

Implosives in Mande-Atlantic-Congo
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1 Introduction

Stewart (2002) proposes that his reconstruction of Proto-Potou-Akanic-Bantu (PPAB), that is, the proto-language of Proto-Potou-Akanic (PPA) and of Bantu, which he suggests can be expanded to include Fulanic, can serve as a pilot Proto-Niger-Congo. In terms of the classification in Williamson and Blench (2000), this means that PPAB corresponds not to Niger-Congo but to Mande-Atlantic-Congo; i.e. a level after Kordofanian has branched off.

The unmutated first-position consonants Stewart proposes for PPAB are shown in Table 1.

Table 1 Unmutated first-position consonants for PPAB (Stewart 2002)

p	t	c		k ^w
ɸ	t̥		k̥	k̥ ^w
b	d	j	g	g ^w
ɓ	d̥	ɟ		ɟ ^w
		y		
ɓ̥	ɗ		ɗ̥	ɗ̥ ^w

This system proposes four unvoiced and four voiced implosives contrasting with four voiceless and five voiced plosives, not all at corresponding places of articulation. This is a very unusual system. The voiced implosives [ɓ] and [ɗ] are common in Niger-Congo, and it would not be surprising to find them in Proto-Atlantic-Congo. The voiced palatal and labialized velar implosives, however, are extremely rare, and so are all the unvoiced implosives. In Igboid, unusually, three voiced and three unvoiced implosives have been observed in modern lects, and this therefore makes it a promising candidate for the comparison.

2 Voiced implosives

In modern Igboid lects, a voiced bilabial implosive is frequently heard, usually velarized or with a weak velar contact, but in some peripheral lects realized as a labial-velar [ɓb]; it is regularly symbolized in the orthography as **gb** and is reconstructed to Proto-Igboid (PI) as ***gb**. In some cases these words correspond to ***b** in Bantu.

In Table 2 and subsequent tables, Stewart's numbering is retained for easy reference in column 1; unnumbered items are cognates between Bantu and Igboid without a PPAB reconstruction; columns 2-4 repeat Common Bantu (CB) (from Guthrie (1967-71), but re-transcribed to agree with the notation of the forms in other columns), Akan, and PPAB, as given by Stewart; column 5 gives Proto-Igboid (PI) forms (as reconstructed by Williamson and Ohiri-Aniche (forthcoming)), and the reflexes from Èkpèyè, the most distinct of the modern lects, Owere, a typical central lect, and one other lect selected according to the proto-sound under consideration; note that Ukw = Ụkwụ̀ani, Oɡk = Ọgbakiri; Ohz = Ọhazara; -- = non-cognate, ... = form not collected.

Table 2 Bantu b = PPAB *ḡ = PI *gb

CB	Akan	PPAB	PI	Èkpèyè	Owere	Ọ̀nicha
64. *-bód- <i>break, smash, hit, kill</i>	- buru	*-ḡolu	*-gbú <i>cut, hit, kill</i>	-gbú	-ḡú	-ḡú
*-báb- <i>sting</i>			*-gbá	-gbá	-ḡá	-ḡá
*-báṅgá <i>jaw</i>			*-gbǎ	à-gbà	à-g ^{wh} ǎ à-b ^h ǎ	à-ḡà
*-báṅg- <i>open up</i>			*-gbǎá <i>open</i>	--	-ḡá	-ḡá

The Igboïd reflexes show the labial-velar stop becomes a bilabial implosive in most lects, and in Owere (second form) simplifies further to an aspirated bilabial plosive before a nasalized vowel. Some words do not show nasality in Owere, and are reconstructed with nasality on the first but not the second vowel (open, where Ìka has **-gbǎ**). Bantu consistently shows a bilabial plosive. It thus appears likely that an earlier common proto-language had ***gb**, retained in PI but simplified to ***b** in Bantu and Akan. Because Stewart compares Bantu only with PPA, which lacks ***gb**, he reconstructs PPAB ***ḡ** instead of ***gb** for item 64 hit, kill. Bringing PI into the picture, and accepting that Igboïd ***gbu** is cognate with both Bantu and Akan, therefore suggests that their common proto-language needs to be amended to include ***gb**. Stewart (unpublished comment) suggests that ***gb** is likely to be derived from ***ḡ^w**. This is plausible, but brings another problem: his sole reconstruction for ***ḡ^w** is **ḡ^wauɪ** ‘bathe’, for which the proposed Igboïd cognate is ***wũ**. Either the Igboïd word is not cognate, or there are conditioning factors which are not obvious from a single example, or ***gb** needs to be reconstructed in addition to ***ḡ^w**.

In Èkpèyè a few words have a simple bilabial implosive **[ḡ]** which contrasts with the **[gb]** just discussed and corresponds to **[w]**, or occasionally **[b/v]**, in other lects. This is therefore reconstructed as the original ***ḡ** of PI. It corresponds to ***b** in Bantu. In PI it contrasts with ***w**, but as there are so few surviving instances it is likely that PI ***w** also derives from pre-Igboïd ***ḡ**. Stewart’s item 65 has a cognate in Igboïd showing **[w]**, weakening to **[u]**. I therefore conclude that Igboïd ***ḡ** and ***w** correspond to Bantu ***b**, and that PPAB ***ḡ** is a correct reconstruction for this set.

Table 3 Bantu *b = PPAB *ḡ = PI *ḡ, *w

CB	Akan	PPAB	PI	Èkpèyè	Ndele	Ukw
*-bó <i>them, they</i>			*-ḡé	ḡé [↓] é	vé	wá/wé
			*-ḡé- <i>be angry, hate</i>	-ḡé	-wé	-wé
65. *-bíd- <i>become cooked</i>	-bĩŋ	*-ḡĩĩ	*-wé	-wé	-uḡé	--
*-bàd- <i>split</i>			*-wâ	-wá-	-wâ	-wá
*-búdi <i>goat</i>			*-wũ	--	ó [↓] -wũ	é-wú
*-bùì <i>white hair</i>			*-wḡ <i>grey hair</i>	ú- [↓] wḡ	rú-wḡ	é-wḡ

Èkpèyè likewise has a voiced alveolar implosive [ɖ], which corresponds to [r], [l] and [n] in other lects. This is reconstructed as *ɖ in PI.

Table 4 Bantu *d- = PPAB d- = PI *ɖ-, *n-

CB	Akan	PPAB	PI	Èkpèyè	Owere	Ukw
68. *-dàd[-]ú <i>madness</i>	*- da[m]	*-ɖalɪ	*-ɖá	í [↓] -ɖá	á-rá	é-lá
70. *-dá[-]ád- <i>sleep</i>	*-da	*-ɖa	*-ɖâ-	í-ní-nà n.	-rá-	-lá-
73. *-dím- <i>extinguish</i>	*-dūm	*-ɖūū	*-ní ɔ́	-nó-	-nó	-nó-
*-dàm- <i>stick to</i> <i>(sth)</i>			*-níá	--	-ná	-ná
*-dì m- <i>cultivate</i>			*-ɖwó <i>work</i>	-nú	-ró	-lú
*-dúm- <i>bite</i>			*-ɖô <i>bite n.</i>	é- [↓] nô	á-ró	é-lú
*-dí - <i>eat</i>			*-dí	-ɖyí	-rí	-lí
*-dí, -dígì <i>string</i>			*-dí <i>rope</i>	é [↓] -ɖyí	é-rí-rí	--
*-du@ád <i>become ill</i>			*-ɖyã <i>be sick,</i> <i>ill</i>	--	-ryà	--
*-dòbá <i>clay</i>			*-ɖiwá <i>clay,</i> <i>mud</i>	ò-ɖò	ú [↓] -rò	ú-lúà
*-dóót- <i>dream</i>			*-ɖwâ	-ɖó	-rò	-lò

Igboïd confirms that item 68 is a purely oral root, and item 73, apart from the initial consonant, a nasal root. Nasal roots have *n- in PI. The PPAB reconstruction 70 is purely oral, but Igboïd indicates a mixture of oral and nasal.

Stewart reconstructs PPAB *ɖ, but only in one word, whose possible Igboïd cognate has [y]. The Bantu word has variants, and the Igboïd *y corresponds better to the variant with Bantu *y.

Table 5 Bantu *y- = PPAB *ɖ ? = PI *y-

CB	Akan	PPAB	PI	Èkpèyè	Owere	Ukw.
74. *-jí <i>water</i>	n-su	*-fu				
cf. *-yígì <i>water</i>			*-y`í <i>stream,</i> <i>spring</i>	--	í [↓] -yí	ím-í- yî
*-yé <i>he/him/she/her</i>			*-yé	ya/a	yá	ya

Another Igboïd lect, Lengwe, also has a voiced implosive which was initially transcribed [ɖi-]. Stewart's reconstruction of PPAB *ɖ led me to retranscribe the Lengwe implosive as [ɖ]. It corresponds to [y] in Èkpèyè and [ɖɔ] in other lects, and is now reconstructed as PI *ɖ. Its relationship to PPAB *ɖ is not yet clear, but it corresponds to Bantu *y.

In Bantu there are many roots with *y-, suggesting that it represents a merger of several pre-Bantu sounds. Bantu *y- corresponds to both PI *y- and PI *ɖ. The relationship with PPAB is not yet clear.

Table 6 Bantu *y- = PPAB ? = PI *ɟ

CB	Akan	PPAB	PI	Èkpèyè	Owere	Lengwe
*-yídù <i>black</i>			*-ɟí	-yí	-dʒí	-dʒí
*-yúj- <i>become full</i>			*-ɟû <i>be full</i>	-yú	-dʒú	fú/ǰú
			*-ɟê <i>tie (cloth, beads)</i>	-yé	-dʒé	--
			*-ɟúi <i>be cool, calm</i>	-yó- ?	-dʒú	-fú
			*-ɟwô <i>be bad</i>	-yô	-dʒó	-fó

As noted above, Stewart reconstructs *ɟʷ, with a single example (75) which has a possible cognate in Igbooid with *w. If this is a true cognate, PPAB *ɟʷ = PI *w. As no ɟ or ɟʷ has been heard in Igbooid, *ɟʷ must have reduced to *w in Pre-Igbooid.

Table 7 Bantu *y = PPAB *ɟʷ = PI *w

CB	Akan	PPAB	PI	Èkpèyè	Owere	Ukw
75. *-yó[ó]g- <i>bathe</i>	*-gʷiar[-]ɪ	*-gʷauɪ	*-wô	--	-uú	-wú

3 Unvoiced implosives

I refer to ‘unvoiced’ rather than ‘voiceless’ implosives because ‘voiceless’ implies an open glottis, while for these implosives the glottis is closed. Stewart reconstructs four unvoiced implosives in PPAB, bilabial [ɓ], alveolar [ɗ], velar [ɠ], and labialized velar [ɠʷ]. All except the velar have a corresponding plosive.

An unvoiced bilabial implosive is frequently heard in Igbooid, especially in central lects; it is usually velarized and sometimes has a weak velar contact. It corresponds to a doubly-articulated [kp̚] in a few peripheral lects, and is invariably written **kp** in orthography. It is reconstructed to PI *kp̚. It is thus the exact counterpart of PI *gb̚. Table 8 shows examples where Bantu *p̚ = PI *kp̚, just as Bantu *b̚ = PI *gb̚.

Table 8 Bantu *p̚ = PPAB *? = PI *kp̚

CB	Akan	PPAB	PI	Èkpèyè	Owere	Izi
*-pàdí <i>foot</i>			*-kpà <i>leg, foot</i>	--	--	ó-kpà
*-pápat- <i>touch</i>			*-kpá	-kpó-	-fá	-kpá
*-pu@- <i>dry up</i>			*-kpó <i>dry up, wither</i>	-kpéʷkpé	-fó	-kpó

There are also cases where Bantu *k̚ = PI *kp̚, as shown in Table 9. This seems to imply that PI *kp̚ had more than one source. In terms of the PPAB sound system, the second one (Table 9) could be derived from *k̚ʷ, which yields Bantu *k̚, but I am at a loss to suggest a source for the first in the absence of any plausible PPAB cognate with any of the items in Table 8.

Table 9 Bantu *k = PPAB *? = PI *kp

CB	Akan	PPAB	PI	Èkpeye	Owere	Ọhazara
*-kúpà <i>bone</i>			*-kpíú ?	{ú- kpó}	ó-βú-βú	ð-ó-kpó
*-kùp- <i>scrape</i>			*-kpǔ <i>scrape</i> <i>off</i>	-kpú-	-βǔ/- p ^h ǔ	-kpó [kp=trill]
*-kóbà <i>skin</i>			*-kpó	ó-kpó	á-βú-βó	á-kpó-kpó
*-ká <i>gather</i> <i>(fruit)</i>			*-kpá <i>gather,</i> <i>collect</i>	-kpá	-βá	-kpá

No instances of [β] have been found in Igboïd except those which are derived from PI *kp. PPAB *p and *β both correspond to PI *p, just as in Bantu (Table 10).

Table 10 Bantu *p = PPAB *p, β = PI *p

CB	Akan	PPAB	PI	Èkpeye	Owere	Izi
3. *-púdù <i>foam</i>	æ-huru	*-pulu	*-pwǔ	ó-wǔ-lǔwǔ	ù-fúfù	ú-φù
4. *-púd- <i>blow</i> <i>(with</i> <i>mouth)</i>	-hu[w]	*-pulu	*-pwǔ	-wǔ	-fù	-φù
10. *-pìn- <i>squeeze</i> <i>(esp. with</i> <i>fingers)</i>	-ñi[ŋ] <i>get</i> <i>caught in</i> <i>or</i> <i>between</i>	*-pĩnĩ	*-pĩ <i>squeeze,</i> <i>press</i> <i>(with</i> <i>fingers)</i>	-pĩ	-pì	--
31. *-pát- <i>hold</i> *-pákat- <i>hold (esp.</i> <i>child)</i>	-fa <i>take</i>	*-βati	*-pá <i>carry in</i> <i>hand,</i> <i>child in</i> <i>arms</i>	--	-pá	-pá
*-pép- <i>blow</i> <i>(as wind)</i>			*-pwé	-wé	-fé	-φé
*-pép- <i>fly</i>			*-pwé	-wé	-fé	-φé
*-pépuk- <i>become</i> <i>light in</i> <i>weight</i>			*-pwé	-wé	-fé	m-φe n.

Unvoiced alveolar implosives are also found in some lects of Igboïd. Ohiri-Aniche (1985) notes that in Owere [f] occurs in words with oral unexpanded (-ATR) vowels, while the plosive [t] occurs in words with oral expanded (+ATR) vowels; in Mbieri the implosive [f] occurs with all oral vowels (except in three words where plosive [t] occurs as the second consonant after [p] as first consonant, an apparent case of consonant harmony). In both Owere and Mbieri, the plosive occurs aspirated before all nasalized vowels. As Ohiri-Aniche observes, one can either postulate original plosive [t] in all cases or original [f] in

all cases; it is in fact easier to postulate a simplification from *f to [t] than the reverse. Despite this, because of the rarity of unvoiced implosives generally, we have until recently assumed *t in our joint reconstruction. Stewart's work has suggested that we might instead assume *f. It would then be possible to reconstruct *t for the correspondence set which yields [ts] > [s] in most lects (or occasionally [tf] > [f] before [u, o]). This would be parallel to the developments of PPAB in Akan: *f > [t], *t > [s].

Unfortunately, however, this reconstruction of PI does not match well with PPAB. Only one PPAB reconstruction supports the correspondence PPAB *t = PI *t; see Table 11, where other cognates showing Bantu *t = Igboid *t are added.

Table 11 Bantu *t = PPAB *t = PI *t

CB	Akan	PPAB	PI	Èkpèyè	Owere	Ogidi
13. *-tì <i>that, namely; say</i>	se <i>say</i>	*-tɪ	*tí <i>say</i>	--	-fí	tsí
*-tô <i>head</i>			*-tî	í-fî	í-fí	í-tsí
*-tí <i>tree</i>			*-tí	ú [↓] -fí	ó-fí-fí	ó-tsí-tsí
*-tòkut- <i>perspire</i>			*-tú <i>sweat</i>	--	-sú	-tsú
*-tòmbód- <i>pierce</i>			*-tǒ <i>stab, pierce</i>	-sù{fí}	-sù{bú}	-tsù
				<i>pin (stick)</i>	<i>stab</i>	

In four other cases, PPAB *t = PI *f, as in Table 12.

Table 12 Bantu *t = PPAB *t = PI *f

CB	Akan	PPAB	PI	Èkpèyè	Owere	Ogk
16. *-tát[-]ù <i>three</i>	ε-sã	*-tãntɪ	*-fíó	bí-tó	à-fó	è-tó
18. *-tú[-]ù <i>ear</i>	a-sõ	*-tõ	*-fèì	é- [↓] tê	ń-t ^h î	ń-sì
19. *-tú[-]é <i>ashes</i>	n-sõ	*-tõ	*-fó	--	ń-t ^h ú	ré-tó
20. *-tóm- <i>send</i>	-sõm[-]ã	*-tõõ	*-fô <i>order from market</i>	--	-t ^h ú	-tù

There is one clear case and one irregular one where PPAB *f corresponds to Igboid *f (Table 13).

Table 13 Bantu *t = PPAB *f = Igboid *f

CB	Akan	PPAB	PI	Èkpèyè	Owere	Ogk
34. *-tá <i>bow</i>	ε-ta	*-fa	*-fâ	--	ó-fá	--
35. *-tá/-té/ -tí <i>spittle</i>	n-ta-su (sú: <i>water</i>)	*-fa	*-fíáú ?	ú [↓] -tá	á-sú	è-sá

It is thus not easy to connect the PI reconstructions *t, *f simply with the PPAB ones. Since the majority of the items cited are clearly cognate, either conditioned sound changes have taken place in intermediate stages or the reconstructions are incorrect. This will only be clarified with more languages entering the reconstruction.

In Lengwe we encountered a voiced palatal implosive [ɟ]. It has an unvoiced counterpart, which we formerly transcribed [fi] but now regard as [c̥]. Stewart does not reconstruct this sound, and we have found only one reasonable cognate in Bantu, with [c], which fits in with Stewart's pattern of Bantu plosives corresponding to original implosives. Table 14 lists the words in which [c̥] is tentatively reconstructed.

Table 14 Bantu *c = Igboid *c̥

CB	Akan	PPAB	PI	Èkpeye	Owere	Lengwe
*-càk- <i>desire,</i> <i>search for</i>			*-c̥ó <i>look for</i>	--	-tʃó	-c̥ó
			*-c̥é <i>wait for,</i> <i>keep watch</i>	-sé{dʒí}	-tʃé	-c̥é
			*-c̥é <i>present (as kola)</i>	--	-tʃé	-c̥é
			*-c̥ě <i>think</i>	-tʃě	-tʃè	-c̥è
			-c̥è <i>difference</i>	í-sé	í-tʃè	í-c̥è
			*-c̥é <i>chair, seat</i>	--	ó-tʃé	ó-c̥é
			-c̥à-dà <i>"bamboo", sugarcane</i>	--	à-tʃà-rà	è-c̥à-rà
			-c̥ǎ <i>trim</i>	-tʃátʃà	-tʃà	-c̥à
			-c̥íó <i>pursue, drive away</i>	-tʃí ?	-tʃó	-c̥ó
			-c̥ǎ <i>soap</i>	í-tʃà	ń-tʃà	ń-c̥à
			-c̥ìù <i>manslaughter</i>	--	ó-tʃ ^h ù	ó-c̥ì
			-c̥íó <i>sacrifice v.</i>	-só ?	-tʃ ^h ó	-c̥ó
			-c̥ǎ <i>white</i>	ù-sâ	ó-tʃ ^h ǎ	ó-c̥ǎ
			-c̥ǎ <i>cockroach</i>	é-sâ	ó-tʃ ^h ǎ↓ tʃ ^h ǎ-řǎ	ó-c̥ǎ↓-c̥ǎ
			-c̥ǎ-dǎ <i>rust</i>	--	ń-↓tʃ ^h ǎ-řǎ	ń-↓c̥ǎ-rǎ

Stewart reconstructs only an unvoiced velar implosive for PPAB, with no corresponding plosive. No velar implosive has been observed in Igboid, and therefore only a voiceless velar plosive has been reconstructed. Stewart's examples for which PI cognates exist are given in Table 15.

Table 15 Bantu *k = PPAB *ƙ = PI *k^w, k

CB	Akan	PPAB	PI	Èkpeye	Owere	Ika
40. *-kódì <i>kind of hawk</i>	ɔ-kɔɪ[-]]ɪ	*-ƙɔɪ	*-k ^w ɔ	ɔ [↓] -h ^w ɔ	á-g ^h ó-ń [↓] - k ^w ɔ	á-gó-ń- k ^w ɔ
42. *-kí- <i>dawn v.</i>	-cī	*-ƙī	*-kí n.	--	tʃí	kí

Finally, Stewart reconstructs both plosive *k^w and implosive *ƙ^w. Two PPAB reconstructions with *k^w have reasonable cognates, shown in Table 16. See Table 9 for PI *kp possibly derived from PPAB *ƙ^w.

Table 16 Bantu *k = PPAB *ƙ^w = PI *k; Bantu *k = PPAB *k^w = PI *k^w

CB	Akan	PPAB	PI	Èkpeye	Owere	Ika
25. *-kóp[-]ud-/*- kó[d]([-]ud- <i>cough v.</i>	ɔ-waw <i>cough n.</i>	*-k ^w apɪ	*-k ^w á <i>cough v.</i>	-h ^w á	-k ^w á	-k ^w á
27. *-kúp- <i>shake off, bale out (water)</i>	-c ^w ɪw	*-k ^w ɪpɪ	*-k ^w ɔ	-h ^w ɔ	-k ^w ɔ	-k ^w ɔ

4 Conclusion

Stewart's 'pilot' proto-language, when compared sound by sound with PI, is convincing in some cases (such as *d'), less so in others (such as *f). It is helpful to have a clear proposal to compare other reconstructions with, although it is clear that some changes will be required before PPAB can include Proto-Igboid.

Notes

I am grateful to Roger Blench, Chinyere Ohiri-Aniche, and John Stewart for comments on the original version of this paper. Two slightly later papers on similar topics are 'African language classification with special reference to Bantu and its relationship to West African languages' (to appear in LASU Papers 2003) and 'Niger-Congo reconstruction and implosives', presented at CALL 2003, in which a solution is proposed for the problem noted in Tables 11-13.

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