#05
juin 2019

LLA

Linguistique et Langues Africaines

9 782359 352795

ISSN 2429-2230
ISBN 978-2-35935-279-5 **20 €**

Lambert-Lucas

LLA

Linguistique et Langues Africaines

International Journal edited by
Revue internationale éditée par le
Llacan
(UMR 8135 CNRS / Inalco)

 # 5 – 2019

Diffusion

Éditions Lambert-Lucas
4 rue d'Isly
F-87000 Limoges

Tél. : (+33) (0)5 55 77 12 36
(+33) (0)6 07 41 04 25

Revue en accès libre :
http://www.lambert-lucas.com/collection/linguistique-et-langues-africaines-revue-du-llacan

Commande d'exemplaires :
lambertlucas@free.fr

ISSN 2429-2230
ISBN 978-2-35935-279-5

Contact
CNRS/Llacan/LLA
BP 8
7, rue Guy-Môquet
F-94801 Villejuif

Site web : http://llacan.vjf.cnrs.fr/lla
Courriel : llafrique@cnrs.fr

Consignes de soumission
http://llacan.vjf.cnrs.fr/lla/apropos.html

Comptes rendus
Les ouvrages sont à adresser à :
Maximilien Guérin
CNRS/Llacan/LLA
BP 8
7, rue Guy-Môquet
F-94801 Villejuif

Courriel : maximilien.guerin@cnrs.fr

Sommaire/Contents

Comptes rendus de lecture/ Book reviews

Linguistique et Langues Africaines 5 (2019), 25-68 © Éditions Lambert-Lucas

2

Was Proto-Kikongo a 5 or 7-Vowel Language? Bantu Spirantization and Vowel Merger in the Kikongo Language Cluster

Koen Bostoen
and
Heidi Goes
Centre for Bantu Studies, Ghent University, Ghent, Belgium

Abstract

This article addresses whether Proto-Kikongo (PK), the most recent common ancestor of the Kikongo Language Cluster (KLC), should be reconstructed with an inventory of 5 or 7 vowel phonemes. Based on the synchronic vowel systems of its descendants, the most economic reconstruction would be 5 vowels, as all present-day varieties within the KLC have 5 vowels or once went through a 5-vowel (5V) stage. If such were the case, the reduction of the inherited Proto-Bantu (PB) 7-vowel (7V) system to a 5V system in PK would count as a genealogically significant shared innovation setting apart the KLC as a discrete sub-group within the "West-Coastal" or "West-Western" branch of the Bantu family. Most other West-Coastal Bantu (WCB) languages have either retained the PB 7V system or extended it. However, based on Bantu spirantization (BS) patterns within the KLC, it cannot be excluded that PK actually was a 7V language. Within Bantu, BS and 7>5V reduction are known to be closely interconnected sound changes in that the vowel merger generally takes place after BS. The irregular application of BS at the stem level in several KLC varieties as well as the near-total absence of BS across morpheme boundaries suggest that PK was a 7V language. Different stems manifest irregular patterns of BS in different varieties across the KLC. These irregularities can only be accounted for if we assume that the merger of PB close (/*i/, /*u/) and near-close vowels (/*ɪ/, /*ʊ/) recurrently occurred within the KLC as

an independent innovation after BS had started but before it had affected all possible targets within the language.

Keywords

Bantu spirantization, historical phonology, Proto-Bantu, Proto-Kikongo, vowel merger

Résumé

Cet article vise à déterminer combien de phonèmes vocaliques peuvent être proposés pour la reconstruction du proto-kikongo (PK), l'ancêtre commun le plus récent du groupe kikongo – connu aussi sous le nom de *Kikongo Language Cluster* (KLC). Toutes les variétés actuelles du KLC sont – ou l'ont été dans le passé – à 5 voyelles (5V). En se fondant sur les systèmes vocaliques attestés en synchronie, la reconstruction la plus économique serait donc un système à 5V pour le PK. Si tel était le cas, la réduction du système à 7 voyelles (7V) hérité du proto-bantou (PB) à un système à 5V en PK serait une innovation hautement significative sur le plan phylogénétique pour la classification interne des langues bantoues côtières occidentales (*West-Coastal Bantu* – WCB – ou *West-Western Bantu*). Cette innovation ferait en effet du KLC un sous-groupe à part entière du WCB puisque la plupart des autres langues de ce dernier ont soit conservé le système à 7V, soit développé des systèmes comptant plus de 7 phonèmes vocaliques. Cependant, la façon dont s'est déroulée la spirantisation au sein du KLC suggère qu'il se pourrait bien que le PK ait été une langue à 7V. De fait, au sein de l'ensemble bantou, il est bien connu que la spirantisation et le passage de 7 à 5 unités vocaliques constituent des évolutions phonologiques étroitement liées, la réduction du nombre de voyelles survenant généralement après le phénomène de spirantisation. Le fait que la spirantisation ne se soit produite que de façon irrégulière à l'intérieur des racines et restée exceptionnelle au niveau des frontières entre morphèmes laisse penser que le PK était une langue à 7V. En effet, ce ne sont pas les mêmes radicaux qui manifestent une spirantisation dans les diverses variétés du KLC. Ces irrégularités ne peuvent s'expliquer que si l'on admet que la neutralisation du timbre entre voyelles fermées (/*i/, /*u/) et mi-fermées (/*ɪ/, /*ʊ/) s'est produite à plusieurs reprises dans le KLC, et que ce processus de neutralisation constitue donc une innovation indépendante dans les variétés où il est attesté. On est aussi conduit à supposer que ces neutralisations se sont produites après le début du phénomène de spirantisation, mais avant que ledit phénomène n'ait affecté toutes les cibles possibles dans les langues concernées.

Mots clés

neutralisation de timbre, phonologie diachronique, proto-bantou, proto-kikongo, spirantisation

1. Introduction

The Kikongo Language Cluster (KLC) is a group of closely related Bantu languages spoken in a contiguous area covering parts of southern Gabon, southern Congo-Brazzaville, southwestern Congo-Kinshasa and northern Angola including Cabinda. According to phylogenetic classifications relying on basic vocabulary (de Schryver *et al.* 2015; Grollemund *et al.* 2015; Bostoen & de Schryver 2018a), the KLC constitutes a discrete sub-clade of West-Coastal Bantu (WCB) languages (Vansina 1995), also known as "West-Western Bantu" (Grollemund *et al.* 2015), itself a major clade within the Bantu family. So far, the status of the KLC as a genealogical subgroup is substantiated by very little non-lexical evidence. Potential non-lexical evidence is limited to some shared morphological innovations in the tense-aspect system, such as the past ending *-idingi* and the preverbal future marker *si* (Dom & Bostoen 2015), and the compound reciprocal marker **izyan* in the domain of verbal derivational morphology (Dom *et al.* forthcoming). From a phonological point of view, a possibly significant shared innovation for genealogical subgrouping is the reduction to 5-vowel (5V) of the 7-vowel (7V) system inherited from Proto-Bantu (PB) (Meinhof 1932 [1910]: 27; Meeussen 1967: 82). All present-day KLC varieties but one have a 5V system. As is often the case across Bantu languages, the PB 7V phonemes were reduced to 5 in the KLC by merging the two highest degrees of aperture. PB /*i/ /*ɪ/ /*e/ /*a/ /*o/ /*ʊ/ /*u/ evolved into the KLC's prevailing /i/, /e/, /a/, /o/, /u/ inventory. Most KLC varieties lost the near-close vowels /*ɪ/ and /*ʊ/. This merger happened after a mutation of consonants before the close vowels /*i/ and /*u/. In this article, we refer to this consonant mutation as Bantu spirantization (BS).[1] As shown in (1) with data from the West Kikongo variety Cizali (Congo-Kinshasa), PB /*b/ shifted to /v/ in front of the close vowels /*i/ and /*u/, while its regular reflex elsewhere is /b/. In this way, the opposition between /*i/ and /*ɪ/ and between /*ʊ/ and /*u/ in PB led to the presence *vs.* absence of consonant mutation, *e.g.* /v/ *vs.* /b/ in Cizali.

1. In Bantu studies, the regular change of PB stops into fricatives (or affricates in certain languages) in front of the PB close vowels /*i/ and /*u/ is known as "spirantization" (Schadeberg 1995; Nurse & Philippson 2003; Bostoen 2008), "frication" (Hyman 2003a; Hyman & Merrill 2016) or "assibilation" (Coupez 1954; Bastin 1983). In this paper we use the term "Bantu spirantization" instead of simply "spirantization" because this term as used by Bantuists does not entirely correspond to its definition in other language families (Bostoen 2008: 306).

(1)	BLR3 (Bastin *et al.* 2002)			Cizali (Vandenabeele 2016)
	**bímb*	‘swell’	>	*víímb*
	**bíd*	‘call, announce, tell’	>	*bíl*
	**béed*	‘be ill’	>	*bél*
	**bá*	‘oil-palm’	>	*li-bá*
	**bòd*	‘be rotten’	>	*ból*
	**bód*	‘break, smash; kill’	>	*búl*
	**búdà*	‘rain’	>	*m-vúla*

Kihungan (H42, Congo-Kinshasa) is the only language within the KLC to have 7 vowel phonemes, *i.e.* /i/ /e/ /ɛ/ /a/ /ɔ/ /o/ /u/ (Bostoen and Koni Muluwa 2011). Nevertheless, its system does not directly reflect the 7 vowels of PB, *i.e.* /*i/ /*ɪ/ /*e/ /*a/ /*o/ /*ʊ/ /*u/ (ibid.). Kihungan also underwent the common Bantu 7>5V reduction subsequent to BS. As illustrated in (2), the PB high front vowels /*i/ and /*ɪ/ and back vowels /*u/ and /*ʊ/ merged into /i/ and /u/ respectively, after the spirantization of /*d/ in C1 position into /ʣ/ in front of /*i/ and /*u/. Elsewhere, the regular intervocalic reflex of /*d/ is /l/, except when followed by the PB near-close front vowel /*ɪ/, in which case /d/ is preserved in Kihungan, as is often the case in Bantu (Hyman 2003a: 54). Kihungan created a new opposition between e and ɛ and between ɔ and o out of the reflexes of PB /*e/ and /*o/. The close-mid vowels /*e/ and /*o/ have /e/ and /o/ as reflexes respectively when the stem ends in a high vowel, as in **dèdù* ‘beard’ and **dògì* ‘witch’. They have /ɛ/ and /ɔ/ as reflexes respectively, when the final vowel is not high, as in **dédé* ‘cloth’ or **dòg(-à)* ‘bewitch’. This originally phonetic distinction was phonologized through the loss of the final vowel, which used to condition the complementary distribution of [ɛ] and [e] and of [ɔ] and [o] in V1 position of the stem (Bostoen & Koni Muluwa 2011). In (3) we present three minimal pairs, two of them opposing /ɛ/ and /e/ and one opposing /ɔ/ and /o/.

(2)

BLR3 (Bastin *et al.* 2002)			Kihungan (Bostoen & Koni Muluwa 2011; Koni Muluwa & Bostoen 2015)
**dím*	‘extinguish’	>	*ɗím*
**dìm*	‘cultivate’	>	*dim*
**dèdù*	‘beard’	>	*ki-léf*
**dédé*	‘cloth’	>	*mú-lɛl*
**dài*	‘long’	>	*léy*
**dòg*	‘bewitch’	>	*lɔ́k*
**dògì*	‘witch’	>	*mu-lók*
**dók*	‘vomit’	>	*lúk*
**dùmbù*	‘belly’	>	*ɗúm*

(3) Kihungan minimal pairs opposing /ɛ/ *vs.* /e/ and /ɔ/ *vs.* /o/ (Bostoen & Koni Muluwa 2011: 256)

mulêk	‘virgin’	*vs.*	*mulêk*	‘accompany him! (IMP)’
tek	‘bone marrow’	*vs.*	*tɛk*	‘sell! (IMP)’
mu-lók	‘witchdoctor’	*vs.*	*mulɔ́k*	‘bewitch him! (IMP)’

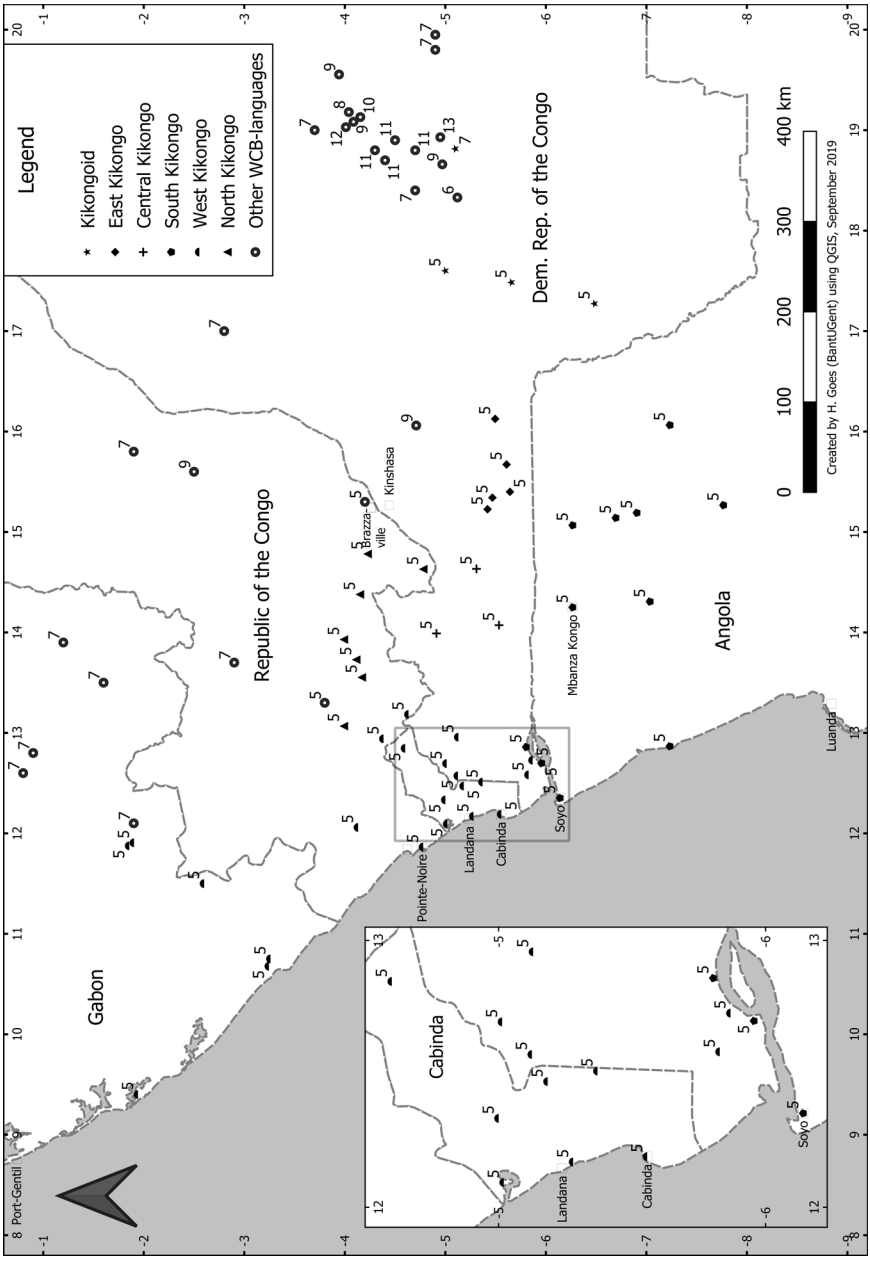
Taking into account that all current-day varieties within the KLC have the same 5V phoneme inventory, which was originally found in Kihungan before the vowel split discussed above, and following the principle of Occam’s razor commonly applied in historical linguistics (Hock 1991 [1986]: 538ff; Dimmendaal 2011: 18; François 2014: 164; Weiss 2014: 129), the most parsimonious assumption would be that the 7>5V reduction took place only once, *i.e.* in Proto-Kikongo (PK). In other words, the most recent common ancestor of the KLC would have had the very same 5V system that prevails in the KLC today. If this were the case, the reconstruction of the /*i/ /*e/ /*a/ /*o/ /*u/ inventory to PK would also be significant for internal classification. Table 1 presents a non-exhaustive list of WCB languages from outside the KLC subclade. As can be seen, most of them have 7 vowel phonemes or more, notwithstanding some exceptions, such as Iyaa (B73c) and Ifumu (B77b), which would have only 5. This implies that the immediate ancestor of PK, *i.e.* Proto-WCB, still had 7V and that the 7>5V merger could be a shared innovation corroborating the status of the KLC as a discrete subgroup within WCB. In such case, the reduction of the vowel inventories of languages such as Iyaa (B73c) and Ifumu (B77b) to 5V would be the result of independent parallel innovations, just like the extension of others up to 13 vowel phonemes (Daeleman 1977; Rottland 1977; Bostoen & Koni Muluwa 2014).

Table 1. — Non-exhaustive overview of (oral) vowel phoneme inventories in WCB languages

Code[2]	Language	Number of vowel phonemes	Source
B501	Liwanzi	7	Mouele (1997)
B51	Liduma	7	
B52	Inzebi	7	
B53	Itsengi	7	
B61	Limbete	7	Ndouli (2001)
B62	Limbamba	7	Guthrie (1971)
B63	Lindumu	7	
B72a	Engungwel	7	Rurangwa (1982)
B73c	Iyaa	5	Mouandza (2001)
B74	Eboo-Nzikou	9	Raharimanantsoa (2012)
B77b	Ifumu	5	Makouta-Mboukou (1977)
B81	Ketiene	7	Ellington (1977)
B82	Iboma (North)	7	Stappers (1986)
B83	Emfinu	9	Daeleman (1958)
B85	Iyansi	11	Rottland (1977)
B85d	Ensong	7	Koni Muluwa (2010)
B85e	Impur	10	Kibwenge India'Ane (1985)
B85F	Kinsamban	11	Mfum-Ekong (1979)
B86	Idzing	13	Mertens (1938)[3]
B86	Idzing	12	Ebalantshim Masuwan (1980)
B86	Idzing	10	Mekani Mwan (1984)
B862	Kəlwel	8	Khang Levy (1979)
B863	Ngong	6	Koni Muluwa (2010)
B864	Mpiin	9	
B865	Nzadi	7	Crane *et al.* (2011)
B87	Mbuun	7	Koni Muluwa (2010)

2. This code consisting of a capital letter, a decimal number and sometimes a lower-case letter refers to the referential classification of the Bantu languages (Guthrie 1971). Languages having a 3-digit number code or a 2-digit number code followed by a capital letter were not part of the original Guthrie classification, but were incorporated in the updates by Maho (2003; 2009).

3. While Mertens (1938) and Ebalantshim Masuwan (1980) both report on the Kamtsha variety of Idzing, Mekani Mwan (1984) deals with the language's Lesye variety.



Map 1. — Distribution of vowel phoneme inventories within WCB, KLC subgroups vs. the rest.

Map 1 presents the distribution of vowel phoneme inventories within the WCB area according to their size. Numbers associated with ⓿ represent languages outside the KLC. Numbers associated with other symbols refer to the different subgroups within the KLC: Kikongoid (★), South Kikongo (⬟), East Kikongo (◆), West Kikongo (◓), Central Kikongo (✚), and North Kikongo (▲) (de Schryver *et al.* 2015; Bostoen & de Schryver 2018a). In this article, we argue, in contradiction to Occam's razor, that PK still had a 7V system and that the 7>5V reduction recurrently took place as a parallel innovation after the most recent common ancestor of the KLC had diverged into different languages. Our argumentation is based on BS patterns within the KLC. After having reconstructed the PK BS pattern in Section 2 and having identified innovations of the PK BS pattern in Section 3, we discuss its irregular application within the stem in Section 4 and the near-absence of its occurrence across morpheme boundaries in Section 5. In Section 6, we conclude that the irregular application of BS within the stem in several KLC varieties as well as the near-total absence of this sound change across morpheme boundaries can be accounted for most convincingly if one reconstructs PK with a 7V system. The reduction to a 5V system took place as an independent innovation in different subgroups. It happened before BS had affected all targetable stems and morphological environments, but different targets escaped in different subgroups.

2. The Proto-Kikongo BS Pattern

BS patterns within the stem are remarkably uniform across the KLC. This homogeneity suggests that this sound shift was already quite advanced in PK. In this section, we present the common KLC reflexes of PB stops, both voiceless (*p *t *k) and voiced (*b *d *g),[4] in front of both /*i/ (Section 2.1) and /*u/ (Section 2.2).

2.1 Stem-Internal BS in front of /*i/

In front of the PB high front vowel /*i/, the voiceless labial stop /*p/ generally yields /f/ throughout the KLC, as shown in (4) with reflexes of *pìn 'press, squeeze' (BLR3 2572).[5] More evidence is presented in (42) in the Appendix. Reflexes are grouped per KLC subgroup: KD = Kikongoid; NK = North Kikongo; WK = West Kikongo; CK = Central Kikongo; EK = East-Kikongo; SK = South Kikongo. A table with the KLC varieties corresponding to the abbreviations used below and their respective sources is presented at the beginning of the Appendix.

4. Note that <g> is commonly used in Bantu language studies as the grapheme representing the voiced velar stop whose IPA symbol is [ɡ]. We stick to this convention here.

5. After all Bantu lexical reconstructions, the unique BLR3 index number is provided (Bastin *et al.* 2002).

(4) KD: *fin-á* (YK), *fin* (SKa); NK: *fin-à* (HGLa); WK: *fiín-a* (YMB1), *u-fin-a* (LMBa, PNa), *ku-fin'* (VL2a), *ɣu-fin-a* (NGB), *ɣu-fin-ə* (SHR), *fín-a* (ZL, WY1); CK: *fin-a* (MNYa); EK: *fin* (NTD), *ku-fín-a* (MBT); SK: *fin-a* (SKGb), *ka-fin-a* (TSTb)

The voiceless alveolar stop /*t/ and the voiceless velar stop /*k/ both have /s/ as a regular reflex in the same context, as shown respectively in (5) with reflexes of *tíngà 'bow-string; tendon, vein' (BLR3 2941) illustrating the shift in C1 position, and in (6) with reflexes of *jíkì 'smoke' (BLR3 3442) illustrating the shift in C2 position. More evidence is to be found in (43) and (44) in the Appendix with examples in both C1 and C2 positions.

(5) KD: *n-síngá* (YK), *mu-síng* (HGNa), *mu-síŋ* (HGNb), *mu-síínga* (SMB); NK: *sìŋgà* (HGLa); WK: *n-siínga* (YMB1), *mu-siinga* (LMBa), *n-siinga* (ZL), *n-singa* (WY2a), *n-síínga* (MBL); CK: *n-singa* (MNYa); EK: *ǹ-singa* (NTD); SK: *n-xinga* (SKGb)[6]

(6) KD: *mw-îf* (HGNb)[7], *mw-ísi* (SKa); NK: *mw-ísì* (HGLa), *mu-isi* (DNDa); WK: *mw-íisi* (YMB1), *mu-isi* (LMBa), *mw-ïsi* (VL2a), *mu-isi* (WY2a); CK: *mw-isi* (MNYa); EK: *mw-iisí* (NTD); SK: *mw-isi* (DHG), *mw-ixi* (SKGb)

The same pattern is observed in the reflexes of PB voiced stops. Labial /*b/ shifts to /v/ in front of the PB high front vowel /*i/, as shown in (7) with reflexes of *bímb 'swell' (BLR3 240). Both alveolar /*d/ and velar /*g/ change to /z/, as shown in (8) and (9) with reflexes of *dìık 'bury' (BLR3 1044) and *gì 'fly' (BLR3 1389)/*gìngì 'fly' (BLR3 1406) respectively. In the Appendix, more evidence is presented for each of these sound changes in (45), (46) and (47) respectively with examples in both C1 and C2 positions.

(7) KD: *ku-vímb-a* (SMB); NK: *kù-vìímb-á* (KMB); WK: *víímb-á* (YMB1), *víímb-a* (ZL, MBL); CK: *vimb-a* (MNYa, NDB); EK: *víimb* (NTD); SK: *vímb-a* (SL2), *vimb-a* (TSTb, ZMBc)

(8) KD: *zíík-á* (YK), *ku-zík-a* (SMB); NK: *zììk-à* (HGLa), *kù-zììk-á* (KMB); WK: *zíík-a* (YMB1), *ziik-a* (ZL), *ziik* (WY1), *zik-a* (WY2a); CK: *zik-a* (MNYa); EK: *ziik* (NTD); SK: *ziik-a* (SL2), *zik* (MBM), *jik-a* (SKGb)[8]

---

6. <x> in Kisikongo (H16a) stands for [ʃ], which results from a later innovation, *i.e.* the palatalization of /s/ in front of /*i/.

7. /ʃ/ in Kihungan (H42) also results from the palatalization of /s/ in front of /*i/.

8. <j> in Kisikongo (H16a) stands for [ʒ] and results from the regular palatalization of /z/ in front of /*i/.

(9) KD: *n-ʤíínʤí* (YK)[9]; NK: *n-zí* (DNDb), *ba-n-zí* (BMBa); WK: *du-n-zi* (PNa, VL2a), *n-zinzi* (KC, KWK, LNJ2, SND, WY2a, WY2c), *n-zíínzi* (WY1, ZL); CK: *n-zi* (MNYa); EK: *n-zinzi* (NTD); SK: *n-zi* (SKGc), *m-bwa-nzi* (TSTb, ZMBc)

The common KLC spirantization pattern in front of /*i/ is summarized in Table 2 for both C1 and C2 positions. It involves a preservation of the original PB voicing contrast in combination with a partial merger of places of articulation. The PB contrast between alveolar and velar stops is lost. Both shifted to alveolar fricatives, while the original contrast with PB labial stops was maintained in that the latter muted into labiodental fricatives. Direct reflexes of this pattern are attested in all subgroups of the KLC. We consider it to be a retention inherited from PK.

*Table 2. — Reflexes of PB stops in front of PB close /*i/ reconstructable to PK*

PB		**/*pi/**	**/*ti/**	**/*ki/**	**/*bi/**	**/*di/**	**/*gi/**
PK	**C1**	/fi/	/si/	/si/	/vi/	/zi/[10]	/zi/
	C2	/fi/	/si/	/si/	/vi/	/zi/	/zi/

As shown in (10), the BS pattern in front of PB close /*i/ inherited from PK is also attested in the oldest surviving dictionary of a Bantu language, *i.e.* the *Vocabularium Latinum, Hispanicum, e Congense* (Van Gheel 1652), which documents seventeenth-century South Kikongo as spoken at Mbanza Kongo, the capital of the Kongo kingdom, and its vicinity (Bostoen & de Schryver 2018b).

9. In Kiyaka (H31), fricative /z/ is strengthened to affricate /ʤ/ when preceded by a non-syllabic nasal.

10. The Kihungan (H42) reflex /ʤi/ of PB /*di/ could be taken as evidence for the fact that the PK reflex of /*d/ in front of /*i/ was not a fricative but an affricate. However, the Kihungan reflex of /*di/ is either /ʤi/ or /ʒi/, the former possibly being a contact-induced strengthening under the influence of B80 languages where /ʤi/ is one of the reflexes of /*di/ (Koni Muluwa 2010: 146). Hence, both /ʤi/ and /ʒi/ are probably innovations from PK /zi/.

(10) BS in front of PB close /*i/ in seventeenth-century South Kikongo (Van Gheel 1652)

**pígò*	'kidney'	>	*ń-fio*	'*nephus*, *ren*'
**píp*	'suck'	>	*cú-fiba*	'*súgo*'
**tínà*	'root'	>	*e-ssina*	'*origo*; *principiúm*'
**tíngà*	'bow-string'	>	*lu-çinga*	'*chorda*'[11]
**kíndò*	'noise, footfall'	>	*mu-sindú*	'*strepitus*'
**kíngó*	'neck'	>	*n-çingú*	'*collum*'
**bímb*	'swell'	>	*cú-úimba*	'*inflo; obsturgao; túmeo*'
**bìì*	'excreta'	>	*tú-úi*	'*fimus*'
**dìık*	'bury'	>	*cú-zica*	'*humo; operculo; púlso*'
**dìtò*	'heavy'	>	*qui-zitú*	'*grauitas; onús; pondus*'
**gìdà*	'taboo'	>	*u-zila*	'*impudicitia; túrpitudo*'

2.2 Stem-Internal BS in front of /*u/

In front of /*u/, all PB voiceless stops have the same reflex, *i.e.* /f/. This is shown in (11) for /*p/ with reflexes of *púdò 'foam' (BLR3 2677)[12], in (12) for /*t/ with reflexes of *túnd 'teach; punish, accuse' (BLR3 3122), and in (13) for /*k/ with reflexes of *kú 'to die' (BLR3 2089). More evidence for this regular sound shift is presented in (48), (49), and (50) in the Appendix.

(11) KD: *fúl-ful* (HGNb), *fúlu* (YK); NK: *fulu* (BMBa); WK: *di-fúúlú* (YMB1), *i-fulu* (LMBa, PNa), *tshi-fulu* (VL2a), *li-fúlu-fulu* (ZL), *fúlú* (MBL); CK: *fulu* (MNYa); EK: *fúlu* (NTD); SK: *e-fulu-fulu* (SKGb)

(12) KD: *fúúnd-á* (YK), *kú-fúnd* (HGNb); NK: *fund-a* (DND/KMB/KNY); WK: *fúúnd-á* (YMB1), *fúúnd-a* (ZL), *fúund-a* (WY1), *fund-a* (WY2a), *fund-e* (VL1c); CK: *fund-a* (MNYa); EK: *fúund* (NTD); SK: *fúúnd-a* (SL2)

(13) KD: *kú-fa* (HGNb), *ku-fw-a* (SKa); NK: *fw-á* (HGLa), *fu* (LDa); WK: *fw-á* (YMB1), *fuw-a* (WY2b), *ku-fw-a* (VL1c, VL2b), *fw-a* (MBL), *u-fu* (LMBa, PNa, SNG1, SNG2), *ɣu-fu* (SHR); CK: *fw-a* (NDB); EK: *fú* (NTD); SK: *ku-fw-a* (DHG), *fw-a* (ZMBa, SKGb, TSTa)

11. In the *Vocabularium Latinum, Hispanicum, e Congense*, both the graphemes <ç> and <ss> are used to render /s/, while <u> may represent both /w/ and /v/ (De Kind *et al.* 2012).

12. Within the KLC, the final vowel of **púdò* 'foam' generally underwent heightening under the influence of the high vowel in V1 position.

All PB voiced stops also have the same reflex in front of /*u/, *i.e.* /v/, as shown in (14) for /*b/ with reflexes of **búdà* 'rain' (BLR3 368), in (15) for /*d/ with reflexes of **dúʊd* 'take off (clothes)' (BLR3 1241) and in (16) for /*g/ with reflexes of **dàgù* 'palm wine'.[13] In (16), no reflexes from Kikongoid and East Kikongo are given, because they all underwent further devoicing of C2 from /vu/ to /fu/ (cf. *infra*). Other regular reflexes of /*bu/, /*du/ and /*gu/ providing evidence for this pattern are presented in (51), (52), and (53) of the Appendix.

(14) KD: *m-vula* (SKa, SKb); NK: *vúlá* (HGLa), *m-vula* (DNDa, KNY), *m-vùlà* (KMB); WK: *m-vúúlá* (YMB1), *vul'* (VL2a), *n-vula* (VL1c), *N-vula* (LMBa), *m-vula* (PNa, WY1, WY2a, WY2b); CK: *m-vula* (MNYa, NDB); EK: *m-vúla* (NTD), *m-vula* (MBT); SK: *m-vula* (SKGb, SL1a, SL1b, DHG, PMB, TSTa), *m-bvula* (ZMBa)[14]

(15) KD: *vúúl-a* (YK); NK: *vùùl-à* (HGLa); WK: *vúúl-a* (YMB1), *vuul-a* (ZL), *vuul-a* (WY1), *ku-vhül'* (VL2a), *u-vhuul-a* (LMBa); CK: *vuul-a* (MNYa); EK: *vúúl* (NTD); SK: *vula* (SKGb)

(16) NK: *ma-lavu* (DND/KMB/KNY), *mà-làvú* (LDb); WK: *ma-laávu* (YMB1), *ma-lávu matsáámba* (ZL), *ma-lávu* (WY2c); CK: *ma-lavu* (MNYa, NDB); SK: *ma-lavu* (SKGb, SL1a), *ma-lavù* (ZMBa)

The common KLC BS pattern in front of /*u/ is summarized in Table 3 for both C1 and C2 positions. As before /*i/, the original PB voicing contrast is maintained. However, unlike before /*i/, a full merger of places of articulation is observed in front of /*u/.[15] The PB contrast between labial, alveolar and velar stops is lost in favor of labiodental fricatives. Direct reflexes of this pattern are attested in all subgroups of the KLC. We consider it to be a retention inherited from PK.

*Table 3. — Reflexes of PB stops in front of PB close /*u/ reconstructable to PK*

PB		**/*pu/**	**/*tu/**	**/*ku/**	**/*bu/**	**/*du/**	**/*gu/**
PK	**C1**	/fu/	/fu/	/fu/	/vu/	/vu/	/vu/
	C2	/fu/	/fu/	/fu/	/vu/	/vu/	/vu/

13. The reconstruction **dàgù* 'palm wine' is not present in BLR3 (Bastin *et al.* 2002). We propose this new reconstruction for PK in analogy with the existing reconstruction **dògù* 'wine; beer' (BLR3 1108) with reported attestations in Guthrie's zones A B D K L R (*ibid.*). Apart from V1, these two reconstructions correspond in both form and meaning.

14. The stem-initial affricate observed in the Kizombo (H16h) reflex is a strengthening resulting from the contact between the homorganic non-syllabic nasal prefix of class 9 and stem-initial /s/.

15. For unclear reasons, one stem does not comply with this full merger of places of articulation, *i.e.* **dùt* 'pull' (BLR3 1267). As shown in (52e) in the Appendix, it yields reflexes with /zu/ instead of /vu/. This exception could indicate that also in front of /*u/ the merger of places of articulation was originally only partial in PK and that this specific stem escaped the leveling process.

As shown in (17), the BS pattern in front of PB close /*u/ inherited from PK is also attested in seventeenth-century South Kikongo.

(17) BS in front of PB close /*u/ in seventeenth-century South Kikongo (Van Gheel 1652)

**púan*	'be fitting'	>	*cu-fuana*	'*pertinere; sufficio*'
**púdò*	'foam'	>	*e-ffúlú*	'*spúma; spúmatio*'
**túd*	'hammer; forge'	>	*cú-ffúla*	'*cudo*'
**kú*	'die'	>	*cú-fúa*	'*morior; mors; obitus; pernicies*'
**kúmú*	'chief'	>	*n-fumu*	'*dominus*'
**búì*	'white hair'	>	*n-úú*	'*cani; canities*'
**búdà*	'rain'	>	*n-úúla*	'*imber; plúúia*'
**dùm*	'roar, rumble'	>	*cú-úúma*	'*floreo; horreo; timeo; tono*'
**dùmbí*	'continuous rain'	>	*mu-uumbi*	'*diluuium*'
**dògù*	'beer'	>	*n-dúúú*	'*múltibubus, potor*'

3. Innovations of the Proto-Kikongo BS Pattern

The most widespread and genealogically diagnostic innovation in the BS pattern reconstructed for PK is spirant devoicing, both in C2 (Section 3.1) and C1 (Section 3.2) positions. Other innovations are much more scattered and often restricted to specific languages. One of them is the spirant palatalization in front of /*i/. It occurs regularly in Kisikongo, where PK /*zi/ yields /ʒi/ —often written as <ji>, cf. (8)— and /*si/ yields /ʃi/ —often written as <xi>, cf. (6). In Kihungan, such spirant palatalization is also observed but not in an entirely regular way. The spirant is also sometimes affricated in Kihungan, both in front of /*i/ and /*u/ —cf. (2). Such affrication is also irregularly observed in B40 languages and Kiyombe (H16c) subsequent to the devoicing of PK /*zi/ to /si/, as discussed in Section 3.1 below.

3.1 Spirant Devoicing in C2 Position

Reflexes of PB voiced stops that underwent BS often undergo further devoicing. This sound shift is known as "spirant devoicing" in Bantu studies (Nurse & Hinnebusch 1993: 206) and often used as a diagnostic feature for genealogical subgrouping (Nurse 1999; Labroussi 2000; Bostoen 2009). Within the KLC, the devoicing of the spirant reflexes of PB stops is especially frequent in C2 position, before the reflexes of both PB /*i/ and /*u/. At the end of the stem, PK /vi/, /zi/ and /vu/ recurrently shift to /fi/, /si/ and /fu/ respectively. This is shown in (18) for PB /*bi/ with reflexes of **jíbì*

'thief' (BLR3 3396), in (19) for PB /*di/ with reflexes of **bàdì* 'yesterday, tomorrow' (BLR3 44), in (20) for PB /*bu/ with reflexes of **gòbú* 'hippopotamus' (BLR3 1480) (without attestations in WK), and in (21) for PB /*du/ with reflexes of **dèdù* 'beard; chin' (BLR3 897). Evidence for the devoicing of reflexes of PB /*gi/ and /*gu/ is missing due to the scarceness of reconstructed stems ending in these sequences. More evidence of spirant devoicing in stem-final reflexes of /*bi/, /*di/ and /*du/ is presented in the Appendix, more specifically in (54), (55), and (56), respectively.

(18) KD: *mú-úfi* (YK), *mw-îf* (HGNb); NK: *mw-ììfi* (KMB); WK: *mw-ifi* (YMB1)[16], *mw-ĩfi* (VL2a), *mw-ifi* (MNN), *mu-ifi* (LMBa); EK: *mw-iifí* (NTD, MBT, MBK)

(19) KD: *m-básí* (YK), *m-báf* (HGNb), *m-bác* (SMB); NK: *m-bàsi* (KMB); WK: *m-baási*/*m-baázi* (YMB1), *m-basi* (VL2a), *N-batsi* (LMBa), *m-bătsì* (YMB3a); EK: *m-basi* (NTD, MBT, MBK, NKN)

(20) KD: *n-gúfu* (YK), *ń-guf* (HGNb); NK: *n-gùfù* (KMB), *n-gùfù* (BMBa); EK: *n-gufú* (NTD), *n-gufu* (MBT, MBK)

(21) KD: *yi-léfu* (YK), *ki-léf* (HGNb); NK: *mà-n-dyéfò* (KMB)[17]; WK: *má-n-dèfù* (YMB3a), *tshi-defu* (VL2a), *i-defu* (LMBa), *ma-n-défu* (MBL); EK: *ki-lefo* (NTD), *ki-lefu* (MBK)

As can be observed from the data in (18)-(21), spirant devoicing in C2 position does not occur in all KLC subgroups. It is absent from South Kikongo and Central Kikongo and only attested as a phonological innovation in West Kikongo, North Kikongo, East Kikongo and Kikongoid. However, based on the available evidence, it would be difficult to posit spirant devoicing in C2 position as a shared innovation that would have taken place in a more recent common ancestor shared only by those four subgroups but not by South or Central Kikongo. Although this phenomenon seems to occur across all languages belonging to East Kikongo and Kikongoid, several West and North Kikongo languages miss this innovation, *e.g.* Ciwoyo/Iwoyo (WK) and Cilaadi (NK), or apply it irregularly, *e.g.* Kiyombe (WK) and Cizali (WK). As a consequence, for the time being, it seems safer to consider spirant devoicing in C2 position as a parallel innovation that took place independently in each of those subgroups.

16. This devoiced reflex was found in Biyoko Mabua (2017). Both Bittremieux (1923-1927) and De Grauwe (2009) report the voiced equivalent *muivi/mwíivi*, suggesting that spirant devoicing is not fully regular in Kiyombe (H16c).

17. Several reflexes of **dèdù* 'beard; chin' (BLR3 897) have a final mid vowel due to vowel lowering under the influence of the stem's initial mid vowel.

As for Kikongoid and East Kikongo, it is likely to have occurred in the ancestor language of each of the subgroups. Spirant devoicing as such is not solid enough a proof to propose a unique ancestor language for both Kikongoid and East Kikongo unless corroborated by other shared innovations still to be identified. So far, no specific innovations only shared by these two subgroups have been observed. They also do not emerge as more closely related to each other than to other subgroups in the lexicon-based phylogenetic classification of the KLC (de Schryver *et al.* 2015; Bostoen & de Schryver 2018a & 2018b).

Within West and North Kikongo, the innovation must have been initiated subsequent to the split-up of their respective ancestor languages. In West Kikongo, it is fully consistent in the B40 languages plus Civili (H12) and Kiyombi (H16c), while less so in the H10 languages spoken further south, *i.e.* just north of the Congo delta. This division between a northwestern and southwestern cluster coincides with the split observed within West Kikongo in the lexicon-based phylogenetic classification of de Schryver *et al.* (2015: 140). Spirant devoicing seems to corroborate the status of the B40 languages plus Civili (H12) and Kiyombi (H16c) as a distinct subgroup within West Kikongo. Kiyombi (H16c) and the B40 languages further share the regular affrication of stem-final /si/ to /tsi/. Spirant devoicing is also not attested in the oldest available source for West Kikongo, *i.e.* the eighteenth-century Kikongo-French/French-Kikongo dictionary (Anonymous 1772a & 1772b), compiled by French missionaries who operated in the kingdom of Kakongo in present-day Cabinda (Angola) (van Bulck 1954; Drieghe 2014). Just like seventeenth-century South Kikongo —cf. (10) and (17)—, eighteenth-century West Kikongo retained the BS pattern inherited from PK.

(22) Absence of spirant devoicing in eighteenth century West Kikongo (Anonymous 1772a & 1772b)

**jíbì*	‘thief’	>	*u mu-ivi*	‘brigand; voleur’
**kádí*	‘woman, wife’	>	*ou(u)m-kazi*	‘épouse’
**gì*	‘fly’	>	*i n-zi*	‘mouche’
**gìngì*	‘fly’	>	*i n-zinzi*	‘moucheron’
**bú*	‘year’	>	*u m-vu*	‘saison’
**dèdù*	‘beard; chin’	>	*zi n-dévo*	‘barbe; moustache’
**kódù*	‘reptile: tortoise’	>	*i kuvu*	‘tortue’
**dàgù*	‘palm wine’	>	*ma-lavu ma samba*	‘vin de palme’

3.2 Spirant Devoicing in C1 Position

Spirant devoicing in C1 position is much less pervasive than in C2 position in the KLC. Leaving aside monosyllabic stems like *biì ‘excreta’ (BLR3 6425) (see (54) in the Appendix), where C1 is the only stem consonant and so also in stem-final position, the devoicing of spirant C1 is only found in two subgroups which display this sound shift consistently also in C2 position, *i.e.* Kikongoid and the northwestern cluster of West Kikongo. However, in neither of these two subgroups is spirant devoicing entirely regular. Within Kikongoid, it only occurs in Kihungan (H42), but not systematically. Within West Kikongo, it is regularly attested in certain B40 languages, such as Yilumbu (B44) and Yimenaane (B44A), and only inconsistently in others, such as Yipunu (B43). It is also not systematic in Civili (H12) and Kiyombe (H16c), which did undergo systematic spirant devoicing in C2.

This phenomenon is illustrated below for /*bi/ in (23) with reflexes for **bimba* ‘entire, full’, for /*di/ in (24) with reflexes of **dìtò* ‘heavy’ (BLR3 1076) and in (25) with reflexes of **dítà* ‘knot’ (BLR3 1075), for /*bu/ in (26) with reflexes of **búdà* ‘rain’ (BLR3 368) and in (27) with reflexes of **bùmò* ‘abdomen; pregnancy’ (BLR3 375), for /*du/ in (28) with reflexes of **dùmbi* ‘corpse’, and for /*gu/ in (29) with reflexes of **gùbó* ‘hippopotamus’ (BLR3 1532).[18]

(23) KD: *m-fĭmb* (HGNb); WK: *fi-m-bala* (LMBa, MNN, PNa), *fimb’l’* (VL2a)

(24) WK: *u-tsir-a* ‘be heavy’ (LMBa), *ku-tsir’* ‘be heavy’ (VL2a); BUT KD: *ki-ʒít* (HGNb)

(25) WK: *di-sit-a* (LMBa, MNN, PNa), *li-sit’* (VL2a)

(26) KD: *m-ful* (HGNb); WK: *m-fulə* (PNb), *fulə* (SGN1, SGN2), *fula* (NGB), *m-fulə* (SHR)

(27) WK: *yi-fumu* (LMB), *di-fumu* (NGB, SHR, SNG1, SNG2)

(28) WK: *N-fuumbi* (LMBa), *m-fuumbi* (MNN); BUT *m-vuumbi* (PNa, VL2a)

(29) WK: *N-fubu* (LMBa), *m-fubu* (MNN); BUT *m-vubu* (PNa, VL2a)

18. The reconstructions in (23) and in (28) do not occur in BLR3 (Bastin *et al.* 2002). We propose **bimba* ‘entire, full’ for a comparative series that is widespread in the KLC. It is possibly a derivation from **bímb* ‘swell’ (BLR3 240). The new reconstruction **dùmbi* ‘corpse’, also corresponding to a widespread comparative series within the KLC, is likely to be an agentive derivation from **dùmb* ‘smell’ (BLR3 1258), *i.e.* ‘the one who smells’.

Given its scattered distribution and irregular application, spirant devoicing in C1 must be an innovation that occurred relatively late in the history of the KLC. Therefore, it has little diagnostic value in terms of genealogical classification, except maybe for the northwestern cluster of West Kikongo where it is more pervasive than anywhere else within the KLC.

4. Irregularities in Stem-Internal BS and 7V in Proto-Kikongo

The BS pattern reconstructable to PK (Section 2) and its minor innovations in the daughter languages (Section 3) are widespread within the KLC, but not systematically followed. Numerous exceptions are observed, especially in certain subgroups such as West Kikongo and North Kikongo. Several stems manifesting BS elsewhere in the KLC are found in those languages with their original stop consonant, sometimes even with stems going back to PB. Exceptions occur in front of both /*i/ and /*u/ and with several stops, both unvoiced and voiced. Such irregularities in the PK BS pattern are illustrated below for /*pi/ in (30) with reflexes of **pígò* 'kidney' (BLR3 2568), for /*ti/ in (31) with reflexes of **tím* 'dig' (BLR3 2918), for /*ki/ in (32) with reflexes of **kíngó* 'neck; nape; voice' (BLR3 1845), for /*di/ in (33) with reflexes of **dìdì* 'cold' (BLR3 1032), for /*tu/ in (34) with reflexes of **túmʊd* 'take (firewood) from fire, tear asunder' (BLR3 3111), for /*bu/ in (35) with reflexes of **bùmá* 'fruit' (BLR3 374) and for /*du/ in (36) with reflexes of **dùt* 'pull' (BLR3 1267). Similar exceptions can be found in (42c, d), (43c), (44b) and (52b) in the Appendix.

(30) WK: *mu-piɣu* (LMBa, PNa), *n'piwu* (VL2a) —compare with (42a) in the Appendix

(31) WK: *u-tim-a* (LMBa), *u-tim-a* (PNa), *tíím-un-a* (ZL), *tím-ún-a* (MBL); NK: *tim* (LDa) —compare with (43b) in the Appendix

(32) WK: *kiŋgu* (PNb); NK: *ŋ-kììŋgú* (BMBc), *kingu* (BMBd) —compare with (44a) in the Appendix

(33) WK: *ma-didi* (MBL, ZL); NK: *ma-didi* (LDc) —compare with (46c) in the Appendix

(34) WK: *tum-un-a* (WY2a), *u-tumun-a* (LMBa, PNa), *ku-tum-un'* (VL2a), *tum-ún-a* (WY1); SK: *tum-un-a* (SKGc) —compare with (49b) in the Appendix

(35) WK: *zi-m-buma* (ZL) —compare with (51b) in the Appendix

(36) WK: *u-dut-a* (LMBa), *u-dut-ə* (PNb, SNG1, SNG2), *ɣu-dut-ə* (SHR) (compare with (52e) in the Appendix)

All of the stems in (30)-(36) and those in (42c, d), (43c), (44b) and (52b) in the Appendix go back in time far beyond PK. Several of them, such as **dùb* 'fish', **dùt* 'pull', **kíndò* 'noise, footfall', **kíngó* 'neck; nape; voice', **pígò* 'kidney', **pìn* 'press, squeeze', **tím* 'dig', have been reconstructed back to PB. None of these stems is thus a lexical innovation posterior to PK, which could explain why these lexical items undergo BS in some KLC subgroups but not in others. All these stems are assumed to have already existed in PK. This implies that they either had not undergone BS in PK yet or they had undergone BS but this mutation was subsequently undone. In either case, this would imply that after different subgroups emerged out of PK, these stems received a variable treatment. Whatever the actual scenario may have been, both require PK to have been a 7V language.

Throughout the Bantu domain, BS is known to have happened before 7>5V reduction. Although there are several 7V languages that underwent BS and others that did not, there are almost no 5V languages that did not undergo it (Schadeberg 1995; Bostoen 2008). In most of those having 5V without BS, such as Kinshasa Lingala (C30B, DRC; Meeuwis 2010: 23-24) and Lozi (K21, Zambia; Gowlett 1989), the vowel reduction occurred as a contact-induced change. Even if 7>5V reduction has rarely taken place without having been preceded by BS, the latter does not necessarily imply the former. The existence of 7V languages manifesting BS proves this point. However, BS allows a 7V language to reduce its vowel repertoire to 5V without the risk of homonymic clash. As shown in (1) above, the original vocalic opposition between close (/*i/ /*u/) and near-close (/*ɪ/ /*ʊ/) vowels is "transphonologized" to a consonantal opposition between fricatives or affricates before the former close vowels on the one hand, and stops before the former near-close vowels on the other (see also Hyman 2003b: 56). With reference to the examples in (1), for instance, before the 7>5V reduction, Bantu languages maintained a consonantal and vocalic contrast between the reflexes of the stems **búdà* 'rain' and **bód-à* 'break, smash; kill', *i.e. vúlà* 'rain' *vs. bólà* 'break'. As soon as Bantu languages reduce their vowel inventory to 5V through the merger of the first two vocalic degrees, the originally predictable phonetic contrast, *i.e.* fricative/affricate in front of close vowel and corresponding stop elsewhere, becomes a phonological one in that it is no longer predictable due to the loss of the conditioning environment. The contrast becomes exclusively consonantal, *i.e. vúlà* 'rain' *vs. búlà* 'break'. Hence, 7>5V reduction irreversibly transforms BS from an allophonic variation into a phonological distinction. As long as a language has 7V, one of the contrasts (vocalic between close and near-close or consonantal between fricative/affricate and plosive) is redundant and can be undone. Most Bantu languages —including those from

the KLC— have undone the original vocalic opposition. This is why the exceptions in BS observed for the stems in (30)-(36), (42c, d), (43c), (44b) and (52b) can be most plausibly accounted for by positing that PK was actually a 7V language in which those stems had not undergone BS yet. While they underwent BS in some of its daughter languages before they turned into 5V languages, they did not in others. On the other hand, it is not inconceivable that the stems above had undergone BS in PK, but lost the redundant consonantal contrast again in some daughter languages (while not in others) before these reduced their vowel inventories to 5 phonemes.

Another key element supporting the assumption that PK must have been a 7V language before distinct daughter languages evolved out of it is the fact that stem-internal BS no longer applies once a language reduces its vowel repertoire from 7 to 5 phonemes. In the merger between /*i/ and /*ɪ/ and between /*u/ and /*ʊ/, the close vowels originally triggering BS, *i.e.* /*i/ and /*u/, are the ones which are maintained. However, once the merger has taken place, neither /*i/ nor /*u/ ever triggers BS within the stem. In other words, the consonantal contrast between *vúlà* 'rain' *vs. búlà* 'break' will never be given up in favor of homophony, *e.g. vúlà* 'rain' *vs.* **vúlà* 'break'. After the close vowels have "absorbed" the originally near-close vowels, they may trigger further sound shifts, but these rarely lead to a loss of the phonemic contrast between the consonants that originally occurred before PB close vowels and those that occurred before PB near-close vowels. For instance, as discussed at the start of Section 3, the close front vowel /i/ triggers the palatalization of fricatives resulting from BS in Kisikongo (H16a) and Kihungan (H42). Regardless of whether it is a reflex of PB close /*i/ or near-close /*ɪ/, /i/ in these two languages has the same palatalizing effect on other fricatives not resulting from BS, such as the reflex of PB *c, *e.g.* PB **cìmb* (close) 'prevent; cease' > Kisikongo *ximb-a* [ʃimba]; *cí (near-close) 'ground; country; underneath' > Kisikongo *n-xi* [nʃi] (Bentley 1887-1895).

Elsewhere in the KLC, reflexes of PB stops other than *c and *j rarely palatalize in front of /i/. If they do, the outcome is still different from the output of BS even after palatalization. Velar palatalization, for instance, is regular in one subgroup of the KLC, *i.e.* West Kikongo, more specifically the southwestern cluster. As shown in (37), it affects the voiceless velar stop, whether this is a reflex of PB /*k/ or /*g/, in front of a front vowel whether this is reflex of /*i/, /*ɪ/ or /*e/. The resulting voiceless palatalized stop is phonologically distinct from any of the possible outcomes of BS. Moreover, fricative reflexes of /*k/ or /*g/ having undergone BS do not undergo palatalization in West Kikongo.

(37) Velar palatalization in West Kikongo

**kín* 'dance, play' (BLR3 1805)	>	WK: *ku-cin'* (VL2a), *cín-á* (WY2b), *cin-a* (WY2a, KC, LNJ2)
**kímà* 'monkey' (BLR3 1798)	>	WK: *n-cim'* (VL2a), *n-cima* (WY2a, KC, LNJ2)
**dògì* 'witch' (BLR3 7089)	>	WK: *n-dóci* (WY1), *n-dócìyé* (WY2b), *ndotshi* (VL2a)
**kèd* 'cut' (BLR3 1755)	>	WK: *ku-tshel'* (VL2a), *cíyél-á* (WY2b)[19], *tchel-a* (VL3, SND, KC, KWK, LNJ2, WY2c)

In other words, if PK had undergone both BS and 7>5V reduction, it is difficult to conceive that the stems in (30)-(36) and those in (42c, d), (43c), (44b), and (52b) in the Appendix would have undergone BS after the vowel merger in some subgroups but not in others, because stem-internal BS usually ceases to apply once the 7>5V reduction has taken place. The other way around would even be less likely. If the original distinction between close and near-close vowels was lost in PK, how could BS in the very same stems, *i.e.* (30)-(36), (42c, d), (43c), (44b), and (52b), have been undone in certain subgroups but not in others? Given that as soon as a Bantu language reduces its vowel inventory to 5V, the originally predictable phonetic contrast between a fricative/affricate in front of a close vowel resulting from BS and the corresponding stop elsewhere becomes phonological due to the loss of the conditioning environment. It is no longer predictable and thus not reversible anymore. All of this pleads in favor of the hypothesis that PK was a 7V language in which BS had already affected most of the available targets in the lexicon, though not all.

5. BS Across Morpheme Boundaries and 7V in Proto-Kikongo

Across Bantu languages, BS not only occurs tautomorphemically, *i.e.* within the stem, but also heteromorphemically, *i.e.* across morpheme boundaries. Heteromorphemic BS is often triggered by (i) the adjectival derivational suffix **-u*; (ii) the causative suffix **-i*; (iii) the agentive suffix **-i*; and (iv) the tense-aspect suffix **-ide* (Bastin 1983; Labroussi 1999; Hyman 2003b). However, not all Bantu languages manifesting tautomorphemic BS display heteromorphemic BS as a (regular) sound shift. Such is the case within the KLC, where heteromorphemic BS is only rarely observed, especially as a synchronic morphophonological change.

19. The sequence /cíy/ corresponds here to the /*k/ in C1 position. It results from the unpacking of the palatal stop resulting from the palatalization of the originally velar stop.

A reflex of the adjectival derivational suffix *-*u* is not reported in any of the KLC varieties as a productive strategy to derive adjectival stems from verb roots. Historical derivations formed with *-*u* (both adjectival stems and nouns derived from them) are not easy to identify, because the reflexes of the adjectival derivational suffix *-*u* are hard to distinguish from the reflexes of the PB suffix *-*o* used to derive noun stems referring to actions, results and instruments from verb roots (Schadeberg 2003: 80-81). This is because within the KLC, the reflex of *-*u* tends to be lowered to /o/ following mid root vowels, while the reflex of *-*o* tends to be heightened to /u/ when suffixed to a root having a vowel that is not mid. One way to distinguish between the two is that heteromorphemic BS is triggered by *-*u* but not by *-*o*. However, this sound shift does not systematically apply across this morpheme boundary in the KLC (and beyond). For instance, the Kiyombe (H16c) stems in (38a) ending in /u/ are possibly the result of a historical *-*u* derivation, but in most cases the synchronic verb root to which this derivation would have applied could not be identified. If the forms in (38a) are in fact historically derived with the *-*u* adjectival suffix, then /v/ and /f/ in root-final position could be considered as the outcome of BS. However, as shown in (38b), Kiyombe (H16c) also has adjectival stems ending in /u/ but preceded by a stop consonant, thus lacking evidence for BS. Most of them do have a corresponding verb stem, though not necessarily the one from which they were historically derived. The derived stems in (38b) could be of a more recent origin than the ones in (38a). They were possibly derived at a stage where BS had stopped to apply across the morpheme boundary between the verb root and the *-u* suffix. The stems showing signs of BS in (38a) would then have been lexicalized before this deactivation occurred.

(38) Possible reflexes of the PB adjectival suffix *-*u* in Kiyombe (De Grauwe 2009)

a. *káámv-ú* ‘something or someone coarse, strong and well built’
kááv-u ‘something damaged, torn, broken, shredded’
kyaáv-u ‘diameter, width, thickness’
bu-léemv-u ‘obedience, docility’; cf. *léémb-á* ‘soothe, calm; water, moisten’
túúf-u ‘something folded’

b. *tuúng-u* ‘full, swollen, serious, important’; cf. *tuung-úk-a* ‘become important, profitable’, *tuung-ub-úk-a* ‘swell, inflate’, *tuung-um-úk-a* ‘increase in volume (*e.g.* a ball)’
khíít-ú ‘changing, metamorphosing’; cf. *kíít-úl-a* ‘change into’
khaat-u ‘without condiments (food)’; cf. possibly *kaát-a* ‘stretch very hard, give more attention to, insist, emphasize; strike by throwing sth.; put a lot of pilipili in the eyes or a dish’

Two causative allomorphs with a complementary distribution have been reconstructed for PB: **-i* after C and **-ici* after V (Bastin 1986: 130; Schadeberg 2003: 73). Within the KLC, only reflexes of the long PB causative suffix, which do not trigger BS, have survived as productive causative suffixes. The short PB causative **-i* was lost and can be observed synchronically only in lexicalized forms. As shown in (39a) with examples from Kiyombe, it only survived as a segment after verb roots ending in a nasal, namely as a palatal glide in front of the final vowel of the verb stem. We assume these glides are reflexes of PB **-i* because of the causative semantics and transitivity of the verb stems in question. However, none of them corresponds to an underived verb root that is intransitive. Either there is no corresponding base verb root or if there is one, it seems to have the same meaning as the apparently derived stem (cf. the three last examples in (39a)). As shown in (39b), following stops, the short causative suffix caused BS. Its reflex in this case is simply a fricative, a process commonly known as "y-absorption" in Bantu studies (Bastin 1986; Hyman 2003b; Bostoen 2008). Here as well an easily identifiable underived verb root is most often missing. If a corresponding verb root ending in a stop is available in the synchronic lexicon, its meaning can most often not be considered as the one from which that of the causative stems was derived, as in the first example in (39b). In the last example in (39b), the morphologically causative verb stem *léénzá* and its supposed underived verb stem *leénda* are even identical in meaning.[20]

(39) Possible reflexes of the PB short causative suffix **-i* in Kiyombe (De Grauwe 2009)

a. *buún-y-a* 'tear off with the teeth'
veén-y-a 'lift up cloths to be freer in one's movements'
kweén-y-a 'nibble'
veev-án-y-a 'make an abundant meal without being able to finish it'
koón-y-a 'pluck feathers, remove leaves', cf. *koón-a* 'pluck feathers, remove leaves'
voón-y-a 'tear, devour', cf. *voón-a* 'tear, devour'
fyóón-y-a 'wipe, clean', cf. *fyóón-a* 'wipe, clean'

b. *vúúnz-á* 'prevent, disturb; postpone, delay; cancel an appointment or a promise', cf. *vuúnd-a* 'rest, stop (intr.)'
biínz-a 'hurt morally; offend someone by telling things crudely; strike hard', cf. *bíínd-úl-a* 'suffer from an evil which resumes and becomes complicated'
léénz-á 'hate, despise, neglect', cf. *leénd-a* 'hate, despise, insult'

20. The fact that verb stems including a reflex of the PB short causative develop semantic properties that are not completely derivable or predictable from the morphemes of which they consist is a clear sign of lexicalization (cf. Brinton & Traugott 2005: 96).

Throughout the KLC, verb stems derived with the PB short causative suffix *-*i* tend to manifest BS when their root historically does not end in a nasal. This is not surprising, as the causative suffix *-*i* constitutes the most favorable context for heteromorphemic BS across Bantu. Nearly all Bantu languages manifesting BS tautomorphemically —especially those having 5V— also attest it in this particular morphological context (Bastin 1986: 131-140). In contrast to the other high vowel morphemes potentially triggering BS, causative *-*i* is usually followed by the final vowel of the verb and thus realized as a palatal glide, *i.e.* [CyV]. The greater constriction of this glide facilitates BS (Bastin 1983: 25; Hyman 2003b: 58).

The two morphological contexts in which Bantu languages display most cross-linguistic variation in terms of heteromorphemic BS are in front of the agentive suffix *-*i* and before the anterior and/or past tense suffix *-*ide*.

As for the agentive suffix *-*i*, Bostoen (2008: 337) already identified KLC varieties such as Yipunu, Kimanyanga, Kiyaka, and Kisuku as languages attesting so-called "limited agent noun spirantization". These are languages in which nearly none of the deverbative agent nouns ending in *-i* manifest BS, except for old stems such as **jíbì* 'thief' (BLR3 3396) derived from **jíb* 'steal' (BLR3 3387), and **dògì* 'witch' (BLR3 7089) derived from **dòg* 'bewitch' (BLR3 1100). As shown in (18) above and (45) in the Appendix, the reflexes of **jíbì* 'thief' do systematically display BS within the KLC. The reflexes of **dògì* 'witch', however, manifest BS only in Yipunu (B43) and Yimenaane (B44a), *i.e. mu-losi* (Mavoungou & Plumel 2010). In all other KLC varieties, final **gì* has /ki/ as a reflex, which then undergoes velar palatalization in certain West Kikongo varieties (cf. (37)). As illustrated in (40), another PB deverbative agent noun manifesting BS within the KLC, not identified by Bostoen (2008), is **dèdì* 'educator' (BLR3 7788) derived from **dèd* 'bring up; caress, hold on knees; bear (child)' (BLR3 882).

(40) WK: *n-deési*, *n-deéze* (YMB1), *n-dézi* (ZL), *n-deezi* (WY1);
CK: *n-dezi* (MNY); SK: *n-dezi* (ZMBa)

Other deverbative agent nouns ending in *-i* generally do not manifest any signs of BS within the KLC, *e.g.* Kiyombe (H16c) *n-sung-i* 'watchman' from *sung-a* 'watch over'; *n-zod-i* 'the one who loves' from *zol-a* 'love' (De Clercq 1921: 74); Cisundi (H131) *m-komb-i* 'sweeper' from *komb-a* 'sweep' (Futi 2012: 96); Kisikongo (H16a) *n-long-ì* 'teacher' from *long-a* 'teach', *m-vond-ì* 'executioner' from *vond-a* 'kill', *m-bang-ì* 'witness' from *bang-a* 'testify', *n-zod-i* 'amorous, passionate' from *zol-a* 'love'

(Luntadila Nlandu 2015: 121). As argued in Bostoen (2008), the only three agent nouns manifesting (irregular) BS within the KLC go back to PB and underwent the sound shift in analogy with underived noun stems ending in /*i/, such as **jíkì* 'smoke' (BLR3 3442) in (6) or **gìngì* 'fly' (BLR3 1406) in (9). The reflexes of **jíbì* 'thief' and **dèdì* 'educator' were lexicalized with a stem-final fricative before BS was blocked as a morphophonological change across morpheme boundaries. As for **dògì* 'witch', one possible explanation is that this noun form had not undergone BS in PK yet and was only innovated afterwards in Yipunu (B43) and Yimenaane (B44a). Alternatively, it could be that this noun form had already undergone BS in PK, but was retained as such only in those two languages and leveled out elsewhere in the KLC. The reason why BS would be pushed back across the morpheme boundary between the verb root **dog* 'bewitch' and the agentive suffix *-i* in the case of **dògì* 'witch' is known in historical linguistics as "Sturtevant's Paradox" (Anttila 1989 [1972]: 95; Dimmendaal 2011: 102): "Phonetic laws are regular but produce irregularities. Analogic creation is irregular but produces regularity" (Sturtevant 1947: 109). When BS regularly applies, it creates irregularity in that the verb root **dog* ends in a fricative when followed by the agentive suffix *-i*, but with a stop when followed by any other morpheme. Speakers of certain varieties may proceed to "analogical levelling" (McMahon 1994: 73) or "paradigm levelling" (Hock 1991 [1986]: 168) by pushing back BS in agent nouns so that a same verb root has the same final consonant in all contexts. In this way speakers restore "paradigm uniformity" (Steriade 2000). Only in old and frequently used agent nouns, such as **jíbì* 'thief' and **dèdì* 'educator', for which BS became fossilized and the derivational link with the base verb less strongly perceived, the irregularity could be maintained. This explains why these two stems systematically display BS within the KLC, unlike **dògì* 'witch', for which BS was only preserved in Yipunu (B43) and Yimenaane (B44a) and pushed back elsewhere.

The leveling out of BS in front of agentive **-i*, as observed for instance with **dògì* 'witch', must have happened before it became a contrastive marker of agentive morphology. As explained extensively in Bostoen (2008), BS can only stop to be a morphophonological alternation as part of the productive phonological system when a Bantu language reduces its vowel inventory from 7 to 5 phonemes. Only then is the phonological contrast lost between the vowels of suffixes starting with a PB close front vowel /*i/, such as the short causative and the agentive, and those with a near-close front vowel /*ɪ/, such as applicative **-ɪd* and long causative **-ɪcɪ*. Only after the vowel merger can BS be morphologized as a signal of morphological structure, if it has not been pushed back through analogi-

cal leveling. Such morphologization of BS through "dephonologization" is thus closely linked with the 7>5V reduction. The fact that nowhere in the KLC BS has become a productive marker of agentive morphology indicates that it was pushed back as a morphophonological alternation before the most recent common ancestor of the KLC reduced its vowel repertoire from 7 to 5 vowels.

The hypothesis that PK was a 7V and not a 5V language is further corroborated by the total absence of BS in front of the PB tense/aspect suffix *-*ide*. As discussed in Dom & Bostoen (2015: 169), reflexes of this verb ending are attested in all subgroups of the KLC. In none of the KLC varieties does this TA suffix ever trigger BS of the preceding consonant. As such, this is not very surprising, given that *-*ide* is known to be the morphological context in which heteromorphemic BS is least frequent across Bantu. Out of a representative sample of about 150 Bantu languages, only some 20 manifest BS in front of the reflex of *-*ide* (Bastin 1983: 28-37). The sound shift is never found as a morphophonological alternation in front of *-*ide* in present-day 7V languages. Moreover, not one language missing regular BS in agent nouns has it in front of *-*ide* (Bostoen 2008: 335). There is thus a clear hierarchy of morphological contexts for the heteromorphemic application of BS in front of PB /*i/: a language manifesting it in front of the reflex of *-*ide* will also regularly have it in front of the agentive and causative suffixes, a language having regular BS with agent nouns will also have causative BS, while the opposite scenarios are not necessarily true (Bastin 1983; Labroussi 1999; Hyman 2003b). In line with Hyman (2003b: 58), this hierarchy of BS contexts can be summarized as follows: if it occurs in front of *-*ide*, it also occurs in front of agentive *-*i*; if in front of the agentive, then also in front of causative *-*i*; and if in front of the causative, then also root-internal.

Taking into account that BS is rarely observed with agent nouns within the KLC, it would have been unexpected to find it as a regular morphophonological change in front of *-*ide*. As this suffix is involved in verbal inflection, traces of BS that *-*ide* might have once triggered cannot become fossilized, unlike with derivational agentive *-*i*. In any event, if *-*ide* once triggered heteromorphemic BS in PK, it was most likely leveled when the most recent common ancestor of the KLC was still a 7V language. If *-*ide* (still) had triggered BS of the stem-final consonant when PK became a 5V language, it could have been morphologized as a marker of this specific TA inflection. If PK was a 7V language, BS remained contextually predictable as a morphophonological shift and could never become fully morphologized before *-*ide*. It was easier for PK to block or push back BS in front of this TA suffix as long as it was a 7V language.

Nevertheless, **-ide* is not totally exempt from BS within the KLC. While **-ide* was reconstructed in PB with two vowels of distinct aperture, its reflexes in the KLC always have two identical vowels. It is very likely that PK innovated **-ide* into **-idi* through the heightening of its final vowel in harmony with its initial vowel. While the PK verb ending was retained in most varieties of the KLC, some southern West Kikongo varieties further innovated it by applying BS to its consonant. It should be stressed that the vowel causing BS in this case was the final /i/ in **-idi* and not the one preceding the verb root/stem. In line with tautomorphemic BS of /*di/, Cizali, Iwoyo and Ciwoyo have *-izi* as the regular reflex of PB **-ide* and PK **-idi* (Dom & Bostoen 2015: 188). The examples in (41) from Iwoyo show that the ending *-izi* is lowered to *-eze* when the root has a mid vowel.[21]

(41)	*ùkótèzé*	(°*ù-kót-ìzì*) [SP3SG-R-PRF]	'He has gone back.'	(Mingas 1994)
	ùnòngèzé	(°*ù-nòng-ìzì*)	'He has collected.'	
	ùvélèzé	(°*ù-vél-ìzì*)	'He has picked.'	

This uneven application of BS within the reflexes of PK **-idi* is a further indication that the most recent common ancestor of the KLC must have been a 7V language. Because **-idi* is a case of morpheme-internal BS in the specific KLC subgroup discussed above, it is very much comparable with the irregularities in the tautomorphemic application of the PK BS pattern discussed in Section 4. If *-idi* had undergone BS in PK and if the ancestor language had then undergone 7>5V reduction before it broke apart into different languages, it would be hard to conceive how the effects of BS could have been undone in the daughter languages. The sound shift would have become fossilized due to the loss of the originally contextual predictability. One would then expect to find *-izi*/*-isi* reflexes throughout the KLC. Either **-idi* had not yet undergone BS in PK and only did so at a later stage in a subset of West Kikongo languages or it had undergone BS in PK but was undone in most varieties except in Cizali, Iwoyo, Ciwoyo and Civili. The first scenario seems the most economical. In any event, neither scenario would work if PK were not a 7V language. If it were already a 5V language, it could not have taken place in West Kikongo and not elsewhere, because BS no longer takes place as a diachronic shift once the vowel merger has occurred. It could also not have been pushed back

21. In Civili, *-izi* was further devoiced to *-isi* in line with the more general pattern of spirant devoicing in the language (cf. Section 3). This ending is not subject to vowel harmony when the root has a mid vowel, *e.g. lu vondisi* (°*vond-idi*) 'You have killed' (Marichelle 1907).

once the high front vowel that had triggered it was no longer distinct from close front vowels having their origin in a near-close vowel. Analogical leveling happened more likely when BS was still phonologically predictable, *i.e.* before the vowel merger. Both scenarios (no BS within **-idi* in PK or BS that was ultimately leveled out) are valid only if we assume that the 7>5V reduction happened independently in several subgroups of the KLC. To judge by the confined distribution of *-izi*/*-isi*, it might actually have been quite a late innovation within West Kikongo, which implies that West Kikongo varieties maintained 7V for quite a long time.

6. Conclusions

As all present-day varieties within the KLC have 5 vowels or once went through a stage with 5 vowels, it would be most plausible, according to the economy principle of Occam's razor, to reconstruct PK with an inventory of 5 vowel phonemes. This simplification of the inherited PB 7V system in the most recent common ancestor of the KLC would be a highly significant shared innovation from a genealogical point of view. It would set apart the KLC as a discrete sub-group within the "West-Coastal" or "West-Western" branch of the Bantu family. Most other WCB languages have either retained the PB 7V system or amplified it to inventories of up to 13 vowels, suggesting that Proto-WCB had retained the 7V of PB.

However, the BS patterns within the KLC that have been closely examined in this article indicate that Occam's razor does not seem to work in this case and that PK was most likely a 7V language.

The widespread distribution of a common pattern of tautomorphemic BS throughout the KLC indicates that this sound shift was already far advanced in PK. Although the voicing opposition was maintained between PB voiced and unvoiced stops, BS was accompanied by a partial merger of places of articulation in front of /*i/ (/*pi/ > /fi/; /*ti/, /*ki/ > /si/; /*bi/ > /vi/; /*di/, /*gi/ > /zi/) and a total merger of places of articulation in front of /*u/ (/*pu/, /*tu/, /*ku/ > /fu/; /*bu/, /*du/, /*gu/ > /vu/). The only relatively frequent innovation of the PK pattern is spirant devoicing, *i.e.* the loss of the voicing contrast, which is attested in C2 position in West Kikongo, North Kikongo, East Kikongo and Kikongoid, and in C1 position in Kikongoid and the northwestern cluster of West Kikongo only.

In spite of the far-advanced application of BS within PK, the irregular application of BS within the stem in several KLC varieties as well as in the PK reflex **-idi* of PB **-ide* suggests not only that it had not yet reached all possible targets but also that the common ancestor language was still a 7V language. Otherwise, there would be no way to account for why certain stems manifest tautomorphemic BS in certain varieties of the KLC but not

in others, while other stems miss it again in still other varieties. Different stems manifest irregular patterns of BS in different varieties across the KLC. The near-total absence of BS as heteromorphemic sound shift offers further evidence for PK as a 7V language. This type of BS was blocked as a morphophonological alternation in front of the agentive suffix **-i* and in front of the anterior/past verb ending **-ide* and never morphologized into a marker of these specific morphological structures. Such systematic analogical leveling was more likely if BS was still phonologically predictable in front of these suffixes and was not de-phonologized yet through the loss of the original contrast between close and near-close front vowels.

The irregularities observed in the application of tautomorphemic BS and the very limited occurrence of BS across morpheme boundaries within the KLC can only be accounted for if we assume that PK was a 7V language after all. Hence, the 7>5V reduction must have recurrently occurred within the KLC as an independent innovation before BS had affected all possible targets within the language.

As an afterthought, we point out that the hypothesis of PK being a 7V language is actually in line with the results of a lexicon-based phylogenetic study of the WCB languages carried out after the writing of this article. In this new phylogeny of WCB, based on a more extensive set of Bantu B5080 languages than any previous genealogical classification, the KLC constitutes a discrete subclade together with 4 languages from the DRC's Kwilu province, *i.e.* Nsong (B85d), Mpiin (B863), Ngong (B864) and Mbuun (B87) (Pacchiarotti *et al.* 2019). These 4 B80 languages all have 7 vowel phonemes or more (Ngulu Kibiakam 1986; Mundeke 2006; Koni Muluwa 2010; Koni Muluwa & Bostoen 2019).

Acknowledgements

Special thanks go to Sara Pacchiarotti who thoroughly reviewed a first draft of this article. We also wish to thank Sebastian Dom, Gilles-Maurice de Schryver and 3 anonymous reviewers for their helpful feedback on later drafts. The usual disclaimers apply.

Appendix

Language Varieties

Abbreviation	Language Variety	Reference
BMBa	Kibembe	Kouarata (2015)
BMBb	Kibembe	Nguimbi-Mabiala (1999)
BMBc	Kibembe	Jacquot (1981)
BMBd	Kibembe	Bastin *et al.* (1999)
DHG	Dihungu	Teca Fieldwork 2015 (Angola)
DMB	Kindamba	
DNDa	Kidoondo	Mfoutou (1985)
DND/ KMB/ KNY	Kidoondo/ Kikamba/ Kikunyi	Lumwamu (1974)
DNDb	Kidoondo	KongoKing Fieldwork 2015 (DRC)
HGLa	Kihangala	Nguimbi-Mabiala (1999)
HGLb	Kihangala	Nkouanda (1997)
HGLc	Kihangala	Bastin *et al.* (1999)
HGNa	Kihungan	Kasuku-Kongini (1984)
HGNb	Kihungan	Koni Muluwa Fieldwork 2010 (DRC)
KC	Ikoci	KongoKing Fieldwork 2015 (Angola)
KK	Kakongo	Anonymous (1772a)
KMB	Kikamba	Bouka (1989)
KNY	Kikunyi	Bastin *et al.* (1999)
KWK	Ikwakongo	KongoKing Fieldwork 2015 (Angola)
LDa	Kilaadi	Dhienda (1972)
LDb	Cilaadi	Jacquot (1982)
LDc	Kilaadi	Bastin *et al.* (1999)
LMBa	Yilumbu	Mavoungou & Plumel (2010)
LMBb	Yilumbu	ALGAB*
LNJ1	Cilinji	KongoKing Fieldwork 2012 (DRC)
LNJ2	Cilinji	KongoKing Fieldwork 2015 (Angola)

Abbreviation	Language Variety	Reference
MBK	Kimbeko	KongoKing Fieldwork 2012 (DRC)
MBL	Cimbala	
MBM	Kimboma	Kisilu Meso (2001)
MBT	Kimbata	KongoKing Fieldwork 2012 (DRC)
MNN	Yimenaane	Mavoungou & Plumel (2010)
MNYa	Kimanyanga	Laman & Meinhof (1928-1929)
MNYb	Kimanyanga	Makokila Nanzanza (2012)
NDB	Kindibu	Coene (1960)
NGB	Yingubi	ALGAB
NKN	Kinkanu	KongoKing Fieldwork 2012 (DRC)
NTD	Kintandu	Daeleman (1966)
PMB	Kipombo	Teca Fieldwork 2015 (Angola)
PNa	Yipunu	Mavoungou & Plumel (2010)
PNb	Yipunu	ALGAB
SBM	Ki(/si/)mbemba	Teca Fieldwork 2015 (Angola)
SHR	Yishira	ALGAB
SKa	Kisuku	Dhienda (1972)
SKb	Kisuku	Koni Muluwa Fieldwork 2013 (DRC)
SKc	Kisuku	Kifindi (1997)
SKd	Kisuku	Piper (1977)
SKGa	Kisikongo	KongoKing Fieldwork 2012 (Belgium)
SKGb	Kisikongo	Bentley (1887-1895)
SKGc	Kisikongo	Van Wing & Penders (1928)
SL1a	Kisolongo	Tavares (1915)
SL1b	Kisolongo	KongoKing Fieldwork 2012 (Angola)
SL2	Kisolongo	KongoKing Fieldwork 2012 (DRC)
SND	Cisundi (Cabinda)	KongoKing Fieldwork 2015 (Angola)
SNG1	Yisangu Mbigou	ALGAB
SNG2	Yisangu Mimongo	

Abbreviation	Language Variety	Reference
SMB	Kisamba	Van Acker Fieldwork 2015 (DRC)
TSTa	Kitsootso	Baka (1992)
TSTb	Kitsootso	KongoKing Fieldwork 2015 (Angola)
VL1a	Civili (Congo)	Nguimbi-Mabiala (1999)
VL1b	Civili (Congo)	Bastin *et al.* (1999)
VL1c	Civili (Congo)	Loëmbe (2005)
VL2a	Civili (Gabon)	Mavoungou & Plumel (2010)
VL2b	Civili (Gabon)	Bastin *et al.* (1999)
WY1	Ciwoyo	KongoKing Fieldwork 2012 (DRC)
WY2a	Iwoyo	Anonymous (1948)
WY2b	Iwoyo	Mingas (1994)
WY2c	Iwoyo	KongoKing Fieldwork 2015 (Angola)
YK	Kiyaka	Ruttenberg (2000)
YMB1	Kiyombe	De Grauwe (2009)
YMB2	Kiyombe	KongoKing Fieldwork 2015 (Angola)
YMB3a	Kiyombi	Nguimbi-Mabiala (1999)
YMB3b	Kiyombi	Bastin *et al.* (1999)
ZB	Kizobe	KongoKing Fieldwork 2012 (DRC)
ZMBa	Kizombo	Carter and Makondekwa (1987)
ZMBb	Kizombo	Bastin *et al.* (1999)
ZMBc	Kizombo	KongoKing Fieldwork 2015 (Angola)
ZL	Cizali	KongoKing Fieldwork 2012 (DRC)

* ALGAB refers here to the *Atlas linguistique du Gabon* project supervised by Prof. Lolke Van der Veen at Université Lumière Lyon 2 (cf. http://www.ddl.ish-lyon.cnrs.fr/equipes/index.asp?Langue=FR&Equipe=8&Page=Action&ActionNum=48). All data cited in this paper is basic vocabulary also used in the recent phylogenetic studies by de Schryver *et al.* (2015) and Grollemund *et al.* (2015).

Regular Stem-Internal BS in front of /*i/

(42) **/*pi/ > /fi/ (C1 & C2)**

a. **pígò* ‘kidney’ (BLR3 2568) > KD: *m-fíku* (YK); WK: *lu-fyó* (YMB1); CK: *m-fyó* (MNYa); EK: *m-fyo* (NTD)

b. **píc* ‘hide, cover’ (BLR3 2563) > KD: *fíik* (SKa), *ku-fíik-a* (SMB); WK: *bii-fík-a* (YMB1), *u-fik-il-a* (LMBa, PNa), *ku-fitsh-il’* (VL2a); CK: *fik-a* (MNYa); SK: *fík-a* (SL2)[22]

c. **pìn* ‘press, squeeze’ (BLR3 2572) > KD: *fín-á* (YK), *fin* (SKa); NK: *fìn-à* (HGLa); WK: *fiín-a* (YMB1), *u-fin-a* (LMBa, PNa), *ku-fin’* (VL2a), *ɣu-fin-a* (NGB), *ɣu-fin-ə* (SHR), *fín-a* (ZL, WY1); CK: *fin-a* (MNYa); EK: *fin* (NTD), *ku-fín-a* (MBT); SK: *fin-a* (SKGb), *ka-fin-a* (TSTb)
Exception. WK: *u-piŋ-i* (SNG2)

d. **pìnd* ‘remain silent’ (BLR3 2576) > WK: *fíínd-á* ‘discuss, argue’ (YMB1), *fiind-a mpáka* ‘discuss’ (WY1); EK: *fiind* ‘be obstinate, sulk’ (NTD)[23]
Exception. NK: *pììnd-à* (HGLa)

e. **kápí* ‘paddle’ (BLR3 1725) > NK: *ŋ-káfi* (HGLb); WK: *n-kháfi* (ZL), *n-kháfi* (WY1, MBL); CK: *n-kafi* (MNYa, NDB), EK: *n-káfi* (NTD)

22. The root-final consonant /k/ found throughout the KLC for this comparative series does not regularly correspond to PB *c. An alternative reconstruction *pík or *píg with the same meaning is not available in BLR3 (Bastin *et al.* 2002).

23. Considering the present-day meanings of its KLC reflexes, the semantic value of this reconstruction possibly needs revision.

(43) **/*ti/ > /si/ (C1 & C2)**

a. **tínà* 'root, base of tree trunk; banana-tree' (BLR3 2926) > KD: *sína* (YK), *kí-sina* (SMB); WK: *sina* (WY1); CK: *sina* (MNYa); EK: *sína* (NTD)

b. **tím* 'dig' (BLR3 2918) > KD: *ku-sim-a* (SKa), *sím-á* (YK), *ku-sím-a* (SMB); CK: *sim-a* (SKGc)

c. **tínd* 'accompany, send' (BLR3 2928) > WK: *u-sind-iɣ-ə* (SNG1); EK: *síind* (NTD)

Exceptions. WK: *tíínd-a* (YMB1), *u-tiind-ə* (PNb), *tínd-am-a* (ZL); SK: *tíínd-a* (SL2)

d. **tínd* 'push, push back' (BLR3 2933) > WK: *u-sind-il-ə* (LMBb, PNb), *u-sind-iɣ-ə* (SNG1, SNG2); EK: *síind* (NTD)

e. **kòtì* 'nape of neck; neck; occiput' (BLR3 1963) > KD: *kóʃ* (HGNb); NK: *kòsí* (HGLa); WK: *(di)-koósé* (YMB1), *le-kósi* (ZL); CK: *kosi* (MNYa); EK: *kosi* (NTD)

f. **mòtí* 'one' (BLR3 2212) > KD: *moši* (SKd); NK: *mòsì* (HGLa), *mósi* (BMBa); WK: *mosi* (YMB1, PNa), *mɔsi* (NGB), *moosi* (SGN1, SGN2), *ɣi-moosi* (SHR); EK: *mósi* (NTD)

(44) **/*ki/ > /si/ (C1)**

a. **kíngó* 'neck; nape; voice' (BLR3 1845) > KD: *tsiŋ* (HGNb), *tšiingu* (SKb); NK: *n-si:ngu* (HGLa), *n-singu* (LDb); WK: *tsííngú* (YMB1), EK: *n-síingu* (NTD)[24]

b. **kíndò* 'noise, footfall' (BLR3 1841) > EK: *ǹ-síindu* (NTD); SK: *mu-sindu* (SKGc)

Exceptions. WK: *kííndú* (YMB1), *mi-kiindu* (LMBa); EK: *n-kíindu* (NTD)

(45) **/*bi/ > /vi/ (C2)**

**jíbì* 'thief' (BLR3 3396) > WK: *mw-íivi* (YMB1), *mu-ivi* (WY2a), *mw-ívi* (WY1), *mw-ívi* (MBL); CK: *mw-ivi* (MNYa)

24. The stem-initial affricate observed in a number of **kíngó* reflexes is a strengthening resulting from the contact between the homorganic non-syllabic nasal prefix of class 9 and stem-initial /s/.

(46) **/*di/ > /zi/ (C1 & C2)**

a. **díng* 'turn round, tr. intr.; wind round, wrap up' (BLR3 1062) > NK: *zíiŋg-á* (HGLa), *zing* (LDa); WK: *zíing-á* (YMB1), *ziinga* (ZL, WY1); CK: *zing-a* (MNYa), *zíing* (NTD); SK: *zing* (MBM), *ziinga* (SL2)

b. **bídì* 'fish, animal' (BLR3 6135) > WK: *m-bíízí* (YMB1), *m-bízi* (WY1); EK: *m-bizi* (NDB); CK: *m-bizi* (DHG)[25]

c. **dìdì* 'cold' (BLR3 1032) > WK: *zizi* (WY2a); EK: *n-zizi* (NTD); SK: *n-ziízì* (ZMBb), *n-zizi* (SKGc)

(47) **/*gi/ > /zi/ (C1)**

**gìdà* 'taboo' (BLR3 1397) > KD: *ki-zíla* (SMB); EK: *ki-zila* (NTD)

Regular Stem-Internal BS in Front of /*u/

(48) **/*pu/ > fu (C1 & C2)**

a. **púan* 'resemble each other' (BLR3 2670) > NK: *fwáán-ì* (HGLa); WK: *fwáán-í* (YMB1), *fwaan-an-a* (WY1); EK: *fwáán* (NTD), *ma-fwán-a* (MBT)

b. **pùpù* 'flour' (BLR3 5123) > NK: *fŭf* (HGNb); WK: *fufu* (LMBa), *fufu* (PNa, VL2a), *m-fúfu* (ZL); CK: *m-fumfu* (MNYa); SK: *n-fúúnfu* (SL1b, SL2)

(49) **/*tu/ > fu (C1 & C2)**

a. **túkɔ̀* 'night' (BLR3 3105) > WK: *fúúkú* (YMB1); CK: *fuku* (MNYa); EK: *fúku* (NTD); SK: *fuku* (SKGb, SL2), *u-fuku* (DHG), *fùkù* (ZMBb)

b. **túmɔd* 'take (firewood) from fire, tear asunder' (BLR3 3111) > NK: *sum-un-un* (LDa); EK: *sum-un-* (NTD)

c. **ketu* '(red) pepper'[26] > WK: *n-kyéfú-kyéfú* (YMB1), *du-ghefu* (LMBa), *tshefu* (VL2a)

---

25. Although **bídì* 'fish, animal' was reconstructed with a close front V1, the latter never triggers spirantization in the KLC. This might require the reconstruction of a near-close V1, *i.e.* /*ɪ/ instead of /*i/.

26. This reconstruction does not figure in BLR3 (Bastin *et al.* 2002). It is proposed on the basis of comparative data from outside the KLC, presented in Koni Muluwa (2010: 482), suggesting that C2 should be *t, *e.g.* Myene (B11) *ogéru*, Tsogo (B31) *kyètu* 'Piper guineense' (Raponda-Walker & Sillans 1995 [1961]).

(50) **/*ku/ > fu (C1 & C2)**

a. **kúkam* 'to kneel' (BLR3 2111) > NK: *fùkàm-à* (HGLa); WK: *fúúkám-a* (YMB1), *u-fukam-a* (LMBa), *ku-fuk'm'* (VL2a), *fúkám-a* (ZL), *fúkam-a* (WY1), *fukam-a* (WY2a), *fúkam-a* (MBL); CK: *fukam-a* (MNYa); EK: *fúk-ám* (NTD)

b. **kùt* 'tell lies' (BLR3 2135) > WK: *u-fur-a* (LMBa, PNa, MNN)

c. **tákun* 'to chew' (BLR3 2742) > KD: *kú-tafun* (HGNb); WK: *tá-fun-a* (ZL, MBL); CK: *tafun-a* (MNYa); EK: *táfún* (NTD)

(51) **/*bu/ > vu (C1 & C2)**

a. **bùmò* 'abdomen; pregnancy' (BLR3 375) > KD: *vúm* (HGNb), *yi-vúmú* (YK); WK: *vuúmu* (YMB1), *ci-vumu* (VL1c, VL2a), *vuumu* (MBL); CK: *vumu* (MNYa, NDB); EK: *ki-vumu* (MBT), *vumu* (NTD); SK: *vúmu* (SKGa), *ki-vumu* (DHG, PMB), *vumu* (SL1a, SL1b, ZMBa)

b. **bùmá* 'fruit' (BLR3 374) > EK: *m-vuma* (NTD); SK: *m-vuma* (SKGc)

c. **gòbú* 'hippopotamus' (BLR3 1480) > NK: *-gúvù* (HGLa); WK: *n-gúuvu* (YMB1), *n-gúvu* (ZL, MBL), *n-guvu* (WY1); CK: *n-guvu* (NDB), SK: *n-guvú* (ZMBa)

(52) **/*du/ > vu (C1 & C2)**

a. **dùm* 'roar, rumble' (BLR3 1256) > WK: *vum-ís-a* (ZL, WY1); EK: *vum* (NTD)

b. **dùb* 'fish' (1244) > WK: *vuúb-a* (YMB1), *vub-a* (WY1), *vub-a* (KK)

EXCEPTION. EK: *dub* 'block and blur the water (in fishing)' (NTD)

c. **dèdù* 'beard; chin' (BLR3 897) > WK: *zi-n-dévo* (ZL), *n-devo* (WY2); CK: *lu-yevo* (MNYa), *n-zevo* (NDB); SK: *lu-zévo* (ZMBa)

d. **kódù* 'tortoise' (BLR3 2015) > WK: *khúúvú* (YMB1), *n-khúvu* (ZL), *n-khuvu* (WY1), *n-kúvu* (MBL)

EXCEPTION. **dùt* 'pull' (1267) > NK: *zùt-à* (HGLa), *zut* (LDa); EK: *zut* (NTD)

(53) **/*gu/ > vu (C1)**

a. **gùnd* 'be rotten' (BLR3 1542) > KD: *vúúnda* (YK); WK: *vund-úl-a* (WY1); CK: *vund-ul-a* (MNYa)

b. **gùbó* 'hippopotamus' (BLR3 1532) > WK: *m-vúubu* (YMB1), *m-vubu* (VL2a, PNa); CK: *m-vubu* (MNYa)

Spirant Devoicing in C2 Position

(54) **/*bi/ > /fi/ (C1/2)**

**biì* 'excreta' (BLR3 6425) > KD: *ma-túu-fi* (SKd); NK: *tú-fi* (HGLa), *tù-fi* (KMB); WK: *túu-fi*/*túu-vi* (YMB1), *ru-fi* (LMBb, MNN), *tu-fi* (VL2a); EK: *tuu-fí* (NTD). Compare with WK: *tuu-vi* (ZL, WY1); CK: *tu-vi* (MNYa); SK: *túú-vi* (SL1), *tu-vi* (SKGc, MBM)

(55) **/*di/ > /si/ (C2)**

a. **bídì* 'fish, animal' (BLR3 6135) > KD: *m-bisi* (SKc); NK: *m-bits* (HGNb); WK: *m-bíísí* (YMB1), *m-bitsi* (LMBb); EK: *m-bísi* (MBT)

b. **gàdí* 'oil-palm; nut of oil-palm' (BLR3 1300) > KD: *m-aši* (SKb); NK: *gásì* (HGLa), *m-asi* (BMBd); WK: *yí-n-gâtsì*, *má-àtsì* (YMB3a); EK: *ma-así* (NTD), *n-gási* (NKN, MBK); SK: *ma-asi* (SKc)

c. **dòòdí* 'dream' (BLR3 1098) > KD: *n-dosi* (SMB), *n-dósí* (YK); NK: *dòsí* (HGLa), *n-dòòsì* (KMB); WK: *N-doosi* (LMBa), *n-doosi* (MNN, PNa), *n-dösi* (VL2a), *n-doce* (WY2a), *n-dóósi* (ZL), *n-dósi* (MBL); EK: *n-dosi* (NTD)

(56) **/*du/ > fu (C2)**

**kódù* 'tortoise' (BLR3 2015) > WK: *khúúfú* (YMB1)

Abbreviations

3SG	third-person singular
5V	5-vowel system
7V	7-vowel system
BS	Bantu spirantization
CK	Central Kikongo subgroup
EK	East Kikongo subgroup
KD	Kikongoid subgroup
KLC	Kikongo Language Cluster
NK	North Kikongo subgroup
PB	Proto-Bantu
PK	Proto-Kikongo
PRF	perfect aspect
R	Root
SK	South Kikongo subgroup
SP	subject prefix
TA	tense and aspect
WCB	West-Coastal Bantu
WK	West Kikongo subgroup

References

Anonymous, 1948, *Dicionário pratico de português-iuoio (língua de Cabinda) com 4.000 vocábulos*, Cabinda, Missão evangélica d'Angola.

Anonymous, 1772a, *Dictionnaire françois-congo* [ms], London, British Library, ms. 33779.

Anonymous, 1772b, *Dictionnaire kikongo-français* [ms], Genoa, Biblioteca provinciale dei Cappuccini.

Anttila, Raimo, 1989 [1972], *Historical and Comparative Linguistics*, Amsterdam/Philadelphia, John Benjamins.

Baka, Jean, 1992, *Essai de description du tso:tso, parler ko:ngo du nord de l'Angola*, Master's thesis, Brussels, Université Libre de Bruxelles.

Bastin, Yvonne, 1983, *La finale verbale* -ide *et l'imbrication en bantou*, Tervuren, Musée royal du Congo belge.

Bastin, Yvonne, 1986, "Les suffixes causatifs dans les langues bantoues", *Africana linguistica*, No. 10, p. 56-145.

Bastin, Yvonne, André Coupez & Michael Mann, 1999, *Continuity and Divergence in the Bantu Languages: Perspectives from a Lexicostatistic Study*, Tervuren, Royal Museum for Central Africa.

Bastin, Yvonne, André Coupez, Evariste Mumba & Thilo C. Schadeberg (eds.), 2002, *Bantu Lexical Reconstructions*, 3, Tervuren, Royal Museum for Central Africa, Online: https://www.africamuseum.be/en/research/discover/human_sciences/culture_society/blr (last access: 4 November 2019).

Bentley, William H., 1887-1895, *Dictionary and Grammar of the Kongo Language as Spoken at San Salvador, the Ancient Capital of the Old Kongo Empire, West Africa*, London, Baptist Missionary Society/Trübner & Co.

Bittremieux, Leo, 1923-1927, *Mayombsch Idioticon*, Ghent, Erasmus.

Biyoko Mabua, Jean-Claude Simon, 2017, *Lexique kiyombe-français français-kiyombe*, Saint-Denis, Connaissances et savoirs.

Bostoen, Koen, 2008, "Bantu Spirantization: Morphologization, Lexicalization and Historical Classification", *Diachronica*, Vol. 25, No. 3, p. 299-356.

Bostoen, Koen, 2009, "Shanjo and Fwe as Part of Bantu Botatwe: A Diachronic Phonological Approach", in Akinloye Ojo & Lioba Moshi (eds), *Selected Proceedings of the 39th Annual Conference on African Linguistics*, Somerville (MA), Cascadilla Proceedings Project, p. 110-130.

Bostoen, Koen & Gilles-Maurice de Schryver, 2015, "Linguistic Innovation, Political Centralization and Economic Integration in the Kongo Kingdom: Reconstructing the Spread of Prefix Reduction", *Diachronica*, Vol. 32, No. 2, p. 139-185.

Bostoen, Koen & Gilles-Maurice de Schryver, 2018a, "Langues et évolution linguistique dans le royaume et l'aire kongo", in Bernard-Olivier Clist, Pierre de Maret & Koen Bostoen (eds), *Une archéologie des provinces septentrionales du royaume Kongo*, Oxford, Archaeopress, p. 51-55.

Bostoen, Koen & Gilles-Maurice de Schryver, 2018b, "Seventeenth-Century Kikongo is not the Ancestor of Present-Day Kikongo", in Koen Bostoen & Inge Brinkman (eds), *The Kongo Kingdom: The Origins, Dynamics and Cosmopolitan Culture of an African Polity*, Cambridge, Cambridge University Press, p. 60-102.

Bostoen, Koen & Joseph Koni Muluwa, 2011, "Vowel Split in Hungan (Bantu H42, Kwilu, DRC): A Contact-Induced Language-Internal Change", *Journal of Historical Linguistics*, Vol. 1, No. 2, p. 247-268.

Bostoen, Koen & Joseph Koni Muluwa, 2014, "Umlaut in the Bantu B70/80 Languages of the Kwilu (DRC)", *Transactions of the Philological Society*, Vol. 112, No. 2, p. 209-230.

Bouka, Léonce-Yembi, 1989, *Éléments de description du kaamba, parler bantou de la République populaire du Congo (Groupe Koongo, H17b)*, Master's thesis, Brussels, Université Libre de Bruxelles.

Brinton, Laurel J. & Elizabeth Cl. Traugott, 2005, *Lexicalization and Language Change*, Cambridge, Cambridge University Press.

Carter, Hazel & João Makondekwa, 1987, *Kongo Language Course: Maloongi Makikoongo, a Course in the Dialect of Zoombo, Northern Angola*, Madison, African Studies Program, University of Wisconsin.

Coene, Alfonse, 1960, *Kikongo : notions grammaticales. Vocabulaire français-kikongo, néerlandais-latin*, Tumba, Imprimerie Maison catholique.

Coupez, André, 1954, *Études sur la langue luba*, Tervuren, Musée royal du Congo belge.

Crane, Thera M., Larry M. Hyman & Simon Nsielanga Tukumu, 2011, *A Grammar of Nzadi (B.865). A Bantu Language of the Democratic Republic of Congo*, Berkeley, University of California Publications.

Daeleman, Jan, 1958, "Mfinu teksten", *Kongo-Overzee*, Vol. 24, No. 45, p. 225-238.

Daeleman, Jan, 1966, *Morfologie van naamwoord en werkwoord in het Kongo (Ntandu) met ontleding van het foneemsysteem*, PhD dissertation, Leuven, Katholieke Universiteit Leuven.

Daeleman, Jan, 1977, "A Comparison of Some Zone B Languages in Bantu", *Africana linguistica*, No. 7, p. 93-144.

De Clercq, Louis, 1921, *Grammaire du kiyombe*, Brussels, Goemare.

De Grauwe, Jan, 2009, *Lexique yoómbe-français, avec index français-yoómbe (bantu H16c)*, Tervuren, Musée royal de l'Afrique centrale.

De Kind, Jasper, Gilles-Maurice de Schryver & Koen Bostoen, 2012, "Pushing Back the Origin of Bantu Lexicography: The Vocabularium Congense of 1652, 1928, 2012", *Lexikos*, No. 22, p. 159-194.

De Schryver, Gilles-Maurice, Rebecca Grollemund, Simon Branford & Koen Bostoen, 2015, "Introducing a State-of-the-Art Phylogenetic Classification of the Kikongo Language Cluster", *Africana linguistica*, No. 21, p. 87-162.

Dhienda, Nsangu, 1972, *Le suku et le laadi. Essai de rapprochement des systèmes verbaux*, Master's thesis, Lubumbashi, Université nationale du Zaïre.

Dimmendaal, Gerrit J., 2011, *Historical Linguistics and the Comparative Study of African Languages*, Amsterdam/Philadelphia, John Benjamins.

Dom, Sebastian & Koen Bostoen, 2015, "Examining Variation in the Expression of Tense/Aspect to Classify the Kikongo Language Cluster", *Africana linguistica*, No. 21, p. 163-211.

Dom, Sebastian, Heidi Goes & Koen Bostoen, forthcoming, "Multiple Reciprocity Marking in the Kikongo Language Cluster: Functional Distribution and Origins", in Eva-Marie Bloom Ström, Hannah Gibson, Rozenn Guérois & Lutz Marten (eds), *Current Approaches to Morphosyntactic Variation in Bantu*, Oxford, Oxford University Press.

Drieghe, Sharah, 2014, *Het oudste Kakongo woordenboek (1772): Digitalisatie, lexicografische analyse en historisch-taalkundige studie*, Master's thesis, Ghent, Universiteit Gent.

Ebalantshim Masuwan, Ngaalandong, 1980, *Esquisse grammaticale de la langue idiŋ à Káantsa*, Master's thesis, Lubumbashi, Université nationale du Zaïre.

Ellington, John Ernest, 1977, *Aspects of the Tiene Language*, PhD dissertation, Madison, University of Wisconsin.

François, Alexandre, 2014, "Trees, Waves and Linkages: Models of Language Diversification", in Claire Bowern & Bethwyn Evans (eds), *The Routledge Handbook of Historical Linguistics*, London, Routledge, p. 161-189.

Futi, João Maria, 2012, *Essai de morphologie lexicale du cisuundi du Cabinda (Angola)*, Paris, L'Harmattan.

Gowlett, Derek F., 1989, "The Parentage and Development of Lozi", *Journal of African Languages and Linguistics*, No. 11, p. 127-149.

Grollemund, Rebecca, Simon Branford, Koen Bostoen, Andrew Meade, Chris Venditti & Mark Pagel, 2015, "Bantu Expansion Shows that Habitat Alters the Route and Pace of Human Dispersals", *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 112, No. 43, p. 13296-13301.

Guthrie, Malcolm, 1971, *Comparative Bantu: An Introduction to the Comparative Linguistics and Prehistory of the Bantu Languages*, 2, *Bantu Prehistory, Inventory and Indexes*, London, Gregg International.

Hock, Hans Heinrich, 1991 [1986], *Principles of Historical Linguistics*, Berlin/New York, Mouton de Gruyter.

Hyman, Larry M., 2003a, "Segmental Phonology", in Derek Nurse & Gérard Philippson (eds), *The Bantu Languages*, London/New York, Routledge, p. 42-58.

Hyman, Larry M., 2003b, "Sound Change, Misanalysis, and Analogy in the Bantu Causative", *Journal of African Languages and Linguistics*, Vol. 24, No. 1, p. 55-90.

Hyman, Larry M. & John Merrill, 2016, "Morphology, Irregularity and Bantu Frication", in Jean Leo Léonard (ed.), *Actualités des néogrammariens*, Paris, Peeters, p. 139-157.

Jacquot, André, 1981, *Études beembe (Congo) : esquisse linguistique; devinettes et proverbes*, Paris, éd. de l'Office de la recherche scientifique et technique d'Outre-Mer.

Jacquot, André, 1982, *Étude descriptive de la langue laadi*, PhD dissertation, Lille, Atelier national de reproduction des thèses.

Kasuku-Kongini, 1984, *Langue kihungana: phonologie et systématique*, Master's thesis, Kikwit, Institut supérieur pédagogique de Kikwit.

KHANG LEVY, Nyi-m'shum, 1979, *Éléments de grammaire morphologique de la langue lwel*, Master's thesis, Lubumbashi, Université nationale du Zaïre.

KIBWENGE INDIA'ANE, Passy, 1985, *Langue mpur B85e. Phonologie et morphologie synthématique : parler de Mikingi, collectivité Dwe*, Master's thesis, Kikwit, Institut supérieur pédagogique de Kikwit.

KIFINDI, Bunkheti, 1997, *Recherches en grammaire du suku: langue bantu (H.32) de la vallée du Kwango (Angola-Kongo Zaïre)*, PhD dissertation, Paris, Université Sorbonne nouvelle Paris 3.

KISILU MESO, Jean Samuel, 2001, *Morphologie flexionnelle du kimboma*, Master's thesis, Kinshasa, Institut pédagogique national.

KONI MULUWA, Joseph, 2010, *Plantes, animaux et champignons en langues bantu. Étude comparée de phytonymes, zoonymes et myconymes en nsong, ngong, mpiin, mbuun et hungan (Bandundu, RD Congo)*, PhD dissertation, Brussels, Université Libre de Bruxelles.

KONI MULUWA, Joseph & Koen BOSTOEN, 2015, *Lexique comparé des langues bantu du Kwilu (République démocratique du Congo)*, Cologne, Rüdiger Köppe.

KONI MULUWA, Joseph & Koen BOSTOEN, 2019, "Nsong (B85d)", in Mark Van de Velde, Koen Bostoen, Derek Nurse & Gérard Philippson (eds), *The Bantu Languages (Second Edition)*, Oxford, Routledge, p. 414-448.

KOUARATA, Guy Noël 2015, *Grammaire beembe, langue bantu (H10) du Congo-Brazzaville*, Saint-Denis, Edilivre.

LABROUSSI, Catherine, 1999, "Vowel Systems and Spirantization in Southwest Tanzania", in Jean-Marie Hombert & Larry M. Hyman (eds), *Bantu Historical Linguistics: Theoretical and Empirical Perspectives*, Stanford (CA), Center for the Study of Language and Information, p. 335-377.

LABROUSSI, Catherine, 2000, "Spirant-Devoicing and Genetic Classification in Eastern Bantu", in H. Ekkehard Wolff & Orin D. Gensler (eds), *Proceedings of the 2nd World Congress of African Linguistics, Leipzig 1997*, Cologne, Rüdiger Köppe, p. 323-358.

LAMAN, Karl Edvard & Carl MEINHOF, 1928-1929, "An Essay in Kongo Phonology", *Zeitschrift für Eingeborenen-Sprachen*, No. 19, p. 12-40.

LOËMBE, Gervais, 2005. *Parlons vili : langue et culture de Loango*, Paris, L'Harmattan.

LUMWAMU, François, 1974, "Eléments pour un lexique kongo-français (dialects dondo-kamba-kuni)", *Dimi: revue du Centre pour l'étude des langues congolaises*, No. 2, p. 20-87.

LUNTADILA NLANDU, Inocente, 2015, *Nominalisations en kìsìkôngò (H16) : les substantifs prédicatifs et les verbes-supports vánga, sála, sá et tá (≅ faire)*, PhD dissertation, Barcelona, Universitat Autonòma de Barcelona.

Maho, Jouni Filip, 2003, "A classification of the Bantu languages: An update of Guthrie's referential system", in Derek Nurse & G. Philippson (eds.), *The Bantu languages*, London/New York, Routledge, p. 639-651.

Maho, Jouni Filip, 2009, *NUGL Online: The Online Version of the New Updated Guthrie List, a Referential Classification of the Bantu Languages*, Online: http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.603.6490 (last access: 29 November 2019).

Makokila Nanzanza, André, 2012, *Le système verbal du kimanyaanga : approche structuraliste*, Master's thesis, Lubumbashi, Université de Lubumbashi.

Makouta-Mboukou, Jean-Pierre, 1977, *Étude descriptive du fúmú, dialecte téké de Ngamaba, Brazzaville*, PhD dissertation, Paris, Université Sorbonne nouvelle Paris 3.

Marichelle, Christophe, 1907, *Méthode pratique pour l'étude du dialecte vili*, Loango, Imprimerie de la Mission.

Mavoungou, Paul Achille & Bernard Plumel, 2010, *Dictionnaire yilumbu-français*, Libreville, éd. Raponda-Walker.

McMahon, April M. S., 1994, *Understanding Language Change*, Cambridge/New York, Cambridge University Press.

Meeussen, Achiel Emiel, 1967, "Bantu Grammatical Reconstructions", *Africana linguistica*, No. 3, p. 79-121.

Meeuwis, Michael, 2010, *A Grammatical Overview of Lingála*, Munich, Lincom.

Meinhof, Carl, 1932 [1910], *Introduction to the Phonology of the Bantu Languages*, trad. Nicolaas Jacobus van Warmelo, Berlin, D. Reimer/E. Vohsen.

Mekani Mwan, Mesongolo, 1984, *Phonologie et morphologie de kedeŋ-Lesye (B86). Parler de Mateko-Mfwaay*, Master's thesis, Lubumbashi, Université nationale de Zaïre.

Mertens, Joseph, 1938, *Les Ba Dzing de la Kamtsha*, 2, *Grammaire de l'idzing de la Kamtsha*, Brussels, Librairie Falk fils.

Mfoutou, Jean-Alexis, 1985, *Esquisse phonologique du kidoondo : un dialecte koongo de la République populaire du Congo*, Master's thesis, Brazzaville, Université Marien Ngouabi.

Mfum-Ekong, Adiate, 1979, *Esquisse grammaticale yansi (parler ntsambaan) : phonologie et morphologie*, Master's thesis, Lubumbashi, Université nationale du Zaïre.

Mingas, Amelia Arlete, 1994, *Étude grammaticale de l'iwoyo (Angola)*, PhD dissertation, Paris, Université Paris Descartes.

Mouandza, Jean-Daniel, 2001, *Éléments de description du iyaa (parler bantu du Congo-Brazzaville)*, PhD dissertation, Nice, Université Nice Sophia Antipolis.

Mouele, Médard, 1997, *Étude synchronique et diachronique des parlers dúmá (groupe bantu B.50)*, PhD dissertation, Lyon, Université Lumière Lyon 2.

Mundeke, Léon, 2006, *Éléments de phonologie et de morphologie de la langue mbuun (B.87) : approche structuraliste*, Master's thesis, Lubumbashi, Université de Lubumbashi.

Ndouli, Guy Blaise, 2001, *Description phonologique du mbere, parler de Tsama*, Master's thesis, Brazzaville, Université Marien Ngouabi.

Nguimbi-Mabiala, Jean-Noël, 1999, *Phonologie comparative et historique du koongo*, PhD dissertation, Lyon, Université Lumière Lyon 2.

Ngulu Kibiakam, Crispin, 1986, *Langue gingongo : syntagmatique nominale*, Master's thesis, Kikwit, Institut supérieur pédagogique de Kikwit.

Nkouanda, Blaise Pépin, 1997, *Description phonologique du kiga:ngala, parler bantou du Congo (groupe H)*, Master's thesis, Brazzaville, Université Marien Ngouabi.

Nurse, Derek, 1999, "Towards a Historical Classification of East African Bantu Languages", in Jean-Marie Hombert & Larry M. Hyman (eds), *Bantu Historical Linguistics: Theoretical and Empirical Perspectives*, Stanford (CA), Center for the Study of Language and Information, p. 1-41.

Nurse, Derek & Thomas J. Hinnebusch, 1993, *Swahili and Sabaki: A Linguistic History*, Berkeley, University of California Press.

Nurse, Derek & Gérard Philippson, 2003, "Towards a Historical Classification of the Bantu Languages", in Derek Nurse & Gérard Philippson (eds), *The Bantu Languages*, London/New York, Routledge, p. 164-181.

Pacchiarotti, Sara, Natalia Chousou-Polydouri & Koen Bostoen, 2019 (forthcoming), "Untangling the West-Coastal Bantu Mess: Identification, Geography and Phylogeny of the Bantu B5080 Languages", *Africana linguistica*, No. 25.

Piper, Klaus, 1977, *Elemente des Suku. Zur Phonologie und Morphologie einer Bantusprache*, PhD dissertation, Leiden, Rijksuniversiteit Leiden.

Raharimanantsoa, Ruth, 2012, *Aspects of Phonology in Eboo-Nzikou (Bantu B74)*, Preparatory research course paper, Gothenburg, Göteborgs Universitet.

Raponda-Walker, André & Roger Sillans, 1995 [1961], *Les plantes utiles du Gabon*, Libreville/Saint-Maur, Fondation Raponda-Walker/Sépia.

Rottland, Franz, 1977. "Reflexes of Proto-Bantu Phonemes in Yanzi (B85)", *Africana linguistica*, No. 7, p. 375-396.

Rurangwa, Innocent Moïse, 1982, *Éléments de description du ngungwel, langue bantoue du Congo*, Master's thesis, Brussels, Université Libre de Bruxelles.

Ruttenberg, Piet, 2000, *Lexique yaka-francais, français-yaka*, Munich, Lincom Europa.

Schadeberg, Thilo C., 1995, "Spirantization and the 7-to-5 Vowel Merger in Bantu", *Belgian Journal of Linguistics*, No. 9, p. 71-84.

Schadeberg, Thilo C., 2003, "Derivation", in Derek Nurse & Gérard Philippson (eds), *The Bantu Languages*, London/New York, Routledge, p. 71-89.

Stappers, Leo, 1986, *Boma: eine Sprachskizze*, trad. Hans-Ingolf Weier, Hamburg, Helmut Buske.

Steriade, Donca, 2000, "Paradigm Uniformity and the Phonetics-Phonology Boundary", in Michael B. Broe & Janet B. Pierrehumbert (eds), *Papers in Laboratory Phonology*, V, *Acquisition and the Lexicon*, Cambridge, Cambridge University Press, p. 313-334.

Sturtevant, Edgar H., 1947, *An Introduction to Linguistic Science*, New Haven, Yale University Press.

Tavares, José Lourenço, 1915, *Gramática da língua do Congo (kikongo) (dialecto kisolongo)*, Luanda, Imprensa nacional da colónia de Angola.

Van Bulck, Vaast, 1954, "Het oudste Kakongo-woordenboek (1768-1775) – E. H. Jean-Joseph Descourvières (1743-1804)", *Kongo-Overzee*, Vol. 20, No. 2, p. 97-125.

Van Gheel, Joris, 1652, *Vocabularium Latinum, Hispanicum, e Congense. Ad Usum Missionariorû transmittendorû ad Regni Congo Missiones*, Roma, Biblioteca nazionale centrale, Fundo Minori 1896, MS Varia 274.

Van Wing, Joseph. & Constant Penders, 1928, *Le plus ancien dictionnaire bantu. Het oudste Bantu-Woordenboek. Vocabularium P. Georgii Gelensis*, Louvain, J. Kuyl-Otto.

Vandenabeele, Hanna, 2016, *Taalevolutie in de Congo-delta: een comparatieve studie van historische klankverandering in Cimbala, Cizali, Ciwoyo, Kisolongo en Kiyombe*, Master's thesis, Ghent, Universiteit Gent.

Vansina, Jan, 1995, "New Linguistic Evidence and the Bantu Expansion", *Journal of African History*, Vol. 36, No. 2, p. 173-195.

Weiss, Michael, 2014, "The Comparative Method", in Claire Bowern & Bethwyn Evans (eds.), *The Routledge Handbook of Historical Linguistics*, London, Routledge, p. 127-146.

LLA

Linguistique
et Langues
Africaines

#05

Juin 2019

En couverture : Partie d'awélé dans le nord-est de l'île de Santiago (Cap-Vert, 2010, photo Nicolas Quint).

Design : Jean-Irénée Cuin

Production - diffusion : Éditions Lambert-Lucas