

***Tone split and tone replacement:
toward the three-tone system of the ‘Western’ SBB Languages
(Central Sudanic, Central Africa)***

Pascal Boyeldieu (UMR 8135, CNRS, INaLCO, EPHE)

Abstract

Sara-Bongo-Bagirmi (SBB) languages represent a group of some 40 African languages that are scattered between Lake Chad in the North-West, and Lake Albert in the South-East, thus covering parts of Chad, Sudan, South-Sudan, the Central African Republic, and the Democratic Republic of Congo. The *SBB languages* form the largest sub-branch of Greenberg’s (1963) *Central Sudanic (Nilo-Saharan phylum)* and are geographically inserted among various languages or linguistic groups such as Chadic, Adamawa, Ubangian, other Central Sudanic, Eastern Sudanic, and Arabic.

While languages in the East display two-tone systems directly reflecting the historical *SBB configuration, a large subgroup of ‘western’ languages (*OCC for *occidental*) later innovated in developing a new tone in the high frequencies. More recently the western languages Yulu and Gula Koto independently underwent a splitting of their low tone, thus creating a now phonologised extra-low level. The main correspondences between the different types of systems are summarised in Table 1. In order to avoid possible ambiguities (e.g. H tone, but in which system?), tone levels will from now on be symbolised by numbers (0/1/2/3) as indicated below:

*SBB & eastern languages 2 tones	>	*OCC & western languages 3 tones	>	Yulu & Gula Koto 4 tones
High (2)		High (3)		High (3)
Low (1)		Mid (2)		Mid (2)
		Low (1)		Low (1)
				X-Low (0)

Table 1. Tone systems and tone level numbering

If it has been necessary for the following to mention the fourth tone of Yulu and Gula Koto, this paper is nevertheless specifically concerned with the emergence of a third tone level in the ‘western’ sub-branch, a change that affected a fair number of languages and played an important role in the history of this linguistic group. Moreover this transformation has followed different ways according to the grammatical category – verbs or nouns – it affected and therefore offers some particular interest for the general understanding of tone change.

Verbs

Most reconstructible *SBB verbs display an original VCV form (with current reflexes of a VCV, sometimes CV or CVCV shape) that is associated with a tone pattern defined by two tonal components (e.g. 12 for *àpá* or *àpā*, 31 for *ápà*, etc.). In all languages the most frequent verb form – usually labelled as *definite aspect*, *aorist* or *perfective* – undergoes tone alternations conditioned by the nature of the subject and determining several tone classes.

Let us illustrate this specific behaviour with the case of Modo, an eastern language that is clearly the best representative of the common *SBB situation under the respect of the verb morphology. Modo has four verb classes resulting from the different combinations of two tone highs in two-syllable patterns : A (12), B (22), C (11), and D (21). These tone patterns remain unchanged in the presence of a lexical subject. However a subject index of 3^d person lowers the first component of the tone pattern (1, 2 > 1) while a 1st-2^d person subject index raises this initial component (1, 2 > 2). Consequently the four-way contrast of the isolated verbs is reduced to two when they are preceded by a personal index:¹

¹ The same patterns appear with plural indexes, although with a different distribution.

Class	A	B	C	D
Lexical subject	12	22	11	21
3 ^d subj. index		12		11
1 st -2 ^d subj. index		22		21

Table 2. Tone classes of Modo

Also each class is identified by three alternating tone patterns (e.g. : class A = 12//12/22, class B = 22//12/22).

Now, *in all other languages*, the lexical subject for some reason was aligned with the 3^d subject index pattern so that, in the eastern languages at least, the verbs were, in all contexts, reduced to two classes, namely AB (12/22) and CD (11/21).

In the ‘western’ languages, the same happened for the reflexes of *SBB*A and *SBB*B that merged in *OCC*AB (*12/*22). Yet the contrast in the reflexes of *SBB*C and *SBB*D2 was not only preserved but even reinforced by enlisting a new *OCC***31** tone pattern and generating, by analogy with the *11/*21 alternation of *OCC*C, a specific *21/***31** alternation for *OCC*D verbs as shown in the correspondences displayed in Table 3:²

*SBB	*A *12//*12/*22	*B *22//*12/*22	*C *11//*11/*21	*D1 *?	*D2 *21//*11/*21
*OCC	*AB *12/*22		*C *11/*21	*D *21/* 31	

Table 3. Morphological function of tone level 3 at the *OCC level

Appendix A. displays some lexical illustrations of *SBB*C and *SBB*D2 reflexes.

Nouns

In nominal comparative series, ‘western’ languages may show, *in a quite irregular way*, one or the other of four patterns involving a level 3 tone and reconstructible, at an *OCC level, as ***31**, ***32**, ***13** or ***23**. Reflexes of the latter may occur while other ‘western’ languages preserve the tonal reflex of an original *SBB and/or *OCC formula.

Some lexical illustrations of such irregularities are given in Appendix B.

The best explanation one can offer for such a situation is the following: the ‘western’ languages having undergone an important lexical replacement, probably due to contact with (an) up to now unidentified three-tone language(s), numerous nouns defined in terms of three contrastive tones integrated as such the *OCC language system. With the possible contribution of the tone changes simultaneously affecting verbs, these new patterns contaminated the older nominal lexicon in form of free variants that were progressively eliminated, each ‘western’ language – or subgroup of ‘western’ languages – finally preserving one or the other of the two competitive tone patterns, inherited from either *SBB or *OCC.

Outcomes

In verbs, the *OCC class *D formula ***31** represents a genuine *reflex* of *SBB *21. Moreover, it has to be emphasised that the shift *SBB *21 > *OCC ***31** was constrained by the morphological alternation role played by the tones in the frame of class *D verbs. With class *C verbs the same original tone pattern remained unchanged: *SBB *21 > *OCC *21.

In nouns, the *OCC formulas ***31**, ***32**, ***13**, and ***23** are new patterns that do not result from any prior unit. In case they affect nouns dating to the original *SBB vocabulary, they strictly represent *replacements* of the previous tone patterns still attested in the eastern languages. In this latter case the ‘western’ form of a noun combines older segments with new tones, thus revealing a partial loss and discontinuity in its history since its *SBB origin.

Nevertheless, the two processes, probably reinforcing each other, jointly contributed to the emergence of a new *OCC system that led to the current ‘western’ languages.

² The *SBB*D1 formula calls for comments that I shall not mention in this abstract.

The presentation is directly inspired by a historical comparative study of the SBB tone systems (Boyeldieu 2000). It will provide comparative data (also available in Boyeldieu, Nougayrol & Palayer 2006: <https://llacan.cnrs.fr/SBB/>) and highlight the linguistic and geographical conditions of the tonal change.

Boyeldieu, Pascal. 1996. Mutation et réfection dans l'expansion des registres tonals : l'exemple des langues sara-bongo-baguirmiennes. *Revue de Phonétique Appliquée* (Université de Mons-Hainaut), 120, p.163-178.

———. 2000. *Identité tonale et filiation des langues sara-bongo-baguirmiennes (Afrique centrale)*. Köln: Rüdiger Köppe Verlag (SUGIA, Beiheft 10).

Boyeldieu, Pascal, Pierre Nougayrol & Pierre Palayer. 2006. *Lexique comparatif historique des langues sara-bongo-baguirmiennes*. Paris : CNRS-LLACAN. Electronic resource: <https://llacan.cnrs.fr/SBB/>

Greenberg, Joseph H. 1963. Languages of Africa. *International Journal of American Linguistics*, 29, 1, part II. [2^d ed.: 1966. *The Languages of Africa*. Indiana University, Bloomington, La Haye: Mouton]

	Eastern languages			*SBB*C (*11//*11/*21)				
	C	CD	CD	C	ABC	CD	CD	
	Modo 11/11/21	Bongo (1)1/(2)2 ¹	Baka 11/21	Yulu 11=00/21=20	Gula Koto 1(1)/2(2)	Na 11/31	Sar 11/31	
V/069	òlè//òlè/ólè	yà/yá ¹	òyò/óyò	ùlè/ùlè	òy/òy	ò/ò	òy/òy	‘die’
V/071	òṅò//òṅò/òṅò	òṅ/òṅ ¹	ànò/ánò	òṅè/òṅè	òṅ/òṅ	òṅò/òṅò	òṅ/òṅ	‘eat’
V/152	àtò//àtò/átò	òtù/òtù ¹ ‘rot’		ààcè/ààcè	àt/àt	àtù/àtù	òtè/òtè	‘smell (bad)’

	Eastern languages			*SBB*D2 (*21//*11/*21)				
	D	CD	CD	D	D	CD	CD	
	Modo 21/11/21	Bongo (1)1/(2)2 ¹	Baka 11/21	Yulu 21/31	Gula Koto 10/31	Na 11/31	Sar 11/31	
V/112	úpò//úpò/úpò	èdì/édì ¹	òfò/ófò	òfò/ófò	èd/éd ¹	àrì/àrì	èdè/édè	‘kill’
V/115	ádí//ádí/ádí	èdì/édì ¹	(eqì)	āādā/āādā	èd/éd ¹	àrì/àrì	èdè/édè	‘rain’
V/111	átì//átì/átì	ètì/étì ¹	ècì/écì		èt/ét ¹	àtì/àtì		‘sneeze’

Appendix A. Lexical illustrations of *SBB*C and *SBB*D2 reflexes

	Eastern languages			*SBB*11	*OCC*11 (or *31)			
	Modo 11	Bongo 11	Baka 11	Yulu 11=00	Gula Koto 11	Na 11	Sar 11	
N/0017	kòmò	kòmò	kòmò	(kāām(ə) !?)	kàm	kàm	kùm	‘eye, face’
N/0462	kòtò	kòtò	(mokoto)	kòòt(ə)				‘sterility, sterile’
N/0536		kùdì		kěj(ə)	kèɖ	kùjè	kədè	‘worm, grub, maggot’
N/0029	dòkòròsò (dò-kòròsò ?)		(kési)		³¹ kéc`	kòkè	kòsə	‘iron, hoe’
N/0019	(gàlí !?)	gèl		gää̀l(ə)	gèl	³¹ gáli	gèl	‘left (side)’
N/0353	tìbò			vòòv(ə)		³¹ júbù	³¹ ndúbè	‘bellows’

	Eastern languages			*SBB*12	*OCC*12 (or *OCC*31/*32/*13)			
	Modo 12	Bongo 12	Baka 12	Yulu 12=02	Gula Koto 11	Na 12	Sar 12	
N/0083	màá	màhá	(mbasa)	mààs(ə)	màs	màsā	màsə	‘ <i>Tamarindus indica</i> ’
N/0094	bàdũ	bòdũ	(uòɖu)	bää̀d(ə)	vàɖ	bàrū	bòr	‘warthog’
N/0107	ɓú	hìɓú	sùɓú		kùɓ	ɓū	yìbə	‘oil, (grease)’
N/0112	kàno				³² kún	³² kúnū	³¹ kón	‘nose’
N/0058	(tòkpè !?)	tíkí			tìt	tìhī, ¹³ tìhí	tī	‘bowels’
N/0097	(kòwé ?)	kùlòhí			cìc	kòkī	¹³ kòsə	‘cucumber’

	*SBB*22			*OCC*22 (or *OCC*31/*32/*23)				
	Eastern languages			Yulu	Gula Koto	Na	Sar	
	Modo 22	Bongo 22	Baka 22	22	22	22	22	
N/0196	kéńzé	kínjí	kéńzé	kēēnj(ə)	kānz	kānjē	kānjə	‘fish’
N/0198	ɲépé	ɲíhí	éfé	ɲēēp(ə)	lēhē	nōhē	nāā	‘moon’
N/0203	kúpó	kúhú	kófó	kōōf(ə)	kōhō	kōhō	kōō	‘seed’
N/0227		hídó	(sida)	sūūj(ə)	³² sód̄		yədā	‘ <i>Anogeissus leiocarpus</i> ’
N/0433	yóri			³¹ sóór(ə)		²³ kīró	²³ yāró	‘dirt’
N/0223	kólógbé	hígé	(sige)	³² síg(ə)	³² kéd̄	³² kóbē	³² yégē	‘rat, mouse’

Appendix B. Irregular occurrences of level 3 tones in ‘western’ languages