PLURALITY IN NAXI AND ITS TYPOLOGICAL IMPLICATIONS*

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Abstract
Plurality in Naxi can be explicitly expressed by suffixation or tone change on common nouns denoting human beings. This paper complements the published literature in providing a detailed description of its morpho-syntax and semantics of plurality. It shows that Naxi belongs to the typologically rare type of language in which the coding of plurality and definiteness is in one morpheme, the other three languages known to date to have this property are Chinese, Khmer and Maori. Evidence for the definiteness property of explicit plurality comes from it being excluded in syntactic environments in which definiteness noun phrases are ruled out. It is argued that the empirical basis of Greenberg’s (1974) generalization regarding the relation between numeral classifiers and compulsory expression of nominal plurality is subject to the interpretation of explicit expression of plurality. If it is taken to embody in a morpheme (or a set of morphemes) specifically for expressing plurality, then Naxi is consistent with Greenberg’s claim that languages with numeral classifiers do not have compulsory expression of plurality on nouns.

Key words: morphology, plurality, semantics
ISO 639-3 language codes: nxq

1. Introduction
Among the several ways a language indicates plurality on nouns by means of morphology, marking plurality by tone is relatively rare. In a survey of 986 languages coding nominal plurality in the World Atlas of Language Structures (WALS) (Haspelmath et al. 2005), only four languages are listed as using tone marking plural on nouns. All of them are in Africa. It is in this context that Naxi, a language spoken in southwestern China, is especially interesting, for the language sometimes uses tone to mark nominal plurality, in addition to suffixation.

The purpose of this paper is three-fold. First, it provides a detailed description of the morpho-syntax of plurality as well as its semantic properties in Naxi. It complements the published literature in documenting the language. He (1987) and He and Jiang (1985) have only a few examples of nominal plurality with little description of the morphosyntactic and semantic properties of the coding of plurality in the language. Second, it compares the coding of plurality in Naxi with that of some other languages and examines the extent to which languages may differ with respect to expression of nominal plurality. It is shown that Naxi belongs to the typologically rare type of language in which plurality is expressed together with definiteness in one morpheme. Three other languages known to combine plurality and definiteness are Chinese, Khmer

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1 The online map can be found at:
http://wals.info/feature/33A?tg_format=map&v1=cd00&v2=c00d&v3=ca00&v4=c000&v5=cf00&v6=cccc&v7=cf60&v8=df60&v9=cf7f
and Maori (cf. Dryer 2011). Third, we consider the relation between numeral classifiers and explicit coding of plurality. While the facts in Naxi appear to be consistent with the complementary distribution of numeral classifiers and (explicit) coding of plurality on nouns (cf. Chierchia 1998), we argue that the empirical basis of Greenberg’s (1974) generalization regarding the relation between numeral classifiers and compulsory expression of nominal plurality is subject to the interpretation of what is meant by expression of plurality.

2. Expressing plurality in Naxi

Naxi is a Tibeto-Burman language spoken in Yunnan, southwestern China. According to Bradley (1975) Naxi belongs to the Lolo-Burmese branch of Tibeto-Burman, but the issue does not seem to be settled (Thurgood and LaPolla 2003). The variety investigated in this paper is the Western dialect, primarily in Dayanzhen in Lijiang, Yunnan, China. The data considered here are from the published literature as well as from the third author and other consultants.

Naxi is mostly a head-final language. The verb comes at the end of the VP, yielding the SOV order. PPs are postpositional but the noun comes first in noun phrases. It is an analytic language in that it has very little inflectional morphology on nouns and verbs. Nouns are not inflected for gender, case, or number, and verbs carry no morphology for tense, aspect or agreement with the subject. The focus of this paper is on nouns, primarily the coding of plurality and its morphosyntactic properties.

The base nouns without morphology indicating plurality can be understood to be either singular or plural; they can be either definite or indefinite, depending on the context. For example, in (1a), the noun sɿdzɿ˧ ‘teacher’ has no morphology indicating plurality. It can be understood to be singular or plural, definite or indefinite (PERF=perfective, SG=singular):

(1) a. sɿdzɿ˧ ʦɿ hɿ seɿ
teacher come PERF
‘A/The teacher has come.’ or ‘Teachers/The teachers have come.’

b. ʈɿŋɤ çɿ ndɿ 1SG student see
‘I saw a student/students/the student/the students.’

However, plurality in Naxi can be explicitly expressed in two ways. Either the morpheme hɤ˧ is suffixed to the base noun or by tone change from mid-level ˧ or mid-falling ɿ tone to low-rising tone ɿ (He 1987 and He and Jiang 1985):

(2) a. çɿ˧ ‘person’ → çɿ˧hɤ˧ ‘people’

b. zyɿ ‘child’ → zyɿxɤ˧ ‘children’ (He & Jiang 1985: 44)

(3) a. bɿɿ ‘guest’ → bɿɿ ‘guests’

b. sweɿ ‘official’ → sweɿ ‘officials’

c. dzɿɿ ‘friend’ → dzɿɿ ‘friends’

The nouns suffixed with the morpheme hɤ˧ in (2) and those undergoing tone change from mid-level ˧ or mid-falling ɿ tone to low-rising tone ɿ in (3) are necessarily understood to be plural. The tone change in (2)-(3) can be taken to be the effect of the phonological rule in (4):

(4) Coding plurality by tone in Naxi nouns
N˧/Nɿ → Nɿ

As is well-known, there are substantial phonological differences amongst dialects. The transcriptions given here are according to the pronunciations of the third author, including those cited from the original articles, for uniformity’s sake. See Pinson (2012) for the different pronunciations in different dialects. As far as we can tell, the morphosyntax and semantics of plurality has no bearing on the phonological differences.
Pluralization by suffixation or tone change may apply to multi-syllabic base nouns or even phrases, regardless of whether they are morphologically decomposable:

(5)  
- a.  
  \( \text{çi}^{-}\text{ndɯ} \) ‘adult’   →   \( \text{çi}^{-}\text{ndɯ-hɤ} \) ‘adults’  
  person-big
- b.  
  \( \text{zø}^{-}\text{zy} \) ‘young man’  →  \( \text{zø}^{-}\text{zy-hɤ} \) ‘young men’  
  male-young
- c.  
  \( \text{pʰa}^{-}\text{ci}^{-}\text{me}^{-} \) ‘girl’  →  \( \text{pʰa}^{-}\text{ci}^{-}\text{me-hɤ} \) ‘girls’  
  girl
- d.  
  \( \text{zy}^{-}\text{zy} \) ‘small child’  →  \( \text{zy}^{-}\text{zy-hɤ} \) ‘children’  
  child
- e.  
  \( \text{mi}^{-}\text{cʰy}^{-} \) ‘woman’  →  \( \text{mi}^{-}\text{cʰy-hɤ} \) ‘women’  
  female-kind
- f.  
  \( \text{sø}^{-}\text{ndzɿ}^{-} \) ‘classmate’  →  \( \text{sø}^{-}\text{ndzɿ-hɤ} \) ‘classmates’  
  study-mate
- g.  
  \( \text{çi}^{-}\text{mu}^{-} \) ‘elder’  →  \( \text{çi}^{-}\text{mu-hɤ} \) ‘elders’  
  person-old
- h.  
  \( \text{pɤ}^{-}\text{ci}^{-}\text{me}^{-} \) ‘Beijing woman’  →  \( \text{pɤ}^{-}\text{ci}^{-}\text{me-hɤ} \) ‘Beijing women’  
  Beijing-female
- i.  
  \( \text{ʔɤ}^{-}\text{lø}^{-}\text{ʔɤ}^{-}\text{na}^{-} \) ‘old people’  →  \( \text{ʔɤ}^{-}\text{lø}^{-}\text{ʔɤ}^{-}\text{na-hɤ} \) ‘old people’  
  grandfather-grandmother  
  (He 1987:60)
- j.  
  \( \text{sɿ}^{-}\text{dzɿ}^{-}\text{cøse}^{-} \) ‘teacher and student’  →  \( \text{sɿ}^{-}\text{dzɿ}^{-}\text{cøse-hɤ} \) ‘teachers and students’  
  teacher-student

(6)  
- a.  
  \( \text{sɿ}^{-}\text{dzɿ}^{-} \) ‘teacher’  →  \( \text{sɿ}^{-}\text{dzɿ} \) ‘teachers’  
  (He & Jiang 1985: 44)
- b.  
  \( \text{mi}^{-}\text{cʰy}^{-} \) ‘woman’  →  \( \text{mi}^{-}\text{cʰy} \) ‘women’  
  (He & Jiang 1985: 44)
- c.  
  \( \text{zø}^{-}\text{cʰy}^{-} \) ‘man’  →  \( \text{zø}^{-}\text{cʰy} \) ‘men’  
  (He 1987:61)
- d.  
  \( \text{zy}^{-}\text{zy} \) ‘small child’  →  \( \text{zy}^{-}\text{zy} \) ‘small children’  
  (He 1987:61)
- e.  
  \( \text{çi}^{-}\text{ndɯ} \) ‘adult’  →  \( \text{çi}^{-}\text{ndɯ} \) ‘adults’  
  person-big
- f.  
  \( \text{la}^{-}\text{ppy}^{-} \) ‘Mount Baoshan’  →  \( \text{la}^{-}\text{ppy} \) ‘Baoshan inhabitants’  
  place name  
  (He 1987:61)
- g.  
  \( \text{pu}^{-}\text{ndzɿ}^{-} \) ‘carpenter’  →  \( \text{pu}^{-}\text{ndzɿ} \) ‘carpenters’  
  (He 1987:61)
- h.  
  \( \text{ko}^{-}\text{ndy}^{-} \) ‘mountaineer’  →  \( \text{ko}^{-}\text{ndy} \) ‘mountaineers’  
  mountain-place

Explicit expression of plurality in Naxi is subject to certain constraints. Human nouns may be suffixed with the morpheme \( hɤ \) or undergo tone change for plurality, but non-human nouns may not:

(7)  
- a.  
  \( \text{ni}^{-} \) ‘fish’  
  \( *\text{ni}^{-}\text{hɤ} \)  
- b.  
  \( \text{kʰu}^{-} \) ‘dog’  
  \( *\text{kʰu}^{-}\text{hɤ} \)  
- c.  
  \( \text{zwɑ}^{-} \) ‘horse’  
  \( *\text{zwɑ}^{-}\text{hɤ} \)
Naxi is thus similar to many languages that differentiate human from non-human nouns with respect to nominal plurality (Corbett 2000:56-58).

There are nevertheless some exceptions. Not all human nouns may be suffixed with hɤ˧ or undergo tone change for plurality:

(9)  a. zø˧ ‘male’ → *zø˧-hɤ˧ ‘males’  
    b. mi˥ ‘female’ → *mi˥-hɤ˧ ‘females’  
    c. nɑçi˧ ‘Naxi person’ → *nɑçi˧-hɤ˧ ‘Naxi people’  
    d. ʂʅ˧ka ‘butcher’ → *ʂʅ˧ka-hɤ˧ ‘butchers’

(10) a. nɑçi˧ ‘Naxi person’ → *nɑçi ‘Naxi people’  
     b. ndzɿ˧ ‘mate, friend’ → *ndzɿ ‘mates, friends’  
     c. dze˧ɣɯ˧ ‘nephew’ → *dze˧ɣɯ ‘nephews’  
     d. dze˧me˧ ‘niece’ → *dze˧me ‘nieces’

The base nouns therefore must be marked in the lexicon that they may or may not be pluralized with the suffix hɤ˧ or by tone change.

Given that the suffix hɤ˧ can be attached to human nouns, it is unsurprising that pronouns referring to persons too can be suffixed with the morpheme hɤ˧ (He 1987, He & Jiang 1985):³

³ In addition to the suffix hɤ˧ the suffix ŋɡɯ can also be used to pluralize pronouns (He & Jiang1985 and He 1987). Some pronouns take only ŋɡɯ while some others take either:

(i) a. ŋɤ˧ŋɡɯ ‘we (exclusive)’  
    b. ŋɤ˥ɡɯ ‘we (inclusive)’  
    c. nɯ˧ŋɡɯ ‘you (peer)’  
    d. thɯ˧ŋɡɯ ‘they (peer)’

(ii) a. nɑhɤ˧ or nɑnɡɯ ‘you (inferior)’  
    b. thɑhɤ˧ or thɑnɡɯ ‘they (peer)’
(11) a. \( nα \) ‘you (inferior)’ \( \rightarrow nαhɤ˧ \) ‘you pl. (inferior)’

b. \( wu˧ \) ‘you (peer)’ \( \rightarrow wu˧hɤ˧ \) ‘you pl. (peer)’

c. \( ηv˥ \) ‘you (superior)’ \( \rightarrow ηv˥hɤ˧ \) ‘you pl. (superior)’

d. \( wα˥ \) ‘you (peer/respectful)’ \( \rightarrow wα˥hɤ˧ \) ‘you, pl (peer/respectful)’

e. \( tα˧ \) ‘he (peer)’ \( \rightarrow tα˧hɤ˧ \) ‘they (peer)’

f. \( tʰe\gle\ima˧ \) ‘he (superior)’ \( \rightarrow tʰe\gle\ima˧hɤ˧ \) ‘they (superior)’

But there is no coding for plurality by tone on pronouns:

(12) \( wu˧ \rightarrow *wu˨ \)

‘you, sg (peer)’ ‘you, pl (peer)’

Proper names can be suffixed with the morpheme \( hɤ˧ \) as well, in a construction known as the associative plural (Daniel and Moravcsik 2011). The expressions in (13) denote groups of people associated with the person whose name the suffix \( hɤ˧ \) is attached to:

(13) a. \( α\lia˧-hɤ˧ \) ʦ\ɿ se

Alian come PERF

‘Alian and the others have come.’

b. \( ηv˥ \) ɑ˧ka˧-hɤ˧ ndø

1SG Agang saw

‘I saw Agang and others.’

But the proper name in the associative plural construction may not undergo the tone change rule in (4):

(14) a. \( α˧fa˧ \rightarrow *α˧fa˨ \)

‘Afan’ ‘Afan and others’

b. \( α˧ka˧ \rightarrow *α˧ka˨ \)

‘Agang’ ‘Agang and others’

Sequences comprising a (count) noun, a numeral and a classifier can be understood as singular or plural, depending on the meaning of the numeral. With the numeral \( ndɯ˧ \) ‘one’, the whole noun+numeral+classifier expression is singular, and with other numerals greater than one, e.g., \( sɿ \) ‘three’, the whole expression is plural (CL=classifier):

(15) a. \( sɿdzɿ˧ ndɯ˧ \) *(kv˥)

teacher one CL

‘A teacher’

b. \( ndzɿ˧ ndɯ˧ \) *(ndzɿ˨)

tree one CL

‘A tree’

c. \( cɿ˧ \) ndɯ˧ *(ly˧)

cup one CL

‘A cup’

As can be seen in (16), plurality need no explicit expression in the sequence noun+numeral+classifier:

(16) a. \( sɿdzɿ˧ sɿ˧ kv˨ \)

teacher three CL

‘three teachers’
b.  ndʒə˧ ŋɤv˧ ndʒə˧
   tree nine CL
   ‘Nine trees’

c.  cə˧ wə˥ ly˧
   cup five CL
   ‘Five cups.’

In fact, it is not possible to indicate plurality by hɤ˧ -suffixation or tone change on the noun when it co-occurs with a numeral greater than one and a classifier:

(17)  a.  sɿdzɿ˧ sɿ˥ kv˧
   teachers three CL
   ‘three teachers’

b.  *sɿdzɿ˧-hɤ˧ sɿ˥ kv˧
   teachers three CL
   ‘three teachers’

c.  *sɿdzɿ sɿ˥ kv˧
   teachers three CL
   ‘three teachers’

(18)  a.  çøse˧ wə˥ kv˧
   student five CL
   ‘five students’

b.  *çøse˧-hɤ˧ wə˥ kv˧
   students five CL
   ‘five students’

c.  *çøse wə˥ kv˧
   students five CL
   ‘five students’

The non-occurrence of the classifiers and explicit coding of plurality has led to a revived belief in the literature of recent years that the obligatory use of classifiers with numerals in nouns correlates with the lack of plural morphology (Chierchia 1996, 1998). We will return to this issue below (see section 4).

The base noun may appear before a partitive phrase, and the whole expression is semantically plural:

(19)  a.  sɿdzɿ˧ ndɯ˧ hwə˥
   teacher one group
   ‘A group of teachers’

b.  çøse˧ ndɯ˧ pa˧
   student one class
   ‘A class of students’

The noun before the partitive phrase may not be suffixed with the morpheme hɤ˧ or undergo tone change for plurality:

(20)  a.  *sɿdzɿ˧-hɤ˧ ndɯ˧ hwə˥
   teacher one group
   ‘A group of teachers’

b.  *sɿdzɿ ndɯ˧ hwə˥
   teachers one group
   ‘A group of teachers’
(21) a. *çøse˧-hɤ˧ ndɯ˧ pa˧
   ‘A class of students’
   student one class
b. *çøse˧ ndɯ˧ pa˧
   ‘A class of students’

The base noun, count or mass, can be followed by a quantified expression, e.g., *(ze˧ndɤ) ndɯ˧ pe˥ ‘many’ and ndɯ˧hɤ˧be˧ ‘all’ (ADV=adverb):

(22) a. sɿdzɿ˧ (ze˧ ndɤ ndɯ˧ pe˥)
   teacher very big one CL
   ‘Many teachers’
b. sɿdzɿ˧ ndɯ˧ hɤ˧ be˧
   teacher one CL ADV
   ‘All teachers’

(23) a. jì (ze˧ ndɤ ndɯ˧ pe˥)
   water very big one CL
   ‘A lot of water.’
b. jì du˧ hɤ˧ be˧
   water one CL ADV
   ‘All water’

It is noteworthy that the classifiers that occur with particular nouns elsewhere cannot replace of the classifier pe˥ used in conjunction with the quantifiers (ze˧ndɤ) ndɯ˧ ‘many’. For instance, the noun sɿdzɿ˧ ‘teacher’ co-occurs with the classifier kv˥ elsewhere, but not together with in the quantifier (ze˧ndɤ) ndɯ˧ ‘many’:

(24) a. sɿdzɿ˧ ndɯ˧ kv˥
   teacher one CL
   ‘A teacher’
b. *sɿdzɿ˧ ze˧ ndɤ ndɯ˧ kv˥
   teacher very big one CL
   ‘Many teachers’

(25) a. sɿɿ-ka˥ ndɯ˧ kv˥
   butcher one CL
   ‘A butcher’
b. *sɿɿ-ka˥ ze˧ ndɤ ndɯ˧ kv˥
   butcher very big one CL
   ‘Many butchers’

The quantifiers (ze˧ndɤ) ndɯ˧ pe˥ ‘many’ with the classifier pe˥ being part of it and ndɯ˧hɤ˧ be˧ ‘all’ are fixed expressions.

The base noun in a quantified phrase may not be pluralized by suffixation or by tone change:

(26) a. sɿdzɿ˧ ze˧ ndɤ ndɯ˧ pe˥
   teacher very big one CL
   ‘many teachers’
b. *sɿdzɿ˧-hɤ˧ ze˧ ndɤ ndɯ˧ pe˥
   teachers very big one CL
   ‘many teachers’
(27) a. *sɿdzɿ˧ ndɯ˧-hɤ˧-be˧ teachers one-ADV ‘All teachers’

b. *sɿdzɿ˧-hɤ˧ ndɯ˧hɤ˧-be˧ teacher- one-ADV ‘All teachers’

c. *sɿdzɿ ndɯ˧hɤ˧-be˧ teachers all(one+CL)-ADV ‘All teachers’

It is clear that numeral classifiers are in complementary distribution with explicit expression of plurality.

3. Plurality and definiteness

Noun phrases with explicit coding of plurality in Naxi are definite. Evidence for this comes from two sources. First, in contexts where a definite noun phrases are excluded, e.g., in the existential construction, the nouns cannot be suffixed with the morpheme hɤ˧ or carry low-rising tone for plurality:

(28) a. çi˧ ndʑy person be/exist ‘There is/are someone/people.’

b. çi˧ ndɯ˧ kv˥ ndʑy person one CL be/exist ‘There is someone.’

(29) a. *çi˧-hɤ˧ ndʑy˧ people be/exist ‘There are the people.’

b. *çi˧ ndʑy˧ person be/exist ‘There are the people.’

The contrast between (28) and (29) shows that the nouns with the suffix hɤ˧ observe the definiteness effect.

Second, definite noun phrases, e.g., those with a demonstrative, cannot appear as predicate nominals:

(30) a. ɑ˧ka˧ çi˧ tʂʰʅ˧ kv˥ ndø Agang person this CL see ‘Agang saw that person.’

b. *ɑ˧ ka˧ çi˧ tʂʰʅ˧ kv˥ wɑ Agang person this CL be ‘Agang is that man.’

Nouns explicitly coded for plurality with the suffix hɤ˧ or tone change cannot occur in predicate position either (DEM=demonstrative, PL=plural, POSS=possessor):

(31) a. tʰɯɾi-ŋɡɯ [ ŋɤ˧ gɤ˧ sɿdzɿ˧ (*-hɤ˧)] wɑ˧ 3PL lSG POSS teacher be ‘They are my teachers.’
b. \text{tʰɯ˧-ŋɡɯ [ sɿdzɿ˧ (*-hɤ˧) sɿ˧ kv˥ ] wɑ˧}  \\
\text{3PL teacher three be}  \\
\text{‘They are three teachers.’}  \\
c. \text{tʰɯ˧-ŋɡɯ sɿ˥ (kv˧) [ sɿdzɿ˧ (*-hɤ˧) ] wɑ˧}  \\
\text{3PL three CL teacher be}  \\
\text{‘They three are teachers.’}  

(32) a. \text{*tʰɯ˧-ŋɡɯ ŋɤ˧ gɤ˧ sɿdzɿ wɑ}  \\
\text{3PL 1SG POSS teachers be}  \\
\text{‘They are my teachers.’}  \\
b. \text{*tʰɯ˧-ŋɡɯ tʰɯ˧ sɿdzɿ wɑ}  \\
\text{3PL DEM teachers be}  \\
\text{‘They are those teachers.’}  

It is thus clear that 
$hɤ˧/$-suffixation or tone change on base nouns by rule (4) in Naxi not only explicitly expresses plurality but also definiteness.

4. Some typological considerations

From a typological perspective, the expression of nominal plurality in Naxi is of special interest. The coding of plurality together with definiteness embodied in the same morpheme is apparently quite rare. To our knowledge, three other cases that are similar to Naxi with respect to the coding of plurality and definiteness is Chinese, Khmer (Ehrman 1970:43) and Maori (Bauer 1993:110) (the latter two are according to Dryer 2011). Noun phrases with the suffix -$mɛn$ in modern Chinese (cf. Li 1999) or the prefix $zhǔ$ in Classical Chinese (Meisterernst 2012) are interpreted as both plural and definite. Just as in Naxi nouns suffixed with or undergone tone change for plurality, nouns with the suffix -$mɛn$ in modern Chinese cannot occur in the existential construction, as shown in (33a):

(33) a. \text{zài kēshí lĭ yŏu xuéshēng(*-mén).}  \\
\text{Be classroom in have student-PL}  \\
\text{‘There are students in the classroom.’}  \\
b. \text{gū yú líng zhū ēr gè jù yī zhōu yē.}  \\
\text{I wish order PL son each occupy one province FIN}  \\
\text{‘I want each of the sons to occupy one of the provinces.’}  

In the example in Classical Chinese in (33b) (Meisterernst 2011:153), the noun phrase $zhǔ ēr ‘sons’ has to be understood to refer to a definite group of sons, i.e., those that have already been mentioned in the discourse. Our study of Naxi plurality adds one more language to this typologically rare class of languages that code plurality and definiteness in the same morpheme.

In many languages, definiteness is expressed independently of plurality. Thus, a definite noun phrase, typically marked in the form of a determiner or a demonstrative, can be either singular or plural. As well, a definite plural noun phrase contains two different morphemes, one for definiteness and one for plurality.

In Naxi, a noun phrase with a demonstrative cannot be pluralized by suffixation or tone change:\footnote{Besides the proximal demonstrative $tʰɤ˧’this’, the medial demonstrative $tʰɯ˧’that’ and the distal demonstrative $ʔɤ˥tʰɯ˧ ‘that over there, yonder’ may also take the morpheme -$hu˧$ for plurality. The combinations $ndɯ˧-hu˧$ ‘some’ (*‘one’) and $ʔɑ˧ʦɿ˧-hu˧$ ‘what for things’ (*‘what’) are indefinite plurals. We thank Peter Jenks for drawing our attention to this point.}

(34) a. \text{sɿdzɿ˧ tʂʰʅ˧-hu˧}  \\
\text{teacher this-PL}  \\
\text{‘These teachers.’}  

b. *sɿdzɿ˧-hɤ˧ tʂʰɿ˧-hu˧
   teacher this-PL
   ‘These teachers.’

c. *sɿdzɿ tʂʰɿ˧-hu˥
   teachers this-PL
   ‘These students.’

The ungrammaticality of the examples in (34b, c) is perhaps due to definiteness being doubly expressed, by both the demonstrative and the suffix $hɤ˧$ or tone change.

Definiteness and plurality are two independent semantic categories; the former having to do with discourse participants and the latter with number. To the extent that different semantic categories correspond to different syntactic categories, definiteness and plurality should be expressed by different syntactic categories. Our study of plurality in Naxi shows that languages may in fact deviate from this expectation in expressing these different semantic categories in one morphosyntactic unit.5

In a comparative study of several languages including English, Chinese, the Sino-Tibetan languages Qiang and Tsanglo, the indigenous Taiwanese languages Paiwan and Squid Atayal and Amis in the Austronesian language family, Tang (2004) argued that the analysis of plurality should be related to the distinction between languages with a rich inventory of classifiers and those with a modicum of classifiers. She suggests that plurality in the former languages is part of an abstract feature system, while that in the latter is part of a morphological system. More specifically, plurality in classifier-rich languages is expressed morphologically as part of a feature complex. Along these lines, then, the Naxi suffix $hɤ˧$ is not a marker exclusively for plurality, but has a feature complex consisting of the features [+definite] and [+human] in addition to the feature [+plural]. By contrast, the morphological expression of plurality in classifier-poor languages like many Indo-European languages is virtually exclusively for the number feature.

The complementarity of explicit expression of plurality and the presence of a numeral classifier in noun phrases (see section 2) has a direct bearing on Greenberg’s (1974:25) claim regarding the correlation between numeral classifiers and lack of obligatory plural marking:

(35) Numeral classifier languages generally do not have compulsory expression of nominal plurality, but at most facultative expression.

Depending on how it is to be understood, the statement in (35) may or may not bear out the facts in Naxi.

If it is meant to assert that languages with numeral classifiers as a whole do not have obligatory plural marking, then Naxi is not a counterexample to the claim in (35). This situation is just the same as that in Northern Kam and Weining Ahmao (Bisang 2012). However, if it is read this way, then the claim in (35) is rather weak, as Bisang (2012:37) observed. It should nonetheless be pointed out that empirically weak statements in and of themselves are not particularly problematic, insofar as they are not contradicted by the empirical facts.

If the statement in (35) is understood to mean that when a numeral classifier appears, then no explicit expression of plurality is possible, then it may be problematic. It is indeed the case that numeral classifiers are in complementary distribution with pluralization by suffixation or tone change. But as Gerner (2006) showed, Northern Kam obligatorily employs plural forms of the classifiers for plural noun phrases. If the plural forms of the classifiers are taken, quite reasonably, to be the explicit expression for plurality, then the claim in (35) is empirically incorrect. To the extent that these plural forms, apparently, contain no segmental or suprasegmental morpheme that exclusively indicates plurality, the use of plural classifiers in plural noun phrases in Northern Kam are not necessarily counterexamples to Greenberg’s claim in (35), if we take

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5 Corbett (2000:278) attributed to Dick Hayward (personal communication) the description that in the Omotic language Gamo any noun phrase marked as plural must be definite. As no example is given for the description, it remains unclear whether the two notions plurality and definiteness are expressed in the same morpheme in this language.
explicit expression of plurality to be by a specific morpheme that must occur whenever plurality is expressed.

If we take expression of nominal plurality to mean that it is expressed by a specific morpheme, then Naxi conforms to Greenberg’s claim regarding the relation between numeral classifiers and compulsory expression of nominal plurality. It is indeed the case in Naxi that whenever a numeral classifier occurs, explicit expression of plurality is impossible.

5. Conclusion
In the foregoing sections, we provided a detailed description of the morphosyntax of nominal plurality in Naxi. The language does not apply a rule of pluralization, either by suffixation with the morpheme ɦɤ˧ or by tone change, to all nouns, but only selectively to human nouns. We showed that plurality in Naxi is closely connected with the semantic property of definiteness.

Typologically, Naxi is of special interest, for belongs to a very small class of languages that code nominal plurality by tone. Moreover, the fact that plurality and definiteness may be embodied in the same morpheme in Naxi shows that particular languages do not necessarily realize different semantic notions in different morphosyntactic categories. Facts in Naxi are consistent with numeral classifiers not requiring explicit expression of nominal plurality. In fact, it is even stronger; the two cannot co-occur. The study of Naxi in comparison with other languages thus helps refine the understanding of Greenberg’s universal in (35).

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