by both kinds of entities and qualities.

The other sub-type of verbal classifiers are classifying verbal affixes which are phonologically very eroded but which have semantics similar to numeral classifier systems, commonly identifying classes of long, round, granular, flexible, liquid objects, for instance:

(18) Diegueño (Langdon 1970: 80, 87; see
also Carlson & Payne 1989):
  (a) *tu-kaṭ*
      CL.round-cut
      'to cut with scissors or adze, to cut
      in chunks'
  (b) *tu-maṛ*
      CL.round-cover
      'to cover over a small object'
  (c) *a-kaṭ*
      CL.long-cut
      'to cut with a knife'
  (d) *a-maṛ*
      CL.long-cover
      'to cover over a long object, to
      bury someone'

(19) Imonda (Papuan; W. Seiler 1986: 192 f.)
  (a) *tõbtõ kam u-aihu*
      fish   me CL.small animal-give
      'give me the fish!'
  (b) *po   kam i-aihu*
      water me CL.liquid-give
      'give me some water!'
  (c) *maluõ kam lëg-aihu*
      clothes me CL.flat-give
      'give me a piece of clothing!'

One characteristic of these verbal classifiers is that they classify either the subjects of intransitives or the object of transitives, on an absolutive basis:

(20) Eyak (Krauss 1968: 195):
  (a) *ʔuˑd də-sətahɬ*
      it   CL.board-lie
      'it (board) lies there'
      sič   də-Gətaʔ
      to.me CL.board-give
      'give it (board) to me!'
  (b) *ʔuˑd xx̣ədə-sətahɬ*
      it   CL.log-lie
      'it (log) lies there'
      sič   x̣ədə-Gəta
      to.me CL.log-give
      'give it (log) to me'

Another characteristic of the more grammaticalized verbal classifiers, besides their more opaque semantics, is the fact that they are associated more or less stringently with certain verbs. The core set of these verbs deals with the concept of manipulation of objects, including the state and position they are in before or after manipulation, hence verbs like: 'lay', 'be in a position or in a specific place', 'handle', 'hold', 'grab', 'pick up', 'push', 'give', 'carry'.

The extreme case of phonological erosion and fusion of verbal classifiers is found in the phenomenon of classificatory verbs in which the shape or position of the subject or object argument is lexicalized into verbal stem paradigms. Cherokee for instance distinguishes five nominal classes through stem variation of a set of basic verbs of position and manipulation verbs:

(21) Cherokee (Southern Iroquian; Mithun
1986: 392)
  gakaneha
  'he's giving him a living thing'
  ganehneha
  'he's giving him some liquid'
  adeha
  'he's giving him a long, rigid object'
  ganvneha
  'he's giving him a flexible object'
  ahneha
  'he's giving it to him (something not
  contained in one of the above categories)'

The phenomenon of verbal classifiers therefore covers an array of sub-types, in a continuum in which the classifying elements vary from being still close morphologically and semantically to their lexical origins, to systems in which those elements have eroded both semantically and phonologically and have be-

come fused to the verb. The subtype of classi-ficatory verb systems which stands at the margins of a typology of classifiers per se is included in the typology for the same reason gender systems were: they are important for a complete view of the evolutionary process of classifier systems.

3.2.6. Marginal types

Even more marginal yet, and not considered a part of the typology, is a type of nominal classification that operates through portman-teau morphemes, expressing deixis and ele-ments of nominal classification. One such ex-ample is a classification system found in Toba (Macro-Panoan) which has been la-belled *noun classifiers* in the literature. It con-sists of nominal prefixes which are more sim-ilar morphologically to a noun class system than to a noun classifier. They indicate no-tions of visibility and distance combined with some elements of position somewhat reminis-cent of some classifier semantics (Klein 1979). Another marginal type semantically similar to the Toba system are so-called *arti-cle* systems of North American languages. One example is found in Squamish (Salishan) where articles combine gender with an elabo-rate deictic system (Kuipers 1967). Another example are the three articles of Mandan (Si-ouan) which mark three positions reminis-cent of the three basic shapes of numeral classifiers: vertical or one-dimensional/long, horizontal or two-dimensional/flat, and sit-ting or three-dimensional/round (Barron & Serzisko 1982).

3.2.7. Prototypes and mixed types

Gender/noun classes and the different types of classifiers (numeral, noun, genitive, and verbal classifiers) have just been presented as if they were discrete types, although they rep-resent more focal points on various continua than discrete types. In fact many instances of classifier systems do not fit squarely into any of the types considered and how some sys-tems blend one into another through time will be discussed in 4. One of the difficulties in assigning some system to a particular type arises when the classifying elements have other functions than the strict classifier func-tions just presented, such as multiple inflec-tional and derivational functions. This is the case for instance in numerous languages of lowland South America (Aikhenvald 2000: 204–241; Derbyshire & Payne 1990; Payne 1987) that might be best reanalyzed as having noun class systems at various stages of gram-maticalization. In Munduruku, for instance, the same set of classifiers is found on verbs, nouns, numerals, demonstratives, and adjec-tives:

(22) Munduruku (Tupian; Derbyshire & Payne 1990: 261):
  (a) on verb
    bekitkit ako-ba
    child   banana-CL.long
    o'su-ba-dobuxik
    3-CL.long-find
    'the child found the banana'

  (b) on noun and number
    xepxep-'a   *wexik-a'*
    two-CL.round potato-CL.round
    'two potatoes'

  (c) on noun and demonstrative
    ija-ba   *ako-ba*
    this-CL.long banana-CL.long
    'this banana'

The Munduruku system is therefore at once like a verbal classifier system – in that it clas-sifies the absolutive argument of the verb –, like a numeral classifier system – in that it classifies by shape and is affixed to number and demonstrative –, and like a noun class system – in that it inflects directly on the noun and functions like an agreement system.

3.3. Arguments in support of the typology

With the above caveat that the typology does not mean discrete types of classifier systems, but rather recurrent prototypes, several argu-ments will be presented in support of the ty-pology, in particular in support of a distinc-tion between the major types found in the noun phrase: numeral, noun, and genitive classifiers.

3.3.1. Argument 1: Co-occurence of types

The strongest argument to be brought forth is the simple fact that several types of classifi-ers may co-occur in a single language. Micro-nesian languages like Ponapean, for instance, have both genitive classifiers and numeral classifiers. The most striking example of multiple classifier systems found within the same language is the case of the Kanjobalan Mayan languages of the Northwest of Guate-mala (Craig 1987; 1990; Zavala 1989; 2000). In these languages a noun may be accompa-nied by up to four distinct classifying mor-phemes: [number+number CL + numeral CL + plural CL + noun CL + noun]$_{NP}$

---

(23) Q'anjob'al 'classifiers':
    1   2   3   4
  (a) *ox-ep'*   *tinan*   *ep'*   *naj* *winaj*
    3-NB.CL MENS.CL PL.CL N.CL noun
    INAN   group HUM man man
    'three groups of men'

  (b) *ox-wan k'itan*   *ep'* *naj* *winaj*
    3-NB.CL SORT.CL PL.CL N.CL noun
    HUM   separated HUM man man
    'three separated men'

The four types of classifiers shown are:

(a) Fused numeral classifiers, of which there are only three, for human/animal/inani-mate nouns, obligatorily suffixed to the number, and maybe derived from the in-dependent numeral classifiers of (b).
(b) Independent numeral classifiers, of which there are only about a dozen sortal ones (including vertical/circular/round/three-dimensional flat and large classes). The mensural classifiers have the same sur-face form, but differ by being derived from positional roots and much more nu-merous, and by controlling different agreement rules.
(c) Plural classes which inflect on the plural morphemes, for one of two or three classes (human/(animal)/inanimate), de-pending on the language. This obligatory classification is highly grammaticalized and reminiscent of gender.
(d) Noun classifiers, which are omnipresent in those languages, functioning as deter-miners and anaphoric pronouns, totally independently of quantification. There are 12 to 19 noun classifiers per language/ dialect, the most common ones being human masculine-feminine/old respected/ kin/animal/wood/rock/dirt/plant/corn/wa-ter/salt.

3.3.2. Argument 2: Matching morpho-syntactic types and semantics

A second argument is semantic and consists in linking each major morpho-syntactic type with a dominant semantic domain. When classifiers are categorized semantically as be-longing to one of the three basic semantic do-mains of classifiers – material, shape and function – a clear alignment emerges. Be-yond the great variation in the semantics of numeral classifiers, the semantic domain with the greatest consistency and the highest rate of frequency is that of shape. Meanwhile, the semantics of noun classifiers fall predomi-nantly into the two semantic domains of ma-terial (inherent essence of the objects) and re-lational status of humans (based on kinship or social status). In contrast, the genitive classifiers are overwhelmingly of the func-tional kind. This matching of morphosyntax and semantics is illustrated below (Olsen 1990):

CL. type	semantic domain	sample semantic features
numeral	shape	1D/long (tree)
		2D/flat (leaf)
		3D/round (fruit)
noun	material	man/woman/tree
		plant/rock/liquid
	status	kin male/non-kin female
		highly respected/deity
genitive	function	edible/drinkable/vehicle

Tab. 97.1: Morphosyntax and semantics

The correlation is striking in its consistency, considering how the majority of classifier sys-tems are heterogeneous systems that bear the marks of their complex development patterns (see 3.4). What such correlations might mean has been outlined in the literature (see de León 1988 for Tzotzil numeral classifiers, Craig 1986 for Q'anjob'alan noun classifiers, and Carlson & Payne 1989 for Oceanic geni-tive classifiers); the answers are to be found in the real world conditions for the use of each construction type. The use of numeral classifiers primarily for quantification, that prototypically occurs in a marketing context where handling of the objects is paramount, may account for the dominance of a categori-zation by shape in such systems. On the other hand, the clue for the semantics of genitive classifiers may be found in the fact that they are used specifically in one type of possessive constructions, those involving so-called *alien-able* nouns. While the notion of **alienability** may be culturally bound, it is prototypically assigned to objects whose possession is con-sidered acquirable and valued. Therefore, when the possession of such objects is claimed, it is linked to a particular purpose, among the ones that ensure human survival, hence classifiers for edibles and drinkables, housing and clothing, tools and transporta-tion. Hence the fact that more genitive classi-fiers than other types of classifiers are derived from verbs and the semantics of genitive clas-

sifiers is overwhelmingly of a functional nature.

The case of noun classifiers is different in that their use is not linked to either real world conditions of quantification or possession. They instead have a much closer semantic link to the nouns themselves, forming with them a tighter unit, which is often reflected in their redundant semantics. Noun classifiers are often the nominal superordinates of the nouns they classify, or identify some inherent feature of the noun, such as its essence or material. They are morphologically more often of nominal origin than the other types of classifiers and their role in the language is more intimately identified with that of nominals, as referent tracking devices.

Therefore, while all classifiers may share the function of individuating the nouns to which they refer, the different morphosyntactic types of classifiers are associated with different semantic bases for individuation, and an explanation for the association of a particular semantic domain with a particular classifier type may be found in an analysis of the pragmatic function of the constructions in which each type of classifier occurs.

4. Dynamic dimension of classifier systems

At the juncture of lexical and grammatical systems, classifier systems are interesting for what they can reveal of the processes by which grammatical systems emerge. Behind the absolute uniqueness of every classifier system lie some recognizable patterns of how such systems emerge, evolve, and decay.

4.1. Emergence of classifier systems

Classifiers themselves and classifier systems have multiple origins and paths of development, most established systems being complex patchworks developed and renewed over time.

4.1.1. Source of classifiers

Classifiers have their origin in the major lexical classes, nouns being their most common source. This is best demonstrated by the widespread phenomenon of **repeaters**, a kind of classifiers which are identical to the noun they classify:

(24) Jacaltec noun classifiers (Q'anjob'alan Mayan):
ix ix   'CL.woman woman'
ch'en ch'en 'CL.rock rock'

te' te'   'CL.plant tree'
ixim ixim   'CL.corn corn'

The classifiers of Australian languages are said to have come from superordinate nouns (Dixon 1982), those of incorporated verbal classifiers from both generic and specific nouns (Mithun 1986). One of the most striking facts about the origin of classifiers is the very widespread recurrence of a very small and specific set of lexical nouns that has given rise to classifiers all over the world. They are three nouns of the plant domain: tree, leaf, and fruit, the first one being by far the most universal source of classifiers.

Verbs are another source of classifiers, although relatively infrequently when compared to nouns. Scattered examples from numeral and genitive classifiers are:

(25) Tzotzil numeral classifiers (de León 1988: 55)

verb	classifier
p'as 'to cut'	*p'os* 'short length'
k'as 'to break'	*k'os* 'piece broken off' (corn on the cob, banana, sugarcane, wood, dry excrement)

(26) Mam (Mayan; in Zavala 1989): verb of eating

(a) *chi'* 'to eat cooked food'
   n-chi'-ye'   *kyix*
   1-GEN.CL-POSS fish
   'my (cooked) fish'

(b) *lo'* 'to eat fruit'
   n-lo'-ye'   *chul*
   1-GEN.CL-POSS zapote
   'my zapote fruit'

(c) *wa* 'to eat tubercules'
   n-wa-ye'   *ts'in*
   1-GEN.CL-POSS yuca (cassava)
   'my cassava'

A rare instance of verbal classifiers with a verbal source has also been documented:

(27) Imonda (Papuan; W. Seiler 1986):

verb	class; objects classified
fët 'to remove from fire'	*fët-* 'object going in the fire, wood, food cooked in fire'
puis 'to cut'	*pui-* 'a piece of'
pot 'to pick fruit'	*pot-* 'fruits picked from trees'

As it is, the origin of the vast majority of classifiers cannot be determined from synchronic data. Examples cited above are more the exception than the rule in the languages from which they were extracted. However, enough systematic connections can be gleaned from the various systems to establish with relative certainty the lexical origin of classifiers. The semantic transparency of classifiers and the ability to connect them to lexical sources is in fact one of the criteria used in evaluating the age of a classifier system: the more numerous the connections, the more recent the system is assumed to be.

4.1.2. Semantic evolution of classifiers

From their original lexical semantics, classifiers undergo a process of semantic extension because the kinds of categories that classifiers refer to are very different from the kinds of categories that nouns refer to. While nouns refer to specific entities, the classifiers from which they are derived refer, in an initial classificatory role, to kinds of entities. Examples are 'berry' for all fruits in Mohawk (Iroquian), 'tree' for all plants in Jakaltek (Mayan), 'canoe' for containers in Squamish (Salishan) or 'sailing vessel' for all vehicles in American Sign language. This first level semantic extension of classifiers is most typical of noun classifiers and incorporated verbal classifiers, which of all types of classifier are the ones which have the most nominal function.

The majority of numeral classifiers, on the other hand, exhibit a further semantic extension as they metaphorically classify objects by perceived qualities, principally those of shape, secondarily those of consistency. The most widespread examples of such metaphorical extension occur with the cluster of plant part names, which very consistently gives rise to classifiers for the basic one-, two-, and three-dimensional shapes, as in 'tree' for long (and rigid), 'leaf' for flat (and flexible), 'fruit' for (small and) round. A parallel metaphorical extension occurs with the verbal classifiers derived from nouns of body parts. The basic shape classifiers come from one of two sets of body parts, either of human in upright position: 'arm:long' and 'eye: round', or, as in Tarascan, of four-legged animal: 'neck/throat:long', 'back:flat', 'buttock: roundish'. In Mixtec, the noun classifier for animals has evolved to classify round shapes. In Imonda, the verbal classifier for flat and flexible objects originated in the verb 'to give birth'. Another very common semantic exten-

sion is from material to consistencies, such as water for all liquids; in Imonda, the liquid classifier comes from the verb 'to scoop water'. In Jakaltek (Mayan) the classifier for rock has come to classify all hard objects, from glass and metal objects to ice. The third type of metaphorical extension is that which takes a classifier of nominal origin to classify objects used for a particular function, increasingly independently of the shape of the object classified, as when an early mode of transportation (canoe, sailing vessel) is the source of a classifier for all modern modes of transportation.

Another perspective on the extension of the semantics of a classifier is how some classifiers progress from unique via specific to general classifier status, from defining a simple class of one member to defining an increasingly complex and heterogeneous one. Chinese provides attestation of a complete scenario of such an evolution which implies the mixing of prototype extension and chaining processes discussed in 2.3:

(28) Chinese (Erbaugh 1986: 429):
ge: unique classifier for bamboo >
specific classifier for bamboo and lengths of bamboo >
class extended to include: arrows, candles, dogs, chickens, horses >
later extended to include fruit, birds, people >
until it is presently a general classifier for people and unclassified objects.

4.1.3. Morphosyntactic paths of evolution of classifiers

One aspect of the origin of classifier systems is the lexical origin of the individual classifiers, another is the grammatical origin of the classifier constructions, which encompasses the story of the emergence of classifier systems from other preexisting morpho-syntactic constructions and the blending through time of some types of classification into others.

Proposed scenarios of the emergence of classifier systems are still speculative, but suggest multiple origins for the various morpho-syntactic types of classifiers. It has been argued that the numeral classifiers of the Thai family have their source in a very productive noun compounding process, and the widespread use of class terms (DeLancey 1986), and that Q'anjob'alan and Mixtec noun classifiers fit in the mold of preexisting

sex markers, honorifics and epithets (Craig 1987; de León 1988). In addition, it has been speculated that some verbal classifiers originate in established processes of noun incorporation (Mithun 1986) – one of which is a common body part incorporation, hence the use of body parts for shape classifiers – while others originate in serial verb constructions (W. Seiler 1986). Another established path of evolution of classifier systems is the outright borrowing through contact, as in the spread of numeral classifier systems in Asia from Thai to Chinese, from Chinese to Japanese. The noun classifiers of Q'anjob'alan languages is a documented case of shared innovation with dialect variation that sprung up in the context of an older and family wide numeral classifier system and has spread through contact to neighboring Mamean languages.

The justification for including some of the most grammaticalized classification systems, such as gender and classificatory verbs, at the margins of a typology of classifier systems was that they have been hypothesized to be the results of evolutionary processes of more prototypical classifier systems. One of the earliest proposals of an evolutionary scenario was that some gender systems have evolved from sets of classifying demonstrative articles which themselves would have come from numeral classifiers (Greenberg 1978). Nominal classification in verbs comes in many shapes in American Indian languages, but can be placed on a continuum of progressive fixation and erosion of what may have originated as a syntactic noun incorporation process. The grammaticalized end of the process is illustrated by phonologically eroded classifying affixes, and their ultimate fusion to classificatory stems (Krauss 1968; Mithun 1986).

4.2. Age and vitality of classifier systems

Beyond the evolutionary processes just discussed, age and vitality are two independent variables of classifier systems which must also be taken into account in any effort at setting up a typology of such systems.

4.2.1. Old and new systems

Many mentions are made in the literature of the relative age of classifier systems. The criteria used for determining the age are by and large criteria discussed when establishing the degree of grammaticalization of the systems, such as the semantic transparency of the classifiers, the phonological erosion of the form

and their morphologically rigid use (see Art. 146). Systems are thought to be recent developments when a substantial number of the classifiers can still be linked to their lexical origin and the classifying system is still largely semantically motivated, so the systems present some coherence. An example of a recent innovative system is the noun classifier system unique to the Q'anjob'alan branch of the Mayan family of languages. The postulated evolution of verbal classifiers from incorporated nominal-like elements to phonologically and semantically eroded elements to fused elements of the classificatory verbal stem systems implies that the latter are the older systems, the former the more recent ones.

Some families of languages exhibit coexisting systems of classification, with a variation across the family as to which system flourished in which language. Proto Athapaskan-Eyak is said to have had two systems of verbal classification, one by stem and one by prefixed classifiers, which themselves had to be old established systems. The stem classification system is the one that flourished in Athapaskan and became vestigial in Eyak, while a well developed classifier system ("class mark prefixes") appeared in Eyak (Krauss 1968). In the Mayan family, the Tzeltalan branch has developed an elaborate numeral classifier system, while the neighboring Q'anjob'alan branch has only a limited numeral system, which coexists with a vestigial number suffixation reminiscent of gender systems, but has developed a full blown new noun classifier system.

4.2.2. Productive, frozen and dying classifier sytems

Classifier systems vary also in their level of productivity, largely measured by their ability to deal with new nouns and to allow for the semantics of the categories to be reanalyzed over time. The fact that this variable of vitality is independent of the variable of age can be demonstrated with two cases, Thai and Jakaltek. Thai has an old numeral classifier system which has maintained great vitality and is in constant state of renewal. An example of how the heterogeneity of a class can be reduced over time by the cyclic inclusion and exclusion of items is the case of the *khan* class of Thai (Carpenter 1987: 17).

In contrast, the Jakaltek (Mayan) noun classifier system is a recent system that was frozen until recently. It must have been pro-

ductive at the time of the conquest and the colonization, since it absorbed in the rock category the names of the new artifacts made of metal and glass that were brought in by the Spaniards. But it did not classify newer products made of nylon or plastic or artificial material (Craig 1986). To say that it was frozen does not mean that it was or is decaying; in fact it has become a well used system of pronominal reference through which it occupies a productive place in the grammar (Craig 1987).

Generally systems will decay over time rather than freeze. Decay is what accounts for the existence of classificatory verb systems mentioned earlier. A documented case of decay of a classification system which has reduced its inventory of elements and the range of its semantics is found in Dyirbal. In two decades, the noun class system with four classes (male, female, fruits and vegetables, others) has evolved into a tripartite gender system (male, female, inanimate) (Schmidt 1985: 155).

4.3. Psycholinguistic studies of classifiers

4.3.1. Language acquisition

Acquisition studies of gender, noun class, and numeral classifier data converge on the fact that, no matter how semantically motivated the classification system is, its formal characteristics are mastered before its semantics (Carpenter 1987). The development stages articulated in a detailed study of the acquisition of the numeral classifier system of Thai, a complex, productive and semantically motivated one, shows that the syntactic pattern (classifier suffixed to numeral) is acquired first. It is soon followed by the overuse of a general classifier which marks this relation of adjacency (up to 3/4 years), and later by a main strategy of repeaters indicating that the child now recognizes the relation of the classifier to the non-continuous noun (peak between 4 and 6 years). Semantic overextension later sets in, as the child learns to discriminate the conventional set of classifiers and their semantic motivation. Complex classifier systems such as the Thai one appear to be harder to learn than many other aspects of language and are not mastered by adolescence. Studies of large classifier systems, such as Thai, Burmese, Chinese, Mohawk (verbal incorporation system) all show a great variety of skills in handling the system among adult speakers.

4.3.2. Aphasia

The major study of loss of classifiers in aphasia also dealt with Thai and demonstrated that the semantic errors by adult aphasics were qualitatively and quantitatively similar to those made by children, and were marked by the overuse of repeaters and of a general classifier for inanimates (Gandour et al. 1985).

5. Uncommon abbreviations

MENS.CL mensural classifier
N.CL   noun classifier
NB.CL number classifier
NUM.CL numeral classifier
SORT.CL sortal classifier

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98. Gender and noun class

1.   Introduction

1.1.   Gender and noun class: history and terminology

The term **gender** was first used in the 5th century B. C. by the Greek philosopher Protagoras, when he divided Greek nouns into three classes: 'feminine', 'masculine', and 'inanimate' (nowadays called "neuter"). This was a typical gender system, which is found in many Indo-European languages. Latin had a similar system, but during historical change neuter nouns were redistributed between the other two genders, giving the modern system of masculine and feminine in French and Italian.

When Europeans came to study African languages, they discovered larger gender-like systems with eight or more possibilities in languages like Swahili; these often did not include a masculine – feminine distinction. The term "noun class" came to be used for systems of this type.

Noun class and **gender** are often used interchangeably. To avoid confusion, I shall just use the term "gender" in this article.

Since gender systems show some correlation with sex, many non-linguists (and a few linguists) erroneously confuse gender and sex. However, sex represents biological categorization, and gender represents grammatical categorization. Feminine and masculine genders often include inanimate nouns with no connection to female or male sex, e.g. French *maison* 'house' (feminine), *château* 'castle' (masculine).

The terms "gender" and "noun class" have also been used in quite different ways. For instance, in the Athapaskan linguistic tradition the term "gender" is used to refer to verbal classifiers which mark agreement with intransitive subject or transitive object, and characterize the referent noun in terms of shape and form (Aikhenvald 2000: 15).

1.2.   Characteristics of gender systems

Gender systems have the following characteristics (cf. Aikhenvald 2000: 18–22).

(a) There is a limited, countable number of gender classes.
(b) Each noun in the language belongs to one (or sometimes more than one) class(es).
(c) There is always some semantic basis to the grouping of nouns into gender classes, but languages vary in how much semantic basis there is. This usually includes animacy, humanness and sex, and sometimes also shape and size.
(d) Some constituents outside the noun itself must agree in gender with the noun.

Agreement can be with other words in the noun phrase (adjectives, numbers, demonstratives, articles, etc.) and/or with the predicate of the clause or an adverb.

In some languages there is an overt marker of gender on every noun, or on some nouns; in some languages nouns bear no gender marker.

Gender systems are typically found in languages with a fusional or agglutinating (not an isolating) profile. Gender agreement is a major criterion for distinguishing nouns from other word classes. In a language where noun and adjective have similar morphology, an adjective can generally take any gender marking where the noun is normally restricted to one gender class. Languages often have portmanteau morphemes combining information about gender with number, person, case, etc.

Gender is the most grammatical means languages use for the semantic categorization of nouns. Art. 97, on classifiers, discusses other noun categorization mechanisms which are more lexical in nature.

1.3. Gender in the languages of the world

The majority of the world's languages have gender or some other noun categorization devices (see Aikhenvald 2000: 77–80).

Many Afroasiatic languages have two genders: masculine and feminine. A system of two or three genders is present in most Indo-European and North-West Caucasian languages. More complicated systems of three to five genders are present in North-East Caucasian and Nakh (Central-Caucasian) languages. The Dravidian languages of South India have two to four genders (Krishnamurti 1975).

In North America, Algonquian languages have animate and inanimate genders. Two genders are also found in Chemakuan, Wakashan, Salishan, and Siouan languages.

In Central America, two genders (animate vs. inanimate) are found in a few Otomanguean languages. More than half of the languages of South America show genders. A system of two genders, masculine and feminine, is characteristic of languages of the Jê, Guahibo and Arawá families, some Arawak languages, and the languages of Gran Choco.

In Africa, East Nilotic languages distinguish masculine and feminine gender (Dimmendaal 1983: 211). The majority of Niger-Congo languages have extensive gender sys-

tems (up to 20 agreement classes combined with number).

Genders are widespread in Papuan languages of the Sepik basin and adjoining lowland areas. Lower Sepik languages (Ndu, Ok, Sepik Hill) have two genders, feminine and masculine, which correlate with the shape and size of the referent. The languages of Torricelli and some of those of Lower Sepik have fascinating systems of about a dozen classes (see Foley 1986: 85 ff. for the example of Yimas). Extensive systems with several dozen agreement classes are found in the Papuan languages of Southern Bougainville: Nasioi, Motuna (Foley 1986: 83 ff.; Onishi 1994).

A typical gender system in Australian languages contains four terms which can be broadly labelled as "masculine", "feminine", "vegetable", and "residual" (see Dixon 2002).

There are no genders in the Uralic, Turkic, Tungus-Manchurian, Tibeto-Burman, South-Caucasian (Kartvelian), Eskimo-Aleut, Chukotka-Kamchatkan families, and in most Austronesian languages and the languages of South-East Asia.

2. Formal properties of gender systems

2.1. Expression of gender

Languages of the world differ in the number of gender classes they have, how much semantic basis there is to gender assignment and the possibility of changing gender assignment to match the semantic characteristics of the referent.

Some, or all, nouns, can have an overt gender marking. In those cases the gender of a noun can be inferred from its form. In Swahili, a noun prefix indicates its gender. In Apurinã (Arawak, Brazil), feminine nouns tend to end in -ro, and masculine nouns tend to end in -ri. In Portuguese, nouns which end in -a are mostly feminine, and those which end in -o are mostly masculine (with a couple of exceptions). Some languages seldom or never mark gender on the noun itself, e.g. Ndu languages (East Sepik region of Papua New Guinea) or !Xu (North Khoisan; Heine 1982: 193). This is known as "covert" gender.

Overt and covert marking can be viewed as two extremes of a continuum. In some languages, nouns can be optionally marked for gender. The marked form tends to be more specific than the unmarked, as in Turkana