Workshop on Niger-Congo
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Limba Verb Extensions in Niger-Congo Perspective

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Goals of this talk:

1. To share what I have learned about verb extensions in Limba, a Niger-Congo language of Sierra Leone (with overspill into Guinée)

   a.   their forms and functions
   b.   the combinatorics and ordering

2. To consider whether a comparative study of Limba and other African verb extension systems I have surveyed in the past can help us to determine

   a.   whether a language is Niger-Congo or not
   b.   the subgrouping of a language within Niger-Congo

I will start with these latter questions and then turn to Limba.

Question #1: Can verb extensions be helpful in determining whether a language is Niger-Congo or not—like noun classes?

    a.   specific forms?
    b.   specific functions?
    c.   specific idiosyncracies, e.g. allomorphy?
    d.   their presence (head-marking via suffixation on the verb)?

"… the language groups that constitute the core of the Niger-Congo phylum show particularly clear evidence supporting the hypothesis of a genetic relationship in two morphological subsystems: the gender-number system, and the system of verb-to-verb derivation (the so-called 'verb extensions'), whereas in Mande, Ijoid, Dogon, and Ubangian, cognates of the gender-number markers and verb extensions found in core Niger-Congo languages have not been identified with certainty." (Creissels 2019)

Williamson & Blench (2000) provide the following summary of their occurrence in different subbranches, which I list in order of those having the most vs. fewest attestations (Hyman 2007:150):

a. Atlantic   widespread
   Gur   widespread
   Central   widespread, including pluractionals
   Nigerian
   Bantoid   widely attested
   Kordofanian   widespread

b. Kru   causative, benefactive, inchoative, instrumental, dative, locative, passive

   West Benue-   Edoid has a number (often indicating plurality) and Igboid
   Congo   many, most of which are new developments

c. Cross River   various, often coalescing with verb root; often indicate plurality

d. Dogon   few, mostly new formations
   Kwa   at least causative and reflexive/reciprocal
   Ijoid   few, mostly new formations
   Adamawa-   a few, including iterative, intensive, benefactive and causative
   Ubangi   [N.B. Some Adamawa languages have lots of extensions—LMH]

e. Mande   not generally, but Bɔbɔ has causative, intransitive

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Generally assumed that verb extensions are the second most important morphological property of Niger-Congo languages, e.g. Williamson & Blench (2000) mention the status both of noun classes and verb extensions in their survey of the branches of Niger-Congo. For both we can find the following parallel situations:

1. Fully functional (multiple) noun class agreement and verb extension systems
2. Functional, but limited (reduced) noun class agreement and verb extension systems.
3. Functional, but reanalyzed systems, e.g. number marking suffixes in Dagbani without agreement; voice extensions becoming aspectual in Bantoid (Hyman 2018; Blench 2022)
4. Non-productive, but recognizable distinctions on a limited number of nouns and verbs
5. Relics only, especially forms suggesting 1/2 for human nouns and causative extension on verbs like 'to feed' (< 'cause to eat'), 'to show' (< 'cause to see') or 'to break' (intr. vs. tr.).

However, unlike Niger-Congo noun class systems, extensions are also found in the other three of Greenberg's (1963) original four African phyla! (Dimmendaal 2000:180-1; Hyman 2014)

Khoisan

"Derivative verbal extensions as semantic and/or syntactic modifiers of basic verbs are very typical of all Khoe languages. Throughout attested are causative..., reflexive, reciprocal, and probably dative/benefactive and repetitive, too.... Passive in Khoekhoe occurs as a verbal extension.... (Güldemann & Vossen 2000:116).

Afro-Asiatic

"[Afro-Asiatic] languages all exhibit word-formation processes for creating new verbs from existing ones by means of affixes, often in combination....A transitivising/causative *s-* ~ *-s* is found in all six families.... Other widespread derivational affixes are: *m-* ~ *-m*, *n-* and *t-* ~ *-t* associated variously with notions of reflexivity, reciprocity, and/or intransitivising/passivising formations—the last formative listed also often appears as a middle voice in Cushitic [cf. Atlantic!]." (Hayward 2000:93)

Nilo-Saharan

"The derivational extensions ventive, itive, dative, and instrumental... in Turkana [are] characteristic for Nilotic in general as well as for proto-Nilotic." (Dimmendaal 1981:72)

If not unique in Niger-Congo, maybe we can identify specific proto forms for certain of the extensions.

There are however major problems in identifying cognates:

1. Verb extensions are short, typically C, CV, VC and V, and often do not exploit all of the consonants and vowels in the language. This can produce look-alikes even across unrelated language families, e.g. between Alaaba, a Cushitic language, and Niger-Congo (Schneider-Blum 2004:51);

Table 12. Alaaba and non-Afro-Asiatic lookalikes.

causative	-s-/-is-/-iis-/ -ees-	cf.	pan-Bantu -is-	causative	
passive	-am-	cf.	Bantu zone C -am-	passive	
middle voice	-ak'-/-'-	cf.	Bijogo (Atlantic) -ak-	middle voice	(Segerer 2002)
		cf.	P.Sudanic -akʰ	intransitive	(Ehret 2001)

(Hyman 2014:112)

2.   Verb extensions can change functions, making it difficult to determine if phonetically similar forms are cognate. Voeltz (1977:59) thus is rather permissive in citing alleged reflexes of his reconstruction **de** 'applicative' (cf. Trithart 1983:84):

Igbo (WBC)	-rV	benefactive
Mbui (Bantoid)	-l	frequentative
Tikar (Bantoid)	-l	causative
Grebo (Kru)	-di	instrumental
Dagara (Gur)	-l	causative
Ndunga (Ubangi)	-la	stative
Fula (Atlantic)	-ir-	(instrumental/locative)
Temne (Atlantic)	-ər	(directional)
Banda (Ubangi)	-ndɛ	?
Dongo (Ubangi)	-ni	?

The last two in particular show that we can't rely solely on the form (Hyman 2007:152).

Although Voeltz (1977) proposed a few others, the most widespread reflexes best justify the following Proto-Niger-Congo reconstructions:

Functions:

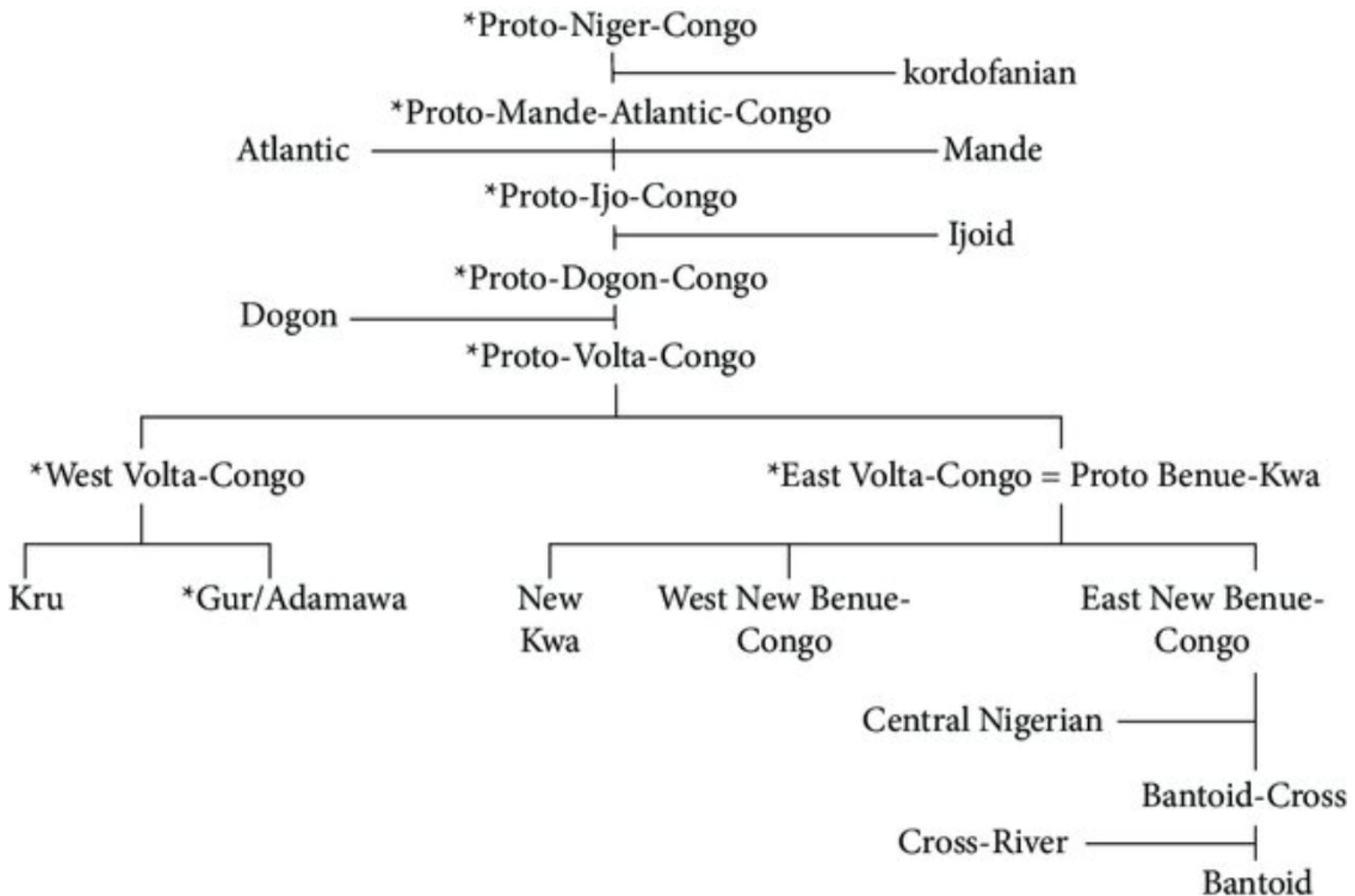|	*Primary*	*Secondary*
*s or *i	causative	sociative, instrumental, intensive, iterative
*D	benefactive	recipient, locative, instrumental, malefactive
*an(D)	reciprocal	associative, instrumental, pluractional

D = a coronal consonant, e.g. d, ɗ , l or r.
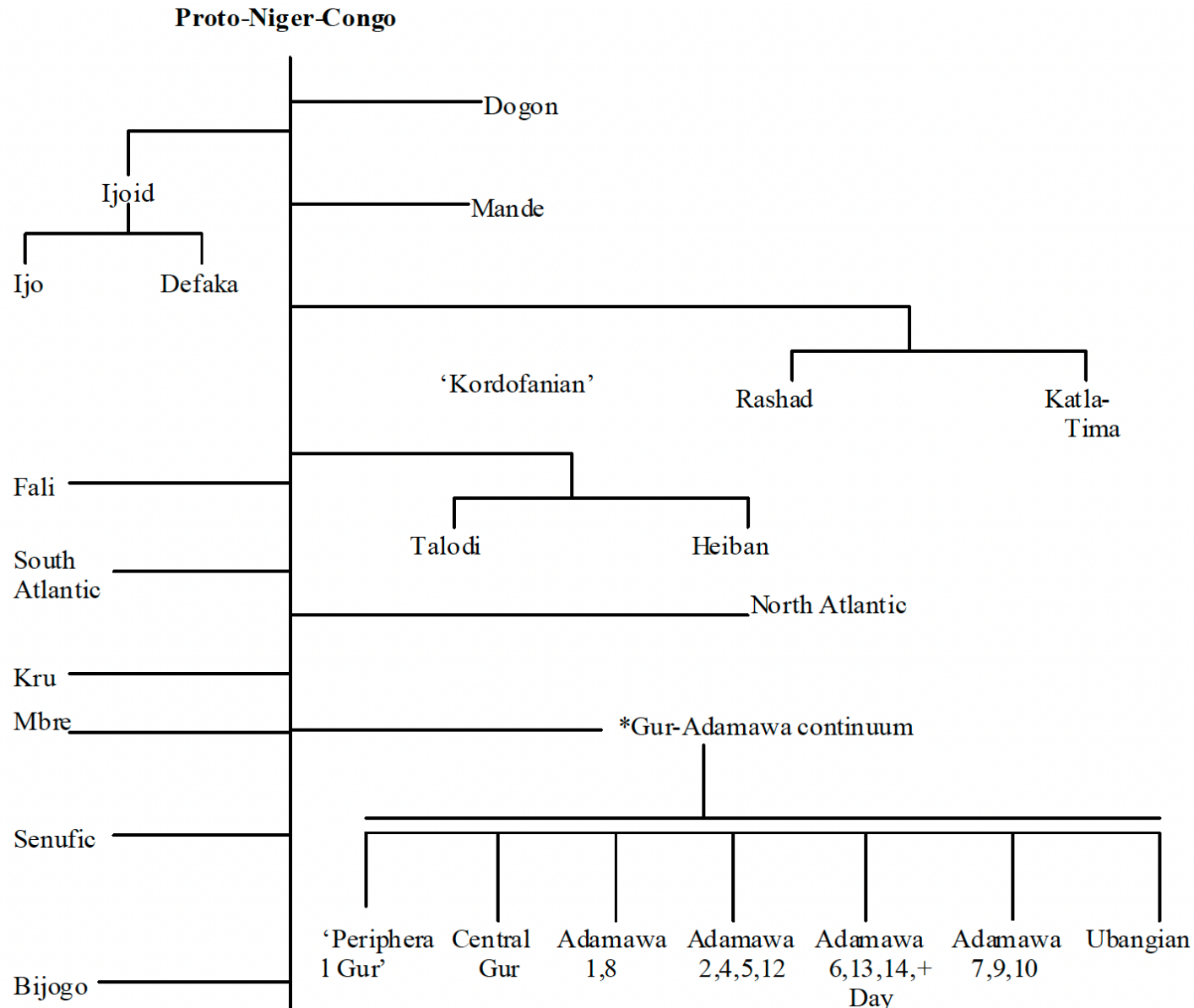s, D often occur as Is ~ sI and ID ~ DI, where I = [i], [ɪ] or [e].

Despite the difficulties in reconstructing verb extensions at the Niger-Congo level, maybe they have another usefulness:

Question #2: Can verb extensions be helpful in subgrouping Niger-Congo languages?

There are lots of proposals for subgrouping Niger-Congo, some of which include language groups that others think are not Niger-Congo. Here's an out of date one based on Williamson (1989:18).

*Proto-Niger-Congo
├──────────────────────── kordofanian
*Proto-Mande-Atlantic-Congo
Atlantic ─────────────┼───────────── Mande
*Proto-Ijo-Congo
├──────────── Ijoid
*Proto-Dogon-Congo
Dogon ────────────┤
*Proto-Volta-Congo

*West Volta-Congo   *East Volta-Congo = Proto Benue-Kwa

Kru   *Gur/Adamawa   New   West New Benue-   East New Benue-
                             Kwa   Congo   Congo

                                    Central Nigerian ─────┤

                                                       Bantoid-Cross

                                        Cross-River ──────┤
                                                        Bantoid

Recognizing more groups and isolates, Blench (2012) restructured Niger-Congo in a way that places all of the languages that lack noun classes and verb extensions at the top:

Proto-Niger-Congo

- Dogon
- Ijoid
  - Ijo
  - Defaka
- Mande
- 'Kordofanian'
  - Rashad
  - Katla-Tima
- Fali
  - Talodi
  - Heiban
- South Atlantic
  - North Atlantic
- Kru
- Mbre
- *Gur-Adamawa continuum
  - 'Peripheral Gur'
  - Central Gur
  - Adamawa 1,8
  - Adamawa 2,4,5,12
  - Adamawa 6,13,14,+ Day
  - Adamawa 7,9,10
  - Ubangian
- Senufic
- Bijogo

...

Consider the two widespread causative extensions *s and *i:

Form	Subgroup	Example	
*s only	non-Bantu Bantoid	Mankon -sə	Leroy (1982)
	Ogoni (C.River)	Eleme -sɛ (ben.)	Bond (2009:5-6)
	Edoid	Degema -ɛsɛ	Kari (1995:158)
	Kainji	Cicipu -is-	McGill (2009:221)
	Adamawa	Mumuye -se	Shimizu (1983:64)
	Gur	Moore -s	Canu (1976)
	Ghana-Togo Mtn.	Likpe -sə́	Ameka (2009:144-6)
	Mel	Temne -s	Kanu (2009:144)
*i only	Kordofanian	Moro -i	Rose (2013)
	Atlantic	Bijogo -i (only)	Segerer (2002)
*s and *i	Narrow Bantu	Luganda -is-i, -i	Hyman & Katamba (1990)
Other:	Atlantic -Vn	Fula -(i)n	Becher (2000:31)
	Adamawa -n	Mambay -n	Anonby (2011:346-7)
	Ijoid -mV	Kalabari -ma	Jenewari (1977:90)

No causative: Mande, Dogon, Ijoid, Jukunoid, and many languages in the above and other subgroups that have lost head-marking extensions

Particularly striking (and potentially relevant for Limba) is the fact that the only Atlantic language that shows a reflex of either ***ʂ** or ***i** is Bijogo **-i** (Segerer 2002), as in the following table abridged from Becher (2000:31), which I have not reconciled with Voisin (2024) etc.

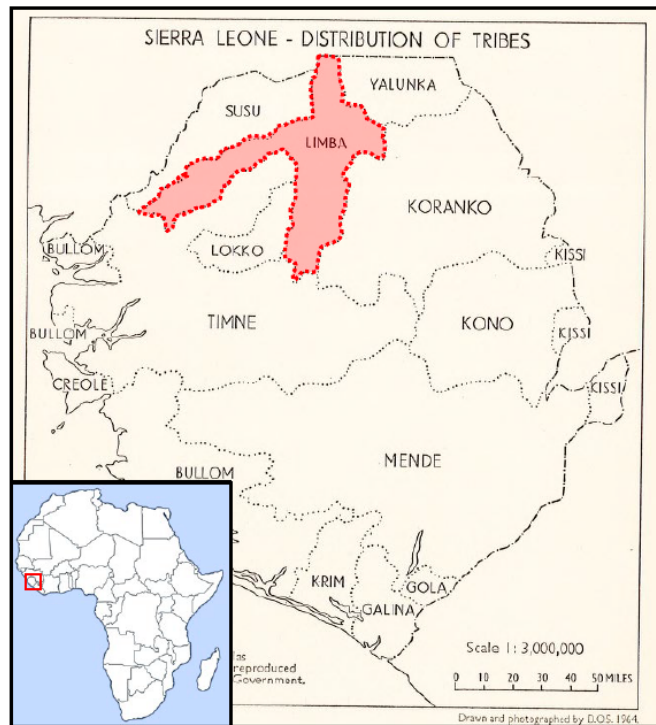|	CAUS$_1$	CAUS$_2$	DAT	CIR-CUM	ASSOC	RECIP	REV	INTENS	DISTAL	VENT	ITIVE
Ful	(i)n	(i)n, d	an, in	ir, or, d	(o/i/u) d	indir, ondir, ootir, tir	it, ut	it, ut, VVin	oy, ow		
Sereer	and	in, an, il, it	an, in, al	(i/o)r, it, an, oɗ	ir, or, od	or, od, andor	it			(i)d	(i)k
Wolof	al, *in	al	al, wal	e, al	and-	oo, ante	i, anti, arbi, arñi	VVi		si	i, ji
Palor	al, el, iɗ	iɗ	iɗ	aʔ		ante, antox	is	(k)is			
Ndut	il	iɗ	iɗ	aʔ		antaʔ	is	is			i^d
Noon	iɗ, *l	iɗ, ɗ	iɗ	oh		oh	(is)	(i)s	nee	d	
Diola	en, a	en, a	um	um		or	ul		ulo	ulo	ul
Balante	n	n	ed, Vd	(i)r, i	*d	ndi, ir	ɛt, at				
Basari	ʌn	ʌn, l	i, l-i	al, r	dʌr, dʌ	ʌr, r	ʌt	el	ʌx	u	
Bedik		ɣn	ɣn	al	ɣd	ʌr	ʌt		ʌɗ, (gu)		

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Besides the above cross-linguistic variation (also of other extensions), none of the eight causative extensions in Wolof looks like ***s** or ***i**:

The 8 causative suffixes in Wolof and their specific functions

		Type of causation	Type of verb	Degree of productivity
CAUS1	-e	**direct causation** + joint-action	intransitive (closed list)	lexicalized
CAUS2	-al	**direct causation** + sociative (dyn.)	mostly intransitive stative + transitive with experiencer	productive
CAUS6	-antal	**direct incomplete causation**	intransitive stative (1 dynamic)	low productivity
CAUS7	-ali	**direct completing causation**	(in)transitive	productive
CAUS8	-anti	**direct corrective causation**	intransitive stative	low productivity
CAUS3	-le	**assistive causation**	(in)transitive dynamic	productive
CAUS4	-lu	**indirect causation benefit** (*causee)	dynamic transitive (some intransitive)	productive
CAUS5	-loo	**indirect causation** + coercion	all types of verbs	productive

(Robert & Voisin 2022:85)

With the Atlantic situation in mind, we are now ready to look at Limba!

As seen in the following maps, Limba occupies a boomerang-shaped area in Northwest Sierra Leone. Although Finnegan (1965:144) estimates "13 or more" dialects, these cluster into three groups: Biriwa-Safrɔkɔ in the South, on which most of the previous work has been done, Wara Wara in the North, and Thɔnkɔ-Sɛla in the West, although little on extensions, nothing on tone.

(from Finnegan 1965; see also Rolle 2024 and Rolle et al 2024)

Over the past year and a half I have been engaged in a study of the Thɔnkɔ /t̪ɔ́ŋkɔ́/ dialect with Daniel Ibrahim Kamara, a student who received his masters degree this month from the Goldman School of Public Policy, UC berkeley. Nik Rolle has been working on the Wara Wara dialect in the North.

It has been hypothesized that Limba is an independent branch of Niger-Congo (Pozdniakov, Segerer & Vydrin 2019), so one question I have in mind is whether the verb extension system can help us determine if Limba has any close cousins within Niger-Congo.

Limba is Niger-Congo! Its noun class system looks very Atlantic, resembling those Atlantic languages that have full CV- noun class prefixes. As seen below, it has a "mixed" system of 12 noun classes similar to what is found elsewhere in Atlantic (Creissels 2015, Pozdniakov 2015). At least four of the classes are cognate with Proto-Atlantic noun classes (Pozdniakov 2015:76). Tone contrasts are boxed.

class		noun	det.	adj./gen.	PAtlantic	includes:
1	sg.	Ø	/oŋ/	o-	1 *ko-	animates
2	pl.	Ø	/beŋ/	bi-	2 *bɛ-	animates
3	sg.	gu- (> ku-)	/goŋ/	gu-	3 *(N)gwu-?	15 *k(w)u-?
4	pl.	ŋa-	/ŋáŋ/	ŋá-		
5	sg.	hu-, Ø	/háŋ/	hu-		languages
6	pl.	tha-	/tháŋ/	thá-		
7	sg./pl.	N-	/gíŋ/	gí-		
8	sg./pl.	ba-, Ø	/báŋ/	bá-		
9	sg./pl.	ma-	/máŋ/	má-	6A *ma-	mass-liquids
10	sg./pl.	bu-	/búŋ/	bú-		/bú/ 'fire'
11	sg./pl.	mu-	/múŋ/	mú-	6B *mu-	deverbal
12	sg./pl.	ka-, ga-	/ka/	gá-		locative

In this very Atlantic "mixed noun class system", only classes 3/4 and 5/6 have distinct plural noun prefixes and agreements:

class 3:	gu-gbati gu-nɛnɛ	'bad trap'
class 4:	ŋa-gbati ŋá-nɛ́nɛ	'bad traps'
class 5:	hu-bɔrɔ hu-nɛnɛ	'bad story'
class 6:	tha-bɔrɔ thá-nɛ́nɛ	'bad stories'

The animate class pairing 1/2 also shows a difference in agreement, but marks the plural on the noun with the suffix /**-in**/, less often /**-ni**/ (cf. Pozdniakov 2015:81 who notes this elsewhere for animates):

class 1:	bahu o-nɛnɛ	'bad goat'
class 2:	bahu-iŋ bi-nɛnɛ	'bad goats'

Classes 7-12 also mark the plural on the noun with /**-in**/ or /**-ni**/ but take the same agreement in singular and plural:

class 9:	ma-kónko má-nɛ́nɛ	'bad room'
	ma-kónkó-iŋ má-nɛ́nɛ	'bad rooms'

The verb extension system is also very Atlantic (Hyman & Kamara 2025):

Abbr.	Extension	UR	Allomorphs	Notes
C	Causative	-in	-Vŋ, -Vn-i, -in- elsewhere	not rare, but lexically restricted
A	Applicative	-i-	-i-	productive with benefactive or circumstantial meaning 'for'
R	Reciprocal	-ande	-ande	productive; also lexicalized cases
P	Passive	-o	-o, (-a)	productive; -a is very restricted
D	Dative	-ít-	Vt-i, -it-	productive, recipient 'to', ablative 'from', malefactive
E	Exclusive	-egé	-ege, passive -og-o	productive, idea of doing sth. in exclusion, apart, alone
F	Reflexive	-ɔgɔ	-ɔgɔ	productive, also lexicalized cases
I	Instrumental	-é	-e	productive
Pl	Pluractional	-w-	-w-	productive, plural participants, actions
St	Stative	-ɔ	-ɔ	stative and adjectival verbs

V = copy of root vowel, e.g. 'feed' (cause to eat) = **thɔm-ɔŋ** (stem1), **thɔm-in-a** (stem2)

Besides causative /-in/, three things to notice about the Limba inventory:

1. Three applicative extensions: **-i-** 'benefactive/circumstantial', **-ít-** 'recipient, ablative, malefactive', and **-é** 'instrumental'.

Concerning Voisin & Creissels' (2024) survey of applicative extensions in Atlantic languages, in response to my question why they had not talked about recipient applicatives ('send to' etc.), Denis Creissels emailed the following response to me:

Si nous n'avons pas parlé du destinataire, c'est que nos données n'incluent aucun cas où l'expression du destinataire nécessiterait une extension verbale. De manière générale, je sais qu'il y a des langues qui demandent une extension verbale pour exprimer le destinataire, mais ce n'est pas très courant, parce que le destinataire fait partie de la structure argumentale du verbe, et la tendance générale est plutôt d'utiliser la stratégie applicative pour des participants non essentiels. Le cas du limba n'en est que plus remarquable. (May 26, 2024)

Their finding was that the recipient is part of the argument structure of ditransitive verbs like 'give' and 'send', thereby not needing an extension.

2. The exclusive extension **-egé** is unusual. This extension indicates that an animate subject participates in the action or state of the verb **alone**, i.e. exclusively, aside, or in seclusion, and by extension secretly.

a.   hati oŋ thóm-égé pága   'the child ate rice alone'
       child DET eat-EXCL rice

b.   pagá thóm-ogo (íŋ hátí ôŋ)   'rice was eaten (by the child) in isolation'
       rice eat-EXCL.PASS (by child DEF)

c.   ndɛ kóth-égé mína   's/he knows us alone, independently'
       3SG. know-EXCL 1PL

Merrill (2023:200) reports **-oot** 'V[erb] by one's self ' in the Cangin language Saafi, which he says is borrowed from Sereer **-ood**. In Limba, the reflexive can also do this: **a-hoy-ɔgɔ** 'to swim by oneself', slightly different from **a-hoy-ege** 'to swim alone, aside, separately'. It is likely that the two extensions are related, possibly analyzed as **-Vg-e** and **-Vg-ɔ.**

3. Limba lacks a number of extensions found in Atlantic: reversive, intensive, distal, ventive, itive. The following is abridged from Becher (2000:31), with Bijogo forms added from Segerer (2002:211-226).

	Caus₁	Caus₂	Dative	Instr	Assoc	Recip	Revers	Intens	Distal	Ventiv	Itiv
Ful	(i)n	(i)n, d	an, in	ir, or, d	(o/i/u)d	indir, ondir, ootir, tir	it, ut	it, ut, VVin	oy, ow		
Sereer	and	in, an, il, it	an, in, al	(i/o)r, it, an, oɗ	ir, or, od	or, od, andor	it			(i)d	(i)k
Wolof	al, *in	al	al, wal	e, al	and-	oo, ante	i, anti, arbi, arñi	VVi		si	i, ji
Palor	al, el, iɗ	iɗ	iɗ	aʔ		ante, antox	is	(k)is			
Ndut	il	iɗ	iɗ	aʔ		antaʔ	is	is			iᵈ
Noon	iɗ, *l	iɗ, ɗ	iɗ	oh		oh	(is)	(i)s	nee	d	
Diola	en, a	en, a	um	um		or	ul		ulo	ulo	ul
Balante	n	n	ed, Vd	(i)r, i	*d	ndi, ir	ɛt, at				
Basari	ʌn	ʌn, l	i, l-i	al, r	dʌr, dʌ	ʌr, r	ʌt	el	ʌx	u	
Bedik		ɤn	ɤn	al	ɤd	ʌr	ʌt		ʌɗ, (gu)		
Bijogo	i	i	an	at	an	an		(at)		a	am
Limba	in, Vn		i, ít	é		ande					

Note: There are some discrepancies between Becher and other sources

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Comparison of Limba extensions with Atlantic and Mel languages
(Badiaranke is from Cover 2010; Atlantic passive forms are from Voisin 2024:565)

	Caus₁	Caus₂	Ben	Dative	Instr	Assoc	Reciprocal	Pass
Ful	(i)n	(i)n, d	an, in		ir, or, d	(o/i/u)d	indir, ondir, ootir, tir	-e
Sereer	and	in, an, il, it	an, in, al		(i/o)r, it, an, oɗ	ir, or, od	or, od, andor	-el
Wolof	al, *in	al	al, wal		e, al	and-	oo, ante	---
Palor	al, el, iɗ	iɗ	iɗ		aʔ		ante, antox	-u
Ndut	il	iɗ	iɗ		aʔ		antaʔ	-u(u)
Noon	iɗ, *l	iɗ, ɗ	iɗ		oh		oh	-us
Diola	en, a	en, a	um		um		or	-i, -e
Balante	n	n	ed, Vd		(i)r, i	*d	ndi, ir	---
Basari	ʌn	ʌn, l	i, l-i		al, r	dʌr, dʌ	ʌr, r	
Bedik		ɣn	ɣn		al	ɣd	ʌr	
Badiaranke	-n, -a:n		-i:		-e:n		-ər	o:
Bijogo	i	i	an			an	an	---
Kisi	i	i	(u)l			i	i-ŋ, (i/a)ndo	nŭŋ
Temne	-s		na	r (loc.)	ʌnɛ		ʌnɛ	---
Limba	in, Vn		i	it, Vt	é		ande	o

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Besides the above resemblances, the reflexive extension **-ɔgɔ** (elsewhere non-contrastively **-ɔkɔ** in Limba) is likely cognate with the following anticausative/reflexive ***-ox** series in Cangin. although ***og** can have a reciprocal function:

Table 133   Proto-Cangin verbal derivational suffixes (Merrill 2023:198-9)

PCg	Noon	Laalaa	Saafi	Paloor	Ndut	
*-oɣ	-oh	-oh	-oh	-a'	-a'	applicative (+recip. in NLS)
*-iɗ	-iɗ	-eɗ	-iɗ	-iɗ	-iɗ	benefactive applicative
*-íɗ	-íɗ	-íɗ	-iɗ	-íɗ	-íɗ	causative
*-iɾ̥	°-is, -iis	-es	-is(oh)	-il	-il	iterative
*-ís	-ís	-ís	-is	-ís	-ís	reversive
*-ox	-uk	-ok	-uk	-oh	-oh	anticausative/reflexive
*-is(-oɣ)	-is(oh)	-esoh	-isoh	-is	-is(a')	intensive/pluractional
*-íɗ-ox	red-ɗuk	red-ɗuk	-(i)ɗuk	-ɗóh	-ɗ̈ëh	pretend
*-iɗ	-iɗ (?)			-iɗ	-íɗ	'have already done'

Note the above **-is-** extension which is intensive/pluractional rather than causative. (Could PB ***-ɪc-**, which co-occurs with causative ***-i**, have been an intensive?) There is a **-k-** extension marking abundance (Berry 1960:39) which only occurs after **CVŋ** roots: **sɔŋ-** 'sing', **sɔŋ-k-** 'sing a lot', **gbiŋ-k-** 'swear a lot', **paŋ-k-** 'chase a lot'.

Merrill (2023:232) also compares Proto-Cangin ***-ox** with other Atlantic languages:

Table 148   Anticausative/middle/stative suffixes in Northern Atlantic groups and Bantu

Cangin	Fula-Ser.	Wolof	bkk	Tenda	Biafada-Pajade	Joola	Bijogo	Bantu
*-ox	*-oox	-(k)u	*-ah	*-a	B. -oo, P. -a, -oa	*-o	-ɔk	*-ik

"The connection with Bantu is difficult due to the vowel, but I view this extension as the best candidate for reconstruction to Proto-Niger-Congo, since it makes use of a velar/uvular in so many groups, whereas most extensions have coronals." (Jack Merrill, pers.com. April 29, 2025)

There also is a stative **-ɔ** suffix in Limba, e.g. **thim-ɔ** 'be sweet', which could be cognate with ***-ox**. As mentioned, reflexive **-ɔgɔ** and exclusive **-ege** might be bimorphemic **-Vg-ɔ** and **-Vg-e** (Hyman & Kamara 2025).

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I have to emphasize that I feel on rather shaky ground as an outsider talking about Atlantic, where serious issues of interpretation arise much more than elsewhere in Niger-Congo. Different sources report different forms for the same function, e.g. causative, or different functions for the same form. Independent of this problem, Atlantic extensions clearly show both

1. a many to one relation between forms and a function

"Atlantic languages have several derivations [spell-outs] for a single general voice." (Voisin 2024:556)

2. a one to many relation between a form and functions

"Atlantic languages have single derivations [spell-outs] for several general voices." —LMH

A Limba example of #2 concerns "dative" **-ít-e ~ -V́t-i**, whose interpretations vary, complementary to applicative **-i-**:

Recipient	ndɛ gbál-ít-é ma =	's/he wrote to me'
	ndɛ gbál-át-í ma	'to, against me' (ambig.)
Directional	ndɛ yέl-ít-é má ⁺bɔ́lu	's/he threw a ball at me'
cf.	ndɛ yέl-í-é má ⁺bɔ́lu	's/he threw a ball for/to me'
	ndɛ ŋáyan-t-í má paga	's/he hid rice from me' (cf. 'steal')
Ablative	ndɛ thóm-ít-é ma	's/he ate from me, from my food'
	ndɛ thɔm-ɔt-i	's/he ate uninvited (bad effect)'
Malefactive	ndɛ lɔ́ŋ-ɔ́t-í má biyó haŋ	's/he closed the door on me'
	ndɛ sɔ́ŋ-ɔ́t-í má kwiŋa	's/he sang a song against me'
cf.	ndɛ sɔ́ŋ-ít-é má kwiŋa	's/he sang a song about me'
	ndɛ sɔ́ŋ-í-é má kwiŋa	's/he sang a song for/to me'
Instrument	ndɛ thóm-ít-é kúmpa	's/he ate from a spoon'
cf.	ndɛ thóm-é kúmpa	's/he ate with a spoon'

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"Dative" **-it-** appears to be an "elsewhere applicative" like Bantu ***-id-** which besides benefactive, recipient and locative functions can sometimes license an instrument and manner as well, hence standing out as the general licensor picking out functions not covered by causative ***(-ic)-i.**

Limba dative **-ít-** also shows the same tendency to work in tandem with other extensions, e.g. benefactive **-i-,** which can optionally co-occur to license the same function ('speak cause to me'):

ndɛ gbónk-ít(-í)-é ma   's/he spoke to me'
3sg speak-DAT-BEN-FV   (FV = final vowel)

ndɛ kiŋ ka gbónk-ít-í-ándé ma   's/he is speaking to me'
3sg be   at speak-DAT-BEN-RECIP   (I am also speaking,
                                                          hence 'together with me')

Which brings up the question of whether Limba suffix ordering can be helpful both for reconstruction and to compare with other languages. Suffix ordering is a big issue that we examine in Hyman & Kamara (2025). For our purposes I present the following table showing which suffix sequences are permitted:

	Caus	Dat	Plur	Ben	Recip	Excl	Refl	Pass	Instr
Caus	*	-in-t-	-in-w-	-in-i-	-in-ande	-in-egé	-in-ɔgɔ	-in-o	-in-é
Dat	*	*	-it-w	-ít-i	-ít-ande	-it-egé	-ít-ɔgɔ	-ít-o	-ít-é?
Plur	*	*	*	-w-i-	-w-ande	-w-egé	-w-ɔgɔ	-w-o	-w-é
Ben	*	*	*	*	-i-ande	-i-egé	-i-ɔgɔ	-i-o	-i-é?
Recip	*	*	*	*	*	*	*	(-and-o)	-and-é?
Excl	*	*	*	*	*	*	*	-og-o	-ég-é?
Refl	*	*	*	*	*	*	*	*	*
Pass	*	*	*	*	*	*	*	*	*
Instr	*	*	*	*	*	*	*	*	*

The question marks concern the difficulty in determining whether instrumental **-é** is present with extensions that otherwise require a final [e], e.g. dative **-ít-e**, benefactive **-i-e**, reciprocal **-ande**, exclusive **-egé**.

From the above table we can make the following observations:

a.   The causative suffix /**-in**/ must come first. Is this true elsewhere in Atlantic?

b.   The dative suffix /**-ít-**/ can only be preceded by the causative, in which case the expected sequence **-in-it-e** is realized either **-in-t-** (ablative, source). (**-in-e** is used to express a recipient)

c.   The pluractional suffix **-w-** follows the causative and dative and precedes the remaining extension. It often accompanies the reciprocal, **-w-ande**.

c.   The passive suffix /**-o**/ must come last.

d.   The instrumental suffix /**-é**/ must come last.

e.   The exclusive suffix /**-egé**/ and the reflexive suffix /**-ɔgɔ**/ are mutually exclusive. This might be taken as evidence that they both share a **-Vg-V** structure, since the combination doesn't seem to be ruled out semantically, e.g. *****yaŋ biy-ɔgɔ-ege** /*****yaŋ bíy-égé-ɔ́gɔ** (intended: 'I washed myself alone')

The order of verb extensions is thus determined morphotactically and is remarkably fixed, showing no variation based on scope:

Causative	Dative	Pluract.	Benefactive	Recip.	Excl/Refl	Passive/Instr
-in-	-it-	-w-	-i	-ande	-egé/-ɔ́gɔ	-o/-e

Verb extensions can be stacked, as in the following example with five verb extensions:

yaŋ thínk -ín   -í -ánd -óg   -ó ntha
1sg   break-CAUS-BEN-RECIP-EXCL-PASS thing
'for me something was broken apart (by someone) alone'

Note the use of the reciprocal extension on **think-in-ande** 'break apart' (cf. **think-i** 'break'). Even lexicalized **-ande** requires benefactive **-i-** to precede: **a-daŋande** 'to pass', **a-daŋ-i-ande ma** 'to pass for me' (unrelated **a-daŋ** means 'to hunt').

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Suffix ordering is potentially relevant when we ask questions about the origin of the different verb extensions.

One view is that suffixes which are closer to the root are older, having been grammaticalized earlier than suffixes which are further out.

"… to a significant extent, the order of affixes within words reflects their historical order of attachment." (Mithun 2000:252)

Good (2005:50) makes this point about the required causative-applicative ***-ıc-ıd-** order in Bantu. There are, however, potential problems with this:

1. The ***-i** causative must come after the applicative: ***-ic-ıd-i-** and yet it accompanied Proto-Bantu ***-ic-i-**. Applicative ***-ıd-** is "interfixed".

However…

2. The *s causative of Moore must come last (Canu 1976):

	-b	-d	-g	-l	-m	-s
-b			X	X		X
-d			X			X
-g				X	X	X
-l			X		X	X
-m						X
-s			X			

Table 7. Comparision of Moore and Proto-Bantu extensions.

	Moore	*Proto-Bantu*	
être dans un état	-b	*-ɪb-ʊ-	passive
intensif	-b		
rendre en mettant dans un état	-d	*-ʊd-	reversive transitive (cognate?)
locatif	-d	*-ɪd-	applicative
mettre dans un état	-g	*-ɪk-	impositive
action répétée, intensif	-g	*-a(n)g-	repetitive
inversif	-g	*-ʊk-	reversive intransitive
amplitude, certitude	-l		
positionnel	-m	*-am-	stative (positional)
causatif	-s	*-ɪc-i-	causative (*c > s in most Bantu languages)
discontinu (fréquentatif?)	-s		

7   (Hyman 2014:109)

Coming back to Limba (and Atlantic), if I had to guess which extension is the most likely to have been innovated since the break-up of Niger-Congo, I would say causative ***Vn** which stands out as an outlier to ***s** and ***i**. We might alternatively propose that ***s** was innovated at the Proto-Volta-Congo stage, but we still need Proto-Niger-Congo ***i** because of Kordofanian **-i** … unless **-i** comes from ***-in** (?). This would be more consistent with Limba causative /**-in**/ appearing closest to the verb (but cf. Doneux's 1975 ***-an**):

Causative	Dative	Pluract.	Benefactive	Recip.	Excl/Refl	Passive/Instr
-in-	**-it-**	**-w-**	**-i**	**-ande**	**-egé/-ɔ́gɔ**	**-o/-e**

Note, however, that the order is **-at-an-** in Bijogo vs. **-in-it-** in Limba. It is noteworthy, however, that causative **-i** comes last in Bijogo, similar to Bantu (where **-i** can only be followed by the passive extension ***(-ıb-)ʊ-**).

Bijogo (Segerer 2002)	res, middle	instr	rec/assoc/ben	caus, ventive, itive	(*-*at-i* not attested)
	-ak -ɔk	-at	-an-	-i -a -am	

But where did these extensions come from? They had to be grammaticalizations either of prepositions or verbs.

Verbal attraction as a strategy for avoiding preposition stranding

a. [Dholuo (Nilo-Saharan)] has a verb attraction rule applying to case marking prepositions: once the noun phrase governed by the relevant preposition is topicalized to the pre-verbal position the preposition is removed from the adverbial phrase and attached to the verb as a suffix. (Okoth-Okombo pers.comm. to Heine & Reh 1984:51)

b. jon   nego   diel ne   juma   'John is killing a goat for Juma'
   John   is.killing goat for Juma

c. juma   jon   nego-ne   diel   'John is killing a goat for JUMA'
   Juma   John   kill-for   goat

d. juma   jon   i-nego-ne   diel   'a goat is being killed for JUMA'
   Juma   John   PASS-kill-for   goat

This may also account for the oft-remarked resemblance between Bantu **na** 'with, and' and the reciprocal/associative extension **-an-**.

And, closer to "home", in Bijogo, where Segerer (2002) considers the following possible sources:

Extension		Verb		Prep	
middle	-ɔk	-ok	'be there, exist'		
ventive	-a			a-	'on'
Itive	-am			am-	'at'
				ma-	'in order to'
causative	-(ak)-i	(-ak	see below)	i-	'chez'
instrumental	-at	-at	'reach'	ta-	'with, from'
recip/assoc.	-an			na-	'and, with'
benefactive	-an			an-	'towards'
resultative	-ak ~ -Vk	(-ak	'draw (water)',	ka-	'as, since, if, when'
		(-ak	crush')	aki-	'like'

Concerning ***Vn**, which is causative in Limba, but can be causative and/or applicative in Atlantic, I looked for the expected source 'to give' as in Vute (Bantoid) **nà** 'give' > **-nà** 'applicative' (Thwing 2006:4), and maybe Kuteb (Jukunoid) **ndà** 'give' > **-nà** 'benefactive' (Koops 2009:73). I didn't come up with phonetically similar 'give' in Atlantic, but Jack Merrill informs me (pers.comm.) that in Cangin there is ***(y)eɗ** 'give' and benefactive ***-iɗ**.

Could the verb extension variation be explained as recent innovations, each language grammaticalizing in a different way? This raises the question of how to tell if an extension is old vs. a relative recent creation? (Hyman 2020:30)

if relatively young, we expect an extension to ...	*if relatively old, we expect an extension to ...*
have a transparent source in a verb or preposition	have an opaque or no source in a verb or preposition√
have no cognates or only in closely related languages	have cognate forms in distantly related languages√
be functionally/semantically transparent	have multiple, unpredictable functions√
occur only where a corresponding bare root exists	have frozen forms without any corresponding verb root√
be further out from the root than other suffixes	be closer to the root than other suffixes
be syntactically dependent	be syntactically independent
be CV, easily segmentable from other forms	be V(C), more fully integrated with other forms√
not have allomorphs	have allomorphs√
have its own contrastive tone (like enclitics)√	receive its tone from the verb or inflectional features

By these criteria, Limba (and Atlantic) extensions mostly seem old.

The major exception is tone. The extensions in Limba fall into two tone patterns:

H tone		L (or Ø) tone	
causative	/-ín/	pluractional	/-w-/
dative	/-ít-/	applicative	/-i-/
exclusive	/-egé/	passive	/-o/
instrumental	/-é/	reciprocal	/-ande/
		reflexive	/-ɔgɔ/

N.B. The reciprocal and reflexive show some inconsistency as **-ánde** and **-ɔ́gɔ** (Hyman & Kamara 2025). We found a few cases of intensive **-k after ŋ,** with H tone: **a-sɔŋ-k-í** 'to sing a lot', **a-gbiŋ-k-í** 'to swear a lot', **a-thiŋ-k-í** 'to swell a lot'.

It could be helpful if we found tonal correspondences. Unfortunately most Atlantic languages are non-tonal. However, verb extensions show tonal distinctions in both tonal Atlantic and Mel languages, as well as elsewhere in Niger-Congo, though often not in Bantoid (Hyman 2017).

1. In Wẽỹ (Konyagi, Atlantic), of 21 verb extensions, 15 are H, 2 are L, 3 are HL and 1 is toneless (Sachot 1996:314)

   - 15 are H   e.g.   *-nə́n*   'causatif'
                          -nə́ĩ̃   'applicatif'
                          -ryǽry 'associatif'
   - 2 are L   e.g.   *-ìj*   'rapprochant' (ventive)
                          -ə̀x   'distanciatif'
   - 3 are HL   e.g.   *-ə̂l*   'réciproque'
                          -ə́ryì   'éloignant' (itive)
                          -îŋ   'verbalisant'
   - 1 is toneless e.g.   *-ət*   'intensif'

2. In Kisi (Mel) causative *-i* and benefactive *-lul*, as well as plural extensions are toneless vs. the "middle/passive" suffix *-nǔŋ* (Childs 1995:171-194).

To conclude, we've seen that Limba looks more Atlantic than it does anything else. Assuming that the following morphemes are not due to contact or borrowing, the plural noun suffix /**-in**/ and the causative /**-in**/ and reciprocal /**-ande**/ verb extensions may be the best indicators that Limba belongs with Atlantic, although it's hard to see how it fits in.

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