UNIVERSITY OF CALGARY

Phonological Reconstruction and the Aghem Central Vowels

by

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Abstract

Aghem, Bu, Isu, Weh and Zhoa are Grassfields languages from the North West Province of Cameroon. This study attempts to understand the unusual case of the four highest vowels of Aghem /i, ɨ, u, ʉ/ which are, as already noted by Hyman (1979a:6), in complementary distribution in all but one environment, following dental fricatives.

In an attempt to better understand this unusual pattern, a comparative, phonological reconstruction has been undertaken in the above-mentioned, five languages and those findings are incorporated into this work. However, since the comparative work fails to satisfactorily explain the Aghem vowel distribution, this study also seeks insight from the large body of existing Bantu scholarship, including Proto-Bantu lexical reconstructions. This is a reasonable approach since Bantu is considered to be closely related to the Grassfields languages which are on its border (Schadeberg 1980; Watters 2003).

This paper concludes that both the central vowels in Aghem, and the spirantization that generally accompanies them arise from a variety of historical processes, one of which appears to be vowel contraction of the kind first suggested by Meinhof (1932).

Acknowledgements

This thesis has been a ‘work in progress’ for five years. Beyond any doubt, the person who has borne the brunt of this prolonged exercise has been my wife and it is to her that I want to express my deepest gratitude. Thank you, Henny, for your steadfast love, patience and encouragement as I struggled to see the patterns and understand their implications. You have watched me ride the roller-coaster and you’ve been strong and stable for the whole distance, all this while working on your own MA. I love you!

This period of time has also seen all of our children move from their teens into adulthood and they too have been loving and understanding as I spent countless hours in front of books and computers that I would far rather have spent with them. Thank you Nathan and Leah, Stefan and Nicole, and Sonya; I love you all too and am looking forward to making up for some of that lost time.

My heartfelt thanks also goes Nelson Tschonghongei for his help in gathering the necessary data and for his availability every time I had yet another question about Aghem. Tsɔŋ, zɔŋkɬa na’ e dzɨm! Congratulations on your own academic achievements and ‘more grease to your elbows’. Your drive and commitment are a constant source of encouragement and inspiration.

Finally, thank you Lord God, for life, health, strength and language! As I have explored these Grassfields and Bantu languages, I have often been filled with wonder at the variety and complexity of all that you have created.

In memory of our eldest son,

Andreas Michael Thormoset

1982-2001

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List of Abbreviations

A810 ..... Aghem, Bu, Isu, Weh & Zhoa peoples
ALCAM ..... Atlas Linguistique du Cameroun
ALDEC ..... Aghem Language Development Committee
ATR ..... Advanced Tongue Root
BLR3 ..... Bantu Lexical Reflexes 3 (Tervuren)
CBOLD ..... The Comparative Bantu Online Dictionary
CIE/CAE ..... Contrastive in Identical/Analogous Environments
CL ..... Noun Class
CS ..... Comparative Series (Guthrie)
GB ..... Grassfields Bantu
IPA ..... International Phonetic Alphabet
PA810 ..... Proto-A810
PB ..... Proto-Bantu (BLR3)
PG ..... Proto-Grassfields (Hyman)
PPAB ..... Proto-Potou-Akanic-Bantu (Stewart)
PreB ..... Pre-Proto-Bantu (unspecified parent of PB and PG)
PWG ..... Proto-Western Grassfields (Hyman & Tadajeu)

List of Symbols

$C_{(x)}$ ..... $\text{consonant}_{(\text{position in root})}$
N̩ ..... syllabic nasal
NC ..... prenasalized consonant
$V_{(x)}$ ..... $\text{vowel}_{(\text{position in root})}$
..... word boundary
$ ..... syllable boundary
* ..... reconstructed form
° ..... hypothetical form
+ ..... possesses feature
- ..... lacks feature

All phonetic and phonemic transcriptions conform to the IPA (1996)

Chapter One Introduction

1.1 Intent

> The accuracy of the genetic classification is of course dependent on the accuracy of the methodology upon which the classification is made. To date, the conclusions regarding Niger-Congo classification have been based predominantly on the method of resemblances, lexicostatistics and evidence from shared innovations. Very little has been based on historical reconstruction using the comparative method (Olsen 2004:19).

The following comparative study, carried out in North West Province, Cameroon, has been undertaken with two goals in mind. The first is to arrive at a plausible, historical reconstruction of the Proto-Western-Ring Grassfields Bantu phonology and thereby contribute to the body of data currently available for a wider, Proto-Grassfields reconstruction. By extension, this data and discussion will hopefully also serve Africanist scholars in their ongoing research into the relationship of the Grassfields languages to the larger families of Bantoid and Niger-Congo.

The second goal is to discover, by means of the aforementioned Proto-Western-Ring reconstruction, the historical source of two, almost complementary distributions of the four highest vowels in contemporary Aghem. In fact, the latter goal provided impetus for the former since internal reconstruction, though offering plausible explanations for the anomalous distributions of these phonemes, is not verifiable unless complemented by a comparative component as well.

This chapter introduces the language groups under study, first in terms of their physical location (§1.2.1), then also regarding their linguistic affiliation. The latter is considered, not only from the present viewpoint of the academic community (§1.2.2) but also from that of the people themselves (§1.2.3). In §1.3, the A810 languages are then set within the larger Bantoid context, with special consideration given to their

relationship to Bantu. Section 1.4 provides some of the evidence for that relationship and then §1.5 makes a simultaneous effort to show both the internal unity of the A810 languages and their commonality with Grassfields and Bantu by comparing their Noun Class marking systems. The effort taken here to establish this relationship between the A810 languages, Grassfields and Bantu is done primarily to validate the use of Proto-Bantu and Proto-Grassfields reconstructions for comparison throughout this work.

1.2 Aghem and the Grassfields Languages

1.2.1 Geographical Placement

The terms ‘Grassfields’ and ‘Grasslands’—both descriptions of the predominant physical feature of that area of Cameroon—have also been used since the late 1800s to designate the language groups indigenous to the area. The Grassfields languages straddle three of Cameroon's ten provinces, with the greatest number of languages occupying most of North West Province. Except for three language groups extending into South West Province, the rest are located in West Province. This area is one of the most densely populated in Africa; in 1966 some regions were home to as many as 323 persons per square kilometre (Nissim 1981).

As shown below in Figure 1, the Aghem, Bu, Isu, Weh and Zhoa peoples are located in North West Province, in the northwest corner of the Grassfields territory and extending to the Nigerian border. The total land area occupied by the cluster is less than 1,500 square kilometres, most of which falls within the Menchum Administrative Division of the North West Province.

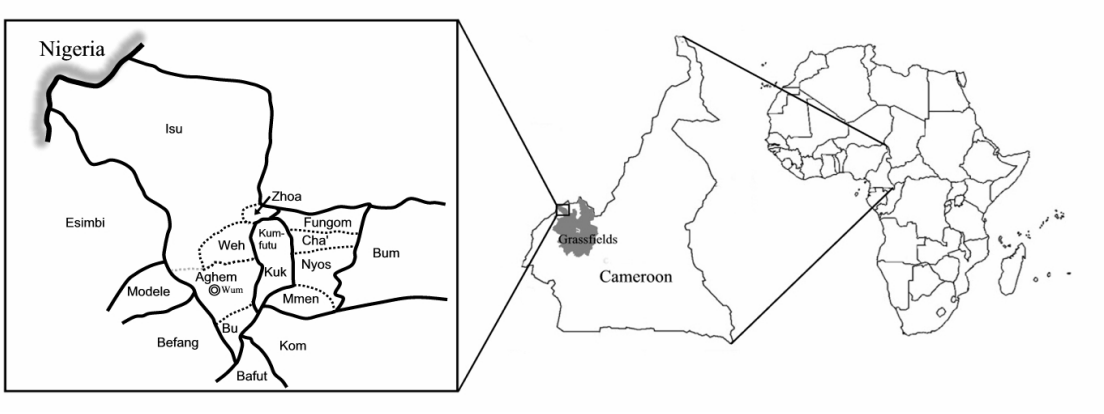

Figure 1: Location of the 'Aghem' (ALCAM 810) and neighbouring languages

1.2.2 Linguistic Classification

According to the *Linguistic Atlas of Cameroon* (ALCAM 1991:136-137), the five language groups under study all fall within the following classification:

family	benue-congo
sub-family	bantoid
branch	wide bantu
sub-branch	grassfields bantu
group	western grassfields Bantu
sub-group	ring
sub-sub-group	western ring
language	810 (Aghem)

The compilers of the ALCAM Atlas chose to use the name 'Aghem' as the broader term for the A810 language group, a choice that does not sit well with people groups who each consider themselves distinct. Since the label 'Aghem' is considered by other members in the A810 group to specify the people of Wum and since there is no other generic name available to designate all of the members of this linguistic group, the term 'A810' will be used from this point forward to refer to the area and languages of this study. 'Aghem' will be reserved as a specific term for both the language and inhabitants of Wum.

The ALCAM 810 classification includes Aghem, Bu (Laimbu), Cha', Isu (Esu), Fungom, Kuk-Kumfutu, Nyos, Weh and Zhoa speakers; Watters (2003:231) perpetuates this classification, further adding Kung. However, the A810 composition was called into question in two surveys conducted by SIL Cameroon for the Ministry of Scientific and Technical Research (Grant, Griffin & Seguin 1993; Troyer, Huey & Mbongue 1995). These studies demonstrated that Cha' and Fungom should be reclassified as part of the Mmen cluster (Ring – Center, ALCAM 821), that Nyos has been completely absorbed by Mmen, and that Kuk-Kumfutu also does not belong in the A810 sub-group. The 1995 SIL survey also suggested that Kung and Zhoa each be considered linguistically homogenous, separate from A810 and 'Mmen' (A821) but, as will be clear in Chapter Three, that does not appear to be a tenable position in the case of Zhoa. Furthermore, Kung is now known to belong to the Western Beboid cluster and not Grassfields.

1.2.3 Oral History

While different members of A810 consider themselves distinct from each another, and offer disparate accounts of their arrival in their current homeland, it should also be acknowledged that they do recognize their linguistic similarities. As the SIL surveys reveal, many members of the different A810 communities claim to freely converse with people from other communities simply by having each person speak his or her own language. What is less clear is whether this mutual intelligibility between various communities within A810 is due to bilingualism, attributable to frequent contact through trade, political domination, intermarriage, etc., or is evidence of dialectal variation within a single language. Surprisingly, the same claim is also frequently made regarding

communication between A810 and A821 communities, which, given the lexical and syntactic disparity, could only seem to indicate varying degrees of bilingualism.

In the Aghem town of Wum stands a monument to the celebrated chief, Nlom Nnam who, according to oral tradition, led the Aghem people on the last stage of a great migration from Munshi, a Tiv area in north-central Nigeria. Upon arrival in their present location, they are said to have driven out the original Ubwa' and also to have reunited with another migratory wave that had left Munshi and come into the area by a different route. The Bu, Isu, Weh and Zhoa peoples, by contrast, have varying accounts of a migration from Tikar, east of the Grassfields, to Ndiwum and eventually on to their present locations on the Menchum/Fungom plateau.[1] The difficulty with these accounts is that there are no real signs of either Tiv or Tikar customs or language characteristics among any of these six people groups (Grant, Griffin and Seguin 1993; Kopytoff 1981). Furthermore, as will be evident throughout this work, the Aghem language is more closely related to its four neighbours than any other Grassfields language.

A possible explanation is one that Kopytoff (1971) refers to as 'ethnogenesis'. He makes the observation that:

> When one asks an individual Aghem about his origins in the genealogical sense (and the Aghem keep very precise matrilineal genealogies), one finds in every case that the genealogy stops with a woman who had come to Wum from some nearby place, such as Kom, Kuk, Bum, Mme, Weh, Isu, Esimbi, Mubadji, Befang, etc., all places within a twenty-five mile distance of Wum. Often, people know of related lineages in these places and maintain some contacts with them, and the same clan names are found in many of these different communities (1971:372).

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[1] This same oral history is given by the Kuk-Kumfutu people who are generally held to belong to a different branch of Western Ring Grassfields, but have a very similar vocabulary and morphology.

Kopytoff's observation has been borne out by ongoing studies by the Aghem Language Development Committee[2], which has thus far identified 57 Aghem lineages, each one originating with a different woman from outside of Aghem. That same research has further shown that Kopytoff's 25-mile (40 km) radius is too small, with some lineages traceable to villages as far away as Elak (Oku) and Kumbo (Nso'), about 50 and 70 km respectively to the southeast of Wum.

Given that every Aghem lineage recorded to date finds its origins outside of Wum, it is possible that a similar situation holds true for the other A810 members. This would, however, only be verifiable in the case of Bu, since the other A810 peoples are all patrilineal and have not therefore retained comparable histories of the place of origin of their maternal ancestors. Such inter-marriages would likely have contributed to a sense of solidarity among the various peoples in much the same way that political alliances elsewhere around the world have frequently been 'sealed', as it were, by a marriage union in an attempt to ensure peaceful coexistence. As Kopytoff points out, however, this brings into question exactly how the Aghem identity and language came to be. Are both the result of an outside people, perhaps even non-Grassfields, moving into an area and then, like the Franks in Europe or the Vandals in North Africa, taking on the local language and customs as their own? This would then point to the phonological innovations peculiar to Aghem as being perhaps due to the influence of a substratum rather than to a period of time isolated from the other members of A810.

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[2] The original research was initiated and carried out by Mr. Fang Angus. He has recently been assisted by other ALDEC members interested in the topic.

Perhaps a better way to reconcile the Aghem account with those of its A810 neighbours, however, is to suggest that the ancestors of all the A810 people did indeed live to the east, in the Ndiwum area[3], but for either security or sustenance, abandoned it to start migrating west towards the plateau where they now live. Assuming that members of the original Ndiwum people migrated together to that area, it is plausible that some (ancestors of modern-day Bu) remained on the hill, while others (ancestors to modern-day Aghem) continued south, into the Menchum Valley. Aghem territory still extends deep into this valley, encompassing two other people groups, Befang and Modele. If the Aghem then further expanded their territory into the north west, around the base of the plateau, this would have brought them into the territory of the Esimbi, a Tivoid people to the west of Wum, and possibly into parts of present-day Nigeria. Oral histories tell of the Aghem people living among the Esimbi people for a period of time. Furthermore, this group was under Aghem political domination until well into the last century. If the above assumptions are correct, later migrations back up to the top of the plateau would have placed the Aghem once again next to their nearest linguistic relatives and could explain why their oral history reflects a migration from the opposite direction of the other A810 language groups and also why they have a number of phonological features not shared by the other members of the group.

[3] Real location unknown; said to be somewhere in, or north of, the Bum area (Figure 1), now uninhabited.

1.3 A810 in Relationship to Grassfields and Bantu

1.3.1 Early Studies of Bantu

'Bantu' is a large language family, comprising some 500 languages and over 85 million speakers spread across most of the southern third of the African continent. The name 'Bantu' and the noun classification system still used by Bantu scholars were both first introduced by Wilhelm Bleek in the mid-nineteenth century. The appellation comes simply from the most common word for 'people', *ba-(n)tu* (cf. Johnston 1919 v.1:6).

One of the earliest attempts at a reconstruction based on phonetic correspondences was Carl Meinhof's *Grundriß einer Lautlehre der Bantusprache*[4] (1899). His work was based on only six languages but his attempt to arrive at a hypothetical *Ur-Bantu* (Proto-Bantu) represented a new direction for Africanists, and would become the first of many such endeavours. Since that time, a number of influential works in Bantu reconstruction have been published but undoubtedly the two with the greatest impact have been Guthrie's (1948) *The Classification of the Bantu Languages* and Meeussen's (1967) *Bantu Grammatical Reconstructions*.

Another important work is Guthrie's *Comparative Bantu* (1967-71), which consists of four volumes, and includes revisions to his alphanumeric classification scheme for all the languages that he considered 'Bantu'. This was done, sometimes rather loosely, based on lexical similarities, physical proximity and perhaps occasionally on intuitions, but Guthrie's arrangement has become the de-facto reference standard for researchers, perhaps more for its convenience and comprehensiveness than for its

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[4] *Outline of Phonetics of the Bantu Languages*.

reflection of real genetic relationships. On this latter point, Guthrie's work has been criticized, albeit unfairly, since his stated intent was not to definitively establish the history or genetic structure of Bantu but rather to provide a system of reference (cf. Nurse and Phillipson 2003:168). Despite the shortcomings, his taxonomy has been preserved, almost intact[5], in the majority of Bantuist literature but now often appears under the name 'Narrow Bantu'. The term 'Wide Bantu', which appears below, has also come into use and serves as the catch-all title used to designate language families which were originally omitted from Guthrie's list, generally because they failed to meet one or more of his minimal criteria for classification as 'Bantu' (Guthrie 1948:11-12).

1.3.2 The Grassfields – Bantu Connection

In his seminal, two-volume, *Comparative Study of the Bantu and Semi-Bantu Languages*, Johnston (1919) labelled members of the Grassfields cluster and their Beboid, Ekoid and Jukinoid neighbours, 'Semi-Bantu'. This term would remain in vogue for many years and was being still used by Meeussen (1969) in his *Bantu Phonological Reconstructions*. Johnston (1919 v.1:18) stated that the Semi-Bantu languages "exhibit a decided likeness to Bantu in their word-roots, yet in syntax and word-construction are quite unlike Bantu". In his introductory chapter, he also put forth a set of twelve criteria by which a language might be judged 'Bantu' or not, while at the same time refuting the existing standard of twelve criteria proposed many years earlier by Lepsius (1880; cf. Johnston 1919 v.1:21). Johnston was careful to describe his twelve characteristics as "defining the features of nearly all the Bantu languages" and

[5] Maho (1999, 2003) has proposed a number of changes while retaining the basic structure.

he acknowledged that “to scarcely one of them cannot some exception be quoted—solitary or unusual, it may be—if careful research is made”.

Johnston's less-than-dogmatic presentation of his criteria may have stemmed partly from his awareness of, and possible discomfort with, some of the striking resemblances between languages that he was defining as ‘Bantu’ and those he classified as ‘Semi-Bantu’. One hurdle that he faced at that time, however, was the dearth of sufficient data, both from within the Bantu family and from the so-called ‘Bantu borderlands’. Access to the linguistic data that is available today would certainly have resulted in a much different understanding of the Bantu family, as the last century has seen tremendous progress in the number of new African languages described and classified. With that new data, substantial modifications have been made to the entire Niger-Congo family tree and especially the Benue-Congo branch.

In 1949-50, the International African Institute undertook an expansive on-field survey of the northern limit of what was then defined as Bantu. This study, published in 1956-57, was conducted by two separate teams who gathered data from Kumbo, on the western coast of Cameroon, right across to Lake Albert, at the far eastern border of the Democratic Republic of Congo. Using Guthrie’s (1948:11-12) criteria, these teams analyzed their data to determine membership of the different languages in the Bantu family and then mapped out the results of their research. Although the undertaking was quite remarkable, the results do not appear to have been much more than an endorsement of the status quo in Bantu studies to that date. The name ‘Semi-Bantu’ was discarded as “unscientific” (1956:13) and the member languages were redefined as either ‘Sub-Bantu’ or ‘Bantoid’ depending on which criterion was not met. Although

there were some important reclassifications and a good number of languages and dialects identified, the study really did not alter the general assumptions concerning the relationship between Bantu and many of its nearest neighbours, particularly Grassfields. Up until the 1970s, majority opinion would continue to exclude Grassfields and its nearby cousins from the Bantu family.

From as early as 1949, however, Joseph Greenberg (1955:12) had been a dissenting voice among his contemporaries, referring to a number of Grassfields languages as "languages usually considered Semi-Bantu but most probably Bantu…". By the early seventies, he was being joined by several other linguists, including Larry Hyman, Erhard Voeltz and Kay Williamson, who were also signalling their own assessment that Grassfields languages were more closely related to Bantu than previously thought. Williamson (1971) appropriated the name 'Bantoid' to label the genetic parent of a larger language cluster and other linguists, such as de Wolf (1971), began referring to 'Grassfields' as 'Grasslands Bantu' (GB).

Over the ensuing years, a major effort was made to study and describe a greater number of GB languages, culminating, in the summer of 1974, with an international team surveying and documenting 50 of them. The results of that research, along with findings from the field of archaeology, were presented in April, 1977 at the *Colloque sur l'expansion bantou* [6] held in Viviers, France, while that same year, the Grassfields Bantu Working Group was organized by Larry Hyman and Jan Voorhoeve.

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[6] Colloquium on the Bantu Expansion.

With the colloquium in Viviers, the importance of Grassfields languages was deemed integral to any genetic classification of Bantu. A portion of the preamble to the resolutions passed by the colloquium states "…considérant que la zone des Grassfields est très probablement la zone d'origine de l'expansion bantoue…"[7] (Hyman and Voorhoeve 1980:27). In his assessment of Bantu classification to that point, Schadeberg (1980:318) asserts, "quant aux langues du Cameroun, elles occupent probablement une place importante dans l'arbre généalogique des langues bantoues, étant, ni plus ni moins, une des branches primaires du bantou."[8]

Interestingly, near the beginning of the twentieth century, Johnston (1919:22, see also Westermann 1927) acknowledged that a pre-Bantu people, parent of both Bantu and Semi-Bantu may have originated in the very fertile area between the Benue, Cross and Chari rivers, in what is now north-eastern Nigeria. He did not appear to believe this himself though, assuming instead, along with his contemporaries, that the pre-Bantu had been located in a large area of what is now the Central African Republic and Sudan.

In recent years there have also been suggestions that language may spread without any displacement of populations (Nichols 1992 ; Robertson & Bradley 2000), but this would make it difficult to explain why some of the most conservative Bantu languages, i.e. those most resembling current Proto-Bantu reconstructions, are to be found farthest away from the supposed original homeland in the Cameroon-Nigeria border area. Hock

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[7] "given that the Grassfields area is very likely the original starting place of the Bantu expansion"

[8] "As for the languages of Cameroon, they probably occupy an important position in the genealogical tree of Bantu languages, being no more and no less than one of the primary branches of Bantu."

and Joseph (1996:523) confirm that, "where the history is known, linguistic diversity usually is greatest in the homeland, and smallest in colonial territory."

Watters (2003:227) notes that "most linguists today accept the GB languages, along with other language clusters, in the Cameroon-Nigeria region, as the nearest cousins of Guthrie's Bantu". The same seems to be true in the archaeological field, with one of the most detailed migration theories laid out by Phillipson (1977).

1.3.3 A810 as a Member of Grassfields

In 1977, the Grassfields Bantu Working Group tentatively divided Grassfields Bantu into Eastern & Western Grassfields Bantu and six sub-groups. A more recent proposal is this from Watters (2003:226).

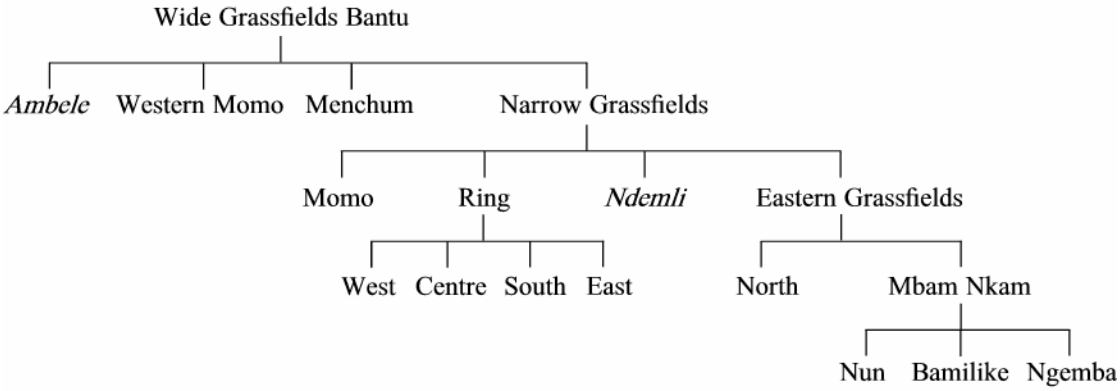


Figure 2: Linguistic Classification of Grassfields

Watters' classification of Grassfields lists 'Aghem' as a branch of Narrow Grassfields – Ring – West, similar to its cataloguing in the *Linguistic Atlas of Cameroon* (ALCAM 1991:136-137). He has, however, appropriately dispensed with the 'Western Grassfields (Bantu)' label since, other than geographical their placement and the fact that members of this group are clearly different from Eastern Grassfields, no unifying characteristic exists among its members that would warrant such a classification. Ndemli and Ambele,

both in italics, are single languages that do not readily fit into any of the other groups and, as Watters notes, further study of these two languages is needed.

1.4 Evidence for the Relationship between Bantu and Grassfields

1.4.1 Guthrie's Criteria for Bantu Membership

As already mentioned, numerous attempts have been made over the years to develop a set of distinguishing features for determining whether or not a language is Bantu and, as Johnston (1919 v.1:21) has noted, exceptions could be found to almost every criterion. Thus, whereas the early Bantuists such as Lepsius and Johnston worked with a dozen features, Guthrie (1948:11-12) disposed of those that he did not consider definitive and settled on two major criteria as follows:

> **Criterion 1: Grammatical Gender System**
>
> A system of grammatical genders, usually at least five, regularly associable with those found in other Bantu languages, and having these features:
> a) marked by prefixes, distinguishing from ten to twenty classes
> b) regular association of singular & plural pairs as 'genders', one or more single-class genders often with a prefix similar to singular or plural classes.
> c) a system of grammatical concord (dependant prefixes) on words which modify (or are subordinate to) a word marked with a class prefix.
> d) genders are not associable with sexual gender or any other semantic domain.

Probably the most useful feature for a preliminary classification of any Grassfield or Bantu language is the existence of noun-class marking systems. As evidenced by the remnants still to be found in all of the major branches of the Benue-Congo family, they predate Proto-Bantu (PB). Unlike languages such as French and German, with two and three nominal genders respectively, Bantu languages can often have ten or more genders, which arise from the pairing up of noun classes (CL). Lingala, a widely used lingua franca from the western Congo basin, provides such an example.

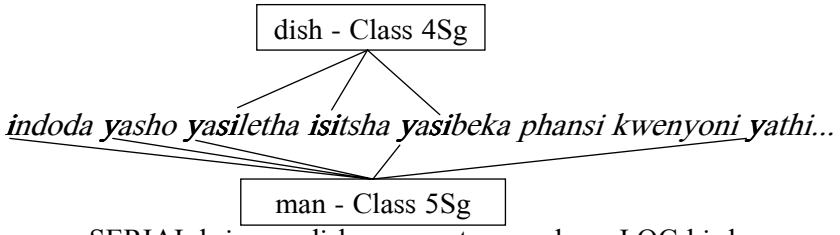
(1)

1.	*mo-to*	2.	*ba-to*	‘person/people’
3.	*mo-téma*	4.	*mi-téma*	‘heart/s’
5.	*lɔ-bɔ́kɔ*	6.	*ma-bɔ́kɔ*	‘arm/s hand/s’
7.	*e-tabe*	8.	*bi-tabe*	‘banana/s’
9.	*njɔku*	10.	*njɔku, n-kásá*	‘elephant/s’, ‘leaves’
11.	*lo-kásá*			‘leaf’
12.	*bo-lingo*	n/a		‘love’
13.	*kɔ-mɛla*	n/a		‘drinking, to drink’

Lingala has 13 noun classes (criterion 1.a) and major gender[9] pairings, 1-2, 3-4, 5-6, 7-8, 9-10, and 11-10 (criterion 1.b-1) with other pairs occurring less frequently. As is apparent from the examples in (1), the 9-10 pairs are often indistinguishable outside of context. Classes 12 and 13 form two genders on their own (criterion 1.b-2), consisting primarily of abstract or non-count nominals and verbal derivations respectively. The CL 13 prefix is also indistinguishable from the infinitive verb prefix.

Another salient feature of most Bantu languages is the CL concord system, which, depending on the language, may be imposed on noun-phrases, verbs and verb-phrases, or both. An example can be seen in the following extract from a Zulu[10] text.

(2)



man SERIAL bring dish put under LOC-bird say

“The man brought a dish, put it under the bird, and said...”

In (2), not only are the nouns prefixed with a class marker, but the verbs too are marked for subject and frequently also for object agreement (criterion 1.c). If there had been an

[9] Genders, in this case, are defined as the noun-class combinations used for singular-plural pairs.

[10] All Zulu references from personal field notes - 1994.

adjective or possessive in (2), it too would have been marked for CL agreement. This concord system, especially genitives, can be quite overwhelming for a new language learner. Modern English, having collapsed 'thy' and 'your', has seven possessives while Zulu has over 250, although roughly only 100 of these are unique lexemes. First and second person possessives are marked for CL agreement with the object possessed, but third person possessives must show CL concord for both possessor and possessed.

Concerning Guthrie's criterion 1.d, a number of Bantu specialists argue that the noun class system can indeed be associated with different semantic domains or physical shapes and sizes, but the evidence for this is not conclusive. Demuth (2000:275) argues that the "underlying semantics of the PB noun class system is fairly well attested" but, if that is the case, much of the original system is no longer productive. Although classes 1 and 2 are admittedly almost universally used for humans, the fact that cognate nouns can belong to different classes among neighbouring Bantu languages, and that borrowed words will generally be assigned to a single class, regardless of semantic features, suggests that other criteria, perhaps grammatical, also had a role to play.

Criterion 2: Shared lexical inventory

There must be a vocabulary that, by means of fixed rules, can be related to a set of hypothetical common Bantu roots.

This feature of Bantu is often very transparent, as seen in the following reflexes of PB *N̩-jìdá 'road' or 'path' (Obenga 1985:31 ; personal fieldnotes 1994, 1997):

(3)

Bamilike:	njie	Punu:	nzila
Mbochi:	nzia	Kongo:	nzila
Isongo:	nzia	Tsogho:	nzea
Duala:	ngea	Swahili:	njia
Fang:	nzen	Likuba:	nzela
Zulu:	i-ndlela	Lingala:	njela

1.4.2 Bantu characteristics in Grassfields and Aghem

Having touched on the defining characteristics of Bantu as a whole, it is useful to see how Grassfields, and Aghem in particular, line up with Guthrie's criteria, again beginning with 1 a & b, the noun-class and gender requirements.

(4)

1.	*Ø-wɛ* ———	2.	*a-wɛ*	'child/children'
3.	*u-lwɨ̂ŋ* ———	4.	*e-lɨ̂ŋ*	'raffia bamboo/(pl.)'
3.	*u-twɛ* ———	6.	*a-twɛ*	'ceiling/s'
5.	*e-so* ———	6.	*a-so*	'corn/(pl.)'
5.	*e-fu* ———	13.	*tɨ-fu*	'ram/s'
5.	*e-tsɨŋ*		--	'fear'
7.	*kɨ-fuw* ———	8.	*u-fuw*	'rat/s'
7.	*kɨ-ghuw* ———	6.	*a-ghuw*	'foot/feet'
	--	6a.	*m-vɵ*	'oil'
9.	*Ø-mbɔŋ* ———	13.	*tɨ̀-mbɔ̀ŋ*	'cow/s'.
19.	*fɨ-nwɨn* ———	6a.	*n-nwɨn*	'bird/s'

Although Aghem has only 12 noun classes, compared to 13 for Lingala, it has a greater number of major gender pairs. Criteria 1.a and 1.b seem to be met; the issue of regular CL correspondences between Aghem and Bantu noun classes is considered in §1.5 .

Turning to Criterion 1.c, we see that Aghem, and in fact most of the Grassfields, have undergone extensive simplification in their grammatical accord systems, with parts of the eastern branch even moving into varying stages of reduction of their noun classes. Nevertheless, Aghem still requires some degree of grammatical accord as seen in the underlined portions of the following sentences:

(5)

a) *U mò ma'a tsughu lɨŋ e duuw-zo.*
he P1 throw down bamboo CL4_Assoc large -CL4_Spec
'He threw down the big bamboo.'

b) *Mbɔ̀ŋ lɨŋo tɨ lo alo ukwâ'.*
cow black CL13_Pronoun be at/on hill
'The black cows are on the hill.'

c) *Bʉgha u.bɨ̀ghà u mò wi pfɨ mbɔ̀ŋ zana.*
leopard CL8_Assoc.two CL8_Pronoun P1 kill eat cow my
'Two leopards killed and ate my cow.'

Aghem has developed a three-way, theme/focus-driven system of distinguishing new or disputed information from old or known, and this allows almost any noun to occur with (5)a) a CL prefix alone, b) no CL prefix but followed by either a CL concord or pronominal marker, or c) no prefix but with a CL suffix. Despite the added level of grammatical complexity in this system, and the fact that the Aghem system of accord is not as neatly transparent as that seen in the Zulu sentence in (2) (p. 15), it is nevertheless clear that Aghem still meets part 1.c of Guthrie's criteria.

As is the case with Narrow Bantu, there is little evidence remaining for any semantic or structural motivation for Grassfields noun class assignments. In step with most of the Bantu family, gender 1-2 is primarily for humans.[11] Some further consistency is found in the fact that gerunds, which appear to combine with the preposition *an* to form infinitives, are invariably CL 5, and that there is a strong tendency to assign borrowed words to gender 9-10[12]. Otherwise, the same kind of tapestry exists as seen in Narrow Bantu where neighbouring languages will at times have differing classes assigned to cognate roots.

Guthrie's second criterion for Bantu membership, is that of "shared lexical inventory" in 0 (p. 16). In the case of the Grassfields languages, the family can essentially be divided into two distinct parts; the Mbam-Nkam languages' CL features most closely resemble Narrow Bantu, but are starting to undergo reduction, while the rest of the Grassfields families have CL characteristics that are quite distinct. In spite of

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[11] but some, while clearly human, belong to other genders: *otsɔŋ, etsɔŋ* 'thief'(3-4), *kɨkɔ, okɔ* 'slave' (7-8)

[12] e.g. English borrowings: /ká?.pī/~/tə̄-ká?.pī/ 'cabbage', /lé.dìà/~/tə̄.lé.dìà/ 'radio'

this schism, Watters (2003:227) states that the lexical correspondences for Grassfields range between 40 and 60 percent and "the internal unity of Grassfields is clear".

Lexical correspondences can be found between Aghem and Narrow Bantu, even over the distances represented by Zulu (South Africa) and Lingala (the two Congos).

(6)

Aghem	Lingala	Zulu	Gloss
/dʒì/	/ndʒèlá/	/i-nɮela/	'path'
/ndúʸú/	/ndákò/	/i-nɮu/	'house'
/fɨ̃-nʷɨ́n/	(/ndɛkɛ/)	/i-nʲoni/	'bird'
/é-kpú/	/kúfà/	/u-kufa/	'dying, death'
/é-sɨ́/	/lí-sò/	/i-ɬo/	'eye'
/ō-sʉ́/	/lì-bòsó/ 'forehead'	/ubu-so/	'face'

As might be expected, the percentage of clear lexical correspondences between Aghem and Zulu is smaller than that, for example, between Lingala and Zulu; presumably the difference in distance also reflects a difference in time-depth since separation. Nevertheless, enough examples and regular sound correspondences exist to indicate that the Aghem and Zulu lexical items are cognates and that the situation is not one of chance or coincidence (as might be exemplified by [mʷô] 'me' in both Aghem and French). Also, since the 4,000+ kilometres between Aghem and Zulu essentially rules out borrowing as the source of their cognates, one is left with the reasonable assumption that any shared lexicon is the result of retention. It is, of course, outside of the scope of this study to ascertain from what stage such a common lexicon may have been retained, whether Proto-Bantu, Proto-Bantoid, Proto-Niger-Congo, or somewhere in between. Therefore, the use of the term *Pre-Bantu* will serve throughout this work as a generic term to indicate some unspecified point of common parentage.

1.5 Noun Classes in PA810

In Western Grassfields, noun classes are generally marked by a prefix and accompanying concord particles. According to Dimmendahl (2001), they generally provide good evidence of genetic affiliation, as noun class markers appear to be less prone to diffusion than many other linguistic features. This does not negate the need for proper comparative research but does provide a useful starting point for deciding which languages to include in the comparative study of a potential language cluster.

Table (7) shows the nouns classes of the A810 languages, plus Kom and Kumfutu. Except for Kom, the prefixes are very similar, though Kumfutu mirrors Kom in retaining the distinction between CL 10 and 13. 'N' signifies a homorganic nasal.

(7)

CL	PWG	*810	Aghem Weh	Bu	Isu	Zhoa	Kumfutu	Kom
1	*ù(N)-	*ò-	Ø	Ø	ò-	ò-	Ø	Ø
2	*bə-	*a-	a-	a-	a-	a-	a-	Ø
3	*u-	*o-	o-	ʊ~ə-	o-	o-	o-	ɨ-
4	*i-	*e-	e-	e-	e-	e~ɪ-	e-	i-
5	*i-	*e-	e-	e-	e-	e~ɪ-	e-	i-
6	*a-	*a-	a-	a-	a-	a-	a-	a-
6a	*mə-	*məN-	Ǹ-	mə̀-	məN-	Ǹ-	Ǹ-	mə̀-
7	*ki-	*kə-	kə-	kə-	kə-	kə-	kə-	a-
8	*bi-	*o-	o-	o-	o-	o-	o-	ɨ-
9	*i(N)-	*Ø	Ø	Ø	Ø	Ø	Ø, (a-)?	Ø, N-
10	*i(N)-	*tə-	tə-	tə-	tə-	tə-	sɨ-	-sɨ
13	*ti-						tə-	tə-
19	*fi-	*fə-	fə-	fə-	fə-	fə-	fə-	fə-

The table differs from Hyman's (1980:182) proposal for Proto-West Grassfields (PWG) and this is to be expected, given that there is necessarily a difference in time-depth for the two reconstructions. The PWG class 2 prefix, for example, is given as **bə-* whereas all of A810 reflexes are simply /a-/. Since there is no indication of an original consonant for the class 6 prefix in the A810 family, **a-* has been retained as the proto-form. It reasonable to assume a PG > PA810 change such as **ba-* > **βa-* > **a-*.

Although some of its neighbours have retained their CL 1 /ò-/ prefix, Aghem is now described as having a zero-prefix and the nouns in this class appear to have irregular forms. Nevertheless, as Hyman (1979a:21) notes, the evidence for the original prefix in Aghem is still clear in some cases, such as the singular form for 'woman, wife' /ɥǐ/ (from earlier **ò-ɟí*, plural /á-ɟí/). This is less obviously the case, however, for /wɛ̌j/ 'child' and /á-wɛ́j/ 'children' (cf. Lingala *mwana, bana*; PB **mò-jánà*, **vá-jánà*). As is the case for 'wife', the /w/ of 'child' is explainable due to the prefix of **ò-(j)án`* but unexpected in the plural form with its assumed reconstruction *\*á-(j)án`*.

At a fairly early point, likely even predating Proto-Grassfields, certain augmenting and CL-prefixes such as **N-*, the class 9 nasal prefix of PB, appear to have fully merged with the noun stems (Hyman 2005). This process has been documented in a number of Narrow Bantu languages in the Central Bantu group and according to Grégoire and Janssens (1999), there is also good evidence for it among the north-west Bantu and possibly other Bantoid languages including Grassfields. The result for all of A810, and some other Grassfields branches, is that a high percentage of the Class 9

nouns have a prenasalized consonant[13] in onset. It is also quite clear that there has been a degree of blurring between CL affixes and root syllables within Bantoid nouns. Thus, a CL 7 word such as PB **ke-boko* 'hand, front paw' has a citation form [kə.ɣo] in Aghem. The same word in Babessi, another Grassfields Ring language, is [ɣə.kə], with the citation form for the noun taking the shape of Root + CL suffix. Paulin (1997) similarly shows 'fufu', the principal food in the area, as [bɛ́ː.kə̄] for Babessi, while it is [kɔ́-bɛ́e] in Aghem, [kɔ́-bɑ́ː] in Zhoa, [ā-báiŋ] in Kom, etc.

The A810 noun-classes raise a few questions that may warrant reassessment of Hyman's (1980) PWG reconstructions. The first of these concerns the prefixes for CL 10 and 13, which have fully merged[14] in A810 and are all now classified as CL 10. In the PB noun class reconstructions provided by Demuth (2000:272), the class 10 and 13 prefixes are **di(N)* and **to* respectively and a similar distinction has been maintained in Ring neighbours, such as Kumfutu, Kom and Oku, with the suffix /-sɨ/ marking CL 10 in the latter two. Although the PG reconstructions (Hyman & Tadadjeu 1976:76) provide an CL 10 alternation **í ~ *sí*, this was not carried over to the PWG. The difficulty with the PWG prefix for class 10 is that the coronal, occlusive onset has already been eliminated, removing the most natural source for the stop still found in the modern A810 reflexes.

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[13] The morphology of CL 9 nouns in an utterance is consistent with such an analysis but §3.2.3 (p. 77) shows that phonetically, these closely resemble a CL 6a syllabic nasal prefix + stop.

[14] Although, in Aghem, some CL 13 A-Form nouns require a reduplication of the root vowel as a suffix/second syllable. More investigation is needed to see if this bears any relation to proto-forms.

Moving on to noun classes 7, 13 and 19 we find that /i/ is chosen as the PWG vowel for all three prefixes compared to /ə/ for PA810. Assuming a similar set of prefixes for PreB as those reconstructed for PB **ke-*, **to-*, **pi-*, it is still unclear why three different vowels should all become front-close in PG and PWG before lowering and centralizing almost to schwa in A810. There are at least three other scenarios which seem more plausible. The first is that these three different PreB vowels might simply have undergone the schwa-effect on an unstressed prefix when followed by primary stress on the first syllable of the stem. A second, and perhaps more likely explanation, is that there was neutralization of several Pre-B noun-classes into a single class in A810. There is, for example, no distinction in A810 analogous to that between PB noun classes 7 **ke-*, 12 **ka-*, 15 **ko-*, and 17 **ko-*; A810 has only CL 7 *kə-*. A third possibility is that there was some kind of general backing and rounding of CV prefixes, perhaps by analogy with PreB CL 13. The current A810 reflex of [ə]~[ɵ] would then be readily explicable in terms of a proto-/ɔ/, which becomes centralized and unrounded before a consonant, a process that still operates globally in modern Aghem. For example, *ki-bɨgha* [kɘ́.bɘ́ʸá] 'leopard', as a known object in sentence-final position, is *bɨgha-kɔ* but when followed by a word with consonant onset, it is *bɨgha-kɨ*.[15] Although none of the A810 languages consistently have [ɔ] as a reflex in these three classes, the prefixes in the Weh, Isu, and especially Zhoa data at times have a rounded back quality anywhere between [ɵ] and [ʊ]. This, coupled with the knowledge that the definite

[15] Hyphens have been added to these examples to facilitate seeing the affixes.

suffixes for CL 7, 13, & 19 are *-kɔ*, *-tɔ* and *-fɔ* respectively, might allow one to reasonably argue for rounded vowels in the A810 proto-forms.

The next major difference to be considered is the choice of **o* as the vowel for PA810 CL 1 and 3 as opposed to **ʊ* for PWG. The latter normally corresponds to A810 [ụ], which is more closed than that the vowel found in these two prefixes. If one were to start with *ʊ- for PA810, it would be hard to understand why the same vowel became the very close [ụ] in all other open-syllable contexts but not here. The identical argument can be used for the selection of **e* for CL 4 and 5 rather than **ɪ* since the latter manifests itself most frequently as [ị] in A810. Thus, although current opinion seems to favour the higher vowels (Maho 1999:51; Mutaka 2005:392), the situation in A810 seems to support Demuth (2000:272), who presents the PB prefixes as **mo-* for both CL 1 and 3, and as **me-* and **le-* for classes 4 and 5 respectively. Selecting these more open vowels for the proto-forms brings the modern-day Aghem reflexes of [ọ] and [ẹ] in the NC prefixes in line with the vowel correspondences found in the roots.

A feature of CL prefixes in A810, except for Bu, is that they are deleted in the first position in genitive constructions. The word 'log', for example, consists of /kɨ́-kɨ̂m/ 'piece' and /fɨ́-kâʔ/ 'tree'. While Bu, like Kom, constructs genitives with both a prefix and an associative marker, as in /kɨ́-kɨ̂m kə̀ fɔ́-kâʔ/, the other A810 members and Kumfutu do not, yielding /kə̂m kə̀ fɔ́-kâʔ/. Here, the CL of the first noun is identified only by the associative marker. Interestingly, though the prefixes are deleted, their influences on the stem remain. Thus Aghem /ó-bàʔ/, the plural of /kɨ́-bàʔ/ [kɔ́.bâʔ] 'shield', will retain both the tone spread and rounding to yield [gbʷâʔ], even in positions where the prefix is obligatorily dropped. This may show that prefix deletion is a fairly

recent innovation since some degree of levelling between singular roots and their labialized plurals could be expected over an extended period of time. There is, in fact, already free variation in some verbs like [bʷíː] ~ [bíː] ‘sleep’ and [bʷìː] ~ [bìː] ‘travel’, so derounding in this environment seems likely to extend to the nouns as well.

1.6 Summary

The primary aim of this chapter has been to provide the reader with a sense of the context within which this study has been undertaken. To that end, discussion was centered first on the location and linguistic classification of the A810 languages (§1.2), and then followed with evidence of their relationship to the greater Bantu and Bantoid families (§1.3-§1.5). Having established that there is sufficient cause to analyze the A810 languages as a unified branch within Grassfields, and Bantoid, we now turn to the theoretical and methodological aspects of this work.

Chapter Two Theoretical Framework, Methodology, and Challenges

> The living language is like a cowpath: it is the creation of the cows themselves, who, having created it, follow it or depart from it according to their whims or their needs. From daily use, the path undergoes change. A cow is under no obligation to stay in the narrow path she helped make, following the contour of the land, but she often profits by staying with it and she would be handicapped if she didn't know where it was or where it led to (White 1990:143).

This section endeavours to set the context in which the A810 reconstruction is undertaken. Although not subscribing to all of the theoretical tenets of a neogrammarian model as discussed in §2.1.1, the model's methodology is retained as the most suitable for the task at hand. In §2.1.2, Evolutionary Phonology, a recent model of sound change developed by Blevins (2004), is presented as an appropriate way of accounting for the highly marked segments and skewed distributions that one finds in the A810 data.

Section 2.2 introduces the data sources used and explains the principles guiding what would be included. Section 2.3 discusses some of the challenges entailed in attempting to reconstruct unwritten languages and establishes the value of weighing any reconstruction against a wider context, in this case, Bantu and even Pre-Bantu. Finally, in §2.4, the actual methodology of segment comparison and reconstruction is considered, as well as the principles applied in selecting one segment over another.

2.1 Theoretical Foundations

2.1.1 The Neogrammarian Framework

Since the late nineteenth century, phonological/lexical reconstructions have often been undertaken within a neogrammarian framework, which assumes that all language change can be traced either to phonetically motivated sound shifts, analogy or borrowing. Within this framework, it was particularly the Regularity Hypothesis that

attracted the most attention. Its proponents, the 'neogrammarians', maintained that phonetically motivated sound change, whether conditioned or spontaneous, is both regular and without exception, unless overridden by more powerful sources of change such as analogy and borrowing (Hock 1991:34-36). The Regularity Hypothesis can be most simply illustrated by means of the relationship between Proto-Bantu **p* and Proto-A810 **f*. Assuming a Pre-Bantu proto-segment **p*, there would be no reason to expect that an **unconditioned** sound-shift in the Western Grassfields would produce a Proto-A810 **f* in some instances but a **b* or **pf* in others. Nevertheless, a concurrent or preceding **conditioned** change, such as *p > pf / _uV, might well change certain Pre-Bantu **p* segments to *pf* before the unconditioned rule can be applied, thereby disqualifying it from that particular change. This process is known as bleeding.

As viewed by the neogrammarians, 'sound change' is not only regular and without exception, but is also considered to gradually, imperceptibly and simultaneously affect all qualifying segments (Hock 1991:631). According to Hock, Labov's work since 1965 has "shown almost all of these tenets to be incorrect or in need of modification" (1991:660), but Hock maintains that "the neogrammarian regularity principle still remains a heuristically useful and important criterion for historical linguistic research." This is not because the neogrammarian understanding of sound change was accurate, but rather that the outcome "does in the overwhelming number of cases approach the regularity postulated by the neogrammarians" (1991:660).

This work also assumes the essential regularity of sound changes as viewed 'after the fact.' It anticipates that unexpected sound correspondences will generally find their explanation in other conditioned changes that have either bled or fed the rule being

considered, or that the change is the result of analogy or borrowing. It is recognized, however, that this model does not account for the arbitrary nature of unconditioned sound change, that is, the socio- or psycho-linguistic factors that might allow the same segments in two daughter languages to branch off in quite different directions.

2.1.2 Evolutionary Phonology

Vennemann (1978) presents all phonological change as the product of two conflicting types of simplification–phonetically motivated or conceptually motivated–and argues that simplification of either type necessarily introduces complication into the other. Such an opposition is meant to answer the question, "if everything gets simpler, why don't languages get simpler?"[16] (cf. Baldi and Werth 1978:271). This reflects an assumption inherent to much of linguistic theory, namely that language change is goal-directed, driven by a presumed need for optimal economy and simplicity but frequently impeded from achieving it because of the ongoing need for clear communication. Martinet (1955), for example, suggests that vowel shifts arise directly from the tension between a drive towards phonological symmetry and the fact that the oral cavity is asymmetrical. Hock (1991:151-166), acknowledges the controversy surrounding such teleological explanations for sound change, but also frequently appears to adopt them.

In her model of *Evolutionary Phonology*, Blevins (2004) takes a different approach, suggesting that much of the modern linguistic focus on optimization and on synchronic rules and constraints is misguided. She states:

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[16] The question seems all the more pertinent when comparing the segmental complexity of the Grassfields languages with the currently accepted reconstructions for Proto-Bantu.

> The historical phonetics which underlie regular synchronic patterns and their propagation across generations are similar to those proposed by Grammont (1933). But where Grammont explains sound change in terms of an interplay of the [*sic*] 'la loi du moindre effort' ('the least effort principle') and 'le besoin de clarté' ('the need for clarity'), Evolutionary Phonology acknowledges the accidental nature of change (2004:15-16).

A possible illustration of this claim can be found in the Kom segments /kf/ and /gv/, seen in Chapter 3, examples (21) (p. 71) and (22) (p. 73). Aghem and the other A810 neighbours have neither segment, but neither do they have any other single segment that can be predicted based on the Kom cognates. In the case of Aghem, one can expect to look for cognates of Kom /gv/ words among entries beginning with /g, g^w, gb/ or /bv/ and, not surprisingly, cognates of /kf/ words will be found with a corresponding /k, k^w, kp/ or /pf/. These eight Aghem segments, in turn, yield numerous minimal pairs and there is no indication of any process underway to simplify or optimize the phonemic inventory as Kom has done. This would come as no surprise to Blevins who rejects the notion of an optimizing or teleological motivation for sound change, stating that it "may result in a less effortful pronunciation, or more extreme perceptual contrast, but these are emergent, non-deterministic, properties of change which reflect common sources of sound change, and nothing more" (2004:15).

Blevins closely parallels Ohala (1989, 1993, 2005) in viewing all sound change as phonetically motivated, with recurring sound patterns across the world's languages acting simply as a reflection of common, often converging, phonetic processes. She considers that "certain phonetically motivated changes are more common than others, and lead to common sound patterns, while other phonetically motivated changes are less common, and lead to less common sound patterns" (2006:5). She also maintains that

"principled diachronic explanations for sound patterns replace, rather than complement, synchronic explanations, unless independent evidence demonstrates, beyond reasonable doubt, that a separate synchronic account is warranted" (2004:5).

Blevins' approach makes ready allowance for the seemingly unnatural phonological inventories found in A810, and many of the world's other languages, but without appealing to synchronic constraints. Such constraints, while perhaps able to accurately predict acceptable segments or tactics for a limited number of languages, or language families, will generally fail to be universally applicable. Blevins devotes several chapters, and an impressive array of data, to a review of the inherent weaknesses of current synchronic models. She refutes a number of the most commonly held views concerning phonological universals, rejecting such often-cited notions as 'naturalness' (p. 70), 'effort minimization' (p. 259) and 'innate universal constraints' (p. 71, 236). Although she does accept language-specific markedness constraints, they must be considered 'learnable' and play no role in guiding the direction of future phonological change. In her words,

> ...attributing common sound patterns to common phonetically motivated sound change allows synchronic grammars to be primarily descriptive, liberated from the burden of explanation and naturalness. This is a welcome result, since synchronic markedness accounts rule out attested sound patterns, fail to explain why a particular sound pattern is more or less marked than some other, and still make reference to historical explanations when a highly marked pattern arises (Blevins 2004:259).

Often it is a matter of a small number of languages, or perhaps one family of languages, that does not conform to the constraints imposed by a particular linguistic model but this is all that is needed to demote an honoured universal to a mere

generality. Until all of the world's living languages have been accurately described, there is still the possibility of both new segments and previously undocumented phonotactic relationships being discovered. Even then, any attempt at universal statements about human language will be valid as nothing more than a synchronic snapshot. This is, of course, not meant to deny constraints of a physical nature. It is a safe prediction, for example, that no phonological inventory will contain apico-velar segments, but this can simply be ascribed to the shape and mobility of the human speech apparatus without appealing to any predetermined or innate psycholinguistic mapping.

In *Evolutionary Phonology*, Blevins proposes three potential sources for sound alteration: CHANGE, CHANCE and CHOICE. In the case of CHANGE, the hearer mishears the phonetic signal and reproduces what he or she has heard, thereby deviating from the norm. With CHANCE, the phonetic signal is clearly heard but is phonologically ambiguous and the hearer associates the segment with a different phonological form than is found in the speaker's grammar. Finally, with CHOICE, the hearer has, perhaps via numerous speakers or differing registers, accurately perceived a variety of phonetic tokens of the same phonological form and either chooses a different token as the template or comes to associate a different or non-standard phonological form with the set of variants (Blevins 2004:32-33).

Although there is no one-to-one correspondence between the two models, Blevins sources of change reflect some affinity with Ohala's (1993) concepts of 'hypo-correction' and 'hyper-correction' in that both entail either mishearing or misinterpreting at the phonetic level.

In one type of hypo-correction, the listener fails to 'correct', or to assign a speech signal to the appropriate underlying form, thereby re-analyzing the non-standard form as underlying. This concept corresponds best with CHANCE and Blevins (2006:3) suggests that the majority of sound changes are of this nature, with the re-analyses normally defaulting to existing underlying or phonological segments rather than the creation of new ones. A second type of hypo-correction mentioned by Ohala (1993:247), and most comparable to CHANGE, occurs when the listener notices only the salient feature of a conditioned sound change and reproduces that change without also faithfully reproducing the environment that conditioned it, resulting in simultaneous change and loss within the utterance.

Finally, in the case of hyper-correction, Ohala argues that the listener inappropriately perceives an underlying, or phonological, distinction as predictable and therefore tries to 'correct' it, through dissimilation, to conform to some other analogous feature in the language. Ohala refers to all hypo-correction as "natural" change (1993:249) and hyper-correction as "unnatural", that is, not explainable in terms of natural phonetic processes.

Blevins (2004:41) too, emphasizes the individual nature of all sound change:

> Given that the set of utterances which any child hears in the course of language acquisition will be different from that of the next child, with different frequencies of, e.g. word variants, the model … implies that every individual's recognition of minute differences in individual grammars sets Evolutionary Phonology apart from other approaches where speakers of the same language are assumed to have the same grammar.

This naturally leads to a discussion of the least developed aspect of Evolutionary Phonology. Although she critiques other models for failing to characterize "the imprecise transmission of language from one generation to the next - the source of language change" (2004:17), Blevins similarly fails to establish the logical progression from the changes that she posits at the level of the individual to those which pass through the language community as a whole. How is it that the "imprecise transmission of language from one generation to the next" can lead to strikingly uniform phonological, lexical, syntactic or even semantic changes within a relatively short period of time? One might well expect that the net result of individuals' "minute differences" would be a stabilizing tension, a veritable balance of power capable of impeding changes in any specific direction. Of course, this is not the case. The reality is that sound changes are often uniform, rapid and dramatic with whole communities and regions adopting a change within the space of one or two generations (Labov 1994, 2000). Blevins acknowledges the tenuous relationship between language change at the individual and social levels but settles for the rather uninformative observation that, "the facts are staring us in the face: from a single source, sound change may or may not take place" (2004:280).

Reflecting back on the quote from White prefacing this chapter (p. 26), Blevins' view of language might be seen as more akin to a meandering stream rather than a cow path. The precise route that any stream takes is purely a function of its environment and chance circumstances: the rains are heavier at one time or another, the soil is softer on one bank or the other, and prevailing winds add quantities of silt or more frequently

push the waters towards one or the other side. Furthermore, the very existence of the stream in that particular location influences its path as it slowly erodes its own bed.

The weakness of such an analogy, as with Blevins' insistence that the direction of sound change is purely accidental in nature, is that it portrays humans only as victims of such change, failing to take into account their volition and cognitive abilities. Ascribing language change solely to hearer (learner) mishearing or incorrect cataloguing of input paints a purely behaviourist picture that Labov (1972, 2000), Zeitlyn & Connell (2003:119) and others find deficient. It simply does not address the social complexities that underlie at least some aspects of language change. Why is it that the speech of individuals who live in the same place all their lives can undergo striking changes in both vocabulary and pronunciation? These speakers are not all mishearing; they already have well-established, internalized tokens and may have been accurately producing the 'correct' lexemes and sounds for many years. Nevertheless, as Labov (1972, 1994, 2000) has clearly demonstrated, their speech can change markedly over a few decades.

Blevins allows for CHOICE of exemplars and concedes that individuals may be able to deliberately hyper-articulate in order to preserve grammatical/functional distinctions, but this is portrayed as being primarily, if not exclusively, carried out at the subconscious level. She does not leave any room for 'choice' as it relates to group identity and membership, i.e. deliberate attempts to differentiate one's own circle from others. On this matter, the position taken by Ohala (1993:263)[17] seems better balanced. Although he also espouses a non-teleological source for language change, he states that,

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[17] Also Ohala (2005:35-36)

"none of this is meant to deny the role of teleology in other aspects of language change, especially its spread. I just deny the necessity of teleology in accounting for the pre-conditions or initiation of sound change."

Human beings do consciously adapt their speech to suit their environment and some of these adaptations, such as slowing of speech and hyper-articulation, are often in response to an environmental situation. Other changes, however, as evidenced by the variety of generation-specific or locale-specific speech forms in the world, seem to be patent attempts at linguistic demarcation. A ready example of this is seen in the village of *Waa Ndugho* which has long had a reputation among the other Aghem villages for cryptic speech, with semantic changes and additions being the primary vehicles employed to intentionally exclude outsiders when so desired. The 'outsiders' in this case, are neighbouring Aghem speakers.

In spite of this one underdeveloped aspect of Blevins' Evolutionary Phonology model, it is certainly well-suited as a synchronic framework within which to describe Aghem, as well as the other A810 languages being discussed here. It can as readily handle the strange segment inventories and distributions that will be seen in the ensuing data as it can those which are typologically more common.

2.2 Scope of the Study

The primary focus of this study is the data from Aghem, Bu, Isu, Weh and Zhoa. Data from Kumfutu was gathered because of its close proximity to both Weh and Zhoa, but since it is considered part of the A821 cluster rather than A810, it will be used for comparison only and not incorporated into the reconstruction.

2.2.1 Data Source

The recordings used for this work were gathered in January, 2004, by Nelson Tschonghongei and David Thormoset on behalf of the Aghem Language Development Committee. Mr. Tschonghongei, as the primary researcher, asked villagers in each area to identify the person whom they considered a 'master' of their language. He then sat with the designated individual and, using the SIL Africa Area 1700 Wordlist and a Sony Mini-Disk recorder, went through the four-hour process of eliciting each of the 1700 lexical items.

As is common in a village setting, the recording sessions were not simply the interaction of the researcher and one informant. In most cases, there were also a number of interested spectators who would prompt, interject and correct whenever the informant was struggling with a particular term. This was, in fact, a very beneficial situation although it did at times slow down the recording process considerably as several voices would blend with that of the main informant, requiring that the item be repeated. Other impediments to a clean, crisp recording were provided by way of chainsaws, children, poultry and numerous similar distractions, but Mr. Tschonghongei persevered, asking for repetitions as frequently as was needed.

The recordings that came out of these sessions were subsequently converted to digital, wave-file format, recorded onto compact disks, and stored in the ALDEC library archives in Wum, Cameroon. The language committee kindly agreed to provide copies of the material, facilitating this effort towards a phonological reconstruction of Proto-A810 (PA810). These recordings, along with personal field notes (1999-2000) taken

while assigned to the Aghem language development project, have served as the primary sources for this undertaking.

For the purpose of the reconstruction, the initial focus has been to transcribe simple lexical items, rather than compounds and phrases. From among those transcriptions, all potential cognates have been flagged, in order that full sets of cognates might be used whenever possible. The results of this work are presented in Chapter Three.

2.2.2 Data Selection

Kumfutu (A820) and Kom (A822) both share boundaries with members of A810, and data from those languages is presented for comparison throughout this work. Kom (A822) and other Grassfields language data comes from SIL Cameroon archives.[18] Although outside languages have not been included in the reconstructions, they have been taken into consideration when weighing choices between possible proto-forms.

Similar use has also been made of Hyman's (1979b) Proto-Grassfields (PG) reconstructions, hosted by the Comparative Bantu Online Database in Lyons, and of the Bantu Lexical Reconstructions 3 database (BLR3), hosted by the Royal Museum for Central Africa in Tervuren, Belgium. The BLR3 database, with some 10,000 entries, is a continuation and amelioration of Meeusen's (1969, 1980) Bantu Lexical Reconstructions but has also incorporated Guthrie's (1967-71) 'Common Bantu' constructs. Schadeberg (2003:153) decries the frequent use of Guthrie's starred CS forms as Proto-Bantu reconstructions, since that was not Guthrie's intent, and he

[18] For Kom, two sources were used: a phonetic wordlist (Shultz 1993) and a searchable html dictionary (Jones 2003).

considers it unhelpful to claim that a particular word is cognate with one of those entries. This work makes no claim of derivation from either Proto-Bantu or Common-Bantu forms, but it has been both informative and beneficial to take note of reconstructed forms in the BLR3 database that may be cognate with the A810 data presented in this paper.

Guthrie's scholarship and the earlier pioneering works were heavily weighted in favour of regions where the most available language data was from, with little representation from the Northwest aside from Douala and Fang. Furthermore, since Grassfields languages were never considered to be part of Narrow Bantu, no data from these languages has been used in the PB reconstruction attempts. Thus, when one discovers striking numbers of BLR3 lexical entries with regular segment and tone correspondences in A810, this provides an even stronger confirmation of the Grassfields' close relationship to the Bantu family than would be the case had Grassfields data or even a greater amount of northwest data been included in the earlier comparisons. It also indicates that the A810 languages, although in the purported 'Bantu homeland,' have remained more conservative than many of their neighbours in maintaining roots that are more transparently cognate with current PB reconstructions.

Another interesting source of comparative material comes from Stewart's (2002) reconstructions of Proto-Potou-Akanic-Bantu (PPAB) which, he suggests, might serve as a pilot Proto-Niger-Congo. Some 40 of his 100 reconstructions are clearly cognate with A810 and, although he at times posits different PB segments than BLR3, his work provides another gauge by which to assess PA810 reconstruction choices. The only difficulty with consulting such resources is the tension between the desire to be

informed by the data and the strong temptation to reconstruct farther back than needed to meet the goals at hand. One must also keep in mind that the acceptance of any given reconstruction by the linguistic community does not necessarily render it inerrant.

In selecting lexical items for comparison, the essential condition for cognate status has been a dual requirement that the item have both similar form and meaning. Similar form in this context can also include items sharing regular sound correspondences, even though they may, on the surface, appear quite different. The 'similar meaning' requirement can be illustrated by the word /mbɔ̀ŋ/, which means 'cow' in four of the A810 languages. For their Kom neighbours, however, /mbɔ̀ŋ/ is a 'wild ox'[19]. In cases such as these, it is clearly legitimate to group the lexemes as cognates.

One of the challenges encountered while selecting lexical items for comparison is that less than half of the elicitations in the collection are simple words; the remainder are compound-nouns, noun phrases, or verb phrases. For example, the A810 word for 'finger' translates literally as 'child of hand' and 'fingernail' as 'grass of hand,' while the Aghem word for 'butterfly' is a compound noun[20] which still transparently comes from 'fowl/chicken of God'. Often the sheer quantity of these compounds and the fundamental vocabulary in which they are found give the impression of a language which has undergone an earlier stage of pidginization and then creolization. The

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[19] In Kom, 'cow' is literally 'animal of /mbɔ̀lɔ́ʔ/' the name given for the Fulani people who herd most of the cattle in the area. Bu and Kumfutu people, however, have taken this word for Fulani as 'cow'.

[20] In Aghem, compound nouns are distinguished from associative noun phrases by meeting the following three criteria: a) they are perceived semantically as a whole, b) the meaning of the whole is generally not deducible from the parts and, c) the second noun of the construct cannot be pluralized without causing a complete change or loss of meaning.

difficulty with genitive constructions of this type is that the contact between the lexemes often yields different segments than are obtained when those same lexemes are elicited in isolation. This is especially the case when the CL concord marker and prefix are both vowels as seen in the following possessive noun phrases:

(8)	a.	/ó-lʷɛ̀/ + /ò-dʷə̀ŋ/	→	/lʷɛ̀ ò ò-dʷə̀ŋ/	=	[lʷàː.dʷə̀ŋ]
		‘amaranth’ ‘chiefs’		‘the chiefs’ amaranth’		
	b.	/á-sɔ̀/ + /é-náʔ/	→	/sɔ̀ à é-náʔ/	=	[sɔ̀ˑɣɛ̰.ˈnáʔ]
		‘corn’ ‘village’		‘the village’s corn’		

Such assimilations are a common and predictable feature in Aghem but, although they are regular, outcomes like [ɛ]+[o] > [aː], as seen in (8)a, are not always self evident. A newcomer to the language needs time to learn that [u]+[e] yields [uː], while [e]+[u] results in [eː]. Even less apparent will be such outcomes as [a]+[e] > [ɣe] or [e]+[e] > [ze]. There is, furthermore, a hierarchy of vowel strength and position such that the surface form of a sequence of three single-length vowels will generally be the same as for the first two vowels, rather than the last two. Thus the sequences [a-o-a], [e-o-o], or [ɛ-o-o] will not result in [oː], but rather [aː], [eː] and [aː] respectively.

Vowel assimilation can also occur across intervening consonants, again potentially blurring underlying reflexes as seen in the Aghem examples here:

(9)	a.	/bɔ̀m/ + /á-wɛ́/	>	/bɔ̀m à á-wɛ́/	=	[bɔ̰ː.ˈwɛ́]
		‘bowl’ ‘children’		‘the children’s bowl’		
	b.	/é.sóm/ + /ɣé/	>	/sóm è ɣé/	=	[sǿẹ̰.ˈʲjé]
		‘farm’ ‘them’		‘their farm’		
	c.	/fɨ̀ŋ́/ + /wɨ́n/	>	/fɨ̀ŋ́ à wɨ́n/	=	[fɒ̰.ŋɔ́.ˈwɨ́n]
		‘heart’ ‘him’		‘his heart’		
	d.	/afɨ́n/ + /wɨ́n/	>	/fɨ́n à wɨ́n/	=	[fɛ̰́.lá.ˈwɨ́n]
		‘friends’ ‘him’		‘his friends’		

In (9)a-b, the coda /m/ has been lost, resulting in a long vowel for the former and a diphthong for the latter. There is also a large inventory of nouns where the root vowel

changes in plurals and/or associative constructions. Taking (9)c as an example, any Aghem speaker will give the word for 'heart~s' as [fə̀ŋ]~[tə̄.fə̀ŋ], but there is historically an underlying round vowel in the noun root which still manifests itself in genitive constructions, and the rounding perseveres into the associative marker. In (9)d, on the other hand, the same root vowel is found in citation form but, in this case, the only assimilation is anticipatory as the /ɨ/ is coloured by the associative /a/. It will also be noticed in (9)c-d that CVC structures, when followed by a vowel, tend to resyllabify to the more common CV.CV form.

In the case of Aghem, the assimilation processes are fairly well documented but that is not so for the other languages in the cluster. Since no full phonological study has yet been done on any other members of A810, compounds and phrases have only been selected when required to fill gaps in the data. The effects of assimilation and possible vowel harmony across syllables, and also of changes when a root coda is followed by vowel, will be considered, as required, for specific segments.

Grassfields languages, like the majority of Bantu, are tonal. One drawback to the decision to work primarily with simple citation-forms is that they fail to reveal the floating tones that are a characteristic feature throughout the Grassfields. As will be discussed in §3.2, a good number of the mono-syllabic noun and verb roots in these languages can be shown to have arisen from poly-syllabic stems, often of the -CV.CV- or -CVC-V type, that have since undergone either right-to-left segment reduction or the intervocalic weakening and/or loss of the second consonant. There are also series of nouns which appear to have merged with their CL prefixes. Syllable loss in Grassfields Bantu, however, is never simply a matter of losing segments. In the majority of cases,

even though the second syllables have disappeared, their tones remain, either as modifications to the tones on remaining syllables or, more frequently, as floating tones that only manifest themselves in relationship to other words. Consider, for example, two Aghem names *Kum* [km̩] and *Tsɔŋ* [tsɒ́ŋ], which both exhibit identical high tones in isolation. If one says "this Kum" (lit. "Kum this"), the surface form is [km̩.ˈwə́n] with the word 'this' undergoing downstep. However, in the case of "this Tsong" [tsɒ́ŋ.wə́n], there is no such downstep. To complicate matters more, *Tsɔŋ* does exhibit downstep after a high tone verb while *Kum* cannot, as in [bm̩ː.ˈtsɒ́ŋ] 'beat Tsong' and [bm̩ː.km̩] 'beat Kum'. This strange contrast can be explained by positing underlying floating tones and discovering the rules that predict the correct surface tone. In the case of these two names, it appears that *Tsɔŋ* is preceded by a floating low tone /t͡sɒ̀ŋ/ while *Kum* is followed by one, yielding /kúm̀/. It is because of these floating tones, which almost never manifest themselves in citation form, and because of general left to right tone spread and tone simplification rules in Aghem, that these two names yield different surface tones in identical environments. Since floating tones normally only manifest themselves in relationship with the tones of other syllables, the lack of such pairings for the other A810 languages means that tone can not be reliably reconstructed. The pairing paradigms that would be required to reveal all of the floating tones in the data are beyond the scope of this research and, to date, such data has not been collected.

2.3 Challenges in Reconstruction

Researchers working with previously unwritten languages face extra hurdles when attempting to phonological reconstruction. Vestiges of ancient pronunciations have not been carried into the modern orthographies and there are no manuscripts of intermediate

lexical and phonological forms from extinct parent languages. The data is synchronic, leaving only internal and comparative methods of analysis, to extrapolate back over time spans comparable to those for Indo-European, with its rich textual inventory. Lehmann (1992:168) touches on this problem in his discussion of ablaut and apophony.

> The effort that has been devoted to arrive at an understanding of ablaut, and the obscurities still remaining, may indicate the complexities that are involved in the reconstruction of languages for which we do not have texts going back one or more thousand years.

To validate a phonological reconstruction, or to sort out the internal genetic branches of Bantu, Bantoid, etc., one faces the challenge of the sheer number of closely related languages and the frequent absence of quality data. Depending on one's definition of 'language' as opposed to 'dialect', the Narrow Bantu family is comprised of anywhere from 300 to 600 languages and is itself a member of the world's largest language phylum, Niger-Congo, with some 2,500 members. Many of these languages have yet to be fully described and many of the existing descriptions are inadequate.

Schadeberg (2003:156) acknowledges these hurdles but argues that they are not primary to the problem of genetic classification. He claims that,

> If the primary genetic subgroupings of Bantu were as clearly distinguishable as, e.g. Germanic, Romance, Celtic and Slavic languages are distinguishable from each other, the number of languages involved and the lacunae in our knowledge would not prevent us from seeing these divisions.

This sentiment has similarly been expressed in recent communications within the community of Bantu specialists which, in essence, may be expressed as, "Is there any such thing as Narrow Bantu?"

It is in this context of many languages, blurred genetic divisions and data of varying quality that this study was undertaken. The issue of reliable data became immediately apparent upon first perusal of some existing phonetic wordlists, each with 110 entries, for Grassfields Ring-West. The original intention was that these lists would serve as primary data for the Ring-Centre and Ring-West reconstructions and for this paper, but an inspection of the Aghem list quickly revealed gross deviations from phonetic reality and thus cast doubt on the value of the other lists as well. For this reason, appreciation must again be expressed to the Aghem Language Development Committee, and especially Mr. Tschonghongei, for gathering new recordings.

2.3.1 Divergence, Convergence, and Diffusion

Given that the languages in this study appear to be very closely related to one another, the question then arises as to what a reconstructed 'PA810' phonology truly entails. Nurse and Phillipson (2003b) suggest that most of the major Bantu migrations were complete by the sixth century, and that the ensuing centuries have seen small migrations and varying degrees of diffusion between adjacent language groups. If one accepts the now-common belief that the original Bantu homeland was in the Nigeria-Cameroon border area, it may seem surprising that "geographically western and north-western languages share more features than do eastern and southern languages" (2003b:179), since one would expect greater diversity closer to the homeland. Indeed, the difficulty for reconstruction is, according to the authors, the fact that "these shared features appear to result from innovation (or possibly areal diffusion?) rather than retention" (2003b:179). Assuming that the north-western language-groups have been established in their respective homelands up to a thousand years longer than the eastern

and southern Bantu, there has been ample time to allow for extensive diffusion, both of lexical inventory and of innovations, whether phonological, morphological, or syntactic. If that is the case, then what exactly is being created when a linguist, without access to ancient, textual records, undertakes historical reconstruction in this area? Is the result a genuine proto-form, i.e. the actual word from which all of the daughter reflexes originated, or simply a common, perhaps areal, form with no historical validity?

For many years Noni was considered part of the Grassfields family and, in fact, it shares many features with its Grassfields neighbours, Oku, Lamnso' and Limbum. In 1977, however, Hyman showed problems with that classification and suggested that Noni be grouped with Misaje (Beboid). This is now the accepted view, and it is clear that many of the features that caused Noni to be initially grouped with its Grassfields neighbours are, in fact, areal phenomena. Obviously then, any Grassfields reconstructive work that had incorporated Noni would now be suspect.

As evidenced by Noni, areal features are not bound by genetic affiliation. It is also true that they cannot necessarily be traced back to any proto-language. Olsen and Hajek (2001) show that the labial-flap, found in 65 different languages in Africa, is so widespread that it includes members from three of the continent's four major language families. Nevertheless, they claim that there is no indication that this feature ever existed in the proto-languages of any of the three families affected.

Given the length of time that the Grassfields languages have been ensconced in their present territory, it is reasonable to assume that a number of shared features extant throughout the area could be the result of areal diffusion rather than shared retention. Furthermore, as has been pointed out for Bantu in general, it is often difficult to

separate the results of divergence from those of convergence, especially if one is focusing primarily on lexical comparison. In the words of Nurse and Phillipson (2003:168), "several hundred languages, two or three millennia of development, and several dozen significant variables make for an often opaque crisscrossing of isoglosses." There is thus always potential for reconstructions to be posited which are distorted by diffusion, by convergence, or both, and are thereby historically inaccurate, even though there may be a genuine, genetic affiliation between the languages included in the study. If that is the case for the Bantu family, it then follows that the same holds true for Grassfields, and perhaps even to a greater extent, given the assumed longer period of close contact between such a large number of language groups.

As already shown in §1.2.3 (p. 4), it is certainly clear that the five A810 languages under study have not existed in isolation, either from one another, or from their other neighbours. Both the trade contact and the steady migratory flow of marriageable women make it challenging to sort out the products of retention from those of diffusion; there does not appear to be any simple way to differentiate. It is not sufficient, for example, to simply treat all identical, shared lexemes as suspect. The PA810 reconstruction **-tóm-* 'send' has nearly identical reflexes in all of the daughter languages but looking further afield, one also finds that both the PG and the PB reconstructions are **-túm-*[21]. One can, therefore, quite readily justify attributing the A810 reflexes to shared retention.

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[21] Many Bantu scholars follow an earlier convention of writing '1st degree' PB vowels as *į and *ų and '2nd degree' vowels as *i and *u. This paper uses the BLR3 system exclusively: *i, u* for 1st, *ɪ, ʊ* for 2nd.

The PA810 reconstruction **-kàŋ* 'blood', on the other hand, also has the identical reflex in all the daughter languages, plus Kumfutu, but there is no apparent cognate in either PG or PB. Given the role that blood plays in traditional religion in that area, the word might seem a likely candidate for borrowing, but this is not necessarily the case. There are a good number of proposed PA810 **-kV(C)* constructions with similar, if not identical, cognate reflexes in all of the daughter languages, so the word could also be the retention of an, as of yet, undetermined innovation in PWG.

After having made this somewhat sombre assessment of reconstruction possibilities within Grassfields, it is also necessary to acknowledge another, more optimistic perspective that might be valid when considering both the diffusion and convergence issues. Though it is reasonable to expect extensive 'cross-pollination' among small language groups that have been in close proximity to one another for many centuries, the mere existence of some sixty, mutually unintelligible languages[22] in an area as small as the Grassfields may also point to an alternate picture, one of language resilience and resistance to outside influence. Stallcup (1980:44) maintains that the density of the Grassfields languages in such a small area is not indicative of an area of refuge where disparate language groups have sought safety and ended up adapting to their new linguistic environment. Rather, almost all of them belong to a single sub-group of Wide Bantu, leading him to conclude that "la situation linguistique donne une

[22] The distinction between dialect and language is controversial at best and intelligibility is a continuum rather than a fixed point. "Mutually unintelligible", in the case of language surveys, is often determined by whether or not people with little or no previous exposure to a neighbouring language are able to comprehend oral texts recorded in that language.

impression de stabilité et fait penser à une longue cohabitation de peuples très proches."[23] Such a statement would be endorsed by that of Hock and Joseph (1996:523), mentioned earlier, which claims that "where the history is known, linguistic diversity usually is greatest in the homeland, and smallest in colonial territory." When the linguistic situation in the Grassfields is considered in that light, it offers some hope that, in spite of the diversity and inevitable diffusion, there has been enough lexical and grammatical retention to allow for a valid phonological reconstruction of PA810.

2.3.2 Reconstructions and Context

Generally, one is motivated to undertake a comparative reconstruction based on an assumption, or perhaps only a suspicion, that the languages to be studied are related. Such a notion might arise as one finds clearly similar lexical items, with regular sound correspondences and comparable meanings, among a number of different languages.

As is true for any phonological or lexical reconstruction without recourse to historical texts, although he or she must begin from the bottom up, a linguist cannot embark on describing a particular proto-subfamily or proto-branch without any reference to the whole family. A reconstruction of proto-forms for any one branch, as has been undertaken for this paper, can never be validated by its own internal consistency. It needs to demonstrably fit into the bigger picture, either positing forms that can fit into reconstructions at higher levels in the lineage or providing solid evidence against those reconstructions. A simple illustration of this can be seen in

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[23] "the linguistic situation gives the impression of stability and suggests a long period of cohabitation among very closely related peoples".

Aghem where [t͡ʃ] and [d͡ʒ] are only found in front of [i], [u] or [w], a position where [t͡s] and [d͡z] do not occur. Add to this the knowledge that the noun-class prefix /o-/ causes changes such as [kɨ̀-t͡sàm]~[ò̩-t͡ʃʷàm] ‘tadpole~s’ or [kɨ̀-d͡zɔ̀ʔ]~[ò̩-d͡ʒʊ̌ɔ̀ʔ] ‘cheek~s’ and the linguist might be inclined to posit an underlying, perhaps even historical, /t͡s/ for words such as [ò̩-t͡ʃuɔ]~[ǹ̩-t͡ʃìa] ‘bed~s’. It is only in looking further afield, however, that one will discover that this latter example of [t͡ʃ] regularly shows up as [k] or [kp] in the cognates from neighbouring languages and that, in fact, the [t͡ʃ] of modern Aghem arises from two different phonological processes, one historical, the other still productive.

Similarly considering the word for ‘house’ among the Grassfields branches, many of the Bamileke and Ngemba languages use [nda], while most of the Ring-Centre families use [ndo]. Within other GB languages, the word is also monosyllabic but closed, as in Limbum [ndábˀ], Lamnso’ [láv], or Moghamo [nə́p]. Without reference to all the GB branches, one might simply reconstruct a historical mono-syllabic root with a subsequent vowel shift in some or all daughter branches and coda loss in a few. Other Grassfields languages, however, attest to another possibility, as Weh [ndáō], Kuc [ndíā] and Aghem [ndúɯ́ú] all indicate the potential presence of another syllable at an earlier stage. Looking even further afield, outside of Grassfields, one finds [ndabo] in Duala (Cameroon), [ndako] in Lingala (both Congos) and similar two-syllable cognates in many other Narrow Bantu languages. Since syllable loss is a more likely process than syllable gain, it is reasonable to expect that any reconstruction of ‘house’ in the Ring area should consist of two syllables. This is especially true for Ring-West which

generally appears to be more conservative than some other GB branches in that it retains more remnants of two-syllable stems than many of its neighbours.

Having just argued that 'house' should be reconstructed with two syllables, it must be pointed out that it is not overly evident just what the nature of that reconstruction should be. In the BLR3 database, the root is given as *-dágò while Hyman (1979b) offers a Proto-Grassfields entry of *ndáb`. Neither option, however, offers a simple path to all of the C_2 reflexes in the respective daughter languages, /ɣ, k, b, v, j/ and Ø. Given the abundance of reconstructions of the type **CV.V* in both PG and PB, however, it seems at least equally plausible that the stem for house could have been *-dá.ù, a form that is still readily found in Grassfields. This form would assume subsequent epenthetic velarization occurring between the vowels and hardening in some cases to /g/ and even /k/ in certain areas, while other branches underwent labialization in the same position which later hardened to /β/, /v/ or /b/.

2.4 Segment Comparison

A common method for comparing lexemes is to write them vertically, aligning similar segments side by side. Once the segments have been entered into the table, each row is compared, as shown in (10). The grey columns show comparative data from outside of A810 which may inform the reconstruction but is not included in it.

(10)

	PA810	Agh	Bu	Isu	Weh	Zho	Kuc	Kom	PG	PB	PPAB	Gloss
a)		*m*	*m*	*m*	*m*	*m*	*m*	*m*	**m*	**m*	**m*	'swallow'
b)								*z*				(verb)
c)		*i*	*i*	*i*	*ɜe*	*ɐe*	*ɐe*	*ɨ*	**i*	**i*	**ĩ*	
d)									*(*l)*	**d*	**l̃*	
e)											**ĩ*	

The leftmost column is left open initially and that is where the reconstructed segments will be written as they are decided upon, as indicated by the PA810 (Proto-A810) heading. Sometimes the segments, as in row a), will be identical, a situation dealt with in §2.4.1, but often there will be regular, corresponding differences of the kind seen in row c). This is discussed in §2.4.2. The linguist must ensure that there are enough cognates to clearly show the regular correspondences and, as much as possible, to account for any variants. In the case that there might be no satisfactory, unified explanation for irregular correspondences, data also needs to be provided in a systematic fashion to facilitate future research.

To limit the length in this work, six sets of cognates with consistent reflexes will be deemed sufficient to establish a PA810 segment. This number, though arbitrary, should provide sufficient evidence for a segment while allowing enough space to show and discuss some irregular correspondences as they arise. Unfortunately, in spite of the amount of data collected, there are some segments for which not even six examples can be found. These will receive appropriate discussion as they arise.

It is important to bear in mind that a starred segment, such as **g*, does not necessarily have the same phonetic value as that same glyph bracketed as an IPA segment, in this case [g]. Although, a reconstruction should employ symbols that at least convey some phonetic reality, proposed proto-segments are typically loosely described. What matters, in this case, is not so much the phonetic detail of the symbols used in the proto-forms as which synchronic segments can be shown to have consistently arisen from each reconstructed phoneme and, when possible, by what processes.

2.4.1 Corresponding Identical Segments

One of the principles guiding comparative reconstruction over the years, whether at the phonological or lexical level, is reflected in this century-old quote:

> Wenn ein Wort in gleicher Form und gleicher Bedeutung in allen oder mehreren Sprachen des indogermanischen Stammes wiederkehrt, so muß dieses Wort schon in der indogermanischen Ursprache gegolten und mithin der von ihm bezeichnete Begriff schon in der Urzeit existiert habe[24] (Schrader 1907 c.f. Bostoen 2001).

Although the author was dealing specifically with the lexicon, this same principle may also be generally applied at the phonological and grammatical levels. Shared segments, morphemes, lexemes or grammatical structures across a language family may be an indicator of inheritance, implying that the item should be included in reconstructed proto-forms. Conversely, the absence of a segment, lexeme or structure in all members of a group of languages that one believes to be related will generally preclude its inclusion in the proto-forms[25]. Of course there is a caveat when researching languages that may, at one time, have come under the rule or influence of a stronger or more prestigious language group. A ready example is the word *diner*, found in identical form (except for Swedish *dinéer*) throughout the modern Germanic language family and clearly related in meaning, usually 'dinner, main meal'. Though the word fulfills Schrader's conditions, it is not historically Germanic; it is French, having come into

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[24] "When a word with similar form and meaning recurs in all or several of the languages in the Indo-Germanic family, this word, as well as the item or idea thereby signified, must already have existed as a historically valid part of the Indo-Germanic Proto-language" (free translation).

[25] However, as Saussure brilliantly demonstrated with his reconstruction of a set of PIE laryngeal consonants he called 'coefficients sonantiques', this second principle must occasionally be overridden.

these languages via the royal courts, and continues to be used alongside its Germanic synonyms *Mahl, maal, mål, meal*.

At the segment level, attention must also be paid to the issue of convergence, i.e. similar or identical sound changes often arising from common phonetic preconditions. Although convergence is frequently mentioned pertaining to unrelated languages, that is not a primary concern for this study where the A810 group is clearly part of the same family. Nevertheless, it must be noted that if a homogenous language group separates out in a half dozen different directions, the detached groups do not suddenly lose their linguistic homogeneity. Assuming that the majority of sound change in languages is phonetically motivated, one needs to be aware that these post-dispersion speakers share a set of phonetic preconditions that will predictably lead to parallel changes. Furthermore, until there is a sufficient level of differentiation in the phonetic inventory, ongoing convergent changes can be expected. In this sense, the common use of a tree model in historical linguistics is unfortunate, as the branching metaphor gives an impression of abrupt bifurcation, a situation which simply never occurs. Especially in the case of closely related, unwritten languages, therefore, there will always be difficulty in distinguishing between genuine reconstructed segments and parallel, common innovations resulting from convergent processes (Blevins 2003:8).

A simple illustration of this might be found in the coda glottal stops found in A810. There are several examples, as seen in (21)g-i (p. 71), where /ʔ/ in Aghem, Bu and Weh corresponds with /k/ in Isu and Zhoa. In the majority of cases, however, all five languages have /ʔ/. If the **k > ʔ* change is ongoing in Isu and Zhoa, whether by sound change, levelling or arial spread, the coda /k/ could eventually be eliminated.

Consequently, a future linguist might, without written evidence to show otherwise, readily reconstruct a Proto-A810 coda **ʔ*, thereby missing the fact that the five communities started to diverge from one another when the segment was still **k*. Having the same phonetic preconditions, they simply all underwent a very common coda change of **k > ʔ*.

With appropriate caution, Schrader's principle, as cited above, has been generally applied in the case of the Proto-A810 reconstruction. When all members share the same segment in the same position in cognates, that segment is a likely candidate for PA810 and, when all members share the same word, that word may likewise be posited for the reconstructed lexicon. In the example provided below in (11), only the noun stem is compared since all the A810 cognates share the same CL 7 prefix *kɨ-*.

(11)

	PA810	Agh	Bu	Isu	Weh	Zho	Kuc	Kom	PG	PB	PPAB	Gloss
a)	*t	t	t	t	t	t	t	t	*t	*t	*t	*'ear'*
b)	*u	u	u	u	u	u	u	u	*ʊ	*ʊ	*ʊ̃	
c)	*ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	*ŋ			
d)	?	l					m	l	*l			
e)	?	ɔ	ə	e	ə	ə	ə	ɨ	*ɪ	*i		

In this example *t,*u and *ŋ appear as probable valid proto-segments for PA810 and are accordingly written into the leftmost column. In fact, in a case such as this where all five languages have identical segments, it would be very unusual for any differing proto-segments to be selected. The only real difficulty with this set is at the morphological level, determining whether the second syllable (rows d and e) constitutes a suffix or should be posited as part of the noun root. Although the question technically lies outside of the scope of this work, which is focused on phonological reconstruction, it can still be instructive to consider some evidence. An important starting point is the

fact that the vast majority of Grassfields roots are monosyllabic. Assuming *-tuŋ-, then, as the correct reconstruction of the root for PA810 would line up with Stewart's PPAB reconstruction of *-tũ-, perhaps from an earlier *-tʊn- or *-tʊl̃.[26] Hyman and Udoh (2004), however, suggest that the final /-l/ in *lì-tól* 'ear' is a redundant suffix in Leggbó, a Cross River language from Nigeria and Lingala the word is *li-tói* with a diphthong that may point to an earlier suffix, now fused.

Occasionally, by being identical in a series of cognates, segments will violate an already established regular sound correspondence found elsewhere throughout the lexicon. If this were to be the case for **-tuŋ* in (11), one would be forced to look to another explanation, such as borrowing, for the irregular correspondences. An example of this principle can be seen with the segment [l], which is readily found in C_1 position in four of the A810 languages but regularly corresponds to either [nd] or [z] in Bu. Thus, when one comes across a single word in Bu with [l] in the onset slot, as found in the word *kɨ-loasɨ* 'thread', with no phonological environment that could account for the anomaly, it is reasonable to suppose that the word is borrowed.

As irregular correspondences are encountered in the following chapter, some will clearly be phonetically motivated. For many others, potential explanations might include borrowing, or being frozen as part of a lingua franca for trade or political purposes. This might include items such as the Aghem word *fɨ̃f* [fəf]~[fɵf] 'co-wife' where the coda segment [f] only exists in two other words and, in one case, freely alternates with

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[26] The changes /Vn/ > /Ṽ/ > /Vŋ/ are not uncommon, as evidenced by the French spoken in Quebec and much of Francophone Africa.

/m/. Facing this data, one might speculate that the word, as part of a trade vocabulary[27], was resistant to change and that the coda, which is /p/ in Isu, Weh and Zhoa, simply weakened to [f] in Aghem. Alternately, as coda oral stops disappeared from Aghem, [p#] as a foreign element might have been hyper-articulated to [p^h] and then commonly interpreted as /f/ resulting in CHANGE. All such explanations however, in the absence of any written record, are simply never verifiable.

2.4.2 Regular Corresponding Segments

There is nothing quite as satisfying as being able to identify regular sound correspondences between segments in cognate languages, except perhaps to find **exceptionless** regular correspondences. Unfortunately the latter are not to be found in A810, if in any language family. When comparing cognates with differing reflexes such as those found in (12), one looks both for those features that distinguish, and those that are common to, the lexical items being compared.

(12)

	PA810	Agh	Bu	Isu	Weh	Zho	Kuc	Kom	PG	PB	PPAB	Gloss
a)	*d	d	t	d	d	d	t	d^j	d^+	d	ɗ	*'heavy'*
b)	*ʏ	ɜ	ʉ̰	ɜ	ɜ	ɜ	ʉ̰	ɘ	i	i	u	
c)	*d	n		$t^ˀ$	t	$t^ˀ$		l	d	t	t	
d)										o	u	

Beginning with the onset, we see that all are alveolar occlusives and that all but Bu are voiced. Since the majority of the A810 languages have /d/ and there is no conditioning environment, such as a nasal prefix, that might have caused voicing, *d is chosen as the reconstructed segment. This choice, in turn, is endorsed by the PB and PPAB but most

[27] As shown in §1.2.3 (p. 4), inter-tribal marriage has been occurring for many generations.

importantly, it reflects a consistent pattern where non-nasal, voiced coronal and velar onsets in the other A810 languages are always voiceless in Bu, as they are in Kumfutu.

Moving to the next segment, we find that all of the A810 group share a central vowel but that Bu, which does not permit coronal codas, has a more closed one. Knowing that closed syllables tend to lower vowels, it seems appropriate to posit a high original, a choice that lines up with PB. Bu, like Kumfutu however, is also clearly rounded, albeit lightly and this may reflect the influence of an earlier round vowel in a following syllable. This is precisely what has been reconstructed for PB and PPAB in (12)d. Finally, upon encountering *di in PB, one can expect to find a corresponding /zɨ/ or /dzɨ/ in A810. The fact that this does not occur in this instance is an indication that vowel harmony may have lowered the *i in the first syllable of the original pre-Bantu[28] root to where it was no longer a candidate to cause affrication when that process began.

Finally, the /d/ as a coda is an appropriate choice to undergo nasalization in Aghem and devoicing in the other reflexes. In Aghem and Isu, the stative/incompletive infinitives are [á.lé.dɜ̀.là] and [á.né.dɜ̀.ɾà] respectively.

2.5 Summary

This chapter has been concerned, first of all with the theoretical framework within which the A810 construction is being undertaken (§2.1), then with the practical details entailed in such a task, from finding and selecting the data to be used (§2.2), to the actual method of comparison and segment selection used for each set of cognates (§2.4).

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[28] The word ‘pre-Bantu’ has already been used occasionally in this paper where the context is clear. Throughout the rest of this work, ‘Pre-B’ will be used, somewhat abstractly, to refer to an earlier stage that was common to both Proto-Bantu and Proto-Grassfields (and by extension, to Proto-A810).

In §2.3 and §2.3.2 consideration was also given to the challenges and extra requirements of attempting reconstruction of undocumented languages. With the methodology presented, and a basic expectation of regular sound change while recognizing that there are many potential sources for highly marked segments and distributions, we now turn to the A810 language data.

Chapter Three A810 Reconstructions

This chapter presents the A810 data, along with potential reconstructions of Proto-A810. The layout and notation choices are explained in §3.1, followed by presentation of the consonants in §3.2. These are given first together, then in individual tables with illustrative lexemes. These tables are grouped primarily according to manner of articulation (occlusives, fricatives, etc.) and each group is then further divided by place of articulation (labial, coronal, velar), with voiceless and voiced sets being displayed sequentially within each subdivision. The vowels, presented in §3.3, are similarly given as a set and then the lexical data presented from most closed to most open, and secondarily from front to back.

3.1 Presentation of Data

All of the examples in this chapter are presented in standard IPA (1996) using a broad, phonetic transcription[29] rather than a purely phonemic one, which would mask some of the consistent differences between cognates. However, because of space constraints, the brackets '[ ]' normally used to identify phonetic transcriptions have been omitted. It should be noted here that, other than the open vowels /a/ and /ɒ/, Grassfields vowels tend to be pronounced quite close. To a first-time listener, /e/ and /o/ in A810[30] normally sound like [i] and [u] while /i/ and /u/ are so close that they are invariably accompanied by some degree of friction. Since this is predictable, it will not

[29] For example, though the rounding effects of the CL prefix 'o-' are reflected in the transcriptions, more precise phonetic details such as raising, lowering, fronting, and backing are not. Such details are, for the most part, predictably conditioned by adjacent segments.

[30] Zhoa is an exception and the phonetic values for /e/ and /o/ often remain [e] and [o] respectively.

be included in the transcriptions but the reader is invited to keep in mind that the phonetic symbols [ɔ,o,u,ə,ɛ,e,i] are actually representing [ɔ̰,o̰,ṵ,ə̰,ɛ̰,ḛ,ḭ].

Segments normally represented by digraphs and a tie-bar, such as [t͡s], [p͡f], [k͡p], [m͡b], et cetera, are simply written as digraphs. Since $C_1C_2V(C)$ syllables do not occur in any of these languages, the only possible phonological interpretation of these pairs, whether affricates or double articulations, will be as single segments, i.e. CV(C).

As already noted in §2.2.2, tone is distinctive in Grassfields languages and, as such, has been marked in the data. For the sake of space, this has been done on the vocalic segments using the diacritics [◌́ ◌̄ ◌̀ ◌̌ ◌̂ ◌᷄ ◌᷅ ◌᷈] to represent high, mid, low, and related contour (rising and falling) tones. Because a proper tone analysis has not been done on any of these languages other than Aghem, the marking system should not be looked on as anything more than an impression of pitch. In other words, the use of a mid-tone symbol [◌̄] is not an assertion that these languages have a fundamental mid tone–they likely do not–but is only meant to indicate the pitch on a specific syllable as relative to a lower or higher pitch found on another syllable in the *same word*.

All data is presented in one of two formats. If the example is a noun, it is given with its noun-class prefix, set off from the root by a dash '-'. The prefix is often the only way of distinguishing two otherwise identical noun roots. Verbs are presented only as stems since the prefixes for infinitives do not change, namely: Aghem *ale-*, Bu *e-*, Isu *ane-*, Weh *ne-* (sometimes *te-*), Zhoa *te-*, Kumfutu *si-*, Kom *si-*.

An effort has been made to select examples with a full set of cognates but when that has not been possible, the missing item is acknowledged by use of a double-dash.

Where no phonetic transcription is provided in the Kom sources, this has been extrapolated from the nearly phonemic orthography.

3.2 Consonants in PA810

BLR3 identifies the following sixteen consonants for Proto-Bantu:

(13)

**p*	**t*	**c*	**k*
**b*	**d*	**j*	**g*
**m*	**n*	**ny*	**ŋ*
**mb*	**nd*	**nj*	**ng*

**c* and **j* are frequently treated as palatal consonants [c, ɟ] but Schadeberg (2003:147) calls this series "problematic", suggesting that "[s] and [z] are also likely candidates." Prenasalized **nj* may similarly be [nɟ] or [nz], and **ny* is a palatal nasal [ɲ].

Hyman (1979b) posits twenty-five consonants for Proto-Grassfields, not counting labialized variants. These are shown in (14):

(14)

**p*	**t*	**c*	**k*
**b*	**d*	**j* [ɟ]	**g*
**b'*			
	**d⁺*		**g⁺*
**m*	**n*	**ny* [ɲ]	**ŋ*
**mb*	**nd*	**nj* [nɟ]	**ng*
**f*	**s*		**ɣ*
**f'*			
	**l*		
		**y* [j]	

Presumably, these reconstructed segments have similar phonetic representations as those for PB but, since the resource is simply a word-list, this is not certain. For the same reason, the rationale behind Hyman's use of *lenis* ' ' and *fortis* ' $^{+}$ ' is not explained. Neither is the A810 data able to shed any further light on the subject other than to note that the PG **d⁺* appears to regularly correspond to A810 /d/ whereas the three A810

cognates of a simple PG **d* match with A810 /l/. In the case of the lenis **f'* versus **f* distinction, all A810 cognates simply have /f/. Whatever the distinction is between these PG fricatives, the same does not seem to be warranted for PA810 without further analysis.

A brief perusal of BLR3 Proto-Bantu reconstructions reveals that the roots of most substantives are polysyllabic with two-syllable roots appearing to be optimal. Contemporary Grassfields nouns, by contrast, have predominantly mono-syllabic roots, a situation that is reflected in the overwhelming majority of Hyman's PG reconstructions. The preferred syllable type for all of the Grassfields family is CV and, although CVC sequences are allowed in A810 noun and verb roots, C_2 is much more restrictive than C_1. As will be seen in example (17) on page 66, Isu and Zhoa have eight possible consonants in coda position, while Weh allows seven, Aghem four and Bu three. In both Aghem and Bu, there is also a very small collection of words which end with /f/ or /s/, although none of the languages studied regularly permit fricatives in the coda slot. Rather than viewing these as relics of earlier fricatives in coda position, it seems more reasonable to view at least some, such as /é-tsɨ̂f/ 'foam on a (fermenting) liquid', as onomatopoeic while others, such as /bʷɨ́s/ (or /bū.ʃí/) 'cat' is more likely a recent borrowing of *puss* (and *pussy*). Kom, which is adjacent to Bu and historically a major trading partner with Aghem (Kopytoff 1981), frequently has /f/ or /s/ in coda position, so it would not be unreasonable to assume that some borrowing of trade terms could also have added to this small inventory. It is also worth noting that Aghem has alternates of /é-tsɨ̂m/ for 'foam' and /fɨ́-bʷɨ̂n/ for 'cat', indicating movement towards standard Aghem codas.

Of the segments available in the data, it will be those found in root onset that are of primary value for determining proto-forms since coda segments in all of these languages are prone to weakening and loss. Furthermore, the $C_1VC_2.V$ sequences that arise from inflection and natural speech are invariably accompanied by resyllabification to $C_1V.C_2V$ and frequently in qualitative changes to the intervocalic C_2. In Aghem, for example, root-final liquids /m/ and /n/ become Ø and [l] respectively when followed by a vowel; otherwise they remain as [m] and [n]. Similarly Zhoa /d/, which is normally unreleased [t˺] in root final position, becomes [l] if the next segment after the syllable boundary is vocalic. Isu, Weh and Zhoa also all have a tendency to weaken an intervocalic /b/ to [β].

One assumption is that languages throughout this area have undergone truncation of both their noun and verb stems, most frequently through erosion of the final syllable (but see also §4.4.3, p. 130). Where stress was on the first syllable of the putative Pre-Bantu root, the vowel of the second syllable has been vulnerable to apocope followed by re-analysis of the remaining CV.C to CVC. This demotion of an erstwhile syllable onset to coda position has left it, in turn, susceptible to weakening or loss as is evidenced by the paucity of such consonants available to Aghem and Bu. The net results of these processes are unbalanced vowel and consonant distributions, a striking variety of diphthongs, floating tones and restricted CV(C) collocations. Although these languages may not mirror the grammatical complexity of their agglutinating relatives elsewhere on the continent, the reduction at the morphemic level has certainly introduced new phonological complexities.

Table (15) provides an overview of my proposed consonants for Proto-A810 with a phonemic inventory of 22 consonants. To facilitate comparison, the chart is laid out like that for PG in (14) but the glyphs used reflect their assumed IPA values.

(15)

	*t	*ts	*k
*b	*d	*dz	*g
*m	*n	*ɲ	*ŋ
*mb	*nd		*ng
*f	*s		
*v	*z		*ɣ
	*l		
*w		*j	

Table (16) below presents the inventory of reflexes, currently found in the A810 languages, that have arisen from the proto-segments given in (15). Environments are indicated, where known or understood, by line-specific entries in the right column.

(16)

*810	Consonant Reflexes in Onset (C#_V, V#_V)					*Environment
	Aghem	Bu	Isu	Weh	Zhoa	
*b	gb bv bv b	 v b	 bβ b	 bv b	 bv b	/ _u /N_V$, /_^{j} / _ua$, / _^{w}a elsewhere
*t	ts t	ts t	ts t	ts t	ts t	/N_V$, /_^{j} / all
*d	dz d	dz d	dz d	dz d	dz d	/N_V$, /_^{j} / all
*k	tʃ pf kp k	k p	k	k	k k	/ _i / _ua / _u, / _^{w} / elsewhere
*g	mbv bv g	ŋv bv k	mbv bv g	mbv bv g	mbv bv g	/ N_u /_uV, / _^{w} / elsewhere
*m[1]	m	m	m	m	m	/all
*n	n	n	n	n	Ĩ n	/ _# / elsewhere
*ɲ	ɲ	ɲ	ɲ	ɲ	ɲ	/all

(18) cont.

*810	Consonant Reflexes in Onset (C#_V, V#_V)					*Environment
	Aghem	Bu	Isu	Weh	Zhoa	
*mb	mb	mb	mb	mb	mb	/all
*nd	nd	nd	nd	nd	nd	/all
*ŋg	ŋg	ŋg	ŋg	ŋg	ŋg	/all
*f	f	f	f	f	f	/all
*s	ʃ s	s	s	s	s	/ _i / elsewhere
*z	z~ʒ z	ʒ	z	z	z	/ _i / elsewhere
*ɣ	ɣ	ɣ , w	ɣ , v	ɣ	ɣ	/all
*l	l	nd~l	l	l	l	/all
*w ?	v	v	pf	v	--	?
*w	ɥ v j w	w	w	w	w v w	/ _i# / _iu / _io,iɔ /elsewhere

[1]Although *m is shown as invariable, there is a rule in Aghem by which this consonant, as a coda, is deleted when followed by a syllable boundary and another vowel. The single exception to this is when the root vowel is /ɨ/, as demonstrated by these two infinitive > imperative pairs: /álétóm/ > /tôo/ 'send!', /álétɨ́m/ > /tɨ́mà/ 'shoot!'.

To this point, it has not been possible to determine the source of /v/ as there are simply not enough examples in the A810 data and those found so far may correspond to a number of different segments in Aghem, not just /v/. For Aghem, Hyman (1979a:4) considers the segment to be a positional variant of /w/ before /ʉ/ and, although there is one Zhoa cognate to support his assertion, further research is needed.

Table (17) presents the reflexes found in coda position, along with their assumed PA810 source. The voiceless stops often become voiced, and sometimes fricative, when followed by a vowel in the next syllable, but comparison with PB data leaves the question open as to whether these stops are from originally voiceless segments, or the result of coda-devoicing such as is found in German.

(17)

*810	Consonant Reflexes in Coda Position					Environment
	Aghem	Bu	Isu	Weh	Zhoa	
*p	f [1]	-	p˥	p	p˥	
*t	n, -	-	t˥ ~ t	t	t˥	
*k	ʔ	ʔ	ʔ k	ʔ	ʔ k˥ ~ k	/a,ɛ,ɒ_# /elsewhere
*g	ʔ	ʔ	ʔ	ʔ	ʔ	
*m	m	m	m	m	m	
*n	l n	-	n	n	n	/_$V elsewhere
*ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	
*l	-	-	l	-	l	

[1] *p: coda [f] is very rare in Aghem codas (three words found to date)

The following tables provide examples for each of the regular correspondences listed in (16) and are presented in the same order: occlusives (oral, nasal, prenasalized), fricatives, affricates, liquids & glides. To the extent that the data permits, they are organized with lines 'a-f' giving samples of the regular reflexes in the onset position of word roots. In some cases like the Aghem affricate /pf/, however, there simply are not enough cognate sets to do so. Lines 'g-h', when applicable, show the same segment in coda position and set apart by dashed lines for easy identification. Lines starting from 'i' will be for examples of irregular correspondences to be discussed as appropriate after each table. The *A810 column gives roots only since prefixes for infinitive verbs are invariable and noun-class prefixes will be evident from the reflexes.

3.2.1 Oral occlusives

Although there are a few instances of [p] and [p^{w}] in Aghem, they occur mostly in borrowed words such as /pɔm/ 'tap' (from German or English 'pump') or as allophones of /kp/ before high vowels. The consonant is also quite rare in the other A810

languages, occurring primarily in coda positions. There is a **p* in PB reconstructions but, as will be demonstrated in table (32) (p. 81), cognates in A810 normally have a corresponding /f/, a situation common to many languages (Ohala 2005:25).

In table (18) below, entry a) is typical of the results of rapid, on-location data collection. Even when the researcher is a native speaker of a closely related language, it is very easy to overlook the fact that the informant has given a response of the type, "it's (a) …" , or used a plural form. In the case of a), both the Bu and Weh informants gave the plural rather than singular form for 'thigh', a gender 7-4 noun. Since the primary focus is on roots and stems, this normally should not have any negative effect and such examples will not be pointed out from this point forward. Data of this type is used only when necessary and where it will not prejudice selection of a proto-segment.

PA810 **b* **< PreB **b***

(18)

	***A810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	**Gloss**
	****b***	/b/	/b/	/b/	/b/	/b/	/b/	/b/	
a)	**-bèj*	kə́-bî	é-bî	kə́-bî	é-bə̂e	kú-bə̂e	kə́-bə̂e	a-bî	'thigh'
b)	**-bàː*	bɛ̀e	bàe	bàː	bà	bə̃̀	bàe	bàŋ	'hate' v.
c)	**-bòm-*	bɔ̄ː	bʊ̄ː	bɐ̄.mɔ̄	bə̄m	bīm	bʌ̄	bɨ̄.mī	'agree'
d)	**-bə́n*	bə́n	bɜ́e	bə́n	bʌ́n	bʌ́n~bʌ́Ĩ	bə́Ĩ	bɨ́ŋ	'dance'
e)	**-bú.lí*	bʷíː	bə́ʸɜ́e	bʷú.né	bʷú.lí	bʷí	mbɜ́e	bú.ní	'sleep'
f)	**-bòk*	kə̄-bôʔ	kə̄-bôʔ	kə́-bɔ̂ʔ	kə̄-bôʔ	kə̄-bôk	kə̄-bôʔ	ā-bûʔ	'pit'
g)	**-táp*	táː	--	táp˥	táp	táp˥	--	--	'collect'
h)	**-fűp*	fúf	fò.ŋə̄	fʌ́p˥	fʌ́p	fɐ́p˥	fə́p˥	--	'wife'
i)	"	tō-fʌ́v.á	--	tō-fʌ́b.á	--	tə̄-fɐ́.βə́	--	--	'wives'
j)	**-bóɛm*	gbɔ́m	bɔ́m	bóm	búm	búɛm	bʌ́m	bʲɛ̄m	'hunt'
k)	**-bjí*	dzɨ́	bíɪ	bì	dʒí	bì	bî	bzɨ́	'goat'
l)	**-bíː*	-dzɨ́	-bíɪ	-bí	-dʒí	-bí	-bí-ɐ	-bzɨ́	'bear (v)'

The reader is reminded that the A810 and neighbouring data in this and the following tables should be read as broad IPA but with the brackets omitted because of

space constraints. Examples a-f, show a regular correspondence across A810 of [b] in syllable onset. This, in turn, corresponds to PB a) **-bèdò* (with a NW variant of **-bèdè*), b) **-bèd*, d) **-bín*, and perhaps e) **-bɪtam* and f) **-bùg* (NW variant meaning 'dig').

As mentioned for (17) (p. 66), PB reconstructions do not shed much extra light on the question of coda segments although, in this instance, (18)g **-táp*, 'to harvest/collect (honey)' and the identical PB root **-táp* 'to take out (water, honey)' seem to lend support to the assumption of original devoiced segments.

Aghem has a large inventory of words with labio-velar stops, both voiced and voiceless. Many of these arise from an existing productive process where /o-/, the prefix for both CL 3 and 8, causes labialization of the initial consonant on the noun stem. In the case of a noun starting with /b/, the resulting [b^{w}] invariably becomes [g͡b^{w}] before [-back, -round] vowels and [g͡b] elsewhere as in [kɔ́-bá?]~[ó-gb^{w}á?] 'shield~s' . There are, however, many other Aghem words, such as 'hunt' in (18)j, for which the labio-velar onset does not appear to have such a synchronic explanation. In this case, the PB NW reconstruction **-búum* and the Zhoa cognate [búɛm], both with a /uV/ sequence in the stems might point to a historical /buV/ in Aghem behaving as /b^{w}V/ still does today.

A perusal of the A810 data also yields a number of cognates, such as (18)k-l, where [b] is not common to the entire family. Also, as is evident throughout most of the examples cited in this work, tone tends to be very consistent across A810, and in comparison with Proto-Bantu. Therefore, the low tone is unexpected in Kumfutu, Isu and Zhoa. These differences might lead one to assume that two, non-cognate lexical items are being compared, but such is not necessarily the case. According to Ohala (1978:380), a sound change from labial to palatal is not unusual before /i/ and /j/ and

the fact that there are a number of such [b]~[dz] correspondences within A810 seems to support reconstruction of an initial **b* in at least some cases. PB for 'goat' is **-búdì* and for 'bear (v)' it is **bíad*. Kom is informative in this instance as a number of its cognates of Aghem /dz/ have /bz/, a bilabial stop releasing into a coronal fricative. These may be indicative of the path taken by Aghem and Weh as well, since further assimilation of the stop to coronal /bz/→/dz/ would be a natural step (see §4.4.3, p. 130).

PA810 **t* **< PreB **t***

(19)

	***810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	**Gloss**
	****t***	/t/	/t/	/t/	/t/	/t/	/t/	/t/	
a)	**-tú*	kə-tú	ká-tūh	ká-tū	ká-tɔ́o	kə-tɛ́o	kə-tú	ā-tú	'head'
b)	**tâe*	têe	tâe	tâːh	tâˑ	tə̂ˑ	tâe	taʲɲ	'five'
c)	**-tɔ́ŋ*	ē-tɔ́ŋ	ē-tɔ́ŋ	ē-tɔ̄ŋ	ē-tɔ̄ŋ	ē-tɔ̄ŋ	ē-tɔ̄ŋ	ī-tɔ̄ŋ	'navel'
d)	**-tíà*	n̩-tɨ́ʸà	mū-tîa	n̩-tîa	--	--	m̩-tîa	mən-tʃîa	'saliva'
e)	**-táp*	ō-tɒ́	ú-tɒ́	ō-tʷáp	ó-tɛ́ʊp	ó-tɑ́p˥	ō-tɑ́p˥	ī-tɔ́f	'wisdom'
f)	**-té_*	-tí~tɨ́	-tɘˣ	-tú	-tíg˥	-tét	-tɨ́ʸ	--	'flee'
g)	**-zát*	ē-zə́n	ē-zúu	ē-zə́t	ē-zɛ́t	é-zát˥	ē-zɨ́	i-jəl	'name'
h)	**fád*	fə́n	fə̂	fǭː	fɘ̄ː	fāt˥	--	--	'friend'
i)	**-dɘ̀.dà*	-dɘ̄.là	-tʉ̀ˣ	-dɘ̀.ɾà	-dɘ̀t˥	-dɘ̀t˥	-tʉ̂ʸ	-diɨl	'heavy'
j)	**-ti*	ō-tᶣí	--	ō-tía	ō-tə́i	ō-tí	ō-tɛ́e	ī-tʃɨ́	'medicine'

The Proto-A810 *t is likely inherited from Pre-Bantu as seen by PB cognates a) **-túè*, b) **-táànò*, f) *-tí* 'fear' or perhaps **-tú* (Zone J), g) **-jínà*, i) **-dìtò*, and j) **-tí*.

Whereas a root-final /p/ in Zhoa usually becomes [b] or [β] when followed by a vowel, a root-final /t/ often becomes [l]. As an example, the word 'net' is [ō.və̂t̲˥] but, when followed by the vocalic CL 3 associative marker [ò], the underlying *t* becomes [l] and resyllabification occurs as in [və̂.lò.kʷó.tə́.tʃíā] 'net to catch fish'.

As with the labial stops in coda position, it is not always easy to determine whether the underlying segment is voiced. Instrumental analyses show the Zhoa speaker

often maintaining voicing of the unreleased codas right up to closure, coupled with a longer delay before the velum is dropped to release the resulting pressure through the nasal cavity. This does not, however, seem salient enough to phonemically distinguish voiced codas from voiceless, and no minimal pairs of this type have been found.

PA810 **d* **< PreB **d***

(20)

	***810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	**Gloss**
	****d***	/d/	/t/	/d/	/d/	/d/	/t/	/d/	
a)	**-kâʔ*	fɔ.kâʔ	fɔ.kâʔ	fɔ.kâʔ	fɔ.kâʔ	fɔ.kâʔ	fɔ.kâʔ	fɔ.kâʔ	‘tree’
b)	**-dó.kó*	-dóʔ.ó	-tóʔ.ó	-dōʔ.ɛ́	-dóʔ.lɔ́	-dō.kō	--	--	‘happy’
c)	**-dì*	-dì	-tì	-dì	-dɜe	-dɐe	-tɜe	-dzɨ	‘cry’
d)	**-tùn*	-dʷɔ̀n	-tò.lā	-dʒə̆ɜ̀n	-dɜn	-dɵɐn	-tʉ̀n	-dvɨ́ŋ	‘old’
e)	**-dàp*	-dà	-tàː	-dàp˥	-dàp	-dàp˥	-tàp˥	-dìɛf, dìa	‘long’
f)	**-dèː*	-dèː	-tèː	-dɛ̃ː	-dĭː	-dɛ̃ː-	-tèː	-dʲɛ̀ŋ.sɨ	‘teach’

There is a frequent correlation between PA810 **d* and PB **d*, as can be seen by such BLR3 correspondences to (20) as a) **-dìkad* c) **-díd* d) **-dùn* (NW variant is **nùn*), e) **-dài* and f) **-dàngɪd*. Nevertheless, this relationship is not as regular as some others; an even larger number of PB **d* segments correspond instead to A810 /n/~/l/~/ɾ/ or, less frequently, /z/~/j/. There is, however, no immediately apparent link between the differing reflexes and neighbouring vowels that would readily explain this divergence.

Bu has split from its A810 neighbours and aligns with Kumfutu in devoicing **d* and merging it with /t/. This presumably occurred after the CL 9 nasal prefixes were fused with their noun roots since, as seen in (30) (p. 79), /nd/ has been retained in Bu. Many Bantu languages with the N̩-CV sequence (CL prefix + root) permit C as a voiceless stop, so the presence of a nasal prefix alone is not sufficient to prevent devoicing of the following segment; Bu N̩-C sequences must already have fused to CL beforehand.

PA810 **k* **< PreB **k***

(21)

	**810*	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	****k***	/ k /	/k/	/k/	/k/	/k/	/k/	/k/	
a)	**-kâŋ*	tə-kâŋ	tɘ-kâŋ	tə-kâŋ	tɘ-kâŋ	tɘ-kâŋ	sə-kâŋ	--	'blood'
b)	**-kɔ̀ʔ*	-kɔ̀ʔ	-kɛ̀ʔ	--	-kɔ̀ʔ	-kɛ̀ʔ	-kɔ̀ʔ	--	'see'
c)	**-kúm*	-kúm	-kúm	-kúm	-kúm	-kúm	-kóː	--	'rich'
d)	**-kɔ̂t*	kə-kɒ̂	--	kə-kʷʌ̂t	kə-kɔ̂tʃ	kə-kɔ̂t˥	kə-kɔ̂l	á-kɔ̂s	'slave'
e)	**-kí*	-kɘ́.lé	-kɘ́e	-kɘ́.ɾī	-kɘ́.lī	-kíat˥	-kˣɔ́.nɔ̂	-kɨ̄a	'know'
f)	**-kélí*	-kí, kɘ́.lé	-kíɛ	-kə́.ɾé	-kə́.lé	-kí	-kɘ́e	-kél	'have'
g)	**-ɲák*	kɘ́-ɲɔ́ʔ	kə̄-ɲɘ́ʔ	kɘ́-nɔ́k	kɘ́-ɲɔ́ʔ	kə̄-ɲɔ́k	kə̄-ɲɘ́ʔ	fɨ̄-lɛ́ʔ	'smoke'
h)	**-tó.kó*	fə̄-tsɔ́ʔ	fə̄-tōʔ	fə̄-tsɔ̄́k	fə̄-tʃɔ́ʔ.ó	fə̄-tók	fə̄-tɔ́ʔ	ɨ̄-tɔ́ʔ	'day'
i)	**-zók*	tɘ́-zɔ́ʔ	--	tɘ́-zɔ̂k	tɘ́-zɔ́ʔ	tɘ́-zɔ̂k	fɘ́-zɔ̂ʔ	--	'air'
j)	**-kàjà*	ō-tʃû̱ɒ	ō-kpʷê	ō-kâe	ō-kâe	ō-kâe	ō-kôe	ɨ̄-kûiɲ	'bed'
k)	**-kájá*	tə̄-tʃía	tə̄-kɘ́e	tɘ́-káe	tə̄-káe	tə̄-káe	sə̄-ké	ā-ké	'charcoal'
l)	**-kí*	kə̄-tʃí.tʃí	kə̄-kî	kə̄-kí	kɘ́-kɛ̄mːə̄	kə̄-kɘ́.kɛ̄i	kə̄-kɘ́i.kéi	ŋkúm-tɨ́	'chest'
m)	**kú*	-kpú~pʰú	-pṵ̱	-pfɵɒ	-púp	-pʷí	-ʙ̥ó	-kfɨ́	'die'
n)	**-kúen*	-kpʷéːn	-kpʷɘ́e	-pʷɛ́ː	-kpéː	-fʷɛ́ː	-kpáe	-kfɛ́ʲɲ	'suit (v)'
o)	**-kúɛ*	kə̄-kʷé	kū-pʷɘ́e	ō-kʷɛ́	ó-kpʷī	kū-kʷɛ̋́	kə̄-kpɛ́i	ɨ̄-kœ́	'arm'
p)	**--*	-pfɘ́	--	--	-pūí	-pfá	--	-fɨ́	'burn'
q)	**-kúat*	-pfɘ́	fɘ́	--	-púə	-kúat˥	--	-kfɨ́l	'chew'

Occasionally, when comparing across the Bantoid family, one comes across lexical items which have clearly remained stable for centuries. One example is the verb in c) **-kúm* 'be(come) rich' where the A810 forms are identical with each other, and with the reconstruction for their Proto-Bantu cousin. This especially stands out because **k* has otherwise proved to be a most enigmatic segment. The **k* of likely PB cognates manifests itself in A810 as /k, kp, p, pf, f/ and /tʃ/. As a result, it has proven hard to find convincing cognates where /k/ is common to both, but, aside from c) **-kúm* some likely PB candidates for (21) would be k) **-kádà* and m) **-kú*. For n), PB **-púan* is interesting, given the labio-velars and labials found in A810; Hyman (1979a:3) considers *p + w to be the source of /kp/. The **k* in coda position, seen in (21)g-i, should be compared with (23) (p. 73) where all five languages have glottal stops.

Among the A810 languages, Aghem is the only one to have undergone extensive spirantization of **k* to a coronal /tʃ/, such as seen in (21)j-l. One example of this is the word /tɨ-tʃia/ 'charcoal (pl)' which, although it is /tɨ-kae/[31] in the neighbouring A810 languages, is palatalized in other Grassfields languages such as Ngiemboon /kʲɛ/. Such intermediate forms suggest that palatalization might be implicated in Aghem spirantization as well. Examples of Aghem [tʃ] from a different source can be found in the discussion of /ts/ following example (38) (p. 85).

Ohala (1993:242) points to a study by Winitz (1972) who studied his subjects' abilities to distinguish CV syllables under a variety of acoustic conditions. That research showed that the highest confusion occurs between [ku] and [pu], a statement readily endorsed by such variant PB pairs as **-pùa~-kùa* 'crack (n)' and **-púm~-kúm* 'come from'. Ohala also states that high vowels are prone to engender frication of any preceding occlusive and gives the example of PB **-kumu* 'chief' becoming *pfuma* in modern West Teke, a process paralleling that seen in Isu in (21)p-q. The phoneme /pf/ is by far the rarest in Aghem; in a lexicon of roughly 10,000 entries, it is found in only a half dozen unique roots plus roughly an equal number of associated forms. In the Bu, Weh and Zhoa data, it does not appear at all and in Isu, only in one root, which gives rise to three words, 'die, death and corpse'. The most probable derivation of this segment can be given simplistically as PreB **kuV > kfV > pfV*.

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[31] PB **le-kádà, *ma-kádà* (pl). This word is treated in depth in example (77), p. 133. The relationship between PB **ad(V)*, Zhoa /ae/, and Aghem /ia/ is quite regular so this is not likely a matter of non-cognate roots. Compare also: PB **-càd*, **-màd*, **le-tádè* with Zhoa *-sàe, -màe*, *e.táe* and Aghem *-sìa, -mìa, e.tía*, all with the respective, identical meanings of 'choose', 'finish', and 'stone (n)'. Note that only the Aghem velar stops become affricates in this environment while alveolars/dentals remain unchanged.

PA810 **g* **< Pre-B **k / N_***

(22)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	**g*	/g/	/k/	/g/	/g/	/g/	/k/	/k~gv/	
a)	**gù*	gù	k^{h}ù	gù	gɔ̀o	gʌo	k^{hw}ù	gvɔ̀	'hide (n)'
b)	**-gə̂m*	kə-gə̂m	fə-kə̂m	kə-gə̂m	kə-gə̂m	kə-gʌ̂m	kə-kə̂m	fə-gvə̂m	'fig tree'
c)	**-gúmē*	ē-gū:	tə-kō:	ŋgú-mè	ē-gú.mē	ŋgūém	sə-kō:	--	'bedbug'
d)	**-gòŋ-*	gòŋ.sɔ̀	--	-gɔŋ̀.tə̀	-gɔ̀ŋ.ə̀	-gɔ̀ŋ.ɔ̀	kòŋ.sə̀	gò?.sɨ̄.nɨ̄	'last'
e)	**-gúnì*	ò-g^{w}ən	--	ē.və́n	ē-gʌ́n	é-g^{w}ʌ́l̃	ē-kō:n	ī.gvɨ́ɲ̄	'corpse'

Another rare consonant in A810 is /g/ as PA810 **g* usually becomes /ɣ/ in the reflexes. The only potential PB cognates found so far are a) **ŋ-gòbò* and possibly c) **le-kúpá*.[32]

PA810 **ʔ* **< PreB **k***

Since table (23) deals with a segment that is only found in coda position, lines a-e are employed, rather than relegating codas to lines g-i as elsewhere in this section.

(23)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	**ʔ*	/ʔ/	/ʔ/	/ʔ/	/ʔ/	/ʔ/	/ʔ/	/ʔ/	
a)	**-dɛ̀ʔ.ɔ́*	-dɔ̄ʔ.ɔ́	-tə̄ʔ.ə́	-dɔ̄ʔ.ɔ́	-dɔ̄ʔ.ɔ́	-dɛ̄ʔ.ɛ́	-tə̄ʔ.ə́	-dūʔ.í	'sit'
b)	**-dzɔ̂ʔ*	kə̄.dzɒ̂ʔ	ká.tsɤ̂ʔ	kə̄.dzɔ̂ʔ	kə̄.dzɔ̂ʔ	ə̄.dʒɛ̂ʔ	--	ā.gʲɛ̂ʔ	'jaw'
c)	**-sáʔ*	-sáʔ	-sáʔ	-sáʔ	-sáʔ	-sáʔ	-sáʔ	-sáʔ	'judge'
d)	**-tsíaʔ*	tsɔ́ʔ	tsɜ́ʔ	tsɑ́ʔ	tʃɔ́ʔ	tʃíʔ	tʃʌ́ʔ	tʃʲɛ́ʔ	'laugh'
e)	**-tàʔ*	kə̄-tâʔ	kə̄-tâʔ	kə̄-tâʔ	kə́-tâʔ	kə́-tâʔ	kə̄-tâʔ	ā-tâʔ	'snail'
j)	**-tsóʔ*	tsóʔ	--	tsóʔ	tʃúʔ	tʃúk˥	tʃuʔ	tʃuʔ	'poke'
k)	**-bòk*	kə̄-bôʔ	kə̄-bôʔ	kə́-bɔ̂ʔ	kə̄-bôʔ	kə̄-bôk	kə̄-bôʔ	ā-bûʔ	'pit'

Potential PB cognates are rare with only b) **-daka*. More dubious, due to tone are d) **-cék*, f) **-còk*. Assuming that the glottal stops arose primarily from coda **k*, and perhaps also **t* in some languages, it is likely that this change had already begun prior to Proto-A810 as glottal stops are found as codas throughout the Grassfields family.

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[32] Maho (1999:51) and Demuth (2003:272) both reconstruct the NC 5 prefix using **l*, a consonant not found in the BLR3 reconstructions. The latter, in turn, offers no NC prefix reconstructions and this writer has been unable to find works addressing the issue.

The A810 glottals may have arisen either from two sources, or at different historical stages. In the one instance, there is a series of words such as those in (23), where all five A810 languages have a glottal coda but in the other case, there is a second, smaller series of the kind seen in (21)g-i (p. 71), in which Zhoa consistently, and Isu frequently, has a coda /k/.

3.2.2 Nasal occlusives

PA810 **m* **< PreB **m***

(24)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	***m**	/m/	/m/	/m/	/m/	/m/	/m/	/m/	
a)	*-*mi*	o-m^{w}ɛ^{j}	o-mi	o-m^{w}i̤	o-m^{w}ə^{j}	o-ŋm^{w}ə^{j}	o-məŋ	ɨ-mzɨ̂	‘neck’
b)	*-*mì*	-mì	-mì	-mì	-mɜ̀e	-mɐ̀e	-mɜ̀e	-mzɨ̀	‘swallow’
c)	*-*mɨ́-*	-mɜ́	-mɵ́	-ŋḿ̩	-mɵ́	-mɵ́	-mɵ́	-ɲvɨ́	‘drink’
d)	*-*mɨ́-*	-mɜ́	-múə	-ŋḿ̩	-mɵ́	-mɵ́	-mɐ́	-mɨ́	‘selfish’
e)	*-*mɔ́ŋ*	-mɔ́ŋ	-mɔ́ŋ	-mɔ́ŋ	-mɔ́ŋ	-mɔ́ŋ	--	-mɔ́ŋ	‘quiet’
f)	*-*mɔ̀ʔ*	-mɔ̀ʔ	-mɔ̀ʔ	-mɔ̀ʔ	-mɔ̀ʔ	-mɔ̀ʔ	-mɔ̀ʔ	-mɔ̀ʔ	‘one’
g)	**kám*	kám	kām	--	kām	kām	kām	ŋkām	‘thousand’
h)	*-*tám*	kə.tám	kɵ́.tám	--	kɵ́.tám	ō.tám	ō.tám	fɨ̄.tám	‘fruit’
i)	*-*mùam*	-mɔm	mɔ̀ː.nduː	-m^{w}àm	-mɔ̀m	-mɒ̀m	-mɑm	--	‘touch’

Potential PB cognates can be found for (24) in b) **mèd~mèn*, c) **mú* (NW variant of **nyó*), f) **mòì~ *mòtí* and perhaps g) **kámá* ‘hundred; ten’.

PA810 **n* **< PreB **d*, **n***

(25)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	***n**	/n/	/n/	/n/	/n/	/n/	/n/	/l/	
a)	*-*niam*	kə-nɔ́m	kə-nʌ́m	kɵ́-ném	kə-níɯ̄m	kə-ném	kə-ném	í-lém.í	‘tongue’
b)	*-*nóm-*	-nóm	-nóm	-nóm.tɨ̄	-nóm	-nóm	-nóm	-lúm	‘bite’
c)	*-*nía*	-nɵ́ŋá	-nía	--	-nɵ́ə	-néə	níá	--	‘lick’
d)	**nóm*	nóm	nóm	nóm	nóm	nóm	nóm	lúm	‘husband’
e)	*-*nîà*	ó-n^{w}â	ɵ́-nîa	ō-nîa	ó-nô	ó-nêɐ	ō-ní.à	ɨ-lvâ	‘stomach’
f)	*-*náʔ*	é-náʔ	é-náʔ	é-nāʔ	é-nāʔ	é-náʔ	ē-náʔ	í-láʔ	‘village’
g)	*-*bɔ́n*	bɔ́n	bɜ́e	bɔ́n	bʌ́n	bʌ́n~bʌ́l̃	bɵ́l̃	bɨ́ŋ	‘dance’
h)	**ŋgùen*	ŋg^{w}ɔ̀n	ŋg^{w}è	mbvɔ̀n	mbvɔ̀n	ŋg^{w}ɐ̀n	ŋgùn	--	‘bush’
i)	*-*vúl*	ó-wɔ́n	ɵ́-wɛ́e	ō-vɛ́.ɾə̄	ō-vɛ́.ɾə̄	ō-wá.lə̄	ō-wūl	ɨ̄.vís	‘fire (n)’

As mentioned with (20) (p. 70), A810 /n/ in onset frequently corresponds to PB **d* as seen in the PB cognates of a) **-dímà* b) **-dúm*, d) **-dúmè*.

In coda positions, /n/ is only common in Aghem. Bu does not permit /n/ in coda and there are very few cases like (20)d and (25)g-h where the segment is shared by all four of the other A810 languages. More common is for Isu, Weh and Zhoa to end in /tˀ/ or /d/ or to have a second syllable with an intervening /ɾ/ or /l/ as seen in (25)i.

The /n/, /l/ and /d/ distributions among the Ring Center languages, such as Kom, and A810 are intriguing in several ways. In Aghem, each member in the coronal series is clearly phonemic,[33] but there is also an alternation that sees /n/ universally becoming [l] when followed by a syllable/word boundary + vowel[34]; elsewhere it remains [n]. What is striking with this phoneme is that all of the A810 speakers recorded, and most noticeably Zhoa, tended to pronounce coda /n/ without complete oral closure. The result is phonetically [l̃], a segment posited by Stewart (2002) for both PPAB and PB.

PA810 *ɲ **< PreB *ny [ɲ], *d, *n**

(26)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	****ɲ***	/ɲ/	/ɲ/	/ɲ/	/ɲ/	/ɲ/	/ɲ/	/ɲ/	
a)	**-ɲàm*	ɲɔ̀m	ɲɛ̀m	ɲàm	ɲàm	ə̀-ɲàm	ɲàm	ɲàm	'animal'
b)	**-ɲi*	-ɲɔ́	-ɲɪ́	-ɲí	-ɲí-ā	-ɲī	-ɲɪ́n	-zɨ́	'enter'
c)	**-ɲúí*	é-ɲɔ́	ē-mɔ́	é-ŋḿ̩	é-ɲɨ́	é-ɲý	ē-ɲɨ́	ī-lvɨ́	'knee'
d)	**-ɲúì*	é-ɲô	é-ɲê	é-ŋmû	é-ɲî	é-ɲɛ̂o	ē-ɲî	ɨ̄-lûe~l^{w}î	'lake'
e)	**-ɲɔ́ŋ*	-ɲɔ́ŋ	-ɲɔ́ŋ	-ɲɔ́ŋ	-ɲɔ́ŋ	-ɲɔ́ŋ	-ɲɔ́ŋ	-ɲɨ́ŋ	'run'
f)	**-ɲɔ́ŋ-sɔ́*	-ɲɔ́ŋ-sɔ́	-ɲɔ́ŋ-ɔ́	-ɲɔ̂ŋ-ɔ̀	-ɲɔ́ŋ-ɔ́	-ɲɔ́ŋ-ɔ́	-ɲɔ́ŋ-sɔ́	-ɲɔ́ŋ-sɨ́	'nurse'
j)	**-ɲôŋ*	tə̄-ɲôŋ	tə̄-ɲôŋ	tə̄-ɲ̣̂	tə̄-ɲôŋ	tə̄-ɲôŋ	sɨ́-ɲôŋ	ɲūŋ-sɨ̄	'hairs'

[33] /álé-dɔ̀ʔsɔ̀/ 'to seat', /álé-nɔ̀ʔsɔ̀/ 'to shake', /álé-lɔ̀ʔsɔ̀/ 'to deceive'

[34] This is looked at in more detail following example (40), p. 87.

No examples have been found of /ɲ/ in coda position although they are plentiful in neighbouring Kom. PB is reconstructed with a single palatalized segment **ny* [ɲ], paralleling contemporary Aghem, but there are few examples of this segment in C_1 position in the BLR3 database, and only one clear PB cognate with any sizeable distribution, a) **nyama*. The few other likely candidates are often from Zone J only.

PA810 **ŋ* **< PreB **ngʃ***

(27)

	**810*	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	****ŋ***	/ŋ/	/ŋ/	/ŋ/	/ŋ/	/ŋ/	/ŋ/	/ŋ/	
a)	*é.fə́ŋ*	é.fə̋ŋ	--	é.fə́ŋ	ē.fə̋ŋ	ē.fə̋ŋ	ē.fə̋ŋ	ī.fᵻ́éŋ	'sore'
b)	**-ɣɔ́ŋ*	é-ɣɒ́ŋ	é-wɔ́ŋ	é.wɔ̄ŋ	é.ɣɒ̋ŋ	é.ɣɒ̋ŋ	é.ɣɒ̋ŋ	í.ɣɔ́ŋ	'spear'
c)	**-tɔ́ŋ*	-tɔ́ŋ	-tɔ́ŋ	-tɔ́ŋ	-tɔ́ŋ	-tɔ́ŋ	-tɔ́ŋ	-tɔ́ŋ	'crow'
d)	**-tsə́ŋ.lɔ́*	-tsə́ŋ.ə́	-tsə́ŋ.lɪ̂	--	-tʃə́ŋ.ə	-tsə́ŋ.ə	-tʃə́ŋ.ə́	-tʃɨ́ŋ.tɨ	'shake'
e)	**-bàŋ*	-bâŋ	-bâŋ	-bâŋ	-bâŋ	-bɛ̂ɛŋ	-bâŋ	-bàŋ	'red (v)'
f)	**-dzôŋ*	kə̄-dzôŋ	kə̄-tsôŋ	--	kə̄-dzôŋ	dzɛ̄ː.ŋ̀	kə̄-tsôŋ	ā-ʒûŋ	'good'
g)	--	kə̄.ŋɔ́ː.ŋɔ̂	e̩.ŋɒ̄ː.ŋə̀	--	--	--	kə̄.ŋɔ̂ː.ŋɔ̌	à.ŋwɔ̀'-	'raven'
h)	--	nṹː	ŋʷə̌	ŋʷə̀jà	nṹ$\bar{\text{o}}$	ŋʷɔ̀ːdˀ	nù.ŋɒ̄	lɛ́ʔ	'leave'
i)	*mɨ̀.káʔ*	ǹ̩-kâʔ	mɨ̄.káʔ	ǹ̩-kâʔ	ǹ̩-kâʔ	m̩̀ŋ-kâʔ	m̩̀ŋ-kâʔ	ɨ̄ŋ.kâʔ	'trees'

As there are very few velar nasals found in onset in A810, coda examples have been selected for (27)a-f. In this position, /ŋ/ often coincides with PB **ng*, as in b) **-gòngá* c) **-tóng* e) **-bèng*, f) **-dòng*. Unlike the situation with the glottal stop, however, each of the A810 languages has a few instances of the velar nasal in onset. Though no full sets of cognates have been found in the data, the segment does occur in (27)h 'leave' in three of the five languages. Many of the other examples appear to be onomatopoeic in origin, the word for 'raven' in Aghem and Kumfutu for example in (27)g, clearly resembling the call of the bird.

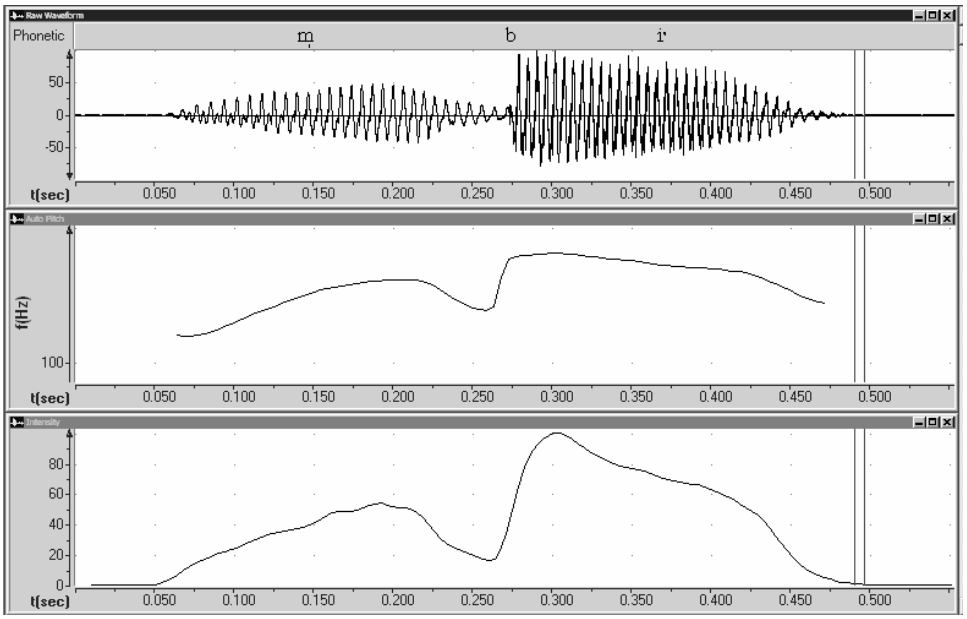
In Aghem, Isu and Weh, a syllabic [ŋ̩] also now functions as the CL 6a prefix before voiceless velar consonants as seen in example (27)i. Isu is unique among the

A810 languages in further allowing /ŋ/ (and also /ŋm/) to stand as the sole constituent of a root, as already seen in (26)j *ŋ̂* 'hair' (*ɲôŋ* elsewhere in A810).

3.2.3 Prenasalized Stops

The large majority of words with prenasalized stops are nouns; the few verbs with these segments are often transparently related to a noun. For Aghem, prenasalized stops generally function just as the plain oral stops do in the environment of CL prefixes and accord markers. Consider, however, this Speech Analyzer[35] screenshot.

(28)



Speakers of all the Western Ring languages show a tendency to syllabify the nasals before transitioning into the stops. In the word /mbí/ 'world' in (28), the Kumfutu speaker can be seen to produce a clear hiatus between the nasal onset and oral stop. This can be seen not only in the raw waveform of the top frame but also by a clear tone change (middle frame), and a sharp drop in intensity between the two syllables (bottom

[35] Software developed by SIL International: http://www.sil.org/software/speechtools/

frame). The hiatus is even more pronounced when the root is preceded by a vowel, whether in a CL prefix or at phrase level. In that case, there is clear resyllabification and the nasal, at the phonetic level, becomes a coda for the preceding word. Thus the plural of Aghem *mbɔŋ*, which morphologically is *tɨ̀-mbɔ̀ŋ* 'cows', is phonetically[36] [tə̀m.bɔ̀ŋ] with a very clear hiatus between the [m] and [b].

Nevertheless, for Aghem at least, the analysis of 'prenasalized' holds at the morphophonemic level as the prenasalized consonants of CL 9 are unvarying in all contexts; the nasal onset of CL 9 nouns never deletes and the associative marker is /e/. This is unlike CL 6a nouns, such as /ŋ̀-káʔ/ in (27)i (p. 76), where an associative construction or subject position will see the nasal prefix deleted and /mɨ́/ inserted after the noun as the associative or pronominal marker. It is likely that the situation is similar for the other languages included in this study and, although that has not yet been verified, the transcriptions in this section reflect the assumed phonological shape /NC/.

It is probable that the pre-nasalized series in A810 root onsets is the result of an early fusing of nasal, or perhaps *VN*, prefixes to C_1 of the noun root rather than being reflexes of NC consonants in Pre-Bantu. Support for this statement comes from the fact that BLR3 Main entries include only a handful of reconstructions with NC segments in C_1, the very place that they would be expected to appear if retained from Pre-Bantu. Instead almost all occurrences of Proto-Bantu NC are found in C_2. The A810 languages, by contrast, have no prenasalized consonants in C_2; all are root-initial, either with a separate NC prefix, as in /kɨ̀.ndàŋ/ 'debt', or without one, as in /ndúɯ́/ 'house'.

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[36] Schadeberg (2003:147) similarly points out that "most PB reconstructions are morphemes (roots and affixes), and morphemes often do not fit syllable structure".

PA810 **mb*

(29)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	mb	/mb/	/mb/	/mb/	/mb/	/mb/	/mb/	/mb/	
a)	**mbɔ̀ʔ*	mbɔ̀ʔ	mbə̀ʔ	mbɔ̀ʔ	mbɔ̀ʔ	mbɛ̀ʔ	ám.bə̀.ʔə	mbə̀ʔ	'shoulder'
b)	**-mbú*	fə́-mbú	fə̄-mbú	fə́-mbū	--	fə̄-mbɛ́o	fə̄-mbó	--	'gall'
c)	**mbòŋ*	mbòŋ	mbɔ̀.lɔ̀ʔ	mbɔ̀ŋ	mbɔ̀ŋ	mbɔ̀ŋ	mbɔ̀.lɔ̀ʔ	mbɔ̀ŋ	'cow'
d)	**mbí*	mbí	mbíɪ	ḿ̩.bī	mbî	mbí	m̩̄.bî	ḿ̩.bzɨ̂	'world'
e)	**mbàŋ*	mbàŋ	mbàŋ	--	mbàŋ	m̩.bàl̃	mbàŋ	mbàŋ	'cane'
f)	**mbám*	mbám	mbàm	mbám	mbám	mbám	mbám	mbām	'snake'

Here in (29)c, and in other examples to follow, an A810 frame may be greyed to show that the word, though apparently related, might not be a reflex of the proposed PA810 form. Potential PB cognates include a) **-bègà* (pl. prefix **ma-*), c) **N̩-bògó* 'buffalo', f) **N̩-bámbà* 'poisonous snake' but there are few other examples, suggesting that there might be yet another source of prenasalized consonants in Grassfields which did not develop in Bantu.

PA810 **nd*

(30)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	nd	/nd/	/nd/	/nd/	/nd/	/nd/	/nd/	/nd/	
a)	**ndaɣo*	ndúɣú	ndúˠɔ́	ndáo	ndáō	n̩.dáo	n̩.dia	ndo	'house'
b)	**-ndàŋ*	kə̀-ndàŋ	kə̀-ndàŋ	kə̀-ndàŋ	kə̄-ndà	kə̀-ndàŋ	kə̀-ndàŋ	--	'debt'
c)	**ndóŋ*	ndóŋ	ndóŋ	ndóŋ	ndóŋ	ndóŋ	ndóŋ	ndóŋ	'horn'
d)	**-ndàŋ*	ndàŋ	fə̄-ndâŋ	ndàŋ	--	ndàŋ	--	--	'chair'
e)	*?*	ndùɣɔ̀	n̩̄.dɛ̄	ándíā	ndɛ̀ː	n̩̄.déā	ə́n.dɛ́	ndà	'who?'
f)	**ndù*	ndù	--	--	ndəo	ndəo	ndò	ndù	'go'

Potential PB cognates include a) **N-dágò~N-dákò*, b) **mo/me-dàndú*, e) **ndai* (Zones C, G, J variant of **nai*) and possibly f) **-jèndò* < **jènd*. In example f, Bu and Isu informants offered [ŋʷà] and [ŋʷəjà] respectively, forms that are more likely cognate with Aghem /-nùŋù/ 'go away'.

The reconstruction for (30)e has been left as an open question. As is common with pronouns, although it seems clear that the words are related to each other, the vowels do not follow the regular patterns of sound correspondences observed elsewhere.

PA810 **ŋg*

(31)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	ŋg	/ŋg/	/ŋg/	/ŋg/	/ŋg/	/ŋg/	/ŋ.g/	/ŋg/	
a)	**-ŋgèt*	kə̀-ŋgè	kə̀-ŋgè:	kə̀-ŋʷàɪ	kə̀-ŋgə̀t	kə̀-ŋgèt˥	kə̀-ŋgə̀l	--	'fight'
b)	**ŋgáo*	ŋgɔ́	--	ŋgɛ́o	ŋgɛ́o	n̩.gɛ́ɔ̃	n̩.gíā	ŋgʷɔ́	'antelope'
c)	**-ŋgɒ́l-*	é.ŋgɒ̃́l̃ɔ̃́	ē.ŋgɔ́lɔ̃́	--	--	ŋ̩gɔ́.dɛ̀ʔn̩	ŋgɒ̃l	īŋ.gɔ́l	'curve'
d)	**-ŋgáŋ*	ê.ŋgáŋ	--	--	ŋgāŋ	n̩̄gáŋ	n̩̄.gáŋ	ŋgáŋ	'no'
e)	**ŋgùen*	ŋgʷə̀n	ŋgʷè	mbvə̀n	mbvə̀n	ŋgʷɛ̀n	ŋgùn	--	'bush'

Full sets of cognates have been difficult to find for all of the prenasal series but especially so for /ŋg/. Potential PB cognates, in turn, have been that much more rare with only d) **jángan* < **jáng* (Zones C, J, R, S) being identified as a possibility.

In e), both Isu and Weh have an /mbv/ reflex instead of /ŋg/, consistent with other examples of PA810 **k* and **g* before **u V* (see (21) p. 71 and (22) p. 73).

3.2.4 Fricatives

Reconstructions for Proto-Bantu include consonants **c* and **j*, which are assumed by some to have had a degree of spirantization (Schadeberg 1999:392), and these frequently correspond to fricatives or affricates in Aghem and its neighbours. Many fricative segments in A810, however, have an occlusive cognate in PB as seen for the PA810 segment **f* in (32). Interestingly, most of these fricatives occur precisely where they do in other Bantoid languages, including a number from Narrow Bantu. In the latter case, both fricatives and affricates are seen as having primarily resulted from the spirantization of stops after the PB 1st degree vowels **i* and **u* (Labroussi, 1999).

PA810 *f **< PreB *p**

(32)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	***f**	/f/	/f/	/f/	/f/	/f/	/f/	/f/	
a)	*fɔŋ	fɔ̀ŋ	fɔ̀ŋ	fɒ̀ŋ	fɔ̀ŋ	fɔŋ	fɔ̀ŋ	--	'heart'
b)	*-fɔ́p	-fɔ́	-fʌ́	-fʌ́p˥	-fʌ́p	-fɛ́p˥	-fʌ́b.á.nɛ̀	-fʲéf	'blow'
c)	*-fɔ̀p	-fɔ̀	-fə̀	-fə̀p˥	-fɐ̀p	-fɛ̀p˥	-fʌ̀p˥	-fef	'be blind'
d)	*-fʷéː	kə̄-fʷé	ká-fʷée	ú.fʷé	kə̄.vɐ̀eɕ	kə̄.fwé	kə̄.fɐ́e	ɨ́.fúeŋ	'leg'
e)	*-fáb	fám	fɐ́e	fám	fʌ́p˥	fám.tə̄	fám	--	'blow nose'
f)	*-fúː	é-fūː	ē-fū˙	ē-fûp	kə̄-fɐ́ō	ē-fʌ́ō	ē-fūː	ī-fɨ̄ɨ	'leaf'
g)	*fóp	fʊ́f	fò.ŋə̄	fʌ́p˥	fʌ́p	fɐ́p˥	fɐ́p˥	--	'co-wife'
h)	*-táp	ō-tɒ́	ú-tɒ́	ō-tʷáp	ó-tɐ́ʊp	ó-tʊ́p˥	ō-tʊ́p˥	ī-tɔ́f	'wisdom'
j)	*-kuŋ	m̩-pfôŋ	mə-kôŋ	fɔ̀ŋ	ŋ̩-fôŋ	ŋ̩-kɔ̂ŋ	ŋm̩-kûŋ	ŋ̄-kfɔ̄ŋ	'flour'

It is clear that in A810, syllable onset /f/ is a reflex of a Pre-B **p*, as seen in the following likely PB cognates for (32) b) **-pùup*, c) **pùʊt* (noun **pòkù* - 'blind person'), d) **píndí*, e) **pémb* i) **pupu.* In the case of A810, the transition from PreB **p* to /f/ was complete. This statement then raises a question as to the source of modern [p], which is plentiful in coda positions in Isu, Weh and Zhoa. As mentioned earlier, this is the environment where the consonant is most prone to weakening and loss, so it would not be unreasonable to assume that PA810 /p/ and /b/ in this position both became [p], a situation that could be seen as analogous to German devoicing of coda stops. The fact that plural forms of g) 'co-wife' in Isu and Zhoa are [tó.fʌ́b.á] and [tɔ́.fɐ́β.ɔ́] would seem to further endorse this view. However, as already pointed out, PB reconstructions give evidence for both.

PA810 **v*

(33)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	****v***	/v/	/v/	/v/	/v/	//	//	//	
a)		é-vɔ́	ē-vɔ́	e-pfʷɒ	e-vɔ̆ə	e-pʷi	e-vɔ	i-kfɨ	'death'
b)		ŋ̩́-vɔ́	mə̄-vɔ́	mə́m-bvú	ŋ̩́-vɔ́	ŋḿ̩-gūat˥	m̩-bvɔ́	mɨ̄-vɨ́l	'oil'
c)		ē-vɔ̂ɒ	ē-vɔ̂ɐ	ē-vû	é-vɔ̂ɐ	é-wût	ē-vɔ̂a	ī-vɨ̂l	'feather'

Possible PB cognates are a) **le-kú(à)*, b) **ma-kútà*, c) **le-kù.mbo*. Although all the A810 languages have a few occurrences of /v/, there are no examples with the segment present in all five cognates. For the three examples above, Isu has three different reflexes as opposed to only /v/ for Aghem, Bu and Weh. In the case of (33)b, it is possible that the Zhoa word for 'oil' is not cognate, even though there is a precedent for arguing for *gʊa > [gvʊa] > [bvʊa] > [bvɵ] (see (21) p. 71 and (22) p. 73).

PA810 **s* **< PreB **c* (following PB precedent, [c] or [s])**

(34)

	***810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	Gloss
	****s***	/s~ʃ/	/s/	/s/	/s/	/s/	/s/	/s/	
a)	**-sɨ́*	ē-sɔ́	ē-sɔ́	ē-sɔ́	ē-sɔ́	ē-sɨ́	ē-sɨ́	ī-sɨ́	'eye'
b)	**-sáŋ*	ē-sɒ́ŋ	é-sɒ́ŋ	é-sɒ̄ŋ	e-sɒ̄ŋ	ē-sɒ̄ŋ	ē-sə̄o	ī-sɔ̄ŋ	'tooth'
c)	**-sɨ́*	n̩̄-sɨ́	mú-sɨ́	mʌ́n-sɔ́	n̩̄-sɨ́	m̩̄n-sɨ̄	m̩̄n-sɨ́	mɨ̄-sɨ́	'tears'
d)	**-sɔ̀ʔ*	ē-sɔ̂ʔ	--	é-sɔ̂ʔ	ē-sɔ̂ʔ	ē-sɛ̂ʔ	ē-sɐ̂ʔ	--	'goitre'
e)	**-sâe*	ē-ʃîɐ	ē-sî	é-sɐ̂e	é-sɐ̂e	ē-sâe	ē-sə̂e	ī-sɐ̂	'grave'
f)	**-sá(ŋ)*	ē-sɔ̂	ē-sɐ̂	ē-sáŋ	ē-sʌ̂p^{h}	ā-sáŋ	á-sāp$^{\neg}$	ā-sáŋ	'corn'

A810 /s/ very frequently correlates with PB **c* as seen in the following cognates for Table (34): a) **-jícò*, b) **-cùngá*, c) **-códì* f) **-cángú*. In the case of f) 'corn', however, the Weh word might well be the reflex of a different PA810 form since no other A810 data parallels the distribution of coda segments found in this set.

PA810 **z* **< PreB **j, *di***

(35)

	***810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	**Gloss**
	****z***	/z/	/ʒ/	/z/	/z/	/z/	/z/	/j,z,ʒ/	
a)	**-zue*	kə-zêiː	kʊ̄-ʒûe	kə-z^{w}ɔ̂e	kə-zâe	kə-zɵâe	kə-zê.sʌ	ā-ʒʊ̃e	'breath'
b)	**-zaú.de*	-zú ~-ʒú	-zú	-zɵ́.ɾē	-zɛ́o	-zɛ́o	-zú	-ʒvɨ́	'hear'
c)	**-zɨ́*	-zɨ́	zɨ́	-ɲɨ́	-zɔ́	-zɨ́	-zɨ̄́	-jɨ́, -zɨ́	'eat'
d)	**-zà*	-zà	--	-zà	-zà	-zà	-zàe	-zɨ̀	'vomit'
e)	**-záuʔ.lɔ́*	-zɔ́ʔ.lɔ́	-zɛ́ʔ.é	-zɜ́ʔ.é	-zɔʊʔ.lʌ́	-zɛ́ʔ.ɛ́	-zɔ́ʔ.lɔ́	-jɛ́ʔ.í	'learn'
f)	**-zát*	ē-zɔ́n	ē-zʊ́	ē-zɔ̄t	ē-zɛ́t	é-zát$^{\neg}$	ē-zɨ́	ī-jɔ́l,īzɔ́ŋ	'name'
j)	**-záʔ*	kə-záʔ	kə-záʔ	kə-záʔ	kə-záʔ	kə-záʔ	kə-záʔ	ā-jáʔ	'ram'

Western Ring Grassfields are distinct from their Grassfields neighbours in that they share an innovation from PG **j* to /z/. In Kom, which is Central Ring, the process appears incomplete, although possibly still active as seen in (35)c and f. Some instances of A810 /z/ similarly correlate to PB **j* as in b) **-júgʊ*, f) **-jínà~ *-gínà*, or **c* as in d) **cànj*. However, some PB entries with **d* also appear to be cognate such as c) **-dí*.

PA810 **ɣ* **< PreB **g***

(36)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	**ɣ*	/ɣ/	/ɣ,w/	/ɣ,v/	/ɣ/	/ɣ/	/ɣ/	/ɣ/	
a)	**-ɣáe*	é-ɣé	ē-ɣɔ́e	é-ɣɛ́	é-ɣé	é-ɣéː	ē-ɣɐ́e	ī-ɣéɲ	'breast'
b)	**-ɣúp*	kɔ̄-ɣɒ́	kɔ̄-ɣó	kɔ̄-vɔ́p	kɔ̄-ɣʌ̀p	kɔ́-ɣʌ́p˥	kɨ̄-ɣɜ́p˥	ā-vɨ́f	'bone'
c)	**-ɣáŋ*	é-ɣéŋ	ē-ɣéŋ	ē-ɣéŋ	ē-ɣɐ̀ŋ	ē-ɣɐ̄ŋ	sɔ̄-ɣɐ̄ŋ	fɔ̄-ɣáŋ	'vein'
d)	**-ɣàː*	ē-ɣâː	--	ē-ɣêt	ē-ɣât	ē-ɣât˥	ē-ɣâ.là	ī-ɣà.sà...	'ringworm'
e)	**-ɣóm*	ē-ɣóm	é-ɣóm	ē-ɣóm	ē-ɣóm	ē-ɣɔ̄m	ē-ɣɔ̄m	ī-wúm	'egg'
f)	**-ɣɔ̂*	é-ɣɔ̂	tɔ́-vɔ̂	ē-ɣɐ̂o	ē-ɣɐ̂o	tɔ̄-ɣɐ̂o	ē-jâ	ī-wô	'wing'
j)	**-ɣú~ɣù*	kɔ́.ɣú	kɔ̄.ɣɔ̌	kɔ̄.wô	kɔ̄.ɣɐ̂o	kɔ́.vɔ̄	kɔ̀.ɣû	ā.vɨ́	'foot'
k)	**-ɣú*	é-ɣúː	é-ɣʷó	ʊ̄-wɛ́ː	ē.ɣɐ̂o	ē.vɔ́	ē-ɣúː	ī.vɨ̄	'rain'

Two likely PB cognates for (36) are b) **-kúpà* (PG **gúp*), and e) **-gí*. Given the consistent correspondences of PB /g/ with /ɣ/ among all the A810 languages, and the fact that /ɣ/ is already found in Hyman's (1979b) PG reconstructions, it is probable that the softening of /g/ to /ɣ/ was already complete by the time of Proto-A810. This change would have been blocked only when **g* was preceded by the nasal CL prefix 9, a fact most clearly seen in the A810 words for 'claw' and 'fingernail'. The root for both in the Northwest zone of Proto-Bantu is **-gádà*. In the case of Aghem, Isu, Weh and Zhoa, the partitive noun phrase for fingernail includes /kɨ̀.ɣê/ 'nail, claw', a class 7 noun while for Bu, that same noun is /ŋgɐ̀ê/, class 9. In the case of 'claw', the situation between Aghem and Bu is reversed, with the former keeping the hard /g/ before a nasal in /kɨ̀-ŋgè/ and Bu offering the plural CL 8 form with a fricative /ò.ɣèː/.

3.2.5 Affricates

Affricates are plentiful throughout the Grassfields area. Some appear to be the result of segment loss and subsequent contact between remaining segments, as already observed with the inclusion of /pf/ under PA810 **k* in (21) (p. 71). Others seem to stem from palatalization and a third set from epenthesis between nasal prefixes and fricatives. This section includes both regular and prenasalized affricates since there are not enough examples of the latter to warrant separate tables. Phonetically, prenasalized affricates function exactly as the prenasalized stops do (cf. (28), p. 77); the nasal will tend to resyllabify as a coda onto any preceding vowel in an utterance.

PA810 **bv*

(37)

	***810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	**Gloss**
	****bv***	/bv/	/v/	/bv/	/bv/	/bv/	/ʙ/	/bv/	
a)	**bvɔ́*	bvɔ́	vɔ́	bvɔ́	bvɔ́	bvɔ́	ʙɔ̄	bɨ́	‘dog’
b)	**mbvɔ́*	mbvɔ́	ŋvɔ́	mbvɔ̀	mbvɔ́	mbvə̀	m̩ⁿ.bvɔ̄ˈ	ŋgvɨ́	‘chicken’
c)	**bvə̀*	bvə̀	və̀	bβù	bvə̀	bvə̀	ʙə̀	--	‘flatulate’
d)	*?*	bvéŋ.lɔ́	vʌ̄.wɔ́.kī	máŋ.bvɔ̂ː	bvóŋ.ɔ́	mbóŋ.ɔ́	bə̀	bólí	‘faint’
e)	*?*	bvɛ́	bʉ́ʸ	bʌ́pˀ	bə́p	bʌ́pˀ	bɛ́	bɨ́f	‘ask’
f)	**-bù-á*	bvə̌ə	və̌	bvʷə̌	bŭ	gbʷî	ʙə̆ɐ	fé	‘fall’
j)		kɔ́-gbʷîn	--	kə̄-bvô	kə̄-bvê	kə̄-bêt	kə̄-ʙô	ā-bɨ̂l	‘dust [1]’
k)		kə̄-bvɛ̃́.l̃ɔ́	kə̄-vɛ́.lí	--	--	--	--	ī-bvɨ́	‘dust [2]’

Since affricates are never found in coda position, the g) through i) lines in the examples have been omitted from all of this section. Potential PB cognates for (37) include a) **N̩-búà*, b) **N̩-kúbà*, e) **-búʊdi*, f) **-bù* (NW variant of **-gù*), and k) **-bú(dù)*.

In (37), all of the instances of Kumfutu [ʙ] correspond to the affricate [bv] in Aghem, although the inverse is not true. Ladefoged and Maddieson (1996:130) suggest that bilabial trills are a reflex of prenasalized bilabial stops and others (Creissels 1999; Meinhof 1932:50), have shown that PB stops, when preceded by nasals, have frequently

undergone hardening and/or aspiration. Thus the correlation between Aghem /bv/ and Kumfutu /ʙ/ is not unexpected and, in fact, there are numerous such examples in the data collected. In the case of (37)-a, the nasal is provided by the CL 9 prefix **N-* (cf. PB **N-bʊ́à*) whereas in example b), Zhoa still has a prenasalized stem, supporting reconstruction of a nasal. The difficulty is that both Aghem and Kumfutu also have an abundance of prenasalized bilabial stops [mb] (see (29), p. 79), so it is not sufficient to simply reconstruct a nasal plus stop. Furthermore, as seen in (37)b, these languages also have prenasalized affricates. At this stage, the best that can be postulated is that the *N(.)CV.V structure was most prone to affrication (see also §4.4.1, p.125).

PA810 *ts**

(38)

	***810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	**Gloss**
	****ts***	/ts/	/ts/	/ts/	/tʃ/	/ts/	/tʃ/	/tʃ/	
a)	*-tsʉ́ŋ.lʌ́	tsʊ́ŋ.lʌ́	tsʊ́ŋ.lə̂	--	tʃʊ́ŋ.ə́	tsʊ́ŋ.ə́	tʃʊ́ŋ.ə́	tʃɨ́ŋ	‘shiver’
b)	*-tsía?	tsɔ́?	tsɜ́?	tsɑ́?	tʃɔ́?	tʃí?	tʃʌ́?	tʃʲɛ́?	‘laugh’
c)	*-tsók	tsó?	--	tsó?	tʃú?	tʃúg	tʃú?	tʃú?.lə	‘stab’
d)	*-tsʊ́ŋ	tsʊ́ŋ	tsʊ́ŋ	tsʊ́ŋ	tʃʊ́ŋ	tsʊ́ŋ	tʃʊ́ŋ	tʃʊ́ŋ	‘steal’
e)	*-tsá?	é-tsá?	ē-tsá?	ē-tsá?	ē-tʃá?	ī-tsâ?	ē-tʃá?	ā-tʃâ?.lɨ̀	‘clay’
f)	*-tsam	tsám	tsám	tsám	tʃám	tsám	tʃám	--	‘war’
j)	*-tiókó	fə̄-tsó?	fə̄-tō?	fə̄-tsō̂k	fə̄-tʃó?.ó	fə̄-tók	fə̄-tó?	ɨ̄-tó?	‘day’

The reflexes for A810 **ts*, as seen in examples (38)a-e, are quite regular, aside from ‘day’ (38)f where Bu and Zhoa, like Kom and Kumfutu, have only a stop. Unlike the examples seen for Aghem /tʃ/ in (21) (p. 71), the affricates here are found in all of the daughter languages. For Weh, like Kumfutu and Kom, all occurrences are alveo-palatal [tʃ] but for Bu and Isu, they are exclusively [ts]. Interestingly, the primary Zhoa informant and her husband would regularly use [ts] while the older people sitting in on the session were just as consistently pronouncing the words with [tʃ]. Given that the

Weh informant was of the age of the older Zhoa observers, it would be of interest to verify whether there is a similar shift happening in Weh.

In Aghem, [ts] and [tʃ] are in free variation before [u] in open syllables while [tʃʷ] is an allophone in the very limited environment of /o_a. This latter environment arises when there is a CL 3 or 8 prefix /o-/ and root vowel /a/, as demonstrated by the following CL 7-8 pairs: [kə̀.tsàm]-[ò̩.tʃʷàm] ‘toad-s’, [kə̄.tsáʔ]-[ō̩.tʃʷáʔ] ‘mud brick-s’. There is also a small number of words such as [étʃʷân] ‘thorn bush’ and [tʃʷə̀n] ‘grove’ for which the environment triggering labialization of C_1 has been lost.

PA810 **dz*

(39)

	***810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	**Gloss**
	****dz***	/dz/	/ts/	/dz/	/dʒ/	/dz/	/tʃ/		
a)	*-dzúɣo	ē-dzúˠó	ú-tsô	ē-dzá	ē-dʒó	é-dzúə	ē-tʃú.ɣú	ɨ̄-tʃfɨ̄	‘mouth’
b)	*-dzɔ̂ʔ	kə̄.dzɒ̂ʔ	ká.tsɤ̂ʔ	kə̄.dzɔ̂ʔ	kə̄.dzɔ̂ʔ	ə̄.dʒɛ̂ʔ	--	ā.gʲɛ̂ʔ	‘jaw’
c)	*dzɨ̀m	dzə̀m	tsə̀m	dzə̄m	dzə̀m	dzɛ̀m	tʃə̀m	dʒə̀m	‘back’
d)	*-dzɨ́m-a	ō-dʒɒ̄ː	ū-tsʌ̄ː	ō-dzɛ́mə̄	ō-dʒíɤɪ̃m̄	ō-dzɨ́m̄	tʃʌ̀m	dzém	‘dream’
e)	*dzɨ̀	dzɨ̀	tsɨ̀	dzə̀	dzɨ̀	dzɨ̀	tsə̀	gʲà	‘voice’
f)	*-dzad	ō-dʒwə̂n	tə̄-tsə̂	ō-dzə̂	ō-dʒʷɛ̂t	ń.dʒɛ̂t	ō-tʃə̂	--	‘pus’
j)	-búdì	dzɨ́	bíɪ	bì	dʒí	bì	bî	bzɨ́	‘goat’
k)	*-dzae	-dzɛ̀e	-tsɛ̀e	-dzɛ̀e	-dzà	-dzà	-bè	-bì	‘say’
l)	*ndzul	ndʒɨ̀	ndzèŋ	ndzùl	ndʒù	ndʒɨ̀	n̩.dʒùˠ	ndʒɨ̀	‘sheep’
m)	*ndzóŋ	ndzóŋ	ndzóŋ	ndzóŋ	ndʒóŋ	n̩.dʒóŋ	n̩.dʒóŋ	ndʒóŋ	‘moon’

The Kom words for ‘cheek, jaw’ and ‘voice’ in (39)b and e are the only entries with palatalized velars and, as such, provide an ideal illustration of one of the assumed sources of coronal affricates in A810. It does lead to the question, however, whether one should assume PA810 forms as **dʒ* rather than **dz* since the former is a more natural, direct outcome from /gʲ/. The fact that there is a generational distinction in

Zhoa, with older people using [tʃ] and [dʒ], lends itself to considering these forms also as being older, but more research would be needed.

The only potential PB cognate found for (39) is c) **N̩-jìmà* (variant of Main entry **N̩-jùmá*). This entry, in turn, shows the result of a homorganic nasal being placed before a sibilant. If one assumes the phonetic value of [z] (or perhaps [ʝ]) for **j* in this PB reconstruction, then it is to be expected that the combination of nasal prefix plus sibilant onset will produce an epenthetic stop **n.z* > /ndz/. This effect is even more pronounced with labials with **m.v* frequently becoming /mbv/ throughout Grassfields. In the case of 'back', since the A810 reflexes are /dz/~/dʒ/ rather than /ndz/~/ndʒ/, this may be an indication that the Pre-B form had a voiceless fricative onset with the same epenthesis happening, but the nasal then giving voice to the consonant in all but Bu before dropping away. The /b/~/dz/ alternation in (39)j has already been discussed in relation to examples (18)k-l (p. 67).

3.2.6 Liquids & Approximants

PA810 **l*

(40)

	***810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	**Gloss**
	****l***	/l/	/nd/	/l/	/l/	/l/	/l/	/l/	
a)	**-lâŋ*	kə-lâŋ	kə́-ndâŋ	kə-lâŋ	kə-lâŋ	kə-lâŋ	kə-lâŋ	a-lâŋ	'law'
b)	**-lêŋ*	ó-l^{w}ə̂ŋ	ō-ndə̂ŋ	ō-lə̂ŋ	ē-lə̂ŋ	ō-lə̂ŋ	ō-lə̂ŋ	ɨ̄-lûɛŋ	'bamboo'
c)	**-lɔ́m*	kə́-lɔ́m	kə̄-ndɔ́m	kə́-lɔ́m	kə́-lɔ̄m	kə́-lɔ́m	kə̄-lɔ́m	--	'darkness'
d)	**-lóʔ.ō*	kə̄.lóʔ.ō	kə̄.ndóʔ.ō	kə̄.lū:	tə̄.lóʔ.ō	kə̄.lṓʔ.ɒ̄	kə̄.lôʔ	ā.lêʔ	'place'
e)	**-lìa*	ó.lûɒ	ú.ndô	--	ō.lṹ	ó.líɛ̄	ō.lə̂	ɨ̄.lûo	'bridge'
f)	**-lá:*	lɛ́j	--	lá·	lá:	lá	lé	--	'poor'
j)	**-lia.sɨ̀*	-lə̀ɯ́á.sə̄	kə̀-lɔ̀é.sə̄	kə̀-lè.sə̀	kə̄-lè.sʌ	kə̄.lîa.sɨ̃	kə̀.lɔ̄:.sə̀	--	'thread'

The clearest potential PB cognates for (40) include a) **ke-dàgò* and b) **mo-dàngí*. There is also a very small number of words, such as (40)j, where Bu lines up with the rest of A810 in having /l/ in onset, but these may be recent additions to the lexicon.

Given the Bu /nd/ in (40), one might also be inclined to posit a **d* for PA810 rather than **l*. However, given the large number of both nouns and verbs where all of the A810 languages have a stem-initial /nd/, it would then be difficult to explain why and where Bu selected /l/ while all the others retained /nd/.

In contemporary Aghem, /l/ and /n/ are both clearly phonemes as seen by such contrastive pairs as /kɨ̄lâŋ/ 'law' - /kɨ̄nâŋ/ 'cocoyam' and /ólûa/ 'bridge' - /ónûa/ 'stomach'. However an underlying /n/ invariably becomes [l] when followed by *$V*, a change which, along with resyllabification, occurs across both word and morpheme boundaries, as seen in the following underlined segments.

(41) [wʸò.sə̀.ˈtsúɥó.ˌˈbá.l̲á. ˈzó. l̲ám.ˈbé.ké.ˈˌwɔ́.l̲á]
/wò sɨ́ tsúo bɨ́n̲.á zɨ́n̲ án békéwɨ́n̲ á/
you F1 descend dance.DUR when at/to market Q
'When will you go and dance in the market?'

PA810 *w

(42)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	****w***	/ɥ~w/	/w/	/w/	/w/	/w/	/w~ɣʷ/	/w/	
a)	**-wúè*	ō-wé	ū-wʌ́e	ō-wɛ̄ː	ō-wû	ō-wű̀ŋ̄	ō-ɣʷɔ̄e	ɨ̄-wúɲ	'body'
b)	**-wúi*	é-ɥí	é-wí	é-wíˣ	é-wɔ́eˣ	é-wɛ́i	ē-wí	ā-zý	'nose'
c)	**-wua*	kɔ́-wó	kɔ̄-wá	kɔ́-wóə	kɔ́-wúɔ	kɔ̄-wɔ́	kɔ̄-wɔ́	ā-wú	'hand'
d)	**wuo*	wo	wʊə	wɒ	wʊə	wi	ɣɔ	wa, va	'you sg.'
e)	**-wùd*	wù	və̀m-	ù.wù	bβù	uˌ.wût¬	ò-wúm-	wúl	'person'
j)	**-júi*	-ɥí	-wí	-wí	-wɔ́e	-wʌ́e	-wí	zúe	'kill'
k)	**-jí*	ɥí	o-wi	o-wi	wəe	wɐe	o-we	wi	'wife'

Potential PB cognates of A810 include a) **-jútù*, b) **lé-júdù*, c) **kó-bókà*, g) **mò-júmà*. This is clearly a consonant in flux in A810, especially in the environment of close, back vowels, and there is often free variation between [ɣʷu̯], [βu̯] and [wu̯]. Although the Aghem are successfully moving towards almost exclusively using an orthographic *gh* [ɣ] in roots with back vowels, it is unlikely that this reflects historical origins and such a strategy would not work before front vowels.

A810 [j]

As already noted for (35) (p. 82), one of the features that differentiate the A810 languages from their Grassfields neighbours is their complete shift from /j/ to /z/. This includes [j] or [j̩], the intervocalic allophone of PA810 **d*.[37] There are a few lexical items with [j] in each of the A810 languages but, in the data collected, there are no cognate sets to warrant creating a table of examples. Aghem has some words with this segment in onset, such as /jo/ 'not', /e-jɔ.sɔ/ 'help', /a-ji/ 'wives', and a few others that might be borrowings, such as Aghem /kə̄.jə̂/ 'cage'[38] but, with the exception of Isu /-jɨ́ní/ 'female', other examples can be explained in terms of diphthongs containing /i/.

3.3 Vowels in PA810

Aghem has an inventory of ten phonemic vowels as follows:

(43)

i		*ɨ, ʉ*	*u*
e			*o*
ɛ			*ɔ*
	a		*ɒ*

[37] Except where apocope left the segment as a coda/offglide. This is discussed in example (77) (p. 133).
[38] Give the rarity of /j/ in roots, this could conceivably be a borrowing from Dutch *kooi, kooien* [koˑi, ˈkoi.jə] 'cage, cages' via the priests who were in the area for a good part of the previous century.

Length is also emic for all ten vowels although, in the case of /ɨ/ and /ɵ/, it is restricted to marking a grammatical distinction, namely iterative incompletive.

This paper assumes the following reconstruction of the PA810 vowel system:

(44)

*i		*ɨ,	*ɵ	*u
	*e			*o
		*ɛ		*ɔ
			*a	

Though vowel length is distinctive in Aghem, this is not so clearly the case for the other A810 languages, as there is not any single long vowel shared by all five languages. When comparing the vocalic segments across A810, both long and short vowels in Aghem frequently appear as diphthongs in Isu, Weh and Zhoa, and the inverse is also true. If there were long vowels in PA810, they are not reconstructable from the data collected to date and this is consistent with Hyman (1979a:7) who attributes a good deal of modern Aghem vowel length to synchronic assimilation processes. These can include a combination of verb root plus incompletive suffix /-a/, or noun root plus its associative CL marker. Thus verbs such as /-tɔ́m/ ‘mow’ or /-tɔ́/ ‘decrease’ yield the same incompletive form [tɔ́ː], and nouns such as /ndzàm è wɨ́n/, literally ‘axe of him’ become [ndzàː.wə̀n]. Aghem will also frequently have a long vowel where the other languages have a coda segment that is not part of the Aghem inventory. An example is Aghem /é-ɣáː/ ‘ringworm’ where Isu is /é-ɣɛ́t/ whileWeh and Zhoa are /é-ɣɛ́t/.

As has already been noted concerning Grassfields, outsiders commonly confuse mid and mid-close vowels with their higher counterparts. In the A810 languages, this is

most prominent in Aghem, Bu and Weh, where these vowels are still noticeably higher than Isu and Zhoa in all cognates.

If there were six close-mid to close proto-vowels in the PreB parent, similar to what is found for current PB reconstructions, a natural question is where the lower Aghem vowels /ɛ, ə, ɒ, ɔ/ originated, especially given that so many Aghem correlates of PB vowels in cognates are very close.[39] One possible explanation for the lower vowels is that they are the reflexes of earlier *V.V sequences (see §4.4.1, p. 125) or diphthongs, a suggestion that seems supported by cognates sets such as Aghem /gbɔm/, PB **buim*, and Zhoa [bŭɛm] 'hunt'. Normally one would expect a long vowel to result from such a change but that has not been the case. A teleological explanation, for verbs at least, would possibly be that such length was restricted by the need to preserve grammatical distinctions, e.g. Semelfactive / Iterative, within a framework that only allows double-length vowels and not triple. Such after-the-fact explanations, however, have little place within the Evolutionary Phonology framework (Blevins 2004:15).

Aghem vowels exhibit a number of unusual features. The greatest of these, the distribution of the four close vowels, is discussed in §4.1, (p. 101) but attention must also be drawn to the four phonemic back vowels.[40] According to Labov (1994:118):

> Haudricourt and Juilland (1949) reviewed all available examples of the movement of back vowels to the front in chain shifts, in French, Swedish, Greek, and other languages. They found strong confirmation of Martinet's views: in each case, the fronting was accompanied by a prior development of four levels of height in the back vowels.

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[39] as already discussed in §3.1 (p. 59).

[40] E.g. /kûː/ 'satisfy!', /kôː/ 'rake!', /kɔ̂ː/ 'dish out!', and /kɒ̂ː/ 'shave!'

In light of such research, one might expect Aghem to also eventually undergo such a shift to move at least one of the back vowels forward. However, Labov also points out examples of major vowel shifts taking place in North America where the precondition of four back vowels has not been met. This supports Blevins' (2004:284) statement that,

> The view that sound change improves inventory symmetry is an illusion. It is offered as a post hoc motivation for sound change only in cases where a symmetrical inventory results. In just as many cases, a sound change gives rise to asymmetry, or an asymmetrical system undergoes no change.

On first encountering the Aghem back vowels, there is a sense that one should be positing only be three phonemic levels, with vowel quality lower in closed syllables and higher in open. Nevertheless, there are enough minimal sets of four words to demonstrate these are phonemes, even if the four-way contrast is only found in a restricted environment: open syllables and usually imperatives such as /bûː/ 'bark!', /bôː/ 'misbehave!', /bɔ̂ː/ 'accept!', /bɒ̂ː/ 'build!, mould bricks!', where one of the set has a coda /m/ in the infinitive. The assumption here, since [ụ] does not occur in closed syllables, is that the vowels **u, *o, *ɔ* were phonetically lowered in CVC syllables yielding [o̩, ɔ̩, ɒ]. The four-way contrast arises when a coda /m/ in Aghem is followed by a morpheme boundary + vowel, in which case the /m/ is dropped yielding a long vowel. The vocalic quality however, remains stable within the resulting stem allowing such roots such as [bɔ̀m] 'build' to become an incompletive stem [bɔ̀ː] yielding a fourth contrastive vowel height. Although this contrast has only been confirmed in the limited environment of Aghem imperatives, the four phonetic vowels are also found elsewhere in Aghem and in A810, but the proper paradigms have not been collected to determine if similar four-way distinctions are possible in the other languages as well.

The vowel tables presented below differ from those for consonants in that, since there is obviously no 'coda' section to fill, lines g) and onwards are simply used for irregular, or exceptional, forms. Again, transcriptions are in broad IPA without brackets.

3.3.1 Simple Vowels

PA810 **i*

(45)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	***i**	/i/	/i/	/i/	/ɜe/	/ɐe/	/ɜe/~/i/		
a)	**-dì*	-dì	-tì	-dì	-dɜ̀e	-dɐ̀e	-tɜ̀e	-dzɨ̀	'cry'
b)	**-mì*	-mì	-mì	-mì	-mɜ̀e	-mɐ̀e	-mɜ̀e	-mzɨ̀	'swallow'
c)	**-wí*	-ɥí	-wí	-wí	-wɜ́e	-wɐ́e	-wí	-zúe	'kill'
d)	**-bî*	ká-bî	é-bî	ká-bî	é-bɜ̂e	kú-bɐ̂e	ká-bɜ̂e	a-bî	'thigh'
e)	**-wí*	é-ɥí	é-wí	é-wíˣ	ē-wɜ́e	é-wɐ́e	ē-wí	ā-zúe	'nose'
f)	**-tí*	-tí	-tí	-tí	-tɜe	-tɐe	-ti	--	'pin'
g)	**-té_*	-tí~tɨ́	-tɔˣ	-tú	-tígˀ	-tét	-tɨ́ʸ	--	'flee'
h)	**-ti*	ō-tᶣí	--	ō-tía	ō-tɜ́i	ō-tí	ō-tɐ́e	ī-tʃɨ́	'medicine'

A810 data contains numerous examples corresponding to those in (45)a-f and this is the regular paradigm for A810 reflexes of **i*. Likely PB correspondences are a) **-dìd*, b) **-míd~*-méd*, c) **-jít*, d) **-bède*, e) **-jídò* f) **-tí*. The irregular examples in j-k are cognate with the homophonous PB roots **-tí* 'fear (v)' and **-tí* 'medicine, witchcraft'.

PA810 **ɨ*

(46)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	***ɨ**	/ ɨ /	/ ɨ /	/ ɨ /	/ ɨ /	/ ɨ /	/ ɨ /	/ ɨ /	
a)	**-zɨ́*	-zɨ́	zɨ́	-ɲɨ́	-zɔ́	-zɨ́	-zɨ̃́	-jɨ́, -zɨ́	'eat'
b)	**-sɨ́*	ē-sɔ́	ē-sɔ́	ē-sɔ́	ē-sɔ́	ē-sɨ̃́	ē-sɨ́	ī-sɨ́	'eye'
c)	**tsɨ̀*	tsɨ̀	tsɨ̀	tsɨ̀	tsɨ̀	tsɨ̀	tsɨ̀	ɨ-tʃfɨ̀-ivɨ̀	'sun'
d)	**-ni*	-ɲɔ́	-ɲɪ́	-ɲí	-ɲí-ā	-ɲī	-ɲɪ́n	-zɨ́	'enter'
e)	**dzɨ̀m*	dzɔ̀m	tsɔ̀m	dzɔ̄m	dzɔ̀m	dzɐ̀m	tʃɔ̀m	dʒɔ̀m	'back'
f)	*-tɨ́m*	-tsɔ́m-	-tsɔ́m-	-tʌ́m-	--	-tɐ́m-	-tɔ́m-	-tím-	'dig'
g)	*-tɨ́m*	-tɔ́m-	-tɔ́m-	-tʌ́m-	-tʌ́m-	-tɐ́m-	-tɔ́m-	-tím-	'shoot'

Possible PB cognates for (46) include a) **-dí*, b) *-jícò*, e) **-jìmà~*-jùmà,* f) **-tím*. Since the high vowels are dealt with in depth in the following chapter, little comment will be given for this or the other high-vowels other than the following. Although synchronically, and from an orthographic perspective, it works very well to posit only one phoneme /ɨ/ in Aghem, it is good to at least consider the possibility that this central, unrounded vowel, which ranges from [ɨ] to [ə], springs from two historical sources. As already seen in (46)f-gthe onsets of closed syllables with /ɨ/ can be either occlusives or affricates, yielding such (near-)minimal pairs as /kɨ́-dɨ̀ŋ/ 'king, paramount chief' vs. /kɨ́-dzɨ́ŋ/ 'smog', or /kɨ́-tɨ́m/ 'pattern' vs. /kɨ́-tsɨ́m/ 'kingfisher'. The fact that stops and affricates collocate with two different vowels in open syllables make it quite possible that the same was once true in closed ones.

Another argument is the fact that, of the ten phonemic vowels in Aghem, /i/, /e/, and /ɛ/ are completely absent in CVC roots. With an overwhelmingly high occurrence of /ɨ/ in that very environment, it seems likely that the missing front vowels generally neutralized to a schwa or close-schwa in all closed syllables.

PA810 **ɵ*

(47)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	*	/ ʉ /	/ ʉ /	/ ʉ /	/ ʉ /	/ ʉ, y /	/ ʉ /	/ue,vɨ /	
a)	**-ndzʉ́*	tə́.ndzə́	tə̄.ndzə́	tə̄.ndzə́	tə́.ndzə̄	tə́.ndzə́	ṇ.dzə̄	ndzɨ̄.sɨ́	'clothes'
b)	**-zʉ́.mé*	-zə́.mé	-zə̄.mê	-zə́.mé	-zʉ́.mé	-zə̄e.mə̄	zə́e	dʒú.mí	'dry' v
c)	**-ɲúí*	é-ɲə́	ē-mə́	é-ŋḿ̩	é-ɲɨ́	é-ɲý	ē-ɲɨ́	ī-lvɨ́	'knee'
d)	**-nʉ́e*	é.ɲə̂	é.ɲə̂	ē.ŋmə̂̃	ẹ.ɲɵ	ẹ.ɲɵ	ē.ɲî	ɨ̄-lûe	'lake'
e)	**-sʉ̂*	-sə̂	-sə̂ʊ	-sə̂ʌ	-sə̂	-sə̂ə	-sɨ̂	--	'play'
f)	**-zʉ̂e*	kə̄-zə̂iː	kū-ʒûe	kə̄-z^{w}ə̂e	kə̄-zâe	kə̄-zɵâe	kə̄-zə̂.sʌ	ā-ʒű̂e	'breath'
g)	**-kúat*	-pfə́~pfə́	fə́	--	-púə	-kúat¬	--	-kfɨ́l	'chew'

Potential PB cognates are a) **Ṇ-túdú*, b) **-jum*, c) **dúí*. Both these, and the Kom cognates especially, are useful to verify that there is indeed some kind of labialization happening to cause rounding of the central vowel. A number of Aghem words with labial onset could have been added but, as will be pointed out in the following chapter, there tends to be a blurring of rounded vs. unrounded central vowels following labials.

PA810 *u

(48)

	***810**	**Aghem**	**Bu**	**Isu**	**Weh**	**Zhoa**	**Kumfutu**	**Kom**	**Gloss**
	****u***	/ u, o /	/ u, o /	/ u, o /	/ ɜo,u /	/ ɐo,u /	/ u,o,ɔ /	/ u, ... /	
a)	**-tú*	kə-tú	kə́-tūʜ	kə́-tū	kə́-tɜ́o	kə-tɐ́o	kə-tú	ā-tú	'head'
b)	**fú:*	é.fū:	ē.fū˙	ē.fûp	kə.fɜ̂o	ē.fɐ́ō	ē.fū:	ī.fɨ̄ɨ̄	'leaf'
c)	**fú*	kə.fú	kə́.f õʌ́	kə́.fú	kə.fɜ́o	kə́.fú	kə.fú	--	'rat'
d)	**bú*	bú	bú	búχ	bɜ́o	bɐ́o	búɯą̄	búf	'bark' v
e)	**zúp*	zú~ʒú	zûɸ	zûp^{h}	zɜ́o	zɐ́o	zú	yvɨ̄~ʒvɨ̄	'bee'
f)	**gù*	gù	kù	gù	gɜ̀o	gɐ̀o	k^{hw}ù	--	'skin'
g)	**-ɲùŋ*	tə-ɲôŋ	tə-ɲôŋ	tə-ɲ̣̂	tə-ɲôŋ	tə-ɲôŋ	sɨ́-ɲôŋ	ɲūŋ-sɨ̄	'hair'
h)	**-tsúk*	-tsóʔ	--	-tsóʔ	-tʃúʔ	-tʃúg	-tʃúʔ	-tʃúʔ.lə	'stab'
i)	**- ʔ*	tsóʔ.wɔ́	nɔ̄.tóʔ.ó	tsó.ɣó	tʃóʔ.ó.tʌ̄	tó.kó.tə̄	tǫʔ.wɑ	tuʔ.ɨ	'night'
j)	**-túm*	-tóm	-tóm	-túm	-tʊm	-túm	-tɔ́m	-túm	'send'
k)	**-ɣúm*	ē-ɣóm	é-ɣóm	ē-ɣóm	ē-ɣóm	ē-ɣō̂m	ē-ɣɔ̄m	ī-wúm	'egg'
l)	**-nùm*	kə́.nôm	kə́.nôm	kə́.ŋə̂m	kə̄.nə̋ùm	kə́.nôm	kə̄.nɔ̂m	--	'year'

As mentioned earlier in this section, it seems clear that there were historically only three back vowels, the primary indication being the very limited distribution of Aghem /u/. For this reason Aghem /o/ and /u/ are both collapsed into the PA810 *u table in (48) but with extra examples to show both the CV and CVC environments. PB cognates may include a) **-túè*, b) **pú(a)* 'thorn' ?, c) **-púkù*, f) **-júkì* (which has been refused for BLR3 but is a better match for A810 than the accepted **-jíkì*), and finally e)-*gúbò* 'skin', i) **-túkù*, a variant of Main entry **-tíkù*, j) **-túm*, k) **le-gí*.

PA810 **e* (or possible **e:*)

(49)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	***e**	/ e /	/ e /	/ e /	/ e /	/ e /	/ e /	/ e /	
a)	**-dèː*	-dèː	-tèː	-dɛ̃ː	-dĭː	-dɛ̃ː-	-tèː	-dʲèŋ.sɨ	‘teach’
b)	**kə-bé*	kə̄-bé	kə́-bɛ́e	kə́-bɛ́	kə̄-bé	kə́-bɛ́ː.nə́	kə̄-bɛ́e	ā-bé	‘yard’
c)	**bèː*	bèː	--	bɛ̀ː	bèː	--	--	-bènà	‘trap (v)’
d)	**-zè.da*	-zè	-zɛ̀e	-zɛ̀.ɾɛ̄	-zɛ̀.lə̄	-zèp˥	-zɛ̀l	-yès	‘sweep’
e)	**-sèi*	-sèi	-sèi	-sɛ̃̀.wɔ	-sĕi.nʌ̄	-sɛ̀ːm.bə	-sɛ̀e	-fsìsɨ	‘drag’
f)	**-náe*	-néi	-née	-né	-né	-née	-née	-léŋ	‘slide’

Possible PB cognates for (49) are a) **-dàg~dàng*, b) **-bá(ŋjá)*, d) **-jèj*.

PA810 *o

(50)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	***o**	/ ɔ /	/ ɔ /	/ ɔ /	/ ɔ /	/ ɔ /	/ ɔ /	/ ɔ /	
a)	**ndzóŋ*	ndzóŋ	ndzóŋ	ndzóŋ	ndʒóŋ	n̩.dʒóŋ	n̩.dʒóŋ	ndʒóŋ	‘moon’
b)	**ɲóŋ*	ɲóŋ	ɲóŋ	ɲɔ̂ŋ.ì [1]	ɲóŋ.ə́	ɲɔŋ	ɲɔŋ	ɲoŋ	‘suck’ [1]
c)	**-tóŋ*	ē-tɔ́ŋ	ē-tɔ́ŋ	ē-tɔ̄ŋ	ē-tɔ̄ŋ	ē-tɔ̄ŋ	ē-tɔ̄ŋ	ī-tɔ̄ŋ	‘navel’
d)	**-dɛ̀ʔ.ɔ́*	-dɔ̄ʔ.ɔ́	-tə̄ʔ.ə́	-dɔ̄ʔ.ɔ́	-dɔ̄ʔ.ɔ́	-dɛ̄ʔ.ɛ́	-tə̄ʔ.ə́	-dūʔ.í	‘sit’
e)	**-kòʔ*	-kɔ̀ʔ	-kɛ̀ʔ	--	-kòʔ	-kɛ̀ʔ	-kɔ̀ʔ	--	‘see’
f)	**-bóɛm*	gbɔ́m	bɔ́m	bóm	bʊ́m	bʊ́ɛm	bʌ́m	bʲɛ̄m	‘hunt’
g)	**-sá(ŋ)*	ē-sɔ̂	ē-sɛ̂	ē-sáŋ	ē-sʌ̂p^{h}	ā-sáŋ	á-sāp˥	ā-sáŋ	‘corn’

[1]Isu and Weh examples are from the same root but with causative suffix i.e. ‘nurse’

Possible PB cognates include a) **cʊnge*, b) **jóŋk* and f) **buɪm.*

PA810 **ɔ*

(51)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	***ɔ**	/ ɒ /	/ ɒ /	/ ɒ /	/ ɒ /	/ ɒ /	/ ɒ /	/ ɒ /	
a)	**mbɔ̀ŋ*	mbɒ̀ŋ	mbɒ̀.lɔ̀ʔ	mbɒ̀ŋ	mbɒ̀ŋ	mbɒ̀ŋ	mbɒ̀.lɔ̀ʔ	mbɔ̀ŋ	‘cow’
b)	**-mɔ̀ʔ*	-mɒ̀ʔ	-mɒ̀ʔ	-mɒ̀ʔ	-mɒ̀ʔ	-mɒ̀ʔ	-mɒ̀ʔ	-mɒ̀ʔ	‘one’
c)	**-kɔ́ʔ*	-kɒ́ʔ	-kɒ́ʔ	-k^{w}ɔ́ʔ	-kɔ́ʔ	-kɒ́ʔ	-kɒ́ʔ	-kɔ́ʔ	‘ascend’
d)	**-sɔ́ŋ*	ē-sɒ́ŋ	é-sɒ́ŋ	é-sɒ̄ŋ	e-sɔ̄ŋ	ē-sɒ̄ŋ	ē-sə̄o	ī-sɔ̄ŋ	‘tooth’
e)	**-tsɔ́ŋ*	-tsɒ́ŋ	-tsɒ́ŋ	-tsɒ́ŋ	-tsɔ́ŋ	-tsɒ́ŋ	-tsɒ́ŋ	-tsɔ́ŋ	‘steal’
f)	**-kɔ́m*	-kɒ́m	-n̩̄.kɒ́ŋ	-kɒ́m	-kɔ́m	-kɒ́m	-kɒ́m	-kɔ́m	‘shave’

Some of the apparent PB cognates for (51) are a) **Ṇ-bògó* 'buffalo', b) **mòì*, c) **kóɪd,* d) **cúnga*. The relationship between the lowest, back vowel in A810 and the PB sequences 'oi', 'oɪ' needs to be explored as well as the effect of the velar consonants.

PA810 **a:*

(52)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	**a:*	/ ɛe /	/ ae /	/ a: /	/ a: /	/ a: /	/ aə /	/ aiŋ /	
a)	**o-wá:*	wɛ́e	wáe	o-wá:	wá:	wǎ:-	wáə	wáiŋ	'child'
b)	**-kà:*	-kɛ̀e	-kàe	-kà:	-kà:	-kǎ:-	-kàə	--	'castrate'
c)	**mbà:*	mbɛ̀e	mbàe	mbà:	mbà:	mbǎ:-	mbàə	mbàiŋ	'fence'
d)	**tà:*	tɛ̀e	tàe	tà:	tà:	tǎ:-	tàə	tàiŋ	'five'
e)	**-bà:*	-bɛ̀e	-bàe	-bà:	-bà:	-bǎ:-	-bàə	-bàiŋ	'hate'

Possible PB cognates for (52) are a) **-jánà*, d) **-táànò*, e) **-bàab*. This is the only proto-A810 segment for which a lengthened vowel is suggested. Although length is now emic for all Aghem vowels but *ɨ* and *ɵ*, this is the only series where all five languages consistently have either length or a diphthong, and where there are at least some PB cognates with VV to support positing of a lengthened vowel for PA810

There is also a series of Aghem words that are usually pronounced with a pure short [ɛ] and no off-glide into [ɐ] or [i] but so far, when compared to the A810 cognates, there has been nothing to distinguish these as a separate vowel.

PA810 **a* **< PreB **a***

(53)

	*810	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu	Kom	Gloss
	**a*	/ a /	/ a /	/ a /	/ a /	/ a /	/ a /	/ a /	
a)	**-táp*	-tá:	--	-táp˥	-táp	-táp˥	--	--	'harvest'
b)	**tsâm*	tsâm	tsâm	tsâm	tʃâm	tsâm	tʃâm	--	'war'
c)	**-dàp*	-dà	-tà:	-dàp˥	-dàp	-dàp˥	-tàp˥	-dìɛf, dìa	'long'
d)	*mà?.à*	mà?.à	mà?.à	mà?.à	mà?.à	mà?.à	mà?.à	mà?.ì	'discard'
e)	**-sá?*	-sá?	-sá?	-sá?	-sá?	-sá?	-sá?	-sá?	'judge'
f)	*-kám*	-kám	-kám	-kám	-kám	-kám	-kám	-kám	'wring'

Perhaps not surprisingly, /a/ is one of the most stable segments among the A810 languages. It is here one finds many lexemes that are identical not only within Western Grassfields but also compared with PB cognates such as a) **táp* and e) **kám*. Other potential cognates include b) **N̩-tàmbàdà* (Zone J only), c) **dài(p)* and possibly e) **cámb*.

3.3.2 Diphthongs

As well as sequences of identical vowels, some of which correlate to contrastive length in Aghem, BLR3 also lists examples for 37 of the other 42 possible vowel combinations. Taking only those with 20 entries or more, one finds, in descending order of occurrence, **ʊa, *ua, *ʊe, *ia, *ɪa, *ai, *iʊ, *uɪ* and **ʊɪ*. Since Meinhof (1899), these have been consistently analyzed as vocalic sequences, each bearing its own tone.

As seen in the preceding tables in this chapter, the A810 languages and Kumfutu display a great deal of variety in the combinations of diphthongs, lengthened, and simple vowels. Regardless of the Aghem segment chosen, single vowel or diphthong, each of the other A810 languages will have a variety of corresponding segments. Using database filters, the most frequent correspondances have been identified and are presented in the following, very simplified, table below:

(54)

	Aghem	Bu	Isu	Weh	Zhoa	Kumfutu
a)	i(ː)	iː [iɕ]	iː, ɐe	ɜe	ɐe	iː, ɐe
b)	u(ː)	uː [uɸ]	u, ɐo	ɐo	ɐo	u
c)	ia	ɜi	ae	ae, ɜe	ae, i	ae, iɪ
d)	əɯa	ia, o	ia, ɛː, iː	ia, əɯa	ia	ia
e)	ei	ei	ɛː	ei, iː	ɛː	ɐe
f)	ɛe	ae	aː	aː	aː	ae
g)	oe	ɒe	oe	oː	ʊo	ɔe
h)	ɔe	ɔe, ɛː	ao, ɑli	ɔe , ɜo	ɒlə, ɐo	ɐli, ɒe
i)	uo	ɵa	uː	uː	uɐ	uː
j)	uɔ	ɐː	ia	ɛː	ea	ɛː

When Aghem and Bu have an [i] or [iː], Weh and Zhoa will frequently have [ɜẹ] and [ɐẹ] respectively, while Isu appears to be in transition at this stage with roughly equal occurrences of both [iː] and [ɐẹ]. Similarly, when comparing German to English, one will find that [iː] in the former often has a corresponding [ai] or [ei] in the latter. German *fliegen* [fliˑgɛn] and *wiegen* [viˑgɛn], for example, are 'fly' and 'weigh' respectively. Dobson (1968:660) suggests that an earlier English [iː] must have to taken a central route down to its current [ai] and [ei] to avoid merger with other diphthongs, such as in 'seize' or 'please', that were rising to become [i]. Conceivably the latter two could also have taken a non-peripheral route, passing through an /ɛɪ ~ ɛi/ stage on their way up. When one considers the frequency with which one finds central vowels at the nucleus of A810 diphthongs and peripheral vowels as the on- or off-glide, there seems to be a parallel situation in process. The direction of change, however, may be different as there are frequently $*CV_1CV_2$ structures in PB with CV_1V_2 cognates in Zhoa but $CV_2(ː)$ in Aghem. This might be analogous to Latin *dolor*, perhaps due to its genitive form *doloris*, becoming French *deuil* [d̪œi]. This is discussed in depth in §4.4.3 (p. 130).

3.4 Summary

This chapter, after explaining layout and notation choices in §3.1, has presented a selection of illustrative lexemes comparing both the consonants (§3.2) and vowels (§3.3) of the A810 languages plus Kumfutu and Kom. These comparisons have been accompanied by an attempt to reconstruct plausible Proto-A810 roots following basic reconstruction principles as laid out in §2.4 (p. 50). This was done primarily to serve as a data-source for the following chapter where an attempt will be made to better understand the historical relationship between the Aghem central vowels and affricates.

Chapter Four Spirantization and the Aghem Central Vowels

As indicated in the introduction to Chapter One, much of the impetus for this research arose from a desire to better understand the unusual distribution of the four Aghem vowels /i, u, ɨ, ɵ/ and particularly the historical source of the relationship between the central vowels and affricates. The vowels and their distributions are presented in detail in §4.1, with a look to typological considerations in §4.1.1. Corroborating studies (§4.1.2) and instrumental evidence (§4.1.3) are offered showing the four to be contrastive in Aghem. Section 0 details the distribution problem of the phonemes, explaining the relationship between the four highest vowels and onset consonants, and also presenting the exceptions. Within the same section (§4.2.1), an earlier analysis by Thormoset (2000) is presented and critiqued.

Although comparison of Aghem with other A810 data, as undertaken in Chapter Three, provides some insight into the problem of distribution, it has not proven to be sufficient. Thus, in §4.3 the vocalic system of Proto-Bantu and the advent of spirantized consonants in Bantu languages is considered for any further explanation that it may bring to the problem. The correlation between the PB and Aghem vowels, as well as spirantization, are presented in §4.3.1 followed by two current viewpoints on the phonetic nature of the PB vowels. (§4.3.2-§4.3.3). After presenting an additional complication, that of variant vowels in PB (§4.3.4), we turn to a proposal put forward by Meinhof (1932) and Bourquin (1955). Their views are presented in (§4.4), and given consideration in light of Aghem and the other A810 data. Finally, §4.5 attempts to

synthesize and summarize the substantial quantity of information introduced throughout the chapter.

4.1 Description and Distribution of the Four Highest Vowels

Of the ten phonemic vowels of Aghem, it is /i, u, ɨ, ʉ/ (equally representable as /i, u, ə, ɵ/) that are most unusual. The peripherals /i, u/ are generally extra close, [i̞, u̞] with some degree of friction while the central vowels /ɨ, ʉ/ range from mid-close to close. Consider the relationships between affricates and central vowels as shown in (55)a-c. A preceding dagger marks an unacceptable sequence:

(55)

a.	/kɨ́-tí/ ‘chopping block’	†kɨ-tɨ
	†kɨ-tsi	/kɨ́-tsɨ́/ ‘earth’
	/kɨ́-tú/ ‘head’	†kɨ-tʉ
	†kɨ-tsu	/kɨ́-tsʉ́/ ‘lock, key’
b.	/é-dí/ ‘crying’	†e-dɨ
	†e-dzi	/é-dzɨ́/ ‘birth’
	/é-dú/ ‘boxing, punching’	†e-dʉ
	†e-dzu	/é-dzʉ́/ ‘dirt’
c.	/é-bí/ ‘ready, done’	†e-bɨ
	†e-bvi	†e-bvɨ
	/é-bú/ ‘barking’ /é-bû/ ‘shelling’	†e-bʉ
	†e-bvu	/é-bvʉ́/ ‘asking’ /é-bvʉ̀/ [é̞-bvʉ̂] ‘falling’
d.	/é-ní/ ‘take’	†e-nɨ
	†e-ɲi	/é-ɲɨ́/ ‘enter’
	/é-nú/ ‘a bean-based food’ /é-nû/ ‘anoint’	†e-nʉ
	†e-ɲu	/é-ɲʉ́/ ‘knee’ /é-ɲʉ̀/ [é̞-ɲô] ‘lake’

Ignoring the noun class prefix, for the moment, any kind of complementary distribution, such as seen in (55)a-c, immediately lends itself to an allophonic interpretation: affricates before central vowels, stops elsewhere. Since this is paralleled

by the /n, ɲ/ sets (55)d, there is even an indication that palatalization may have played a role in the distribution. Language is seldom so easily described, however, and the additional data in (56) helps round out the picture.

(56)

/é.sí/ 'granary'	/é.sɨ́/ [ḛ.sɔ́] 'eye'
	/é.sʉ́/ [ḛ.sɵ́] 'faces'
/é.sù/ 'washing'	/é.sʉ̀/ [ḛ.sɵ̂] 'playing'
/é.zí/ 'decanting'	/é.zɨ́/ [ḛ.zɔ́] 'eating'
/é.zú/ 'feeling'	/é.zʉ́/ [ḛ.zɵ́] 'planting'
/é.zù/ 'husking'	/é.zʉ̀/ [ḛ.zɵ̂] 'being wet'

Unlike those presented in (55), the lexical sets in (56) reveal a clear, four-way contrast in identical environments (CIE) between /i/, /ɨ/, /u/ and /ʉ/, thus marking all four vowels as separate phonemes. The examples for /ʉ/[41] show that the contrasts hold in identical grammatical and tonal environments against both /u/ and /ɨ/. Since a phoneme is identified by its ability to distinguish meaning, the status of these four vowels as separate phonemes is clear. Unfortunately, such four-way CIE sets as seen in (56) are very rare in Aghem and, as one might immediately surmise from the data, they are only found in open syllables following coronal fricatives. Following labial fricatives and affricates, one finds only a three-way contrast of front vs. central vs. back, presumably because the acoustic distinction of rounded versus unrounded central vowels is too easily neutralized by the presence of a labial consonant. Therefore, although one will hear often hear [ɵ] after labials and labialized consonants, as in [pfə̂ɒ] 'chew!', the root-vowel is also frequently pronounced as [ə], yielding [pfə̂ɐ]. Note the

[41] Phonetic [ɵ]. Though the close-central [ʉ] seldom occurs in Aghem, it is still represented phonemically and orthographically as *ʉ*. This is the natural rounded complement to *ɨ*, for which speakers regularly range from the close [ɨ] to a mid [ə], at times due to environment, sometimes due to free variation.

difference in rounding on the incompletive suffix *-a*. Neutralization of this type in such a potentially ambiguous phonetic environment would presumably serve as an example of Ohala's 'hypo-correction' or Blevins' CHANCE.

4.1.1 Typological considerations

The claim of /i, ɨ, u, ʉ/ for Aghem, with the central vowels distinguished from one another only by rounding, is often met with incredulity, and it must be acknowledged that such a system is a typological rarity (Fleming 2004, Parker 2000). According to the *Universals of Vowel Systems* (UVS) (Crothers 1978:136-7), an inventory of 10 phonemic vowels could be expected to include /i, e, ɛ, a, ɔ, o, u, ɨ, ə/; UVS does not predict or describe any phonemic configuration with /u, ʉ, i, ɨ/. However, [ɨ] and [ə], while both found in Aghem, are not synchronically separate phonemes; they are in complementary distribution, the former occurring in open syllables, the latter in closed ones (and [ə] frequently in both environments). When these, in turn, are compared with Aghem /ʉ/, the phonemic contrast is seen to be one of rounding rather than height.

As Fleming (2004:238) observes, "central vowels are not problematic in themselves, it is the contrast between front and central or back and central vowels which is marked." Not only does Aghem have this three-point contrast but its vocalic system is even more highly marked by phonemically distinctive rounding of the central vowels and the restricted environments in which that rounding contrast holds.

4.1.2 Evidence from Previous Research in A810

Aghem has been included in, or has been central to, several research projects, the most extensive of which was, until recently, that undertaken by Hyman, Anderson and Watters (Hyman 1979a). In that work, Hyman (1979a:6) also presents ten phonemic

vowels for Aghem, noting the constraints of /i, ɨ/ and /u, ʉ/ and suggesting some kind of historical relationship between these vowels. However, he does not elaborate.

Grant, Griffin and Seguin (1993) did a survey of all of the villages in the A810 area. Their phonetic transcriptions are generally consistent with Hyman et. al. (1979a) and the this author's own data (1998-2000). Paulin (1997) also collected and transcribed wordlists from 15 Grassfields Ring languages, including all of the A810 family. Thirteen of those languages include transcriptions with both [ɨ] and [ʉ] (or [ʊ]). His work indicates that these central vowels themselves are by no means limited to the A810 area and also that the rounding contrast between such vowels might not be unique to Aghem[42]; however, this has yet to be confirmed. Paulin's Aghem wordlist includes entries such as [í.tsɨ́] 'pay' - [í.tsú] 'open', a minimal pair used in this paper as well. As will be clear in §4.1.3, however, the [ʊ] is more appropriately transcribed [ɵ].

Example (57) provides a side-by-side comparison of Aghem central vowels with cognates from the other members of A810. Again a double-dash marks a non-cognate.

(57)

	Aghem	**Bu**	**Isu**	**Weh**	**Zhoa**	**Gloss**
a.	[ē.sɔ́]	[ē.sɔ́]	[é.sə́]	[ē.sɔ́]	[ē.sɨ́]	'eye'
b.	[ō.sɵ́] [ē.sɵ́] pl.	[ē̤.sɔ́x]	[túm.ú.sʌ̄]	[túm.ú.sɔ̄]	[túm.ú.sɨ̄]	'face'
c.	[sɵ̂]	[sɔ̂ɐ]	[sɵ̰̂ɔ]	[sɔ̂]	[sɵ̂ɐ̆]	'play'
d.	[zɔ́]	[zɨ́]	--	[zɔ́]	[zɨ́]	'eat'
e.	[é.zɵ́]	[kɔ́.zɔ́x]	[kɔ́.zɔ́]	--	--	'plant (n)'
f.	[tsɨ̀]	[tsɨ̀]	[tsɨ̀]	[tsɨ̀]	[tsɨ̀̀]	'sun'
g.	[pfɔ́]	[fɔ́]	--	[púə]	[fɔ́]	'burn/chew'
h.	[ɲɨ́]	[ɲí]	[ɲí]	[ɲía]	[ɲí]	'enter'

Among the A810 group, Aghem is the most consistent in its use of phonemic rounding within the central vowels. Although the Aghem semantic distinctions that depend on /ɨ/-/ʉ/ contrasts are often maintained in different ways in the other A810 languages, this need not be ascribed to some universal principle against homophony. For example, in Lamnso', another Grassfields Ring language, 'eye' and 'face' are now homonyms as *sí*.

4.1.3 Instrumental Analysis of Central Vowels in Aghem

In order to compare and verify the quality of the four Aghem vowels under consideration, formant[43] information was compiled from recordings of Aghem lexical items. For each vowel, five samples were selected from a female native speaker and five from a male native speaker. The only tokens included were those in open syllables where the vowels in question followed s, z, or ɲ/n, since those are the only contexts in which all four may occur. Using Speech Analyzer,[44] readings were then taken for F1 through F3 and averages calculated for each vowel for both the female and male speaker. Tables (58)-(61) compare those results with Hillenbrand's (1995) averages for American English. Since there are no central, close or mid-close vowels in standard English, the averages for /ʊ/ and /ɪ/ are compared to Aghem /ʉ/ and /ɨ/ respectively.

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[42] Paulin's Bum data contains contrasting pairs such as [tɨ̂m] 'to show' vs. [tûm] 'to sing', and [kɨ̂m] 'to exit' vs. [kʊ̀m] 'to deceive'. If, as is the case for Aghem where, the [ʊ] is more accurately transcribed as [ʊ], then the Bum case differs from Aghem in that these rounding contrasts can occur within CVC roots.

[43] Resonant peaks in the signal spectrum, measured in Hertz. F1 is inversely related to vowel height and F2 directly to vowel frontness. F3 is lowered by rounding (as are F1 and F2, although much less so).

[44] Software developed by SIL International: http://www.sil.org/software/speechtools/

(58)

/u/	**Aghem (female)**	**Hillenbrand (female)**	**Aghem (male)**	**Hillenbrand (male)**
F1	295	459	303	378
F2	951	1105	772	997
F3	2651	2735	2398	2343

(59)

/ʉ/	**Aghem (female)**	**Hillenbrand (female)** /ʊ/	**Aghem (male)**	**Hillenbrand (male)** /ʊ/
F1	440	519	466	469
F2	1419	1225	1507	1122
F3	2836	2827	2700	2434

(60)

/i/	**Aghem (female)**	**Hillenbrand (female)**	**Aghem (male)**	**Hillenbrand (male)**
F1	312	437	296	342
F2	2584	2761	2273	2322
F3	3167	3372	3094	3000

(61)

/ɨ/	**Aghem (female)**	**Hillenbrand (female)** /ɪ/	**Aghem (male)**	**Hillenbrand (male)** /ɪ/
F1	417	483	462	427
F2	1789	2365	1495	2034
F3	2981	3053	2361	2684

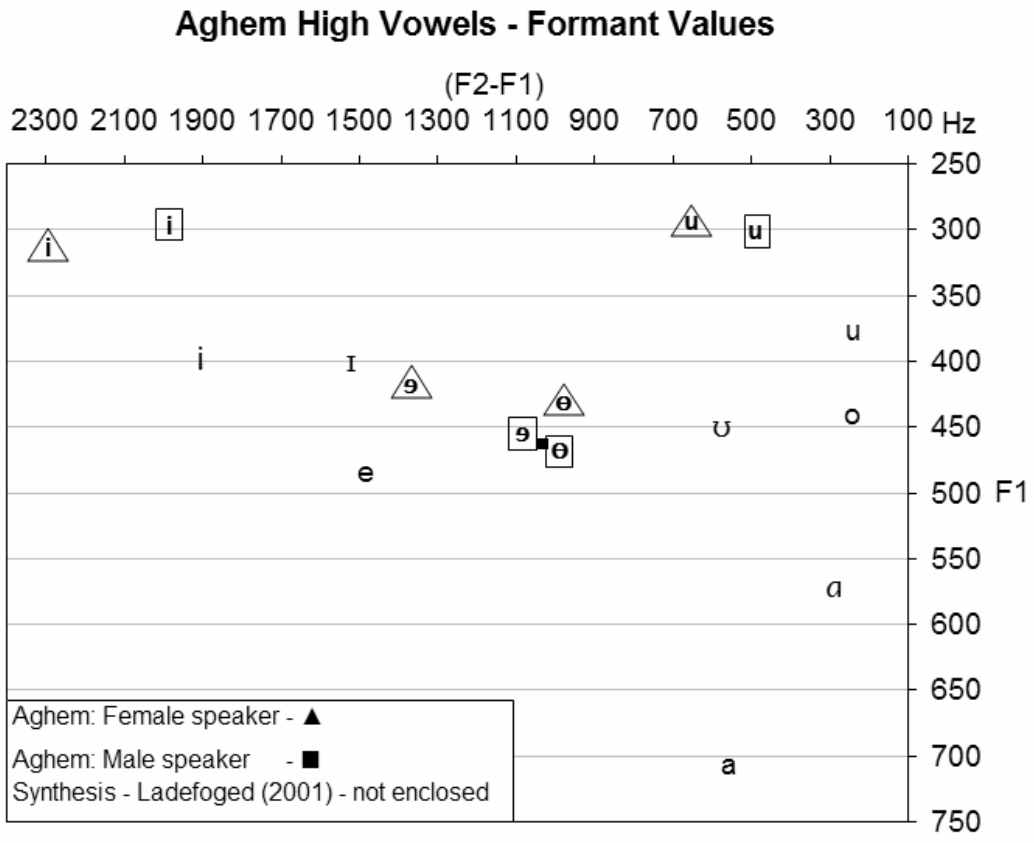
The following observations can be made about the data in (58)-(61):

- Aghem /u/ and /i/ have much lower F1 values for both the male and female speaker, indicating that these vowels are very closed when compared with English. The F1 values for /ʉ/ and /ɨ/ are somewhat higher, showing these to be mid-close to close.
- For both the male and female Aghem speakers, the F2 values for /ʉ/ and /ɨ/ are very similar, both clearly falling between Hillenbrand's F2 measurements for /ʊ/ and /ɪ/. These Aghem vowels, especially for the male, are unmistakably central.

- The F3 values for Aghem /u/ and /ʉ/ are lower than they are for /i/ and /ɨ/ respectively, indicating rounding of the former. In the case of the Aghem male, the F1 and F2 values for /ʉ/ and /ɨ/ are almost identical, leaving only F3 to distinguish them. Admittedly the F3 frequency differences for the central vowels are much less than for the peripheral vowels, nevertheless they are sufficient to make the rounding distinction salient and clearly phonemic.

The diagram in (62) takes the Aghem data shown from (58)-(61) and plots it against Ladefoged's Synthesis for American male vowels. In this graph, the labels are placed directly over their plotted point, except for the Aghem male [ə], [ɵ] which are placed alongside their points to avoid overlap.

(62)



The configuration in (62), with F2-F1 versus F1 on inverted x and y axes, is commonly used to provide a visual **approximation** of the placement of vowels within the oral cavity.

4.2 The Problem of Distribution

Having established the phonetic nature of the Aghem phonemes /i, ɨ, u, ʉ/, and having described their unusual distribution, the next task is to attempt to account for that distribution in the language. It bears repeating that CIE quadruplets such as /é-zí/ 'decanting', /é-zɨ́/ 'eating', /é-zú/ 'feeling' and /é-zʉ́/ 'planting', as seen in (56), p. 102, are much rarer than pairs such as /é-dí/ 'crying' vs. /é-dzɨ́/ 'birth' and /é-dù/ 'heavy' vs. /é-dzʉ́/ 'dirt', where both onset and vowel differ (see (55), p. 101).

The distribution picture is obscured even further by the existence in Aghem of the noun class 7 and 10 = 13[45] markers, /kɨ-/ and /tɨ-/. In an open-syllable, verb, or noun root, an oral stop can never precede the highest central vowels, but consistently does so in the case of these two prefixes. Furthermore, the affricates [tʃ] and [dʒ] act like occlusives in that they may only follow one of the two, close peripheral vowels or /w/ in Aghem, something that never occurs with the other four affricates /pf, bv, ts, dz/. Finally, all of the distribution statements that one might make, based on the data seen thus far, fail to hold for closed syllables where, of the four vowels under consideration, /ɨ/ occurs almost exclusively and can collocate with both stops and affricates, as in /-tɨ́m/ 'shoot', /-tsɨ́m/ 'dig' and /-dɨ̀n/ 'weigh out', /-dzɨ̀n/ 'put'.

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[45] NC 10 and 13, though still distinct in neighbouring Kom and Kumfutu, have collapsed into a single class in A810.

Unfortunately, any attempt to summarize such distributions will necessarily yield a very ad hoc statement of this nature: *In open syllables of verb and noun roots, /ɨ/ and /ʉ/ may not follow occlusives; similarly /i/ and /u/ may not occur after any affricates other than [tʃ] and [dʒ].* Although technically correct, such a pronouncement fails to catch the finer nuances of distribution and, in any case, is uninformative. Why can /ɨ/ (phonetically [ə]~[ə]) follow occlusives in closed-syllable roots such as [é.bɔ́n] 'dancing' or [é.dɔ̂n] 'heavy' but not in open ones? Why should /ɨ/ be able to follow occlusives in open syllable particles or prefixes, such as [kə] and [tə], but not in verb or noun roots? Why should the distribution of [tʃ] and [dʒ] differ from that of the other affricates by collocating only with the peripheral vowels?

A final component to the distribution puzzle is that Aghem /ts/ and /dz/ are not limited to preceding only /ɨ/ or /ʉ/; they may occur with any vowel except the high peripherals. The resulting pairs, such as /kɨ́-tám/ 'fruit' vs. /kɨ́-tsám/ 'toad', /álé-dè/ 'to teach' vs. /álé-dzè/ 'to rust', /kɨ-dôŋ/ 'garbage' vs. /kɨ-dzôŋ/ 'good', etc., could lead one to wonder if these affricates are the reflexes of an entirely separate set of consonants.

4.2.1 Palatalized Consonant Series?

As already shown in (55)d (p. 101), /n/ and /ɲ/ together pattern identically with the unusual distributions of occlusives with /i, u/ and affricates with /ɨ, ʉ/. This writer's initial hypothesis therefore, upon encountering these distributions, was that a series of palatalized consonants must have triggered the vowel changes as shown below in (63):

(63)	˚*kə-tu*	˚*kə-tʲu*	˚*kə-tuC*	˚*kə-tʲuC*	(˚hypothetical form)
	---	---	kə-toC	kə-tʲoC	1. Lowering in closed syllable
	---	kə-tʲɵ	---	---	2. Centralize /u/ after palatal
	---	kə-tsɵ	---	kə-tsoC	3. Affrication of palatalized stop
	/kə́-tú/	/kə́-tsʉ́/	/kə́-tóʔ/	/kə́-tsóʔ/	Illustrative Aghem words
	'head'	'key'	'stack'	'pounded food'	

In this example, three ordered processes are assumed to have affected the Aghem roots,[46] with dashes indicating when a given lexical item does not qualify for that specific change. This model works well with /u/ in the root and the third process (vowel centralization) is natural when the vowel follows /j/ or palatalized stops. It is, in fact, quite abnormal to hear a word such as *'you'* pronounced as [ju] in casual speech, as most speakers have a lax or centralized segment that ranges anywhere from [jʊ]~[jɵ] to fully derounded [jə]~[jɪ], depending on speed and register. A quick instrumental analysis of different speakers' pronunciations of words such as *cute*, *duty*, and *beautiful* similarly shows the /u/ clearly sitting in a central, mid-close [ɵ] to close [ʉ], with varying degrees of accompanying friction on the onsets. Furthermore, when the vowel is between a velar and dental stop or two dental stops, as in *cute* or *duty,* the F3 values are higher, showing evidence of slight derounding. Presumably *beautiful* would be similarly susceptible were it not for the presence of the labial onset.

Although the sound changes in (63) work for a proto-segment **u*, they are more problematic in the case of **i*.

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[46] As already pointed out (§1.5, p. 20), the reduction to [ə]~[ə] in the prefix is of a different nature. Plausible explanations include the collapse of CLs 7, 12, and 15 into a single class (CL 7) in A810.

(64)	*˚kə-ti*	*˚kə-tʲi*	*˚kə-tiC*[47]	*˚kə-tʲiC*[47]	(˚hypothetical form)
	---	---	kə-təC	kə-tʲəC	1. Lower/centralize in closed syll.
	---	kə-tʲɨ	---	---	2. Centralize /i/ after palatal
	---	kə-tsɨ	---	kə-tsʲəC	3. Affrication of palatalized stop
	/kɔ́-tí/	/kɔ́-tsɨ́/	/kɔ́-tɨ́m/	/kɔ́tsɨ́m/	Illustrative Aghem words
	'block'	'earth'	'pattern'	'kingfisher'	

The primary difficulty in (64) is that there is no apparent phonetic motivation for the application of the second process. Why should a palatalized coronal consonant pull a high, front /i/ back to /ɨ/~/ə/? Although one might expect this following a palatalized velar, such combinations became /tʃ/ or /dʒ/ in modern Aghem, with the following /i/ remaining unchanged.

A further problem with positing a historical series of palatalized stops for Aghem is they simply do not always appear in the other A810 languages, even when those reflexes do not have an affricate as found in Aghem. Thus, although the above hypothesis would point to a historical **t^{j}* or **c* for an Aghem root such as /-tsóʔ/ 'day', both Bu and Zhoa, as well as Kumfutu and Kom, simply have /-tók/ or /-tóʔ/. Although such neutralizations are not impossible (Hock 1991:151), it seems unlikely, in this case, that palatalized and plain stops simply merged in some Ring languages without leaving any trace of differentiation. Affricates are still plentiful elsewhere throughout the Bu and Zhoa lexicons; therefore, if spirantization were the reflex of a historical series of palatalized consonants, an environmental constraint would have to be found that enabled the spirantization process to be partially bled by depalatalization of certain segments only, while others were left unaffected. The data offers no such evidence.

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[47] Since /i, e/ and /ɛ/ never appear in a closed syllable in Aghem, the original root vowels here are largely unrecoverable by means of internal construction alone.

In spite of the above difficulties and the fact that the nasal /ɲ/ is the only palatalized segment to be found in Aghem, it would still be inappropriate to abandon the notion that palatalization played a role in spirantization within the language. It may prove more fruitful, however, to consider whether both palatalization and the central vowels are themselves reflexes of earlier forms and processes.

4.3 Insight from Proto-Bantu

Although the phonological reconstruction of PA810 was undertaken in an effort to discover, or better understand, the source of the four Aghem vowels under consideration in this chapter, it quickly became apparent that the time-depth represented by such an undertaking was still not sufficient to account for these vowels. As will be seen in the following sections, however, there are still clues to be found among A810 reflexes and especially in Zhoa. In this section, we consider whether the four highest Aghem vowels have correlates in Proto-Bantu and, if so, whether PB can provide any insight into the problem of distribution of the closest Aghem vowels. More specifically, are there PB vowels that frequently collocate in Aghem reflexes with affricates and fricatives?

Generally Proto-Bantu is reconstructed with seven vowels. These are presented in the BLR3 database as **i *ɪ *e *a *o *ʊ *u.* Bantuists commonly refer to **i* and **u* as '1st degree' vowels, **ɪ* and **ʊ* as '2nd degree', **e* and *o** as '3rd', and **a* as '4th'. Meinhof (1932[48]:27) calls **ɪ, *ʊ* 'open' and **i, *u* 'close', and presents the PB vowels as follows:

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[48] Original was published in German in 1899. Meinhof uses *î, û* for 1st degree vowels and *i, u* for 2nd degree but these symbols have been transposed, throughout this work, to conform to the BLR3 notation: *i, u* for 1st degree, *ɪ, ʊ* for 2nd.

(65)

*a

*e *o

*ɪ *i *u *ʊ

The exact quality of 1st and 2nd vowels is still a matter of discussion but scholars commonly associate the quality of the vowels with tongue root position (§4.3.2, p. 116). This arrangement in (65), with the 1st degree vowels placed as central, appears to contradict Meinhof's (1932:24-26) own written description of 2nd and 1st degree vowels which asserts that, "the former were articulated rather far back in the mouth, while the latter were formed more in front." Connell (1997:§5.2), in his presentation of Mambila fricative vowels[49], also notes the unexpected placement of Meinhof's 1st degree **i* and **u* as central vowels on the chart but remarks that "this accords with their place in Len-Mambila and Eastern Grassfields."

As will be seen, Meinhof's arrangement also reflects an affinity with the placement and properties of the four Aghem vowels under consideration. Of fundamental interest to the problem at hand, are Meinhof's comments on the profound effects of the 'close' PB vowels on consonant reflexes throughout Bantu:

- 1st degree vowels often cause palatal > sibilant sound on preceding C_1
- C_1 will often become an affricate or even a fricative
- plosive properties of C_1 are strengthened

[49] Connell documents the phenomenon of "fricative vowels", found in Mambila, Grassfields, and some Bantu A languages, showing that these very spirant syllable nuclei also often correlate to the PB 1st degree vowels. Aghem also has a small set of such vowels in alternate pronunciations, deemed by people to be the old, 'real Aghem' but there is no clear correspondence in this case to any one Aghem, PB or PA810 vowel. Examples are: [tí:]~[tɹ̩́:] 'flee', [fù]~[fɥ̀] 'hoe', [-bɔ́:]~[-bɹ̩́:] 'bad'.

Bourquin (1955[50]:49) more explicitly states that "before **u*, primitive consonants are usually changed to dentilabials such as *f, pf, v, bv,* etc., whereas **i* has produced aleveolar fricatives and affricates such as *s, sh* [ʃ], *ts, z, dz*, etc." As will be seen, this also strongly resembles the Aghem affricate-vowel relationship.

4.3.1 Aghem correlates of PB High Vowels

In light of the phonetic quality of the Aghem vowels seen in (62) (p. 107), it would be reasonable to expect that Aghem /u/ and especially /i/, which are so much higher and further forward in the mouth, might correspond to the PB 1st degree vowels and spirantization. As demonstrated below in (66), however, it is the 2nd and 3rd degree PB vowels (**ɪ *ʊ* and **e *o* respectively) that most often correlate with the extra-high vowels found in Aghem roots.

(66)

Aghem	Gloss	Proto-Bantu	
/-bí/	'be ready, done (food)'	**-bíd*	'be cooked, boil (v)'
/kɨ́-bì/	'thigh'	**-bèdè ~ *-bèdò*	
/-dí/	'cry, wail'	**-díd*	
/-tí/	'flee, escape'	**-tí*	'fear (v)'
/gù/	'skin (n)'	**-gùbò*	
/kɨ́-fú/	'mouse, rat'	**-púkù*	
/kɨ́-tú/	'head'	*-túè	
/-zùm/	'peel, husk (v)'	*-jùb	

It will also be noticed in these examples that the PB and Aghem cognates typically share the same initial stop and, with the exception of Aghem /f/ which regularly corresponds to PB **p*,[51] these words are not associated with spirantization.

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[50] Bourquin follows Meinhof's use of the *î, û* symbols for 1st degree vowels and *i, u* for 2nd degree. His data is also transposed, in this work, to the standard BLR3 notation: *i, u* for 1st degree and *ɪ, ʊ* for 2nd.

[51] The Aghem /p/-gap has already been noted in §3.2.1 (p. 66).

In contrast to the correlations seen above, the PB segments that most frequently correspond to the Aghem central vowels, and to spirantization, are the 1st degree vowels **i* and **u*. The examples, given below in (67), show that a PB occlusive in this context will frequently have a corresponding affricate or fricative in Aghem.

(67)	Aghem	Gloss	Proto-Bantu
	/é-sɨ́/	'eye'	**le-jícò*
	/-zɨ́/	'eat'	**-dí*
	/-tsɨ́/	'spit, pay'	**-túɪd, *-tú* 'spit, fix price'
	/-dzɨ̂ŋ.lɔ̀/	'surround(ing)'	**-díng-*
	/dzɨ̀m/	'back'	**n-jìmà* (variant **n-jùmá*)
	/-bvʉ́.lɔ/	'soil, ashes, dust'	**-bú-(du)*
	/-mʉ́/	'drink'	**-mú* (given as variant of **-nyó*)
	/é-ɲʉ́/	'knee'	**le-dúí* (variant **núí*)

Perhaps not surprisingly, however, there are counter-examples:

(68)	Aghem	Gloss	Proto-Bantu
a)	/-ndù/	'go (out)'	**-dù*
b)	/-kpú/	'die'	**-kú*
c)	/-sʉ́/	'face'	**-cú*
d)	/bvʉ́/	'dog'	**-búà*
e)	/-bvʉ́/	'ask'	**-búʊdi*
f)	/dzɨ́/	'goat'	**-búdì*
g)	/-dɨ̀n-/	'be heavy'	**-dìtò*
h)	/-bɨ́n/	'dance (v)'	**-bín*
i)	/-tɨ́m/	'plant (v)'	**-tím* 'dig, plant (v)'
j)	/-bɨ́ŋ/	'change direction'	**-bíng* 'turn around'
k)	/-pfʉ́/	'burnt'	**-pí*

In this case, in (68)a-b, PB **u* corresponds to Aghem /u/ while in (68)c-f, PB **ʊ* has a correlating /ʉ/ or more surprising /ɨ/. In the case of (68)g-j, the vowels are as expected but, whereas PB **i* in (67) appeared to be a predictor of an affricate onset in Aghem, here PB and Aghem begin with identical stops. Conversely, in (68)k, the Aghem

affricate is unexpected. Thus, although the synchronic correlations between the PB and A810 high vowels are plentiful, so are the exceptions and it is not difficult to find Aghem homophones (or nearly so) with differing PB high vowels in the BLR3 database (also see table (70), p. 120).

The pertinent question then, concerns the nature of the 1st degree PB vowels. Why did these vowels so commonly engender spirantization on the preceding stops in Bantu languages and, crucially, why are their Aghem correlates so frequently highly marked, central vowels, and similarly accompanied by spirants?

4.3.2 First degree vowels as [+ATR]

Stewart's (1967) use of the feature Advanced Tongue Root (ATR) in his description of Akan vowel harmony has since been widely embraced as a means of distinguishing the four highest vowels reconstructed for Proto Bantu. The 1st degree, friction-causing vowels, **i* and **u*, are considered to have historically been [+ATR] while the 2nd degree **ɪ* and **ʊ* were [-ATR] . This view is endorsed by Hyman (1979b) who uses the same seven-vowel system for his Proto-Grassfields reconstructions, referring to the 1st degree vowels as "'superclosed' [+ATR] high vowels". Hyman (2003:43) also points out that the [±ATR] system, as seen here in Nande (Kavutirwaki 1978) is widely attested in daughter languages, particularly in eastern Bantu.

(69)

a.	*eki-siko* 'gorilla'	*omu-sí̱ko* 'burden/load'
	obú-sú 'greed'	*obu̱-su̱* 'face'
b.	*eri-tíma* 'deceive'	*eri̱-tu̱ma* 'peel (v)'
	erí-túma 'send message'	*eri̱-tu̱mo* 'spear (v)'
c.	*eri-ríma* 'cultivate'	*eri̱-lu̱ma* 'exterminate'
	erí-lúma 'hurt, bite'	*eri̱-lu̱ma* 'be animated'

In the [±ATR] framework, Bantu languages are assumed to have gone in two different directions in respect to the PB 1st and 2nd degree vowels. Seven-vowel languages such as Nande have restricted, if any, spirantization and these are thought to more closely resemble the original PB vocalic system. The five-vowel languages, on the other hand, are assumed to result from a post-spirantization merging of 1st and 2nd degree vowels, **ɪ* with **i*, and **ʊ* with **u* (Labroussi 1999 ; Schadeberg 1995, 2003).[52] It is these languages, with their reduced vowel systems, that show the most complete spirantization of their reflexes of PB stops + before **i* or **u* (Meinhof 1932:49).

Given that [+ATR] is often mentioned in relation to Bantu spirantization, a natural question is whether this is a synchronically observable process in existing [±ATR] languages. Labroussi (1999) documents a number of seven-vowel languages with limited spirantization but does not indicate whether these are [±ATR] languages. Nor is it clear whether the process is ongoing in these languages, or whether they are simply cases where spirantization became extinct before effecting change in all qualifying environments. It has, in fact, been a challenge to find any synchronic documentation of this assumed link between [+ATR] and spirantization. This then leads one to wonder whether [±ATR] as a feature provides an adequate explanation for the friction-causing segments of PB. Is is possible that the [±ATR] of Nande and other languages is, like spirantization, simply an alternate reflex of a historically different Pre-PB feature?

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[52] Both Schadeberg (1995:73) and Labroussi (1999:336) consider the phenomena of spirantization and vowel reduction, which almost invariably accompany each other in Bantu, to be independently motivated and that both are most appropriately viewed as the result of areal norm and spread.

Casali (2000:65), in his assessment of literature on the topic, notes that [ATR] as a feature has become a catch-all "to distinguish just about any vowel 'height' contrasts which cannot be distinguished in terms of [high] and [low] alone." The [±ATR] contrast for PB is often presented as a one of 'tense versus lax', but if that is the extent of the distinction between these 1st and 2nd degree, reconstructed vowels, the model does not appear to provide any more satisfactory explanations for the modern reflexes than a simple [i], [u], [ɪ], [ʊ] inventory would.

4.3.3 First degree vowels as [i], [u]

Schadeberg (1995; 2003:247) does not see any need for a special category of vowels to trigger spirantization and accordingly dismisses the entire premise that the 1st degree PB vowels were somehow 'exotic'. He argues instead that the [i] and [u] found in most Bantu languages today are exactly the phonetic values that should be assumed for PB **i* and **u*. Furthermore, it is the 2nd degree PB vowels *ɪ* and **ʊ* which he feels to be marked and therefore subject to loss by "merging with the first degree vowels, which are retained" in the 5-vowel languages (1995:75).

In the case of PB **i*, positing a phonetic [i] is cross-linguistically, clearly tenable. High, front vowels commonly cause perturbation leading to misinterpretation of preceding occlusives as fricatives or affricates. Synchronic evidence of the effects of front vowels can be readily found in the varieties of French in Africa, where one hears *tu* [ty] 'you' pronounced as [t^{h}y], [tsʏ], or even with partial or full de-rounding, as in [t^{h}ʏ̟] or [t^{h}ɨ]. Diachronic evidence of such phonetic alterations being phonologized (CHANGE) is also plentiful, one case being the change from Latin **ki* to Italian [tʃi] (Meinhof 1932:178). Other examples include the spirantization, in certain phonetic

environments, of Latin **k* to French [ʃ] or [s], as in *cicatrice* [sikatʀis] from *cicatrix* [kikatriks] 'scar, bruise' or *cil* [sil] 'eyelash' from *cilium* [kilium] 'eyelid'. Derived nominals with an *-ion* suffix, such as *gyration < gyrate,* or *erosion < erode,* further point to this environment as conducive to the development of spirants.

The Swahili CL 7 prefix /ki-/ provides yet another example of spirantization before front vowels. The onset /k/ remains unchanged when the prefix occurs before consonants, such as in [ki-s^{w}ahili], but when the root begins with a vowel, the /i/ of the prefix functions as a glide causing palatalization and spirantization, as in /ki-umvi/ [tʃ-umvi] 'salt' (Hyman and Moxley 1995).

Of particular interest, in both the English *-ion* example and the Swahili *ki-* prefix, however, is the fact that /i/, in and of itself, is not necessarily sufficient to cause spirantization. Rather, it is especially when /i/ becomes the onglide to another vowel that the previous consonants, especially in the velar to dental range, are most apt to be affected. In some languages, this change then seems to provide an ideal launching point for the process to then be extended to pure /i/ environments, as can be seen from a quick perusal of Bantu language names such as Chibemba and Chiluba (as compared with Kicongo, Kisai, or Kiteke). Still others, both in the Eastern Grassfields and among Narrow-Bantu languages have gone further, palatalizing velars before /e/ as well as /i/.

In the case of PB **u*, Ohala's (1993:242) observations on the effects of [u] on velars (cf. example (21), p. 71) also lend support to Schadeberg's position, although there is less cross-linguistic evidence for [u] as a general source of spirantization than there is for [i]; the segment is much more commonly associated with labialization.

4.3.4 The Problem of PB Variants

One difficulty, unaddressed by either Schadeberg or the proponents of an ATR model, concerns the issue of the pervasive front-back, 1st-2nd degree variation found within PB reconstructions. Some examples can be seen here:

(70)

BLR3 Main Entry	BLR3 Variant	Aghem	Gloss
**-bíad*	**-búad*	/-dzɨ́/	*'give birth'*
**-kútà*	**-kítà, *kítí*	/-vɵ́/	*'oil'*
**-tíkù*	**-túkù, *túkù*	/-tsóʔ/	*'day'*
**-dúdí*	**-dídí*	/-zɨ́ŋ-sɔ/	*'shadow'*
**-díng*	**-dìng*	/-lɨɣá/	*'desire, love'*
**-tímà*	**-túmà*	/-tɔ́m/	*'heart, liver'*
**-còk*	**-cùk*	/-sù/	*'wash'*
**-jʊ́bà*	**-jíbà, *cúbà*	/-zú-/	*'sun'*

There are large numbers of such variant reconstructions in the BLR3 database, which simply mirrors a similar divergence in the modern Bantu high vowels. In BLR3, a 'Variant' is a form that is believed to be related but "for which no regular sound correspondence is known."[53]

Admittedly, considering the frequency with which /u/ gets fronted in the world's languages, it could be simply argued that the phonetic qualities of higher back vowels make them inherently prone to fronting and subsequent derounding (Hock 1991:155). However the PB variations are not all of this kind; it is just as frequently the case that a Main **i* will have a variant **u* or **ɪ*. Furthermore, if such bifurcations within Bantu were purely the result of a vowel shift, one would expect that the variations seen in (70) and in the modern reflexes would exist for most, if not all, analogous constructions. For example, if a BLR3 Main root such as **-tíkù* '24 hour day' has Variant entries **-túkù,*

[53] http://www.metafro.be/blr/bantu_lexical_reconstructions_legend

**-cíkɔ̀*, and **-cúkɔ̀*, then one might expect the other PB Main entries of the same shape **C*[+coronal]*iC*[+velar] to have similar variants.[54] However, this is not generally the case.

When comparing Aghem with BLR3 reconstructions, one finds comparable variation, one example being PB **ɪ*, which has two distinct corresponding segments in Aghem. Roughly half of the BLR3 Main entries with **ɪ* as V_1 have Aghem cognates with a corresponding /i/ in open syllables and /ɨ/ [ə]~[ə] in closed ones. Examples of this are PB **ke-tí* 'stick (n)', which is cognate with Aghem /kɨ́-tí/, **-dìd-* 'weep' with /-dì-/, and **-pìnd-* 'turn over or inside out' with /-fɨ̀n-/.[55]

However, equally as many BLR3 cognates with **ɪ* have a corresponding Aghem segment /ɔ/. Thus one finds that PB **-bì* 'belch' matches with /-bɔ̀/, and **-jímb* 'sing' with /-zɔ́m/, while **lo-dímì* (or variant **ke-dímì*) 'tongue' and **mo-dímà* 'bat' have a homophonous Aghem cognate /kɨ́-nɔ́m/. Data such as this makes it appear likely that there is more to the history of the PB segment **ɪ* than a simple phonetic [ɪ] and may support Schadeberg's (1995:75) claim of 'markedness' of 2nd degree PB vowels.

A similar diversity is also mirrored within A810 where 'flee' is /-tí/ in Aghem and /-tíg/ in Weh, but in Isu, like PB Zone J, it is /-tú/. With 'catch', the opposite occurs, with all A810 varying between /-kʷɒ/ and /-ku/, except for Isu with /-kʷe/.

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[54] One does find remarks in the older BLR2 database suggesting that variants such as **-túkɔ̀*, and **-cúkɔ̀* (from the Main entry **-tíkɔ̀*) may have arisen due to the influence of V_2 on V_1. Such explanations, however, provide no insight into the far greater number of examples such as PB **-jìmà*, a variant of the BLR3 Main entry **-jùmá* 'back, rear' or Variant entries **-kítà* and **-kítì* for Main **-kútà* 'oil'.

[55] These could readily correspond to a historical [ɪ] but, as shown in (45) (p. 93), a good number of the instances of Aghem /i/ correspond to PB **Cad* rather than **ɪ*. For these cognates, which typically have a corresponding /ai/ or /ɐe/ in Zhoa, Weh, Kumfutu and Isu, it is clearly evident why there would be no spirantization of C_1 before the vowel. This is explored more deeply in §4.4.3 (particularly p. 133).

Interestingly, although this issue of variants in PB reconstructions and their reflexes does not seem to surface much in recent Bantu studies, the problem was pondered over fifty years ago by Bourquin (1955) and, before him, by Meinhof (1899, 1932) in their respective analyses of the 1st and 2nd degree PB vowels.

4.4 The Meinhof/Bourquin View of 1st Degree Vowels

In *Notes on the "Close Vowels" in Bantu*, Bourquin (1955) addresses the problem of frequent alternations between the round/unround, front/back vowel reflexes found among the daughter languages of Proto-Bantu (cf. (70), p. 120). He provides numerous examples of /i/~/u/, /ɪ/~/ʊ/ alternations in Bantu and then, drawing on Meinhof (1932:25), suggests that the 1st degree vowels of Proto-Bantu "might have originated through a contraction of vowels, close **u* through the influence of the vowel **ɪ*, and close **i* in like manner through the influence of **ʊ*" (1955:50).

Among the examples Bourquin offers is the word for 'grey hair' which, in many languages has an /i/ in the root (e.g. Rundi *uru-vi*, Swahili *mvi*, and Xhosa *ulu-mvi*) while others have /u/ (e.g. Taita *i-vu,* Kongo *lu-vu*). Bourquin suggests that the reason for this can be seen in such forms as Gikuyu *mbui*, Senga *mvwi*, Lamba *ulu-fwi*, where the effect of both vowels remains, and he offers **-vuu* as a preferable reconstruction to Meinhof's **-vi*. The BLR3 database, with **-búì*, follows Bourquin in this case.

Similarly, Meinhof's reconstruction of 'rain' as either **-vula* or **mbula* has modern reflexes with /i/, as in Guha *m-bila* and Ndombe *om-bila*, but others with /u/, as in Mongo *m-bula* and Xhosa *im-vula*. Here too, Bourquin provides what he refers to as an 'intermediate form' by way of Benga *m-bwia*, although he does not offer an

alternative reconstruction. Here, BLR3 remains closer to Meinhof with **m-búdà*. In summarizing his research, Bourquin (1955:60) concludes that,

> "the close vowels have originated through the influence of a second **ɪ* or **ʊ*, and the stronger influence must be attributed to **ɪ*. Both vowels are still at times discernible, but in most cases they have merged into one."

Neither Meinhof's nor Bourquin's works are very specific as to what the assumed process of Pre-Bantu 'contraction' entailed but Bourquin does suggest that PB **ɪ*, to which he ascribes the greater spirantization effects, could occur either in the same syllable as the affected consonant (as in a hypothetical **kɪ.o.ndo > tʃɔndɔ*), or in the syllable preceding the consonant (as in **ɪ.tɛr > tʃɛr*). Presumably the same would be true of **ʊ* although one would normaly expect labialization in that case, not affrication.

Meinhof's hypothesis, and Bourquin's development of it, are appealing in that combinations like **Cɪu* and **C^{j}u* provide the kind of ambiguous environment in which CHANCE, CHANGE and CHOICE can operate, lending themselves very well to the kind of diversification already described above by readily splitting into /C^{S}~~ɪ~~, C^{S}y, Cy/.[56] The front-round vowels, once formed, would then be ideal candidates to further split into /C^{S}u/, /C^{S}i/, /Cu/ or /Ci/.

Two difficulties arise, however, when trying to assess the applicability of the vowel contraction theory to the situation in Aghem. The first is that the majority of the reconstructions Bourquin offers are either with a single 1st degree vowel, as originally proposed by Meinhof, or with 1st + 2nd degree V.V pairings such as **-vuɪ* 'grey hair' or **-ɣuɪ* 'arrow'. In both cases, the assumed Pre-Bantu forms before application of the

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[56] Here, /^{S}/ is arbitrarily chosen as to represent spirantization.

purported contraction remain unspecified. Are PB **-vuɪ* and **-ɣuɪ*, for example, thought to have come from an earlier **-vɪʊɪ* and **-ɣɪʊɪ*, or is the 1st degree **u* in this case simply the result of being followed by /ɪ/? In fact, neither Meinhof nor Bourquin clearly states the direction of assimilation in these contraction processes so it is not clear which of **ɪ.ʊ* or **ʊ.ɪ* is thought to have combined to yield PB **u* and which to **i*.

Secondly, in spite of Bourquin's statement that the "stronger influence must be attributed to **ɪ*," the bulk of his work focuses on the more transparent **ʊ.ɪ* constructions which, as shown in his own examples, often collocate with labialization. Thus almost all of the examples given are of the type **u.ɪ*, with no reconstructed **i.ʊ* or **ɪ.ʊ* sequences offered and only occasional allusions made to the possibility of such forms having existed at a Pre-Bantu stage. This large omission deprives Bourquin's paper of the very data which would have been of greatest interest and benefit to this study of Aghem.

In spite of the above-mentioned shortcomings, and the fact that Meinhof's and Bourquin's ideas are not currently in vogue within the Bantu community,[57] it still seems worthwhile to consider what insight they might provide into the source of A810 central vowels and affrication. Since Meinhof (1899, 1932), there still appears to be no strong consensus concerning the exact nature and source of the 1st degree Proto-Bantu vowels. The ATR model appears to offer little synchronic evidence for a link between [+ATR] and spirantization, and neither it nor Schadeberg's (1995) approach offer any real insight into the large inventory of **u~*i*, **ʊ~*ɪ*, and **i~*ɪ* variants extant in PB

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[57] Connell (1997: §5.2) comments, "And while it must be made clear that Meinhof's view of contraction here is not very explicit, and few if any Bantuists now accept this explanation of PB vowels, it did receive considerable support from Bourquin (1955)".

reconstructions (as in (70), p. 120). Since this present writer is not aware of any work clearly disproving Meinhof and Bourquin, their ideas may also be considered contenders in our search for plausible, historical explanations for the Aghem problem at hand.

To this point, all the theories mentioned concerning the nature of PB vowels leave unanswered questions. Similarly, Meinhof (1932) and Bourquin (1955), although addressing the variation issue, are not specific as to the exact manner in which the modern Bantu vowel reflexes might have resulted from vowel contraction. However, since Bourquin (1955:60) does explicitly propose two different routes by which the 2nd degree vowels may have 'influenced' each other to yield 1st degree vowels, these will now be explored for any light they may shed on the Aghem and other A810 data.

In the following sections, consideration will also be given as to whether or not there are parallel explanations for the Aghem affricates in other environments. The phrase "parallel explanations" is appropriate since the extent of spirantization in Grassfields may mean that there have been several iterations[58] of the kinds of processes Meinhof proposed from Pre-Bantu to Proto-Bantu. Or it is also possible that the phonetic preconditions of PreB resulted in distinct but convergent processes in both Bantu and Grassfields. The role of other changes, such as lenition, loss and syncope, will also be assessed for any insight they might lend to the discussion.

4.4.1 Historical V.V sequences

Sequences of two vowels in Proto-Bantu are generally held to have been two different syllables, each bearing its own tone. Such sequences, however, almost never

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[58] Meinhof (1932:26), for example, similarly proposes a much earlier Pre-B contraction of *aɪ and *aʊ that resulted in PB *e and *o.

occur in Aghem roots since, as already seen in §2.2.2 (p. 40), when vowels do meet up, even across morpheme boundaries, partial or full assimilation is the norm. In a number of environments this is followed by reduction of the resulting long vowel. As discussed in §4.4 (p. 122), Bourquin (1955:60) follows Meinhof in proposing that Pre-Bantu V.V sequences, with an original **ɪ* or **ʊ*, underwent a similar assimilation, presumably of the sort: Pre-B **ɪʊ* > PB **u* and, less convincingly, Pre-B **ʊɪ* > PB **i*.

If Bourquin and Meinhof are right about this source of the 1st degree vowels, this could explain why there are so few, and such regionally limited, occurrences of **ɪʊ* and **ʊɪ* among BLR3 reconstructions, none of which are Main entries. By the time of PB these combinations would have already become 1st degree vowels which, as seen in (67) (p. 115) and again here, so often correspond to an Aghem affricate plus central vowel.

(71)

PB	**Aghem**	**Gloss**
**-búg*	*-bvó?*	'break'
**-díng-*	*-dzɨŋ-sɔ*	'surround'
**n-jìmà* (variant *n-jùmá)	*dzɨm*	'back'
**-bú(dú)*	*-bvʉ̄-lɔ*	'soil, ashes, dust'
**-tú, *-túɪd,* 'spit, fix price'	*-tsɨ́*	'spit, pay'

Given that affricates do not just collocate with the central vowels in Aghem, it would also seem reasonable to expect that words such as *tsám* 'war' and *kɨ-bvó?* 'iron' might have PB cognates with sequences of a 2nd plus a 3rd or 4th degree vowel, as in *˚tɪam* or *˚kɪam* and *˚ke-bʊok*. However, only PB **-búà* 'dog' (Aghem *bvʉ́*) and perhaps **-dúad* 'be ill' (Aghem *-dzàŋ*) offer any evidence for such a relationship. Most PB $CV_1.V_2$ sequences with corresponding Aghem affricates have a 1st degree V_1, as in **-tíʊk* 'rub', **-dìan* 'play, dance' and possibly **-dúad-(ò)* 'wear' for Aghem *-tsó?*, *ndzàŋ*

and *-dzɨ.là* respectively. It is good to bear in mind, however, that one of the reasons that PB reconstructions have been assigned 1st degree vowels, is that fricatives and affricates are found among the Bantu reflexes. Thus, if /ɪV/ or /ʊV/ combinations, such as /ɪa/, /ɪe/, /ʊe/, etc. were inclined to cause spirantization in Bantu, as is assumed here for A810, they would almost certainly be reconstructed with 1st degree vowels.

4.4.2 Perserverant Assimilation

Probably the most controversial of Meinhof's (1933:30) ideas is his suggestion that perserverant assimilation in a Pre-Bantu stage caused **ɪ* in one syllable to colour the following syllable before being assimilated or lost itself. Likewise, Bourquin (1955:60) suggests that some of his examples "show evidence of an initial *i̇-* which might have penetrated into the stem, thereby contributing to the formation of a close vowel." The synopsis of his article is perhaps a little clearer, stating that "in some cases, a stem seems to have had an initial **ɪ-* which influenced the vowel of the following syllable" (1955:49)[59]. Whether this **ɪ* is thought to have been the first syllable of an earlier stem, or a prefix such as *ɪ-* or *Cɪ-*, is not clear.

Although Bourquin mentions only the "formation of a close vowel" as proceeding from this assimilation, the fact that the 1st degree vowels are also associated with spirantization in PB reflexes would also point, in many cases, to simultaneous palatalization of the intervening consonant. A hypothetical example of this would be a

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[59] Hock (1999:64) notes that such assimilation, usually limited to height, frontness, and rounding features, just as readily occurs across intervening consonants as it does when the vowels are adjacent. This can be demonstrated by Aghem CL 7-8 pairs such as [kɔ́.fʊ̀ɥá], [ó.fʊ́ɥʊ́] 'thing, things'. Such 'transparency' of the consonants, however, does not preclude them from also undergoing some degree of assimilation, as in the labialization found in other CL 7-8 entries like [kɔ́.bá?], [ó.gbʷá?] 'shield, shields'

sequence of changes such as *˚ɪ-tɛr > ɪ-tʲɛr > ɪ-tʃɛr > ʧɛr* where the original *˚ɪ-* is lost after palatalizing the onset of the following syllable.

The major difficulty, with either the **Cɪ.V* or **ɪCV* model, is the admission by both Meinhof and Bourquin that there is frequently no reflex of the reconstructed **ɪ* to be found among the daughter languages. It is the absence of this proposed "initial *ɪ-*" that is most troublesome since linguists are generally reluctant to include unattested segments in any reconstruction. This may well have been part of what prevented wider acceptance of Bourquin's and Meinhof's view of the 1st degree vowels. This situation, however, could be seen to parallel that of de Saussure's 'coefficients sonantiques' (cf. footnote 25, p. 52), or that of vowel harmony where, as Hock (1999:69) points out, one generally only sees the final product of the process and "it is very difficult to find examples in which vowel harmony originates". Another similar situation is seen in the Kom CL 3 and 8 prefixes. Both are now *ɨ-* [ɘ], masking the source of rounding that is found on almost all root onsets in these noun classes. Compare, for instance, Aghem [ẹ́-lə̂ŋ, ọ́-lwə̂ŋ] 'bamboo sg., pl.', where the source of rounding is evident, with Kom [ī-lɛ̄ŋ, ə̄-lwɛ̄ŋ], where it is not.

Considering the Zhoa and Aghem cognates for 'knee' (cf. (47), p. 94), one might suggest that the Pre-B CL 5 prefix **le-* (or **je-*), coupled with the **ʊɪ* of the root[60], caused palatalization of the root onset as well as the vowel change, as seen here.

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[60] If one argues for perserverant assimilation by itself, it is difficult to explain why so many other CL 5 nouns, such as [énú] 'a bean-based food' or [édû] 'be fat' do not undergo the same palatalization process. See footnote 62 (p. 128) concerning the use of **ʊ* here rather than PB **u*.

(72) *é-nú.í* PA810 ‘knee’ (PB: Var **-núí* < Main **-dúí*)
é-ɲúɪ Perserverant (+ Anticipatory ?) Assimilation (Palatalization)
é-ɲʊ́ɪ Anticipatory Assimilation (Fronting of *ʊ* - Aghem)
-- é-ɲýɪ Anticipatory Assimilation (Fronting of *ʊ* - Zhoa)
é-ɲʊ́ é-ɲý Loss of conditioning environment

One potential source of support for Meinhof (1932) and Bourquin (1955) comes from Mpumpong, a Bantu-A language in south-east Cameroon. This language frequently has palatalization or labio-palatalization on C_1 occlusives when that segment is either a fricative or affricate in A810 and Kom (personal fieldnotes). As seen below in (73)a-c, the Aghem affricates correlate with *GLIDE.V* or *V.V* sequences in Mpumpong cognates. In (73)d, Mpumpong shares an affricate with Kom and A810, also likely evidence of more than a simple Proto Occusive.Vowel combination.

(73)

	Aghem	Zhoa	Kom	Mpumpong	English
a)	á.lé-dzêɒ	té-dzēʌ.nā	-tʃɨ́l	ɛ̄-dʲú-èl	‘close (v)’
b)	ō-dʒʷên	n̩-dʒûɐtˀ	--	ɛ̄-dᶣín~ɛ̄-dɣ́n	‘pus’
c)	-dzɨ́	bí	-bzɨ́	tê: bīâ, ɛ̄-bʲêl	‘bear’, ‘be born’
d)	á.lé-tsôʔ	té-tʃûg	-tʃúʔ.lɨ̀	ɛ̄-tʃʲûkʰ	‘stab, kill’
e)	ē-fɘ́ŋ	ē-fɘ́ŋ	ī-fʲéŋ	pʲúŋ	‘wound (n)’
f)	-fɘ́m-[1]	kə-fɛ́m	fɨ̄b-sɨ́	píamb	‘whitewash (n)’
g)	álé-dì	té-dɛ̀e	-dzɨ̀	ɛ̄-d̪ʒ̀ì	‘weep’

[1] This Aghem root means ‘white’. ‘Whitewash’ in Aghem is non-cognate *étsɨ́n*.

There are exceptions, as in (73)g, and examples such as e-f cannot be used as proof due to the Aghem and Kom /p/-gap. Nevertheless, there are still a sufficient number of other correlations, similar to those just shown, to warrant further comparison in this area.

When palatalized lexemes in Mpumpong frequently correlate with PB **CV.V* sequences, as seen in (73)c ‘bear’ PB **bíad*, the failure of others to do so can perhaps lead one to look for more complex forms that, through other sound changes, would

readily lend themselves to becoming **CV.V* or **C^{j}V* forms in a post PB stage. The following section considers by what path such reductions may have been carried out.

4.4.3 Lenition and Loss

It has been noted that the overwhelming majority of Aghem roots are mono-syllabic while their Narrow-Bantu cousins, going back to Proto-Bantu, have tended to retain the second syllable (§3.2, p. 62). The statement was also made that many of the noun roots appear to have been reduced through apocope and a general weakening and loss from right to left, a process that has left languages like Aghem with only four possible codas consonants and Bu with only three. Thus, in words such as (74)a-b, where C_2 of the root is a valid Aghem coda, only the final vowel has been lost, whereas in c-d, the final consonant has also either been changed or eliminated.

(74)

	Proto Bantu	Lingala	Aghem	Gloss
a)	**mo-dímà* **lo-dímì (*ke-dímì)*	*lo-léma* *lo-lémo*	*kɨ́-nɔ́m*	‘bat (n)’ ‘tongue’
b)	**le-bínà*	*bo-bina*	*é-bín*	‘dance (n)’
c)	**le-jímbò*	*lo-jémbo*	*é-zɔ́m*	‘song’
d)	**ke-pídì*	--	*kɨ́-fĭ*	‘viper’
e)	**ke-bèdò*	*ɛ-bɛlɛ ~ ɛ-bɛlɔ*	*kɨ́-bî*	‘thigh’

Since the kind of right-to-left erosion shown above clearly has no impact on the onset of the first syllable, it is apparent that reduction to single-syllable roots in A810 must, at times, have occurred via another process. Bourquin (1955:60) leaves open the possibility[61] that some of the original Pre-B forms leading to PB 1st degree vowels might have been of the shape $C_1V.C_2V$, with C_2 undergoing subsequent lenition and loss.

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[61] This is only mentioned in passing, with the comment, “whether there was originally a consonant between the two vowels can not be ascertained.”

Across languages, intervocalic lenition is a very common phenomenon, one example being the Dutch, register-based variation between [d]~[j], as in [dodə]~[dojə] 'dead', or [xudə]~[xujə] 'good'. Loss, either as an independent or subsequent process, is also widespread as seen in such words as French *fils* [fis] 'son' from Latin *filius*, or *queue* [kø] from *coda*. In Norwegian, it can be seen in *far* 'father' and *mor* 'mother' while the /d/ is still retained in *faderlig, moderlig* 'fatherly, motherly'. Bantu examples include *ma-kilá* (PB **mà-gìdá*) 'blood' in Lingala (Congo), which is *n-kìa* in Mpiemo (Central African Republic, Cameroon) and [cçīà] (plural [mè.cçīà]) in Mpumpong (Cameroon). Even within PB reconstructions one readily finds Main~Variant entries such as **mò-kádí ~*mò-kái* 'wife' and **-bùdá~*-bùá* 'nine'.

Returning to Mpumpong [ɛ̄-dʲú-èl] 'to shut, close' in (73)a (p. 129), we find that the BLR3 Main entry is **-dìb-*, from which a number of regionally limited derivations are offered, such as **-dìbat* 'be shut'. Using this stem, one could conceivably propose the following changes:

(75)	**-dìb-at*[62]	PreB 'shut' (PB: **-dìb-*)
	-dìβ-ad	Weakening_1 (Intervocalic and Coda)
	-dìw-al	Weakening_2 (Intervocalic and Coda)
	-dʲù-al	Anticip. Assimilation (Palatalization)

When comparing Proto-Bantu and Aghem, the number of examples similar to (75) make it clear that lenition played a large part in the development of A810. Although the example is simplified, ignoring tone spread and further vowel changes, the output in

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[62] Here and in (76) below, the PB 1st and 2nd degree distinctions have maintained into these speculative Pre-B forms, simply because they are not needed to account for spirantization in Aghem. What would perhaps have been more ideal in this case would be to use neutral symbols such as **U* and **I* that are not already identified as signifying 1st or 2nd degree vowels.

(75) could arguably allow for the development of both Aghem [á.lé.dzèʁ] and Mpumong [ɛ̄.dʲû.èl]; here, once again, we see the correlation between Aghem /ʉ/ and /iu/ or /ʲu/ in another languages.

In many cases, however, it seems that syncope occurred instead of loss, leaving the weakened C_2 to provide labialization or palatalization, probably coupled with friction, on C_1. Using a PreB **ŋ-kúbà* 'chicken' and **m-púdì* 'goat' as examples, the following changes are assumed:

(76)	**ŋ̩-kúbà*	**m̀-púdì* [62]	PreB 'chicken' 'goat' (PB: **Ṇ-kúbà, *Ṇ-búdì*)
	ŋ̩-kʊ̀bá	m̀-pʊ̀dí	Perserv. assimilation (tone spread & simplification)
	ŋ̩-gʊ̀bá	bʊ̀dí [63]	Perserv. assimilation [+voice], (loss before labial)
	ŋ̩-gʊ̀βɑ́	bʊ̀jɔ́~bʊ̀ɟɔ́	Intervocalic Weakening
	ŋ̩gβɑ́	bɟɔ́	Syncope (at this stage cf. Bu *bʲɨ́*)
	ŋ̩gvɔ́	bzɔ́ [64]	Strengthening (onset) (at this stage cf. Kom *ŋgvɨ́, bzɨ́*)
	m̀bvɔ́	dzɔ́	Anticip. assimilation

It should be pointed out that the Pre-Bantu forms given for 'shut', 'chicken' and 'goat' in (75) and (76) are identical, or nearly so, to the Proto-Bantu reconstructions, **-dìb-at*, **-kúbà* and **-búdì* in the BLR3 database. This does not, however, constitute any suggestion that A810 is an offspring of PB. It would simply be a mistake to posit different Pre-B forms only for the sake of trying to make them distinct from PB. It has

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[63] The loss of the nasal prefix before /p/ finds it's analogy in Mpumpong [pʰũ.pʰɔ̃ŋ] where the same prefix has disappeared altogether before voiceless stops. In Aghem, a voiced labial stop remains; in Mpumpong, it is an aspirated and voiceless. In much of Bantu, both the nasal prefix and voiceless labial stop remain.

[64] It is an open question whether the change from [j] to [z] happens this late in the process. It could just as readily occur before syncope (cf. Zulu *imbuzi* 'goat'), especially given that one of the distinctive features of Western Grassfields is the presence of /z/ where the majority of the Grassfields family has /j/. However, the sequence of changes chosen here more readily accomodates those A810 lexemes that are not spirantized, *bʲɔ́* (Bu) and *bí* (Isu, Zhoa), to be represented along the same development path as those that are.

already been shown, for example, that PB **-kúm* '(be) rich' remains not only unchanged in many of its modern, Narrow Bantu reflexes but also identical to the cognates found throughout much of Grassfields. If an assumed set of sound changes work, starting from a Pre-B proto-form similar or identical to PB, this need not be seen as anything more than evidence that the time depth from Proto-Grassfields and Proto-Bantu to their common parent may be small.

Examples such as seen in (75) and (76) are quite plentiful and can readily account for a good number of the affricates shared by the A810 languages. There are many cases, however, where Aghem has an affricate in C_1, while its A810 neighbours do not. The following examples in begin with PA810 as their starting point, by which stage the intervocalic weakening and tone spread, seen in above in (76), are assumed to have already occurred. Examples b and c simply show that this is a common pattern.

(77)	**Aghem**	**Bu, Isu, Weh, Zhoa**	
a)	**tɨ-kájá*		PA810 'charcoal' (PB: **le-kádà*)
	---	tɔ́-káj	Apocope
	tɔ́-kíjá	tɔ́-kɛ́j	Anticip. assimilation (kij < kəj < kɐj < kaj)
	tɔ́-kía	---	Loss of C_2
	tɔ́-kʲía	---	Palatalization
	tɔ́-tʃía	---	Strengthening, Affrication
b)	**-sàj-à*		PA810 'choose, select', 'scratch' (PB **-càd-, *-càd-*)
	---	-sàj	Apocope
	-sìjà	-sɛ̀j	Anticip. assimilation (sij < səj < sɐj < saj)
	-sìà	---	Loss of C_2
	-ʃìà~-sìà	---	Palatalization/Strengthening (free variation)
c)	**-màj-à*		PA810 'finish' (PB **-màd-*)
	---	-màj	Apocope
	-mìjà	-mɛ̀j	Anticip. assimilation (mij < məj < mɐj < maj)
	-mìà	---	Loss of C_2

In the reduction from polysyllabic to monosyllabic roots, one point of divergence within the family appears to have been the Aghem tendency to more consistently undergo loss or syncope, even in contexts where its neighbours underwent apocope. Perhaps this was the result of a changed stress pattern in Aghem. In this case, the failure of four A810 languages to have developed affricates in C_1 is easily ascribed to the earlier loss of the final vowel through apocope[65] and the relative stability of the /a/ in the monosyllabic root. Since C_2 had, by this point, already weakened to an approximant, it simply became the offglide for a new diphthong, with little motivation for change other than the natural, upward movement of the nucleus towards the offglide.

Although other examples are readily available for the types of changes seen in this section, those just presented in (77) (and footnote 31, p. 72) are less common. The more common changes are, as seen in (76), where all five A810 languages share an affricate.

4.5 Synthesis and Summary

This chapter has described the phonetic qualities and unusual distribution of the four Aghem vowels /i, u, ɨ, ʉ/, focusing primarily on the relationship between the central vowels and affricates. Instrumental analyses show the four vowels to be phonetically distinct and earlier studies corroborate this author's own collected data, confirming these four vowels to be phonemic (§4.1). The problem, outlined in §4.2, is that all four are contrastive only in open syllables following dental fricatives. Although

[65] In the case of the verbs (examples b,c), it seems that the Final Vowel /-a/, which marks Incompletive aspect in Aghem, was reanalyzed as part of the root. In modern Aghem the incompletive /-a/ is again added in the case of 'choose' so that the infinitive root /sìa/ becomes an incompletive /sìaa/ but this does not appear to be acceptable with other words of this sort.

there are exceptions, the vowels are otherwise in complementary distribution, peripheral /i, u/ after occlusives, central /ɨ, ʉ/ after affricates.

Since comparison of Aghem with other A810 data (Chapter Three) provides only limited insight into the possible historical source(s) of this unusual distribution, research on the vocalic system of Proto-Bantu was also consulted for any possible light it might shed on the situation. In §4.3, an overview of the correlation between the four highest PB and Aghem vowels was given and the PB 1st degree vowels **i, *u*, like Aghem central vowels, shown to be the ones most associated with spirantization (§4.3.1). Since such a correlation exists, the assumed phonetic qualities of the PB vowels have been considered, with two of the most current views on matter being presented: 1st degree vowels as +ATR [i̘,u̘] (§4.3.2), or 1st degree vowels as close [i,u] (§4.3.3).

It is reasonable to assume that close vowels, especially [i] could bring about the spirantization found in modern Bantu. As noted in §4.3.4, however, there is an additional complication—the frequent presence of variant forms in PB reconstructions, usually with a front/back distinction for the root vowel. This is demonstrated by entries in the BLR3 database such as **-jùmá~*-jìmà* 'rear' or **-tímà~*-túmà* 'heart'. Although such alternations are common for roots with 1st degree and, to a lesser extent, 2nd degree vowels, they do not occur in all such roots. This leads one to question whether such BLR3 lexical entries had different Pre-Bantu forms than those without variants. With that in mind, we have also considered Bourquin's (1955) and Meinhof's (1932) suggestion that the Proto-Bantu 1st degree vowels **i* and **u* are the likely result of an earlier contraction of 2nd degree vowels, presumably along the line of **ʉʊ > *u* and **ʊɪ > *i* (§4.4). The first of these changes particularly would seem to readily lend itself

both to spirantization of preceding consonants and also to bifurcation of the vowel reflexes into the full range of **i, *u, *ɪ* and **ʊ* variants frequently found among the PB reconstructions. Also, as already seen in §4.2.1 (p. 109), [iu] and [ʲu] are ideal candidates for the [u] to be pulled forward, if not to a front-rounded vowel, then at least to a central-rounded [ɵ] or [ʉ] as is frequently found in A810. The difficulty with this approach, however, is that reflexes of such supposed original V.V forms are seldom found in the Bantu daughters.

Interestingly, it is a small comment from Bourquin (1955:60) that points to the possibility of reuniting the diverse threads that have been part of this chapter. While arguing for Pre-B **V.V* sequences, he states, "whether there was originally a consonant between the two vowels can not be ascertained." Since we have seen that A810 has primarily mono-syllabic roots, while PB and even modern Bantu reflexes have more bi- or even poly-syllabic ones, a natural assumption is that syllable reduction was among the processes leading to modern A810. Although some of this can demonstrably be ascribed to apocope and left-to-right erosion (§4.4.3), those cases seldom correlate with Aghem affricates. Thus, also in §4.4.3, consideration has been given to the plausibility and likely output of syllable reduction via lenition, loss and syncope. Starting from Pre-B forms that are very similar, and at times even identical to PB reconstructions, regular correspondences have been offered demonstrating this type of root internal weakening and subsequent spirantization.

What is compelling about the notion of lenition and loss is that a earlier iteration of such process could, as was seen above in (77) yield exactly the kind of *V.V* structures that Meinhof (1932) and Bourquin (1955) argued for as precursors to the PB

1st degree vowels. Given our current knowledge, such a claim cannot be proven but it is arguably plausible that there might have been yet an earlier cycle of this nature leading to PreB *V.V* sequences. The more complex roots and stems that this approach would require, will likely only be verifiable or disproven by the evidence provided by the collective data from the larger Niger-Congo family.

On a more speculative note, given that *[ʲu], *[iu], and possibly *[eu] combinations at a Pre-Bantu stage can account both for spirantization and for the bifurcation of vowels in the daughter languages, there does not seem to be a strong rationale for positing a historical set ATR or 'super closed' characteristics at the PB stage. Although Meinhof (1932) described and used these vowels for his own reconstructions, it seems that his own explanation of their origins is much more elegant and better able to explain the cases where there are variant forms. Certainly ATR and 'super-high' degree vowels are found throughout modern Bantu but it seems reasonable that these to could simply be reflexes of an earlier VV or ʲV stage that still existed in Proto-Bantu. The complete absence of **ɪʊ*, and the existence of only three **ʊɪ* sequences in the BLR3 Main entries may also be an indication that these are currently being represented in a different way, that is by use of the 1st degree vowels.

Chapter Five Conclusions and Further Research

This chapter summarizes the findings of a comparative, phonological reconstruction of the A810 languages in North West Province, Cameroon. In §5.1, a small overview is given of the phonological problem that initiated this research—unusual distribution patterns of Aghem /i, u/ and /ɨ, ʉ/. The results of this A810 comparative study, plus additional language data from the closely related Grassfields and Bantu families, are reviewed in §5.2. Taking into account the collective insight of Bantu scholars over the years, these findings are then assessed in §5.3 for whatever insight they might lend to questions concerning Aghem central vowels and their relationship to Aghem affricates. Finally, in §5.4 consideration is given to gaps that remain in the analysis and opportunities for further research are explored.

The theoretical approach for this work has been *Evolutionary Phonology*, which deemphasizes synchronic constraints and language universals and focuses instead on the phonetic sources of sound changes (see §2.1.2, p. 28). As Blevins (2004:259) states, "attributing common sound patterns to common phonetically motivated sound change allows synchronic grammars to be primarily descriptive, liberated from the burden of explanation and naturalness."

5.1 Summary of Problem

While working on a phonological analysis and orthography statement for the Aghem language, Thormoset (2000), like Hyman (1979a:6), noted two sets of vowels which are generally in complementary distribution but clearly constrastive in one restricted environment (cf. (55), p. 102). In open syllable roots, as shown in (78)a below, the Aghem peripheral vowels /i/ and /u/ follow occlusives, whereas the two

central vowels /ɨ/ and /ʉ/, as in (78)b, occur after affricates /pf, bv, ts, dz/. The tidiness[66] of this apparent complementary distribution, however, is undone by the fact that all four vowels may follow dental fricatives (78)c-d, thereby creating four-way CIE sets.

(78)					
	a)	[ē.tí] ‘rib’,	[ē.tú:] ‘dishing out’	[ē.dî] ‘crying’	[ē.dû] ‘width’
	b)	[ē.tsɨ́] ‘reward’	[ē.tsʉ́] ‘opening’	[ē.dzɨ́] ‘birth’	[ē.dzə̂a] ‘shutting’
	c)	[ē.sí] ‘granary’	[ē.sû] ‘washing’	[ē.zí] ‘decanting’	[ē.zú] ‘feeling’
	d)	[ē.sɨ́] ‘eye’	[ē.sʉ́] ‘faces’	[ē.zɨ́] ‘eating’	[ē.zʉ́] ‘planting’

The two main questions prompting this study were a) what is the source of the affricates in Aghem and b) why, in open syllable roots, is there such a restrictive relationship between those affricates and central vowels? Since the above distribution is paralleled by word pairs [ē.ní] ‘feed’, [ē.ɲɨ́] ‘enter’ and [ē.nú] ‘bean food’, [ē.ɲʉ́] ‘knee’, it seemed reasonable at an early stage of the analysis to assume that there had once been a series of palatalized consonants in the parent language. The palatalized occlusives would then be presumed to have undergone spirantization, while palatalization was neutralized on fricatives and retained on the dental nasal. Such speculation, however, was not verifiable without independent evidence from neighbouring languages.

5.2 Insight from A810 Comparison

In order to better understand the cause of the above-mentioned distribution irregularities in Aghem, a comparative phonological study was undertaken of the language and its close ‘A810’ neighbours: Bu, Isu, Weh and Zhoa (§1.2.2, p. 3). Using newly gathered wordlists, an attempt was also made to reconstruct some lexical entries

[66] Note also the narrow scope of the distribution: only true for roots and then only in open syllables. As noted in §4.2, p. 108, the central vowel [ə], treated as an allophone of /ɨ/, does occur in prefixes and also after occlusives in CVC roots. [tʃ] and [dʒ], on the other hand, are both found only after peripherals.

and the phonological inventory of a hypothetical Proto-A810. That study (Chapter Three) eliminated the notion of a historical series of palatal consonants for early Aghem or A810. It did, however, reveal some correlations between Aghem spirantization and vowel-vowel or glide-vowel sequences elsewhere in the family, usually in Zhoa.

One difficulty with working only within A810 is that lexical entries for the whole family are often so close in form that the assumed reconstruction differs little from the reflexes, thereby yielding limited insight into the problem of Aghem central vowels and affricates. Although the comparative effort proved to be less informative than hoped for, it did, however, show the four-way Aghem contrast to be genuine and furnished some fairly regular sound correspondences for these vowels, as shown here.

(79)

	Aghem	**Bu**	**Isu**	**Weh**	**Zhoa**
a)	[i]	[i]	[i]	[ɜe̯]	[ɐe̯]
b)	[ɨ]~[ɔ]	[ɨ]~[ɪ]	[ɨ]~[ə]	[ɨ]~[ɔ]	[ɨ]~[ɪ̃]
c)	[u]	[u]	[u]	[ɜo̯]	[ɐo̯]
d)	[ɵ]	[ɵ]~[ʊ]	[ɵ]	[ɵ]	[ɵ], [y]

To shed further light on the Aghem distribution problem, the research for this paper was further expanded to incorporate both data and theoretical assumptions pertaining to the larger related families: Grassfields and Bantu. Kom, for example, though geographically close to the A810 family but segmentally quite distinct, proved especially helpful. Its cognates suggested paths by which Proto-Grassfields and Pre-Bantu forms could have changed to yield the Aghem ones. Along with diachronic data, this study has also included Proto-Bantu data, as found in Bantu Lexical Reconstructions 3 (BLR3), an online database hosted in Belgium.

The inclusion of non-Grassfields data has proved interesting for several reasons. The first was simply a new awareness of the extent of shared lexicon between A810 and Bantu. A further and unexpected discovery was several series of PB reconstructions that would themselves be perfectly suitable as a starting point for regular sound changes into A810. This seems to indicate either that the time-depth from Bantu and Grassfields to their common Pre-B parent is small or that the Bantu family remained very conservative from the time of Pre- to Proto-Bantu.

5.3 Review of Findings

As is clear from the discussion in Chapter Four, there is no simple or single answer to the questions posed concerning the source of Aghem affrication and its relationship to the central vowels. Instead, one is forced to assume a convergence of a number of different historical, phonological processes as seen in the following sections.

5.3.1 GLIDE.V and VV Sequences

The easiest changes to substantiate are those where a specific $C^{(G)LIDE}V$ or $CV.V$ sequence within A810, usually Zhoa, regularly corresponds with an affricate in Aghem. These examples are not plentiful but include Zhoa *kwát* 'chew', *ŋgwát* 'oil'and *gbwì* 'fall', with respective Aghem cognates *pfɨ́*, *ŋvɨ́* and *bvɨ̀*.[67]

Even when all of the A810 reflexes have an affricate, cognates found elsewhere in the Grassfields or Bantu families may also give similar evidence of an original $C^{G}V$ or

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[67] The assumption that Zhoa *kwát* 'chew' is cognate with Aghem *pfɨ́* and Bu *fɨ́* is supported by the Kom cognate *kfɨ̀l*, which can be be considered as a likely stage through which the Aghem and Bu lexemes would also have passed. Kom still has a number of free variants with [k^{w}]~[kf] and [g^{w}]~[gv]

CV.V sequence. One example of this is the consistent relationship between Kom [gʲ] and [dʲ] and A810 [dz] (or, less frequently, [z]).

5.3.2 1st Degree PB Vowels

When comparing A810 to PB reconstructions, there is frequently no apparent vowel sequence or glide to account for the A810 affricate. In this case, one of two specific vowels are generally found in the PB cognates. Proto-Bantu is reconstructed with seven vowels: **i, *ɪ, *e, *a, *o, *ʊ, *u* (§4.3, p. 112). Two of them, **i* and **u*, have long been considered marked[68] in that many of the modern reflexes, especially in daughter languages with reduced five-vowel systems, have changed the preceding occlusive into a spirant, affricate or aspirated stop. Interestingly, these PB vowels, normally referred to as 1st degree vowels, frequently correlate with A810 central vowels and also with spirantization, in this case affricates (example 4.3.1, p. 114). An example is the word 'die', reconstructed in PB as **-kú-*. In Kom the word is *kfɨ́* and in Isu, it's [pfʊ́ɒ].[69] The Lingala word is *-kúf-à* (perfective *-kúf-ì*), pointing either to an earlier C_2 or to epenthetic insertion of [f] between the root and the final vowel **-kú-a, *-kú-i.* For Isu, one could argue that the final vowel has been reanalyzed as part of the root, thereby falling into the category of a spirantizing V.V sequence. Evidence for this is that the other A810 languages, except Zhoa, only underwent the normal change of [k^h] > [p]. Except after coronals, Zhoa commonly retains the glide.V or VV shape and the preceding consonant does not spirantize to an affricate.

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[68] Scadeberg (2003:247) is a dissenting voice and claims the 2nd degree vowels **ɪ, *ʊ* to be marked.

[69] These reflexes are surprisingly diverse with Aghem [kpu]~[p^hu], Bu [puɻ], Weh [púp], Zhoa [p^wɨ́] but the [k] > [p] is a frequent one cross linguistically.

A number of theories have been put forward concerning the phonetic nature of the PB 1st degree vowels; these include positing a simple [i,u] or a + ATR [i̱,u̱]. They have been discussed in detail in §4.3.2 - §4.4, p. 116-122, and will not be repeated here. Of interest for the moment is Meinhof's theory (1932) (§4.4, p. 122) arguing that 1st degree vowels have their source in original 2nd degree vowel sequences, such as **ɪʊ, *ʊɪ*, which merged to become very close 1st degree vowels. At a PreB stage then, these segments would have the phonetic shape that, as seen in the previous section, engenders spirantization.

This theory is intriguing because, as shown by both Meinhof (1932) and Bourquin (1955), there is often great diversity in the modern reflexes of the four highest PB vowels (see §4.3.4, p. 120). Taking the word for '24-hour day', for example, we see that the BLR3 database gives a PB Main entry of **-tíkù*, with variants **-túkù*, **-cíkù*, and **-cúkù*, all having a 1st degree V_1. In A810, on the other hand, some of the languages have an affricate, as in Aghem [fə̀.tsó?], while others, such as Zhoa [fə̀.tók], do not (example (38)f, p. 85). From a Meinhof/Bourquin viewpoint, there could be two possible sources of the 1st degree vowel and ensuing spirantization. The first would posit a PreBantu V.V sequence of **-tɪʊkʊ*, while the second would assume perserverant assimilation, as in **(C)ɪ-tʊkʊ* > *-tʲʊkʊ*.[70] With the second model, the Aghem, Isu and Weh affricates could be the result of the CL 19 prefix **i* causing palatalization and subsequent spirantization on the following consonant, in much the same way that the

[70] In both cases, assuming a change of /kʲ/ > /c/ > /t/, the reflexes would seem to equally allow for reconstruction of an onset **k*, as in **-kɪʊkʊ* or **(C)ɪ-kʊkʊ*, but there is no such a reconstruction in BLR3.

**o~*u* prefix still causes labialization on root onsets today. In this case, however, it seems more appropriate to assume an original V.V sequence, due to an abundance of examples in Aghem with CL 19 and CL 5[71] prefixes that do not result in palatalization.

Subsequently, assuming an original V.V sequence, this would give many options for sound changes, as shown here:

(80)	**-tɯuku*	**-tɯuku*	**-tɯuku*	PreB '24-hour day'
	---	-tʲuku	-tʲuku	Anticip. Assimil. (palatalization)
	---	-tʃuku	-tʃuku	Hardening of C_1 (affrication)
	-tuku	---	-tʃuʔu (Weh)	Weakening of C_2 (to glottal)
	---	-tsuku	-tsuʔu	Hardening of C_1
	-tuk	-tsuk	-tsuʔ	Apocope
	-tok (Zhoa)	-tsok (Isu)	-tsoʔ (Agh)	Lowering in closed syllables
	-toʔ (Bu)	---	---	Weakening of C_2 (to glottal)

Clearly, this presents an oversimplified view, but the example does show the variety of outputs possible. In fact, all these paths of change, and more, have been exploited in Bantu, synchronically yielding all of the forms shown above for A810, as well as other forms with a pure spirant onset[72].

5.3.3 Syllable Reduction – Lenition and Loss

A810 roots are primarily mono-syllabic and much of the syllable reduction from Pre-Bantu can be ascribed to apocope, resulting in words such as Aghem [kɔ́.ɣéː], Isu [kɔ́.ɣɐ́d] 'fingernail', as compared to PB **ké-jádà* (Var. **ké-gádà*). There is, however, another common process of reduction. As seen in (75) and (76) (p. 132), affrication in

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[71] CL 19 **pi-*. For CL 5, Demuth (2000:272) offers PB **le-* but many modern Bantu reflexes now have /li-/.

[72] reflected in the PB reconstructions as **c*, as in **-cíkò*, and **-cúkò*.

A810 often points to a process of lenition of the intervocalic C_2[73] in earlier two-syllable roots, followed by either loss or syncope. For example, Aghem [kèː.dzùɯ̀ù] 'chin' arguably comes from [è.dzùɯ̀ù] 'mouth'. Assuming PreB **ka-e-dèdù* (PB **ka-* or **ke-dèdù*), one might argue for a series of changes of the following nature: [ka-e-dèdù] > [ka-e-dèjù] > [keː-dʲùː] > [keː-dzùː].

Aghem has diverged from its neighbours in that it has frequently undergone this sort of lenition, followed by apocope or loss. As a result, the language often has spirantization, especially of velar stops, where the other A810 languages do not. An illustration of this is the regular correspondence, seen in (77) (p. 133), of PB **Cad(a)* with Aghem /Ci(a)/ while the rest of A810 is /Caj/ [Cɐe]. For example, PB **-kádà* 'charcoal' and **-tádè* 'stone' are /-tʃía/ and /-tía/ in Aghem but /-kaj/ and /-taj/ in the rest of A810. This difference can be ascribed to early apocope applying to all of Aghem's neighbours, leading to relative stability of the remaining single syllable. Aghem, on the other hand, followed a process similar to that described for 'chin', that is: *tə-tʃía < tə-cía < tə-kʲia < tə-kija < to-kɜja < to-kaja < to-kádá.*

What is particularly interesting about such processes is that they lead to the very kind of phonetic structures that have already been seen in previous sections to engender spirantization, either /C^jV/ through syncope or /CVV/ < /CV.V/ through loss. Also of

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[73] Lention also occurred, less commonly, on C_1 with the vowel of the CL prefix likely providing the weakening VCV environment. This is seen in such cognate pairs such as PB **le-gòngá* and PA810 *é-ɣɒ̃ŋ* 'spear' or PB **ke-kúpà*, Zhoa *kɨ-ɣʌ́p*, Aghem *kɨ-ɣɔ́* 'bone'. Interestingly, Meinhof's (1932) PB reconstructions frequently have fricatives where those in BLR3 now have stops. Lention of C_1 did not happen in front of CL 9 nasal prefixes.

interest is the fact that Bourquin (1955:60) also alludes to the possibility that the assumed **V.V* precursors to PB 1st degree vowels may have had an intervening consonant.

5.4 Conclusions

The common thread running through all of the assumed sources of Aghem affricates is that occlusives are followed by GLIDE.V and V.V sequences. Therefore, Bourquin's (1955) development of Meinhof's (1932) insights mesh very well with this account of spirantization in Aghem.

The matter concerning the central vowels is less clear, but here too the assumption is that bi-directional assimilation in peripheral V.V sequences could lead to centralized vowels. Combinations like /Cɪu/, and /C^{j}u/ would provide the ideal ambiguous environment in which CHANCE, CHANGE, and CHOICE (Blevins 2004a) can operate and lend themselves very well to splitting into /C^{S}ɨ, C^{S}ʉ, C^{S}y, Cy/. The latter, /Cy/, is in turn a prime candidate to split into /Cu/ or /Ci/. The difficulty, of course, is with Meinhof's and Bourquin's admissions that frequently no reflex of the reconstructed **ɪ* segment can be found among the daughter languages, only its effects..

Although there appears to be little support for Meinhof's and Bourquin's approach (Connell 1997:§5.2), it does seem to provide the best solution for understanding the source of both affricates and central vowels in A810, and perhaps in all of Grassfields. Clearly, further research is needed using a wider range of data, possibly from all of the larger Niger-Congo family, against which the claims of this paper can be weighed, verified, and modified.

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