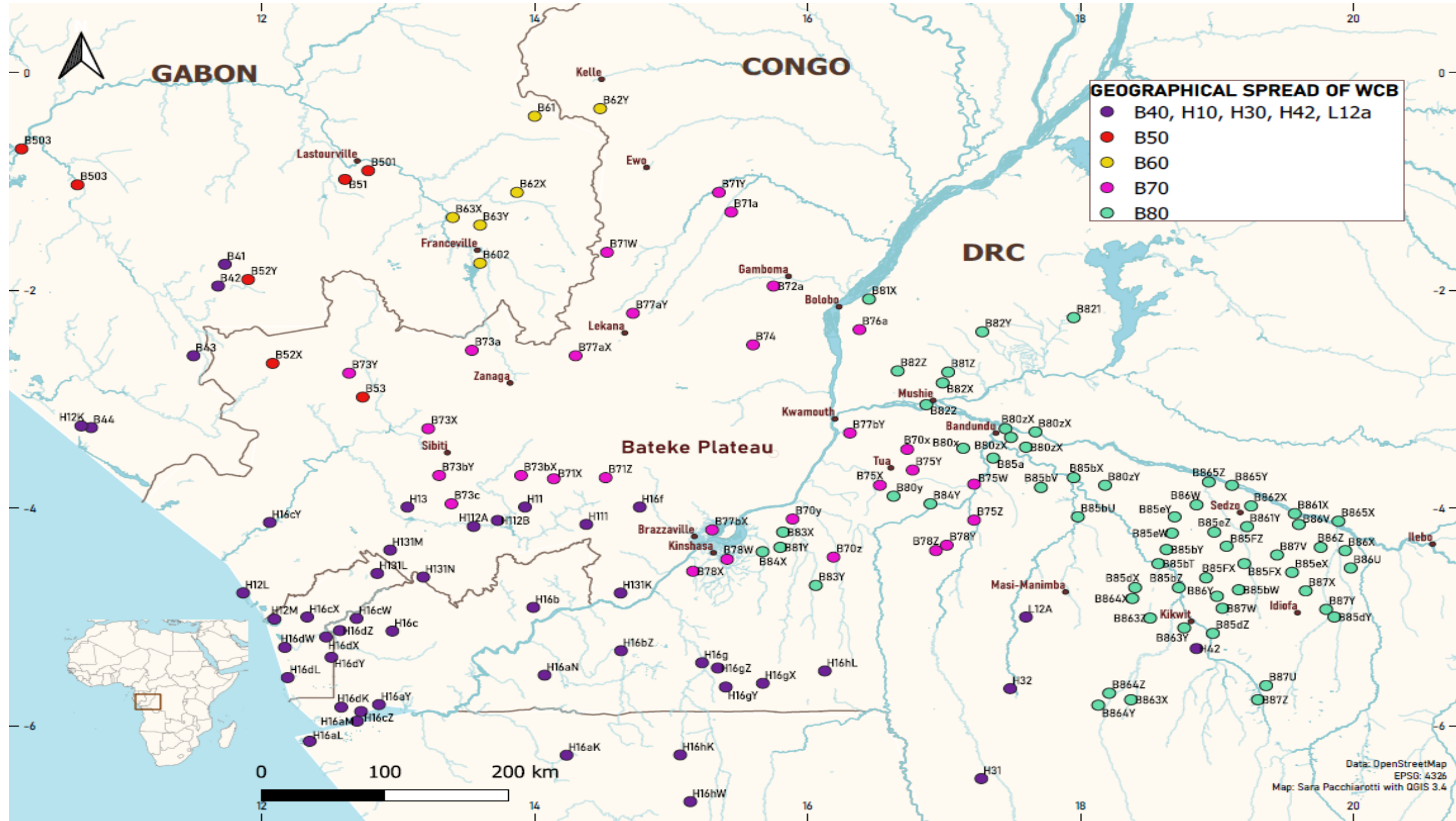


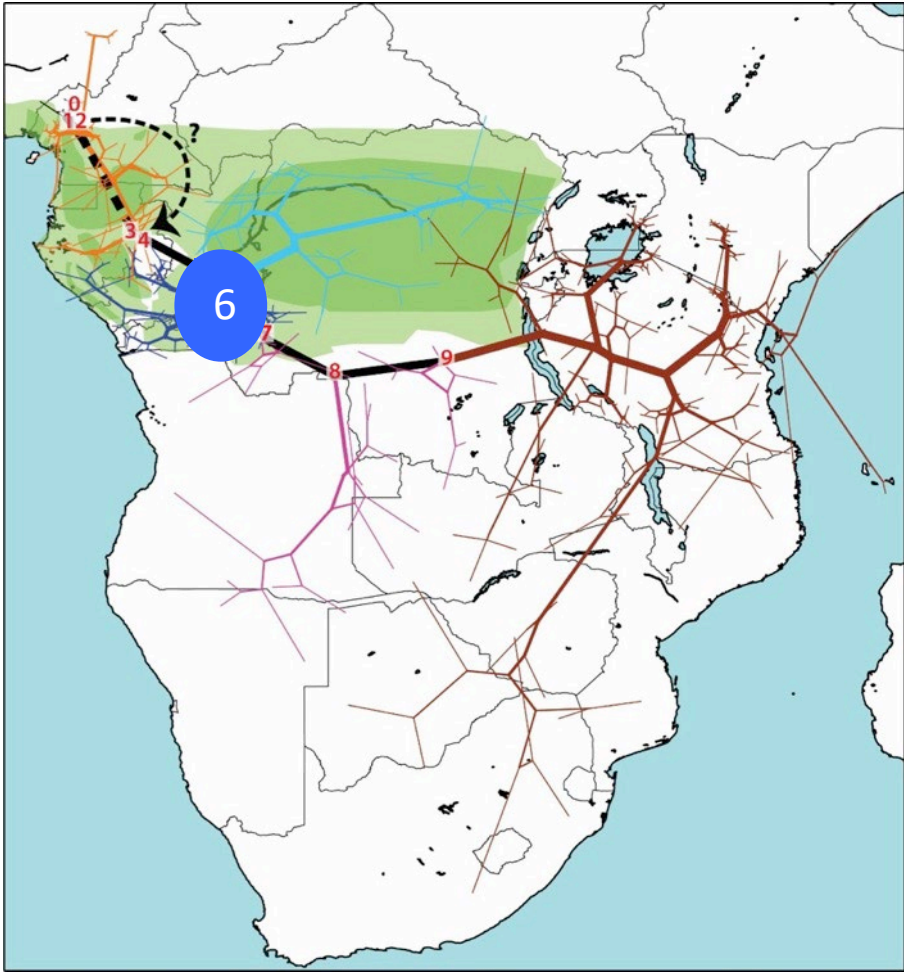
Erratic velars in West-Coastal Bantu: Explaining irregular sound change in Central Africa

KOEN BOSTOEN & SARA PACCHIAROTTI

COLLOQUIUM ON AFRICAN LINGUISTICS – HUMBOLDT-UNIVERSITÄT ZU BERLIN – MAY 3, 2022

WEST-COASTAL BANTU

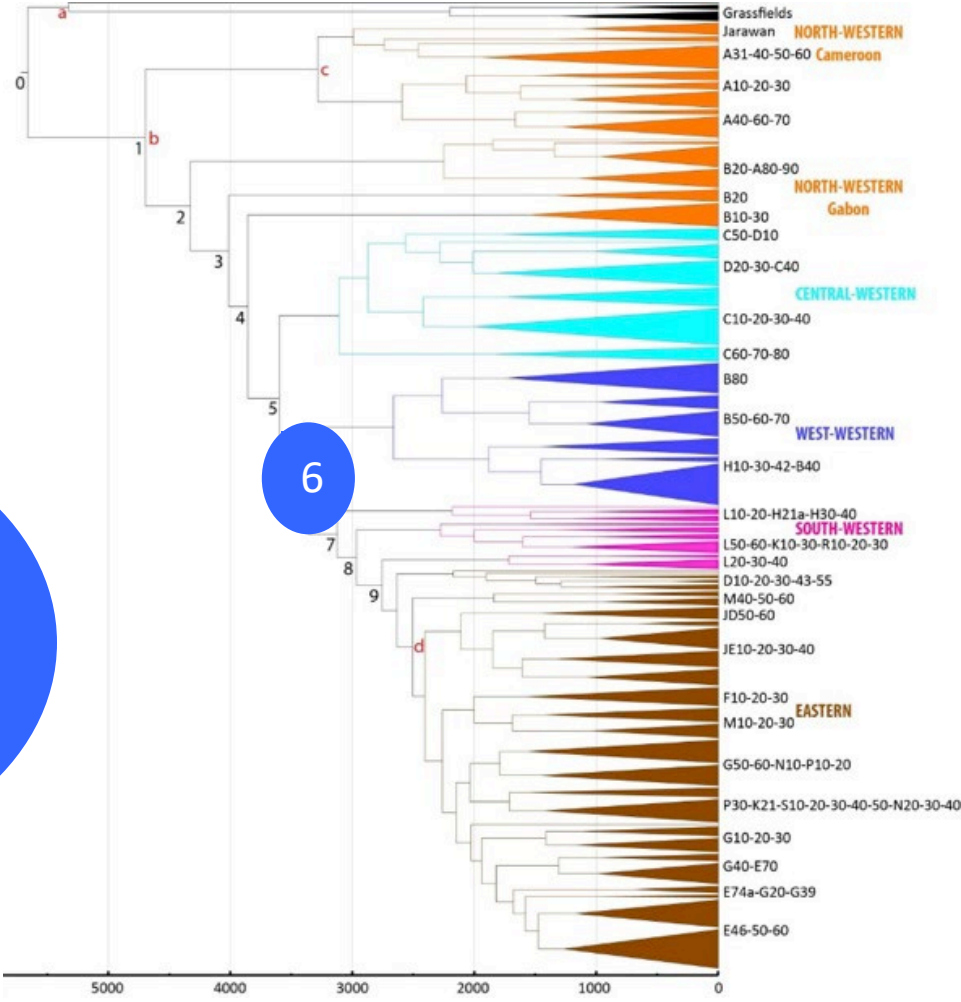




(Grollemund et al. 2015)

PNAS

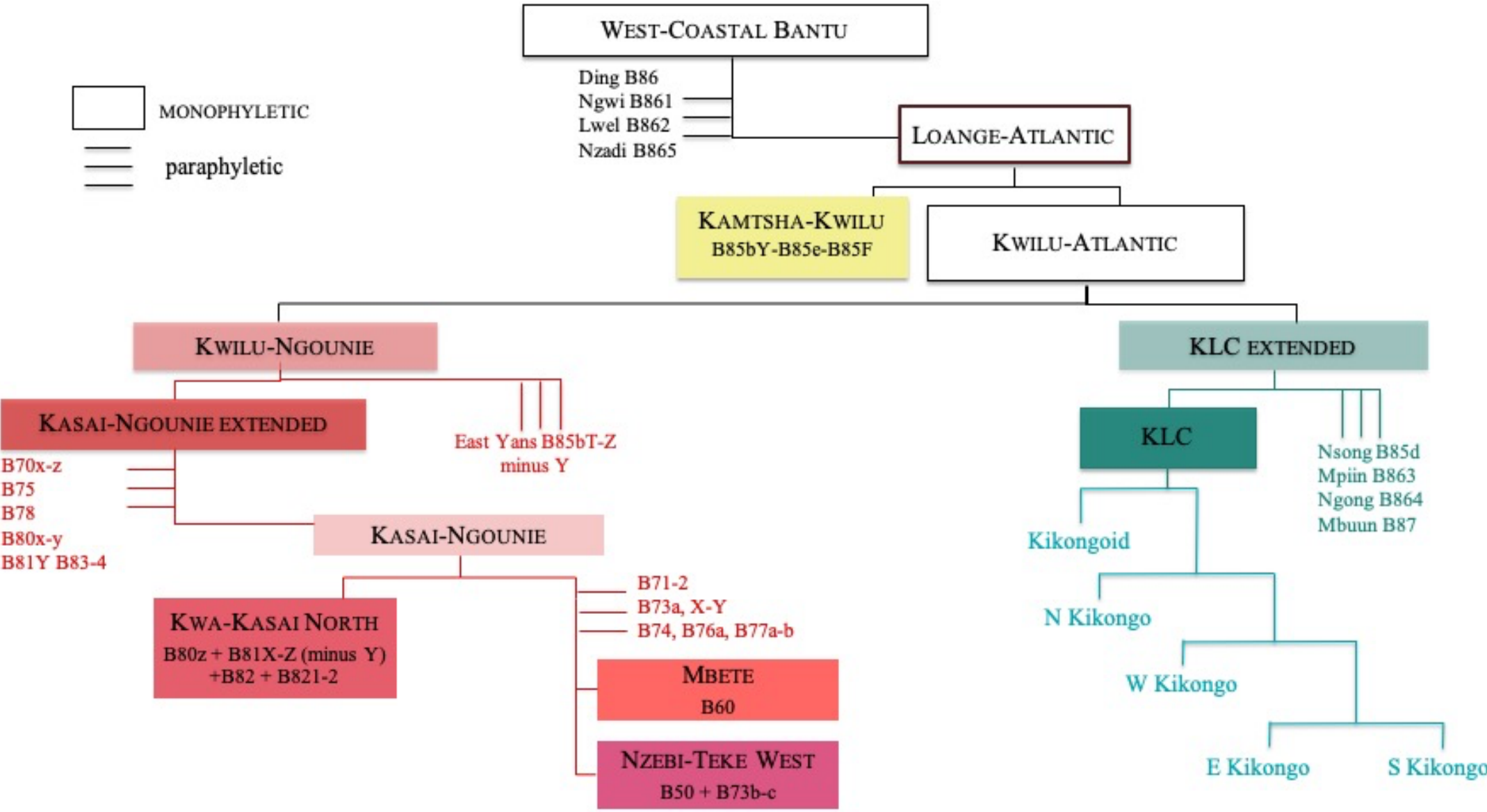
West Western aka
West-Coastal Bantu
=
First Bantu Speakers
South of the Forest



(Bostoen et al. 2015)

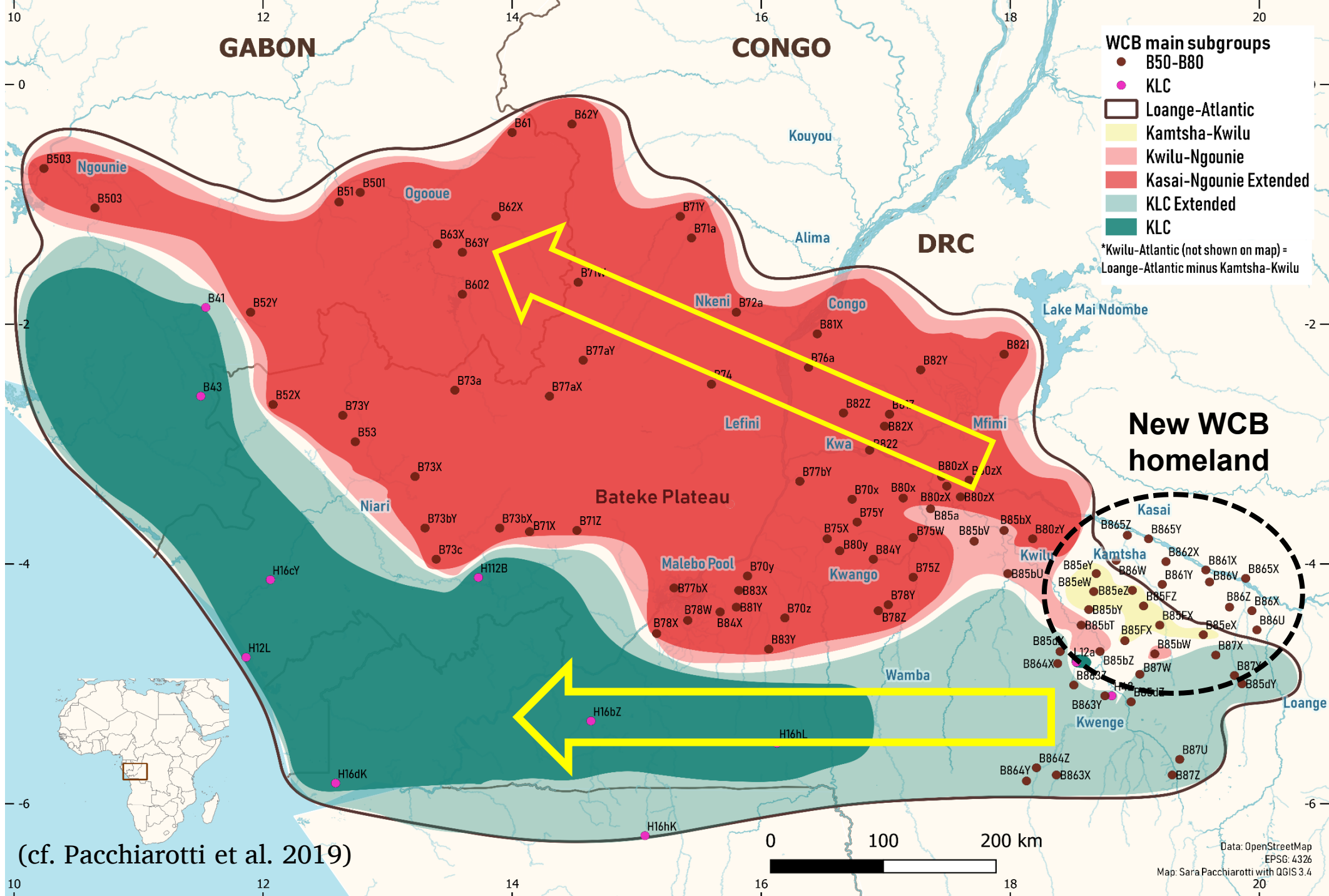


Latest phylogeny of WCB



(Pacchiarotti et al. 2019 *Africana Linguistica*)

West-Coastal Bantu Expansion



(cf. Pacchiarotti et al. 2019)

Objectives of this talk

1. Corroborate **genealogical validity** of West-Coastal Bantu with a **shared phonological innovation**: merger of Proto-Bantu *g and *k to Proto-WCB *k in both C1 and C2 position (Pacchiarotti & Bostoen 2020);
2. Show that **further innovations** of Proto-WCB *k in C2 (and marginally in C1) tend to be **irregular** and generate **dorsal fricatives** which are very rare elsewhere in Bantu (Pacchiarotti & Bostoen 2022 - forthcoming).

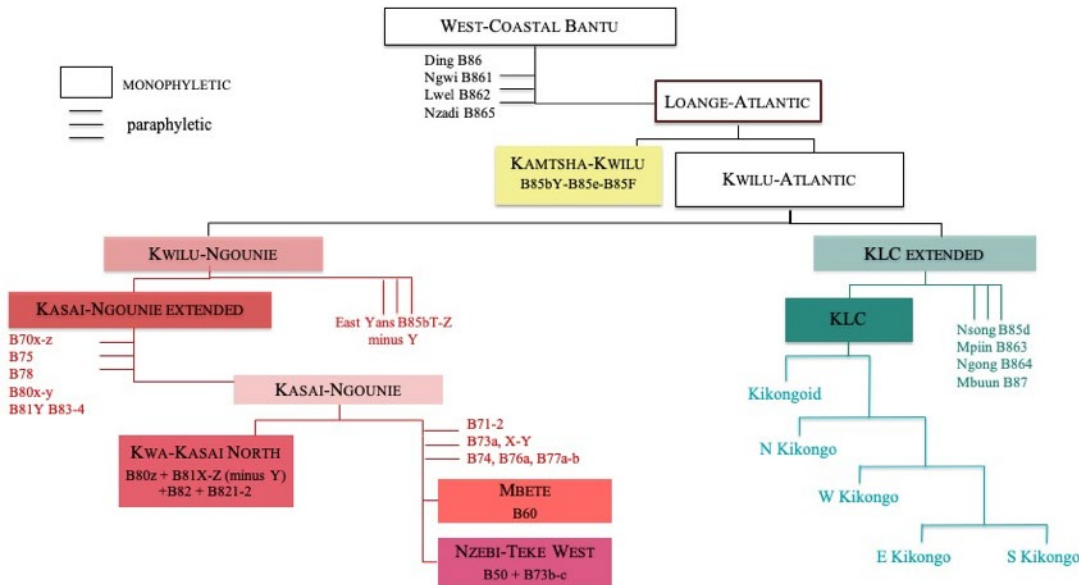
Proto-WCB velar merger

Proto-Bantu *k and *g > /k/ in Proto-WCB in **C1** and **C2**.

| | Proto-Bantu | Rundi J62 – East Bantu | Yaka H31 – WCB |
|-------------|------------------|------------------------|----------------|
| PB *g in C1 | *gàban 'share' | gaban-a | kábán-á |
| PB *g in C2 | *pígò 'kidney' | i-fyígo | m-fíku |
| PB *k in C1 | *kádà 'charcoal' | i-kára | kálá |
| PB *k in C2 | *dúk 'vomit' | -rúka | -lúká |

- This merger is a **unique shared innovation** corroborating (for the first time) the genealogical validity of WCB and its distinctiveness from other branches such as Central Western.
- We prove the existence of the merger with 66 cognate sets each including roughly 40 WCB varieties.

Velar merger within Kwilu-Ngounie

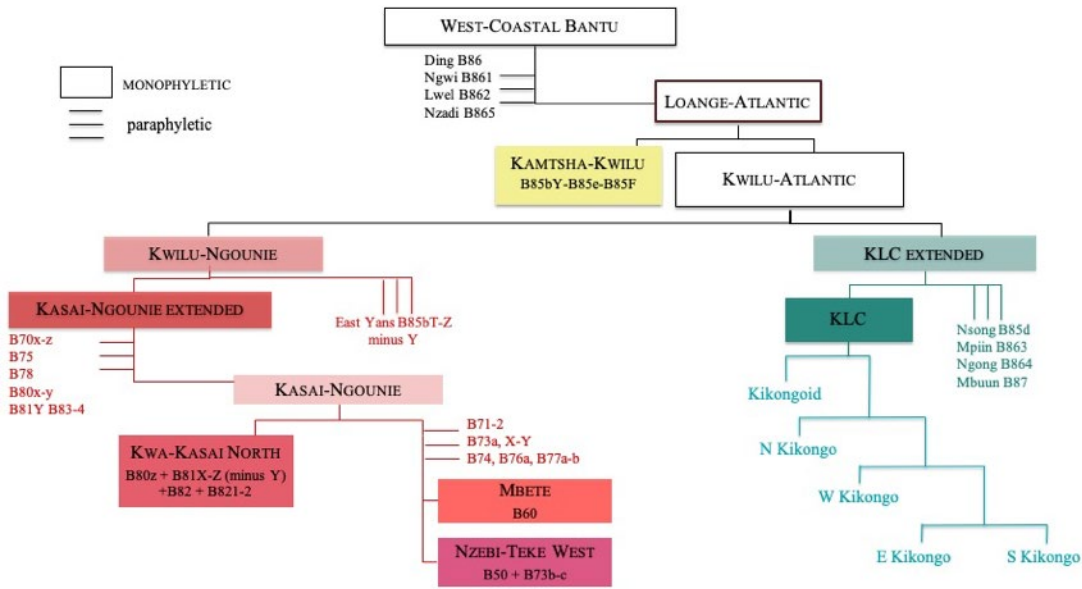


PB ***g/*k** > k in C₁ and C₂

Boma Yumu B80z (Kwa-Kasai North, Kasai-Ngounie, Kwilu-Ngounie, Kwilu-Atlantic, Loange-Atlantic)

| | | | |
|-----------------|----------|----------------------------------|-------------------|
| *g ₁ | BLR 1274 | *gàb ‘divide, give away’ | > ó-kab |
| | BLR 1378 | *gìdí ‘egg’ | > i-kyel |
| | BLR 1398 | *gìdá ‘blood’ | > ma-kla |
| | BLR 1498 | *gùg ‘be sufficient, be fitting’ | > ó-kuka |
| *k ₁ | BLR 1674 | *kádí ‘woman, wife’ | > mu-kér ‘wife’ |
| | BLR 1793 | *kídà ‘tail’ | > mu-kíla |
| | BLR 2003 | *kódó ‘adult, senior, elder’ | > ke-kwól ‘elder’ |
| | BLR 9300 | *káintò ‘woman’ | > mu-kár |
| *g ₂ | BLR 316 | *bùgà ‘open space’ | > m-búk ‘place’ |
| | BLR 1100 | *dòg ‘bewitch, curse’ | > ó-lwak |
| | BLR 1248 | *dúg ‘paddle’ | > o-dzúka |
| | BLR 2824 | *téng ‘sell’ | > o-ték |
| *k ₂ | BLR 1179 | *dók ‘to vomit’ | > ó-lúk-a |
| | BLR 2741 | *tákò ‘buttocks’ | > ke-ták |
| | BLR 3050 | *túk ‘insult’ | > o-túk-a |
| | BLR 1044 | *dìk ‘bury’ | > ó-dzik-a |

Velar merger within KLC Extended

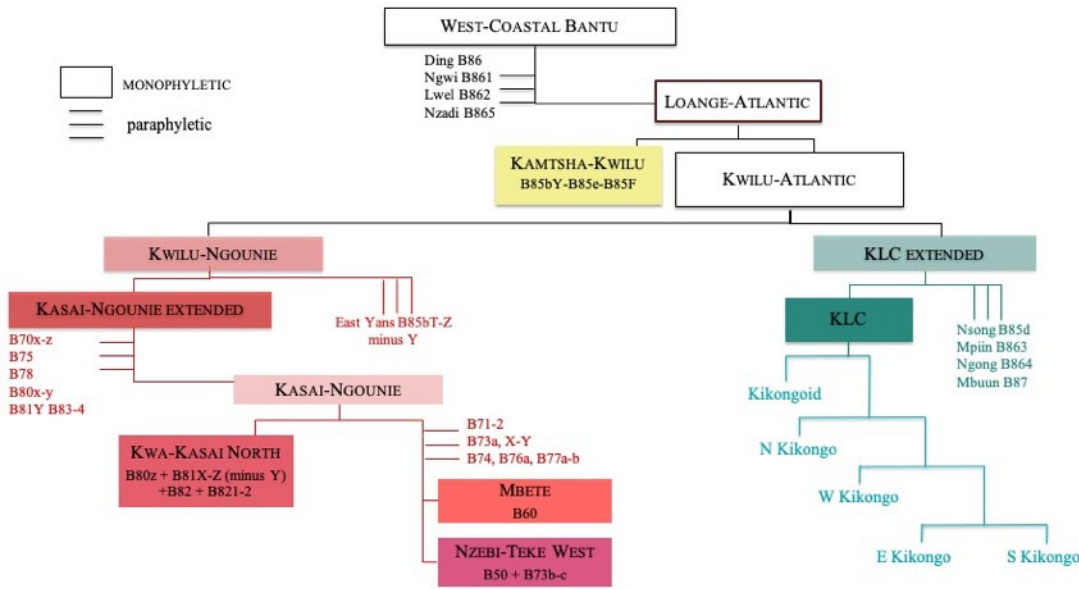


PB ***g/*k** > k in C₁ and C₂

Ntandu H16g (East Kongo, KLC Extended, Kwilu-Atlantic, Loange-Atlantic)

- | | | | | |
|-----------------|----------|-------------------------------|---|-------------------------------|
| *g ₁ | BLR 1274 | *gàb ‘divide, give away’ | > | kab-a |
| | BLR 1331 | *gàng ‘tie up’ | > | kaang-a |
| | BLR 1440 | *gòn ‘snore, sleep, lie down’ | > | kon-a ‘snore’ |
| | BLR 1504 | *gòmb ‘dig trench’ | > | kuumb-a ‘scrape, weed’ |
| *k ₁ | BLR 1689 | *kám ‘squeeze’ | > | kaám-a ‘milk, squeeze’ |
| | BLR 1805 | *kín ‘dance’ | > | kín-a |
| | BLR 1914 | *kóm ‘hit, beat, kill’ | > | kóm-a ‘hit’ |
| | BLR 1747 | *kéb ‘look (at)’ | > | kéb-a |
| *g ₂ | BLR 316 | *bùgà ‘open space’ | > | mbúka ‘shelter’ |
| | BLR 1100 | *dòg ‘bewitch, curse’ | > | lok-a |
| | BLR 1248 | *dúg ‘paddle’ | > | duk-a ‘stir’ |
| | BLR 3291 | *jégam ‘lean against’ | > | yékám-a |
| *k ₂ | BLR 1179 | *dók ‘vomit’ | > | lúk-a |
| | BLR 2741 | *tákò ‘buttocks’ | > | táku |
| | BLR 2828 | *ték ‘draw water’ | > | ték-a ‘draw’ |
| | BLR 1044 | *dìik ‘bury’ | > | ziik-a |

Velar merger within Kamtsha-Kwilu

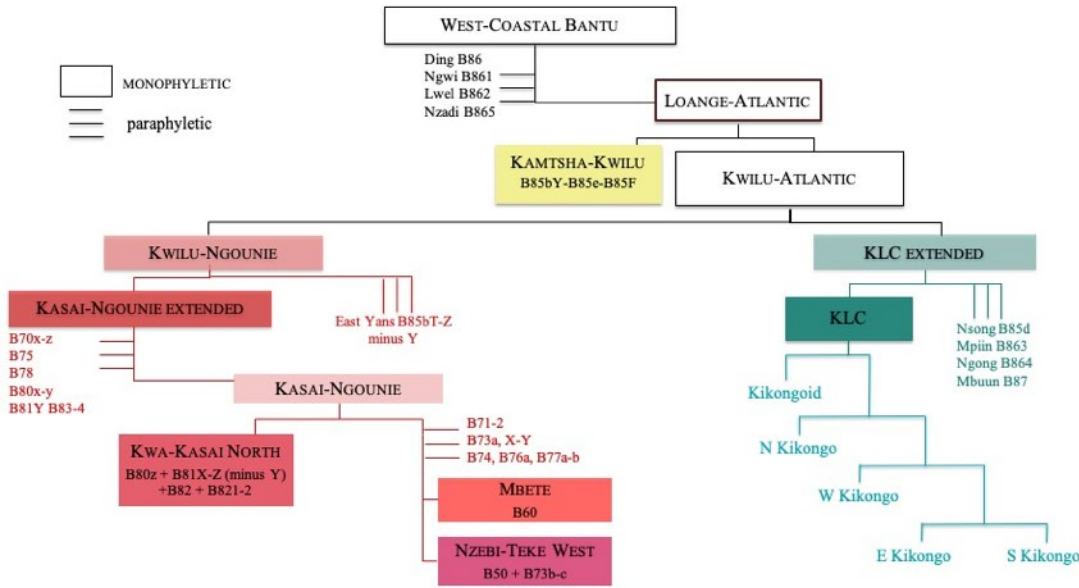


PB $*g/*k > k$ in C_1 and C_2

Mpur B85eX (Kamtsha-Kwilu, Loange-Atlantic)

| | | | | |
|--------|----------|--------------------------------|---|----------------------|
| $*g_1$ | BLR 1274 | $*gàb$ 'divide, give away' | > | ú-káb |
| | BLR 1368 | $*gí$ 'egg' | > | kyi |
| | BLR 1398 | $*gìdá$ 'blood' | > | a-kyíl |
| | BLR 1490 | $*gùdò$ 'leg' | > | lu-kól |
| $*k_1$ | BLR 1674 | $*kádí$ 'woman, wife' | > | ukyay 'wife' |
| | BLR 1793 | $*kídà$ 'tail' | > | ú-kíl |
| | BLR 2027 | $*kómì$ 'ten' | > | kwem |
| | BLR 9300 | $*káintò$ 'woman' | > | ú-kár |
| $*g_2$ | BLR 258 | $*bògó$ 'buffalo' | > | i-bók 'hippopotamus' |
| | BLR 1100 | $*dòg$ 'bewitch, curse' | > | ul-ók |
| | BLR 1248 | $*dúg$ 'paddle' | > | u-luk |
| $*k_2$ | BLR 2368 | $*pàkàcà$ 'buffalo' | > | m-pákàsà |
| | BLR 7983 | $*kéèkéè$ 'little, small; few' | > | kikiə |
| | BLR 427 | $*càkan$ 'play' | > | nsák 'game' |
| | BLR 9629 | $*cakıd$ 'clap hands' | > | sák 'joy' |

Velar merger in paraphyly at top of WCB tree

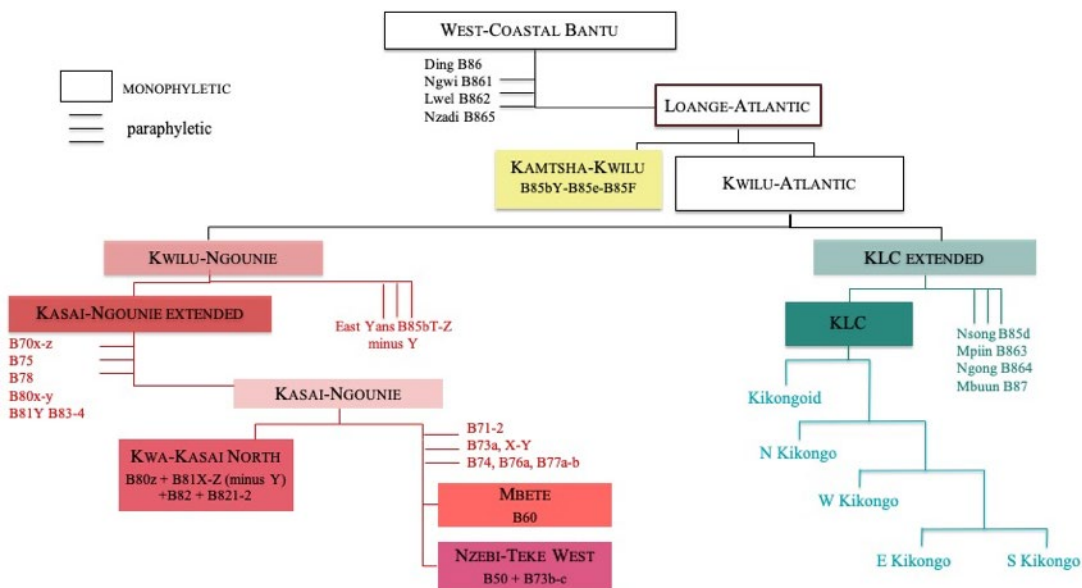


PB $*g/*k > k$ in C_1 and C_2

Nzadi B865X (WCB)

| | | | | |
|--------|----------|-------------------------|---|---------------|
| $*g_1$ | BLR 1275 | $*gàbud$ 'divide' | > | o-kab-ul |
| | BLR 1378 | $*gìdí$ 'egg' | > | i-kil |
| | BLR 1398 | $*gìdá$ 'blood' | > | mi-kúl |
| | BLR 1490 | $*gòdò$ 'leg' | > | l-kúl |
| $*k_1$ | BLR 1674 | $*kádí$ 'woman, wife' | > | mu-kal 'wife' |
| | BLR 1793 | $*kídà$ 'tail' | > | mu-kyál |
| | BLR 2003 | $*kódú$ 'adult; elder' | > | a-kur |
| | BLR 9300 | $*káintò$ 'woman' | > | o-káàr |
| $*g_2$ | BLR 574 | $*cígé$ 'horn' | > | i-šík |
| | BLR 1100 | $*dòg$ 'bewitch, curse' | > | o-lòk |
| | BLR 1621 | $*jùgù$ 'groundnut' | > | n-dzuk |
| $*k_2$ | BLR 429 | $*càkud$ 'weed' | > | o-sakul |
| | BLR 647 | $*còká$ 'axe' | > | sòk |
| | BLR 1044 | $*dìrk$ 'bury' | > | o-dzik |
| | BLR 2513 | $*pìkà$ 'slave' | > | m-pìk |

No velar merger in post-nasal position in WCB



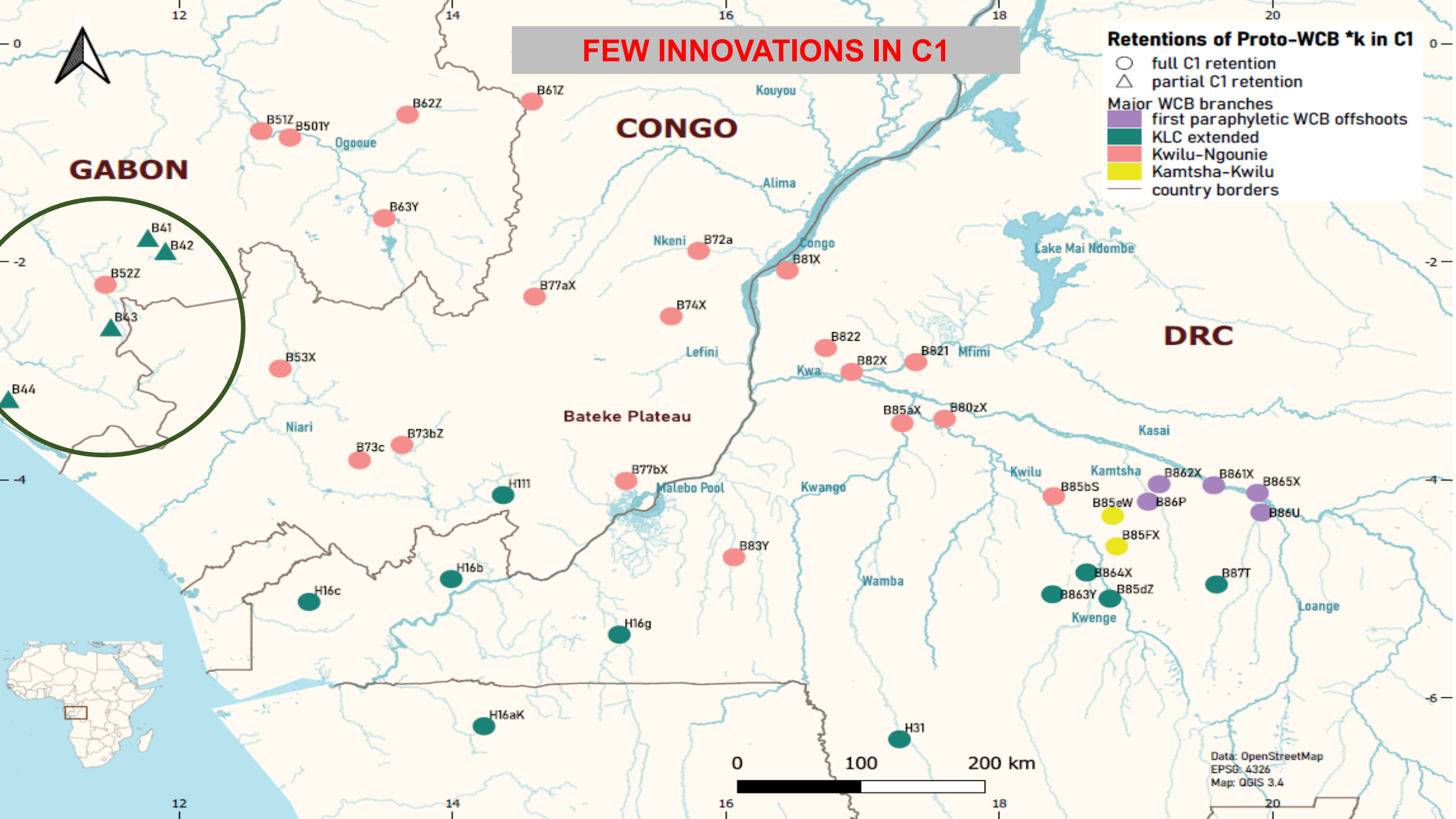
Yaa B73c (Nzebi-Teke West, Kasai-Ngounie (Extended), Kwilu-Ngounie, Kwilu-Atlantic, Loange-Atlantic)

| | | | |
|-----------------------|--------------------|---|-----------------|
| * ηg_1 BLR 1493 | *gòdú ‘pig’ | > | Ø-ngúlù |
| BLR 1357 | *gèmbúá ‘bat’ | > | Ø-ngéèmbú |
| BLR 7154 | *gòì ‘leopard’ | > | Ø-ngó ‘panther’ |
| BLR 1389 | *gì ‘fly’ | > | Ø-ngí |
| * ηk_1 BLR 1664 | *kádá ‘crab’ | > | Ø-kálá |
| BLR 1880 | *kódá ‘snail’ | > | Ø-kóǎ |
| BLR 2036 | *kúmbú ‘(sur)name’ | > | Ø-kúúmbú |
| BLR 1872 | *kócì ‘lion’ | > | Ø-kósi |

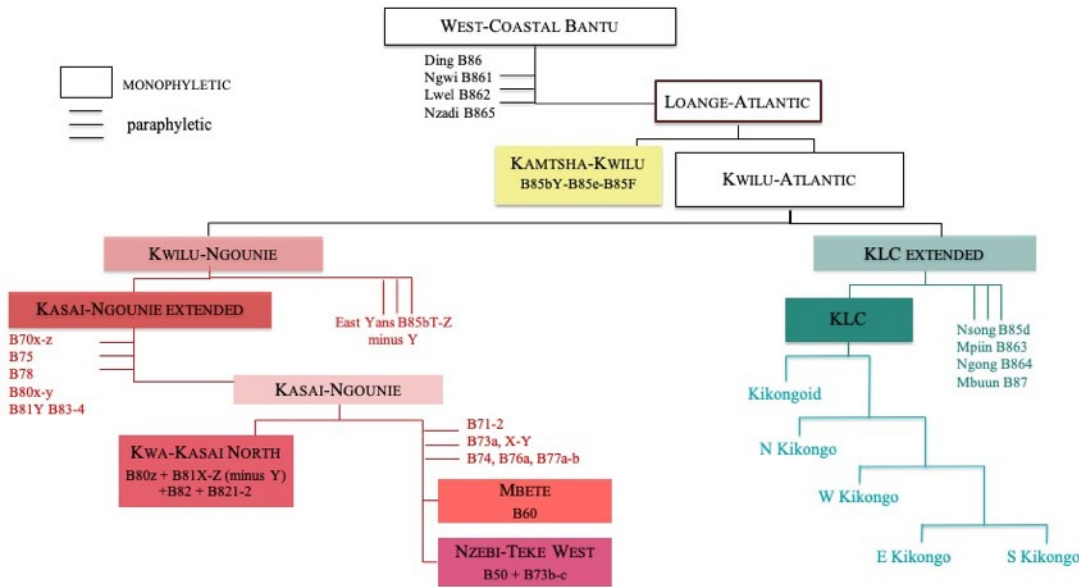
PB *g > g / N_____

PB *k > k / N_____

FEW INNOVATIONS IN C1



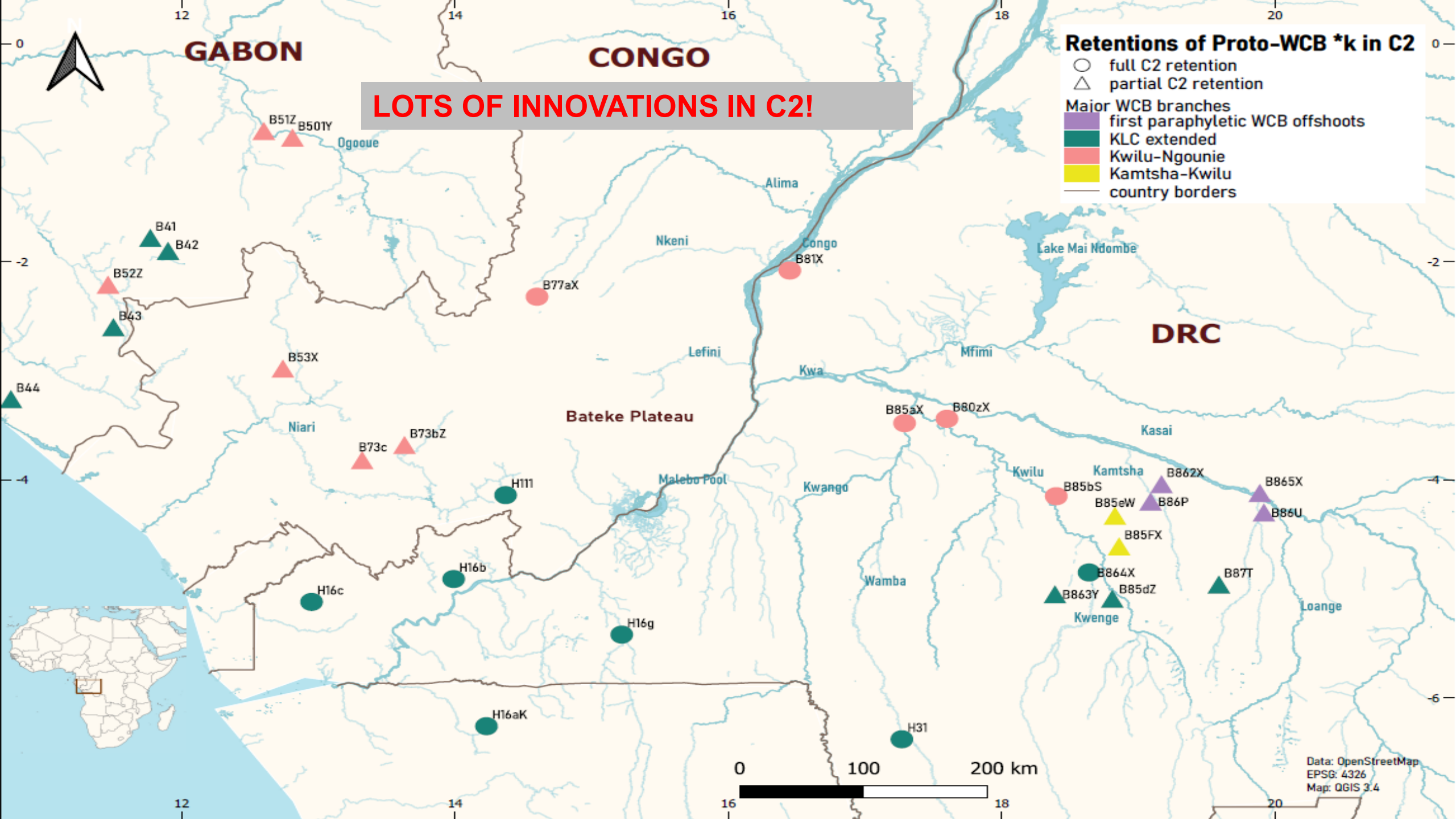
West Kongo subclade: innovative in C1 and C2



PB $*g/*k > \gamma$ in C₁ and C₂

Punu B43 (West Kongo, KLC (Extended), Kwilu-Atlantic, Loange-Atlantic)

| | | | |
|--------|----------|----------------------------------|-------------------------------|
| $*k_1$ | BLR 1674 | $*kádí$ ‘woman, wife’ | > mu- γ átsi |
| | BLR 1793 | $*kídà$ ‘tail’ | > mu- γ íla |
| | BLR 1755 | $*kèd$ ‘cut’ | > u- γ ědə |
| | BLR 2003 | $*kódó$ ‘adult; elder’ | > mu- γ úlu |
| $*g_1$ | BLR 1274 | $*gàb$ ‘divide, give away’ | > u- γ ǎbə |
| | BLR 1440 | $*gòn$ ‘snore, sleep, lie down’ | > u- γ óni |
| | BLR 1312 | $*gàn$ ‘think’ | > u- γ ánə |
| | BLR 1343 | $*gèd$ ‘measure’ | > u- γ ělə |
| $*k_2$ | BLR 198 | $*bík$ ‘announce (death)’ | > u-bí γ ə |
| | BLR 1044 | $*dìik$ ‘bury’ | > u-tsí: γ ə |
| | BLR 2828 | $*ték$ ‘draw (water)’ | > u-té γ ə |
| | BLR 3526 | $*jókà$ ‘snake; intestinal worm’ | > \emptyset -nyó γ ə |
| $*g_2$ | BLR 2568 | $*pígò$ ‘kidney’ | > mu-pí γ u |
| | BLR 136 | $*bèg$ ‘bring’ | > u-bě γ ə |
| | BLR 967 | $*dìgò$ ‘friend, relative’ | > ndí γ u |
| | BLR 3340 | $*jìgá$ ‘clay for pottery’ | > dí: γ ə |



LOTS OF INNOVATIONS IN C2!

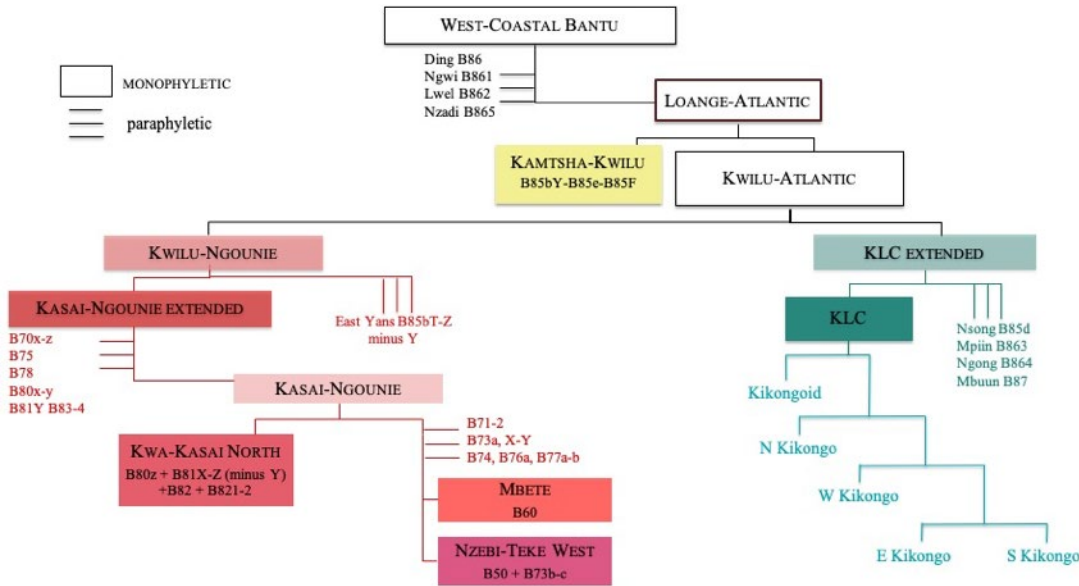
Retentions of Proto-WCB *k in C2

- full C2 retention
- △ partial C2 retention
- Major WCB branches
- first paraphyletic WCB offshoots
- KLC extended
- Kwilu-Ngounie
- Kamtsha-Kwilu
- country borders

0 100 200 km

Data: OpenStreetMap
 EPSG: 4326
 Map: QGIS 3.4

Velar merger within Kwilu-Ngounie

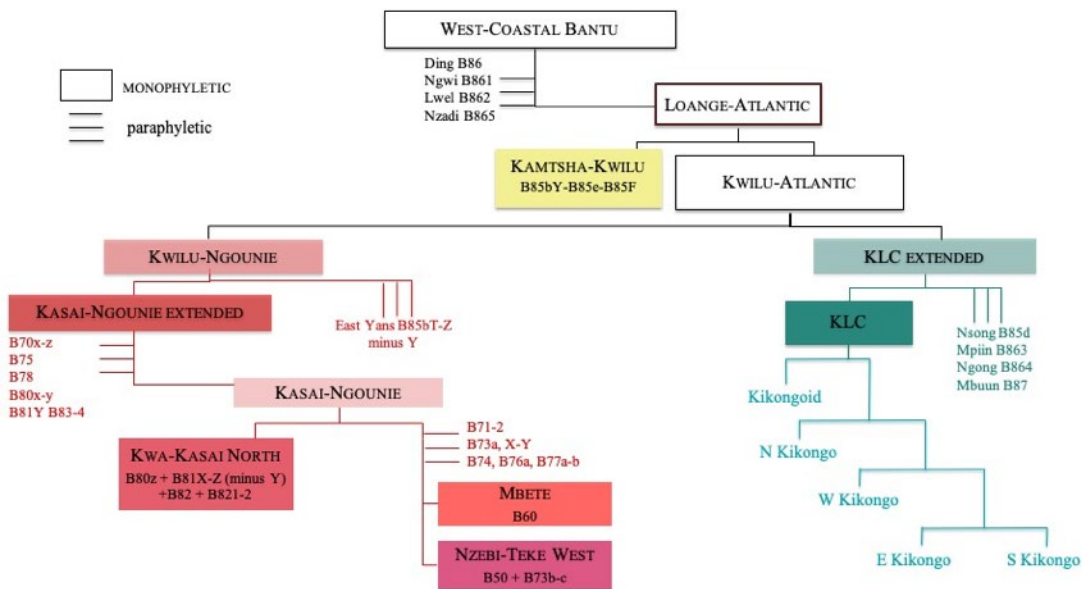


Mpe B821 (Kwa-Kasai North, Kasai-Ngounie (Extended), Kwilu-Ngounie, Kwilu-Atlantic, Loange-Atlantic)

| | | | |
|---------|----------|------------------------|--------------------------|
| * k_2 | BLR 260 | *bókò ‘arm’ | > è-bókò |
| | BLR 1685 | *kààká ‘grandparent’ | > Ø-nkàká |
| | BLR 2828 | *ték ‘draw water’ | > kò-tékè |
| | BLR 67 | *bák ‘get, catch, rob’ | > kò-bávà ‘find’ |
| * g_2 | BLR 1248 | *dúg ‘paddle’ | > kò-dvúká |
| | BLR 2569 | *pígù ‘kidney’ | > è-píkù ‘liver, lung’ |
| | BLR 3527 | *jògà ‘mushroom’ | > mw-òvò ‘gray mushroom’ |
| | BLR 1621 | *jògù ‘groundnut’ | > è-dzùvù |

PB *g/*k > v in C₂

Velar merger in paraphyly at top of WCB tree

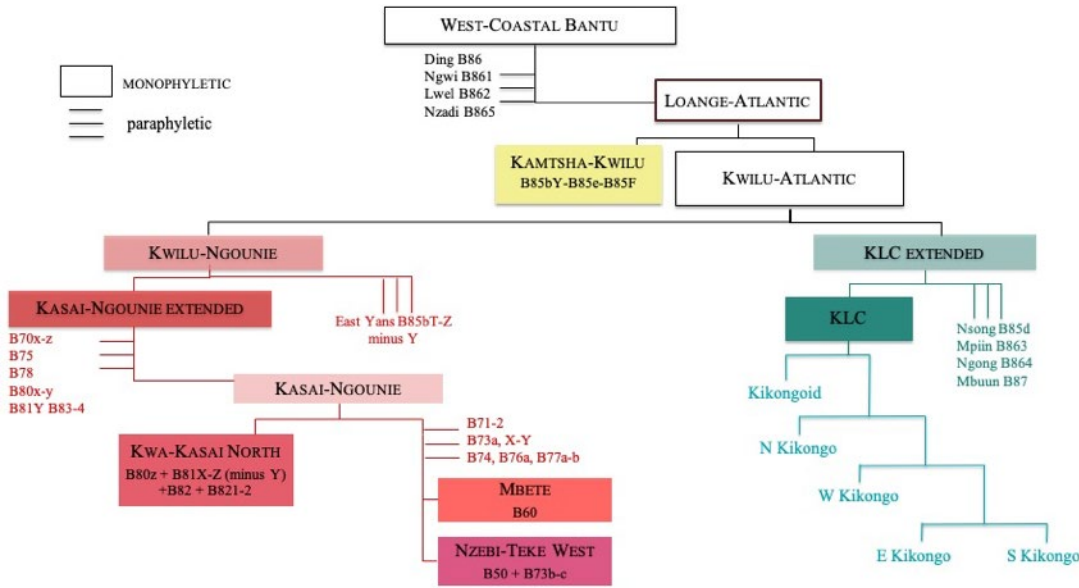


Ngwi B861X (WCB)

| | | | |
|-----------------|----------|-----------------------|---------------------------|
| *k ₂ | BLR 1904 | *kókó ‘chicken’ | > ñ-kók |
| | BLR 6108 | *cìkà ‘girl, woman’ | > ò-sàɛ ‘unmarried woman’ |
| | BLR 9605 | *pákù ‘honey’ | > ì-pâɛ |
| | BLR 3052 | *túok ‘come from’ | > ntswâɛ |
| *g ₂ | BLR 1621 | *jùgù ‘groundnut’ | > è-yũɛ |
| | BLR 2569 | *pígù ‘kidney’ | > è-pɛɛ ‘liver’ |
| | BLR 316 | *bógà ‘village, path’ | > ì-bûɛ ‘path’ |
| | BLR 3525 | *jóg ‘swim’ | > ndʒwâɛ |

PB *g/*k > ɛ in C₂

Velar merger within KLC Extended

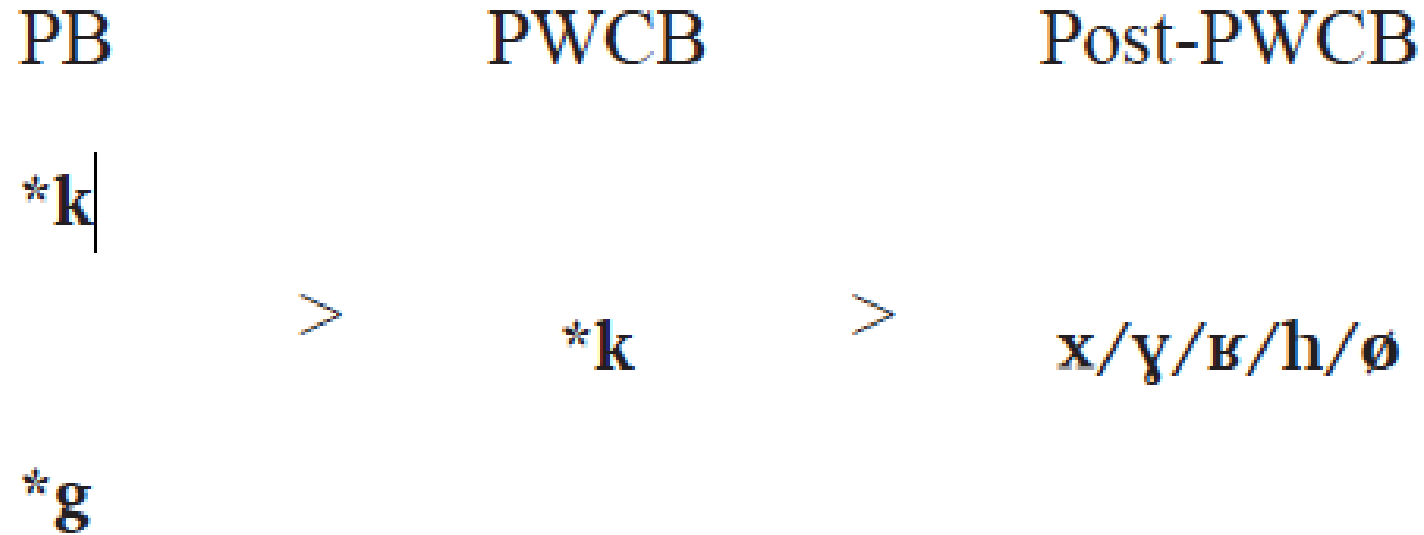


Mbuun B87T (KLC (Extended), Kwilu-Atlantic, Loange-Atlantic)

| | | | | |
|---------|----------|-------------------------------|---|--------|
| * k_2 | BLR 522 | *cèk ‘laugh, joke’ | > | ká-féé |
| | BLR 1044 | *dìk ‘bury, plant’ | > | ká-dzĩ |
| | BLR 1179 | *dók ‘vomit’ | > | ká-lúú |
| | BLR 820 | *dáká ‘tongue, language, jaw’ | > | ndáá |
| * g_2 | BLR 1498 | *gòg ‘be fitting, sufficient’ | > | ka-kuu |
| | BLR 1607 | *jògù ‘elephant’ | > | nzóò |
| | BLR 2825 | *téng ‘set (trap)’ | > | ka-téé |
| | BLR 3527 | *jògà ‘mushroom’ | > | bóó |

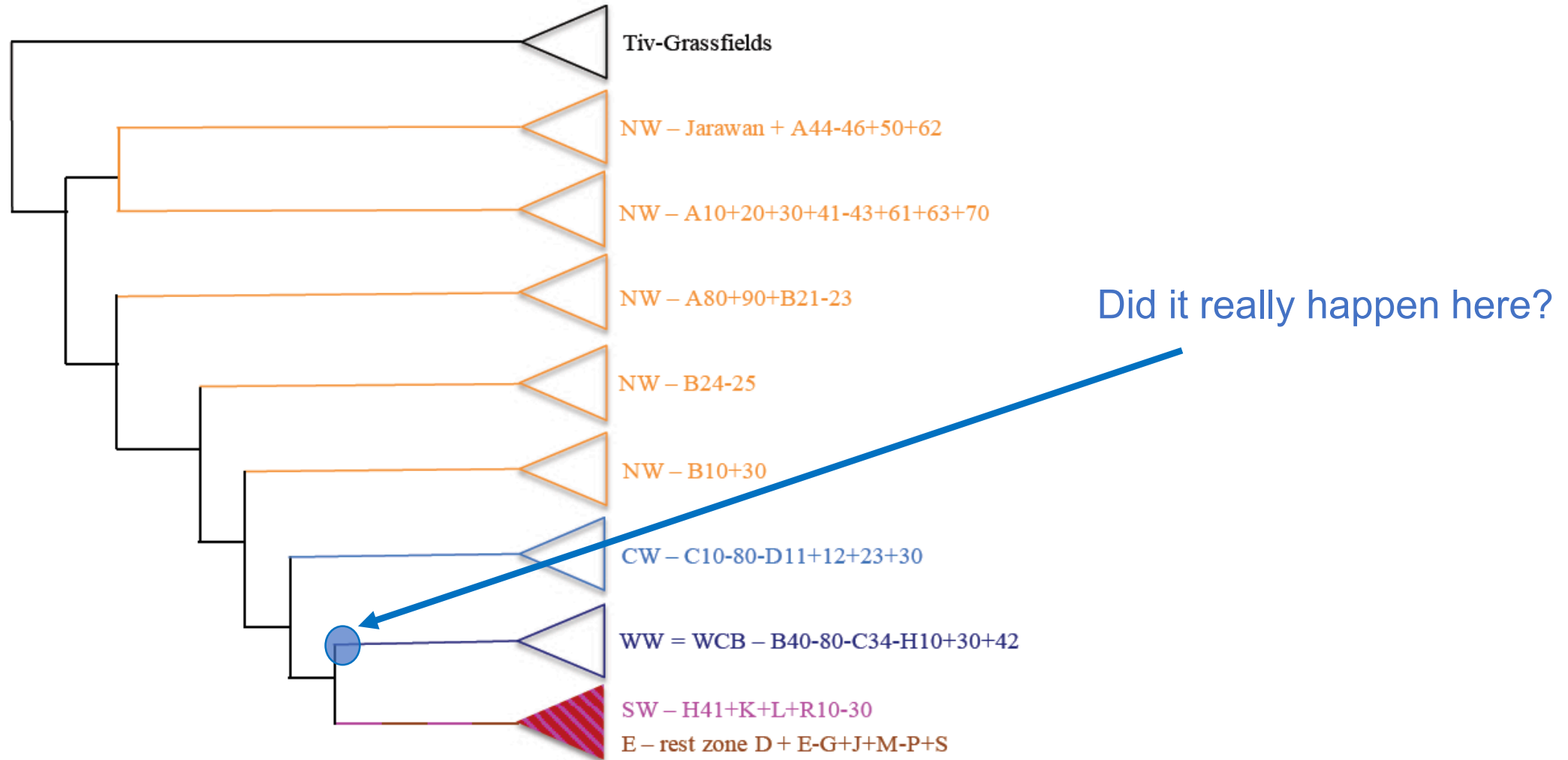
PB *g/*k > Ø in C₂

Evolutions of intervocalic PB *k and *g in WCB



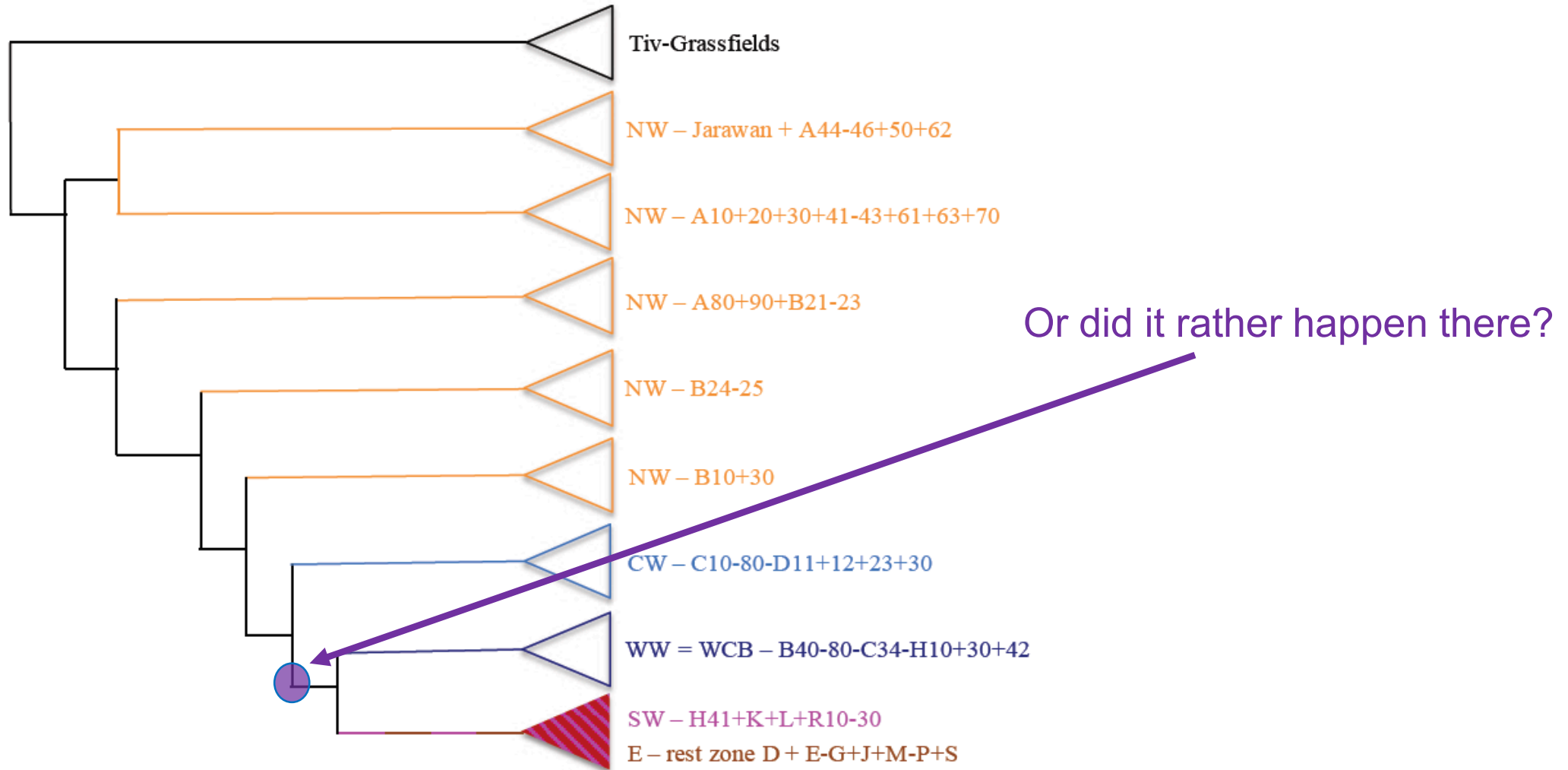
- Devoicing of PB *g in C2 is case of unconditioned fortition (Campbell 2004: 44), a rather rare sound change, especially when the (ancestral) language already had *k (G. Philippson pers. comm.)
- From a purely phonatory point of view, apart from uvulars, voicing is hardest to maintain for velar plosives (Maddieson 1984: 36-37; Blust 1996: 149)

Does velar merger corroborate WCB as a discrete branch?



Schematic depiction of the Bantu phylogeny in Grollemund *et al.* (2015)

Does velar merger corroborate WCB as a discrete branch?



Schematic depiction of the Bantu phylogeny in Grollemund *et al.* (2015)

No velar merger across South-Western Bantu

Mbundu H21a (SWB) (da Silva Maia 1961)

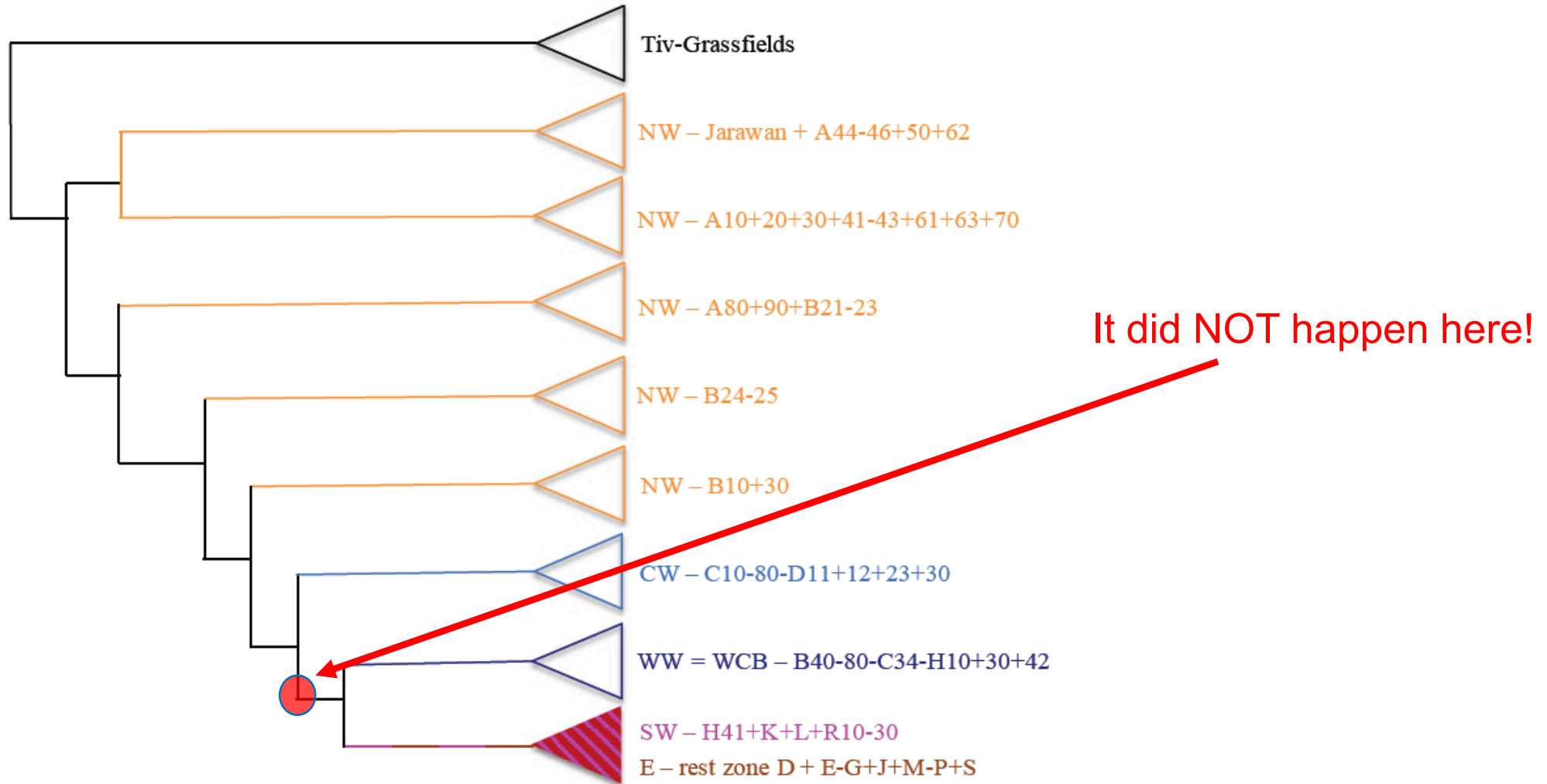
| | | | | | |
|-----------------|----------|---------------------------------|---|----------------|-----------|
| *g ₁ | BLR 1300 | *gàdí ‘(nut of) oil palm’ | > | ma-aji | PB *g > Ø |
| | BLR 1362 | *gènd ‘walk, travel, go (away)’ | > | ku-enda | |
| | BLR 1309 | *gàmb ‘speak, answer’ | > | amba | |
| | BLR 1334 | *gàngà ‘medicine’ | > | wanga ‘fetish’ | |
| | BLR 1374 | *gìd ‘act, do, say, have’ | > | ila | |
| | BLR 1440 | *gòngò ‘back, backbone’ | > | mu-ongo | |
| | BLR 1505 | *gùmbà ‘barren woman’ | > | mu-umba | |
| *g ₂ | BLR 1100 | *dòg ‘bewitch’ | > | lowa | |
| | BLR 197 | *bìgá ‘pot’ | > | mbiá | |
| | BLR 3525 | *jóg ‘bathe, wash, swim’ | > | ku-ówa | |
| *k ₁ | BLR 1662 | *kádà ‘ember(s), charcoal’ | > | kala | PB *k > k |
| | BLR 1674 | *kád ‘woman, wife’ | > | mu-kaji | |
| | BLR 1689 | *kám ‘squeeze’ | > | kama | |
| | BLR 1805 | *kín ‘dance’ | > | kina | |
| *k ₂ | BLR 2642 | *púkò ‘rodent, rat, mouse’ | > | puku | |
| | BLR 2741 | *tákò ‘buttocks’ | > | ma-taku | |
| | BLR 3526 | *jókà ‘snake, intestinal worm’ | > | joka | |

No velar merger across East Bantu

Holoholo D28 (EB) (Rugigana 1982: 105ff.)

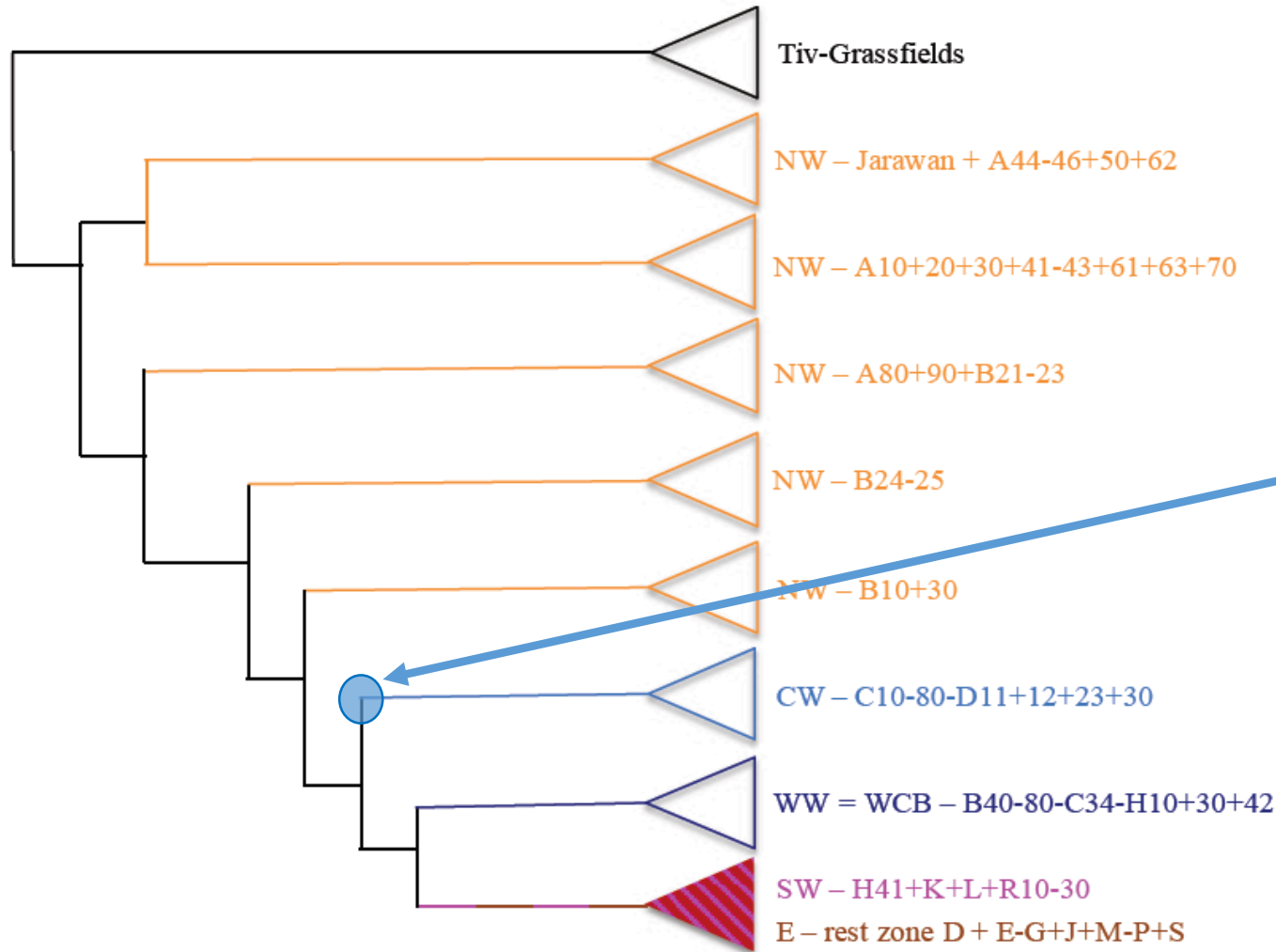
| | | | | | |
|-----------------|----------|---------------------------------|---|---------------------|-----------|
| *g ₁ | BLR 1317 | *gì ‘go’ | > | gì | PB *g > g |
| | BLR 1349 | *gèdà ‘iron (thing)’ | > | gèlà | |
| | BLR 1298 | *gàdì ‘mash, pap’ | > | gàlì | |
| | BLR 7157 | *gòinà ‘crocodile’ | > | gwènà | |
| | BLR 1362 | *gènd ‘walk, travel, go (away)’ | > | ènd ‘go’ | |
| | BLR 1313 | *gàn ‘tell a tale’ | > | àn ‘say’ | |
| | BLR 1431 | *gòmb ‘clap hands, beat drums’ | > | òmb ‘play the drum’ | |
| *g ₂ | BLR 137 | *bég ‘shave’ | > | bég | PB *k > k |
| | BLR 258 | *bògó ‘buffalo’ | > | bògò | |
| | BLR 1607 | *jògù ‘elephant’ | > | jògì | |
| *k ₁ | BLR 1793 | *kídà ‘tail’ | > | kilà | |
| | BLR 1935 | *kòndè ‘banana’ | > | kòndè | |
| | BLR 1758 | *kédè ‘salt’ | > | kélé | |
| | BLR 1927 | *kómbó ‘broom’ | > | kòmbó | |
| *k ₂ | BLR 905 | *dèk ‘let (go), cease’ | > | lèkel ‘let’ | |
| | BLR 9582 | *dák ‘walk’ | > | lák ‘move’ | |
| | BLR 1179 | *dúk ‘vomit’ | > | lúk | |
| | BLR 3050 | *tók ‘insult, abuse’ | > | túk | |

Does velar merger corroborate WCB as a discrete branch?



Schematic depiction of the Bantu phylogeny in Grollemund *et al.* (2015)

Does velar merger corroborate WCB as a discrete branch?



Did it not also happen here?

Or further up the tree?

And if so, should the internal structure of the Bantu family tree be revised?

Widespread velar merger across Central-Western Bantu

- Leke C14: $*k_1/*k_2 > k, \emptyset$, $*g_1/*g_2 > k$ (Naragerageje 1982: 67-68);
- Koyo C24: $*k_1 > k, \emptyset$; $*g_1 > k$; $*k_2/*g_2 > g$ (Naragerageje 1982: 32-33, 37-39);
- Proto-Ngiri C30 (not including C35): Motingea Mangulu (1996: 57ff.) reconstructs $*k$ as the reflex of PB $*k_{1/2}$ and $*g_{1/2}$ and observes that in individual C30 languages /k/ can undergo complete loss;
- Ntomba C35a: $*k_{1/2}, *g_1 > k, \emptyset$; $*g_2 > k$ (Rurangwa 1979: 34ff.);
- Bolia C35b: $*k_{1/2}, *g_{1/2} > k, \emptyset$ (Rurangwa 1979: 61ff.);
- Proto-C40: Donzo Bunza Yugia (2015: 179, 210, 276, 280) reconstructs $*k$ as reflex of PB $*k$ and $*g$ both in C1 and C2 positions, with loss as a further development. The only C40 language still preserving a /g/ reflex of PB $*g_2$ (alongside the widespread /k/) is Pagibete C401 (Donzo Bunza Yugia 2015: 210);
- Based on a non-systematic perusal of available sources, it seems that in Topoke C53 (Harries 1955; Tassa Okombe-Lukumbu 1994) and Turumbu C54 (Chelo 1973) $*k_{1/2}$ and $*g_{1/2} > g$. Additionally, Topoke offers evidence that the /g/ reflex is a revoicing of an original /k/, because there are still some lexical items with /k/ both in C1 and C2;
- Upon quick inspection, the merger in both positions also seems to be present in Mongo C61 (Hulstaert 1952), Tetela C71 (Onawongo 1980), Dengese C81 (Goemaere 1984), Hendo C82 (Ngonga-ké-Mbembe 2009), Lele C84 (Rutinigirwa 1975; Ngwamashi Kabandji-Bola Kamu 1979), Bushong C83 (Daeleman 1977) and Wonk C85 (Tete Wer Sey 1975).

BUT!

1. Bwa cluster C44 and Pagibete C401 preserved PB $*k/*g$ contrast minimally in C1 (Boone & Olson 2004) ;
2. Some C10-20 languages: PB $*k > \emptyset$ and PB $*g > k$ (latter only happened after $*k > \emptyset$ and the partial merger of PB $*k$ and $*g$ is a later innovation)

Widespread velar merger across North-Western Bantu

- Jarawan Bantu: Gerhardt (1982: 89-95) proposes **k* instead of PB **g* for several Proto-Jarawan Bantu (PJWB) roots, while PB **k* most often corresponds to PJWB **k*;
- Manenguba cluster A15: **k₁ > ∅, k, w* **g₁ > k, g, ∅*; **k₂ > g, ∅*, **g₂ > g* (Hedinger 2006: 109ff.);
- Bubi A31: **k_{1/2}, *g_{1/2} > ∅, k* with some intermediate fricative reflexes before complete loss (Janssens 1993: 25ff.); however, a quick glance at the data in Bolekia Boleká (2009) seems to support **k₁ > ∅* and **g₁ > ?* (the voiceless glottal stop being a lenition of *k*).
- Basaa A43a: **k₁, *g₁ > k, ∅*; **k₂ > k, ∅* and **g₂ > k* (Janssens 1982: 77ff.; Teil-Dautrey 1991: 38ff.);
- Nen A44: **k_{1/2}, *g_{1/2} > k, ∅* (in equal proportions) (Janssens 1993: 67ff.);
- Bafia A53: **k₁, *g₁ > k, ɣ* or *∅*; **k₂, *g₂ > K* or *∅* (where K is a morphophoneme which can be realized as [ʔ], [ɣ] or [k] in final position, intervocally, or before another consonant respectively) (Janssens 1993: 144ff.);
- Ewondo A72: **k₁ > k* (in the absence of a conditioning environment) and **g₁ > k* (Janssens 1993: 178ff.). In verbal roots, **k₂, *g₂ > g*. In nominal roots (especially those reconstructed as HL), **g₂ > g* and **k₂ > ∅, g* (the latter reflex is extremely sporadic);
- Fang A75: **k_{1/2}, *g_{1/2} > k*. In C2, the merged reflex /k/ has multiple additional reflexes including fricatives and zero depending on specific Fang varieties (Medjo Mvé 1997: 362ff.);
- A80 group: Cheucle (2008: 500) reports **k_{1/2}, *g_{1/2} > k*;
- Kwakum A91: The data in Njantcho Kouagang (2018) also point towards **k_{1/2}, *g_{1/2} > k*;
- B10-30: no dedicated study is available but judging from a non-systematic perusal of wordlists and lexicons, a merger like the one we posited for PWCB seems to have taken place also in B11 (Jacquot 1976), B20 (see Piron 1990 on B25 and Mokrani 2016 on B20 in general) and B30 (van der Veen 1991). B10 and B30 both developed fricatives as further developments of /k/ as the merged reflex of PB **k* and **g* in C2. B11 offers evidence for a chain of changes such as *k₂ > g > ɣ* (Jacquot 1976: 25).

BUT!

1. Bubi (A31): **k₁ > ∅* and **g₁ > ?* (Bolekia Boleká 2009)
2. G. Philippson (pers. comm.) argues that in all zone A languages on the left (except Jarawan Bantu), the regular reflex of **k₁* is *∅* and the regular reflex of **g₁* is /k/, other alleged reflexes would be extremely rare and/or attributable to unnoticed conditioning environments.

Genealogical validity of WCB

- **Merger of Proto-Bantu *g and *k to Proto-WCB *k** in both C1 and C2 position is a **unique shared innovation** defining WCB as discrete branch with the Bantu family tree.
- **PB *g > k** is also **widespread in NWB and CWB**, but to be distinguished chronologically from **PB *k > ∅**, hence not diagnostic as a unique shared innovation defining major Bantu subclades

Is widespread devoicing of PB *g a “Rainforest Pre-Bantu stratum” feature?

- **Massive distribution of PB *g > k inside NWB, CWB and WCB** – as opposed to its near-absence outside of these clades – might be the outcome of a process of linguistic homogenization that happened after the initial diversification of the Bantu language family and that was induced by a **common substrate**;
- Möhlig (1981: 270): “In most of the Forest languages, the sound shift *g → [-voice] (g → k) did not cause merger between *g and *k, because, at the time when *g became *k, the original *k had already shifted via the intermediate stages of [x] and [h] towards complete deletion. So, the sound shift *g → [-voice] re-introduced a sound which had previously disappeared in the phonological systems concerned. Such reversion of an inherent trend of sound shift (elimination of a voiceless velar plosive) generally indicates that language shift between nonrelated or only loosely related languages must have taken place” [our emphasis].

Is widespread devoicing of PB *g a “Rainforest Pre-Bantu stratum” feature?

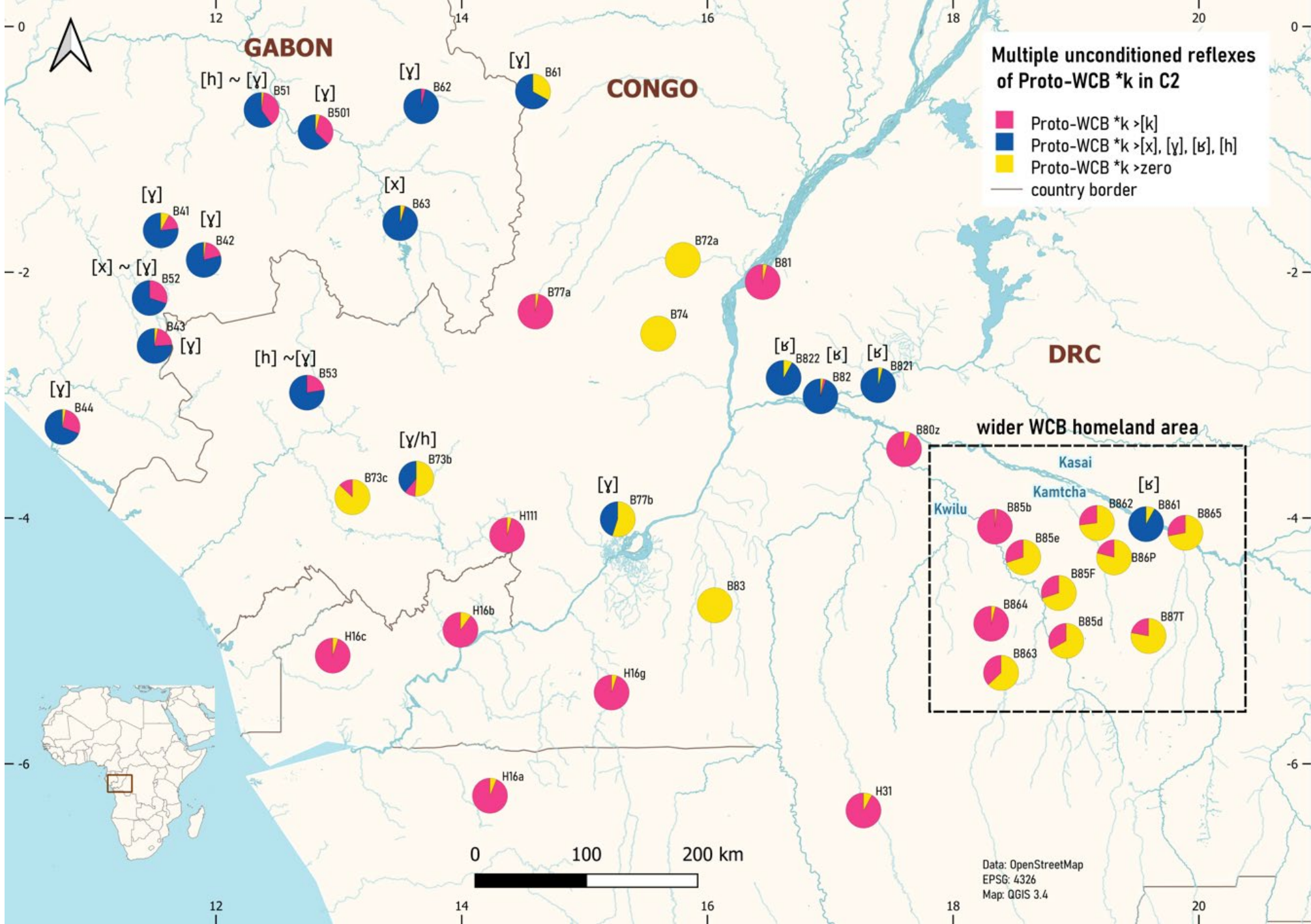
- G. Philippson (pers. comm.) has suggested to us that the unexpected fortition of PB *g to /k/ and its merger with the already existing PB *k in PWCB could indeed point to the articulatory habits of shifting speakers at the origin of a substratum;
- In support of this hypothesis is that the velar merger not only happened in C2, but also in C1, while recent research has corroborated that **a strong statistical universal exists for phonological neutralization targeting word-ends over beginnings** (cf. Wedel *et al.* 2019).
- B. Sands (pers. comm.) has suggested pre-Bantu hunter-gatherers possibly shifted from a language whose only voiced stops were labial and coronal implosives, but no velar implosives which are crosslinguistically much rarer because disfavored from an articulatory point of view (cf. Maddieson 1984: 120).

Pacchiarotti & Bostoen
forthcoming *Erratic
velars in West Costal
Bantu: explaining
irregular sound change
in Central Africa*

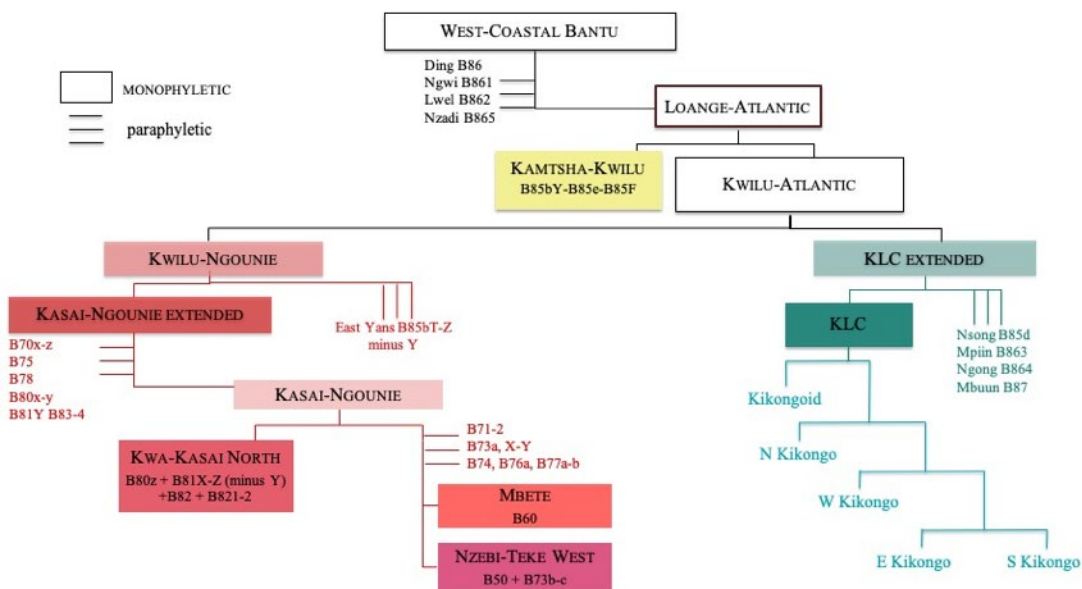
2 chains of innovation

PB *k/*g > PWCB *k > Ø

PB *k/*g > PWCB *k >
x/y/ɓ/h (> Ø)



MUR of PWCB *k in C₂



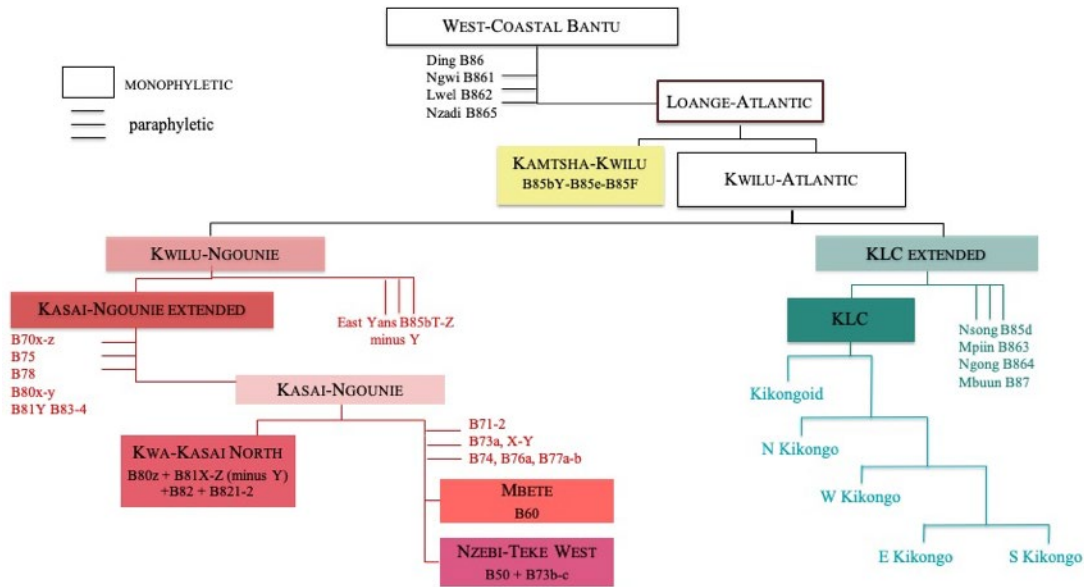
PB *k/*g > PWCB *k > x in C₂

Both retention of PWCB *k and innovation attested

Nzebi B52 (Nzebi-Teke West, Kasai-Ngounie, Kwilu-Ngounie, Kwilu-Atlantic, Loange-Atlantic)
 (Marchal-Nasse 1989, Mouélé 1997)

| | | | | |
|-------------------------|------------|---------------------------------|---|-------------------------------------|
| PB *k in C ₂ | BLR 66 | *bák 'build' | > | i-báxà 'wall' |
| | BLR 67 | *bák 'get, catch, rob' | > | ù-báxà 'get, receive, earn' |
| | BLR 820 | *dáká 'tongue, language, jaw' | > | n-dákà 'language' |
| | BLR 9590 | *dákò 'house (for men)' | > | mù-lákà 'camp, encampment' |
| | BLR 9642 | *káká 'foot' | > | lè-kákà 'hand' |
| | BLR 1685 | *kààkà 'grandparent' | > | Ø-kààxá ³ |
| | BLR 1906 | *kòòkó 'grandparent' | > | kòòkó |
| | BLR 7983 | *kéèkèè 'little, small' | > | mù-yéyéè 'youngest sibling' |
| | BLR 2286 | *nók 'rain (v.)' | > | ù-nóxò 'rain (v.)' |
| | BLR 647 | *còkà 'axe' | > | Ø-tsòkò 'traditional axe' |
| | BLR 2967 | *tòk 'boil' | > | ù-tòxò |
| | BLR 1904 | *kókó 'chicken' | > | Ø-kókò |
| | Proto-Duma | *kòkò 'domestic cat' | > | mu-kòxò |
| | BLR 1355 | *gègò 'molar' | > | kèkà |
| | BLR 145 | *béék 'put (away)' | > | ù-bééka |
| | BLR 2828 | *ték 'draw (water)' | > | ù-téxè |
| PB *g in C ₂ | BLR 1041 | *dígì 'string' | > | nzíxì |
| | BLR 1828 | *kígè 'eyebrow' | > | Ø-kíki |
| | BLR 60 | *bàgú 'stumbling block' | > | bàkà |
| | BLR 55 | *bààg 'tear' | > | ù-bà:kà |
| | BLR 1427 | *gògò 'trunk, bridge' | > | kòxó 'log' |
| | BLR 808 | *dàg 'show (v.)' | > | ù-làxà |
| | BLR 812 | *dàgá 'promise' | > | làxà |
| | BLR 316 | *búgà 'village, path' | > | mbóxà 'at someone's place, village' |
| | BLR 315 | *búg 'plaster, dig foundations' | > | ù-bókà 'dig' |
| | BLR 900 | *dègè 'weaver bird' | > | ndèkè |
| | BLR 2180 | *mìg 'try (v.)' | > | ù-mèxà 'taste (v.)' |
| | BLR 3338 | *jíg 'learn, imitate' | > | ù-yíxà 'learn' |

Excluding phonological conditioning as explanation for MUR



PB *k/*g > PWCB *k > ɛ > ∅

Two innovations attested in C₂

Ngwi B861 (own fieldwork)

| | | | | | | |
|-------------------------|----------|--------|-----------------------|---|----------------------------|-----|
| PB *k in C ₂ | BLR 1179 | *dúk | 'vomit' | > | lúà | /∅/ |
| | BLR 5333 | *puku | 'burrow' | > | ì-pûɛ 'garbage hole' | /ɛ/ |
| | BLR 2642 | *pókù | 'mouse' | > | ∅-mfúù | /∅/ |
| | BLR 5464 | *cúkù | 'sauce' | > | ò-súɛ | /ɛ/ |
| | BLR 5339 | *tókì | 'insult' | > | ì-tî | /∅/ |
| | BLR 3536 | *jóká | 'snake' | > | ∅-ndzúà | /∅/ |
| | BLR 7413 | *cókì | 'saliva' | > | à-súì | /∅/ |
| | BLR 9461 | *cákú | 'safou' ¹⁰ | > | è-súú 'safou (fruit)' | /∅/ |
| | BLR 9605 | *pákù | 'honey' | > | ∅-mpâɛ | /ɛ/ |
| | BLR 1904 | *kókó | 'chicken' | > | ∅-ɲkóɛ | /ɛ/ |
| | BLR 1685 | *kààká | 'grandparent' | > | ∅-ɲkíàɲkíá 'paternal aunt' | /∅/ |
| PB *g in C ₂ | BLR 2634 | *pùgí | 'pot' | > | ∅-mpûɛ | /ɛ/ |
| | BLR 761 | *cúgù | 'day' | > | è-fúù | /∅/ |
| | BLR 4992 | *tógú | 'ashes' | > | ò-túɛ | /ɛ/ |
| | BLR 316 | *bógà | 'path' | > | ∅-mbûɛ | /ɛ/ |
| | BLR 814 | *dàgò | 'promise' | > | ì-lâɛ | /ɛ/ |
| | BLR 900 | *dègè | 'weaver bird' | > | è-lêɛ | /ɛ/ |
| | BLR 2433 | *pègà | 'shoulder' | > | ì-réàɛ | /ɛ/ |
| | BLR 1248 | *dóg | 'paddle' | > | lûɛ | /ɛ/ |
| | BLR 1607 | *jògù | 'elephant' | > | ∅-ndzò | /∅/ |

Excluding lexical borrowing as explanation for MUR

- Loanwords from Kikongo ya Leta (region's vehicular language): either retention of /k/ or nativization to /ɓ/

Ngwi B861 (own fieldwork)

| | | | |
|----------|---------|------------------|--|
| BLR 4998 | *kùgú | 'sugar cane' | > ò-kùú (cf. Kongo <i>mùkùkú</i>) ¹⁶ |
| BLR 7402 | *tòkó | 'mat' | > ì-tòó (cf. Kongo <i>kítókò</i>) |
| BLR 1905 | *kòòkò | 'sheep' | > ò-kòkò (cf. Kongo <i>kókò</i> 'ram') |
| BLR 6213 | *jíkú | 'porcupine' | > Ø-zíú |
| BLR 4574 | *búdúgú | 'dwarf antelope' | > Ø-mblúú 'antelope sp.' (cf. Kongo <i>mbùlúkù</i> 'dwarf antelope') |
| BLR 2368 | *pàkàcà | 'buffalo' | > Ø-mpàkàsà (cf. Kongo <i>mpàkàsà</i>) |
| BLR 2967 | *tòk | 'boil up' | > tòkìsà (cf. Kongo <i>tòkìsà</i>) àvòká (French <i>avocat</i> , probably via Kikongo <i>àvòká</i>) |

Excluding lexical borrowing as explanation for MUR

- Ø reflex cannot be explained as borrowing from neighboring languages

| | Ngwi B861 | Lwel B862 | Nzadi B865 | Ding B86 |
|----------------------------------|-------------------------------|-----------|----------------------|--------------|
| BLR 7413 *cókì 'saliva' | à-sùì | mè-tyé | à-té | mà-té |
| BLR 9461 *cákú 'safou' | è-súú 'safou (fruit)' | ? | ò-té ó mfùŋ (tree) | lu-say |
| BLR 3536 *jókà 'snake' | Ø-ndzúà | n-tààl | ò-dzwó 'snake (sp.)' | n-tèèl |
| BLR 3050 *tók 'to insult' | túyè (v.) | tʃwé (v.) | ò-twâ (v.) | ò-sààr (v.) |
| BLR 5339 *tókì 'insult' | ì-tî (n.) | ? (n.) | è-pwǒn (n.) | mu-tsœœ (n.) |
| BLR 761 *cúgù 'day' | è-ʃúù | lè-ʃú | è-súù | è-tý |
| BLR 2642 *pókù 'mouse' | Ø-mfúù | m-pú | m-púù | m-pú |
| BLR 1607 *jògù 'elephant' | Ø-ndzòò | n-dzòò | n-dzòò | n-dzòò |
| BLR 1179 *dók 'vomit' | lúà | líír | ò-lwâ | ò-lwá |
| BLR 1685 *kààká 'grandparent' | Ø-ŋkíáŋkíá 'paternal aunt' | ŋ-kàá | ŋ-kàá | ŋ-kǎ 'aunt' |

Four possible explanations for MURs in WCB

NOT MUTUALLY EXCLUSIVE !

1. Lexical diffusion
2. Substratum influence
3. Intrinsic multilingualism as the norm
4. Spread-over-spread events in Bantu language history

ANTHROPOLOGY

Population collapse in Congo rainforest from 400 CE urges reassessment of the Bantu Expansion

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De pest zat in het Congolese regenwoud

Zo'n 1500 jaar geleden verdwenen haast alle menselijke nederzettingen uit het Congolese regenwoud. De oorzaak, meldt taalkundige Koen Bostoen (UGent) met een schare collega's in *Science Advances*, was wellicht een langdurige epidemie ten gevolge van een nattere periode.

In ongeveer dezelfde tijd veroorzaakte 'de pest van Justinianus' een ravage in de toenmalige Romeinse en Ethiopische rijken. Een pestvariant die vandaag nog in Centraal-Afrika voorkomt, is de oudste levende variant van de bacterie die in de middeleeuwen bij ons de zwarte dood veroorzaakte.

De studie steunde onder meer op

archeologisch en genetisch onderzoek. Uit taalanalyse bleek dat de huidige sprekers van Bantotalen in de regio niet afstammen van de gemeenschappen die ongeveer 4000 jaar geleden het regenwoud koloniseerden.

Geografe Veerle Vanacker (UCL) en haar collega's melden in *Nature Communications* dat Noord-Amerikana de kolonisatie door de Europeanen en de daarmee gepaard gaande opmars van landbouw, tien keer sneller erodeerde dan voordien. De laatste eeuw alleen al was de landerosie even groot als de voorbije drie millennia samen. Onder meer de ontbossing droeg daartoe bij.

Een variant van de pest joeg de bewoners uit het Congolese regenwoud.



HISTOIRE

Pandémie chez les Bantous

Depuis plus d'un siècle, les historiens s'accordaient sur le scénario d'une « expansion bantoue », qui, partie de l'ouest de l'Afrique il y a plusieurs millénaires, aurait gagné la moitié sud du continent. Une récente étude internationale conteste cette version des faits.

Una larga epidemia afectó a África hace más de 1.500 años

Un nuevo estudio elaborado por un equipo multidisciplinar de científicos podría reescribir la historia del poblamiento del continente africano. Los expertos aseguran que las poblaciones colapsaron entre el 400 y el 600 d.C., y no se recuperaron hasta hace unos 1.000 años.

Conclusions

- An evidence-based alternative solution to a longstanding problem within Bantu/Niger-Congo historical linguistics, i.e., the so-called “**double (consonantal) reflexes**”, **beyond** the two traditional scenarios of **phonemic merger vs. phonemic split**.
- **Irregular sound correspondences** are the expected outcome of the specific sociocultural circumstances in which Bantu speech communities developed after the large-scale expansion of the Bantu languages and need to **accepted and embraced as an indicator of intensive language contact and linguistic stratification**.

Conclusions

- Within a **deeply-rooted multilingual environment** without well-established sociolinguistic “identities”, **lexical diffusion** or the irregular spread of sound change word by word instead of phoneme by phoneme might be one of the language contact scenarios that (partially) explains the MURs;
- Given **that velar and uvular fricatives** are quite rare as reflexes of PB *k and *g in Bantu, their concentration in certain WCB zones of the domain (and elsewhere in the northwestern area) suggests that they may be an **areal feature** and diagnostic of **substrate interference**;
- MURs can also be the result of the **stratified non-tree-like history** of the Bantu languages and of **recurrent spread-over-spread events**;

THANK YOU!

DANKE SCHÖN!