Evidence from Atlantic for a recently grammaticalized classifier system in early Niger-Congo

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Gender across Niger-Congo workshop
Humboldt-Universität zu Berlin
November 30, 2018

Introduction

The reconstructed noun class systems of a number of Northern Atlantic language families show properties that are quite different from the “prototypical” Bantu system.

1) A much larger inventory of (non-plural) classes
2) A relatively small number of plural classes
3) Phonologically larger shapes for class markers (CVC)
4) Narrower, more identifiable semantic criteria for class membership

All of these properties are suggestive of a more recently grammaticalized class system

This suggests that the early Niger-Congo class system (or systems?) was not of a Bantu type with ~10 singular classes and a corresponding plural class for most of them

Rather, early Niger-Congo likely had a large inventory of classes that were quite recently grammaticalized from free classifier words

This original state of the early Niger-Congo class system can account for a number of the distinctive properties of modern NC class systems, notably the relation between class and number

Roadmap

I. Systems of noun classification

II. Grammaticalization path of noun class systems

Properties of Northern Atlantic noun class systems

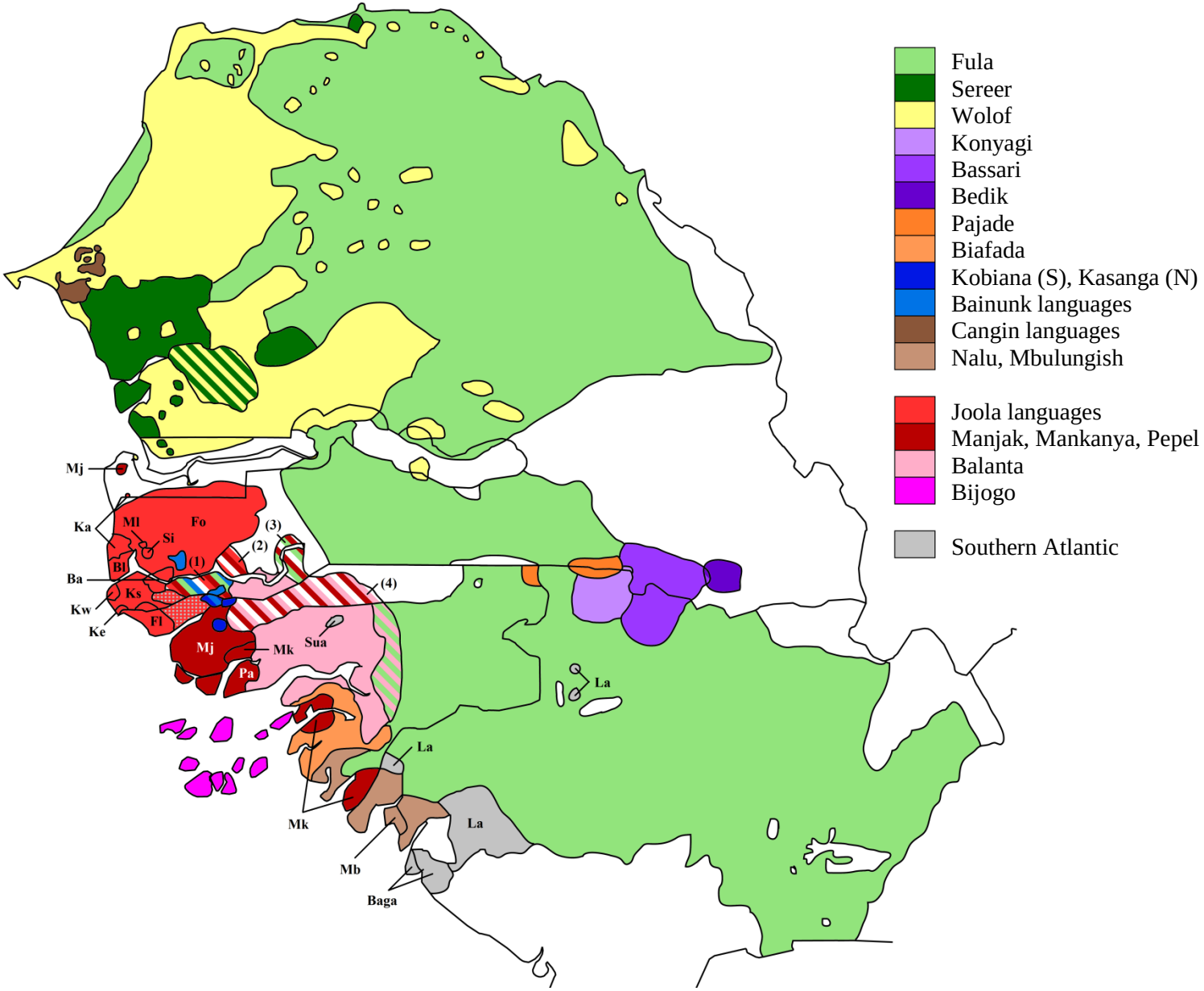
III. Shape of the class markers

IV. Number of classes

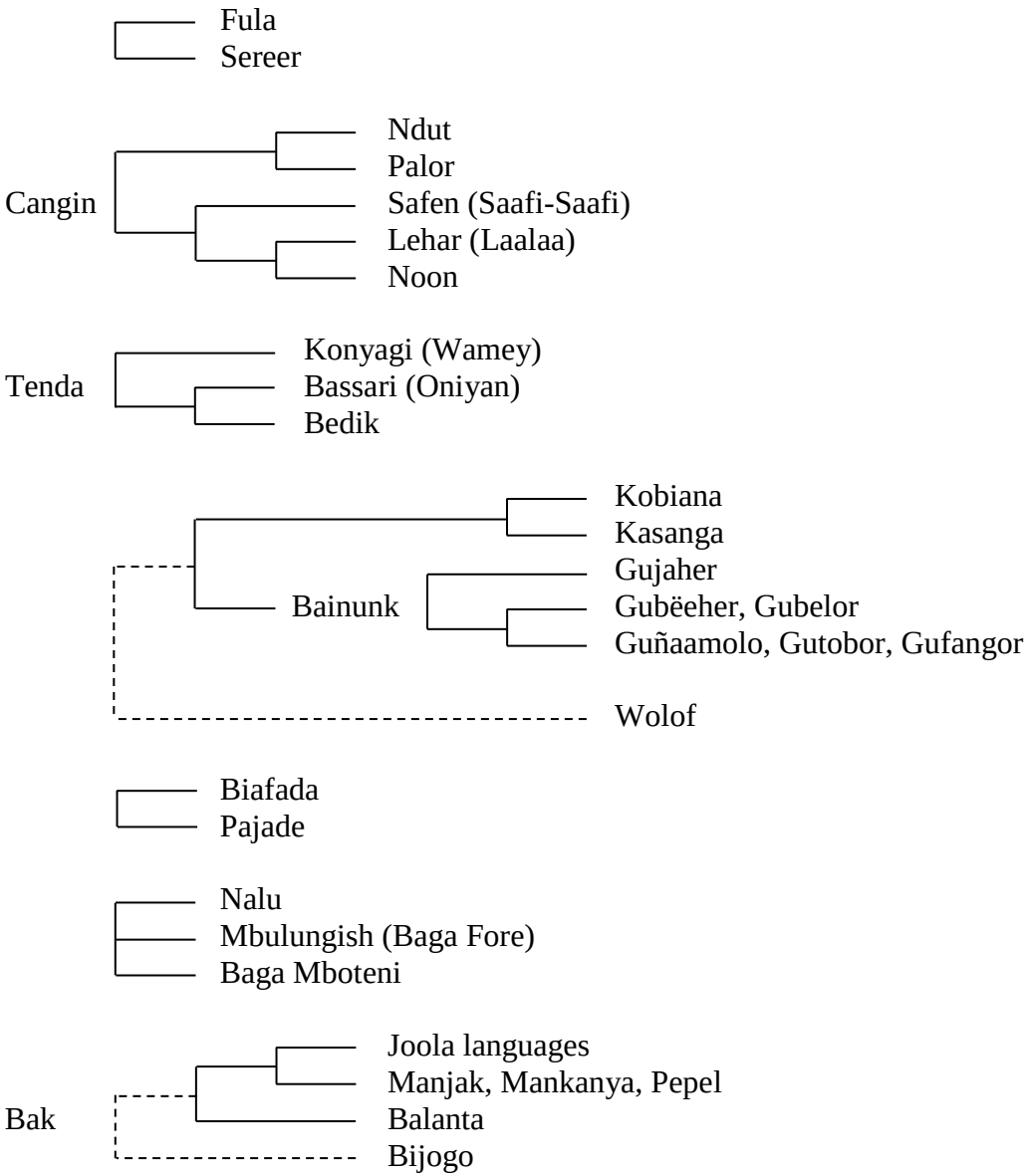
V. Semantic component of classes

VI. Expression of plurality

The Northern Atlantic languages



The Northern Atlantic languages



I. Systems of noun classification

Systems of noun classification

Grinevald (2002: 261) makes the following basic distinction between “classifiers” and “noun class”:

CLASSIFIERS
- Numeral classifier systems (e.g. East and South Asian languages)
- Noun classifier systems (e.g. Qanjob’al, Yidiny)
- Genitive classifier systems (e.g. Ponapean)

NOUN CLASSES
- Noun class systems (e.g. Bantu, Miraña, Dyirbal)
- Gender systems (e.g. Indo-European)

For the distinction between numeral and noun classifier systems, Grinevald invokes the following English parallels:

<u>Measure terms (cf. numeral classifiers)</u>
a glass of water, a pound of sugar, a slice of bread, a pile of books, a group of children, a line of cars

<u>Class terms (cf. noun classifiers)</u>
strawberry, blueberry, raspberry, boysenberry, gooseberry ...
apple tree, banana tree, orange tree, cherry tree ...
mailman, policeman, garbage man ...

Grinevald and others argue that these exact types of structures are the ultimate origin of each respective system

Japanese: numeral classifier system

(1) 犬　二　匹
inu　ni　hiki
dog　two　CL
‘two dogs’

(2) 七　人　の　侍
shichi　nin　no　samurai
seven　CL　GEN　samurai
‘seven samurai’

- Large inventory of classifiers (>100)
- Classifiers are free words, often existing also as non-classifiers
  - Though in Japanese most classifiers are of Sino-Japanese origin, found mainly in compounds
- Only employed when modified by a numeral (or quantifier; and demonstratives in Chinese)
- No number distinction for classifiers

Qanjob’al: noun classifier system

(3) xil [naj xuwan] [noʔ lab’a]
saw CL John CL snake
‘John saw the snake’ (Aikhenvald 2000: 82)

- 13 classifiers (cf. 19 in Yidiny, at least 30 in Minangkabau)
- Classifiers are free words, most with a clear grammaticalization source, but phonologically reduced
- Usually employed alongside a noun, though they are only required in certain constructions, and some nouns are not classified (but classifiers are rapidly spreading to these nouns: Duncan 2011)
- Classifiers are used as pronouns
- No number distinction for classifiers

Note: Relatively few languages are described as “noun classifier” languages, because the definition excludes the possibility of agreement

- They are common in Australia, are found in Qanjob’al and some adjacent Mayan languages, and in some Austronesian languages (at least Minangkabau and perhaps some Chamic languages)
- It seems that these systems rapidly grammaticalize into noun class systems showing agreement—note that many more languages (especially in South America) are cited as “recently grammaticalized noun class systems” and have a very large number of classes

Miraña (Bora): early noun class system

(4) íhka-ko tsa-ko mɯ́hɯː-ko pihhɯ́-ko
COP-CL one-CL big-CL fish.NMZ-CL
'There is one big fishing rod' (Seifart 2009: 19)

- Over 400 (!) classes (cf. 56 in neighboring Resígaro, most of which are borrowed from Bora; Aikhenvald 2001: 186)
- Class markers are suffixes
- Some nouns are not classified— but often a class suffix can be added to yield a new noun (*ko:* 'wood,' *ko-ʔba* 'a log')
- Agreement is obligatory for classified nouns
- No number distinction for classes

II. Grammaticalization path of noun class systems

Grammaticalization path of noun class systems

It is (I believe uncontroversially) assumed that noun class systems always grammaticalize from classifier systems (or else are borrowed) (see McGregor and Wichmann 2018)

- Crucially, this development is said to be unidirectional by Grinevald and others

It is less clear whether class systems can come from numeral classifier systems, or only noun classifier systems

- Kießling (2013) argues that the ultimate origin of Niger-Congo noun class is a numeral classifier system
- A noun classifier system seems to me more likely, but numeral classifiers are certainly possible

Aikhenvald (2000) and Grinevald (2002) both distinguish between classifier systems and noun class systems based on a set of properties. Grinevald gives the following:

NOUN CLASSES	CLASSIFIERS
classify all nouns	don't classify all nouns
in a small number of classes	**in large(r) number**
closed system	open system
fused with other categories (number, case...)	**not fused**
can be marked on N	not marked on N itself
in concord/agreement pattern	not part of concord systems
N assigned to one class	**can be assigned to several classes**

But "early" noun class systems show properties in the CLASSIFIERS column

Evolution of noun class systems

As noun class systems evolve and become further grammaticalized, they tend to undergo the following changes:

more classes → fewer classes
clearer semantics → semantics are not clearly identifiable
free words → (clitics) → affixes
phonologically larger classifiers → eroded shape
no agreement → agreement in noun phrase → verb agreement

The stages on the next slide can be proposed as one possibility for how a class system can evolve

The question I aim to address here is which of these broad stages best matches the original Niger-Congo class system

It seems that something akin to stage 3 (like Bantu) is often assumed

I will argue based on evidence from Northern Atlantic languages that it was in fact more recently grammaticalized (stage 2)

Assuming this original state can help to account for a number of the properties of Niger-Congo class systems noted in Güldemann and Fiedler (2017)

Stage 1: Free classifier words

- Grammaticalized from open class words (generally nouns)
- May be optional, or only required in certain constructions
- Often some degree of phonological reduction
- Very large inventory of classifiers is possible (~15 to hundreds)— still may not be a closed class
- (*Japanese*, *Chinese*, *Assamese*, *Yidiny*, *Qanjob'al*)

Stage 2: Early noun class system

- Classifiers are grammaticalized as affixes
- Further phonological reduction— often all monosyllabic
- Fewer classes, as classes are lost or merged
- Agreement within the noun phrase generally becomes obligatory
- (*Miraña*, *Resígaro*, Bainunk Gubëeher?, Kobiana?)

Stage 3: Evolved noun class system

- Even fewer classes
- More phonological reduction— often maximally CV or VC
- Class-agreeing pronouns are often (but not always) grammaticalized as verb agreement
- (Bantu languages, Sereer, Tenda languages, Joola languages, Temne, *Yanyuwa*, *Mufian*)

Stage 4: Late noun class system

- Even fewer classes
- Very phonologically reduced markers (often C or V)— class may only manifest in agreement
- Historical class markers may be "frozen" on nouns, not always synchronically segmentable
- (Wolof, Cangin languages, *Ingush*)

Stage 5: Further reduction and ultimately loss

Evolution of noun class systems

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III. Shape of class markers

Shape of class markers

A general principle is that the more grammaticalized the class marker, the smaller its shape

Noun or numeral classifiers can be quite large (Japanese 拍子 *hyōshi* for musical beats, Minangkabau *batang* for trees)

- But even these are often reduced from their grammaticalization source

Qanjob'al (Duncan 2011: 69):

Classifier	N source	Semantics
ix	ix	female
naq	winaq	male
xal	?	(older or respected) female, natural elements
cham	icham	(older or respected) male, natural elements
no(')	no'	animal
an	anej	plant/vegetable
te(')	te'ej	tree/wood
ch'en	ch'enej	rock/metal
(i)xim	ixim	corn
tx'(otx)	tx'otx'ej	land/soil
tx'an	tx'anej	fiber/rope
q'a(q)'	q'aq'ej	fire
tz'am	atz'am	salt

Shape of class markers

Within noun class systems, it is common for markers to become eroded over time

- In Atlantic, Wolof and the Cangin languages use single consonant markers, and Bassari and Sereer use mostly single vowel markers
- But comparative evidence shows that these were once larger

Phonologically reduced Bassari prefixes:

Bedik	Bassari
jə-I	i-I
ga-III	a-III
ge-III	e-III
go-III	o-III
gẹ-III	Ø-III
ña-I	e-I
ña-III	i-III
ma-I	o-I
ma-II	o-II
ma-III	o-III

Wolof classes with possible Kobiana cognates:

Wolof	Kobiana
b-	bu-I, ba-II
g-	gu-I, gu-III, ka-III
j-	ji-I, ja-I, ja-III
ñ-	ña-III
k-	ku-I
m-	ma-I
s-	si-II

Our conception from most Niger-Congo languages is that markers are maximally CV as in Bantu or Gur

- But in Atlantic a number of languages have CVC class markers
- And historically, the number of CVC markers was even greater than in the modern languages

Shape of class markers: Fula

Fula most clearly preserves CVC class markers, as many of its class suffixes have a final consonant

Zero	Continuant	Stop	Nasal	Semantics	Grade	Dialect
-o	-jo / -wo	-ɗo / -ko	-ɗo	personal	II	
-ɓe	-ɓe (-’en)	-ɓe	-ɓe	personal pl.	I	
-(e)re / -de	-(e)re	-de	-nde	(round)	I	
-(i)ri / -di	-(i)ri / -di	-di	-ndi		III	
-(u)ru / -du	-(u)ru / -du	-du	-ndu		I	
-al	**-wal**	**-gal**	**-ngal**	(long & rigid)	II	
-ol	**-wol**	**-gol**	**-ngol**	(long & flexible)	II	
-a	-wa	-ba	-mba		III	
-e	-ye	-ge	-nge		I	
-o	-wo	-go	-ngo		I	
-u	-wu	-gu	-ngu		III	
-a	-ha	-ka	-ka		III	
-i	-hi	-ki	-ki	(trees)	II	
-o	-ho	-ko	-ko	(leaves)	I	
-am	**-jam**	**-ɗam**	**-ɗam**	liquids	III	
-um	**-jum**	**-ɗum**	**-ɗum**	‘neuter’	II	N
-el	**-yel**	**-gel**	**-ngel**	dimin.	II	
-al	**-hal**	**-kal**	**-kal**	dimin.	II	
-um	**-yum**	**-gum**	**-ngum**	dimin.	II	N
-ol	**-hol**	**-kol**	**-kol**	dimin.?	II	N
-oñ	**-hoñ**	**-koñ**	**-koñ**	dimin. pl.	III	
-a	-wa	-ga	-nga	augm.	III	N
-ii	-yii	-gii	-ngii	augm.	III	P
-o	-ho	-ko	-ko	augm. pl.	III	N
-e	-je	-ɗe	-ɗe	pl.	II	
-i	-ji	-ɗi	-ɗi	pl.	II	

Shape of class markers: Bainunk

In Bainunk languages, about one third of class markers have a final homorganic nasal

Bainunk Gubëeher (Cobbinah 2013):

ba-	bi-	bu-	da-	di-	diN-
e-	fa-	fuN-	gu-	ha-	ho-
hu-	i-	iN-	ja-	ja(N)-	ji-
ka-	kaN-	ko-	kuN-	muN-	ñaN-
ño-	pi-	raN-	si-	siN-	ta-
tiN-	u-				

These final nasals correspond to grade III (nasal) mutation in the closely related Kobiana and Kasanga

Bainunk (Gubëeher)	Kobiana
kaN-	ka-III
kuN-	ku-III
tiN-	ti-III
diN-	di-III
ja(N)-	†ja-III
siN-	si-III
muN-	mu-III
ñaN-	ña-III
guN- (Gujaher)	gu-III

Consonant mutation as a result of CVC markers

In fact, consonant mutation in all Atlantic groups is largely the result of earlier CVC class markers in which the final consonant fused with the root-initial consonant

CV-	>	grade I (unmutated/lenis)
$CVC_{[oral]}$-	>	grade II (geminate/fortis)
CVN-	>	grade III (prenasalized)

Even in languages with very reduced synchronic class markers, many markers can be reconstructed as CVC by internal and comparative reconstruction

Sereer is a good example

- Modern class markers on nouns are (C)V- or null, each triggering a particular mutation grade
- Class markers on determiners are (V)C-
- The Ñominka dialect contains seemingly less eroded markers (in parentheses in the chart on the next slide)

Sereer noun class system

Sg. Noun	Adj.	Grade	Determiner	Note
o-	o-	II	ox-	personal class
(gi-)/Ø	(gi-)/Ø	III	n-	
Ø-	fa-	any(n.)/III(adj.)	f(an)-	
fa-	fa-	III	f(an)-	
(gi-)/Ø	(gi-)/Ø	I	l- (r- in Njagañaaw dialect)	
(g)o-	(g)o-	I	ol-	
(g)o-	(g)o-	II(n.)/I(adj.)	ol-	
(g)a-	(g)a-	II	al-	
(g)a-	(g)a-	III(n.)/II(adj.)	al-	
ga/a-	(g)a-	III	al-	augmentative
gi-	a-	III	al-	aug. (Saalum only)
o-	o-	III	ong-/onq-	diminutive
fo-	fo-/o-	I	ol-	liquids (some dialects)

Pl. Noun				Pl. of:
Ø-	Ø-	I	w-	*oxe*
Ø-	Ø-	II	k-	*ne, fe, nasal ale*
a-	a-	II	ak-	*le, ale*
xa-	xa-	II	ax-	*ole*, non-dimin. *onqe*
(g)a-	a-	III	ak-	*ga- aug.*
gi-	a-	III	ak-	*gi- aug.*
(fi)/fo/fu-	(fi)/fo/fu-	III	n-	diminutive *onqe*

Reconstructing CVC markers: Sereer

The general principle of internal reconstruction is to assume that multiple allomorphs of the same morpheme can be traced back to a single non-alternating form

Using this principle we can reconstruct a number of CVC- class prefixes purely from Sereer-internal evidence

(g)a-ɟat	al-e	<	*gal-ɗat	gal-e
(g)a-II	al-	<	*gal-	gal-
‘the road’				

xa-ɓox	ax-aana	<	*xax-ɓox	xax-aana
xa-II	ax-	<	*xax-	xax-
‘those dogs’				

(gi)-mbaal	n-um	<	*gVn-baal	gVn-um
(gi)-III[1]	n-	<	*gVn-	gVn-
‘which sheep?’				

[1] This prefix is *gu-III* in the earliest Sereer wordlist (late 17th century; found in D’Avezac 1845), and /u/ > /i/ in the Ñominka diminutive plural class *ɟi-III*— so from internal evidence the vowel in this marker could be *u

Reconstructing CVC markers: Fula-Sereer

Comparison with Fula confirms a number of these markers, and provides evidence for other CVC markers that cannot be reconstructed from purely Sereer-internal evidence

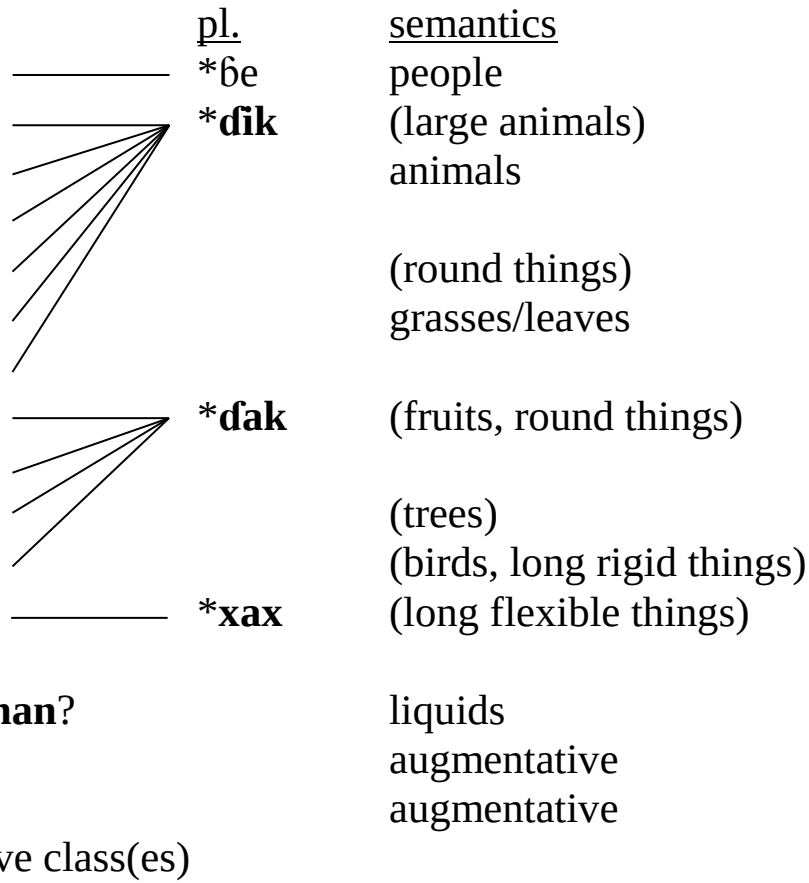
Proto-FS	Sr. N prefix	Sr. det. prefix	Fula marker
*gal	(g)a-II	al-	II- -al~wal~gal~ngal
*gun	(gi)-III	n-	III- -u~wu~gu~ngu
*ɗik	Ø-II	k-	II- -i~ji~ɗi~ɗi
*rin	(†i-)III[2]	n-	III- -iri~ri~di~ndi

Proto-FS	Sereer	Fula	
*gal-ɗat	(g)a-ɟat (al-e)	ɗat-al (ngal)	‘(the) road’
*gun-baal	(gi-)mbaal (n-e)	mbaal-u (ngu)	‘(the) sheep’ (sg.)
*ɗik-baal	paal (k-e)	baal-i (ɗi)	‘(the) sheep’ (pl.)
*rin-ɗaw	(†i-)ndaw (n-e)	ndoo-ndi (ndi)	‘(the) ash’

In the reconstructed Proto-Fula-Sereer class system, most class markers are of a CVC shape

[2] The prefix *i-* is found in the 17th century wordlist. Modern Ñominka has extended *gi-* to these words, and other dialects have Ø.

Reconstructed Proto-Fula-Sereer noun class system



Reconstructing CVC markers

Similar methods can reconstruct consonant-final markers for Tenda (**er-*, **max-*, **geŋ-*, etc.)

CVC markers are also attested in Bainunk-Kobiana-Kasanga and Biafada-Pajade, though here the identity of the earlier final oral consonants cannot be determined

CVC prefixes can be reconstructed for Wolof based on mutation patterns and some fossilized prefixes on nouns

- ***gan****cax* 'vegetation' from *sax* 'sprout'
- ***bàn****neex* 'pleasure' from *neex* 'please')

There is some evidence from Biafada for contrastive long vowels in class markers, as well as a single Proto-Tenda class marker **aa-* (personal sg.)

Note: Previous analyses have attributed these larger markers to a poly-morphemic origin— I'll briefly address this in the next section

IV. Number of classes

Number of classes

We expect more recently grammaticalized noun class systems to have a higher number of classes

The general tendency is to lose classes through time— though individual new classes can certainly be innovated

As such it is significant that there is evidence for a high number of classes in the history of multiple Northern Atlantic groups

Most modern Northern Atlantic languages have a number of classes comparable to Bantu (or fewer), but there are some important exceptions

- Note: The chart on the following slide gives the number of agreement classes— there are often more noun form classes

Number of classes in Northern Atlantic languages

	sg./coll.	pl.	overlap	
Fula (Gombe)	**21**	**5**		
Sereer (Siin)	9~10	6	Ø-II k-	
Bassari	9	9	o-III, o-I	
Bedik	10	9	ma-III, o-I	
Konyagi	**24**	**9**		
Biafada	**18**	**9**		
Pajade	15	0?		
Kobiana	**30**	**14**	ma-I, ba-I, ja-I, di-III	
Bai. Gubëeher	**26**	**8**	muN-, ja-	
Bai. Guñaamolo	**16**	**12**	ba-	(collectives have become plural)
Wolof	8	2		
Noon	8	3	t-	
Safen	8	2		
Ndut	4	1		
Joola Eegimaa	12	6	e-	
Bayot	8	7		(but 20 distinct prefixes on nouns)
Manjak	10	5		
Balanta	5	3	Ø	
Bijogo	14	5	5 overlap	
Nalu	1	2		
Mbulungish	8	6		(but Wilson gives 19 total classes)

Number of classes: Bainunk-Kobiana-Kasanga (BKK)

The BKK group exhibits a very high number of noun classes even synchronically (see the Kobiana class system on next slide)

The number of classes is so high in BKK languages that it led to the mistaken claim that Bainunk languages use phonologically-based agreement, where the agreement marker simply copies the initial CV of the noun, no matter what it is (Sauvageot 1976)

- This claim is now known to be false— the "phonological agreement markers" are in fact real noun class markers, and truly unprefixed nouns take a default agreement pattern
- But with so many classes, it's easy to see how someone could get this impression

Proto-BKK can be reconstructed with a high number of classes— over 30 non-plural classes conservatively, and perhaps closer to 50 (see following slide)

Kobiana class system

sg./coll.	sg./coll. agr.	pl.	pl agr.	note
a-I	a-I	ga-I	ga-I	
a-II	a-II			
ba-I	ba-I			vegetable collective
bu-I	bu-I			
bu-III	bu-III			*bú-kkaab* ‘bed’
ja-I	ja-I			plant, etc. collective
pu-	pu-III			
(t-)	ti-III			*táandi* ‘clay’
si-II	si-III			*sí-ggəh* ‘eye’
pa-III	pa-III	ba-I	ba-I	single grain/bead, etc.
gu-III	gu-III	ŋa-III	ŋa-III	
ka-III	ka-III			
ka-?	ka-III	(ma-)	ma-I	*ká-maafe(n)* ‘fish’
gu-I	gu-I	ŋa-I	ŋa-I	long+rigid, misc.
si-?	si-III			*si-núf* ‘ear’
ji-I	ji-I			‘hand, slap, left, right’
Ø	a-I	-a	ga-I	
†ba-II	a-I			
†ja-III	a-I			insects
†ji-I	a-I			animals
ba-III/I	ba-III			
di-I	di-III			millet collect., ‘dirt’
fa-I	fa-III			
(k-)	ku-III			*kooh* ‘fire’
ta-I/III	ta-III	ja-I	ja-I	
ta-II	ta-II			*tá-ppe(r)* ‘foot’
u-I	u-I	i-I	i-I	*ú-li* ‘person’
		(b-)	bi-I	*wal / beel* ‘child(ren)’
na-	a-I	ja-I	i-I	people (2 *na-* nouns)
ku-I	ku-I	ku-I	ku-I	*koñ* ‘thing,’ etc.
sa-III	sa-III	ña-III	ña-III	flat, misc.
si-III	si-III	ñi-III	ñi-III	mostly long+flexible
u-III	u-III	da-III	da-III	trees
u-	a-I	ŋu~ngu-	ŋu~ngu-III	borrowings
tu-	tu-	ni-I	ni-I	diminutive
da-I, fa-III	da-I, fa-III	di-III	di-III	augmentative

sg./coll.	sg./coll. agr.	note
ba-II	ba-II	deverbal
gu-I	gu-I	languages
i-	a-I	‘cola nut’ coll.
ka-III	ka-III	‘tomato’ coll.
ma-I	ma-I	liquid
ma-III	ma-III	‘manioc’ coll.
mu-I/III	mu-III	‘marrow, brain’
nu-III	nu-III	*nú-na* ‘place’

Number of classes: Bainunk-Kobiana-Kasanga (BKK)

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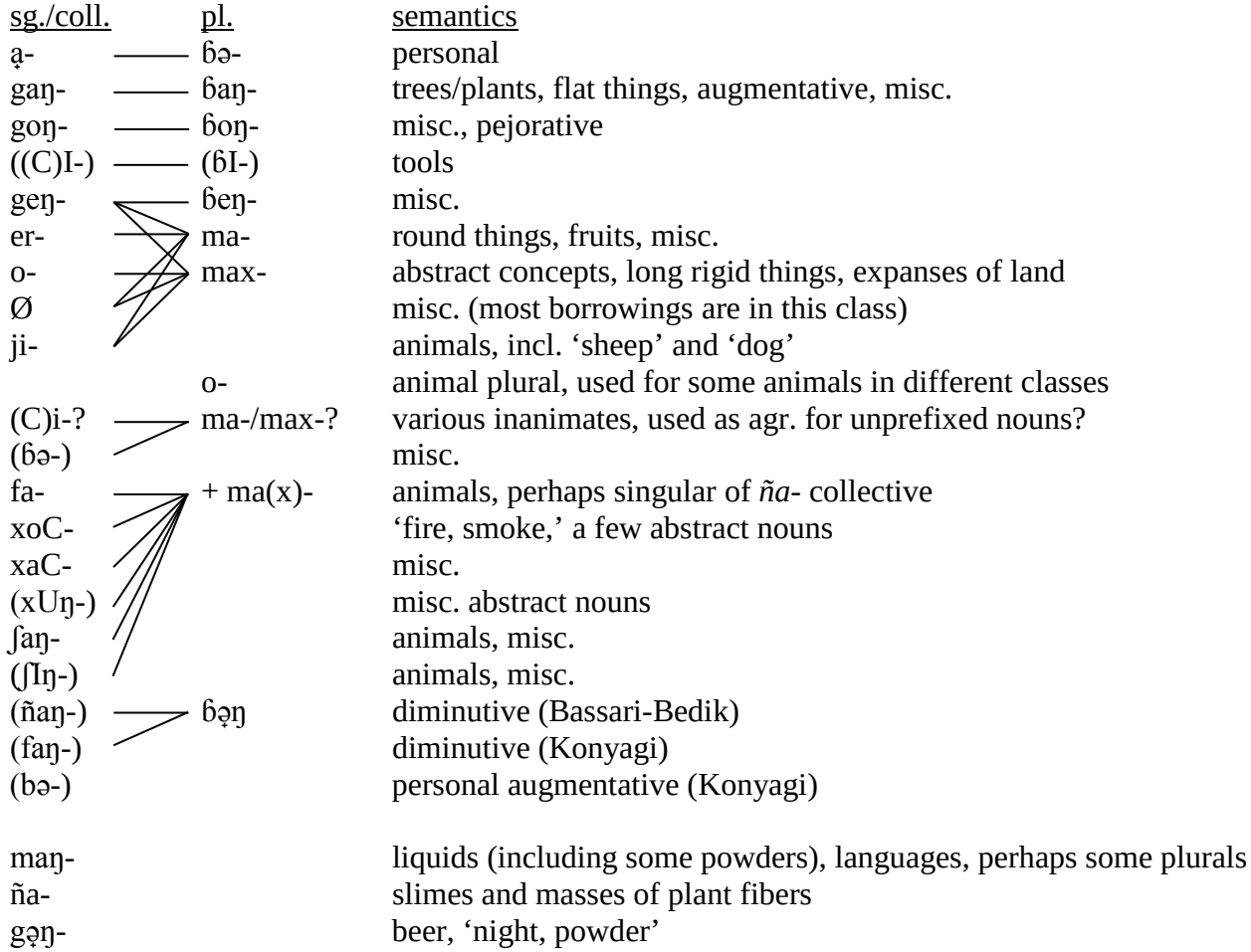
Proto-Bainunk-Kobiana-Kasanga noun class system

singular/plural classes		semantics
a-	-aŋ	animals (insects?), misc.
ba^{X}-		animals, misc.
fa-		animals: ‘goat,’ etc.
jaN-		dangerous reptiles, insects?, misc.
ji-		animals (dog-sized)
ka-		‘fish’
kuN-		‘fire’
ta-	ja-	cloth (pl. = collective *ja*-), birds (pl. -*aŋ*)
(ta^{X}-)	?	‘foot’
u-	i(N)-/ja-	humans
	(bi-)	‘child’
(raN-)	ñaN-	crabs, ‘scorpion, rooster, roof’
(saN-)		flat, leaves
siN-	?	string/rope-shaped
kaN-	?	concave or convex
(a^{X}-)	(ga-)	small and round
bu-	i-	misc. (round)
(bi-)		misc. (round)
si^{X}-		‘eye’
gu-	ha-	long and rigid, languages, ‘speech,’ misc.
ki-		‘ear, leg, (arm)’
(ji-)		‘hand/arm’
(uN-)	(daN-)	trees
(ki-)	(muN-)	trees
(paN-)	ba-	small, bead-like (pl. = collective *ba*-)
ku-, (ho-)	—	‘thing’
(taN-)	?	misc.
ko-	(ño-)	diminutive
(tu^{X}/ti^{X}-)	(ni/ñi-)	diminutive
da-	diN-	augmentative
(faN-)		augmentative

collective/single-number classes	
ba-	coll. of vegetables, fruits
di-	‘earth, sand,’ formless masses
muN-	liquids
(ma-)	liquids
tiN-	viscous liquids
guN-	‘honey, palm wine’
ja-	coll. of leaves, grasses, ‘hair’
(bi-)	insect swarms
(baN-)	misc.
(nuN-)	places
(ka(N)-)	places
(kaN-)	vegetable coll.?
(maN-)	vegetable coll.?
(sa-)	heat, cold’

Number of classes: other groups

Proto-Tenda also has a high number of non-plural classes (>20)



sg./coll.	pl.	semantics
ạ-	ɓə-	personal
gaŋ-	ɓaŋ-	trees/plants, flat things, augmentative, misc.
goŋ-	ɓoŋ-	misc., pejorative
((C)I-)	(ɓI-)	tools
geŋ-	ɓeŋ-	misc.
er-	ma-	round things, fruits, misc.
o-	max-	abstract concepts, long rigid things, expanses of land
Ø		misc. (most borrowings are in this class)
ji-		animals, incl. ‘sheep’ and ‘dog’
	o-	animal plural, used for some animals in different classes
(C)i-?	ma-/max-?	various inanimates, used as agr. for unprefixed nouns?
(ɓə-)		misc.
fa-	+ ma(x)-	animals, perhaps singular of *ña*- collective
xoC-		‘fire, smoke,’ a few abstract nouns
xaC-		misc.
(xUŋ-)		misc. abstract nouns
ʃaŋ-		animals, misc.
(ʃIŋ-)		animals, misc.
(ñaŋ-)	ɓạŋ	diminutive (Bassari-Bedik)
(faŋ-)		diminutive (Konyagi)
(bə-)		personal augmentative (Konyagi)
maŋ-		liquids (including some powders), languages, perhaps some plurals
ña-		slimes and masses of plant fibers
gạŋ-		beer, ‘night, powder’

Proto-Fula-Sereer had at least 17 non-plural classes, and recall that modern Biafada has 18

Distribution of nouns in classes

Nouns are of course not distributed evenly across all classes— rather, a few classes are very large, some intermediate, and quite a few are rather small

Bainunk Gubëeher (Cobbinah 2013, 2017):

class	# of collected nouns	class	# of collected nouns
gu-	290	ka-	13
bu-	243	kaN-	13
si-	138	di-	9
a-	79	ta-	8
u-	60	fuN-	8
ji-	43	kuN-	6
bi-	42	tiN-	5
ja-	41	e-	5
ba-	34	muN-	4
raN-	26	da-	4
siN-	20	ho-	3
fa-	18	si-	3
ja(N)-	18	hu-	1
ba-	16	si-	1
ko-	15	pi-	1

Single-member classes

What allows class systems to be so large is that some classes are used for only a few nouns

In fact it is common in large class systems for some classes to only have one member— just as in classifier languages

Qanjob'al: *qa'(q')* (fire), *tz'am* (salt)

Japanese: 畳 *jō* (tatami mats), 晩 *ban* (nights), 門 *mon* (cannons), etc.

Kobiana:

class	single member
ku-III	kooh 'fire'
ti-III	táandi 'clay'
bu-III	bú-kkaab 'bed'
bi-I	beel 'children'
ma-III	ma-ndɛ́ɛko 'maniocs' (collective)
si-II	sí-ggəh 'eye' (noun form class, *si-III* agr.)
i-	í-kkɔɔla 'cola nuts' (collective; noun form class)

For Biafada, Wilson records 5 classes with only one member (though only ~300 nouns are recorded)

How are classes lost?

Since these earlier class systems often had a much higher number of classes, it is important to understand the mechanisms of class loss to account for the smaller inventory of classes in the modern languages

Very often, class loss begins with a collapse in agreement patterns

Especially when class markers are phonologically similar, one class will adopt the agreement pattern of a more common class

Proto-FS	Fula N/adj.	Sereer N	Sereer adj.	Sereer det.
*gal	II- -al~wal~gal~ngal	a-II	a-II	al-
*gan	III- -a~wa~ga~nga	a-III	a-III	**al-**
*han	III- -a~ha~ka~ka	a-III	**a-II**	**al-**

Proto-Tenda	Konyagi N/adj.	Bedik N	Bedik adj.	Bedik det.
*maŋ	wæ-III	ma-III	ma-III	maŋ
*max	wæ-II	ma-II	ma-II	**maŋ** (original **mak*, cf. Bassari *ok*)
*ñaŋ	—	ña-III	ña-III	ñaŋ
*ña	yæ-/ỹæ-I	ña-I	**ña-III**	**ñaŋ**

In Bainunk Guñaamolo (Bao Diop 2013), the agreement patterns for *siN-* and *si-*, and *kaN-* and *ka-* have been merged as *siN-* and *kaN-* (still distinct in Gubëeher and Gujaher agreement).

Single-member classes are especially susceptible to this sort of loss

- e.g. Kobiana *si-II* used only for *sí-ggəh* ‘eye,’ taking the more common *si-III* agreement

How are classes lost?

Another common change is for smaller classes to adopt a default agreement pattern

A number of Kobiana *noun form classes* are assigned to the default *agreement class*

class	example	
unprefixed	ndáali á-le	‘big cat’
†ja-III	jambítt á-le	‘big grasshopper’
†ji-I	jifèekk á-le	‘big pig’
†ba-II	baddúkkend á-le	‘big palm rat’

The plural of all these classes is formed by suffixation of *-a* (and diminutives and augmentatives are seemingly no longer used), so no prefix alternation takes place

If the class is large enough, it can still be identified synchronically— all Kobiana insects begin with *ja-III*, even though this is no longer an agreement class

How are classes lost?

In other cases the frozen class prefix can only be identified by comparative evidence

A number of active classes in Konyagi are found only as frozen prefixes in Bassari and Bedik, with the nouns taking default agreement, or being prefixed with another class marker

Proto-Tenda	Bassari	Bedik	Konyagi	
*fa-ʃin	fe̯ʃĭn	fɛ̯̀ʃɛ̯̀l	fæ-sìl̰	‘donkey’
*ʃaŋ-ʃAn	e-cícạ́n	ʃã̀càr	sæ-cæ̀l̰	‘hedgehog’
*xoC-dVx	xòdúx	ñu-kúdô	xwə-də̂x	‘fire’
*xaC-yə̯̀n	i-ké̯yə̯̀n	hə̯̀yə̯̃l	xæ-jə̀l̰	‘wound’

This is one of the reasons why Konyagi has 24 non-plural classes, whereas Bassari and Bedik have 10 and 9 respectively.

For these reasons, Atlantic languages often have more *noun form classes* than *agreement classes*, in Güldemann & Fiedler’s (2017) terms

How are classes lost?

It is quite likely that a number of historical classes with one or only a few members can no longer be identified due to the loss of agreement and non-alternation of the marker

- Bassari *sàpàr* ‘foot’ (Bedik *i-tápár*) might contain a frozen prefix **ta-*, cf. Kobiana *tá-pper* ‘foot’
- Bassari *ɣónn̩ng* ‘leg’ (Konyagi *u-xòl̩ənk*) might contain a frozen prefix **xo-*

It is impossible to make convincing claims for individual nouns or “hidden” classes, but it seems inevitable that such frozen class prefixes do exist, even if they cannot be specifically identified

Phonological erosion also leads to the collapse of distinctions for class markers on the noun as well as in agreement (reduction in both *noun form* and *agreement* classes)

For example Wolof *g-* clearly represents multiple classes that have fallen together (cf. BKK *gu-*, *kaN-*, *guN-*, etc.)

- The only hint of this fact in modern Wolof is that some *g-* class nouns have nasal consonant mutation, and some do not— other classes are more or less uniformly nasalizing or non-nasalizing

Thus it is quite likely that the reconstructed proto-systems underrepresent the number of classes, since some classes cannot be recovered

Previous account: poly-morphemic class markers

A proposal by Doneux (1975, 1991) seeks to account for both the large number of classes and larger CVC shape of class markers in various Atlantic groups by assuming that certain classes are poly-morphemic

- This suggestion has been followed (in broad terms) by other authors, e.g. Pozdniakov (1988) for Fula-Sereer, and De Wolf (1985)

Doneux proposes that classes could have a basic form, as well as derived longer forms, formed by the additional of -*N*- or -*a*- after the class prefix

Thus a number of Kobiana classes which happen to share the same initial consonant are said to be ultimately derived from the same basic class:

si-I, si-II, si-III, sa-III
ji-I, ja-I, ja-III
ku-I, ku-III
...

This proposal results in fewer original classes, and a basic CV shape for markers— more in line with Bantu

Previous account: poly-morphemic class markers

I do not believe that this hypothesis can be maintained

- The proposed prefix extensions are not separable from the marker as a whole
- It is not clear what the function, meaning, or origin of these prefix extensions would be
- There is no parallel to them in other noun class or classifier languages that I know of
- There is no semantic relationship between the supposedly related classes
- There are other problems related to Doneux's proposal for fortis grade II mutation being the effect of the [-ATR] -*a* prefix extension

For example, the following BKK classes have nothing in common semantically, and have separate agreement patterns:

BKK *gu-: large singular class used for long rigid objects, languages, misc.
BKK *guN-: small collective/mass class used mainly for 'honey, palm wine'

BKK *ja-: collective class for leaves, other vegetable matter; personal plural
BKK *jaN-: singular class for dangerous reptiles, insects

With such a high number of classes, some will inevitably share initial consonants and even initial CV sequences, but this is no reason to think that they are etymologically related

Previous account: poly-morphemic class markers

In other cases Doneux proposes the existence of an “augment,” making reference to Bantu

For example Sereer *a-II*, *al-* and *Ø-I*, *l-* are proposed to be the same original class, one with an augment *a-*, and one without

But there is no support for this hypothesis

- The supposed augment is never separable, and has no identifiable function
- The classes that are assumed to be built on the same original “unaugmented” class have no semantic commonality

In the case of the two Sereer classes with determiner prefixes *al-* and *l-*, the first is cognate with Fula *-gal*, and the second with *-re* (Proto-FS *gal and *re)

- In fact the determiners prefixes are *al-*, *r-* in the Njagañaaw dialect
- Semantically, **re* contains fruits and small round objects (e.g. ‘stone’), and **gal* contains long rigid objects and non-passeriform birds

I suspect that both Sauvageot’s misconception regarding the number of Bainunk classes and Doneux’s proposal were motivated by the preconception from Bantu that there shouldn’t be such a high number of classes in a Niger-Congo language

V. Semantic component of classes

Semantic component of classes

Since classifiers are grammaticalized from lexical sources, they naturally have rather clear semantics when they are first grammaticalized

Mandarin classifier	used with	nominal meaning
匹 pǐ	horse (optionally donkey and mule)	—
峰 fēng	camel	summit, camel's hump
紙 zhǐ	letter, document	paper
槍 qiāng	gunshot	gun
步 bù	step	step

Through time, classifiers gradually lose their semantic force, and class assignment becomes more arbitrary— though even in systems with many classifiers, some have very broad usage (e.g. Japanese 本 *hon* and 個 *ko*)

By the time classifiers become further grammaticalized as noun class markers, some retain very specific semantics, whereas some are much broader

Miraña class	meaning	(Seifart 2009)
-hɯːʔo	palm leaf	
-hɨ	2 dimensional, round	
-ɯ	3 dimensional, round	
-gwa	2 dimensional, straight	
-ʔi	bunch	
-i	medium sized	

Semantic component of classes: Northern Atlantic

Classes with rather specific semantic criteria for membership are found in Northern Atlantic languages

lang./group	class	membership
Tenda	*ña-	slimes, masses of leaves
Konyagi	i-I	tools
Bainunk	*ki-	trees
BKK	*siN-	string/rope-shaped
Kobiana	pa-III	small, bead-shaped
Fula	ngu	animals

Recall also the single-member classes from the previous section

It is of course difficult to quantify the “semantic specificity” of a class, not to mention a system as a whole

But one certainly gets the impression from a number of Northern Atlantic groups that the semantic component of class assignment is particularly strong

- cf. Bantu, in which only class 1/2 is effectively exceptionless— 3/4 contains many non-plants, and 9/10 many non-animals

Multiple class assignment

One phenomenon that exemplifies this semantic force is the ability for a single lexical root to appear in many different classes, with the semantic interpretation of the noun receiving roughly equal input from the root and the class marker

Examples from Bainunk Gubëeher (Cobbinah 2013: 320, 331): note that these could be expanded with diminutive/augmentative classes and number distinctions

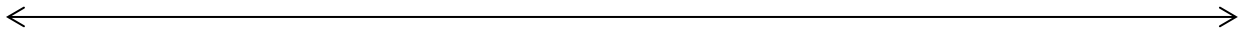
si-	rac	‘mangrove plant’
gu-		‘mangrove fruit’
bu-		‘mangrove bush’
ja-		‘mangrove sticks’
ba- -aŋ		‘mangrove grove’
ja- -aŋ		‘grove of little mangroves’

u-	liin	‘weaver’
sin-		‘spiderweb’
a-		‘spider’
ran-		‘to weave cloth’
bu-		‘to weave’
ta-		‘cloth (plain white)’

This phenomenon is of course familiar from many Niger-Congo languages and noun class languages more broadly— but is especially pronounced in a number of Northern Atlantic groups

Recall that the origin of noun classifiers (like in Qanjob’al, etc.) is noun-noun compounding

- The function of class markers in BKK and surrounding languages can be seen as closer to noun-noun compounding on the following scale than in e.g. Bantu languages



noun-noun compounding arbitrary gender assignment

Default roots

In fact, in some cases the semantic contribution from the class marker far outweighs the contribution from the lexical root

This is exemplified by the widespread use of “default roots” in the area south of the Casamance River

Kobiana *-ŕro~ddo*:

sg.	pl.	
á-ro	gé-ro	‘animal’
gú-ro	ŋá-ro	‘stick’
ú-ddo	dé-ddo	‘tree’
á-ddo	gá-ro	‘round container’
bé-ddo		‘powder’
pá-ddo	bé-ro	‘bead’
pú-ddo	pú-ddo-a	‘jug’
jé-ro		‘hay’
sá-ddo	ñá-ddo	‘chaff’
sí-ddo	ñí-ddo	‘rope/string’

Gubëeher *-no* (Cobbinah 2013: 333):

sg.	pl. (coll.)	
bu-no	i-no (di-no)	‘fruit’
si-no	mun-no	‘tree’
a-no	(bi-no)	‘insect’
ran-no	ñan-no	‘bad person’
ta-no	ñan-no	‘bird’
kun-no		‘palm wine’
gu-no	ha-no	‘thing’
ja-no		‘grass’

Karlik (1972: 256) on the Manjak (Bak) default root *-ko*: “...it is not easy to decide which part of the Noun is “grammatical” and which is “lexical” since the root *ko* merely appears to have the meaning of “entity” while the main lexical load, namely the definition of the kind of entity represented by the term, is supplied by the prefix which is purportedly a grammatical item.”

Grammaticalization sources

In classifier systems, the grammaticalization source for most classifiers is often obvious

- cf. Qanjob'al where the source for almost all of the 13 classifiers is transparent
- But note Miraña/Bora: of the >400 classes, many don't have clear sources

Certainly most don't have identifiable sources in Atlantic

But there are a few reasonable connections to be made:

Kobiana-Kasanga diminutive *tu-II/ti-II*	< *tuut(i)*, *tiit(i)* 'small' (pervasive in the area)
Konyagi *gæ-III*	< *gə́* 'during' on *æ-III* nouns
Tenda **ʃaŋ-* ('hedgehog, frog, baby animals')	< **-ʃan* 'hedgehog' ? (**ʃaŋ-ʃan* 'hedgehog')
FS personal singular **ox*	< *xoox* 'head' ?
FS plural **ɗik*, **ɗak*	< *ɗik*, *ɗak* 'two'
general Niger-Congo: *ɓV* (personal plural)	< pronoun *ɓV* 'they'

VI: Expression of plurality

Expression of plurality

Class and number are entirely separate systems in classifier and most early class systems

But in most Niger-Congo languages they are thought of as inextricably tied together

Schadeberg (2011) takes the defining and most crucially unique feature of Niger-Congo class systems to be their conflation of noun class with number

- i.e. class markers are portmanteaux of class and number
- The sort of system that he has in mind is exemplified by Bantu

	sg. classes:			pl. classes:		
	NP	agr.		NP	agr.	semantics
1	mu-	(j)u-	2	ba-	ba-	personal
3	mu-	gu-	4	mi-	gi-	plants
5	ị-	di-	6	ma-	ga-	round, misc. (ma- liquid)
7	ki-	ki-	8	bị-	bị-	misc., languages
9	N-	ji-	10	N-	jị-	animals
11	du-	du-	13	tu-	tu-	long & thin
12	ka-	ka-				diminutive or augmentative
14	bu-	bu-				abstract, mass, dimin. pl.
15	ku-	ku-				‘arm, leg, ear, armpit’
19	pị-	pị-				diminutive

However in Northern Atlantic groups, there's good evidence that number and class were once separate systems, and that plural classes are innovations

- When we "peel back" the innovated plural classes, we're left with large inventories of singular/collective classes, and very few true plural classes
- This is exactly what we expect from an early noun class system

Güldemann & Fiedler (2017) note the following about number in Niger-Congo noun class systems:

> "**Another crucial problem of the current Niger-Congo approach is the stereotypical view about agreement and noun form classes in that the large majority of "noun classes" are assumed to be functionally dedicated to a specific gender and number value**. As shown in the discussion of Proto-Bantu in §2, this situation is not even universal in the group that was the inspiration for this assumption. However, the degree of deviation from this hypothetical prototype can be much higher, so that this overgeneralized view should give way to a more neutral approach. **In particular, this phenomenon throws a different light on the underlying number system in that the overall importance of transnumeral nouns seems to be higher than commonly assumed. That is, the data should no longer be dealt with according to a simple and neat singular-plural distinction.**"

Understanding the original state of noun classes in NC explains the properties that G&F note

- Because noun class was originally completely (or almost completely) distinct from number, plural classes needed to be innovated
- All classes were originally "transnumeral" but came to be associated with a singular or plural number in many cases
- Class and number have been integrated to varying degrees in different languages

Plurality in Northern Atlantic languages

Even in the modern class systems, most languages have many more singular than plural classes

- See the chart repeated on the next slide
- But in some, notably Bassari and Bedik, the number of plural and non-plural classes is more equal

As opposed to the kinds of systems Schadeberg had in mind, there is a very real grammatical category of number in these languages, surfacing in verb agreement and pronouns

- As opposed to the Bantu-like system, most (though not all) Northern Atlantic languages do not show verb agreement with noun class, but only with person and number (sg. or pl.)
- Similarly, most languages have 3rd person singular and plural pronouns— either in addition to or instead of class-agreeing pronouns

Another concept which must be addressed is "collective" classes

- These are sometimes presented as somewhat of a third number
- But they are not: all collective (or "mass noun") classes take singular agreement, and nouns in collective classes can even be pluralized in BKK
- Thus grammatically, collective classes share more with singular classes than plural classes

Kobiana:	sg.	pl.
individuated	a-kkínd 'grain of millet'	ga-hínd 'grains of millet'
collective	di-hínd 'millet'	di-hínd-a 'millets (piles of/kinds of)'

Now we will turn to the question of how plural classes were innovated

Number of classes in Northern Atlantic languages

	sg./coll.	pl.	overlap	
Fula (Gombe)	**21**	**5**		
Sereer (Siin)	9~10	6	Ø-II k-	
Bassari	9	9	o-III, o-I	
Bedik	10	9	ma-III, o-I	
Konyagi	**24**	**9**		
Biafada	**18**	**9**		
Pajade	15	0?		
Kobiana	**30**	**14**	ma-I, ba-I, ja-I, di-III	
Bai. Gubëeher	**26**	**8**	muN-, ja-	
Bai. Guñaamolo	**16**	**12**	ba-	(collectives have become plural)
Wolof	8	2		
Noon	8	3	t-	
Safen	8	2		
Ndut	4	1		
Joola Eegimaa	12	6	e-	
Bayot	8	7		(but 20 distinct prefixes on nouns)
Manjak	10	5		
Balanta	5	3	Ø	
Bijogo	14	5	5 overlap	
Nalu	1	2		
Mbulungish	8	6		(but Wilson gives 19 total classes)

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Stacking of a plural marker

In classifier and early class systems outside of Niger-Congo, number is marked (if at all) with a separate system of markers that appear alongside the noun and/or agreeing elements *in addition to* the class markers

Miraña:

(5) mi-ʔó-ːkɯ úhɨ-ʔó-ːkɯ
two-CL-DU banana-CL-DU
'two bananas'

This is very reminiscent of what we find for a number of classes in BKK

- There is a plural suffix *-*aŋ* that appears alongside the "singular" class prefix to mark the plural of these classes (**baC-*, **fa-*, **jaN-*, **ji-*, **ka-*, **kuN-*, **ta-* for non-cloths, and probably **a-*), instead of a prefix alternation

Gubëeher	Kobiana	
ba-kạr ba-dẹ	bakkáar á-le	'a big chicken'
ba-kạr-aŋ ba-dẹ-eŋ	bakkáar-a gá-le	'big chickens'
ji-fek a-dẹ	jifèekk á-le	'a big pig'
ji-fek-eŋ a-dẹ-eŋ	jifèekk-a gá-le	'big pigs'

Stacking of a plural marker: Tenda

A similar process explains many of the plural classes in Tenda languages

- Proto-Tenda class system repeated on the next slide

It is immediately apparent that most of the plural class markers containing /ɓ/ have simply stacked this consonant in front of the singular class

	sg.	Ba.	Be.	Ko.	pl.	Ba.	Be.	Ko.
personal	*ạ-	ạ-I	a-I	a-I	*ɓə-	ɓə-I	ɓə-I	və-I
plants, etc.	*gaŋ-	a-III	ga-III	æ-III	*ɓaŋ-	ɓa-III	ɓa-III	væ-III
misc.	*geŋ-	e-III	ge-III	i-III	*ɓeŋ-	ɓe-III	ɓe-III	vi-III
misc., pejor.	*goŋ-	o-III	go-III	u-III	*ɓoŋ-	ɓo-III	ɓo-III	vu-III
diminutive		i-III	ña-III	fæ-III	*ɓạŋ-[3]	ɓạ-III	ɓạ-III	vu-III
augmentative				ga-III				va-III
tools				i-I				vi-I

The origin of this /ɓ/ is undoubtedly the personal plural prefix **ɓə-*, which was itself quite possibly grammaticalized from the pronoun meaning ‘they’ across Niger-Congo

[3] This particular class is probably a modification of **gạŋ-*, being a collective class used for powders (a natural fit for a diminutive plural class) that then had *ɓ-* tacked on to reinforce plurality

Proto-Tenda class system

sg./coll.	pl.	semantics
ą-	ɓə-	personal
gaŋ-	**ɓaŋ-**	trees/plants, flat things, augmentative, misc.
goŋ-	**ɓoŋ-**	misc., pejorative
((C)I-)	**(ɓI-)**	tools
geŋ-	**ɓeŋ-**	misc.
er-	ma-	round things, fruits, misc.
o-	max-	abstract concepts, long rigid things, expanses of land
Ø		misc. (most borrowings are in this class)
ji-		animals, incl. ‘sheep’ and ‘dog’
	o-	animal plural, used for some animals in different classes
(C)i-?	ma-/max-?	various inanimates, used as agr. for unprefixed nouns?
(ɓə-)		misc.
fa-	+ ma(x)-	animals, perhaps singular of *ña-* collective
xoC-		‘fire, smoke,’ a few abstract nouns
xaC-		misc.
(xUŋ-)		misc. abstract nouns
ʃaŋ-		animals, misc.
(ʃIŋ-)		animals, misc.
(ñaŋ-)	**ɓạŋ**	diminutive (Bassari-Bedik)
(faŋ-)		diminutive (Konyagi)
(bə-)		personal augmentative (Konyagi)
maŋ-		liquids (including some powders), languages, perhaps some plurals
ña-		slimes and masses of plant fibers
gạŋ-		beer, ‘night, powder’

Stacking of a plural marker: Tenda

A similar process explains many of the plural classes in Tenda languages

- Proto-Tenda class system repeated on the next slide

It is immediately apparent that most of the plural class markers containing /ɓ/ have simply stacked this consonant in front of the singular class

	sg.	Ba.	Be.	Ko.	pl.	Ba.	Be.	Ko.
personal	*ạ-	ạ-I	a-I	a-I	*ɓə-	ɓə-I	ɓə-I	və-I
plants, etc.	*gaŋ-	a-III	ga-III	æ-III	*ɓaŋ-	ɓa-III	ɓa-III	væ-III
misc.	*geŋ-	e-III	ge-III	i-III	*ɓeŋ-	ɓe-III	ɓe-III	vi-III
misc., pejor.	*goŋ-	o-III	go-III	u-III	*ɓoŋ-	ɓo-III	ɓo-III	vu-III
diminutive		i-III	ña-III	fæ-III	*ɓạŋ-[3]	ɓạ-III	ɓạ-III	vu-III
augmentative				ga-III				va-III
tools				i-I				vi-I

The origin of this /ɓ/ is undoubtedly the personal plural prefix **ɓə-*, which was itself quite possibly grammaticalized from the pronoun meaning ‘they’ across Niger-Congo

[3] This particular class is probably a modification of **gạŋ-*, being a collective class used for powders (a natural fit for a diminutive plural class) that then had *ɓ-* tacked on to reinforce plurality

Stacking of a plural marker: Tenda

Thus the original “Pre-Tenda” situation for these nouns would have been an exact parallel to the Miraña pattern

Bedik:

(6) ge-mbó ge-ŋó
CL-goat CL-DEM
‘this goat’

(7) ɓe-mbó ɓe-ŋó
CL.PL-goat CL.PL-DEM
‘these goats’

(8) *ɓə-geŋ-bó ɓə-geŋ-yó
PL-CL-goat PL-CL-DEM
‘these goats’

Miraña:

(9) mi-ʔó-ːkɯ úhɨ-ʔó-ːkɯ
two-CL-DU banana-CL-DU
‘two bananas’

When the innovated *ɓ*-initial classes are set aside, Proto-Tenda would have had only 5 plural classes (including *ɓə*-), as opposed to over 20 singular classes

Stacking of a plural marker: Tenda and Biafada-Pajade

A number of other Tenda classes (**fa-*, **ʃaŋ-*, **xoC-*, and **xaC-*) form their plurals by stacking the plural marker **ma-* in front of the singular noun

Konyagi:
fæ-rún ‘crocodile’
wæ-fæ̀-rún ‘crocodiles’

The phenomenon of *ɓV-* stacking is also employed in Biafada and Pajade— in fact in Pajade it is the strategy for marking the overwhelming majority of nouns

- Note however that in contrast to Tenda, this has not resulted in the creation of new classes with new agreement patterns, since the stacked prefixes have not fused
- Rather, agreement is with the “singular” class marker in Pajade (Wilson 1984: 64), and both markers in Biafada (Wilson 1993: 64)

(10) ba-sa-də ba-sa-ggə (Biafada)
PL-CL-house PL-CL-DEM
‘these houses’

Innovated from a numeral

Fula-Sereer presents a particularly interesting case in which two of the already few original plural classes — **ɗi̱k* and **ɗa̱k* — appear to be grammaticalized from the numeral 'two'

- Proto-FS class system repeated on following slide

Recall that by examining the Sereer and Fula class markers, original CVC markers can be reconstructed with a great deal of confidence

For the two plural classes in question these are:

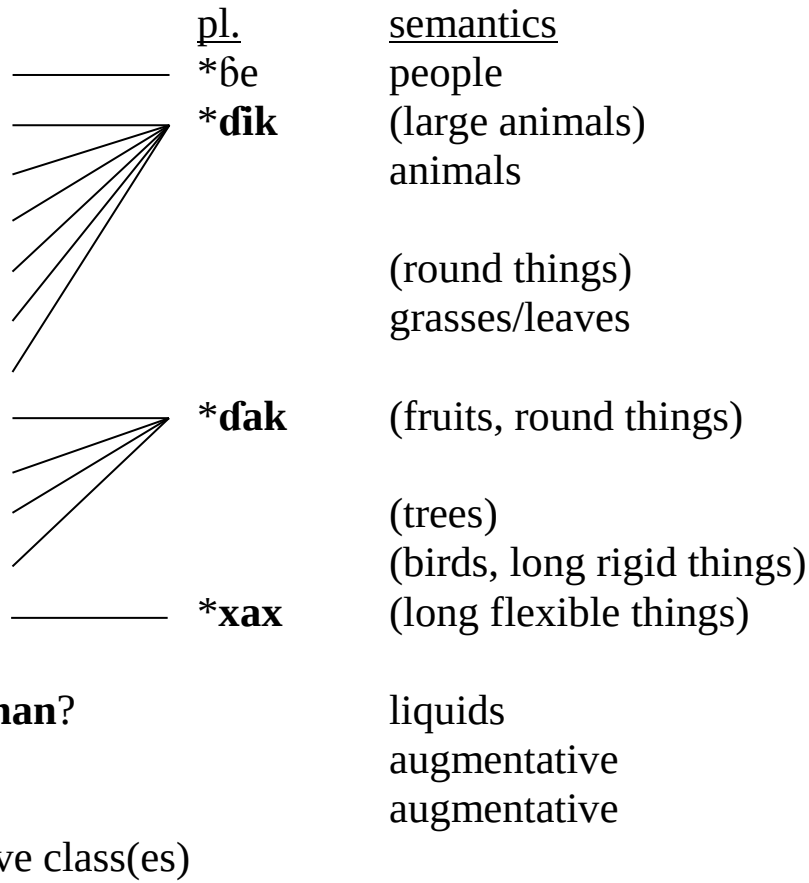
Proto-FS	Sereer N/adj.	Sereer det.	Fula class
*ɗi̱k	Ø-II	k-	II- -ɗi
*ɗa̱k (ɗek?)	a-II	ak-	II- -ɗe

In Sereer there are two forms of the numeral 'two': *ɗi̱k* and *ɗa̱k* with an idiosyncratic vowel alternation

- These are exactly the forms that were independently reconstructed for the two common non-human plural classes
- This is unlikely to be a coincidence, and suggests that the plural classes were grammaticalized from the numeral

With these two classes set aside (and ignoring diminutive and augmentative classes, which are subject to rapid renewal), Proto-FS had only two plural classes: personal **ɓe* and **xax* (surviving only in Sereer) used as the plural of the **gol* class

Reconstructed Proto-Fula-Sereer noun class system



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Collective classes are co-opted as plural classes

Perhaps the most important way of innovating plural classes for our current discussion is the recruitment of originally non-plural classes as plural classes

This phenomenon is most clearly seen in Bainunk-Kobiana-Kasanga and Tenda

But is seen elsewhere in Northern Atlantic (e.g. Cangin **t-*), and is the probable source of many plural classes throughout Niger-Congo

- cf. Bantu **bu-*, used as a mass/collective class as well as the diminutive plural

Collective > Plural: Bainunk-Kobiana-Kasanga

Of the BKK plural classes, three are formally identical to a collective class: *ja-*, *ba-*, and *muN-*

- See the Proto-BKK class system, repeated on the next slide

ja- is the plural of the *ta-* 'cloth' class, as well as one of the personal plural markers
ja- is a collective class for grass, leaves, etc.

ba- is the plural of the Kobiana *pa-III* 'bead-shaped' class
ba- is a collective class for fruits, etc.

muN- is the plural of the Bainunk **ki-* 'tree' class
muN- is a collective/mass class for liquids

We can note that a very common BKK plural class *ñaN-* is formally similar to a Tenda collective class **ña-* used for slime/leaves, and to a Biafada-Pajade singular/collective/plural class *ña-* used for a few nouns like 'meat'

- An association is tempting, though far from certain

Proto-Bainunk-Kobiana-Kasanga noun class system

singular/plural classes		semantics
a-	-aŋ	animals (insects?), misc.
ba^{X}-		animals, misc.
fa-		animals: ‘goat,’ etc.
jaN-		dangerous reptiles, insects?, misc.
ji-		animals (dog-sized)
ka-		‘fish’
kuN-		‘fire’
ta-	ja-	cloth (pl. = collective *ja*-), birds (pl. -*aŋ*)
(ta^{X}-)	?	‘foot’
u-	i(N)-/ja-	humans
	(bi-)	‘child’
(raN-)	ñaN-	crabs, ‘scorpion, rooster, roof’
(saN-)		flat, leaves
siN-	?	string/rope-shaped
kaN-	?	concave or convex
(a^{X}-)	(ga-)	small and round
bu-	i-	misc. (round)
(bi-)		misc. (round)
si^{X}-		‘eye’
gu-	ha-	long and rigid, languages, ‘speech,’ misc.
ki-		‘ear, leg, (arm)’
(ji-)		‘hand/arm’
(uN-)	(daN-)	trees
(ki-)	(muN-)	trees
(paN-)	ba-	small, bead-like (pl. = collective *ba*-)
ku-, (ho-)	—	‘thing’
(taN-)	?	misc.
ko-	(ño-)	diminutive
(tu^{X}/ti^{X}-)	(ni/ñi-)	diminutive
da-	diN-	augmentative
(faN-)		augmentative

collective/single-number classes	
ba-	coll. of vegetables, fruits
di-	‘earth, sand,’ formless masses
muN-	liquids
(ma-)	liquids
tiN-	viscous liquids
guN-	‘honey, palm wine’
ja-	coll. of leaves, grasses, ‘hair’
(bi-)	insect swarms
(baN-)	misc.
(nuN-)	places
(ka(N)-)	places
(kaN-)	vegetable coll.?
(maN-)	vegetable coll.?
(sa-)	heat, cold’

Collective > Plural: Bainunk-Kobiana-Kasanga

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Collective > Plural: Guñaamolo

Bainunk Guñaamolo shows the development of plural classes from collective classes quite clearly

The Bainunk collective classes *ba-*, *di-*, *ja-*, and *tiN-* take singular pronouns in Gubëeher and Gujaher (as do the cognate Kobiana classes), and cannot be modified by a plural numeral

However Bao Diop (2013) reports that these four classes are plural classes in Guñaamolo, being used with plural numerals and (it is assumed) plural pronominal verb marking

(11) ja-poñ-o in-ja ja-nakk-o
CL-grass-DEF DEM1-CL CL-two-DEF
'ces deux herbes-ci'

(12) ti-yom-o ti-nakk-o
CL-bee-DEF CL-two-DEF
'deux abeilles'

Collective > Plural: Tenda

Recall that setting aside the *ɓ*-initial classes, there are only four plural classes in Tenda: **ma-*, **max-*, **maŋ-*, and **o-*

The last two of these are also singular/collective classes

**maŋ-* is used as a plural class for only a handful of nouns in Bassari and Konyagi, but is (arguably) the most common plural class in Bedik
**maŋ-* is the liquid class, also used for collections of grains and salt, and is also used for languages

**o-* is used as a plural class for a rather small number of nouns in Bedik and Konyagi— in Bassari it has become conflated with plural **ma-* which regularly developed to *o-*
**o-* is a singular class used for abstract concepts, long things, and expanses of land/countries

So then there are only two "true plural" classes in Tenda in addition to personal **ɓə-*: **ma-* and **max-*

The resemblance of these two classes to the plural/mass **maŋ-* is noteworthy, but receives no obvious explanation

But it is quite tempting to see the use of plural *ma-* (or similar) as found sporadically throughout Niger-Congo as being extended from an original mass/liquid sense, as found in the much more pervasive liquid class with which it is often formally identical (cf. Bantu class 6 *ma-*)

- see Miehe (1991)

Revised count of plural vs. non-plural classes

When the innovated plural classes are set aside, we are well on our way to having no distinct plural classes at all in a number of Atlantic groups

	non-plural classes	plural classes
BKK	>40	6 (*bi-, i(N)-, ñaN-, i-, ha-, ga-)*
Tenda	>20	3 (**ɓə-, *ma-, *max-*)
Fula-Sereer	>16	2 (**ɓe-, *xax-*)
Cangin	10	2 (*ɓ-, c-*)
Wolof	8	2 (*ñ-, y-*)

This is exactly what we expect to find for a recently grammaticalized noun class system

Comparison with sex-based gender systems

Sex-based gender systems (Indo-European, etc.) are presumed to be grammaticalized from pronouns— hence they already encode number

- Even in languages that do not otherwise encode number, number is almost always encoded in pronouns
- Thus when pronouns are grammaticalized as gender markers on nouns and/or agreement targets, number is "built in" to the system

Classifiers, on the other hand, are originally entirely divorced from number

Though the two systems can eventually be entirely merged, some languages exhibit somewhat intermediate stages of the integration of class and number

This explains Güldemann & Fiedler's observations concerning the status of number in Niger-Congo class systems

Conclusion

The following properties, characteristic of recently grammaticalized class systems, have been observed for the noun class systems of earlier (or current) Northern Atlantic groups:

- Larger (CVC) size of class markers
- A large number of classes
- Narrow, identifiable semantics for most classes
- Independence of noun class and number

Guided by these properties of early Northern Atlantic noun class systems, it can be assumed that the original Niger-Congo class system(s) was/were of the “early noun class” type, with a large number of classes, independent of number, and marked by CVC (or larger?) class markers

The grammaticalization path is seemingly unidirectional, and as such the Northern Atlantic systems cannot have developed from a Bantu-like system

For future discussion, this sort of original system could help to explain some other properties of Niger-Congo noun class systems:

- Position of the marker (prenominal vs. postnominal), both within and across languages
- Variation in agreement patterns across languages

References

Aikhenvald, Alexandra Y. 2000. *Classifiers: A typology of noun classification devices*. Oxford University press.

Aikhenvald, Alexandra Y. 2001. "Areal Diffusion, Genetic Inheritance, and Problems of Subgrouping: A North Arawak Case Study." In Alexandra Y. Aikhenvald and Robert M. W. Dixon (eds.), *Areal Diffusion and Genetic Inheritance*, 167-94. Oxford.

Bao Diop, Sokhna. 2013. *Description du baynunk guñaamolo, langue minoritaire du sénégal: analyse phonologique, morphologique et syntaxique*. Dakar, Paris: UCAD, INALCO.

- source of Bainunk Guñaamolo data

Cobbinah, Alexander Yao. 2013. *Nominal classification and verbal nouns in Baïnounk Gubëeher*. SOAS, University of London (Doctoral dissertation).

- source of Bainunk Gubëeher data— Cobbinah's lexical database cited as (2017)

De Wolf, Paul Polydoor. 1985. *Die Menschenklassen in den nordwestatlantischen Sprachen*. Wien: Afro-Pub.

Doneux, Jean Léonce 1975. "Hypothèses pour la comparative des langues atlantiques." *Africana Linguistica* VI, Tervuren. pp. 41-129.

Doneux, Jean Léonce. 1991. *La place de la langue Buy dans le groupe Atlantique de la Famille Kongo-Kordofan*. Université libre de Bruxelles (Doctoral dissertation).

Duncan, Philip. 2011. "Noun Classifier Extension in Q'anjob'al (Mayan): Acquiring a Gender Stereotype." *Kansas Working Papers in Linguistics*, Vol. 32 (2011). (pp. 67-83).

- source of most Qanjob'al data

Ferry, Marie-Paule. 1991. *Thesaurus Tenda*. Paris: Peeters.

- source of Bassari and Bedik data

Grinevald, Collette. 2002. "Making sense of nominal classification systems: Noun classifiers and the grammaticalization variable." In Ilse Wischer and Gabriele Diewald (eds.) *New Reflections on Grammaticalization*. John Benjamins. (pp. 259-78).

Güldemann, Tom and Ines Fiedler. 2017. "Niger-Congo "noun classes" conflate gender with declension." To appear in Francesca Di Garbo & Bernhard Wälchli (eds.), *Grammatical Gender and Linguistic Complexity*, 85–135. Berlin: Language Science Press.

Karlik, Jan. 1972. *A Manjako Grammar with Special Reference to the Nominal Group*. London: University of London, School of Oriental and African Studies, Department of Phonetics and Linguistics (Doctoral dissertation).

Kießling, Roland. 2013. "On the origin of Niger-Congo nominal classification." In: Kikusawa, Ritsuko and Lawrence A. Reid (eds.), *Historical Linguistics 2011: Selected papers from the 20th International Conference on Historical Linguistics*, Osaka, 25-30 July 2011. (pp. 43–65)

McGregor, William B. and Søren Wichmann (eds.). 2018. *The Diachrony of Classification Systems*. John Benjamins.

Miehe, Gudrun. 1991. *Die Präfixnasale im Benue-Congo und im Kwa*. Berlin: Dietrich Reimer Verlag.

Pozdniakov, Konstantin. 1988. "Proto-Fula-Serer Noun Class System." In *Asia, Africa, Latin America* special issue 21, pp. 121-130.

Santos, Rosine. 1996. *Le Mey: Langue Ouest-Atlantique de Guinée*. Université de la Sorbonne Nouvelle (Doctoral dissertation).

- source of Konyagi data

Sauvageot, Serge. 1967. *Note sur la classification nominale en baïnouk*. Paris: Ed. du Centre National de la Recherche Scientifique.

Schadeberg, Thilo C. 2011. "The unique nature of the Niger-Congo noun class system, and a comparison of event participant marking in Bantu and Ebang (Kordofanian)." Paper presented at the Fourth International Conference on Bantu Languages, Berlin.

Seifart, Frank. 2009 (ms.). "Towards a typology of unitization: Miraña noun classes compared to numeral classifiers and singulatives."

- source of Miraña data