1 Introduction

Every language has some means of distinguishing reference to one individual from reference to more than one. Number reference can be coded through lexical modifiers (including quantifiers of various sorts or number words etc.), or through a grammatical system.

Number is a referential property of an argument of the predicate. A grammatical system of number can be shown either

• Overtly, on a noun, a pronoun, a verb, etc., directly referring to how many people or things are involved; or
• Covertly, through agreement or other means.

Number may be marked:

• within an NP
• on the head of an NP
• by agreement process on a modifier (adjective, article, demonstrative, etc.)
• through agreement on verbs, or special suppletive or semi-suppletive verb forms which may code the number of one or more verbal arguments, or additional marker on the verb.
2 The meanings of nominal number

Number systems vary in terms of their size and the meanings expressed.

A. SINGULAR/PLURAL. This is by far the most common system, found in English and many other Indo-European languages, Hungarian, Hausa, Swahili, Quechua. The terms are

<table>
<thead>
<tr>
<th>SINGULAR</th>
<th>referring to</th>
<th>'one'</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLURAL</td>
<td>referring to</td>
<td>'more than one'</td>
</tr>
</tbody>
</table>

B. SINGULAR/DUAL/PLURAL. This type of system is fairly common. It is found in many Semitic and some Indo-European, Oceanic, Australian, and South American languages. The terms are

<table>
<thead>
<tr>
<th>SINGULAR</th>
<th>referring to</th>
<th>'one'</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUAL</td>
<td>referring to</td>
<td>'two'</td>
</tr>
<tr>
<td>PLURAL</td>
<td>referring to</td>
<td>'more than two'</td>
</tr>
</tbody>
</table>

(1) taalib 'student' (masc sg)  
   taalib-een 'two students' (masc du)  
   taalib-iin 'students' (masc pl)  

Gulf Arabic (Holes 1990: 148)

C. SINGULAR/DUAL/TRIAL/PLURAL. The type of system with the trial number (that is, with a special term referring to 'three') is uncommon. It is found in some Oceanic languages and in a number of Australian languages such as Wunambal and Ngan'gityemerri. The terms are

<table>
<thead>
<tr>
<th>SINGULAR</th>
<th>referring to</th>
<th>'one'</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUAL</td>
<td>referring to</td>
<td>'two'</td>
</tr>
<tr>
<td>TRIAL</td>
<td>referring to</td>
<td>'three'</td>
</tr>
<tr>
<td>PLURAL</td>
<td>referring to</td>
<td>'more than three'</td>
</tr>
</tbody>
</table>

(2) ngayi 'I (singular)'  
   ngarrgu 'we two' (dual)  
   ngarrgunime 'we three' (trial)  
   ngagurr 'we (many)' (plural)  

Ngan'gityemerri (Reid 1990: 118-19)

D. SINGULAR/DUAL/TRIAL/QUADRUPLE/QUINTUPLE/PLURAL. This uncommon system has been described for American Sign language (references in Dixon 2012: 47); cf. also Tok Pisin:

(3) yu 'you (singular)'  
   yu-tu-pela 'you two' (dual)  
   yu-tri-pela 'you three' (trial)  
   yu-fo-pela 'you four' (quadruple)  
   yu-faiv-pela 'you five' (quintuple)  
   yu-pela 'you-all' (plural)  

Tok Pisin

In each of A-D, each number has a fixed, or absolute, reference ('dual' to 'two', 'plural' to 'many'). In E-H, the reference of each number is relative.

E. SINGULAR/DUAL/PAUCAL/PLURAL. This type of system is less common than A and B. It is found in a few Oceanic languages, including Manam, Sursurunga and Fijian. The terms are:
SINGULAR referring to 'one'
DUAL referring to 'two'
PAUCAL referring to a relatively small number greater than 'two'
PLURAL referring to a relatively large number greater than 'two'

(4) áine nára 'that woman' (singular)  \textit{Manam} (Lichtenberk 1983: 67)
woman that:3sg
áine nára-\textit{diaru} 'those two women' (dual)
woman that-dual
áine nára-\textit{diato} 'those few women' (paucal)
woman that-paucal
áine nára-di 'those women' (plural)
woman that-pl

F. SINGULAR/POCHAL/PLURAL found in first person pronouns in Chocktaw (Muskogean: Nicklas 1972: 29-30; Dixon 2012: 49). The terms are:

<table>
<thead>
<tr>
<th></th>
<th>referring to</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGULAR</td>
<td>'one'</td>
</tr>
<tr>
<td>POCHAL</td>
<td>a relatively smaller number greater than one</td>
</tr>
<tr>
<td>PLURAL</td>
<td>a relatively larger number greater than one</td>
</tr>
</tbody>
</table>

G. SINGULAR/PLURAL/GREATER PLURAL. This type of system is infrequent, and found in Fula, and a number of other languages in Africa. The terms are

<table>
<thead>
<tr>
<th></th>
<th>referring to</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGULAR</td>
<td>'one'</td>
</tr>
<tr>
<td>PLURAL</td>
<td>'many'</td>
</tr>
<tr>
<td>GREATER PLURAL</td>
<td>'very many'</td>
</tr>
</tbody>
</table>

(5) gesa 'field' (singular)  \textit{Fula}: Evans (1994)
gese 'fields' (plural)
geseeli 'very many fields' (greater plural)

H. SINGULAR/PLURAL/GREATER PLURAL/EVEN GREATER PLURAL. This infrequent type of system is found in Warekena of Xié, an Arawak language from Brazil (Aikhenvald 1998).

<table>
<thead>
<tr>
<th></th>
<th>referring to</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGULAR</td>
<td>'one'</td>
</tr>
<tr>
<td>PLURAL</td>
<td>'many'</td>
</tr>
<tr>
<td>GREATER PLURAL</td>
<td>'very many'</td>
</tr>
<tr>
<td>EVEN GREATER PLURAL</td>
<td>'very many indeed, you cannot count them'</td>
</tr>
</tbody>
</table>

(6) abida 'pig' (singular)  \textit{Warekena of Xié}
abida-\textit{pe} 'pig' (plural)
abida-\textit{nawi} 'very many pigs' (about 40-50)
abida-\textit{pe-nawi} 'very many pigs indeed, so many you cannot count them'

The reference of paucal and plural in systems E is always relative each with respect to the other (see also Dixon 2012: 48). Sometimes grammar-writers use the term 'trial' implying 'paucal', with its relative value. Paton (1971: 13, 37) writes about Ambrym, an Oceanic language of Vanuatu: 'trial is used primarily for three persons, but also for any small group of persons, up to six, seven, or eight, or thereabouts, like a few. Plural can be used for any number of persons from four upwards'.
I. SINGULAR/DUAL/PLURAL/GREATER PLURAL. This appears to be the case in Syrian Arabic.

(7) singular  
   *dabhane* 'a fly'  
   Syrian Arabic (Cowell 1964: 366-9)  

dual  
   *dabdantén* 'two flies'.  

plural  
   *dabbat* 'flies' ('plural of paucity')  

greater plural  
   *dababin* '(many or various) flies' ('plural of abundance')

Systems of types J and K have an additional term, not specified for number (general, or transnumeral).

J. GENERAL/SINGULAR/PLURAL. This type of system is relatively common in Cushitic and Nilo-Saharan languages (Dimmendaal 2000; Storch 2014).

<table>
<thead>
<tr>
<th>GENERAL/TRANSNUMERAL</th>
<th>referring to</th>
<th>entity in general</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGULAR</td>
<td>referring to</td>
<td>one</td>
</tr>
<tr>
<td>PLURAL</td>
<td>referring to</td>
<td>many</td>
</tr>
</tbody>
</table>

(8) *a-kwap* 'country' (in general) — *transnumeral* Turkana (Dimmendaal 2000: 239)

*a-kwap-n* 'a specific piece of land' — singulative

*ga-kwap-n* 'countries' — plural

In many languages of north-west Amazonia (Tucanoan and Arawak), a collective or transnumeral form is formally unmarked, and classifiers are used to mark an individuated and singulativised entity — see (9), from Wanano (or Kotiria, an East Tucanoan language: Stenzel 2014: 120):

(9) *hó* 'banana (generic)'  
    *hó- ~ýó* (banana-CL:PALM) 'banana palm'  
    *general*  
    *hó- ~ýó-ri* (banana-CL:PALM-PL) 'banana palms'  
    *plural*  
    *Wanano*  
    *Wanano*

K. GENERAL/SINGULAR/PLURAL/GREATER PLURAL. In Hamer, a South Omotic language from Ethiopia, a 'global plural', or 'greater plural', forms part of the four-term number system on nouns (Lydall 1988: 79):

<table>
<thead>
<tr>
<th>GENERAL/TRANSNUMERAL</th>
<th>referring to</th>
<th>entity in general</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGULAR</td>
<td>referring to</td>
<td>one</td>
</tr>
<tr>
<td>PLURAL</td>
<td>referring to</td>
<td>many</td>
</tr>
<tr>
<td>GLOBAL OR GREATER PLURAL</td>
<td>referring to</td>
<td>all</td>
</tr>
</tbody>
</table>

(10) *k'uli* 'goat' (in general: transnumeral)  
    *Hamer* (Lydall 1988: 79)

*k'úta* 'he-goat' — singular

*k'úlla* 'the goats' — plural

*k'úlono* 'all goats' — global plural

Other number-related grammatical forms in L – O may constitute additional terms in number systems (adding to A-K). Or these meanings can be expressed with derivational affixes.
L. **Collective** refers to a group, or a pile. Collective forms in Syrian Arabic are restricted to abstract nouns, inanimates, and lower animates, e.g. *dabbān* 'flies' (as a swarm).

Collective may refer to a group of people and/or objects (without individualising them). Paresi-Haliti (Arawak; Brandão 2014: 156-62) has a collective plural marker *toli* referring to a group or a pile of spatially close things, e.g. *haliti* 'a Paresi person', *haliti toli* 'a group of Paresi people'. 'Additive' plural marked with *-nae* refers to numerous individual people, e.g. *haliti-nae* 'Paresi people'. (Similar examples from Sierra Popoluca, a Mixe-Zoquean language from Mexico, are in Elson 1960: 218.)

In Trio (Cariban, Carlin 2004: 115-16) collective marker *-jana* is used with human referents, e.g. *Okomo-jana* 'Wasp people', *Arama-jana* 'Sweat bee people'. The use of the collective marker *komo* in the closely related Hixkaryana (Derbyshire 1985: 203, 245) is also mainly restricted to nouns with human reference, e.g. *rowti komo* 'my brothers'. It is also used with reference to animals and items regarded as an integral part of the culture or environment of the people, e.g. *wewe komo* 'trees of the forest', *harye komo* 'sweet potatoes'; it is also used when 'some sort of focus is being placed on the group'.

Collective can co-occur with marking of additive plural (both on animates and inanimates). (11) is from Tsakhur, a Nakh-Daghestanian language (Kibrik 1999: 50-1):

(11) \[ \begin{align*}
\text{Tsakhur} \\
\text{ušaR} \ 'child' \\
\text{ušaR-ā-r} \ 'children' \\
\text{ušaR-ā-r-a} \ 'children as a whole, all children in a family'
\end{align*} \]

Collectives may be marked with derivational suffixes, as in Russian, where they belong to the class of singulatives (singularia tantum) (Shvedova 1970: 323). In languages with classifiers, there may be special classifiers for groups of entities of different kinds, e.g. Baniwa *hiipada* 'stone', *hiipada-peda* (stone-CL:COLL) 'heap of stones', *hiipada-nai* 'stones' (Ramirez 2001: 174), Tariana *yalanasawa* (non.Indians-CL:GROUP) 'group of non-Indians'.

M. **Distributive** plural refers to individuals all over the place, as in Quileute (a Chimakuan language from North America) *tukōyo* 'snow' versus *tutkōyo* 'snow here and there' (Andrade 1933: 187). Or it can refer to various types of noun entities, e.g. Mohawk (Mithun 1999: 88).

<table>
<thead>
<tr>
<th>PLURAL</th>
<th>DISTRIBUTIVE PLURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>onēni</em>ia 'rocks'</td>
<td><em>onenia</em>šhton: 'a various rocks'</td>
</tr>
<tr>
<td><em>otsikhé:ta</em> 'sugar, candy, candies'</td>
<td>*otsikhé:ashón: 'a various candies'</td>
</tr>
</tbody>
</table>

N. **Associative.** Additive plural of X means 'many X' (where X is the head of an NP) — we saw this in systems A-L above. The associative plural has the meaning 'X and associate(s)' (X is 'the focal
referent' with regard to whom the other associates are defined). e.g. *the Smiths*, or *John 'n' them.* (13) and (14) come from Corbett (2000: 102, p.c. Edith Moravcsik).

(13) \[ \text{János-ok} \]
\[ \text{John-PL} \]
'Johns (more than one person named John)'

(14) \[ \text{János-ek} \]
\[ \text{John-ASSOC.PL} \]
'John and associates', 'John and his group', 'John' 'n' them'

The construction is fairly widespread across languages (see Moravcsik 2017: 446, on how it was found in 200 out of 237 languages sampled; in about half of these the associative plural is the same as the additive plural). In her seminal study of the phenomenon, Moravcsik (2003: 472) established the following implicational generalization.

(15) *The choice of the focal referent for associative plurals: a cross-linguistic generalization*

Proper name > Definite Kin noun > Definite Title noun > Other Definite Human noun

'If in a language, a nominal can be a focal referent of an associative plural, so can any other nominal to its left on the scale in that language'.

The same marker can be used for additive (16) and associative plural (17) (Moravcsik 2017).

(16) \[ \text{onnanoko-tachi} \] ‘girls’
\[ \text{girl-PL} \]

(17) \[ \text{Tanaka-tachi} \] ‘Tanaka and his associates’
\[ \text{Tanaka-ASSOC.PL} \]

Amharic has a special associative plural marker (Kapeliuk 1989: 348-350; also used in 2nd and 3rd person pronouns and demonstratives: Amberber 1996: 38). Compare (18) and (19).

(18) \[ \text{annä-Abel} \]
\[ \text{Abel-ASSOC.PL} \]
‘Abel and his partners’

(19) \[ \text{lîdz} \]
\[ \text{lîdz-otfif} \]
'child'

Amharic (Kramer 2016: 1)

'children'

Associative non-singular can have dual and plural values (no instances of associative trial or paucal have been attested so far). In Central Alaskan Yupik both dual and plural on proper names only can combine with associative *-nku* — see Table 1 (all in formally unmarked absolutive case). Singular absolutive is unmarked (Corbett and Mithun 1996: 12; Miyaoka 2012: 671, 712).
The verb agrees in dual and in plural (not in associative).

(20) Nuk'a-nku-k May'aq=llu tekit-uk  \[ \text{Central Alaskan Yupik} \]
Nuk'aq-ASSOC-ABS.pl May'aq.ABS.sg=and/too arrive-IND.3pl 'Nuk'aq and his associates, and May'aq arrived'

(21) Nuk'a-nku-t May'aq=llu tekit-ut  \[ \text{Central Alaskan Yupik} \]
Nuk'aq-ASSOC-ABS.pl May'aq.ABS.sg=and/too arrive-IND.3pl 'Nuk'aq and his associates, and May'aq arrived'

In Manambu, agreement on the verb differentiate 'dual' and 'plural' associative nonsingular:

(22a) Tanina-ber ya-na-ber  \[ \text{Manambu} \]
Tanina-ASSOC.NSG come-ACTION.FOCUS-3du 'Tanina and one more person associated with her are coming'

(22b) Tanina-ber ya-na-di  \[ \text{Manambu} \]
Tanina-ASSOC.NSG come-ACTION.FOCUS-3pl 'Tanina and them are coming'

The non-focal members of the group referred to with associative plural have to be of the same kind.

For example, Hungarian Juli-ék 'Julie-ASSOC.PL' cannot include Julia and her car, and if Julia and her dog are meant, the expression 'anthropomorphizes the dog' (Moravcsik 2017).

O. Similative plural. The meaning of similative plural is 'X and similar entities', where X is usually non-human or inanimate. The focal referent of a similative plural is a prominent token of a type.

Similative plurals are often expressed by echo- or chiming-compounds, or 'expressive reduplication' (Haig 2001: 208-9) — a feature of languages of Eastern Anatolia and South Asia (cf. Masica 1976).

(23) dergi 'journal'  \[ \text{Turkish} \]
dergi mergi 'magazines, journals, or anything like it'

(24) hesti 'bone'  \[ \text{Kurmanji} \]
hesti mesti 'bones and stuff'

In Tamil the first syllable of the noun referring to the final referent is replaced with ki-/kii- (depending on vowel length) (Asher 1985: 207). In Tamil, such expressions may have slightly pejorative overtones.

(25) paampu 'snake'  \[ \text{Tamil} \]
paampu kimpu 'snakes and other reptiles'
arici 'rice'
arici kirici 'rice and other grains'
puli 'tiger'
puli kili 'tigers and other wild animals'
Associative plurals (N) and simulative plurals (O) are grouped under the label 'representative plurals' by Moravcsik (2017): what they have in common is that less important/focal entities are referred to by a morpheme added to the name of the focal entity. If the set consists of things of the same type, the construction is labeled simulative plural. If the set consists of humans forming a group, the construction is known as the associative plural.

**P. Reciprocal plural** is a feature of a number of some Australian languages and appears to be restricted to kinship nouns. In Ngayambaa (Donaldson 1980: 104), two or more people who are in a reciprocal social or kinship relations may be referred together as a group by attaching the suffix -galaydja:ŋ- to the kinship term, e.g. 

\[ \text{guba}:n-galaydja:ŋ \] (spouse-RECIP.PL) 'married couple'.

A pair of women who call one another 

\[ \text{gaba}:njdja:ŋ \] (father's sister/brother's daughter) will be referred to as 

\[ \text{gaba}:njdja:ŋ-galaydja:ŋ \] an 'auntie-niece pair'.

### 3 Special number distinctions in personal pronouns

Number distinctions in personal pronouns may be the same, or similar to those in nouns. We turn to split or mixed systems in §8. In Cupeño, a Uto-Aztecan language formerly spoken in California, all plural pronouns contain the suffix -m. None of the forms is fully regular. The suffix -m is also used on most nouns, e.g. ne-kaytu 'my enemy', ne-kaytu-m 'my enemies' (Hill 2005: 233: 179-81; stressed vowels are underlined).

\[
\begin{array}{ccc}
\text{Person} & \text{Singular} & \text{Plural} \\
\text{First} & \text{ne'} & \text{che-m} \\
\text{Second} & \text{e'} & \text{e-m} \\
\text{Third} & \text{pe'} & \text{pe-m} \\
\end{array}
\]

In many languages of North and South America, Australia, Oceania, and Africa, there is a further distinction in the first person. The 'inclusive' form refers to the speaker and the addressee; and the 'exclusive' form to the speaker and someone else without the addressee. Table 2 features personal pronouns in Tok Pisin (only for four numbers, cf. (3)); some Oceanic languages such as Ambrym (Paton 1971: 16-21) have inclusive-exclusive distinctions in dual, trial/paucal, and plural).

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>1ST</th>
<th>2ND</th>
<th>3RD</th>
</tr>
</thead>
<tbody>
<tr>
<td>singular</td>
<td>inclusive</td>
<td>exclusive</td>
<td></td>
</tr>
<tr>
<td>dual</td>
<td>yu-mi-tu-pela</td>
<td>mi-tu-pela</td>
<td>yu-tu-pela</td>
</tr>
<tr>
<td>trial</td>
<td>yu-mi-tri-pela</td>
<td>mi-tri-pela</td>
<td>yu-tri-pela</td>
</tr>
<tr>
<td>plural</td>
<td>yu-mi</td>
<td>mi-pela</td>
<td>yu-pela</td>
</tr>
</tbody>
</table>
Other languages have a special form for the two Speech Act Participants which cover speaker and addressee. The special speaker-plus-addressee forms are one paradigm with the rest of the personal pronouns. The distinctions involved can be described in terms of a distinction between a 'minimal' system versus an 'augmented' system.

Hdi, a Chadic language, has a set of 'minimal' forms referring to one person ('I', 'you (singular)' or 'he/she') or to two people ('me and you'). A set of augmented forms indicates one or more participants added to the minimal set, that is, 'us', 'you, me and one or more person', 'you (plural)', and 'they' (Frajzyngier 2002: 83).

### Table 3 Personal pronouns in Hdi: a minimal/augmented system

<table>
<thead>
<tr>
<th>PERSON</th>
<th>NUMBER: MINIMAL</th>
<th>NUMBER: AUGMENTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td><em>ii</em> 'I'</td>
<td><em>ánpi</em> 'we (without you)'</td>
</tr>
<tr>
<td>First + Second</td>
<td><em>tíii</em> 'you and me'</td>
<td><em>ámíi</em> 'you and me and other(s)'</td>
</tr>
<tr>
<td>Second</td>
<td><em>kághá</em> 'you sg.'</td>
<td><em>kághání</em> 'you plural, you all'</td>
</tr>
<tr>
<td>Third</td>
<td><em>tsátsí</em> 'he/she'</td>
<td><em>xáxón</em> 'they'</td>
</tr>
</tbody>
</table>

Minimal-augmented systems are widespread in the languages of the Philippines, a number of languages from North and South America (including Cariban), Australia, and from the Chadic family within Afroasiatic (and also in Palikur, an Arawak language; calqued from Galibi, Cariban).

There can be further distinctions. Aguaruna (Jivaroan, Peru) has two forms for 1st person non-singular, *ii* 'we: specific set of participants' and *hutii* 'we: non-specific set of participants' (Overall 2017: 153).

Non-singular personal pronouns may take part in 'inclusory', or 'pronoun elaboration' constructions: a participant subsumed within the reference of a non-singular pronoun can be overtly stated (Lichtenberk 2000; Dixon 2010: 207-10; Aikhenvald 2015: 181-2), as in Tok Pisin:

(27) **mi-tu-pela** Pauline 'Pauline and me', lit. we-two Pauline  
    **1-dual-nonsg** Pauline

### 4 Number on verbs

The number of a core argument may be indicated within the predicate. There can be:

1. **Bound pronouns.** If a language has bound pronouns, these are typically included within the predicate and will show person and number (and often also gender) of one or more core arguments as shown in (20-21) from Central Alaskan Yupik and (22a-b) from Manambu.

2. **Number-marking affix.** Non-singular number on verbs can be indicated with a special affix stating that A, S, or O have plural reference. The verbal plural suffix *-hig* in Nanti (Kampa subgroup of Arawak, Peru; Michael 2008: 260) can refer to A, or O:

(28) *i=kamoso-hig-ak-i=ri*  
    **3masc.S=visit-PLURAL-PERFECT-REALIS=3masc.O**  
    'They visited him' OR 'He visited them' OR 'They visited them'
This suffix is cognate to the nominal plural -hegi (Michael 2008: 297), e.g. pi-shaniNka-hegi (2sg-person-PL) our fellow people'. Distributive plural -ge- on verbs can refer to many participants in separate groups in different locations or times, e.g. Nanti (Michael 2008: 260):

(29a) i-na-ge-Ø-ti aka Nanti
3sg.masc-be.in.location-DISTR-IMPF-REALIS.I here 'They were here (at the same time in different locations)'

(29b) i-ha-ge-Ø-ti kara Nanti
3sg.masc-go-DISTR-IMPF-REALIS.I there 'They went there (in separate groups, at different times)'

Further examples are in Mithun (1999: 88-9) (especially Mohawk; cf. (12)).

III. Verbal number — or 'pluraactionality'. The expression of number on verbs may cover, all at the same time, number of participants, number of actions (multiple actions and/or frequency), multiple locations in space, and the degree (or intensity) (a comprehensive account is in Newman 2012; also Wood 2007). This is a feature of many Chadic and other Afroasiatic languages, and also Papuan and South American, commonly expressed by reduplication. In Warekena of Xié (Aikhenvald 1998) reduplication refers to
(a) multiplicity of S (intransitive subject) — (30),
(b) multiplicity of O — (31),
(c) intensity of action/state or prolonged time or multiple locations — (32);
(a)+(c) — (33).

(30) ni- fiwiya-ya ema-nawi Warekena of Xié
3pl-whistle-RED tapir-PL 'Many tapirs are whistling'

(31) cannot be interpreted as 'very many people can hear the voice of birds'.

(31) nida-da-hā yujana utjipie ni-wayata Warekena of Xié
3pl+perceive-PAUS voice bird 3pl-speak 'They can hear the voices of very many birds singing'

(32) kune-ta (fear-CAUS) 'scare', kune-ta-ta (fear-CAUS-RED) 'scare very much'.
apate 'be cold', apate-te 'be very cold'; akune 'be scary', akune-ne 'be very scary'

(33) utjipie ni-mita-ta-wa Warekena of Xié
bird 3pl-fly-RED-NONACCOMPLISHED 'Very many birds are flying (to and fro)'
Dyirbal, which is split ergative/accusative in terms of core argument marking but has an exclusively S/O (that is, ergative) syntactic pivot, has verbal suffix -ja- (Dixon 1972: 249) which can indicate 'many S' in an intransitive or 'many O' in a transitive clause:

(34) \[\text{balan yibi}s \quad \text{banin-ja-fiu} \quad \text{Dyirbal}\]  
\[\text{THERE:ABSOLUTIVE:FEMININE woman come-MANY(S)-PAST} \]  
'Many women came'

(35) \[\text{yara-ngu}_{\text{A}} \quad \text{jiyilo gundal-ja-fiu} \quad \text{Dyirbal}\]  
\[\text{man-ERGATIVE starling put.in-MANY(O)-PAST} \]  
'The man was putting many starlings (into his bag)'

Alternatively, suffix -ja- can indicate that an action is repeated (often being performed not with respect to some known goal but blindly, everywhere, in the hope of encountering a goal):

(36) \[\text{bayi yara}s \quad \text{ŋandan-ja-fiu} \quad \text{Dyirbal}\]  
\[\text{THERE:ABSOLUTIVE:MASCULINE man call-REPEATED-PAST} \]  
'The man called out in all directions (not knowing if there was anyone there to hear him)'

**IV. Verbs with suppletive number forms.** A small set of verbs may have suppletive form depending on whether a core argument has singular or plural reference. The core argument in question is almost always that in O function for a transitive, and that in S function for an intransitive verb. For instance, nine verbs with suppletive forms are reported for Comanche (Uto-Aztecan; Charney 1993: 114-15), including:

(37) \[\text{ihpii} \quad \text{hapi} \quad \text{ika} \quad \text{ihkoi} \quad \text{kwapi} \quad \text{weekwi} \quad \text{yaa} \quad \text{himi} \quad \text{yikwi} \quad \text{kweyu?i} \quad \text{nikwi}\]  
\[\text{singular S} \quad \text{plural S} \quad \text{singular O} \quad \text{plural O} \quad \text{'sleep'} \quad \text{'lie down'} \quad \text{'go inside'} \quad \text{'hold, carry'} \quad \text{'remove'} \quad \text{'tell'}]  

Number-determined suppletive forms of verbs are found in a wide range of languages — from North America (including the Salish, Uto-Aztecan, Athapaskan, and Muskogean families), the Caucasus, Africa, New Guinea, Australia, and Oceania plus Ainu in Japan and Sumerian in the ancient Middle East. The number of such verbs ranges from one to a couple of dozen. The Papuan language Amele (Roberts 1987: 201) has suppletive forms for two verbs — 'get, take' is oc with a singular and ced-ec with a plural O, while 'go' is nu for singular and (optionally) bel-ec for plural S. Languages with more than a handful of suppletive verbs of this type generally have some intransitives (according to the number of the S argument) and some transitives (almost always referring to the number of O).

Suppletive verbs can divide into classes with different number distinctions. In three number subsystems in Koasati (Kimball 1991: 323, 417).
Set (a) verbs have three forms, singular, dual and plural.
Set (b) contrast singular and non-singular.
Set (c) work in terms of non-plural and plural — (38).

<table>
<thead>
<tr>
<th>(38)</th>
<th>SINGULAR</th>
<th>DUAL</th>
<th>PLURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) 'stand', forms for number of S</td>
<td>haccá:lin</td>
<td>hikká:lin</td>
<td>lokkó:lin</td>
</tr>
<tr>
<td>(b) 'put in', forms for number of O</td>
<td>hókfin</td>
<td>álín</td>
<td></td>
</tr>
<tr>
<td>(c) 'die', forms for number of S</td>
<td>illin</td>
<td>hápakán</td>
<td></td>
</tr>
</tbody>
</table>

1sg free pronoun | anó | isnó |

The intransitive verbs which recur with number-determined suppletive forms in many languages include 'sit', 'stand', 'lie', 'enter', 'go', 'be big' and 'die, be dead' (see Table 20.1, Dixon 2012: 65) and also 'hang', 'arrive', 'run', 'come', 'fall', 'cry' and 'be little'. Posture verbs tend to have the richest set (more in Dixon 2012: 62-5; Aikhenvald and Dixon 2011: 152-4).

Marking non-singular participants on verbs often refers to S/O, but not necessarily so (Durie 1986; Aikhenvald and Dixon 2011: 152-4). This does not make a language ergative.

5. The realisation of number
5.1 The forms
Number can be expressed with affixes (as in Hixkaryana, L above), clitics, or independent markers. There can be internal vowel change as in Semitic languages ('broken plurals' in Hebrew, or Arabic) and also in English foot/feet, mouse/mice, etc. Examples are Palestinian Arabic šabbāk 'window', pl. šabbāk, and Jibbali magrīr 'beehive', pl. magrīr. In some Semitic languages, both types of plural marking can be used together in the same word, e.g. pattern replacement and suffixation in Ge'ez hagar 'city', pl. ḫahgur (internal) or ḫahgur-āt (internal plus external) (Rubin 2017: 870).

Other morphological processes include subtraction, e.g. Tariana i:naru 'woman', i:na 'women', accompanied by vowel addition in tsiārī 'man', ńtsa 'men'; reduplication, e.g. Indonesian buku 'book', buku-buku 'books', rumah-rumah 'houses' (Sneddon 1996: 16-17); suppletion: Russian rebenok 'child', deti 'children', Jarawara inamatewe 'child', matehe 'children' (Dixon 2004: 304).

5.2 The loci: where number is shown
I. On the head of NP: free pronouns (see §3) and nouns (§2).
Number can be marked on demonstratives and interrogatives, e.g. Amharic (Amberber 1996: 38):
- Plural prefix -əmma- is used on 2nd and 3rd person pronouns, on demonstratives, and man 'who';
- Plural suffix -əčeč is used on nouns, adjectives and mən 'what' (see also (19)).

II. On the predicate: see §4
III. VIA AGREEMENT WITHIN AN NP

NUMBER CAN BE SHOWN ON EVERY WORD WITHIN AN NP, OR JUST ON THE FIRST WORD, OR ON THE LAST WORD.

COMPARISON (39), FROM STANDARD BRAZILIAN PORTUGUESE, WITH (40), FROM COLLOQUIAL PORTUGUESE.

(39) a-s menina-s bonit-a-s
ART.DEF-pl girl-pl pretty-fem-pl
‘pretty girls’

(40) a-s menina bonit-a
ART.DEF-pl girl pretty-fem
‘pretty girls’

IN SWAHILI AND OTHER BANTU LANGUAGES, NUMBER FUSED WITH NOUN CLASS IS MARKED ON EVERY WORD WITHIN AN NP, AND ON THE VERB (DIXON 2012: 61):

(41) [vi-kombe vi-dogo vi-wili]NP:S
INAN:PLURAL-cup INAN:PLURAL-small INAN:PLURAL-two
[vi-me-vunjika]PREDICATE
INAN:PL.S-PERFECT-be broken
‘The two small cups are broken’

NUMBER MAY NOT BE MARKED ON NOUNS AT ALL, AND ONLY OCCUR ON AGREEING CONSTITUENTS. THIS IS ‘COVERT’ NUMBER, AS IN MANAMBU.

(42) a-di du betay yi-di
that-pl man already go-3pl
‘Those men already left’

AN ISSUE IN AGREEMENT: WHICH AGREEMENT FORM IS USED WITH NOUNS WHICH HAVE COLLECTIVE OR ‘MASS’ REFERENCE?

• IN CENTRAL ALASKAN YUPIK, COLLECTIVE FORMS ARE TREATED AS SINGULAR, E.G. ciuli-at (eldest-abs.3plPr.COLL) ‘their ancestors (as a whole)’ (MIYAOKA 2012: 713).
• IN MANAM (OCEANIC: LICHTENBERK 1983: 249), NOUNS REFERRING TO MASSES TRIGGER PLURAL AGREEMENT (43A), UNLESS THEY REFER TO A SMALL OR A SINGLE QUANTITY (43B). NOUNS ARE UNMARKED FOR NUMBER.

(43a) dan di-éno
water 3pl.realis-exist
‘There is water (available)’

(43b) dan mu?=mu?u-Ø i-éno
water little-3sg.adj 3sg.realis-exist
‘There is little (i.e. a small quantity of) water (available)’

AGREEMENT WITH A COLLECTIVE NOUNS MAY BE SEMANTIC OR SYNTACTIC, E.G.
(44a) England have won the cricket match  semantic: plural agreement  
(44b) England has won the cricket match  syntactic/formal: singular agreement  

**Generalization.** Number values listed at L-O appear to **never** have an agreement form of their own.

Number may interact with other obligatory grammatical systems (see Dixon 2012: 69-71). There may be fewer gender or noun class distinctions in non-singular/plural than in singular. In German and Russian, genders are not distinguished in plural number. Noun class markers can be fused with case, as in Australian languages Mangarrayi and Jawoyn (Dixon 2002: 508-9).

Languages vary as to what forms are used with number words — English uses plural forms, e.g. *two boys*, Hungarian uses singular forms, e.g. *három ember* 'three men' (lit. three man).

**IV. Double marking of number**

Number may be marked more than once within a noun or a verb, e.g. Ket (Dul'son 1968) *qoy* 'aunt', *qoy-dit* (aunt-DAT) 'for the aunt', *qoy-en-nat* (aunt-PL-PL.DAT) 'for the aunts', or Tariana *kumada-tiki* (duck-DIM) 'duckling', *kumada-pe-tupe* (duck-PL-DIM:PL) 'ducklings' (cf. (11), from Tsakhur).

Number markers with different values on one noun may serve different functions. For instance, in Trio (Cariban: Carlin 2004: 116-17), the plural marker-*ton* can be used on nouns marked with the collective suffix *-jan*, with distributive-individualising meaning 'different sets of people', e.g. *tamu-san* (elder-COLL) 'elders (as age-set)', *tamu-san-ton* 'different groups of elders', *noti-jan* (old.woman-COLL) 'old women (as age-set)', *tamu-san-ton* 'different groups of elders', *noti-jan* 'different groups of old women'.

**5.3 Optional and obligatory number marking**

Number marking can be obligatory on the noun (as in English) and agreeing constituents, as in Portuguese, Manambu, or Swahili (39-42). Obligatory number marking is often fused with another grammatical category, e.g. case/gender, e.g.

(45)  *puella*  singular nominative — girl  
     *puellae*  plural nominative — girls (more than one girl)  

Latin

Number marking can be optional. Then it is usually not fused with any other category.

In Indonesian, number is not marked on nouns if clear from the context, e.g. *sepatu baru* (shoe new) 'new shoes'. Nouns with generic reference are not marked for plural, e.g. *anjing suka tulang* (dog like bone) 'dogs like bones' (Sneddon 1996: 17). Similar systems have been described for many South and North American languages (Mithun 1999: 81-2, e.g. Maricopa), and the languages of South East Asia (Enfield 2017).
The unmarked form can be called 'general': it is not specified for number. For instance, the noun midin 'possum, possums' in Dyirbal is neutral with respect to the number of individual possums, and can refer to one or more animals. If the dual number marking is attached, midin-jarran will refer to two possums, and the plural midin-midin (marked with full reduplication) refers to three or more possums. General (or 'transnumeral') forms are found in many Nilotic and Cushitic languages, in languages of South America, and in many isolating languages of Southeast Asia.

A potential analytic issue: the status of the term 'general' in systems type J with GENERAL/SINGULAR/PLURAL:
(A) the term 'general' can be considered as a formally unmarked/less marked term in the system — the consensus in Nilo-Saharan studies;
(b) the term 'general' can be considered unmarked for number, as having no number value.
Optional marking of number on pronouns appears to be rare (an example is in (28), from Nanti).

5.4 The limits of number

5.4.1 Number and the meanings of nouns

Number is almost always marked on first and also second person pronouns (English offers an interesting example — cf. 'new' second person plural forms such as you-s, you'll, you-all). A number system may apply to all nouns, or to none, or to just some of them. Which type of noun is marked for number, cross-linguistically, can be roughly described in terms of the following hierarchy (suggested by Smith-Stark 1974 as: speaker, addressee, kin, human, animate, inanimate; see also Stebbins 1997; Corbett 2000).

(46) a just nouns describing kin relationships
   b all nouns with human reference
   c all nouns with animate reference; a distinction is often made between higher animates (such as mammals) and lower animates (for example, insects)
   d all (count) nouns, whether animate or inanimate

The expression of number may correlate with the meaning of a noun.
• For the Papuan language Kobon 'the only nouns in which number is marked are nouns belonging to the set which describe kin relationships' (Davies 1981: 147). Ditto for Manambu and Yalaku.
• In Boumaa Fijian, a number specification must be made if the referents are human, and is optional otherwise (Dixon 1988: 53). In Koasati, the nominal plural is marked only on nouns that refer to human beings (Kimball 1991: 403). In Panare (Cariban: Payne and Payne 2013: 68-9; 134-5), the plural-collective suffix -(j)chan 'occurs only on nouns referring to humans (Payne and Payne 2013:...
Jarawara has special plural forms just for four nouns (child, spirit, woman, and man: Dixon 2004: 304-5).

BUT — 'cultural salience' may play a role. We can recall, from L (§2), that in Hixkaryana (Derbyshire 1985: 203, 245) the collective komo is mainly restricted to nouns with human reference, e.g. rowti komo 'my brothers', and is also used with reference 'to animals and items regarded as an integral part of the culture or environment of the people', e.g. wewe komo 'trees of the forest', harye komo 'sweet potatoes'.

In Tamambo (Jauncey 2011: 152), all kin terms are marked for plurality with the prefix na-, e.g. sohoti-ku (big.brother-1sgPOSS) 'my big brother', na-sohoti-ku 'my big brothers'. A singular/plural morphological distinction is also overtly expressed on some other human nouns, e.g. uranji 'man', va-uranji 'men'. The only inanimate nouns which show plurality by prefixing are all terms for trees, using the prefix lo-, vuniu 'coconut palm', lo-vuniu 'plural' (114). A few nouns reduplicate for plurality, e.g. tahasi 'stone', tahasi-tahasi 'stones', maranjea 'old man', maranjea 'old men' (pp. 152; 134-5), lanje 'piece of coral', lanje-lanje 'coral'.

Hup (Northwest Amazonia) marks plural for humans and animates, and also important possessions of humans (Marcelo Carvalho p.c.), e.g. möy d'åh (house PL) 'houses', yáy d'åh (hammock PL) 'hammocks' (not mentioned in the published grammar).

5.4.2 'Minor' numbers
Restrictions on number marking may go along other lines. The dual in Maltese, a Semitic language, is limited to thirty nouns expressing measurement and weight, and a few familiar objects (Borg and Azzopardi-Alexander 1997: 173). (Fenech 1996: it is obligatory with just eight nouns).

(47)   jum 'day' — singular                         Maltese
       jumejn 'two days' — dual
       jiem 'days' — plural

But some nouns marked as dual have plural meaning, e.g. id 'hand', idejn 'hands'.

Dual in Hebrew, also Semitic, survives in a few nouns which denote measures of time and weight, naturally paired objects, and numbers, e.g. yad 'hand', yad-ayim 'two hands', yad-ot 'hands' (pace Corbett 2000: 96).

(48)   yom 'day' — singular                         Hebrew
       yom-ayim 'two days' — dual
       yam-im 'days' — plural

5.4.3 The limits of number: nouns with defective number values
Nouns with defective number values are:
• SINGULARIA TANTUM have no non-singular number forms, e.g. English abstract nouns, e.g. friendliness; Russian collective nouns, e.g. student 'student', studenčestvo 'students (a category)'; Bagvalal (Nakh-Daghestanian) abstract nouns and names for unique referents, e.g. kumuk 'help', dunijal 'world, universe', kert 'gathering place in a village' (Daniel 2001: 147);
• PLURALIA TANTUM have no singular form, e.g. English scissors, spectacles, and also trousers (trouser is also used!) (Quirk et al. 1985: 300: summation plurals which 'denote tools, instruments, and articles of dress consisting of two equal parts which are joined together'); Russian brjuki 'trousers', sani 'sledge'. In Modern Hebrew pluralia tantum cover some abstract nouns, e.g. zkunim 'old age', raxamin 'pity, mercy', and some plant names, e.g. avašim 'wild grapes'.
• DUALIA TANTUM have no singular form, e.g. Modern Hebrew mixnasayim 'trousers', miškafayim 'glasses', moznayim 'scales (for weighing)', melqaxayim 'tongs' (plus 'heaven', 'water', Jerusalem).

6 Number and noun categorisation

Nouns which denote individual entities which can be counted are called count nouns — e.g. boy, book. In contrast, mass nouns which refer to substances or material can be considered uncountable, e.g. water, flour. The distinction between count and mass is reflected in English interrogatives how many and how much.

In many languages, mass nouns cannot occur with non-singular markers. For instance, in Somali (Saeed 2002: 126-9) mass nouns such as biyo 'water' or shaah 'tea' can be counted only if a unit of measurement is provided, such as 'two cups of tea'. In English, mass nouns can be pluralised, but with a 'unitising' meaning — (49):

(49) many different moneys 'different kinds of money, or money from different sources'

The same for number words: two waters means 'two (receptacles) of water'.

Number can serve as a noun categorization device. In Murle, a Surmic (Nilo-Saharan) language, nouns with plural suffix -et prototypically refer to females and items associated with them (50a) (Dimmendaal 2000: 232-3, and further examples there). Nouns with the plural suffix -(nya) are associated with males (50b).

(50a) SINGULAR PLURAL MEANING Murle
alawan -et daughter-in-law
momu -et womb

(50b) SINGULAR PLURAL MEANING Murle
abuu -nya eldest son
baarin -nya bachelor
The correlations between the class of noun and the meaning of number marking in Jemez, a Kiowa-Tanoan language (Sprott 1992: 53) are summarised in Table 4 (see also Watkins 1984: 78-91; Mithun 1999: 81).

Class I nouns cover animates, including kinship terms, persons, animals, birds, and insects, e.g. tyó 'girl', sádaálu 'soldier', dúky 'mouse'.

Class II nouns cover inanimates ('dish', 'chair', 'water jar', 'head'); so does Class III (e.g. 'shirt', 'tooth', 'flower', 'stone'). The noun hó 'leg' is in Class II, and hó 'bone' in Class III. Class IV nouns cover masses, e.g. yáale 'money', zú 'snow'.

The non-singular number suffix -sh marks 'unexpected' (or 'inverse') number:
• Animates are generally conceived of as 'individuals': the unmarked number for Class I is singular; -sh marks dual and plural;
• Inanimates are less strongly individuated: the unmarked number for Classes II and III is plural; then -sh marks singular and dual for Class II nouns, and just dual for Class III nouns.
• Mass nouns (Class IV) do not distinguish number.

Table 4. Classes of nouns and number in Jemez (Kiowa-Tanoan)

<table>
<thead>
<tr>
<th></th>
<th>Class I: animates</th>
<th>Class II: inanimates</th>
<th>Class III: inanimates</th>
<th>Class IV: masses</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGULAR</td>
<td>—</td>
<td>—-sh</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>DUAL</td>
<td>-sh</td>
<td>-sh</td>
<td>-sh</td>
<td>—</td>
</tr>
<tr>
<td>PLURAL</td>
<td>-sh</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

In German, forming different plurals may help disambiguate polysemous nouns, e.g.
• Wort 'word'; Wörter 'list of words'; Worte 'a coherent word sequence in a discourse'
• Land 'country': Baltische Länder 'Baltic states'; Baltische Lande 'the Baltic (as an area)'

7 Markedness
In an overwhelming majority of cases, singular is the formally and functionally unmarked term: this is what we saw for systems A-I.

In tripartite systems with a general/collective form (J-K, especially 8, from Turkana, and 9 from Wanano)), the general/collective form is unmarked, and the singular takes singulative marking. Similar systems have been found in Cushitic languages, e.g. Arbore (Hayward 1985: 180-1; Zaborski 1986: 107):

(51) singulative collective
maddá-n maddá 'fox'
ńizze-ťé ēzze 'gazelle (feminine)'

Arbore
Dual is often functionally and formally more marked than plural (cf. Table 2, for Tok Pisin). Dual forms appear to be particularly vulnerable in language history (many Indo-European languages lost their dual; many Slavic languages have just remnants).

8 Split, or mixed, number systems
We have seen that in a number of languages, different sets of distinctions in number may co-exist.

In Hebrew, dual survives in just a handful of nouns. These dual forms are treated as plural for purposes of agreement with verbs and adjectives, e.g., Modern Hebrew miškafayim yaqarim (glass: dual expensive:pl) ‘expensive[PL] eyeglasses[DU]’. Most Modern South Arabian languages have preserved the nominal and verbal dual, but adjectival agreement is still plural, e.g., Mehri sáwr-i trayt talōf’ ‘two flat stones’ (stone-DU two flat.PL) (Rubin 2017: 864).

In (38), from Koasati, some verbs have three forms, singular, dual and plural; others contrast singular and non-singular; yet others work in terms of non-plural and plural.

In Amele (Roberts 1987: 21, 151, 208), personal pronouns distinguish singular, dual and plural; and interrogatives and nouns have singular and plural, as in (52):

<table>
<thead>
<tr>
<th>SINGULAR</th>
<th>DUAL</th>
<th>PLURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ija</td>
<td>ele</td>
<td>ege</td>
</tr>
</tbody>
</table>

An alert! The label ‘plural’ in such systems is problematic. In Amele, ‘it would be unsatisfactory to employ the label 'plural' both for 1sg form ege, here meaning 'three or more' and also for the interrogative form an, then meaning 'two or more'. To attach two meanings to the same term at different places in the grammar would be likely to cause confusion, and should be avoided. The most appropriate course is to employ labels for the larger system, B, and then say that an is 'non-singular', a cover term for 'dual-plus-plural" (see Dixon 2012: 53).

We expect personal pronouns to have the largest system of number distinctions (in agreement with Smith-Stark's 1974 hierarchy). However, pronouns hardly ever have number systems J-O; so empirically-based generalizations are still to be formulated!

9 Number and social deixis
Non-singular number forms can have polite overtones. In many European and non-European languages, e.g. Fijian and Tamambo, plurals of verbs and non-singular pronouns, mark respect:

(53)  *tu* versus *Vous* in French (*t-V* forms)
    *sina* versus *Teie* in Estonian
**du** (you.sg. familiar), **ihr** (you.pl.familiar) versus **Sie** (you.pl.polite) in German

**niho o** (you.sg), **kamim** 'you pl'; marker of respect' in Tamambo (Jauncey 2011: 92)

In Kannada (Sridhar 1990: 202), the third person human plural pronoun **avaru** is suffixed to the name or title of an important person or official as a marker of degree of importance. Note plural agreement:

(54) indira: ga:ndhi-y-avaru na:Le bha:SaNa ma:Dalidda:re

Indira Gandhi-EP-3human.pl tomorrow speech do-FUT-be-3HUM.PL

'The Honorable' Indira Gandhi is going to make a speech tomorrow'

In Tamambo, the first person plural inclusive **hinda** is often used to describe how things are done; it is also 'a politeness gesture' towards the addressee as being welcome and included in the group (Jauncey 2011: 93) (and see Dixon 2010: 202-3, on Fijian and other languages).

**10 Expressing number through other means**

The number of a noun can also be expressed through quantifiers, e.g. 'many', 'much', 'few'. Many languages have a lexical class of number words with exact, or approximate, numerical reference. These tend to form a separate closed class. Classifiers may reflect quantity — half, quarter, 'group', or part. Each of these can be useful to mention in the individual presentations, if necessary.

**11 Number systems in language history**

Grammatical number systems, quantifiers, and number words are different entities. But they may interact historically. Nominal number markers can come from lexical sources.

(1) Nouns (especially those with generic reference) can give rise to non-singular markers. A generic noun meaning 'people' can give rise to a non-singular marker, e.g. !Xôô (Southern Khoisan) **tûu** 'people' > **-tû** 'plural suffix of human nouns' (see Mithun 1991: 84 for more examples).

In Warekena of Xié, an Arawak language of the Upper Rio Negro region, **-nawi** 'people' has developed into a marker of excessive plural (used with nouns from any semantic group). Excessive plural refers to 'very many, a whole group of', e.g. **kuefi-nawi** (game-EXCESSIVE.PLURAL) 'a lot of game (animals)', **abida-pe-nawi** (pig-pl-EXCESSIVE.PLURAL) 'very many pigs'. Etymologically the same form, **nawi-**, gave rise to a collective plural **-nawi** in Bahuana, a now extinct Arawak language from the Middle Rio Negro area (Ramirez 1992: 42).

This is echoed by the development of the common Arawá noun **deni** 'person' into a collective plural marker in Kulina and Dení, two Arawá languages from southern Amazonia. In Jarawara, **madi** 'people' gave rise to **mee** '3 person nonsingular pronoun'.

*Note: The text is mostly in English with some minor corrections for better comprehension.*
In Paresi-Haliti toli 'collective marker' appears to come from the bound number -toli 'heap' (Brandão 2014: 156-62).

(2) Members of closed classes can give rise to non-singular markers.
   • Number word 'two' gives rise to dual, e.g. Ambrym (Oceanic: Paton 1971: 16, 44-6) ru 'two', -ro 'dual, Manambu viti 'two', -viti 'dual marker on kinship terms' (also Heine and Kuteva 2002: 302-3);
   • Number word 'three' gives rise to trial and paucal, e.g. Ambrym -svl 'trial, paucal'
     (Paton 1971: 24: trial may refer to 'three or a few, i.e. any reasonably small number').

And see more examples, from Oceanic and from Australian languages, in Dixon (2012: 81).

In Chocktaw, the word toklah related to the verb 'to be two' can indicate dual (Mithun 1991: 97).
• Third person non-singular pronoun can give rise to number markers, e.g. Proto-Ndu *dey 'they',
   Manambu and other Ndu languages -di 'plural agreement marker'; 3pl on verbs' (22b).

**Grammatical number systems** may undergo restructuring under areal diffusion.

(i) **Minimal-augmented systems** diffuse in language contact. Palikur (Aikhenvald 2018) is the only
Arawak language to have a minimal-augmented system in its pronouns. The Palikur system is very
similar to that in Cariban languages, e.g. Galibi (or Cariña).

(ii) **Inclusive-exclusive distinctions** are a feature of many linguistic areas and language contact
situations, e.g. Tok Pisin. See also Jacobsen (1980).

(iii) **Number systems on nouns** in the languages of the Vaupés Linguistic area are remarkably
similar in their structure — compare (9), from Wanano, and (55), from unrelated Tariana (see
Aikhenvald 2014):

(55) de:ri' banana (generic) 'transnumeral'
     de:ri-pi banana-CL:PALM 'banana palm' singular
     de:ri-pi-pe 'banana palms' plural

12 Summary
All languages have one or more number systems in their grammar. The systems vary in size, and in
the reference of the terms — whether absolute (singular, dual) or relative (paucal, greater plural).
Some number values — associative, or simulative — only apply to nouns. Personal pronouns may
have special number distinctions (minimal-augmented). Verbal number may express the number of
participants (usually — not always — S and O), the number of actions, its multiple location in
space, and degree (known as pluractionality: §3, and Newman 2012).

Number can be expressed with affixes, independent markers, internal vowel change, subtraction, and also suppletion. It may be shown, overtly, on head of NP; covertly, just on
modifiers and predicates.
Number can be an obligatory inflectional category; then there is expected to be no general form unmarked for number. Or there can be an optional marker. A form whose number value is undetermined (also known as 'transnumeral') may acquire 'collective' or 'generic' meaning.

The expression of number may interact with other categories, including gender, classifiers, and person (Aikhenvald and Dixon 1998): that is, the choice made in a number system may depend on the choices made in the domain of classification of noun referent based on gender, animacy or any other parameters used in classifier systems (§5.2). There tend to be fewer genders expressed in non-singular numbers.

The largest set of number meanings is generally expressed in personal pronouns. The marking and the meanings of number may interact with the meaning of nouns, mostly, according to the hierarchy in (46) (similar to the Nominal Hierarchy). However, special non-singular forms can exist for culturally important items: cultural considerations override the hierarchy.

There can be further restrictions on number expression — e.g. dual may be limited to just nouns referring to measurements or paired objects; there can be nouns which only occur in plural, dual, or singular.

Number can offer a means of categorising the noun's meaning — the distinction between mass and count nouns can be reflected in the choice of number values. Singular is often the unmarked choice; but in many systems in Cushitic, Omotic, and Nilo-Saharan languages, the collective is formally and functionally unmarked, and singular has a special 'singulative' marker.

One language can have more than one number system — e.g. singular, dual, and plural in pronouns, and singular and plural in nouns; one should be careful in assigning an accurate meaning to the term 'plural'.

Markers of number may come from members of closed classes (pronouns or number words), or generic nouns. Number systems are prone to restructuring in language contact situations.

**Further readings.** A comprehensive discussion of number systems is in Chapter 20 of Dixon's *Basic Linguistic Theory* (2012). Number words and counting are addressed in Dixon (2012: 71-80); number words and counting in Amazonian languages are discussed in Aikhenvald (2012: 350-60). Other discussions of number systems include Moravcsik (2017), Corbett (2000), and Mithun (1999), for North American languages (a brief discussion of number is in Aikhenvald 2015). The Nominal Hierarchy applied to number marking was first suggested by Smith-Stark (1974); see also Stebbins (1997) and Corbett (2000). Correlations between number and other grammatical systems are in Aikhenvald and Dixon (1998); Aikhenvald (2000) with a focus on interactions with genders and classifiers of different kinds. Interesting case studies are in Storch and Dimmendaal (2014).
Abbreviations: A - transitive subject; ABS - absolute; adj - adjective; ART. DEF - definite article; ASSOC.PL - associative plural; ASSOC - associative; CAUS - causative; CL - classifier; COLL - collective; DAT - dative; DISTR - distributive; du - dual; EP - epenthetic; fem - feminine; FUT - future; HUM - human; IMPF - imperfective; INAN - inanimate; IND - indicative; masc - masculine; NOM.PL - nominal plural; nonsg - nonsingular; nonsg - nonsingular; O - object; PAUS - pausal; pl, PL - plural; POSS - possessive; REALIS.1 - realis form I; RED - reduplication; S - intransitive subject; sg - singular.

References
Amberger, Mengistu. 1996. 'Amharic grammar summary'. RCLT Internal Document, ANU.


