Chapter 1

Double reflexes in north-western Bantu and their implications for the Proto-Bantu consonant system

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A number of languages in the north-westernmost area of the Bantu domain have been claimed to present two different reflexes of originally unitary Proto-Bantu (PB) phonemes. A solution to this surprising situation has been sought in the presence of some assumed phonological conditioning, whereas other authors have proposed to reconstruct new proto-phonemes. The present chapter establishes that for voiced PB phonemes, a tonal conditioning can indeed be found; but for voiceless PB phonemes, the situation is more confused, and specifically there emerges a small but consistent sub-group of reconstructed stems which escape the general "weakening" of the proto-phoneme **t*, without any obvious conditioning. The hypothesis is that according to a wave model, those items were not touched by the weakening innovation at the time of its spread.

1 Introduction

The Comparative Method in historical linguistics aims at establishing series of regular sound correspondences among related languages with the ultimate goal of reconstructing the sound system of the ancestor language. It has succeeded in numerous cases, mainly, to be sure, among closely related languages. However, irregularities in correspondences often occur in a somewhat haphazard manner from which no general conclusions can be drawn. In other cases, a considerable part of the lexicon is affected by such irregularities and comparative linguists have tended to approach the question in two different ways, either: (a) by considering that the change considered has not (yet) affected all the eligible lexical

Gérard Philippson. 2022. Double reflexes in north-western Bantu and their implications for the Proto-Bantu consonant system. In Koen Bostoen, Gilles-Maurice de Schryver, Rozenn Guérois & Sara Pacchiarotti (eds.), *On reconstructing Proto-Bantu grammar*, 3–58. Berlin: Language Science Press. DOI: 10.5281/zenodo.7575815

items at time *t*, which is often formulated as some variant of a "wave" model – for a recent summary, see François (2014); or (b) by positing a new series of proto-phonemes, or some prosodic conditioning, as in the case of Verner's Law (see, for instance, Halle 1997) to account for the different correspondences.

Many Bantu languages of the north-western part of the domain have been shown to exhibit divergent correspondences for some of the putative Proto-Bantu (PB) phonemes without any apparent conditioning, a problem known in historical Bantu linguistics as that of "double reflexes" (cf. Van Leynseele & Stewart 1980; Bancel 1988; Janssens 1991; Teil-Dautrey 1991a; Botne 1992a; Janssens 1993). The aim of this chapter is to examine this situation in detail, to assess whether it has implications for the reconstruction of PB and provide a tentative solution for this apparent challenge to the Comparative Method. To maintain the size of the chapter within reasonable limits, we focus here on the C_1 position. Consonants in C_2 are left for a later study.

1.1 Classification of the north-western Bantu languages

Without attempting a complete review of all the proposals aiming at delimitating "Bantu" from "non-Bantu" languages (cf. Watters & Leroy 1989a,b; Grollemund 2012; Philippson & Grollemund 2019), I will refer to the most complete phylogenetic classification to date, i.e. Grollemund et al. (2015), while commenting on it.

But first it is necessary to set out the list of the languages which will be examined here. It is usual among Bantuists to identify languages by an alphanumerical code, first devised by Malcolm Guthrie (1948; 1953; 1971) and expanded by Jouni Maho (2003; 2009) – see also Hammarström (2019). All the languages covered by this chapter have a referential code beginning with A, except for Seki B21. In this sense, my sample is complementary to the one of Pacchiarotti & Bostoen (2022), who deal with the same problem, but focus on the irregular reflexes of PB velar stops in West-Coastal Bantu, i.e. Guthrie's groups B40–80, H10, H30-40 (except Mbala H41), and Samba L12a.

In theory, languages sharing the same letter and first digit (e.g. A41, A42, A43 etc.) should be closely related, but this is not always true, as will be seen below. In order to avoid relying too much on the alphanumerical codes as if they had a genealogical value, I will propose names, sometimes geographical, for the various groups, in the same way that Ehret (1998) on the one hand, and Nurse & Philippson (1980b,a) did for Eastern Bantu languages. I borrow some of these names from others, for example "Sawabantu" from Ebobissé (2015), even if I give it a broader compass. Below I summarise my current view on the classification

of the north-western Bantu languages dealt with in this chapter – see also Appendix A for an overview of the languages included in this study and the sources consulted for each language.

1) Mbam

   Western: Nen A44; Nyokon A45; Maande A46; Tuotomb A461

   Sanaga: Tuki > Ki, etc. A601

      Yambasa > Yangben A62A; Mmala A62B; Elip A62C; Baca A621; Gunu A622

      Mbule A623

   Yambeta A462 is difficult to affiliate but seems a little closer to Sanaga

2) Bafia

   Fa', Zakaan, Maja, Balom A51; Dimbong A52; Kpa, Pe A53; Bea (Ngayaba) A54

3) Bubi

   Northern A31a; South-West A31b; South-East A31c

4) Sawabantu

   Oroko: Lundu A11; Ngolo A111; Bima A112; Batanga A113; Lokoko A114; Londo ba Diko A115; Lue A12; Mbonge A121; Kundu A122; Ekombe A123

   Central: Mboko A21; Kpe A22; Bubia A221; Su A23; Kole A231; Duala A24; Bodiman A241; Oli A25; Pongo A26; Mongo A261; Limba A27

   Southern: Noho A32a; Bapuku A32b; Batanga A32C; Yasa A33a; Kombe A33b

   Benga: Benga A34

5) Manenguba[1]

   North-east: Mbuu, Mboo A15A

[1]For all these languages minus A13c, see classification and data in Hedinger (1987). Nkongho A151 is only known from a wordlist supplied by Hedinger (1987). It is definitely not part of Manenguba and might in fact not be Narrow Bantu. But no valid conclusion can be reached on the basis of such meagre data. Note that it is part of Manenguba in Grollemund et al. (2015), but to my mind, this is due to somewhat dubious cognate identifications.

North-west: Myenge A15B

Central: A15C

Eastern: Mkaa, Mwahed, Mwaneka, Belon, etc.

Western: Akoose, Elung, Mbo, Nnenong, etc.

Balong/Bafo: Balong A13; Bafo (Lefo) A141; (Bonkeng A14 ?)

6) Basaa

Lombi A41; Abo (Bankon) A42; Basaa A43a; Bakoko (North Kogo) A43b; South Kogo A43c [2]

7) Beti

Eton A71; Ewondo A72a; Bulu A74a; Fang A75 (Northern: Ntumu, etc. A75A; Southern: Okak A75B; Atsi A75D; Mvai A75F) + Njowi A63 [3]

8) Nyong-Dja

Northern: Makaa A83; Kol A832; Njem A84; Bajwee A841; Koonzime A842; Bekwel A85b; Mpiemo, etc. A86c + Polri A92a (and Pomo A92b ?)

Southern: Gyeli A801; Shiwa A803; Kwasio A81

9) Kwakum

Kwakum A91; Kako A93; Seki B21

The Mbam languages are placed by lexicon-based quantitative classifications (both lexicostatistical and phylogenetic) as standing outside the rest of Narrow Bantu, which is partially confirmed by their diachronic phonology.

As for the rest of zone A languages, Bubi (group 3) and Sawabantu (group 4) differ in their phonological structure from the others (in that they have mostly CVCV stems) and they also have agglutinative verb structure. However, I see these as retentions which do not suggest any very close proximity between the two. Likewise, I consider the lexicostatistical closeness of Bubi to the Mbam languages as an artefact of lexicostatistics (Philippson 2018). Basaa (group 6) and Beti (group 7) have much in common and might well form a genuine clade, as supported by lexicon-based quantitative studies. Nyong-Dja (group 8) and Kwakum

[2] It is likely that the very poorly known Hijuk A501 also belongs to this group.

[3] Guthrie's (1953) categorisation of Njowi in the A60 group is due to a confusion of the ethnic name Mengisa which covers two linguistic entities, i.e. Leti (undescribed), which probably is most closely related to the other members of the Sanaga group A60, and Njowi A63, which is a close relative of Eton A71.

A91 share a specific (and rare) innovation, i.e. devoicing of voiced pre-nasalised stops such as **mb > (m)p(ʰ)*. It is equally attested in Northern Bubi A31a and sporadically throughout Bantu. However, this innovation is shared by neither Kako A93 nor Seki B21 and therefore is probably due in Kwakum to contact with a Nyong-Dja language. Whether the Nyong-Dja and Kwakum groups as a whole form a sub-clade, as lexicon-based quantitative studies indicate, is not clear at present.

In the purely lexically-based classification of Grollemund et al. (2015), all the Grassfields languages are separated from Narrow Bantu, i.e. those which Guthrie considered as Bantu. However, Jarawan languages also belong to this "non-Grassfields" Bantu group. Not having had the opportunity to look in detail at Jarawan, I leave it out of consideration here. Within Narrow Bantu, Grollemund et al. (2015) have a first branching, including (alongside Jarawan) Mbam (group 1) and Bafia (group 2) as well as Bubi spoken on the island of Bioko.

After having looked carefully at the data (Philippson 2018), not only do I not see any close proximity between Mbam and Bubi, in particular the absence of common lexical innovations, this can also be seen in Grollemund (2012), which is a more detailed survey of the north-western Bantu languages. The lexicon of Bubi is highly idiosyncratic and certainly innovated. This is a case where the lexicon cannot be taken as a valid clue to genetic affiliation. An examination of the phonology and inflectional morphology of Bubi shows it to be much closer to the bulk of the north-western Bantu languages than to Mbam (Philippson 2018).

In Grollemund et al. (2015), groups 4 to 7 belong to the same branch, but are separate from groups 8 and 9, which cluster into another clade alongside several languages belonging to Guthrie's B20 group. I have not had time yet to look at the latter languages in detail and will leave them out of the discussion, but there is no doubt that they do appear to exhibit similarities to groups 8 and 9 above. Nevertheless, I consider groups 8 and 9 to belong to a common clade with the other groups cited (apart from Mbam). As it is impossible to deal fully with this hypothesis in the context of a chapter devoted to double reflexes, I regretfully have to defer my arguments to another publication.

One more remark: In most discussions of Bantu diachronic phonology, much attention is generally paid to Bantu Frication (BF) (cf. Hyman 2003b; Hyman & Merrill 2016), also known as Bantu Spirantisation (cf. Schadeberg 1994; Bostoen 2008), i.e. the process by which stops are affected by a following [+high] vowel. It so happens that among the languages mentioned above, BF only concerns the southernmost languages, i.e. southern varieties of Fang and southern Nyong-Dja languages. It will thus be referred to only occasionally. Note that it should not be

confused, as it sometimes is, with a process of palatalisation before front vowels, the latter being quite active in our region of study.

1.2 The problem of double reflexes

Meeussen (1967: 83) lists the PB phonemes presented in Table 1, here in a reorganised way.

Table 1: Chart of PB phonemes in Meeussen (1967: 83)

*p	*t	*c	*k
*b	*d	*j	*g
*m	*n	*ɲ	
*mp	*nt	*ɲc	*ŋk
*mb	*nd	*ɲj	*ŋg
*mm	*nn	*ɲɲ	

Although left unmentioned in Meeussen (1967), the problem of "different consonant shifts" – termed "*dualité de reflexes*" in Van Leynseele & Stewart (1980), the first paper to systematically address the subject – in certain north-western Bantu languages was discussed by Guthrie (1967), who attributed the duality of certain consonantal reflexes to the quantity of the following vowel. Witness the following statement: "(T)here are cases in this area [zone A and the adjacent parts of zone B] where the shift in a starred consonant with *VV is different from that with *V" (Guthrie 1967: 58). He then immediately admitted: "The occurrence of this special sound shift with *VV necessitates the use of a double vowel in the starred form of some C.S., even though the vowel distinction *VV/*V is missing in all the entries [...]" (Guthrie 1967: 58). The latter explanation is tantamount to acknowledging that he used vowel length simply as a diacritic to identify the different reflexes.[4]

The zone A languages explicitly mentioned by Guthrie as exhibiting the phenomenon of double reflexes are the following: Lundu A11, Duala A24, Benga

[4] A fairly large number of stems with *NC_2 are entered as *CVVNC(V) in *Comparative Bantu* (Guthrie 1967; 1970a,b; 1971). Although nowhere stated explicitly, it would appear that Guthrie based himself primarily on the B50 languages which do offer length distinctions in such contexts, e.g. **kààŋg* 'tie up, seize' > Tsaangi B53 *kaaŋg*, or **kʊ́ʊ́ndá* 'pigeon sp.' > Nzebi B52 *ləkoond(a)* vs. **báŋgá* 'jaw' > Duma B51 *mubáŋgá*, or **gʊ́ŋgʊ̀* 'hoe' > Nzebi B52 *ləŋgoŋg*. Bantu Lexical Reconstructions (Bastin et al. 2002) considers all *CVVNC(V) reconstructions as spurious and rejects them, on the principle that no length contrast is possible in Bantu languages before pre-nasalised stops. The data just cited show that this is not necessarily so.

A34, Basaa (Mbene) A43a, Nen A44, Yambasa A62, Bulu A74a, and Mvumbo A81. Furthermore, his charts in Guthrie (1971: 32–33) mention three other languages: Maande A46, Fa' A51 and Kwakum A91. However, only one alternant pair is given for each of those, whereas for the other languages cited, all the reconstructed voiceless stops exhibit two series of reflexes as can be seen from Table 2, drafted from Guthrie's correspondence lists.

Table 2: Double reflexes in some zone A languages (cf. Guthrie 1967; 1971)

	*p/_V	*p/_VV	*t/_V	*t/_VV	*k/_V	*k/_VV	*b	*d	*g
Lundu A11	*Ø*	*p*	*l*	*t*	*Ø*	*k*	*ɓ*	*Ø*	*k*
Duala A24	*w*	*p*	*l*	*t*	*Ø*	*k*	*ɓ*	*Ø*	*k*
Basaa A43a (C_1)	*h*	*p*	*Ø*	*t*	*(h)*	*k*	*ɓ*	*(l)*	*k*
Bulu A74a (C_1)	*v, h*	*f*	*l*	*t*	*Ø*	*k*	*b*	*y*	*k*
Yambasa = Gunu A622	*h*	*f*	*d*	*t*	*g*	*k*	*b*	*n*	*Ø*

Two points should be noted at this stage. First, in Table 2 only voiceless stops exhibit double reflexes, although **d* in Basaa is mentioned as alternating between /l/ and Ø (this is what Guthrie's brackets mean). However, the account is not complete, even on Guthrie's own terms. For Yambasa A622,[5] a closer examination of the data shows that the three voiced proto-stops also exhibit double reflexes namely: **b* > *b / f*, **d* > *l / n* and **g* > *k / Ø*. We return below to the situation in Mbam (to which Yambasa belongs) and show that for voiced proto-stops some conditioning factor can be detected, which also holds for double reflexes of **d* in Basaa.

Second, as far as the labial and dorsal voiceless stops are concerned, the difference between the two sets can definitely be seen as one of "strength", as discussed below. The reflex in front of *V is mostly Ø, or a glottal or a glide (in two cases a voiced fricative or stop), whereas the reflex in front of *VV is a voiceless stop or at most a voiceless fricative. The case of the coronal stop is rather different, however. It is not so obvious that the lateral should be considered as a "weak"

[5]Judging from Guthrie (1953), the Yambasa data come from his own field notes. 'Yambasa' is of course a cover term, but judging from the material appearing in *Comparative Bantu* (Guthrie 1967; 1970a,b; 1971), his source is probably Gunu A622.

form of a voiceless stop and furthermore there appears to be a possibility of overlapping with the reflexes of **d*, a subject which we discuss at greater length later on.

The main support for Guthrie's hypothesis on the existence of double reflexes came from John Stewart. In several articles (Stewart 1973; 1975; Stewart & Van Leynseele 1979; Van Leynseele & Stewart 1980; Stewart 1983; 1989) he attempted to demonstrate that Proto-Bantu had two series of stops (voiced as well as voiceless), which he termed "lenis" and "fortis" respectively. The proposal emerged from his work on the reconstruction of Potou-Tano (aka Potou-Akanic or Greenberg's Akan), a branch of the Kwa languages spoken in Ghana and Ivory Coast, comprised of the Lagoon languages Cama (Ebrié) and Mbatto on the one hand and the Akanic languages (Anyi-Baule, Ahanta, Fante, etc.) on the other. As the Potou languages retain a contrast between stops that Stewart analysed as "fortis" and "lenis" respectively (in Cama for both voiced and voiceless series, in Mbatto reduced to voiced stops only), he reconstructed those sounds for the group's ancestor language, although the Akanic branch shows no evidence for them.

In his contribution to the *International Colloquium on the Bantu Expansion* held in April 1977 (published as Van Leynseele & Stewart 1980), Stewart seems to have put forward for the first time the hypothesis that the Bantu double reflexes correspond to the *fortis*/*lenis* contrast, which he had reconstructed for Volta-Congo, i.e. the most recent common ancestor of Kwa and Benue-Congo. Note that this included more double reflexes than Guthrie admitted. As we saw in Table 2, Guthrie did not posit double reflexes for reconstructed voiced stops, apart from the marginal case of Basaa. On the other hand, for Nen, the main focus of their contribution, Van Leynseele & Stewart (1980: 428) had the following Table 3 in which "lenis" stops are preceded by an apostrophe.

Table 3: Double reflexes in Nen (Van Leynseele & Stewart 1980: 428)

*'p	*p	*'t	*t	*'k	*k	*'b	*b	*'d	*d
h	f	l	t	Ø	k	f	b	n	l

Present in their analysis was the notion that *fortis* and *lenis* consonants generally tended to harmonise at C_1 and C_2 positions (Van Leynseele & Stewart 1980). Stewart (1989) attempted to synthesise his position with Guthrie's long vowel contrast, so that a long vowel tended to produce long (i.e. "fortis") stops both preceding and following it.

The definition of "fortis" and "lenis" has been the object of considerable debate in phonology (perhaps particularly diachronic phonology) of which an enlight-

ening and very complete summary is to be found in Honeybone (2008). Without entering the discussion, it might be said that many authors would entertain the following approximative hierarchy from "strongest" or most "fortis" to "weakest" or most "lenis": voiceless stops > voiced stops > (voiced or voiceless) fricatives > approximants > zero. Using labials as examples, the hierarchy would be p > b > β > w > Ø, or alternatively: p > ɸ > h > Ø. This is of course a simplification and a more complete chart can be found in Hock (1991: 83).

Although airstream mechanisms are not often mentioned in such hierarchies, Stewart (1993) considers, on the basis of realisations in Cama, that the most probable phonetic definition of his two series was the following (for labials): voiceless "fortis" = [pʰ] (aspirated voiceless plosive); voiceless "lenis" = [p] (voiceless plosive); voiced "fortis" = [b] (voiced plosive); voiced "lenis" = [ɓ] (voiced implosive). Hence, the hierarchy would be as follows: pʰ > p > b > ɓ > β > w > Ø.

At the same time, Stewart (1993) proposed that plain voiceless and aspirated series merged in PB to plain voiceless[6], e.g. *p, whereas the implosive and plain voiced stops merged to implosives, e.g. *ɓ, thus in effect disposing of double reflexes in Bantu! This was due to the detailed criticism of Guthrie's position in Janssens (1991), according to whom the distribution of double reflexes was in fact not conditioned by vowel length but mostly by the diachronic presence of a nasal prefix. Stewart (1993) still maintained the question of "consonantal harmony" with the source being now attributed to C_1, since this is where nasal prefixes could have produced "fortis" stops. A PB voiced C_2 consonant would then devoice if C_1 was "fortis" (i.e. diachronically pre-nasalised). Janssens (1991) was much more hesitant on this point.

In reaction to Stewart's earlier proposal, several authors had expressed either their (partial) approbation (Nsuka-Nkutsi 1980; Hedinger 1987; Bancel 1988) or more decisively their opposition (Blanchon 1991; Janssens 1991; 1993). Summing up the latter's arguments, one can posit three main objections to Stewart's hypothesis:

a. no consonant harmony at C_1 and C_2 can be statistically established (Janssens 1991; 1993);

b. many languages exhibit variants for the same lexeme with both "fortis" and "lenis" reflexes (Blanchon 1991; Janssens 1991; 1993);

[6]Note that in later publications (e.g. Stewart 2002), while still retaining two series, he again regarded all the voiceless stops (in C1 position) as implosives. Due to the importance of Stewart's conceptions, we will discuss them at length in §3.

c. there is no correspondence between languages: for the same root some languages have "fortis" for "lenis" and vice-versa (Janssens 1993).

After a careful examination of the evidence I reach the following assessment of the objections presented above:

a. Objection a. is now uncontroversial and Guthrie's attempt to link the putative harmony to vowel length is spurious, in spite of Stewart's (1989) attempt to salvage it;

b. Objection b. is certainly supported by a reasonable number of examples. However, the fact that each language can make use of and reorganise a phonemic opposition for its own needs (reanalysis, morphological levelling, etc.) does not necessarily invalidate the diachronic origin of this opposition;

c. As for objection c., I argue in this chapter against Janssens (1993) that there is in fact a rather high degree of correspondence between the forms exhibited by different languages – amounting in some cases to striking identity.

2 Double reflexes in zone A: Synchronic variation

Let us now turn to the distribution of double reflexes in zone A languages. Here the Mbam languages stand out against the rest. For most languages of our area, PB voiced stops are not concerned by any duality of reflexes, apart from **d* in Kpa A53 and a couple of other languages. In Mbam, however, all PB stops exhibit some duality of reflexes, with the partial exception of PB **t* which is only affected in Nen – see also Appendix B for a list of reflexes of **t* and **p* in Nen vs. Maande. Nonetheless, for the PB voiced stops, this duality of reflexes can be shown to be largely conditioned by the tone of V_1 (since we are only concerned here with C_1 reflexes). The first mention of this tonal conditioning in Nen is to be found in Botne (1992b),[7] which is an important contribution, but rather overshoots its target. It claims that a similar tonal conditioning also explains the double reflexes in voiceless stops, which is not supported by the evidence at my disposal. For the voiceless stops, different possible types of conditioning are examined here and I conclude that the evidence robustly confirms the validity of double reflexes only for the voiceless coronal stop **t*. I attempt to show that these cannot be traced to

[7] Teil-Dautrey (1991a) had already observed it in Basaa.

an opposition in PB, but developed during the course of the phonological evolution of certain sub-groups.[8]

2.1 Reflexes of voiced stops

As seen above, Stewart recognised that in Nen, the only Mbam language he dealt with, even voiced stops had an opposition between 'fortis' and 'lenis' and thus yielded different reflexes:[9] **b* > *f* vs. **ɓ* > *b*[10] and **d* > *l* vs. **ɗ* > *n*; **g* and **ɠ* would have merged very early in PB and thus left no duality of reflexes (cf. Van Leynseele & Stewart 1980). He was not struck by the fact that the different reflexes were also largely correlated with a difference in the tone of the following vowel. In fact, he paid very little attention to tone as can be seen in several correspondences he proposed. If he had, he might have been put on the track by his own example set (11) in Stewart (1989), where he clearly set out that Akan /ɲ/, or /y/ in non-nasal contexts, corresponds to PB **d* followed by L, whereas Akan /d/ corresponds to PB **d* followed by H.

It is indeed the case that the duality of reflexes for voiced stops is in good part conditioned by the tone of the following vowel, as well established by Botne (1992b) for Nen. Since **g* is not involved, the situation must be evaluated for **b* and **d*. A very important difference must be noticed at the outset. **d* is affected throughout the Mbam languages; furthermore, the same situation obtains in Basaa and a couple of other north-western languages. On the other hand, **b* undergoes this tonally-conditioned split in part of the Mbam group only, and this fairly independently of internal sub-divisions. Tuki and Gunu do not seem affected, albeit Gunu is otherwise a fairly close congener of the Yambasa sub-group consisting of Yangben, Mmala, Elip and Baca. The other outlier of Yambasa, i.e. Mbule, would also seem not to be affected, but this is a very little-known language and the available data are meagre.

Since the situation appears to be due to some tonal conditioning, it does not concern double reflexes which by definition should not be conditioned. I will thus

[8] I will adopt for the synchronic data a broad phonetic transcription, following the IPA with the exception of <y> instead of IPA [j], as is the usual practice for most Africanists.

[9] I will treat pre-nasalised stops as unit phonemes and deal with them only sporadically, since they do not exhibit any duality of reflexes. They are mostly "fortis" and only rarely subject to weakening. I am of course aware of the extensive discussion in general phonology about the phonemic status of such pre-nasalised sounds and will decline to enter it here. A good review is Downing (2005), among others. My decision to treat them all – including voiceless pre-nasalised stops – as units is a purely practical one since it makes the statement of correspondences much simpler.

[10] Stewart took pains to explain that he did not consider Nen reflexes as exhibiting a "fortis"/"lenis" distinction, but that it only applied to the proto-phonemes

not delve too deeply into this fascinating and puzzling situation here. I will only chart the reflexes of the various proto-phonemes in the languages concerned and exemplify the case of *d in Basaa and Kpa, with a complement on Kwakum.

Note that in Nen and Maande the bilabial stop can be realised indifferently voiceless or voiced. There appears to be no social or regional conditioning since even individual realisations are in free variation. I always transcribe <p>. In Yambeta, I transcribe as pronounced, because the realisation is conditioned by context: [p] initially and finally, [b] intervocalically. See Table 4.

Table 4: Tonally-conditioned split of *b and *d in zone A languages

	*b + L	*b + H	*d + L	*d + H
Nen A44	f	p	l	n
Maande A46	f	p	l	n
Yambeta A462	Ø	p ~ b	l	n
Tuki A601	b	b	ɾ	n
Gunu A622	b	b	l ?[a]	n
Yangben A62A	Ø	p	l	n
Mmala A62B	Ø	b	l	n
Elip A62C	h	b	l	n
Baca A621	f ~ h[b]	p	l	n
Mbule A623	p	p	l ?	n
Basaa A43a	ɓ	ɓ	Ø	l
Fa' A51	ɓ	ɓ	l	ɗ
Kpa A53	ɓ	ɓ	r	l ~ ɗ[c]
Kwakum A91	b	b	l	d

[a] Few valid examples.
[b] Very few examples: 1 case of /h/, 2 of /f/.
[c] ɗ/__i / u, l elsewhere.

As detailed example, Basaa and Kpa reflexes of *d before H and L are listed in (1) and (2) respectively.[11]

[11] I give code numbers for both Guthrie's Comparative Series (C.S., cf. Guthrie 1970a,b) and Tervuren's Bantu Lexical Reconstructions, version 3 (BLR, cf. Bastin et al. 2002).

(1) Basaa A43a and Kpa A53 reflexes of **d* before H

a. * *dáád* 'sleep' (C.S. 455, BLR 795) > *lâl* (A43a), *lál* (A53)
b. **dém*[12] 'be crippled' (C.S. 531, BLR 914) > *lɛ́m* (A43a), *kɨ̀-lɛ́m* 'lameness' (A53)
c. **dɔ́ɔ́k* 'vomit' (C.S. 695, BLR 1179) > *lɔ́* (A43a), *lóó* (A53)
d. **dámb* 'cook' (C.S. 486, BLR 842) > *lámb* (A43a), *lám* (A53)
e. **démà* 'bat' (C.S. 532, BLR 916) > *ǹ-lɛ̀ɛ́m̀* (A43a), *kɨ̀-lɛ́m* (A53)
f. **dó* 'sleep' (C.S. 633, BLR 1080) > *hì-lɔ́* (A43a), *fɨ̀-ló* (A53)
g. **dóbò* 'fish-hook' (C.S. 640, BLR 1093) > *ǹ-lɔ́p* (A43a), *fɨ̀.lɔ́p* (A53)

(2) Basaa A43a and Kpa A53 reflexes of **d* before L

a. **dà(i)p* 'be long' (C.S. 504, BLR 784/873) > *àp* (A43a), *ràp* (A53)
b. **dìd* 'cry' (C.S. 561, BLR 959) > *èɛ̀* (A43a), *rèn* (A53)
c. **dòg* 'bewitch' (C.S. 644, BLR 1100) > *ɔ̀k* 'curse' (A43a), *rɔ̀ʔ* 'poison' (A53)
d. **dìtò* 'heavy' (C.S. 631, BLR 1076) > *yèr* / *gwèr* 'weight' (A43a), *rìʔ* (A53)
e. **dògù* 'wine, beer' (C.S. 649, BLR 1108) > *màɔ̀k* (A43a), *mʌ̀rɔ̀ʔ* 'palm wine' (A53)
f. **dèdù* 'beard'[13] (C.S. 519, BLR 897) > *lìy=èé* (A43a), *fɨ̀rēē* (A53)
g. °*dìmbà* 'witchcraft'[14] > *lìèmb* (A43a), *mʌ̀.rèm* (A53)[15]

In (3) are the only two exceptions I found to the tonal conditioning illustrated in (1) and (2), interestingly attested in both languages[16] with /l/ where Ø/r would be expected.

[12]Upon request by the editors, I adopt here the PB vowel notation system of BLR, i.e. /i, ɪ, e, a, o, ʊ, u/, for reasons of uniformity across the volume. Personally, I consider the /i, ɪ, ɛ, a, ɔ, ʊ, u/ transcription preferable, because closer to the phonetic reality of many present-day Bantu languages.

[13]Although both Guthrie and BLR give a LL tone pattern for this stem, the Basaa and Kpa data indicate LH.

[14]Although not reconstructed by Guthrie nor BLR, this is a very widespread stem in north-western Bantu, found even in Mankon (Eastern Grassfields).

[15]If the meanings can be shown to fit, this is possibly another case: **dègɪd* 'be slack' (C.S. 523, BLR 902) > *y=èɡɛp* 'be dejected' (A43a), *rʌʔ* 'soften' (A53).

[16]The same exceptions are found in Mbam alongside several others, with /n/ instead of /l/.

(3) Exception to tonal conditioning of **d* reflexes in Basaa A43a and Kpa A53

a. **dɔ̀d* 'be bitter' (C.S. 684, BLR 1162) > *lɔ̀l* (A43a), *lɔ̀l-ɛn* (A53)

b. **dòŋgò* 'kinship' (C.S. 665, BLR 1135) > *lɔ̀ŋ* 'country' (A43a), *kɨ̀-lɔ̀ŋ* 'village' (A53)

Teil-Dautrey (1991b) also mentions **dà* 'intestine' (C.S. 442, BLR 773) > *ǹ-là* (A43a) and **dàdà* 'grandchild' (ps. 145,[17] BLR 798) > *ǹ-làlà* (A43a). She suggests that the cl. 1 and 3 prefixes might explain the retention of /l/; neither stem is found in the available Kpa data. Teil-Dautrey (1991b) also has the exception *lɛ̀l* 'rock baby' (A43a) < **dèd* (C.S. 510-1, BLR 882), which is not attested in my Kpa database. The first two exceptions at least are also found in Mbam: Maande *nɔ̀ɔ̀-nà* and *ɔ̀-nànà*.

The tonal conditioning in Basaa was first mentioned by Teil-Dautrey (1991a,b), but she did not refer to the Kpa correspondences. She points out that whereas the influence of the [+voice] feature in consonants on the emergence of L tone is well-known, we seem to be faced here with the reverse influence, i.e. the tone of the vowel determines the segmental realisation.

Note that in Basaa, the last stage (Ø) must be fairly recent, since an empty onset subsists as can be seen with the cl. 5/6 prefixes, for instance: *lì-ɛ̀mb* 'witchcraft', *mà-ɔ̀k* 'palm wine'. Conversely, the deletion of **k* must be ancient, since the result is always identical with vowel-initial stems,[18] e.g. **kɔ́mì* 'ten' (C.S. 1208, BLR 2027): *ʤ-ŏm / m-ŏm* (A43a), and not ***lì-óm / mà-óm*. In spite of the fact that the tonal conditioning does not qualify the results as double reflexes, the question of the reflexes of **d* will have to be considered further on, alongside those of **t* due to the partial overlap between them.

I must add one tantalising fact, which cannot be pursued further with the available data. Kwakum offers a handful of cases which might be related to what has just been discussed. In this language, the regular reflex of **d* is /d/ in front of [−high] vowels, as shown in (4).[19]

(4) Kwakum A91 reflexes of **d* before [−high] vowels

a. **dɔ́mɛ̀* 'male, husband' (C.S. 697, BLR 1182-3) > *ǹ-dóm / à-dóm*

b. **dímɛ̀* 'tongue' (C.S. 571, BLR 971) > *dém*

c. **dó* 'sleep'(C.S. 633, BLR 1080) > *dɔ́*

[17] The abbreviation "ps." in Guthrie stands for "partial series", not well-supported and more tentative.

[18] Meaning those written with initial **y* by Guthrie. Cf. Wills (2022 [this volume]) for discussion.

[19] It is /ʤ/ in front of [+high, −back] vowels; the only example of **d* in front of a [+high, +back] vowel is given in (5), i.e. **dùt* 'pull'.

However, I found five examples where the reflex is /l/ and they are all followed by L tone, as shown in (5).

(5) Kwakum A91 reflexes of **d* before L

a. **dògù* 'wine, beer' (C.S. 649, BLR 1108) > *ǹ-lòkù*
b. **dùt* 'pull' (C.S. 749, BLR 1267) > *lùt-ɔ̀*
c. **dìd* 'cry' (C.S. 561, BLR 959) > *lèn-ɔ̀*
d. **dìmbà* 'witchcraft'[20] > *ì-lèmbɔ̀*
e. **dà(i)p* 'be long' (C.S. 504, BLR 784/873) > *làw-áàwɛ̀*

The number of L stems beginning with **d* is rather limited, but I found one exception and it is identical to one of those cited above for Basaa and Kpa (and Mbam), i.e. **dɔ̀d* 'be bitter' (C.S. 684, BLR 1162) > *dòl-áàwɛ̀*.

I have no explanation to offer for this apparently shared evolution, but contact seems out of the question, since Kwakum is spoken far to the east. In spite of the very deficient information, it would seem that the closely related Seki B21 shares this characteristic with Kwakum A91. The reflex of **d* is /d/ before H-tone vowels, but we also find /l/ in front of L-tone vowels, as illustrated in (6). The matter should be further investigated.

(6) Seki B21 reflexes of **d* before L

a. **dìd* 'cry' (C.S. 561, BLR 959) > *lèl-ɔ*
b. **dìb(ad)* 'forget' (C.S. 556a, BLR 953) > *lèb-idye* (cf. Kwakum *lèè-ʃaa* ?)
c. **dòg* 'bewitch' (C.S. 644, BLR 1100) > *lɔ̀kɔ* (not attested in Kwakum)

Apart of course from the Mbam languages mentioned above in the case of **b*, **b* and **g* do not exhibit this tonal conditioning. For one, as established by Teil-Dautrey (2004), **g* at C_1 is practically always followed by a L-toned syllable. For instance, in Guthrie's Common Bantu list with more than 170 stems with C_1 **g*, only 30 appear with a H-tone first syllable. Of those, six are likely to be vowel-initial stems where the **g* appears as an artefact of Guthrie's method (cf. Wills (2022 [this volume])); seven are "osculant" (cf. Bostoen 2001; Ricquier & Bostoen 2008; Bostoen & Bastin 2016) with an initial **k* as alternative (and one with **b*). This would leave us with a bare dozen, hardly 10% of the total with **g* + H.

For **b*, Teil-Dautrey (2004: 153–155) finds that for verbal roots there are twice as many reconstructions where the voiced bilabial C_1 is followed by a H than by

[20] See footnote 14.

a L tone. She then attributes this imbalance to the fact that **b* was probably an implosive [ɓ][21] whose affinity for H tone is well-known. Indeed, many languages in the north-west have a [ɓ] realisation for **b*, even if it appears in complementary distribution with [b] in some languages, for instance Duala where **b* > [ɓ], except for **b* /__*i*, *u* > [b]. There are thus no traces of unconditioned double reflexes here.

2.2 Reflexes of voiceless stops

Turning now to the reflexes of voiceless stops, we see here a rather different situation. As the best case for double reflexes can be made for **t*, we examine it first.

Apart from Nen A44,[22] all Mbam languages as well as Bubi A31 and the Kwakum group, i.e. Kwakum A91, Seki B21 and Kako A93,[23] regularly have /t/ as the reflex of **t* in C_1 position. In part of the Yambasa A62 group, the reflex is voiced /d/. Since those languages either have no voice contrast for the stops, or else only voiced stops in reflexes of inherited vocabulary, I hold the voicing to be secondary. Selected examples of reflexes of **t* are given in (7). As (7d) illustrates, Northern Bubi and Kwakum manifest a tendency for palatalisation in front of the close front vowel **i*.

(7) Reflexes of **t* in the Mbam, Bubi, Kwakum and Yambasa groups

a. **tímà* 'heart' (C.S. 1738, BLR 2895) > *ʊ̀-tím* (A62A), *ʊ̀-dím* (A62C), *bò-tébá* (A31a), *mò-témá* (A31c), *témɔ̀* (A93, B21) (with Ø-prefix of cl. 3 NP)

b. **tʊ́m* 'send' (C.S. 1831, BLR 3055) > *tʊ̀m* (A62A), *dʊ́m* (A62C), *tòbá* (A31a), *tóm-à* (A31b), *tôm* (A91), *tom-u* (A93) [tones uncertain]

c. **támbò* 'trap' (C.S. 1661, BLR 2766) > *ì-dám* (A462), *ì-támbú* (A601), *bò-tápɔ̂* 'fish-trap sp.' (A31a), *ì-tàáˈmbɔ́* (A91)

d. **tíg* 'leave' (C.S. 1746, BLR 2910): *ʧíʔ-à* (A31a), *ʧíˈk-ɔ́* (A91), cf. *tsík-ɔ̀* (B21)

[21] Grimm (2019) queries the existence of genuine implosives in some of the north-western Bantu languages and considers the sounds as pre-glottalised explosives instead. While her reasoning is quite sound and she provides good instrumental evidence to support her point, Greenberg's (1970) conclusion, i.e. that there is no contrast between implosives and pre-glottalised voiced consonants in any language described, still stands. I will just stick to the traditional definition of those sounds as implosives here.

[22] See Appendix B for a list of reflexes of **t* and **p* in Nen vs. Maande.

[23] Recall that I put Polri A92a, and tentatively its close relative Pomo A92b, in the Nyong-Dja group with the A80 languages.

The other languages show two distinct reflexes for C_1 *t, either a strong /t/ or a weak lateral/zero, partly with clear conditioning. In front of the highest vowels *i and *u, the normal reflex is strong /t/ in Bafia, Sawabantu, Manenguba, Basaa, Beti and Nyong-Dja, as shown in (8), with partial exceptions in Beti (group 7, cf. §1.1) and Nyong-Dja (group 8, cf. §1.1), which are discussed below. A couple of exceptions should be noted, which appear with the weak reflexes before *i and *u. We also discuss them later on.

(8) Strong reflexes of *t in north-western languages other than in (7)

a. *$túúb$ 'pierce' (C.S. 1860, BLR 3100) > $túβá$ (A11), $túɓà$ (A24), $tú$ (A13), $túp$ (A15C, A53, A72a), $tóp$ (A43a), $túw$ (A63), $túbɔ̀$ (A832)

b. *$túúdì$ 'shoulder' (C.S. 1862, BLR 3103, 3987) > $è$-$túɾì$ (A11), $è$-$túlì$ (A22), $è$-$tû$ (A141), $è$-$tút$ (A43c), $è$-$túù$ (A75A)

c. *$tìd$ 'write'[24] > $tìl$-$à$ (A32C), $tìl$ (A44a, A13), $tèl$ (A15C), $tìlè$ (A842)

d. *$tínd(ɪk)$/*$tíínd(ɪk)$ 'push' (C.S. 1758, BLR 2933-4) > $índɛ̀$ (A11, A43a), $índìy$ (A33a), $tíî$ (A15B), $tínd$ (A63), $tín$-$lɔ̀$ (A92a)

The southern Nyong-Dja languages, i.e. Gyeli A801, Shiwa A803 and Kwasio A81, are affected by BF, which produces affricates in front of high vowels. Since this affects all stops it is better left for a special treatment. The same applies to the southern Beti varieties, e.g. Atsi A75D. On the other hand, all other Beti languages (except A63?) have *t/__*i > $ʧ$ ~ $ʦ$, e.g. *$tíítʊ́$ 'animal, meat' (C.S. 1767, BLR 2952) > $ʦít$ (A75A), $ʦít$ (A72a), $tít$ (A63). Similarly, *d/__i > $ʤ$ ~ $ʤ$ in the same languages, but there is no affrication before *u. So, the process is probably not to be seen as an instance of BF but rather of palatalisation, followed by a fronting to [+ant], a rather frequent phenomenon universally.

Other than in front of *i and *u, the normal reflex of C_1 *t is not strong /t/, but a variety of weaker reflexes, including, the weakest of all, i.e. Ø, as shown in (9). The most widespread reflex is a lateral; two Sawabantu languages, i.e. Kpe A22 and Bubia A221, have *t > *l > Ø.

(9) Weak reflexes of *t in north-western languages other than in (7)

a. *$tʊ́m$ 'send' (C.S. 1831, BLR 3055) > $lóm$-$à$ (A11, A24, A25), $óm$-$à$ (A22), $lóm$ (A13, A15C), $lôm$ (A75A, A72a), $lúm$-$ɛ̀$ (A801)[25], $lɔ̀m$-$ɔ$ (A92a)[26]

[24] *$tìd$ 'write' is not reconstructed but widespread in the area.

[25] Although synchronically 7V languages, the southern Nyong-Dja have mostly merged *$ʊ$ with *u and *$ɪ$ with *i, which parallels the development of BF.

[26] Polri A92a tones are as given by Wéga Simeu (2016).

b. **tʊ́nd* 'be full' (C.S. 1840, BLR 3067) > *lónd-à* (A11, A24, A25), *ónd-à* (A22), *lón* (A13, A15C), *lód-àl* (A85b), *lónd-ɔ́lɔ̀* (A86c), *lúnd-à* (A801)

c. **téndé* 'palm tree' (C.S. 1712, BLR 2849) > *lɛ́ndɛ́* (A24, A25), *lə-lɛ́nd* (A63), *à-lə́n* (A75A), *è-lén* (A842), *lè-lɛ́ndɛ́* (A801)

d. **táŋg* 'read, count' (C.S. 1672, BLR 2786) > *láŋg-à* (A11, A32C, A24), *láɣ-à* (A25), *láŋ* (A13, A15C, A63), *lá-à* (A85b, A842), *làŋg-lɔ* (A92a)

e. **tímà* 'heart' (C.S. 1738, BLR 2895) > *mɔ̀-lémà* (A11, A33a), *ŋm-émà* (*ŋm* < *mw-*) (A22), *ǹ-lémà* (A25), *ǹ-lém* (A13, A15C, A75F), *límə* (A803)

f. **tóŋg* 'crow (rooster), sing, whistle, etc.' (C.S. 1793, BLR 2994) > *lɔ́ŋg-ɔ̀* (A32C, A24, A25), *lɔ́ŋ* (A15C, A71), *lwaŋ* (A81)[27]

However, the Basaa group (A41-3) and Kpa A53 have the weak reflex of **t* as Ø and /r/ respectively, which is identical to the reflex of **d* before a L tone vowel (cf. §2.1). Note, though, that Fa' A51, which is very closely related to Kpa, has /l/ as reflex of **t*. Not all Basaa stems are attested in Kpa. See the examples in (10).

(10) Weak reflexes of **t* in the Basaa group (A41-3) and Kpa A53

a. **tʊ́m* 'send' (C.S. 1831, BLR 3055) > *ɔ́m* (A41, A43a), *rómɲ̀* (A53)

b. **tímà* 'heart' (C.S. 1738, BLR 2895) > *ŋ̀-ɛ́m* (A43a) *ǹ.ɗém* [28]/*mʌ̀-rém* (A53)

c. **támbò* 'trap' (C.S. 1661, BLR 2766) > *ɔ̀-ám* (A43b), *fɨ̀-rám* (A53)

d. **tóŋg* 'crow (rooster), sing, whistle, etc.' (C.S. 1793, BLR 2994) > *ɔ́ŋ* (A43a)

e. **táŋg* 'read, count' (C.S. 1672, BLR 2786) >*áŋ* (A43a)

Table 5 summarises the partially overlapping correspondences for **d* and **t*. Note that I have adopted a conservative position in considering that the C_1 reflex of **d* in Manenguba and Beti is a palatal or palato-alveolar. In other languages, where similar sounds appear they can be shown to be (originally!) epenthetic onset-fillers. It is probable that we might have the same situation in Manenguba and Beti, but a detailed examination of the problem would require a chapter of its own.

Nevertheless, most striking is a third group, where the reflex of **t* is strong /t/ without any apparent conditioning. These items are not extremely numerous, as

[27]No tones are available for Kwasio A81.

[28]The reflex of "lenis" **t* after syllabic nasal is /ɗ/. The normal /r/ reflex is visible in the plural.

Table 5: Weak reflexes of C_1 *d and *t in some north-western languages

	*d	*t
Nen A44	l	l
Maande A46	l	t
Elip A62C	l	d
Lundu A11	Ø	$ɾ$
Duala A24	Ø	l
Kpe A22	Ø	Ø
Oli A25	Ø	l
Bubi A31	l	t
Balong A13	y	l
Akoose A15C	$ʧ$	l
Mkaa A15C	$ʤ$	l
Basaa A43a	l ~ Ø	Ø
Fa' A51	$ɗ$	l
Kpa A53	l ~ r	r
Ewondo A72a	y	l
Gyeli A801	Ø	l
Kwakum A91	d (~ l)	t

shown in (11), but they are quite consistent between groups. In (11), I also mention the few deviations.[29]

(11) Unexpected strong reflexes of *t without any conditioning

a. *$táánɔ̀/ɔ̀$ 'five' (C.S. 1662, BLR 2768 & 2769) > $tâ$ (A11), $tá$ (A122), $tánù$ (A24), $táà$ (A22), $táàn$ (A15C, A53), $tánɔ̀$ (A32C, A33a), $tân$ (A43a, A75A), $tán$ (A71), $tɛ̂n$ (A84), $tánɛ̀$ (A801); only Nen has /l/, i.e. $lánɔ̀$ (compare *$tátɔ̀$ 'three' for which all the languages mentioned have the weak reflex)

b. *$tòòg$ 'boil up, bubble up' (C.S. 1777, BLR 2966-7) > $tɔk$-$ɔ́$ (A13), $tɔ̀$ (A24, A25), $tɔ́$ (A22), $tɔ̀k$-$ɔ̀$ (A32C, A33a), $tɔ̀k$ (A15C, A75F), $twà?$ (A842), $tɔ̀g$-$ì$ (A86c)

[29]Nen, the only Mbam language to have double reflexes of *t, sometimes does not coincide with the other languages. This plus the fact that the phenomenon is absent from its close relative Maande raises the question of the origin of the split in Nen, which might be a recent innovation.

c. **tʊ́ʊ́bá* 'six' (C.S. 1815, BLR 3034) > *mù-tóɓá* (A24), *mò-tóβá* (A22), *ǹ-tóɓá* (A25, A32C), *ǹ-tóóp* (A15C), *tóbó* (A842), *n-tùɔ́* (A801)

d. **tédam* 'stand' (C.S. 1692½, BLR 2816) > *tíním* (A44), *té(mè)* (A22, A24, A25, A32C, A33a), *tyéè-m* (Akoose A15C), *téé-bé* (Mkaa A15C), *tél-è* (A43c), *tél-êp* (A42a), *tél-ê* (A75A), *tél-î* and intr. *té-bê* (A71), *tə́l-ì* (A803), but note *rél-ɨ̀* (A53) with the weak reflex

e. **tóná* 'spot, speckle' (C.S. 1785, BLR 2976) > *dì-tɔ́nɔ́* (A11), *tɔ́n/mà-tɔ́n* (A24), *à-tɔ́n* (A15C, A72a), *lì-tɔ́n* (A43a), *à-twán* 'pimple' (A75A), *è-tɔ́n* (A85b), *à-tɔ̄nī* (A86c)

Other items exhibiting the same correspondence are less well represented, not because of contradictory data, but because they happen not to be present in all groups, as shown in (12).

(12) Unexpected strong reflexes of **t* without any conditioning

a. **tónd/*tóónd* 'desire' (C.S. 1788, BLR 2980) > *tɔ́ndɔ̀* (A24, A25, A32C, A33a), *tɔ́ndâ* 'worship' (A43a) [Sawabantu and Basaa]

b. **támbí/*táámbí* 'sole of foot, shoe' (C.S. 1659, BLR 2761) > *è-támbí* (A12, A24), *ì-támbí* (A22), *támbí* (A25), *à-támbé* (A15C), *támb* (A43a) [Sawabantu, Manenguba and Basaa]

c. **tòdú*[30] 'navel' (C.S. 1776, BLR 2965) > *mù-tɔ̀dì* (A24), *ǹ-tɔ̀lì* (A25), *ì-tɔ́ɗù* (A32C), *twôl / mò-* (A832), *twə́lì ~ twélì* (A803) [Sawabantu and Nyong-Dja]

d. **tèk* 'become soft' (ps. 434, BLR 2827) > *tə̀ʔ* (A75A), *tɛ̀kˀ* (A63) *tyɛ̀ʔ* (A842), *tàk* (A83) *tiaˤ* (A81), but note *rʌ̀ʔ* (A53) with the weak reflex [Beti and Nyong-Dja]

e. **tàndá* 'invertebrate: spider; spider's web' (BLR 9730)[31] > *è-tàndà* (A122), *è-tàndá* (A24, A22, Mkaa A15C), *tàndá* (A25), *è-tàndó* 'insect sp.' (A43C), *tàndí* 'grasshopper' (A43a), *ì-tàndág* (A63), *ǹ-tàntà / bì-n-tàntà* 'grasshopper' (A803), but *è-làndànì* (A32C) and *è-làndì* (A33a) with the weak reflex [Sawabantu, Basaa and Nyong-Dja]

[30]The tones reconstructed by Guthrie are suspect: they are only supported by the Ngiri C30 languages and Mongo C61. The Abo A42 form given by Guthrie is not cognate but is a reflex of **kóbú* (C.S. 1098, BLR 1865). The tone patterns of zone A languages point to LL or HL. Note also the V_2 differences.

[31]**tàndá* is not reconstructed by Guthrie.

f. **tààtá* 'father' (C.S. 1686, BLR 2806) > *tátà* (A11), *tàtá* (A122), *táà* (Mkaa A15C), *tàtá* (A43b), *tàtâ* (A43a), *tààtá* (A53), *tàdá ~ tàrá* (A71), *tá* (A801)[32]

As shown in (13), I found only one clear example where the reflexes differ sharply among groups, i.e. **tʊ́í* 'ear'.

(13) Mixed strong/weak reflexes of **t* in **tʊ́í* 'ear' (C.S. 1813 etc., BLR 3030)

a. Strong reflex in Sawabantu and Manenguba: *tóì/mà-tóì* (A24) *lì-tóò* (A22), *ì-tóì* (A32C), *ì-tô* (A13), *è-túù* (A15C)

b. Weak reflex elsewhere: *mù-lwə́* (A44), *óó* (A43a), *ì-réè* (A53), *à-lɔ́* (A75A, A92a), *lè-lɔ̂* (A801)

It should be noted that Kpa stands out among our languages, as illustrated in (14). It is the only language that has the strong reflex in a number of other stems. It also does not share many of the previous instances, but this might be due to gaps in the lexical documentation.

(14) Strong reflexes of **t* in Kpa A53 vs. weak reflexes elsewhere

a. **téndé* 'palm tree' (C.S. 1712, BLR 2849) > *rɨ̀-tɛ́n* (A53) vs. *lì-én* (A43c), see also (9)

b. **tʊ́ŋg*/**tʊ́ʊ́ŋg* 'build' (C.S. 1848, BLR 3081) > *tóŋ* (A53) vs. *ì-lóŋgà* (A32C), *óŋ* (A43c), *lôŋ* (A75A), *lóò* (A85b)

c. **tʊ́è* 'head' (C.S. 1800, BLR 3007, 3023) > *ǹ-tó* (A53) vs. *mʊ̀-lʊ́* (A44), *mò-ló* (A32C), *ǹ-ló* (A15C), *ǹ-ló* (A75A), *ŋ̀-ɔ́* (A43a), *lô* (A86c)

d. **tí* 'tree' (C.S. 1729, BLR 2881) > *kɨ̀-té* (A53) vs. *pʊ̀-lí-á* (A44), *βò-ɾé* (A122), *è-é* / *bì-é* (A43c), *è-lé* (A75A), *lé* (A85b)

The reverse situation remains to be considered: weak reflexes in front of [+high] vowels, as exemplified in (15). Here also, the items tend to be the same across groups, although examples are less numerous and often affect some of the groups only, the lexical items in question being unattested in the others.

(15) Weak reflexes of **t* in front of [+high] vowels

a. **tíg* 'leave' (C.S. 1746, BLR 2910) > *y=ék* (A43a),[33] *lík* (A71, A63, A85b), *lîʔ* (A842)

[32] I have added this cognate set, even if I am wary of correspondences in nursery words.

[33] Note that the second-degree vowel in the stem is due to a regular ablaut process (see Hyman 2003a).

b. **túd* 'hammer, forge' (C.S. 1861, BLR 3101) > *lún* (A44), *lúl-è* (A24), *lúù* (A15C), *óó* 'make' (A43a), *lwî* (A72a), *lûl* (A842)

c. **túkɔ̀* 'night' (C.S. 1864, BLR 3105) > *pù-lwɔ́* (A44), *è-lúù* (A33a), *ú / ma-ú* (A43a), *ì-rú* (A53), *a-lú* (A63, A71, A75A), *lè-lû* (A84)

d. **túm* 'stab' (C.S. 1865 & 1866, BLR 3108) > *lúm* 'hit with missile' (A44), *lúmà* 'sew' (A21) (< C.S. 1865, BLR 3107 **túm* 'sew, plait'), *lûm* (A72a), *lúm* (A75F)

e. **˚tí* 'clear forest'[34] > *é*, reflexive *í-βâ* (A43a), *lí* (A71, A75D), *lî* (A72a), *lyɔ̂* (A803), *líyɔ̀* (A801)

The two examples in (16) are the only ones with mixed reflexes among the group. One of them is **tá* 'war', whose frequent reanalysis as **˚yìtá* has sometimes led to the consonant being placed in C_2 position, which is not treated in this chapter. The other one is **tím* 'dig', which is absent from Sawabantu and most of Manenguba.

(16) Mixed reflexes of **t* in **tá* 'war' and **tím* 'dig'

a. **tá* 'war' (C.S. 1630, BLR 2704, 9206)
- Weak in Nen and Sawabantu: *pì-lɔ́* (A44), *bì-lá* (A24), *bì-lá* (A25); as C_2: *b-ɔ́l* (A15A), *gw-ěr* (A43a), *w-ēl* (A53)
- Strong in Beti: *bì-tá* (A72a), *wì-tá* (A63)
- (Not attested in Nyong-Dja)

b. **tím* 'dig' (C.S. 1752, BLR 2918)
- Strong in Nen, Basaa and Kpa: *tímɔ̀* (A44), *tém* (A43a), *tím* (A53)
- Weak in Akoose and Nyong-Dja: *lím* (A15C), *lím-ɔ̀* (A832), *lúm-ɔ̀* (A83), *à-līm-ɔ̀* (A86c)
- (Not attested in Sawabantu and most of Manenguba)

The other two PB voiceless stops offer also some duality of reflexes, but in either a more clearly conditioned or else more haphazard way. We consider **p* first, which has mostly a weak reflex in our area, including Mbam.[35] As shown in (17), the degree of weakening is quite varied, ranging from /f/ to Ø, rather independently of genetic groups, which would tend to indicate that the weakening is somewhat recent.

[34] *˚tí* 'clear forest' is a regional stem reconstructed by neither Guthrie nor BLR.

[35] It is difficult to find Mbam cognates due to the fact that the lexicon of Mbam is rather different from the other languages.

(17) Supposedly weak reflexes of **p*

a. **pínd* '(be) black' (C.S. 1555, BLR 2577) > *índ-à* (A11, A22), *wind-à* (A24), *víndà* (A33a), *fín* (A141, A53), *hín* (A15C), *hénd* (A43a), *vín* (A71), *vínd* (A63), *wind-áá* (A86c), *yìnd-ɔ̀* (A93)

b. **píná* 'pus' (C.S. 1553, BLR 2574) / **pídá*[36] (C.S. 1547, BLR 2565) > *lò-wíná* (A24), *mà-víná* (A32C, A33a), *ò-hín* (A15B), *dì-hên* (A43a), *à-vín* (A72a, A75A), *wínɔ́* (A86c), *è-ɟ=ìnɔ́* (A832),[37] *dì-vínɔ́* (B21), *ro-ia* (A11),[38] *è-hìlá* (A31a), *è-sílá* ~ *è-hílá* (A31b), *è-víl* (A63, A71), *fílɔ́* (A91)

c. **pémb* 'blow nose' (C.S. 1471, BLR 2440) > *bí-fím* (A44), *wémb-è* (A24), *émb-é* (A22), *è-vémb-è* (A33a), *hém* 'blow' (?) (A43a), *à-wʸèmb-ɔ* (A86c), *fʸémb-làà* (A91)

(18a–18d) have as the strong reflex /p/[39] instead of one of the weak reflexes of **p* in (17). (18c–18d) are found in part of the area only. (18e) has an even more restricted distribution and manifests a mix of strong and weak reflexes of **p*.

(18) Supposedly strong reflexes of **p*

a. **pàpá* 'wing' (C.S. 1447, BLR 2410) > *kì-pàpʊ́* (A62A), *di-ɸàɸé* (A11, A22), *è-ɸàɸá* (A122), *pàpá* (A25), *lò-pàpá* (A31), *à-pàp* (A15C), *lì-pàβáy* (A43a),[40] *ɛ-pằp* (A71), *ā-fāp* (A75A), *pàbá* (A803), *pàpɔ̀* (A93)

b. **pìnd* 'plait' (C.S. 1524, BLR 2523) > *pèndà* (A24), *pèn* (A15C), *pèn(d)* (A42), *pèn* (A71), *pʸèn* (A84), *pìndɔ̀* (A803)

c. **pùùpà* 'wind' (ps. 420, BLR 2691) > *m̀-pùpé* (A24), *m̀-pùpê* (A22), *è-pùʔ* (A15A), *pŭp* (A85b), *è-pùbò* and *pùb-lò* 'to blow' (A842), *pfùβ-èlɛ̀* 'blow' (A801), *kì-pùp-ùl* (A91) [not in Basaa, Kpa or Beti]

d. *°pùmá* 'fruit'[41] > *è-ɸùmá* (A11, A12, A22), *è-pùmá* (A24, A32C), *è-pùm* (A15C), *pùmá* 'orange' (A43a),[42] but *è-(h)m̀má* (perhaps [-m̥má]?) in A31a (which would appear to be weak: **p* > *h*) [not in Kpa, Beti, Nyong-Dja or Kwakum]

[36] Meeussen (1976) quite rightly corrected Guthrie's HL tone pattern (cf. Guthrie 1971: 153) to HH.

[37] The /ɟ/ is not a reflex of **p* but an (originally) epenthetic onset-filler. I cannot develop this important point here, but I demarcate those onset-fillers by the equal (=) sign (see also Wills (2022 [this volume])).

[38] Tones are not given in the source.

[39] /ɸ/ in those Sawabantu languages where the weak reflex is Ø. Most Beti languages have /f/ in these items, but this is a recent development, since the northernmost lects Eton A71 and Njowi A63 do have /p/ and the weakening even applies to /p/ < **mp*.

[40] [β] is the reflex of **p* in C_2 position intervocalically.

[41] Not reconstructed by Guthrie nor BLR but obviously related to **bùmá* (C.S. 228, BLR 374).

[42] This Basaa term for 'orange' is quite possibly a loan.

e. **pèèp* 'blow (as wind)' (C.S. 1489, BLR 2469) and **pèèpè* 'wind' (C.S. 1491, BLR 2476)
   - Strong: *pìp* 'fan' (A44), *pìpà* 'winnow' (A601), *dì-ɸèɸè* 'wind' (A122), *pèp* (A13), *è-pàp* 'wind' (A15A), *fəp* (A72a)
   - Weak: *fép* (A53), which however is properly a reflex of **pép* 'blow (as wind); fly; winnow' (C.S. 1487, BLR 2463), cf. *fəbə̀* 'blow with mouth' (A15A) and *vəbə̀* 'breathe' (A75D), see also *pìpà* 'winnow' (A601).

Regarding the items in (18), there is some partial conditioning, in so far as three of these five items have **p* at both C_1 and C_2. Furthermore, they have a meaning linked with air movement for which some ideophonic origin can at least be suspected (cf. the consonant clusters *bl*, *fl*…at the beginning of the English translations). There are about half a dozen more comparative series found in various parts of the Bantu domain with the same **pVp* structure and referring to the same semantic field. In other words, the forms in (18) are at least partly motivated semantically and can therefore not be taken as pure instances of double reflexes. Finally, alternative (i.e. "osculant") reconstructions exists for several items, as shown in (19).

(19) Alternative reconstructions for items in (18) involving **b*
   a. **bàbá* 'wing' (C.S. 6, BLR 11)[43] > *è-ḇăp* (A85b), *lè-mpʸàb* (A832)[44]
   b. **bìnd* 'plait' (C.S. 126, BLR 206) > *mò-βèndà* (n.) (A22), *m̀-ɓèndà* (n.) (A25)[45]
   c. **bùmá* 'fruit' (C.S. 228, BLR 374) > *è-bùmá* (A72a, A75A), *bŭm* (A85a), *bvəmá* (A803) [i.e. in Beti and Nyong-Dja]

In neighbouring and sometimes closely related languages, the three items in (19) exhibit either a strong reflex of **p* or a regular reflex of **b*. We seem to see here some overlap of [+voiced] and [−voiced] stops. I conclude that nothing more can be asserted at this point and that there is no convincing evidence for double reflexes of C_1 **p*.

The case of **k* turns out to be fairly straightforward. In spite of Guthrie's claim (see Table 2 earlier in this chapter), there seems to be no valid evidence for a

[43] This root is attested in the northern Nyong-Dja languages, while the Southern ones have reflexes of **p* as seen in (18).

[44] /ḇ/ and /mp/ are the regular reflexes of **mb* in Bekwel A85b and Kol A832 respectively (Cheucle 2014).

[45] These few reflexes in Sawabantu can only reflect **b*.

contrast between weak and strong reflexes of **k*. Except in Mbam, where the situation is more diverse (cf. infra), the general reflex of **k* is Ø as the examples in (20) demonstrate.[46] As (20f) shows, Basaa has *h* as an onset-filler in a couple of stems (otherwise /h/ < **p*).

(20) Reflexes of **k*

a. **kákà* 'pangolin' (C.S. 991, BLR 1684) > *ì-ʤ=á* (A12, A22), *fè-á* (A13), *wù-y=á?* (A141); other languages have this item in cl. 9 where C_1 **ŋk* > *k*

b. **kádà* 'charcoal' (C.S. 980, BLR 1662) > *m-ǎà* (A24), *m-â-g* (A71),[47] *d-áà* (A85b), *lè-gy=â* (A801), *ì-ʤ=àáˈlɔ* (A91), *dy-álà-kɔ̀* (B21)

c. **kɔ́mì* 'ten' (C.S. 1208, BLR 2027) > *ɗ-ómɨ̀* (A24), *ɾì-y=ómè* (A22), *ʤ-ómɨ̀* (A33a), *dy-ôm* (A141, A15C), *ʤ-ǒm* (A43a), *à-w=ôm* (A72a, A75A), *ɾè-w=úmɔ̀* (A801), *dy-óómù* (B21)

d. **kútà* 'oil' (C.S. 1278, BLR 2138) > *m-ǔlà* (A24, A25), *bù-ùtá* (A31a), *mù-útá* (A31b, A31c), *m-ǒl* (A15C), *m-òó* (A43a), *mə̀-w=û(l)* (A72a), *m-ûl* (A85b), *ŋ̀-g=úˈtɔ́* (A91),[48] *m-útɔ̀* (B21), *m-ùtɔ̀* (A93)

e. **káŋg* 'fry, roast' (C.S. 1009, BLR 1718) > *áŋgá* (A122), *áŋgà* (A24), *áɣà* (A25), *y=áŋ* (A13, A15C, A63, A71),[49] *w=áŋ* (A43a), *áŋ* (A43c), *ɣ=áŋ* (A53), *ɟ=âŋ* (A832), *gy=ɑ̂l-ɛ* (A801), *ʤ=áá* (A91)

f. **kómb* 'scrape' (C.S. 1134, BLR 1916) > *ɔ́mbɔ̀* (A11, A24), *w=ɔ́m* (A15C), *h=ɔ́mb* (A43a)

The case of the Mbam languages is more diverse and puzzling. The Western Mbam languages and Tuki have the Ø reflex. However, Yambeta, Yambasa and Gunu, alone among all zone A languages, have kept the strong reflex /k/, in some languages as voiced /g/ either contextually or across the board. This parallels the fact that those languages (but also Tuki) have Ø as the normal reflex of **g*,[50] whereas the latter has shifted to /k/ in Western Mbam as in the rest of zone A.

[46] Recall that the equal (=) sign separates onset-fillers (cf. footnote 37).

[47] Guthrie (1970a: 259) proposes a deviant source **kágà*, but consideration of the Seki B21 (and Western Mbam) forms rather suggests **kádà* to which *-aga* is suffixed, i.e. **kádàgà* 'charcoal' BLR 2335.

[48] In Kwakum, /g/ is the normal onset-filler before stem-initial back vowels.

[49] Many Fang dialects have a strong form *káŋ* (Medjo Mvé 1997), at least as a variant. This is not the case in the most northern lects (Njowi, Eton, Ewondo or Bulu), perhaps due to contact. Galley (1964) has *y≠áŋ* and *kʸéŋ*, both 'make roast'.

[50] Ki has thus merged the C_1 reflexes of **k* and **g* to Ø, an evolution it shares with some of the Sawabantu languages, e.g. Duala.

The number of putative strong reflexes of *k is extremely small, much smaller than for *t or even *p. To give an example, Table 6 shows the proportions I found for Duala excluding pre-nasalised stops.

Table 6: Proportions of 'lenis' and 'fortis' reflexes in Duala A24

Putative reflexes	*p	*t	*k
"lenis"	17 (65%)	18 (53%)	17 (81%)
"fortis"	9 (35%)	16 (47%)	4 (19%)
Total	26	34	21

Furthermore, a quick look at the Duala data indicates that for *k the cognacy with reconstructed items is doubtful at best. For three of the four items the tones do not fit: Duala *kòl* 'be large' (cf. **kɔ́d* 'grow up', C.S. 1190, BLR 1197); *kɛ́s* 'cut' (cf. **kèc* 'cut', C.S. 1028, BLR 1752); *kwàt* 'scrape' (cf. **kɔ́át* 'seize' [!], C.S. 1172, BLR 1974). In fact, only one stem is attested widely enough to give rise to some interrogation, i.e **kɔ̀ɔ̀gɔ́*, **kɔ̀ɔ̀gó* 'sugar-cane' (C.S. 1201, BLR 2017-8). Interestingly enough, the only normal (weak) reflex is found in idiosyncratic Bubi, i.e. *b-oʔó* (A31a), *m-oʔó* (A31b, A31c), where *k > Ø and *g > *ʔ* are perfectly regular. Other languages exhibit a strong reflex, but generally also some other unexpected peculiarity (H tone on the NP, change of final vowel etc.). The number of irregularities leads one to suspect numerous borrowings for this culture item. In view of the lack of convincing examples, it may thus be safely concluded that genuine double reflexes for *k are non-existent.

3 Double reflexes in zone A: Diachronic evolution

Having surveyed the putative double reflexes for reconstructed voiceless stops, we have concluded that they do not affect the voiceless velar at all, and can be shown to be partly motivated for the voiceless labial. There remains the coronal. As for the voiced stops, we have convincingly established that double reflexes for *d are in fact conditioned by the tone of the first stem vowel. This seems also to be the case for *b, even if it is restricted to a few languages of the Mbam group and might be of no considerable antiquity. As for *g, we concur with Stewart (1989; 1993) that no trace of a dual development can be evidenced in the northwestern languages we have examined. On the other hand, there does seem to be two reflexes of *t in some languages, namely the unconditioned reflex /l/ as well

as /t/ most often found in front of reconstructed [+high] vowels and in a small number of stems with no determinable conditioning factor.

We follow Stewart (1993) in admitting that PB had a voiced coronal phoneme **d* (or perhaps better **l* ?) with two conditioned allophones, i.e. **d*/__V[+high], and **l* elsewhere (see also Hyman 2019: 142). Note that once the two allophones were established, they tended to evolve into genuine contrastive phonemes, among other things due to loans. For instance, a quick glance at the small Noho A32a vocabulary of Adams (1907) shows nine verb stems with /d/, i.e. [ɗ], in front of [−high] vowels, where only /l/ is expected, versus 14 with regular /l/, contrasting e.g. *ɗàŋgwa* 'travel' with *laŋgwa* 'say' (tones not noted).

There is thus some partial overlap between the weak reflexes of **t* and **d* in front of [−high] vowels, i.e. /l/, whereas in front of [+high] vowels we normally encounter their strong reflexes, i.e. /t/ and /d ~ ɗ/, respectively.

In order to get a more precise idea of this overlap, I find it convenient to now summarise all the C_1 reflexes in one table,[51] not only for **t* and **d*, but also for their pre-nasalised congeners, considering peculiarities of context when necessary. This is done in Table 7. The capital letter T stands for the unconditioned strong reflex. When there are no double reflexes, "n.a." is put into that column. Contrary to Table 5, I have decided not to include what I consider onset-filling glides in Manenguba and Beti, for the sake of clarity.

As can be seen, the few languages having retained /l/ as the general reflex of **d* are those which do not have the /l/ reflex for **t*, suggesting a relationship between the two processes with the exception of Nen and Fa'.

Before turning to the detailed examination of the possible diachronic paths leading to the present situation it might prove worthwhile to briefly consider the situation in the closest relatives of Narrow Bantu, i.e. the Grassfields Bantu languages. To be sure, we do not have at our disposal reconstructed diachronic databases of the calibre of BLR (Bastin et al. 2002) or Guthrie's *Comparative Bantu* (Guthrie 1967; 1970a,b; 1971). However, there is a very valuable collection of Proto-Eastern Grassfields (PEG) roots (Elias et al. 1984), which can be compared to the unpublished *Index of Proto-Grassfields Bantu Roots* (PG) by Larry M. Hyman.[52] Both lists reconstruct a proto-phoneme **t* and also **d* and **l*. Glancing cursorily through available data, it is clear that there is no sign of double reflexes for **t*, the unconditioned reflex being uniformly /t/, at least in Eastern Grassfields. As for

[51] The reflexes in the prefixes are generally the same, but not always, as elsewhere in the Bantu domain, e.g. Saghala E741 **bà-* > Ø, but the reflex of PB **bà-* (cl. 2) is *βa-* (Gérard Philippson, unpublished fieldwork notes, 1981–1984).

[52] My thanks to Larry M. Hyman for graciously letting me have access to a digital version of his Index.

Table 7: Reflexes of **t* and **d* in various environments

	**t*	**t*/__**i*, **u*	T	**nt*	**d*	**d*/__**i*, **u*	**nd*
Nen A44	*l*	*t / l*	*t*	*nd*	*n ~ l*	*n*	*?*[a]
Maande A46	*t*	*t*	*n.a.*	*nd*	*n ~ l*	*n*	*?*
Yambeta A462	*t*	*t*	*n.a.*	*?*	*n ~ l*	*n*	*?*
Elip A62C	*d*	*d*	*n.a.*	*nd*	*n ~ l*	*n*	*?*
Lundu A11	*ɾ*	*t*	*t*	*t*	*Ø*	*d [ɾ]*[b]	*Nd*
Kundu A122	*ɾ*	*t*	*t*	*t*	*Ø*	*d [ɾ]*	*Nd*
Duala A24	*l*	*t*	*t*	*t*	*Ø*	*d*	*Nd*
Kpe A22	*Ø*	*t*	*t*	*t*	*Ø*	*l*	*Nd*
Oli A25	*l*	*t*	*t*	*t*	*Ø*	*d*	*Nd*
Batanga A32C	*l*	*t*	*t*	*t*	*Ø*	*ɗ*	*Nd*
Yasa A33a	*l*	*t*	*t*	*t*	*Ø*	*ɗ*	*Nd*
N. Bubi A31a	*t*	*ʧ*	*n.a.*	*ʧ (?)*	*l / Ø*[c]	*r*	*T*
S.W. Bubi A31b	*t*	*ʧ*	*n.a.*	*(?)*	*l / Ø*	*r*	*nd*
S.E. Bubi A31c	*t*	*ʧ*	*n.a.*	*(?)*	*l / Ø*	*r*	*d*
Balong A13	*l*	*t*	*t*	*t*	*Ø*	*d*	*nd*
Bafo A141	*l*	*t*	*t*	*t*	*Ø*	*d*	*nd*
Mbuu A15A	*l*	*t*	*t*	*t*	*Ø*	*d*	*nd*
Myenge A15B	*l*	*t*	*t*	*t*	*Ø*	*d*	*nd*
Akoose A15C	*l*	*t*	*t*	*t*	*Ø*	*d*	*nd*
Mkaa A15C	*l*	*t*	*t*	*t*	*Ø*	*d*	*nd*
Basaa A43a	*Ø*	*t*	*t*	*t*	*l ~ Ø*	*l ~ Ø*	*nd*
Bakoko A43b	*Ø*	*t*	*t*	*t*	*l*	*d*	*nd*
Fa' A51	*l*	*t*	*t*	*d*	*ɗ ~ l*	*ɗ*	*d*
Kpa A53	*r*	*t*	*t*[d]	*d*	*l ~ r*	*ɗ*	*d*

[a] No clear example in C_1.

[b] For a discussion of the partly individual variants of this sound, see Friesen (2002: 24ff).

[c] C_1 **d* is sometimes realised as Ø in Bubi varieties with no consistency, e.g. **dámb* 'cook' (C.S. 486, BLR 842) with initial /l/ everywhere except two A31c varieties which have a Ø reflex in C_1, i.e. *ábà*. On the other hand **dɔmè* 'husband' (C.S. 697, BLR 1183) has Ø everywhere, except in the A31b variety of Batete which has /l/, i.e. *mò-lómɛ*. However, other roots, such as **dób* 'fish with line' (C.S. 638, BLR 1088), have /l/ everywhere in C_1. Note that the tendency for **d* > Ø is much stronger in C_2. It is clear that the areal shift **l* > Ø does not entirely bypass Bubi.

[d] As mentioned above, there are more strong reflexes of **t* in Kpa A53 than in other languages.

	**t*	**t*/__**i*, **u*	T	**nt*	**d*	**d*/__**i*, **u*	**nd*
Eton A71	*l*	*t*	*t*	*t*	*Ø*	*d*/_**u*, *dz*/_**i*	*nd*
Njowi A63	*l*	*t*	*t*	*t*	*Ø*	*d*	*nd*
Ewondo A72a	*l*	*t*	*t*	*t*	*Ø*	*d*	*nd*
Ntumu A75A	*l*	*t*/_**u*, *ts*/_*i*	*t*	*t*	*Ø*	*d*/_**u*, *dz*/_**i*	*nd*
Atsi A75D	*l*	*ts*	*t*	*t*	*Ø*	*dz*	*nd*
Mvai A75F	*l*	*t*/_**u*, *ts*/_*i*	*t*	*t*	*Ø*	*d*/_**u*, *dz*/_**i*	*nd*
Bekwel A85b	*l*	*t*	*t*	*(?)*	*Ø*	*d*	*nd̥*
Kol A832	*l*	*t*	*t*	*t (?)*	*Ø*	*d*	*nt*
Koonzime A842	*l*	*t*	*t*	*(?)*	*Ø*	*d*	*nt*
Njem A84	*l*	*t*	*t*	*t (?)*	*Ø*	*d*	*nt*
Makaa A83	*l*	*ʧ*	*t*[a]	*(?)*	*Ø*	*ʄ*	*nʧ*
Mpiemo A86c	*l*	*t (?)*	*t*	*t (?)*	*Ø*	*d*	*nt*
Polri A92a	*l*	*t (?)*	*t*	*t (?)*	*Ø*	*ɗ*	*nɟ (?)*
Kwasio A81	*l*	*ts*/_**i*, *(?)*/_**u*	*t*	*t (?)*	*Ø*	*dz*/_**i*, *(?)*/_**u*	*nd̥ʰ*
Gyeli A801	*l*	*ts*/_**i*, *tf*/_**u*	*t*	*t (?)*	*Ø*	*ɟ*/_**i*, *(?)*/_**u*	*nd̥*
Kwakum A91	*t*	*ʧ*/_**i (?)*	*n.a.*	*t (?)*	*d ~ l*	*ɟ*/_**i*, *d ~ l*/_**u (?)*	*nd (?)*
Seki B21	*t*	*ts*	*n.a.*	*(?)*	*d ~ l*	*d*	*(?)*[b]

[a] I have found only a single convincing instance of a strong reflex in Makaa A83.

[b] In C_2 **nd* > *nd*, but there is virtually no example of C_1 **nd* in the Seki B21 sources, contrary to **mb* and **ŋg*. This rarity of **nd* seems to be an areal phenomenon.

*d vs. *l, Elias et al. (1984: 48) state that "[t]he distinction between initial *d and *l is not always clear", but consider that the two must be distinguished on the basis of different reflexes in the Northern Eastern Grassfields languages (Limbum, Adere, etc.). Although, in this case also, much more research is needed and any conclusion must for the time being remain impressionistic, one can notice some apparent tonal conditioning, as exhibited in (21) by the reflexes in Northern Eastern Grassfields languages, compared with relevant data from Mankon, a member of the Ngemba branch of Eastern Grassfields.

(21) Reflexes of Proto-Eastern Grassfields (PEG) *d and *l

a. PEG *d > /r/
*dàl 'bridge' > Lus *rà*, Mankon *ɨ̀-là*
*dìl 'beard' > Lus *rə̀*, Mankon *nɨ̀-lù-ə̀*
*dùk 'palm wine' > Nkot *rùk*, Mankon *mɨ̀-lù?-ù*
*dùn 'be old' > Nkot *rə̀n*, Mankon *lvùn*

b. PEG *l > /l/
*lɛ́m 'blood' > Lus *lɛ́*°,[53] Mankon *à-lɛ́m-ə̀*
*lɔ́n 'beg' > Nkot *lɔ́n*, Mankon *lɔ́n*
*lák 'village' > Lus *lɔ́?*, Mankon *à-lá?-á*

This digression to Grassfields Bantu is very superficial and further examination might shed new light on the question. However, a comparison of the PG and PEG lists indicates that, if we limit ourselves to items coinciding both in form and meaning in the two lists, out of 11 stems reconstructed with *d, nine are followed by L tone, while out of 11 stems with *l, eight are followed by H. There is thus at least a suspicion for the tonal conditioning of a reflex split, as we saw in Narrow Bantu, and since Grassfields *t > t in all cases, we shall conclude that Grassfields data cannot help us in our search for the partial merging of PB *t and *d.

We must then come back to Stewart's proposals since they are the only ones trying to flesh out the diachronic developments of the PB phonemes. Stewart clearly saw that to explain the /l/ reflexes of PB *t in north-western Bantu languages some merging of *d (or *l) and *t must have occurred. For Nen, Van Leynseele & Stewart (1980) propose the stages in (22), starting from PB with couples of 'fortis' and 'lenis' consonants *t / *'t; *d / *'d.

(22) Nen A44 reflexes of *t / *'t; *d / *'d (Van Leynseele & Stewart 1980)
1) *'d nasalises to *n*

[53] The symbol ° signals a non-downgliding L tone.

2) highly marked **'t* shifts to **'d* (drag chain?)
3) **d* also shifts to **'d*, thus merging the reflexes of **'t* and **d*
4) **'d > l*

The shifts summarised in (22) lead to the following situation in Nen: **t > t*, **'t > l*, **d > l*, **'d > n*. This solution works but at the cost of positing a 'Duke of York' type of change (Pullum 1976; Yates & Zukoff 2018), where the diachrony gets rid of one phoneme (**'d*) to reintroduce it in the next move.

Having determined that PB did not have an implosive as 'lenis' counterpart to **d*, but a lateral instead, Stewart (1989) changed his approach. This did not really improve on the previous solution, since now it was **l* that nasalised to /n/, only to be reintroduced from 'lenis' **f* through a stage **ɗ*, thus **f > *ɗ > l*. The final reflexes for Nen were then **t > t*, **f > l*, **d > l* (also through a **ɗ* stage) and **l > n*. The two proposals are summarised in Table 8.

Table 8: Stewart's successive conceptions of PB coronals (Van Leynseele & Stewart 1980; Stewart 1989)

1980	PB	**t*	**'t*	**d*	**'d*
	Nen	*t*	**'d > l*	**'d > l*	*n*
1989	PB	**t*	**'t*	**d*	**l*
	Nen	*t*	**'d > l*	**'d > l*	*n*

Stewart (1993) abandoned his view of double reflexes in Bantu (cf. §1.2), but he still proposed a diachronic path for **t > l* in 'North-Western Bantu'.[54] Surprisingly, he posited a development **t > *ð > l*, while admitting that "[... in present-day North-Western Bantu languages ...] **ð* appears never to have the direct reflex *ð*. *ð* is however a plausible source for the various reflexes that do occur; the most common reflex is *l* [...]" (Stewart 1993: 19). Contrary to Stewart (1993), I consider this development rather implausible. To the best of my knowledge, the West Kele B22a and Ngom B22b varieties of the Gabonese language Kele B22, which is geographically remote, are the only ones in our general area to have /ð/. Moreover, their /ð/ is a reflex of **d* and not of **t* (Guthrie 1967: 34).

So, we should try to define more precisely the phonetic content of the putative proto-phonemes. In other words, what sounds do the comparative symbols **t* and **d* stand for, since this should allow us to discern how reflexes of **t* and **d* came partly to overlap?

[54] Nowhere does Stewart (1993) define the coverage of this 'North-Western Bantu' group, but an examination of the proposed reflexes shows that it could not include Nen.

As far as the voiceless coronal is concerned, there is room for little hesitation. Its strong reflexes, whether conditioned by [+high] vowels, pre-nasalised or unconditioned, are always [+coronal] [−voice] [−continuant], so a voiceless coronal stop /t/. The few exceptions are due to affrication processes triggered by [−back] [+high] vowels, as in Bubi or Kwakum for example, or to the beginning of BF, as seen in the Fang varieties and the southern Nyong-Dja languages, but even then the result is a voiceless coronal affricate. Furthermore, an examination of the whole Bantu field clearly shows that by far the most widespread reflex is also /t/, leaving little doubt that this was the identity of the proto-sound. What we would like to know, but have very little evidence to go by for, is the precise place of articulation [±anterior] and the precise laryngeal setting, as this would help to understand the weakening trajectory. As for the place of articulation, the only thing which can be said is that in those Bantu languages where a [±anterior] contrast exists, the reflex of **t* is always [−anterior]. For instance, in Amu G42a or Makhuwa P31, /t/ is a reflex of **t* and /t̪/ of **c*. In Mashati E623B, /t/ is also a reflex of **t*, while /t̪/ is from extraneous sources. Even in languages where no contrast exists, such as Unguja Swahili G42d, the realisation of /t/ is audibly [−anterior] with most speakers.

The situation for *d is much more difficult. First of all, there are extremely few languages where its unconditioned reflex is [d]. Guthrie (1967: 62) even claims there are none,[55] but this is proven wrong by two languages in our area, namely Kwakum and its close relative Seki, which both have /d/, but also /l/ with tonal conditioning (cf. §2.1). In most Bantu languages outside our area, the unconditioned reflex is /l/ often weakening to Ø. The strong reflex, i.e. /d ~ ɗ/, is found in the same environments as for **t*, i.e. in front of [+high] vowels (with the same peculiarities of affrication as mentioned above), and also in pre-nasalised position, where **nd* is maintained as /nd/, apart from Kpa and Bubi varieties which denasalise.

The choice for the proto-sound is obviously between **l*, which was the solution of Meinhof (1899) who posits no voiced stops at all, and **d* chosen by Guthrie (1967: 62) with some hesitation, admitting that it might have gone to **l* very early in Bantu language history. Meeussen (1967: 83) is rather non-committal about it: "[…] one might just as well use the symbol […] /l/ instead of /d/". Nevertheless, he reasoned by analogy that since the contrast in reflexes was mostly [+voice] vs. [−voice] in the labial and dorsal series (such as *p / b ~ β* and *k / g ~ ɣ*), even if spirantised, the coronal series must have exhibited originally the same sort of contrast, i.e. *t / d ~ l*. The fact that Meeussen (1967) also accepts the lateral grapheme,

[55] Guthrie (1967: 62) probably did not check his own notes, as Guthrie (1971: 33–34) does state the correct Kwakum and Seki correspondences.

shows that he himself was hesitant on this point. Many close and less close relatives of Narrow Bantu exhibit /l/ in corresponding items and Elias et al. (1984) reconstruct **l* for their PEG, while Stewart (1989) posits **l* alongside **d* for his PB. I assume here that the PB phoneme was indeed **l* with a [d ~ ɗ] allophone. In the case of pre-nasalisation, *N + l > nd* is expected by spreading of the [−continuant] feature of the first part onto the second. Notice that /l/ is somewhat paradoxical: it is articulatorily both [+continuant] since the airflow can escape laterally, but also [−continuant] since some part of the tongue makes a contact with a passive articulator (typically the hard palate). Generally, the [−continuant] part of the sound's identity plays no phonological role, but in contact with [+high] vowels where aperture is minimal, it can be considered to become exclusive, hence the realisation [d ~ ɗ]. In Kwakum and Seki, the /d/ reflex must be considered a case of strengthening and we have seen that the weak reflex /l/ is attested in front of L tone. However, this problem does not impinge on the question of **t*, since those two languages exhibit no double reflexes for it.

We shall thus turn to the well-attested double reflexes of **t*. In (23), I present again the maximum list of items with unconditioned strong reflexes of **t* which I could establish (see also (11)–(12) in §2.2).

(23) Reconstructed roots manifesting a strong reflex of **t*

a. Fairly well distributed
   **táánò/ʊ̀* 'five' (C.S. 1662, BLR 2768 & 2769)
   **tòòg* 'boil up, bubble up' (C.S. 1777, BLR 2966-7)
   **tʊ́ʊ́bá* 'six' (C.S. 1815, BLR 3034)
   **tédam* 'stand' (C.S. 1692½, BLR 2816)
   **tóná* 'spot, speckle' (C.S. 1785, BLR 2976)

b. More restricted distribution (due to lexical variation)
   **tónd* 'desire' (C.S. 1788, BLR 2980)
   **támbí* 'sole of foot, shoe' (C.S. 1659, BLR 2761)
   **tòdú* 'navel' (C.S. 1776, BLR 2965)
   **tèk* 'become soft' (ps. 434, BLR 2827)

c. Somewhat doubtful item
   **tàndá* 'invertebrate: spider; spider's web' (BLR 9730)

d. Nursery word
   **tàátá* 'father' (C.S. 1686, BLR 2806)

Although these items are not very numerous, they are nevertheless striking in their regularity. Only one item shows systematic non-correspondence between languages and it is also often irregular as far as its vowel is concerned, to the extent that Guthrie reconstructs no less than three C.S.s for it: **tʊ́í* 'ear' (C.S. 1801, 1809, 1813, BLR 3030) (variants **tʊ́(ʊ̀)* and **tʊ́é*). Furthermore, many Benue-Congo languages attest a final *ŋ* for this item.

Since we have posited that the phonetic content of PB **t* must have been /t/, these items then show *retention* of the original sound, just as it was retained in front of [+high] vowels in contradistinction to most other items where it shifted to /l/. To what extent can this shift to /l/ be considered as weakening?

The weakening trajectories we have been considering above would posit (in a logical, step by step fashion) the following stages: **t* > **r̥* (first weakening), then either **r̥* > *h* (second weakening) or **r̥* > *r* (strengthening of marked sound).[56] These stages are well-attested in some north-eastern and south-eastern Bantu languages, e.g. Rimi F32 **t* > *r̥*, Pokomo E71 **t* > *h*, and Gweno E65, Ngazija G44a, Cuwabo P34, etc. **t* > *r*. However, they are unattested in our area with the lone exception of Kpa, which incidentally has fewer cases of weakening than the others. For the other languages, the reflex is always /l/, further weakened to Ø in Kpe (for Basaa see below). One could possibly consider that /l/ is a further weakening of /r/.[57] Nevertheless, this appears unlikely to me. Most Bantu languages, apart from those mentioned above, do not have a distinctive contrast between a lateral and a rhotic and realise their liquid phoneme (PB **d* or in Stewart's PB **l*), either as one or the other, in some cases in clearly defined contexts. Sometimes, as is the case of Oroko A101, the liquid is realised as an alveolar tap, giving the auditory impression of a sound intermediate between [l] and [r] – cf. Nida (1964: 20), cited in Friesen (2002: 25), with reference to Oroko orthography. In the other languages, however, the lateral character of the liquid is strongly asserted by all the sources and the unlikely path **t* > *r* > *l* is not supported by an intermediate stage.[58] A particularly suggestive case is provided by Fa', a language closely related to Kpa (see Table 7). Whereas the latter opposes /r/ (reflex of both **t* and **d* before L) and /l/ (reflex of **d* before H), Fa' has no /r/. Instead, it has /l/, wherever

[56] Maddieson (1984) has just three languages with voiceless /r̥/ versus 130 with voiced /r/.

[57] I owe this suggestion to Jean-Marie Hombert (p.c.). Support for this might be seen in the fact that in Bubi /r/ appears instead of /l/ in front of [+high] vowels, which environment conditions strong reflexes (mostly /d ~ ɗ/) in the other languages. So /l/ is weaker than /r/.

[58] I know of only one Bantu language where **t* > *r* > *l* is attested, namely Lozi K21, but this evolution is clearly due to contact. Being a language of S30 origin with an initial r/l contrast, Lozi lost this opposition by accommodation to the articulatory habits of the majority of speakers after having been transplanted to linguistic surroundings with no such contrast (cf. Gowlett 1989).

Kpa has /r/, and /ɗ/ for Kpa /l/, as well as for Kpa /ɗ/, the positional allophone of /l/ before [+high] vowels. I would thus suggest that Fa' presents the original situation (similar to the one offered by all the other languages) and that Kpa for unknown reasons strengthened /l/ to /r/, and later weakened /ɗ/ to /l/ in some contexts. The conclusion that, in our area at least, /r/ cannot constitute a weakening stage in an assumed trajectory **t > r > l* is quite convincing.

What appears is rather that somehow the reflexes of **t* have shifted to occupy the place of PB **l*, the latter having weakened to zero. Now this complete weakening is not unknown in the rest of Bantu. Although absent from many parts of the domain, it is quite frequent in the north-eastern quadrant, especially its north-easternmost part, i.e. Sabaki and Kilimanjaro Bantu mostly, with a few isolated cases like Rimi F32, Kamba E55 or Shambaa G23. Often, but not systematically, those languages where **l* has weakened have also weakened **t*, e.g. Mashami E621B **l > Ø / *t > ʁ*, Lower Pokomo E71B **l > y / *t > h*, Dawida E74a **l > Ø / *t > ɗ*, etc. Counter-examples are Kamba E55, Shambaa G23, Unguja Swahili G42d and a few others, which have **l > Ø / *t > t*, where contact can be suspected to be the cause of **l > Ø*, since their closest relatives do not exhibit the change (except in the case of Unguja Swahili). In none of those languages is **t > l* attested.

I conclude that in our area the initial change must have been **l > Ø*, except in strong environments. It is only then that the change **t > l* could occur. If it had occurred before, this new /l/ would also have gone to Ø. Indeed, a number of Central Sawabantu languages followed this course as seen in Table 7, but since their closest relatives have retained /l/, the development must be recent. Note that this shift did not remove /t/ from the phoneme inventory since it subsisted in the very same strengthening environments just mentioned. Instead, it reintroduced a liquid phoneme, so that the languages in question still presented a full roster of coronal stops and laterals: /l/, /t/, /d ~ ɗ/ (before [+high] vowels, see Table 7), /nd/.

Nevertheless, during the course of this change, a reduced number of items (the ones mentioned above) were bypassed by it. As seen earlier, there are more in Kpa, which perhaps significantly is the northernmost of the languages treated. Since they are exactly the same in all the languages and designate mostly non-cultural items, it is very unlikely that their presence is due to borrowing, except for **támbí/*táámbí* (Guthrie 1970b: 90, C.S. 1659; BLR 2761), whose original meaning is 'sole of foot', but spread in our area with the meaning 'shoe', possibly from Duala. Their exemption from **t > l* must be a characteristic of the putative ancestor language of the languages concerned, that is the common ancestor of the Sawabantu, Manenguba, Beti and Nyong-Dja languages, a north-western clade

characterised by the old change **k* > *Ø*.[59] But there is no evidence that would lead us to put this situation back to PB, especially since there is no sign of a similar split in Grassfields languages.

For Guthrie, as already mentioned, the items characterised by retention of the strong reflex had a long stem vowel. As for our list in (23) above, independent evidence for a long vowel is only robust for **táánò/ʊ̀* 'five' and **tónd*/**tóónd* 'desire' (Guthrie 1970b: 118, C.S. 1788; BLR 2980). There is some independent evidence of a short vowel for **tédam* 'stand', as Tsaangi B53 and Kongo H16 have a short vowel, **tèk* 'become soft', as Luba-Kasai L31a and Bemba M42 have a short vowel, and **tóná* ~ **tónì* 'spot, speckle' with a short vowel in Kongo and Bemba.[60] No decision about vowel length can be made for lack of independent evidence in the case of **tòòg* 'boil up, bubble up', which has an "osculant" short-vowel form **tòk* (Guthrie 1970b: 117, C.S. 1778; BLR 2967), **tʊ́ʊ́bá* 'six', and **tòdú* 'navel'.

Recall from §1.2 that Janssens posited pre-nasalisation as the source for strong reflexes. This might conceivably apply to nouns, which would have originally belonged to classes 9/10 or 11/10 and thus acquired a nasal prefix (**nt* > *t* in all languages concerned, apart from Nen), which they would have retained even when placed in other noun classes. Indeed, this fact can be easily seen, when C_1 belongs to the voiced stop series, as the nasal is normally retained, as in Duala *mù-ŋ-gàŋgà* 'medicine-man' (< *NP_1-NP_9-*gàŋgà*) or Basaa *lì-ŋ-géŋéé* 'bell' (< *NP_5-NP_9-*gèŋgédé*), or again Seki *di-m-bílɔ* 'oil palm' (< *NP_5-NP_9-*bídà*).

This might explain items which appear with /t/ even when not in cl. 9/10 or 11/10, provided there is some evidence they might have originally belonged there. Unfortunately, such items in our list (**tóná* ~ **tónì* 'spot, speckle'; **tòdú* 'navel') never appear in cl. 9 anywhere. In fact, they are solidly attested in cl. 5. Now, it is known from Eastern Bantu that cl. 5 also can have a strengthening effect on stem-initial consonants, but this does not appear to be the case in our area, at least I have not observed any traces of this conditioning. Bachmann (1989) claims that it does apply, but I find his few examples unconvincing.

For other items, an anonymous reviewer remarks quite correctly that **táánò/ʊ̀* 'five' has an "osculant" form with C_1 **c*, i.e. **cáànò/ʊ̀* (Guthrie 1970a: 82, C.S. 275-6; BLR 446, 448). This is true, but as far as I can see, it is restricted to Eastern

[59] The clade presumably includes, apart from the languages treated here, several of the B20 languages and a large part of the forest languages grouped by Guthrie under zone C. I must postpone this discussion to a later publication.

[60] Identical stems with seemingly related meanings like 'drip', 'drop' or 'rain' appear in a number of Eastern languages with a long vowel, e.g. Shi JD53 *ɻooɲ* 'drip', *óómúɻóoɲɨ* 'drop (n.)', Gusii JE42 *tɔ́ɔ́ni* 'drip', Nilamba F31 *tʸɔ́ɔni*/*matɔ́ɔni* 'drop', etc. So, there might be some doubt about the length.

Bantu and does not affect our area. Furthermore, it was originally (and is still synchronically in some languages) conditioned by a numeral prefix **i-* and the same conditioning applies to **tátɔ̀* 'three', which presents an /l/ reflex in all our languages.

There is thus no conclusive evidence for the "anomalous" items in (23) having had some phonological characteristic that would make them impervious to the **t* > *l* shift. We are thus forced to conclude that we are faced with a change progressing through the lexicon, but failing to reach certain words, in a 'wave' pattern. In view of the overall evidence, this is not an ongoing situation but the frozen result of a process long spent, since the same few items are affected. The various phonemes (/l/, /t/, ...) are well established and serve as basis for the introduction of new lexical items, through borrowings, internal derivation, etc., as a detailed examination of the various lexicons would show.

4 Conclusion

In spite of considerable achievements in the domain of comparative Bantu phonology, few diachronic processes were reconstructed in detail. Guthrie's *Comparative Bantu* (1967; 1970a; 1970b; 1971) mostly aimed at establishing Common Bantu forms, i.e. series of synchronic correspondences between individual languages. It is true that with his two-stage method (Guthrie 1962), he attempted to deduce from these correspondences what he considered as Proto-Bantu reconstructions. However, due to his uncertain methodology, his "Proto-Bantu" turned out to be not much more than a glorified "Common Bantu". Thorough criticisms of Guthrie's method can be found in Meeussen (1973) and Möhlig (1976). Scholars from the Tervuren school did some very valuable work on specific points (e.g. Grégoire & Doneux 1977; Bastin 1983), but as far as I know never published a general survey of consonant systems. The only real attempt in this direction was made by Stewart, as discussed repeatedly in this chapter. However, since his ultimate goal was setting up a Proto-Bantu-Potou-Tano, which could eventually constitute a basis for a Proto-Niger-Congo as expressed in Stewart (2002), there were constraints on his Proto-Bantu reconstructions due to the necessity of establishing cognates with Cama, Mbatto and Akan. He therefore reconstructed the "fortis"/"lenis" opposition, which is not well supported within Bantu, as he eventually admitted himself (Stewart 1993).

I have nevertheless followed Stewart's lead up to a point. Although he did not contribute to solve the puzzle of double reflexes, his positing of **l*/**d* as a PB phoneme and his suggestions as to the voicing and 'lateralisation' of PB **t* seem

to me on the right track. Although the present chapter has not really established the origin of the duality of reflexes for PB **t* in some north-western Bantu languages, it has at least confirmed its existence. As for the other voiceless stops reconstructed for PB, double reflexes are not really an issue for **k* and those observed for **p* can be demonstrated to be partly conditioned. When it comes to the voiced PB stops, **g* does not manifest real double reflexes, as is the case for its voiceless counterpart **k*. Double reflexes of **d* can be shown to be conditioned by the tone of the first stem vowel, which also holds for **b*, but to a lesser extent and possibly due to more recent development. For the time being, my survey of putative double reflexes in north-western Bantu languages does not warrant the revision of the PB consonant system. This being said, any conclusion on the PB consonant system in general would be premature at this stage, because it would have to be based on all Bantu languages, and not just the sample I considered here. Minimally, it should also take in the Grassfields Bantu languages from outside Narrow Bantu. In my view, slow, careful, bottom-up reconstruction is of paramount importance here. Whether the occurrence of double reflexes in north-western Bantu languages supports the "phonetically abrupt and lexically gradual" model of sound change as proposed by Wang (1969) is also a point that should be argued further, perhaps by extending and refining the database.

With reference to these two last points, i.e. slow, careful, bottom-up reconstruction and Wang's lexical diffusion model of sound change, it is worth mentioning a recent article by Pacchiarotti & Bostoen (2022) on the multiple reflexes of the PB **g* and **k* in C_2 position within West-Coastal Bantu, a major discrete branch within the Bantu family (cf. de Schryver et al. 2015; Grollemund et al. 2015; Pacchiarotti et al. 2019; Philippson & Grollemund 2019), situated south of the study area of this chapter.

Lastly, Pacchiarotti & Bostoen (2022) plead for the recognition by comparativists of irregularities in correspondences alongside the regular application of the Comparative Method. That such irregularities are well-attested in Bantu languages is easy to confirm. As an illustration, a rapid survey of the data presented by Guthrie (1970a) shows that out of some 285 comparative series with **b* in C_1, about 135, so almost half, present at least one 'skewed' entry, i.e. one judged by Guthrie to exhibit an irregularity in correspondence (indicated in his data by being placed inside square brackets). However, these appear to be fairly haphazard and individual – pending some more detailed study which definitely needs to be undertaken – and thus different from the rather systematic "strong" vs. "weak" reflexes of PB **t* treated in this chapter. Furthermore, the C_2 position is notoriously "weak" in north-western Bantu languages, unlike elsewhere in the Bantu area where C_1 and C_2 positions are normally not marked by different reflexes.

This fact might be attributed for north-western languages to some prosodic factor that demarcates the first stem syllable (see, for example, Paulian 1975), whereas elsewhere in Bantu the penult constitutes the most salient position (cf. Philippson 1991; Hyman 2013). Micro-variation in C_2 reflexes would thus appear to be less significant than those in C_1 (the 'prosodically salient' position). This does not mean that a detailed study of C_2 reflexes, such as presented by Pacchiarotti & Bostoen (2022) for West-Coastal Bantu is unnecessary, quite the opposite. Such a study is underway for the languages covered in the present chapter and its results will tell whether and to what extent the scenario outlined above needs to be modified.

Abbreviations

BF Bantu Frication
BLR Bantu Lexical Reconstructions (Bastin et al. 2002)
C.S. Comparative Series (Guthrie 1970a,b)
C consonant
C_1 stem-initial consonant
C_2 second consonant
CL. class
H high tone
INTR. intransitive
L low tone
N nasal
NP noun prefix
PEG Proto-Eastern Grassfields
PG Proto-Grassfields
ps. partial series (Guthrie 1970a,b)
V vowel

Appendix A Languages covered and sources used

Oroko	A101	Friesen (2002)
Lundu	A11	Kuperus (1985)
Kundu	A122	Bufe (1910–1911); Atta (1993)
Balong	A13	Bufe (1910–1911); Kouoh Mboundja (2004)
Bafo	A141	Hedinger (1987)
Manenguba	A15	Hedinger (1987)
Akoose	A15C	Dorsch (1911–1912a,b; 1912–1913); Hedinger & Hedinger (1977); Hedinger (1985; 1987)
Mkaa	A15C	Ewane Etame & Hedinger (2017)
Nkongho	A151	Hedinger (1987)
Mboko	A21	Ebobissé (2015)
Kpe	A22	Ardener (1956); Hawkinson (1986); Monikang (1989); Kagaya (1992); Ebobissé (2015)
Bubia	A221	Chia (1993); Ebobissé (2015)
Su	A23	Meinhof (1889–1890); Ebobissé (2015)
Kole	A231	Ebobissé (2015)
Duala	A24	Dinkelacker (1914); Ittmann (1939); Paulian (1971); Helmlinger (1972)
Bodiman	A241	Ebobissé (2015)
Oli	A25	Hagège (1967); Ebobissé (2015)
Pongo	A26	Ebobissé (2015)
Mongo	A261	Ebobissé (2015)
Limba	A27	Ebobissé (2015)
Bubi	A31	Baumann (1887–1888); Rurangwa (1989); Bolekia Boleká (1991; 2008; 2009)
Noho	A32a	Adams (1907); Ebobissé (2015)
Bapuku	A32b	Ebobissé (2015)
Batanga	A32C	Ebobissé (2015)
Yasa	A33a	Bôt (1992); Blench (2010b); Ebobissé (2015)
Kombe	A33b	Fernandez (1951); Elimelech (1976)
Benga	A34	Nassau (1892); Guthrie (1967; 1970a,b; 1971)
Lombi	A41	Lamberty (2002)
Abo	A42	Atindogbé (1996); Lamberty (2002)
Basaa	A43a	Janssens (1986); Mous & Breedveld (1986); Teil-Dautrey (1991a,b); Hyman (2003a); Njock (2005)

Bakoko	A43b	Edika (1990); Kenmogne (2000); Mathaus & Anderson (2010)
Nen	A44	Dugast (1967; 1971); Mous (2003); Boyd (2015); Boyd (2019b)
Nyokon	A45	Richardson (1957); Mous & Breedveld (1986); Lovestrand (2011)
Maande	A46	Mous & Breedveld (1986); Nomaande Language Committee et al. (2003); Boyd (2015)
Tuotomb	A461	Mous & Breedveld (1986)
Yambeta	A462	Mous & Breedveld (1986); Mongo & Bolioki (2012); Boyd (2015); Boyd (2020)
Fa'	A51	Guarisma & Paulian (1986); Perrin (1986); Isaac (2014)
Dimbong	A52	Guarisma & Paulian (1986)
Kpa	A53	Guarisma (2000)
Bea	A54	Guarisma & Paulian (1986)
Tuki	A601	Mous & Breedveld (1986); Hyman & Biloa (1992); Boyd (2015); Boyd (2016e)
Yangben	A62A	Paulian (1986); Boyd (2015); Boyd (2016f); Bébiné (2018)
Mmala	A62B	Mous & Breedveld (1986); Paulian (1986); Boyd (2009); Boyd (2015); Boyd (2016d)
Elip	A62C	Paulian (1986); Prittie (2002); Boyd (2015); Boyd (2016b)
Baca	A621	Paulian (1986); Boyd (2015); Boyd (2016a)
Gunu	A622	Paulian (1986); Patman & Robinson (1989); Yukawa (1992); Hyman (2001); Boyd (2015); Boyd (2019a)
Mbule	A623	Boyd (2015); Boyd (2016c)
Njowi	A63	Blench (2010a)
Eton	A71	Van de Velde (2006)
Ewondo	A72a	Tsala (1956); Abéga (1971); Angenot (1971); Essono (2000)
Bulu	A74a	Bates & Johnson (1926); Alexandre (1966)
Fang	A75	Galley (1964); Kelly (1974); Andeme Allogo (1991); Hombert (1991); Medjo Mvé (1997); Mékina (2012)
Gyeli	A801	Grimm (2015)
Shiwa	A803	Puech (1989b); Ollomo Ella (2013); Cheucle (2014)
Kwasio	A81	Guthrie (1967; 1970a,b; 1971); Cheucle (2014)
So	A82	Beavon & Beavon (2018)
Makaa	A83	Heath & Heath (1982); Heath (2003); Cheucle (2014)

Kol	A832	Henson (2007); Cheucle (2014)
Njem	A84	Beavon (2003; 2005); Cheucle (2014)
Koonzime	A842	Beavon (1983; 2020); Cheucle (2014)
Bekwel	A85b	Puech (1989a); Bouka (1995); Cheucle (2014)
Mpiemo	A86c	Thornell & Nagano-Madsen (2004); Cheucle (2014); Festen & Murrell (2020)
Kwakum	A91	Belliard (2005); Njantcho Kouagang (2018)
Polri	A92a	Wéga Simeu (2016)
Kako	A93	Ernst (1996a,b); Medjo Mvé (2008)
Seki	B21	Jacquot (1983); Mickala Manfoumbi (2005); Puech (S.d.)

Appendix B Reflexes of **t* and **p* in Nen A44 vs. Maande A46

- Nen /l/
  - **tá* 'saliva' (C.S. 1629, BLR 2703) > *mà-lá*, cf. Maande *maa-tá*
  - **táánò/ɔ̀* 'five' (C.S. 1662, BLR 2768 & 2769) > *lánɔ*
  - **támb* 'set trap' (ps. 429, BLR 2759) > *lámb*
  - **átɔ̀* 'three' (C.S. 1689, BLR 2811) > *lálɔ́*, cf. Maande *tátɔ́*
  - **tém* 'cut down (tree)' (C.S. 1703, BLR 2832) > *lím-á* 'clear field', cf. Maande *tám-a*
  - **tí* 'tree' (C.S. 1729, BLR 2881) > *pɔ̀-lí-á*, cf. Maande *pɔ̀ɔ̀-tí*
  - **tímà* 'heart' (C.S. 1738, BLR 2895) > *mɔ̀-límá*, cf. Maande *ɔ-tɛ́má*
  - **tó* 'ashes' (C.S. 1769, BLR 2954) > *mɔ̀-lɔ́*, cf. Maande *mɔɔ-tá*
  - **tóŋg* 'crow (rooster)' (C.S. 1793, BLR 2994) > *lɔ́ŋ*
  - **tɔ́* 'head' (C.S. 1800, BLR 3007) > *mɔ̀-lɔ́*, cf. Maande *aa-tɔ́*
  - **tɔ́m* 'send' (C.S. 1831, BLR 3055) > *lɔ́m*, cf. Maande *tɔ́m-a*
- Nen /l/ before [+high vowels]
  - **túd* 'forge' (C.S. 1861, BLR 3101) > *lún*, cf. Maande *tún-ə*
  - **túkɔ̀* 'night' (C.S. 1864, BLR 3105) > *pù-lw-ə́*, cf. Maande *pu-tú*
  - **túm* 'stab' (C.S. 1866, BLR 3108) > *lúm* 'hit with missile', cf. Maande *túm-ə* 'stick into'

- Nen /t/
  - **tákò* 'buttock' (C.S. 1650, BLR 2741) > *ì-tá*
  - **tédam* 'stand' (C.S. 1692½, BLR 2816) > *tíním*
  - **tíáb* 'gather firewood' (C.S. 1735, BLR 2889) > *tʸáp-á*, cf. Maande *tyáp-a*
  - **tɔ́ád* 'carry on head' (C.S. 1806, BLR 3017) > *twán*
  - **tɔ́ɔ́g* 'draw water' (C.S. 1826, BLR 3048) > *tɔ́k*, cf. Maande *tɔ́k-a*
- Nen /t/ before [+high vowels]
  - **tím* 'dig' (C.S. 1752, BLR 2918) > *tím-ə̀*, cf. Maande id.
  - **tú* 'spit' (C.S. 1857, BLR 3096) > *tú*, cf. Maande id.
  - **túútú* 'bump' (C.S. 1882, BLR 3137) > *ì-tútú*, cf. Maande *ɲi-tútú*
- Mbam reflexes of **p*
  - **pá(an)* 'give' (C.S. 1404(a), BLR 2344) > Nen *hán*, Tuki, Mmala *fá*, Yangben *fà*, Elip *hʷá*, Baca, Gunu *fâ*
  - **pèèm* 'breathe' (C.S. 1468, BLR 2436) > Nen *hìm* 'breathe noisily' ~ *fìm* 'blow', Maande *bí-fáma* 'blow nose', Yambeta *fìmìt* 'blow', Mmala *bí-fɛ́mà* 'blow nose', Baca *fíímà*
  - **pép(ɪd)* 'blow (as wind)' (C.S. 1487, BLR 2463) > Nen *fífà*
  - **pépɔk* 'be light in weight' (C.S. 1494, BLR 2480) > Nen *hɔ́h-ɔ́n*
  - **pìŋg* 'exchange' (C.S. 1530, BLR 2539) > Nen *hìŋ* 'replace'
  - **pàc* 'split' (C.S. 1405, BLR 2346) > Yambeta *pàsa* 'carve'
  - **pèèp(ɪd)* 'fan' (C.S. 1489, BLR 2469) > Nen *pìp*, Tuki *píp-á* [tones?] 'fan' ~ *pìp-à* 'winnow'

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