Functional Motivations for Consonant Mutation in the Atlantic Languages of West Africa

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Introduction

In the Atlantic languages of West Africa, the original function of consonant mutation has in many cases changed

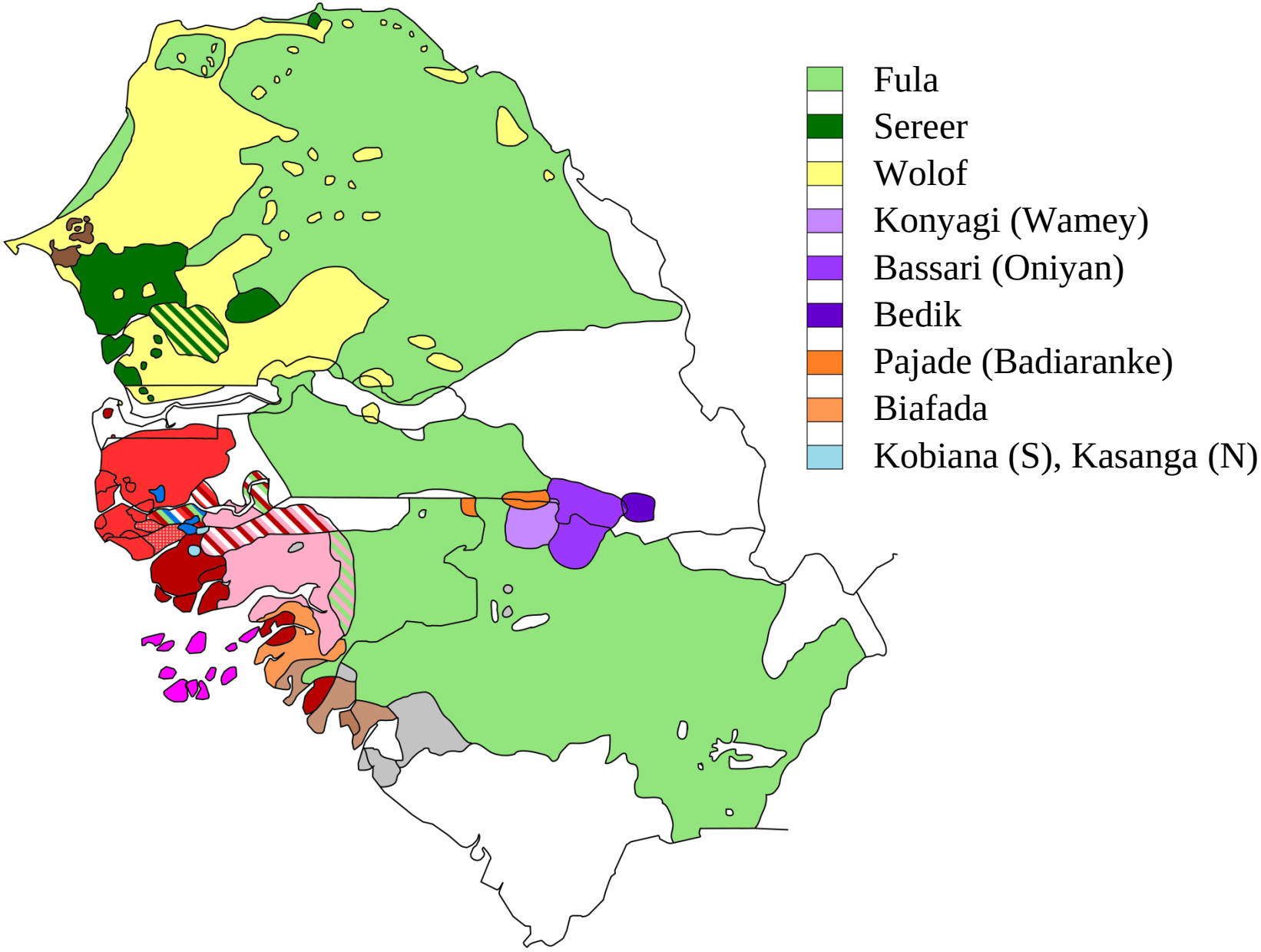
At first, mutation signaled the presence of *specific morphemes*

Now, mutation often marks *grammatical features* independently of the morphemes that were or are present

- Though in at least one case, the opposite direction of change is seen

We will examine four phenomena from four Atlantic languages:

- Subject number agreement in Sereer
- Verbal mutation in Kobiana
- Relative clause marking in Kasanga
- Mutation in Wolof derived nouns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Sereer
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Konyagi (Wamey)
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Kobiana (S), Kasanga (N)

Consonant mutation

Consonant mutation involves a systematic alternation between consonant phonemes with a non-phonological trigger

- i.e. the alternations cannot be predicted by the phonological environment
- cf. ablaut, but in the consonantal domain
- Rather, the trigger is morphological or syntactic

In the phenomena we will consider, the alternating consonant is always root-initial

Initial consonant mutation is best known from the Celtic languages, e.g. Welsh:

i kaθ	‘their cat’	(no mutation)
i gaθ	‘his cat’	(soft mutation)
və n̊jaθ	‘my cat’	(nasal mutation)
i xaθ	‘her cat’	(spirant mutation)

But complex mutation systems are also found in ~10 Atlantic languages

Consonant mutation: examples from Atlantic

Sereer noun class (number)

sg.	*pl.*	
o-tew	rew	‘woman’
njas	cas	‘mangrove tree’
ɓaax	a-ƥaax	‘axe’

Fula noun class (diminutives)

sg.	*dim. sg.*	
honndu	kollel	‘finger’
yeeso	jeesel	‘face’
sekkere	cekkel	‘cheek’

Consonant mutation: examples from Atlantic

Bassari noun class (adjectives)

ạ-I	e-II	e-III	
ạ-rŏmàx	e-dŏmàx	e-ndŏmàx	‘short’
ạ-ʃə̀xén	e-cə̀xén	e-cə̀xén	‘other’
ạ-ỹìŋ̣́nạ́x	e-ñìŋ̣́nạ́x	e-ñìŋ̣́nạ́x	‘ugly’
ạ-ɓànạ̀x	e-ɓànạ̀x	e-mànạ̀x	‘black’

Kobiana verbs (aspect)

perf.	*imperf.*	
má-ngíli	má-gíla	‘I run’
má-ppégi	má-féga	‘I see’
má-ndéehi	má-léeha	‘I know’

Consonant mutation: grades and series

Alternations are systematic and can be organized by ***grades*** and ***series***

Bassari mutation table:

Grade I	f	s	ʃ	x	xw	w	r	y	ɣ	ɣ	w̃	n	ỹ	ɣ̃	ɣ̃	ɓ	l	ƴ
Grade II	p	t	c	k	kw	b	d	j	g	gw	m	n	ñ	ŋ	ŋw	ɓ	ɗ	ƴ
Grade III	p	t	c	ng/k	ngw/kw	mb	nd	nj	ng	ngw	m	n	ñ	ŋ	ŋw	m	n	ñ

Specific morphosyntactic environments call for a particular mutation grade

- The personal singular class *a̱-I* calls for grade I
- The root *xàf~kàf~ngàf* ‘green’ will appear as *a̱-xàf* in this class

All Atlantic mutation systems happen to have three grades (except Wolof with two)

- Grade I: unmutated or lenited
- Grade II: fortis (hardened, devoiced, geminated)
- Grade III: nasalized

Historical origin of Atlantic mutation

The initial segment of roots interacted with the final segment of preceding morphemes

- Noun class prefixes for nominal roots
- Verbal prefixes and pronouns for verbal roots

Proto-Tenda	>	Bassari	
*er-ɽ̥àkk	>	e-tàk	‘heel’ (e-II class)
*ma-ɽ̥àkk	>	o-sàk	‘heels’ (o-I class)
*geŋ-ráng	>	e-ndáng	‘buffalo’ (e-III class)
*o-ráng	>	o-ráng	‘buffaloes’ (o-I class)

Historical origin of Atlantic mutation

Bassari noun class prefix *er- > e-II

- Grade II carries on the function of the consonant *r in this morpheme
- Could analyze the prefix as /eX-/, /eμ-/, or $e^{[\text{-continuant}]}$-

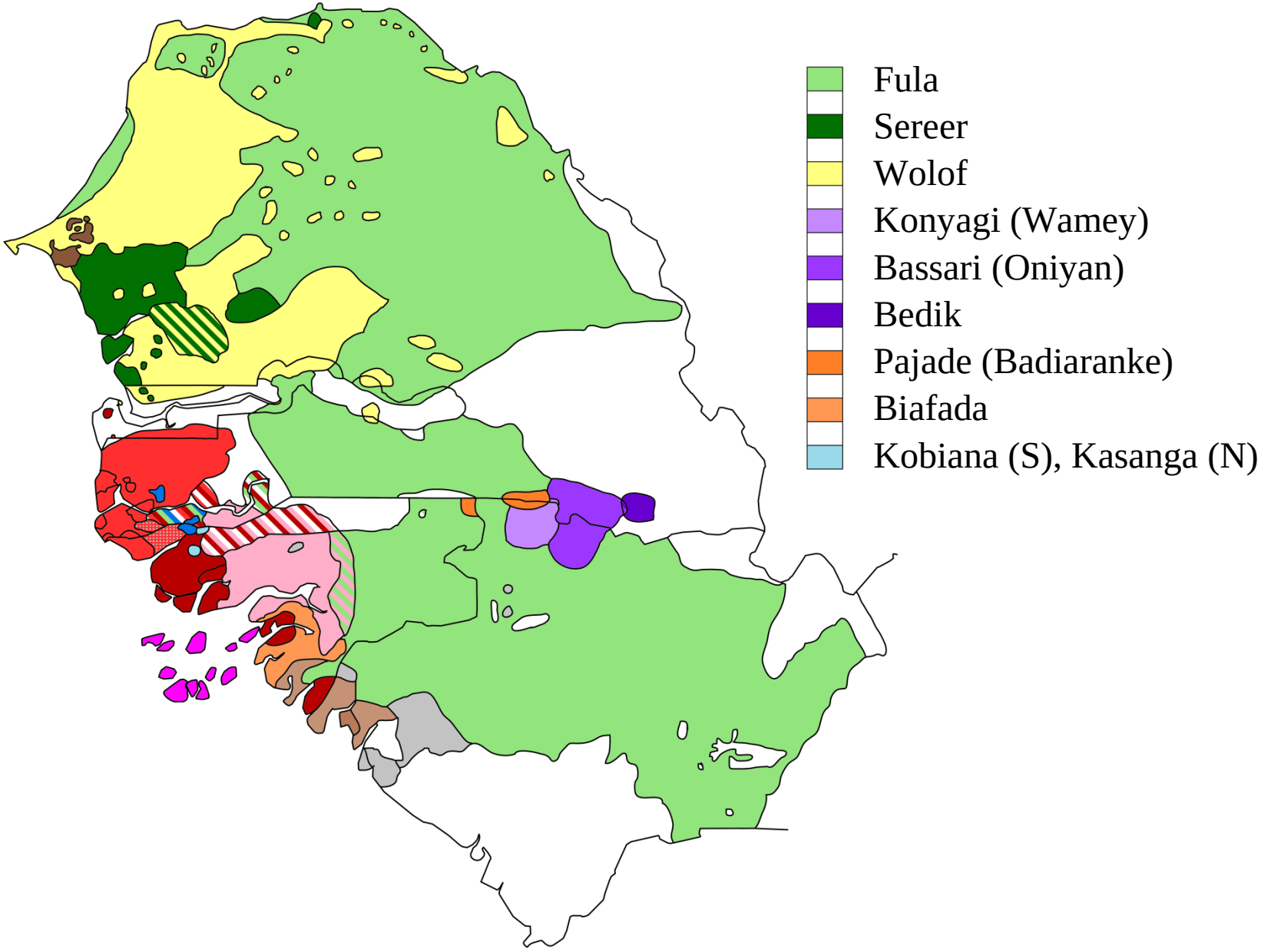
Also consider cases where the segmental material of the prefix has completely eroded

Sereer *ɣun-*baal* > *mbaal* ‘sheep’ (grade III)
Sereer *ɗik-*baal* > *paal* ‘sheep (pl.)’ (grade II)
Prefixes /N-/ and /X-/ ?

At first mutation marks the presence of specific morphemes, in much the same way as a phoneme does

But often the “motivation” for mutation changes from marking specific morphemes to marking grammatical features/categories/constructions

Sereer subject number agreement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Sereer subject number agreement

In Sereer (and Fula), all verbs with a singular subject take grade I, and all verbs with a plural subject take grade III

Sereer mutation system:

Grade I	f	h	x	w	r	b	d	j	g	ɓ	ɗ	ƴ
Grade II	p	k	q	b	t	p	t	c	k	ƥ	f	ƈ
Grade III	mb	ng	nq	mb	nd	mb	nd	nj	ng	ƥ	f	ƈ

Paradigms for *ret* ‘go’:

	A forms		B forms	
	sg.	pl.	sg.	pl.
1st	retaam	i ndeta	m ret	i ndet
2nd	retaa	nu ndeta	o ret	nu ndet
3rd	a reta	a ndeta	te ret	de ndet

Sereer subject number agreement

More examples with 3rd person subjects (A forms):

3rd sg.	3rd pl.	
a faaxa	a mbaaxa	‘be good’
a hoora	a ngoora	‘fast’
a xasa	a nqasa	‘scold’
a weʏa	a mbeʏa	‘swim’
a ranga	a ndanga	‘be white’
a jawa	a njawa	‘cook’
a gima	a ngima	‘sing’
a ɓooda	a ƥooda	‘crawl’
a ɗaana	a ƭaana	‘sleep’
a ʏiʏa	a cʼiʏa	‘be smart’

Some consonants are invariant:

a yera	a yera	‘drink’
a ñaama	a ñaama	‘eat’

History of Sereer verbal mutation

Arose from interactions between the subject pronoun (now an agreement marker) and the verb root

The modern subject markers are transparently related to the free pronouns

	Subject markers (B forms)		Free pronouns	
	sg.	pl.	sg.	pl.
1st	m	i	mi	in
2nd	o	nu	wo	nuun
3rd	te	de	(o) ten	den

In the 1st and 2nd person, the resulting mutation is as expected

- Grade I after a vowel-final pronoun
- Grade III after a nasal-final pronoun

*wo ret	> o ret	‘you (sg.) go’
*nuun ret	> nu ndet	‘you (pl.) go’

History of Sereer verbal mutation

But for the 3rd person forms, modern mutation is independent of the historical shape of the pronoun

Original 3rd person pronouns:

	sg.	pl.
A form	*a	*a
B form	*ox-den	*ɓe-den

Modern verb forms:

	‘s/he goes’	‘they go’
A form	a reta	**a ndeta**
B form	**te ret**	de ndet

- Originally n-final singular **ox-den* now used with grade I
- Originally vowel-final *a* (both sg. and pl.) now used with grade III in plural

The pattern naturally established in the 1st and 2nd person was extended to the 3rd person

Note that now a distinction can now be made between sg. and pl. *a* which would not have been present earlier

Sereer verbal mutation

Synchronically, rather than marking the presence of particular pronouns/agreement markers, mutation consistently marks a grammatical feature

Verbal mutation has been extended to environments where no pronoun ever preceded the verb

Non-finite forms:

a buga (o) jeem o fool	‘s/he wants to try to jump’
a mbuga (o) njeem o mbool	‘they want to try to jump’

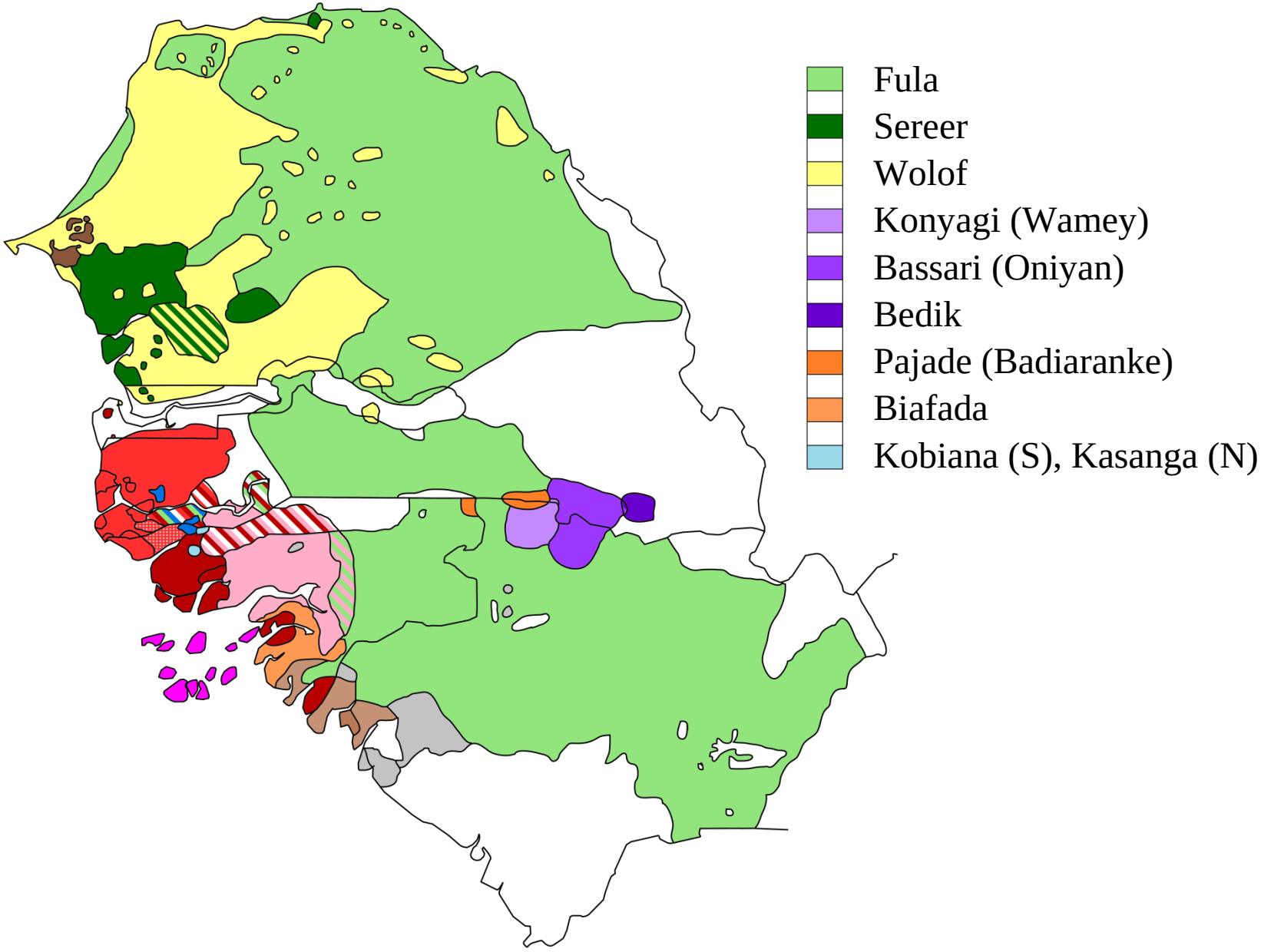
Imperatives:

y̰ufi!	‘run! (sg.)’
c̰ufyo!	‘run! (pl.)’

Reduplication in the “pretendative” construction:

a ram-ram-loox-a	‘s/he pretends to be deaf’
a ndam-ndam-loox-a	‘they pretend to be deaf’

Kobiana verbal mutation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Kobiana verbal mutation

In Kobiana, verbal agreement also uses only grades I and III, but is dependent on more factors than only subject number

- Negation
- Aspect
- Focus
- Subject person
- Subject number
- Mood (imperative)

Mutation table:

Grade I	f	h	s	h	b	l	r	j	g
Grade II	pp	tt	cc	kk	bb	dd	dd	jj	gg
Grade III	pp	tt	cc	kk	mb	nd	dd	nj	ng

Kobiana verbal mutation: paradigm for *-feg~ppeg* ‘see’

Perfect

	Affirmative		Negative	
	sg.	pl.	sg.	pl.
1	má-ppégi	ngée-ppégi	mà-fègii(l)	ngée-ppègii(l)
2	á-ppégi	káa-ppégi	à-fègii(l)	káa-ppègii(l)
3	à-fégi	náà-ppégi	ppègii(l)	náà-ppègii(l)
NP	wal ppégi		wal ppègii(l)	

Imperfect

	Affirmative		Negative	
	sg.	pl.	sg.	pl.
1	má-féga	ngée-ppéga	mà-gù-fega	ngèe-gù-ppega
2	á-féga	káa-ppéga	à-gù-fega	kàa-gù-ppega
3	à-ppéga	náà-ppéga	gù-ppega	náà-gù-ppega
NP	wal ppéga		wal gù-ppega	

Imperative

	Affirmative		Negative	
	sg.	pl.	sg.	pl.
1	—	ppégettoo		
2	ppége(tt)	ppégettii	ákka-feg	ákka-ppeg
3	—			

Kobiana verbal mutation

Coincidentally (?, like Sereer, Fula), all plural subjects trigger grade III

- Same reason as in Fula, Sereer— plural pronouns were/are nasal-final

	pl. pronoun	pl. agreement
1st	ngeen	ngee-III
2nd	kaan	kaa-III
3rd	náàn	náà-III

We will set these aside and focus on singular forms

- But note that many plural verb forms were not immediately preceded by these pronouns
- Leveled by analogy

Kobiana verbal mutation (singular forms)

	perf. aff.	perf. neg.	imperf. aff.	imperf. neg.
1st	má-ndéehi	mà-lèehii(l)	má-léeha	mà-gù-leeha
2nd	á-ndéehi	à-lèehii(l)	á-léeha	à-gù-leeha
3rd	à-léehi	ndèehii(l)	à-ndéeha	gù-ndeeha
NP	wal ndéehi	wal ndèehii(l)	wal ndéeha	wal gù-ndeeha

Forms with a full NP subject (here *wal* ‘child’) always take grade III

- Almost certainly from a historical *N(V)*- subject prefix
- Again we will set these aside

Kobiana verbal mutation (singular forms)

	perf. aff.	perf. neg.	imperf. aff.	imperf. neg.
1st	má-ndéehi	mà-lèehii(l)	má-léeha	mà-gù-leeha
2nd	á-ndéehi	à-lèehii(l)	á-léeha	à-gù-leeha
3rd	à-léehi	ndèehii(l)	à-ndéeha	gù-ndeeha

The perfect affirmative forms are as expected by their etymologies:

Pronouns (internal evidence + comparison with Bainunk):

1st sg. *man
2nd sg. *an ?
3rd sg. *à

Kobiana verbal mutation (singular forms)

	perf. aff.	perf. neg.	imperf. aff.	imperf. neg.
1st	má-ndéehi	mà-lèehii(l)	má-léeha	mà-gù-leeha
2nd	á-ndéehi	à-lèehii(l)	á-léeha	à-gù-leeha
3rd	à-léehi	ndèehii(l)	à-ndéeha	gù-ndeeha

Moving from perfect affirmative forms to negative and imperfect forms, there is a “switch” in mutation grade

- Likely originally due to pronoun position
- Postverbal pronouns in negative forms (just as in modern Bainunk) means no grade III mutation
- Perhaps also in imperfect forms (cf. Bassari in which PRO-V for imperf., V-PRO for perf.)
- Pronouns position later standardized, but only after mutation arose

Kobiana verbal mutation (singular forms)

	perf. aff.	perf. neg.	imperf. aff.	imperf. neg.
1st	má-ndéehi	mà-lèehii(l)	má-léeha	mà-gù-leeha
2nd	á-ndéehi	à-lèehii(l)	á-léeha	à-gù-leeha
3rd	à-léehi	ndèehii(l)	à-ndéeha	gù-ndeeha

But 3rd person forms are unexplained

- Postverbal pronouns should yield grade I as in 1st and 2nd person forms
- Especially with the imperfect form (à-III) from pronoun *à
- And imperfect negative form with *gù-* (cf. *gùl* negative copula)

Can only (?) be explained as the institution of a “switch” in mutation grade in analogy with the pattern that arose naturally in the 1st and 2nd person forms

Kobiana verbal mutation (summary)

Mutation would have originally signaled the presence of specific immediately preverbal morphemes

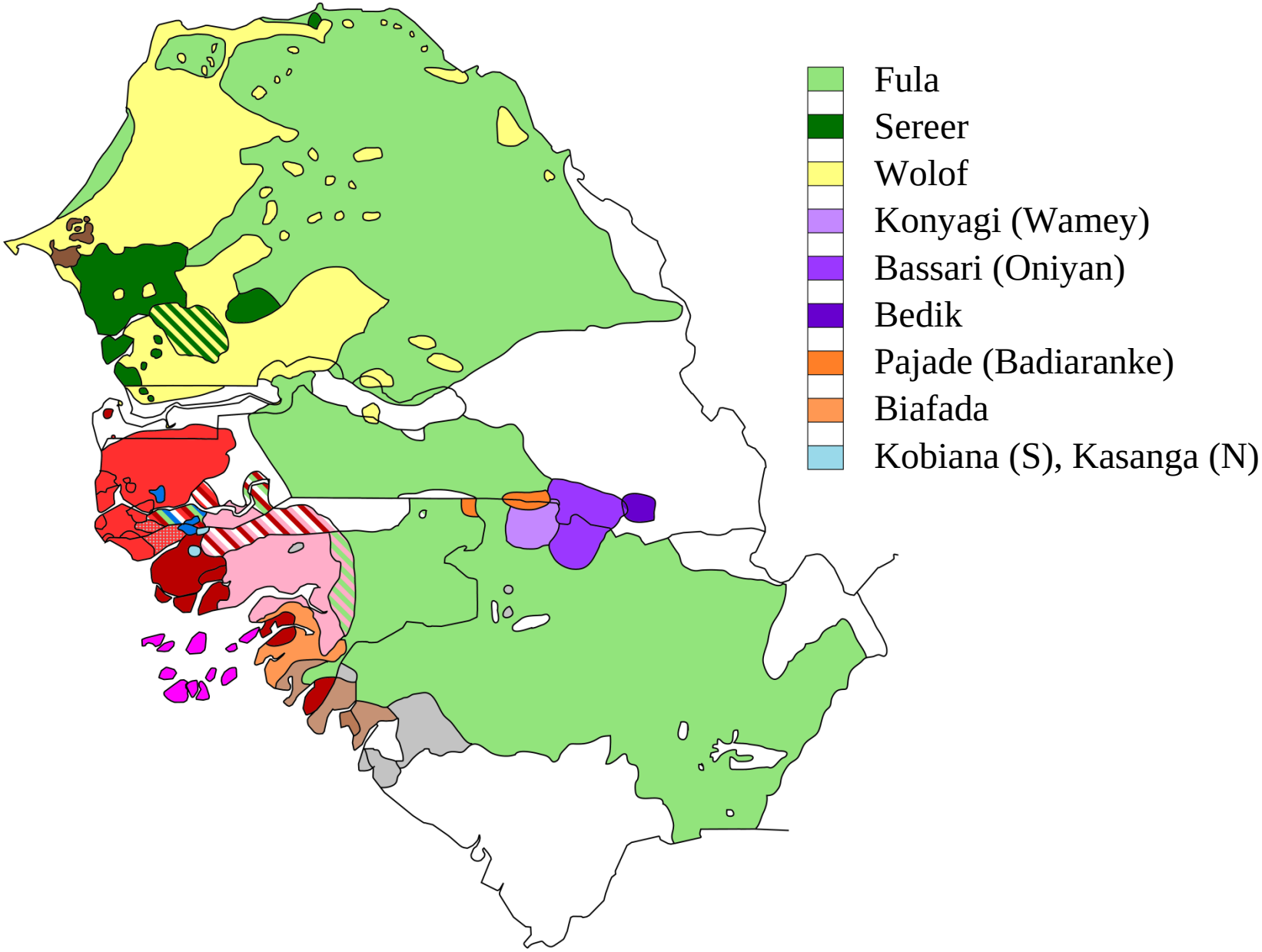
But now such an association is impossible:

a)	má-ndéehi	‘I know’ (perfect)
b)	má-léeha	‘I’ll know’ (imperfect)
c)	mà-gù-faatta	‘I won’t come’ (imperfect negative)
d)	ngèe-gù-ppaatta	‘we won’t come’ (imperfect negative)

Rather, mutation is associated with particular grammatical features

- And not in a totally straightforward manner— requires the idea of a “switch” in mutation when compared to other forms

Kasanga relative clauses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Kasanga relative clauses

Mutation in Kasanga relative verb forms is dependent on the noun class of the head of the relative clause

This use of mutation is innovative, and goes against the more common direction of change

- i.e. mutation comes to signal the presence of specific morphemes

Kasanga relative clauses

Compare ‘cow’ in the *a-I* class, ‘man’ in *u-I*, and ‘oilpalm’ in *u-III*:
Unfortunately no examples in Wilson (2007) for a grade II class

(a)	baajed	a-k	a-fog	me
	cow	NC-DEM	REL.NC-see	1sO/1sS
	‘the cow that saw me’ OR ‘the cow that I saw’			

(b)	u-lien	wo-k	u-fog	me
	NC-man	NC-DEM	REL.NC-see	1sO/1sS
	‘the man that saw me’ OR ‘the man that I saw’			

(c)	u-wuc	u-k	u-mpog	me
	NC-oilpalm	NC-DEM	REL.NC-see	1sS
	‘the oilpalm that I saw’			

Note that in subject relatives, the object follows the verb, and in non-subject relatives, the subject follows the verb, which creates ambiguity in many cases

Noun class mutation

In Kasanga as well as other Atlantic languages with mutation, each noun class enforces a particular mutation grade

- Accompanied by a (C)V- prefix in most languages

Some Kobiana classes with nouns in the /b~bb~mb/ series:

Class	ex. noun	
gu-I	gu-bóy	‘Kobiana language’
ga-I	ga-báh	‘legs’
a-II	a-bbáh	‘leg’
ta-II	tá-bbambeh	‘child-carrying cloth’
u-III	ú-mbon	‘cola tree’
sa-III	sa-mbúkk	‘cold/flu/malaria’

Kasanga relative clause mutation

(a) baajed a-k a-fog me
cow NC-DEM REL.NC-see 1sO/1sS
‘the cow that saw me’ OR ‘the cow that I saw’

(b) u-wuc u-k u-mpog me
NC-oilpalm NC-DEM REL.NC-see 1sS
‘the oilpalm that I saw’

Kasanga relative clauses are marked by a preverbal relative marker identical in shape to the class agreement prefix

It thus seems natural that the verb stem would mutate in accordance with the class of the relative marker

Kasanga relative clause mutation

But wait!

The “grade III” consonants in these relative verb forms are not the normal grade III consonants for the voiceless series

- Prenas. stops (mp, nt, nc, nk) instead of plain voiceless stops (p, t, c, k)

Grade I	f	r	s	h	b	d	j	g
Grade III	p	t	c	k	mb	nd	nj	ng
Grade IIIb?	mp	nt	nc	nk	mb	nd	nj	ng

Compare a normal grade III verb form:

ma-pog-i
1sS-see.III-PERF
‘I see’

Cf. also nouns in grade III, e.g. *sa-poor* ‘flower,’ *sa-pec* ‘broom’ in *sa-III*

Kasanga relative clause mutation

Grade I	f	r	s	h	b	d	j	g
Grade III	p	t	c	k	mb	nd	nj	ng
Grade IIIb?	mp	nt	nc	nk	mb	nd	nj	ng

The only other use of “grade IIIb” is for 3rd person subject agreement

u-lien	m-pul-i
NC-man	3sS-leave-PERF

‘the man left’

m-pog	me
3sS-see	1sO

‘s/he sees me’

Could be seen as a prefix N- rather than true mutation

Comparison with Kobiana and Bainunk relatives

Examining Kobiana and Bainunk relatives reveals what happened historically
Here, all relative verb forms have obligatory preverbal subject marking

- 3rd person marker is *a-* in Bainunk and grade III in Kobiana
- No class-based mutation in Kobiana relatives

(a) ú-ligeen (wo-kk) u má-ppég-i (Kobiana)
NC-man NC-DEM REL.NC 1sS-see-PERF
'the (/this) man that I saw'

(b) ú-ligeen (wo-kk) u ppeg me (Kobiana)
NC-man NC-DEM REL.NC see.3S 1sO
'the (/this) man that saw me'

(c) u-lien wo-k u-fog me (Kasanga)
NC-man NC-DEM REL.NC-see 1sS/1sO
'the man that I saw' OR 'the man that saw me'

Comparison with Kobiana and Bainunk relatives

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- No class-based mutation in Kobiana relatives

(a)	ran-kub-o	rạ	(Sịidi)	a-fẹg-ne	(Bainunk Guñaamolo)
	NC-crab-DEF	REL.NC	(Sidy)	3sS-see-DEP	
	'the crab that Sidy saw'				

(b)	gú-siiraal	gu	wal	ppég-i	(Kobiana)
	NC-clod	REL.NC	child	see-PERF	
	'the clod that the child saw'				

The relative marker is *not* a verbal prefix in these languages

- And final nasals of class markers are absent on the Bainunk relative markers (cf. *ra* for the *ran-* class)

Origin of the Kasanga pattern

Bainunk and Kobiana must represent the original pattern for relative clauses:

- Head NP + rel.marker + SUBJ + verb (+ OBJ)
- Relative marker likely lacked final nasals as in Bainunk

The use of postverbal subjects in Kasanga relatives is an innovation

This innovation allowed for a reanalysis of the relative construction

- The prenasalization seen on relative verbs *is* historically the 3rd person subject marker N-
- Explains the use of unexpected “grade IIIb” consonants /mp, nt, nc, nk/

Origin of the Kasanga pattern

Hypothetical Kasanga relatives *before* the reanalysis (‘scorpion’ in *sa-III*, ‘cow’ in *a-I*):

a)	*sa-kun sa-k sa m-pog me	‘the scorpion that saw me’	(subj. relative)
b)	*sa-kun sa-k sa fog me	‘the scorpion that I saw’	(obj. relative)
c)	*sa-kun sa-k sa n-jing me	‘the scorpion that looked at me’	(subj. relative)
d)	*sa-kun sa-k sa jing me	‘the scorpion that I looked at’	(obj. relative)
e)	*baajed a-k a m-pog me	‘the cow that saw me’	(subj. relative)
f)	*baajed a-k a fog me	‘the cow that I saw’	(obj. relative)
g)	*baajed a-k a n-jing me	‘the cow that looked at me’	(sub.relative)
h)	*baajed a-k a jing me	‘the cow that I looked at’	(object relative)

- With postverbal subjects, *N-* was no longer identifiable as a subject marker
- Rather, it came to be analyzed as an effect of the preceding relative marker
- So only relative markers of grade III classes should induce the nasalization
- An effect of this reanalysis is that subject and non-subject relatives can no longer be distinguished

Kasanga relative clause mutation (summary)

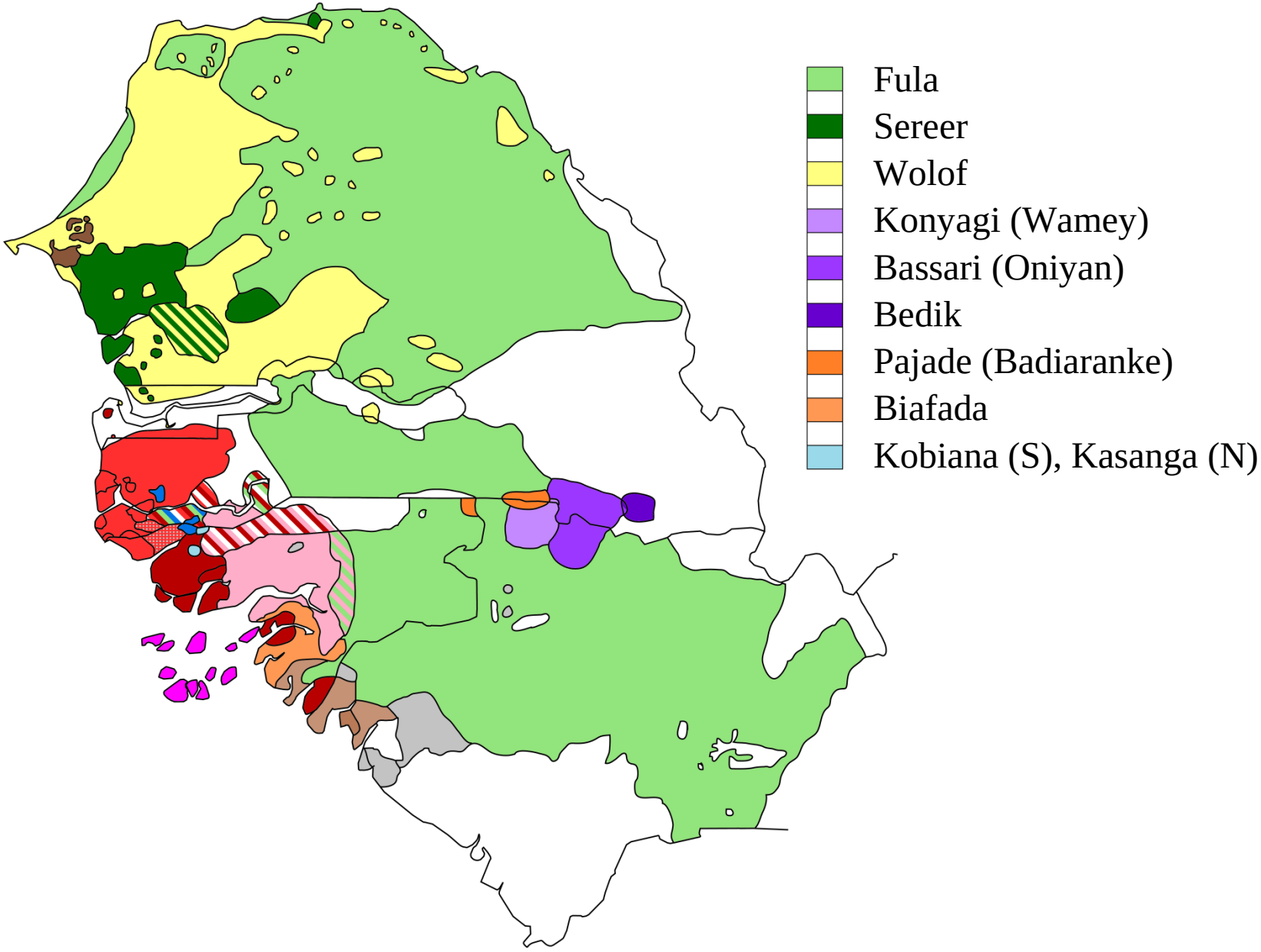
Originally, prenasalization in relative verb forms was a form of subject marking

This was functionally useful in distinguishing subject and non-subject relatives

However this prenasalization was reanalyzed as the effect of grade III noun class markers

- Thus prenasalization in relative forms now serves to reinforce the presence of specific morphemes (noun class markers)
- In a way, the opposite direction of change from the previous two examples

Mutation in Wolof derived nouns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Mutation in Wolof derived nouns

In derived (usually deverbal) nouns, the stem-initial consonant is often mutated

mbaax g-	‘goodness/generosity’	baax	‘be good’
ndal l-	‘reception (place)’	dal	‘arrive (e.g. at an inn)’
njàppu l-	‘handle’	jàpp	‘seize’
ngas m-	‘digging’	gas	‘dig’
pal g-	‘election’	fal	‘elect’
càcc g-	‘theft’	sàcc	‘steal’
kor g-	‘betrayal’	wor	‘betray’

2-grade mutation system:

unmutated	f	s	Ø/y/w	b	d	j	g
mutated	p	c	k	nb	nd	nj	ng

Often said to exhibit “traces of mutation”

- No verbal mutation at all
- No sg./pl. nominal mutation outside of a few archaic forms

Mutation in Wolof derived nouns

Recent (McLaughlin 1997) and not-so-recent (Kobès 1869) accounts mention the phenomenon of derivation-marking mutation

The claim is that mutation *is* a mark of derivation— not of particular noun classes, or of nouns in general

No mention is made at all of noun class w.r.t. mutation

- Recall that in other Atlantic languages, nouns mutate based on their class

To the extent that this claim is correct, we have another example of mutation marking a grammatical feature where it once signaled the presence of particular morphemes

In fact the claim is oversimplified, but is broadly speaking probably accurate

- But noun class is still very relevant!

Wolof noun class

Noun class in Wolof is not marked on the noun itself, but on agreeing determiners

dëkk bi	‘the town’
fett gi	‘the arrow’
ñam wi	‘the food’
looy mi	‘the owl’
ndaa li	‘the pot’

Sg. classes: b-, g-, w-, j-, m-, l-, s-, k-
Pl. classes: y-, ñ-

Wolof noun class mutation

Historically, mutation arose in Wolof by the same mechanism as in other Atlantic languages

- Certain noun classes contained a (usually final) nasal, which assimilated to the following root, resulting in nasal mutation
- The segmental prefixes were for the most part lost on the noun itself, surviving only on agreeing elements

*bu-laax			>	laax b-	‘porridge’
		†u-yoon	>	yoon w-	‘road’
*gu-yarab	>	†g^{w}arab g^{w}-	>	garab g-	‘tree’
*ma-dox	>	†m-dox m-	>	ndox m-	‘water’
*lVN-suuraay	>	†ncuuraay l-	>	cuuraay l-	‘incense’

Wolof noun class mutation

When we look at the membership of each modern class, the mutating effect of particular classes can still be clearly observed

Initial consonant of underived nouns in Diouf (2003)

- A consonants (not mutated): f, s, *h, g, d, j ,g
- B consonants (may be mutated): p, c, k
- C consonants (mutated): nd, nd, nj, ng

	A	B	C
b-	647	247	48
j-	127	11	8
w-	88	17	5
g-	214	110	40
m-	8	35	95
l-	1	17	95

Wolof noun class mutation

m- and *l*- are mutating classes, and *b*-, *w*-, *j*- are not

- (*s*- and *k*- classes are rare)

g- is for the most part ***not*** mutating in underived nouns, but a sizeable minority of *g*- class nouns are mutated

- Represents at least two historical classes
- cf. Bainunk-Kobiana-Kasanga *gu-, *ki-, *guN-, *kaN-, of which *gu- is by far the most common

Distinction between mutating and non-mutating classes is even clearer in older sources (Dard 1825, Kobès 1869)

- Mutating classes contain initial /mp, nt, nc, nk, nx/
- Non-mutating contain /p, t, c, k, x/

Wolof derived noun mutation

The same class-based effect can be seen for derived nouns:

- (for /f, s, *h, b, d, j, g/-initial roots)

	mutation	no mutation
b-	20	311
j-	0	21
w-	0	23
g-	82	33
m-	58	9
l-	79	3

b-, *j*-, *w*- do not mutate, *m*- and *l*- do

But note that *g*- class derived nouns ***are*** generally mutated

- Compare with underived *g*- nouns which are mostly unmutated

Note also the relative frequency of *m*- and *l*- vs. *j*- and *w*-

Wolof derived noun mutation

Comparing derived with non-derived nouns, it is true that mutation is much more prevalent in derived nouns

- *g*- class nouns prefer mutation only for derived nouns
- mutating classes *m*- and *l*- preferred over non-mutating *j*- and *w*-

It is very possible if not likely that mutation came to be seen as a mark of derivation, and so derived nouns were attracted to mutating classes

However it is also possible that nasalizing classes simply happened to be more common as deverbal noun classes

- But note that in Bainunk-Kobiana-Kasanga, *gu- is much more common as a deverbal noun class than *guN- or *kaN-

Mutation in Wolof derived nouns (summary)

Initially, mutation marked membership in particular noun classes

- Still largely true, though apparently mostly unnoticed

Presumably, derived nouns would be no less likely to mutate than underived nouns at this time

Now, derived nouns are much more likely to exhibit mutation than underived nouns

- Especially clear for the *g*- class

At least to a greater extent than in the past, mutation is now the marker of a grammatical feature, rather than indicating the presence of particular morphemes

Conclusion

Consonant mutation in the Atlantic languages has often lost its original function and gained new ones

Thinking in terms of “motivation” for mutation:

- At first mutation serves to indicate/reinforce the presence of immediately adjacent morphemes
- Later, mutation often serves to mark particular grammatical categories/constructions

Usually the direction of change is from morpheme-marking to grammar-marking

- But the morpheme-marking function remains, especially for class prefixes
- And for Kasanga relatives, the opposite direction of change is seen

The end result is that the functional motivations for mutation have become more varied than they must have been initially

- More akin to the function of tone than that of segmental morphemes

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Map adapted from maps by Ethnologue

Sereer and Kobiana data from my own fieldwork