

## On Reconstructing Tone in Proto-Niger-Congo

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“It is generally believed that Proto-Niger-Congo had at least two tones, but no serious reconstruction has yet been done.” (Williamson & Blench 2000:38)

(1) The purpose of this talk

- a. original motivation was to address the question of how far outside of Narrow Bantu the widely accepted reconstructed tones of Proto-Bantu (PB) lexical morphemes correspond (Greenberg 1948; Meeussen 1969[1980]; Bastin, Coupez, Mumba & Schadeberg 2002)
- b. possibilities include languages/language subfamilies at different levels of Niger-Congo (NC): (i) Bantoid; (ii) East Benue-Congo (Cross-River, Central Nigerian); (iii) Benue-Kwa; (iv) Volta-Congo.... (v) Niger-Congo (Williamson & Blench 2000:18)

(2) It is generally assumed that an early proto language, e.g. Proto-Niger-Congo (PNC) (i) was tonal; (ii) had two tones, \*H and \*L (cf. Hombert 1984:119)

“Tone can be reconstructed for Proto-Niger-Congo... but also represents an areal phenomenon....” (Childs 1995a:13)

“... at least two basic tonemes, marked by a high and a low pitch respectively, existed in PWN [Proto-Western Nigritic—roughly Atlantic, Gur, and old Kwa]” (Mukarovsky 1977:168)

(3) Reasons behind this “intuition”

- a. almost all Niger-Congo languages are tonal, as are controversial inclusions (Mande, Ijoid)
- b. non-tonal NC languages are assumed to have lost their tone and are geographically peripheral, via natural tone simplification processes (cf. Childs 1995b) and/or influence from neighboring non-tonal languages (cf. Hombert 1984:154-5)—not only Swahili in the East, but also Northern Atlantic (Fula, Seereer, Wolof etc.), Koromfé (Northern Central Gur) and (outside NC) Koyra Chiini (Songhay; Heath 1999:48)—effect of contact with Berber? (Childs 1995b:200 mentions Arabic, either directly or through Fula.) Geographic exception: certain zone M and N Bantu languages (e.g. Nyakyusa, Tumbuka).
- c. possible pathways for Niger-Congo tonogenesis are unsupported, can only be speculative
- d. languages with 3, 4 or 5 tone heights are generally assumed to have innovated them either from the effect of depressor consonants or tonal interactions, as can be extrapolated from more recent developments, e.g. in Kru and Bantoid, respectively.

“No mid tone has been reconstructed for PUC [Proto-Upper-Cross] so far. The mid tone in eg., KoHumono seems to be the result of a secondary split of high, in most cases because of some depressor consonant....” (Dimmendaal 1978:185)

(4) Methodological and practical issues in reconstructing tone at the PNC level

- a. a huge time depth during which tones will have possibly changed, perhaps dramatically, due to mergers, splits, and contextual tonal interactions with other morphemes
- b. for nouns, the stem tone is often affected by the noun class marker, either a prefix or suffix; in PB the augment had a \*H tone which often shifts onto the L tone noun class prefix or stem; given de Wolf's (1971) reconstruction of different tones on Proto-Benue-Congo noun class prefixes, if noun classes have merged here and there, with \*H or \*L fusing onto the noun stems, this could complicate our ability to detect regular tonal correspondences; additional problems will occur in languages which have lost the second syllable of the mostly bisyllabic Proto-Bantu noun stem. Important: we need to avoid undue Bantucentrism.

- c. for verbs, it is well-known that many NC languages do not have a lexical tonal contrast on verb roots, e.g. Kisi (Atlantic), Konni, Kulango (Gur), (Edoid), Cicipu (West Kainji), Zande (Ubangi), not to mention many Bantu languages, where tones are assigned by the inflectional morphology (tense-aspect-mood-negation)—these languages will be largely irrelevant in the search for tonal correspondences with PB lexical verb tones.
- d. for both word classes, it is easier to identify cognates in languages which have CVC roots vs. those which have shortened them to CV, e.g. Yoruboid, Nupoid, Igboid V-CV nouns, CV verbs
- e. still, a belief that a tonal correspondence strengthens the likelihood of cognacy, e.g.
 

“Despite the rare attestations the similarity of forms and tone argues that this is reconstructed to South Bantoid.” (Blench 2004[2016]:155)

- (5) Proposal: Look at verbs, where the task may be both easier and more interesting. Why?
- a. most PB verb roots are reconstructed with only one syllable (vs. mostly bisyllabic nouns); there is some generality to this in various NC subbranches, e.g. “Igboid roots, as seen in verbs, are uncompromisingly monosyllabic” (Williamson, Blench & Ohiri-Aniche 2016:2)
  - b. suffixal morphology (e.g. verb extension tones) may provide important hints as to the nature of earlier states, ultimately PNC (vs. noun morphology, presently much more under control)
- (6) We thus now have THREE goals
- a. see if NC verb root tones correspond with PB
  - b. see if anything can be said about the tones of cognate verb extensions (TAMs = too messy!)
  - c. interpret (b) as to what the nature might have been of early verb structure in NC
- (7) Mukarovsky (1976-7) already claimed that Bantu verb tones correspond to his Proto-Western-Nigritic (PWN), i.e. as far away as (tonal) “Atlantic” languages. NB. He draws mostly from Guthrie’s (1967-71) Common Bantu (CB), and cites earlier (often incorrect) suggestions for PB, i.e. preceding Meeussen (1969[1980]), to which he apparently did not have access. Totals: 287 verbs out of 653 proposed reconstructions = 44.0%. Of these 58 have a tonal reconstruction (I have checked his CB/PB with BLR “fiabilité”). Note that reconstructed PWN tone is often based on a few languages and, as elsewhere, Mukarovsky was undoubtedly influenced by Guthrie’s CB.)

<i>PWN</i>	<i>CB/PB</i>		<i>PWN</i>	<i>CB/PB</i>		<i>PWN Totals</i>
*H	*H	24	*H	*L	11	35 *H
*L	*L	20	*L	*H	3	23 *L
corresponding:		34	non-corresponding:		14	

- (8) Stewart’s (2002:214-223) Proto-Potou-Akanic-Bantu (PPAB): 54 verb roots (out of 109 reconstructions) = 49.5%. No tones. Of these 36 have PWN correspondences:
- a. 26 are reconstructed without tone by Mukarovsky (includes PWN \*kual ‘cough’)
  - b. 5 are reconstructed with \*H by Mukarovsky (includes PWN \*kwác ‘cough’)
  - c. 5 are reconstructed with \*L by Mukarovsky
- (9) PWN verb stems reconstructed with \*H with correspondences to Proto-Upper-Cross (PUC) (Dimmendaal 1978) and Proto-Igboid (PIgb) (Williamson, Blench & Ohiri-Aniche 2016)

<i>PWN</i>	<i>PPAB</i>	<i>PB (BLR)</i>	<i>PUC</i>	<i>PIgb</i>	
*khwú	*k <sup>w</sup> u	*kú	*k <sup>w</sup> á	*ṅúú	‘die’
*bíl	*ḃíí	*bíd		*wé	‘become cooked’
*dád	*dá	*dáad	*DáBí	*dǎǎ (HL)	‘lie down, sleep’
*kwác	*k <sup>w</sup> apɪ	*kócid		*k <sup>w</sup> á	‘cough’
*ní	*ní	*ní	*nè	*níǔ (HH)	‘defecate’ (with tonal discrepancies)

## (10) PWN Verb stems reconstructed with \*L

PWN	PPAB	PB (BLR)	PUC	PIgb	
*pìn	*pĩnĩ	*pìn		*pĩ	‘press, squeeze’
*kì	*k’ĩ	*ké		*í-ṅ-kí (n.)	‘dawn’ (with tonal discrepancies)
*gìl	*gili	*gìd		*jě (H)	‘abstain, avoid’
*lùk	*lũṅku	*dùk	*nòkà	(*kpǎ)	‘plait’
*mìl	*mĩlĩ	*mèd	*mèn	(*ṅo [?], *dĩwě)	‘swallow’

(11) There will of course be many more tonal correspondences with languages in groups that are more closely related to PB. Proto-Grassfields Bantu works almost perfectly (Hyman 1979; Elias, Leroy, & Voorhoeve 1984), as does Noni (Bantoid: Beboid). Noni has /H, M, L/, but verb roots show only a binary contrast, which I indicate below as H vs. L (Hyman 1981). Working from Mukarovsky’s PWN, I found 85 Noni verbs with PB correspondences of which:

Noni	PB		Noni	PB		Totals
H	*H	46	H	*L	4	35 *H
L	*L	26	L	*H	4	23 *L
corresponding:		72	non-corresponding:		8	(plus 5 where the PB tone is uncertain)

(12) Moving a little further away, I found 45 verbs in Leggbo (Upper Cross) which correspond to PWN/PB (drawing from a Leggbo 1485 entry lexical database created with Imelda Udoh). Although Leggbo has /H, M, L/, verb roots show only a binary contrast indicated as M vs. L:

Leggbo	PB		Leggbo	PB		Totals
M	*H	22	M	*L	∅	22 *H
L	*L	15	L	*H	3	16 *L
corresponding:		37	non-corresponding:		3	

(13) When we get to Igboïd, it gets a little harder. Part of the problem is that the group has reduced most proto forms to CV roots. Among more than 600 proposed Proto-Igboïd reconstructions, Williamson, Blench & Ohiri-Aniche (2016) provide potential PB analogues for over 160 verbs. Without critically evaluating them (some appear to be listed perhaps only to show that the PB root is not cognate), the tonal correlates appear to be problematic (note how few PIgb \*L verbs):

		Proto-Igboïd					
		*H	*L	*LH	*HL	*HH	Totals:
Proto-Bantu *H	:	<u>51</u>	3	13	<u>11</u>	<u>11</u>	89 (underlined = PIgb first tone)
Proto-Bantu *L	:	36	<u>5</u>	<u>25</u>	11	8	85 corresponds to PB: 103 vs. 71)
Totals:		87	8	38	22	19	

(14) Of these I have established 41 which look the strongest cognate with PB. These come out as:

		Proto-Igboïd					
		*H	*L	*LH	*HL	*HH	Totals: Corresponding:
Proto-Bantu *H	:	<u>13</u>	0	5	<u>2</u>	<u>5</u>	25 20 vs. 5
Proto-Bantu *L	:	6	0	<u>5</u>	3	2	15 5 vs. 11
Totals:		19	0	10	5	7	41 25 vs. 16

(15) Some of the best PIgboid/PB correspondences include: ( ~ = nasalization)

*H/*H	:	*dí / *dí	‘eat’	*ṅú / *ṅú~ṅó	‘drink’	*t’ú / *t’óng	‘build’
*H/*L	:	*gwó / *gòn	‘snore’	*tí / *tì	‘tell/say’	*cú / *còb	‘rub’
*LH/*H	:	*pǔ / *púm	‘exit’	*dyǎ / *dúad	‘be ill’	*pwǔ / *púd	‘blow w/mouth’
*LH/*L	:	*lìCj / *dìik	‘bury’	*lòwú / *dù	‘fight’	*kpǔ / *kùd	‘scrape’

*HL/*H	:	dáà / *dáád	‘sleep’	*tô / *tó	‘pound’		
*HL/*L	:	*jô / *jòd	‘buy’	*dò / *dì	‘be’	*lî / *dòd	‘be bitter’
*HH/*H	:	*nínjé / *nínk	‘give’	*dúá / *dóót	‘dream’	*bíú / *bá	‘be’
*HH/*L	:	*nínjù / *nè	‘defecate’	*lúCú / *dùng	‘marry’		

Note: There are at least three tonal classes of verb roots in certain Igbo lects (Williamson, Blench & Ohiri-Aniche 2016:2); the second syllable/tone of verbs may be archaic, or Igboid innovations.

(16) Up to this point I have been operating under the following three related assumptions

- NC verb roots are monosyllabic
- NC verb roots contrast only two tones (\*H and \*L)
- NC verb roots can be studied in morphological isolation

(17) No evidence for more than two tones (\*H, \*L) in PNC. The four tonal configurations in PIgb, are potentially predictable from the structure of NC stems:

- nouns have monomorphemic, mostly bisyllabic roots (= stems), e.g. \*CVCV
- verbs have monomorphemic, monosyllabic roots + a suffix or suffixes, e.g. \*CVC-V

*Exceptions:* Ijoid, Mande, where verb stems are monomorphemic as well (archaic—or evidence that they are not Niger-Congo?) “So far, there is no reason to postulate for the verb in Proto-Mande root structure different from the noun” (Valentin Vydrin, pers.comm.). There are other NC languages which look like they have monomorphemic CVCV verb roots, but:

(18) Many NC languages restrict the second vowel of CVCV verbs, e.g. Leggbo allows only /i/ and /a/, which can be traced back to Proto-Upper-Cross (Dimmendaal 1978). Of his 100 reconstructed verbs, 45 are monosyllabic, 55 disyllabic, with the following V1 + V2 distributions:

V1 →	*i	*e	*ε	*u	*o	*ɔ	*a	Totals	Exceptions (3):
V2 = i :	4	2	1	2	5	0	9	23	*ppénè ‘return’
V2 = a :	9	2	0	3	8	0	7	29	*bene ‘remember’
Totals :	13	4	1	5	13	0	16	52	*kwùŋ(ede) ‘open’

(19) Three possible explanations for why a language may allow only CVCi and CVCa

- all other \*V2 vowels have fallen out
  - all other \*V2 vowels have merged with \*i and \*a
  - V2 vowels may be relics of suffixes which may have been limited to \*i and \*a
- cf. Kulango (Gur), where the 18 verb extensions have only i~i, u~u and a (Elders 2008:195)

(20) Contrast this with the vowel combinations in 424 Kalabari (Ijoid) bisyllabic verbs (lexicon of 764 verbs collected with Otelemate Harry), whose gaps do not suggest a suffixal origin (the only unambiguous verb suffix is -ma ‘causative’: 102 out of 210 3σ verbs and all 20 4σ verbs end -ma)

V2 →	I	U	E	O	A	Totals:	
I	42	0	20	9	19	90	I, U, E, O, A stand for [±ATR] vowels.
U	0	26	4	10	18	58	The gaps look like “normal” morpheme-structure conditions (maybe also nouns):
E	38	1	38	0	3	80	(i) *I-U, *U-I, *E-U, *U-E (n = 4)
O	37	11	0	49	7	104	(ii) *E-O, *O-E
A	36	7	1	1	47	92	(iii) *A-E, *A-O
Totals:	153	45	63	59	94	424	

(21) If verb stems = root + suffix, and if each morpheme had a tone, then this predicts four verb tone patterns: H + H, H + L, L + L, L + H. Do we find this? If so, where do we find this?

- common: H vs. L inflectional suffixal tones (less likely to become lexicalized)
- occasional: H vs. L derivational suffixal tones, i.e. verb extensions (often lexicalized)

(22) Proto-Bantu according to Meeussen (1967); verb stem = root + extensions + final inflection

- H and L contrasted on final inflectional endings \*-a, \*-e, \*-I, \*-il-e
- verb extensions were toneless, e.g. \*-is- ‘causative’, \*-il- ‘applicative’, \*-an- ‘reciprocal’
- tone of final inflectional morpheme was copied onto toneless extensions

(23) Lingala examples from Guthrie, cited by Schadeberg (1977:198)

	‘to get confused’		‘to stagger’		
	<i>pre-stem</i>	<i>stem</i>	<i>pre-stem</i>	<i>stem</i>	<i>final V</i>
a. infinitive:	kò-	kàk-àt-àn-à	kò-	tél-èng-àn-à	/-à/
future:	nà-kò-	kàk-àt-àn-à	nà-kò-	tél-èng-àn-à	/-à/
subjunctive:	ná-	kàk-àt-àn-à	ná-	tél-èng-àn-à	/-à/
b. past:	nà-	kàk-át-án-í	nà-	tél-éng-án-í	/-í/
remote past:	nà-	kàk-át-án-á	nà-	tél-éng-án-á	/-á/
imperative:		kàk-át-án-á		tél-éng-án-á	/-á/

(24) Two exceptions of contrastive tone on extensions in Bantu. For as yet unexplained reasons Chichewa distinguishes /H/ and toneless (< \*L) extensions (Hyman & Mtenje 1999)

a. Toneless extensions

mat-a	‘plaster/glue’	
mat-il-a	‘plaster/glue for/at’	{applicative}
mat-its-a	‘cause to plaster/glue’	{causative}
mat-an-a	‘plaster/glue each other’	{reciprocal}
mat-ul-a	‘unplaster/unglue (tr.)’	{reversive tr.}

b. H tone extensions (the /H/ is realized on the final vowel)

mat-ik-á	‘be plasterable/gluable’	{stative}
mat-its-á	‘plaster/glue a lot/well’	{intensive}
mat-uk-á	‘become unplastered/unglued’	{reversive intr.}

c. Dialectal toneless ~ H tone extension

mat-idw-a	‘be pastered/glued’ [Ntcheu]	{passive}
mat-idw-á	” ” ” [Nkhotakota]	

(25) The second exception concerns causative \*-i- and passive \*-u- which sometimes impose a H tone

- Meeussen (1967:92n) suggests the H may be archaic, that these two suffixes were \*H
- Hyman & Katamba (1990) argue for Luganda and Kinande that the extra H is inflectional: when \*-i- or \*-u- is present in a TAM with a final inflectional H, a second =H is assigned
- My speculation has been that \*-i- and \*-u- were originally verb-final “grade” suffixes (Hyman 2007:161) marked by an inflectional H (vs. derivational VC extensions in the “prosodic trough”); this may explain why they are implicated in longer \*-iC-i- and \*-iC-u- still unsettled: for recent work on the tonal effects, see Ebarb & Marlo (2010), Ebarb (2012)

(26) NC extensions are often underlyingly toneless outside of Bantu

- way over in the west, in Kisi (“Atlantic”), causative -i and benefactive -lul, as well as plural extensions are toneless vs. “middle” -nũj (Childs 1995a:171-194)  
“Verb extensions cause the verb root to be analyzed as accented since the extensions are without tone....” (Childs 1995b:207)
- way over in the northeast, in Moro (Kordofanian) the benefactive applicative -əṭ, locative applicative -aṭ, passive -ən and anti-passive -əḏ extensions are all underlyingly toneless  
“...the tone pattern of the basic stem applies to the forms with extension affixes, too.” (Rose 2013:45)

However, "... the causative requires a H tone on the preceding stem in default verbs, and allows no H tone on the causative marker." (Rose 2013:47) [NB This is causative -i !]

- c. in between, in Cicipu (Kainji)) extensions such as causative -is- and applicative -wA-, are underlyingly toneless, taking mostly the L tone of the different melodies assigned by mood, e.g. realis LHL\*, irrealis HL\*, imperative L<sup>a</sup>H (McGill 2009)

(27) But extensions have their own inherent tone in other NC languages

- a. in Mey (Atlantic), of 21 verb extensions 15 are H (e.g. -nón 'causatif'), 2 are L (e.g. -i 'rapprochant'), 3 are HL (e.g. -êl 'réciproque'), 1 toneless (-ət 'intensif') (Sachot 1996:314)
- b. in Guébié (Kru), which has four tone heights 1-4 (4 = highest), passive -o/-ɔ has 1 tone, while causative -a/-ə, applicative -li/-lɪ and reciprocal -li/-lɪ have 2 tone; the reciprocal causes the verb to reduplicate and also take 2 tone (Sande 2016)
- c. in Kana (Lower Cross) causative -(r)ɛ has M tone, while anticausative -a is toneless; intensive -gara ~ -ga ~ -gi cause a M tone verb to become L and place a H on the last (or only) vowel of the suffix (Ikoro 1996:153-4); in Gokana causative =-(C)ɛ̃, anticausative -a = toneless.
- d. in Katla (Kordofanian) some extensions have independent tone, e.g. comitative -óŋ/-áŋ, goal -àŋ (Hellwig 2013:241) vs. causative -ka/kɔ and applicative -taŋ/tɔŋ, which "copy their tone from the preceding syllable" (Birgit Hellwig, pers.comm. 2016).

(28) The case of tonal reduction ("compacité") in Mande which normally applies to compounds also affects most (rather "full looking") derivational suffixes in Maninka du Niokolo

"A l'exception du suffixe résultatif -'riŋ ~ -'liŋ ~ 'diŋ et du suffixe causatif -'ndiŋ... les suffixes dérivatifs ont un comportement tonal qu'on peut décrire très simplement en posant qu'ils ne comportent structurellement aucun ton haut et que la base à laquelle ils s'attachent est modifiée exactement comme dans une construction à compacité tonale" (Creissels 2013:28)

Note that of the 22 derivational suffixes listed by Creissels (2013:54-57), only two are shown to uniquely involve V → V derivation, namely, causative -'ndiŋ and antipassive -ri ~ -li ~ -diri, the latter of which is mostly used to set up a verb for nominalization (p.56)

(29) Some outstanding questions concerning verb suffixes

- a. what causes derivational suffixes to lose their tone?
- b. why should this affect derivational suffixes more than inflectional?

(30) Potential answer: Lexicalization.

- a. derivational morphology creates new lexical items, which speakers ultimately store, rather than productively produce, and similarly with compounding
- b. what is stored ultimately undergoes fusion, erosion, and other reduction processes, e.g. loss of independent tone
- c. inflectional morphology, unless irregular, is generally not lexicalized, rather is expected to apply across the board to the appropriate bases, e.g. tense, aspect, mood marking on verbs
- d. inflectional morphemes can become toneless as well, or even lost in the case of languages which do not inflect verbs morphologically, but this is not driven by lexicalization

(31) Of course tone (and much more) can depend on whether an extension is old vs. a recent creation

- |   |   |
|---|---|
| <i>if relatively young, we expect an extension to ...</i> | <i>if relatively old, we expect an extension to ...</i> |
| • 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 corresponding roots exist
- be further from the root than other suffixes
- be syntactically dependent
- be CV, easily segmentable from other forms
- not have allomorphs
- have its own contrastive tone (like enclitics)
- have frozen forms without any corresponding verb root
- be closer to the root than other suffixes
- be syntactically independent
- be V(C), more fully integrated with the base
- have allomorphs
- receive its tone from verb or inflection

(32) This last point can be illustrated from languages in different African phyla (all have extensions)

Vute	(Bantoid)	-nà	applicative	<	nà	'to give'	(Thwing 2006:4)
		-lé	'in, into'	<	lé	'to enter'	(Thwing 2006:27)
Khoe	(Central Khoisan)	-mà	benefactive	<	mà	'to give'	(Kilian-Hatz 2005:130)
Margi	(Chadic)	-bá	'outward'	<	bà	'to go out'	(Hoffmann 1963:124)

(33) A generalization that holds thus far

Of the few underlying M tone languages that have verb extensions, all of them have at least one extension that has a contrastive tone, i.e. is not toneless (Guébie, Kana/Gokana etc.).

(34) So where we do stand? It is likely that

- a. PNC had two tones, H and L, as others have asserted, no evidence of any more
- b. PNC verbs roots had a binary contrast, H vs. L, which some languages either lost or expanded
- c. PNC verb extensions may have had contrastive tone, but not in most daughter languages

(35) With respect to this last point, outside of the Chichewa and causative \*-i-/ passive \*-u- cases in (24) and (25), I have found no evidence of contrastive tone on any of the cognate extensions that can be reconstructed back to PNC (or close to it), e.g. those Gur shares with PB (cf. Hyman 2014)

<i>Moore</i> (Canu 1976)	<i>Proto-Bantu</i> (Meeussen 1967; Schadeberg 2003)
-b be in a state	*-ib-u- passive
-d produce by putting into a state	*-ul- reversive transitive (?)
-d locative	*-il- applicative
-g put into a state	*-ik- impositive
-g repeated action, intensive	*-a(n)g- plural, durative
-g inversive	*-ok- reversive intransitive
-l amplitude, certitude	*-ilil- completive, intensive
-m positional	*-am- stative (positional)
-s causative	*-is- causative

This raises the question of whether those which do have independent tones have been independently innovated subsequent to the break-up of the Niger-Congo sub-branches.

(36) Where to go from here? More work to determine if

- a. verb root tones in other branches further confirm PNC \*H and \*L
- b. verb extension tones can be reconstructed, whether at the PNC or pre-PNC stage

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