The Emergence of Tense in Early Bantu

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> "One can speculate that the perfective versus imperfective distinction was, historically, the fundamental distinction in the language, and that a complex tense system is in process of being superimposed on this basic aspectual distinction … there are many signs that the tense system is still evolving." (Parker 1991: 185, talking of the Grassfields language Mundani).

1. Introduction

1.1. Purpose

Examination of a set of non-Bantu Niger-Congo languages shows that most are aspect-prominent languages, that is, they either do not encode tense —the majority case— or, as the quotation indicates, there is reason to think that some have added tense to an original aspectual base. Comparative consideration of tense-aspect categories and morphology suggests that early and Proto-Niger-Congo were aspect-prominent. In contrast, all Bantu languages today encode both aspect and tense. The conclusion therefore is that, along with but independently of a few other Niger-Congo families, Bantu innovated tense at an early point in its development. While it has been known for some time that individual aspects turn into tenses, and not vice versa, it is being proposed here is that a whole aspect-based system added tense distinctions and become a tense-aspect system.

1.2. Definitions

Readers will be familiar with the concept of tense. I follow Comrie's (1985: 9) by now well known definition of tense: "Tense is grammaticalised expression of location in time". That is, it is an inflectional category that locates a situation (action, state, event, process) relative to some other point in time, to a deictic centre. Situations are located before, after, or during the deictic centre, normally the present, unless there is a clear indication to the contrary. That clear indication might be specific use of a prior non-present form or adverb in the discourse, it might be understood from the context that the deictic centre is not the present, or it might be implied. So there is past and future tense, or there are past and future tenses (many Bantu languages have two or three pasts, some have four, very few have five; similarly with futures, except most have fewer futures). The notion of present tense is more controversial and since it is not central here, it is ignored.

Aspect may less obvious, at least for those brought up on Western European languages. Comrie's (1976: 3) definition is: "aspects are different ways of viewing the internal temporal constituency of a situation", that is, how a situation is distributed within time. Definitions of the relevant aspects discussed are as follows (Rose et al. 2002):

Perfective (PFV): normally used in two senses, (1) to contrast with imperfective, (2) to represent a situation as a single bounded whole, without regard to its constituent phases. Bantu PFVs are typically morphologically relatively unmarked. I use perfective for verb forms that refer to past or future in Bantu, although in aspect languages, PFVs typically refer to past situations.

Imperfective (IPFV): used in two senses, (1) to contrast with perfective (e.g. see Meeussen's 1971 analysis of D25, Lega), (2) to represent the structure of any unbounded situation that lasts over a period of time. Some languages have one morphological category to express imperfectivity; in others imperfective includes distinct categories such as progressive and habitual, and sometimes continuous and persistive; and in yet others, imperfective coexists with these other categories.

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Anterior (ANT): here used as similar or synonymous with the more traditional term perfect, that is, it refers to a past situation with current relevance (mostly for dynamic verbs), or to a situation which started in the past and continues into the present (mostly for stative verbs). This is a somewhat different usage from that in e.g. Bybee et al. (1994), who use ANT only for the first of these meanings and resultative for the second. I combine their anterior and resultative as ANT because across Bantu the relevant morphemes carry both meanings. Following Bybee, I avoid the term Perfect because in my experience readers have trouble keeping perfect and perfective, which are not synonymous, apart. Anterior is treated as an aspect because it consistently combines with tense across Bantu, although other analysts treat it as a tense.

Progressive (PRG): represents an unbounded situation as in progress at reference time. The field of reference of PRGs varies —in some languages they represent situations only ongoing at the reference time while in others they cover a wider field. PRGs tend to be associated with dynamic rather than stative verbs (Contini-Morava 1989 for Swahili *na* versus *a*). PRGs develop predominantly from locatives (Bastin 1989a, b for a Bantu view). PRGs tend to widen to general IPFVs, including present.

Habitual (HAB): refers to a "situation . . . characteristic of an extended period of time, so extended . . . that the situation . . . is viewed . . . as a characteristic feature of a whole period" (Comrie 1976: 27-8).

Persistive (PER): denotes a situation that held in the past and continues to hold at the time of speaking. It is also called the 'still' form (*We are still buying, We still buy*). Persistives have two possible negatives: *We are no longer buying* (were in the past but not now) and *We are still not buying* (weren't then, aren't now).

Narrative: in narratives containing a string of situations, the general time framework is established initially, subsequent actions being indicated by the use of consecutive, narrative, or subsecutive. Strictly, if the subjects of the first and subsequent clauses are identical, the form used is the consecutive or narrative. If the subjects are different, the form is called subsecutive or sequential. Narrative may also be used to cover the terms consecutive and subsecutive, the usage followed here.

Itive: "agent moves away from the deictic centre in order to do something . . . to be going there to do something . . . such forms are often related to the verb 'go' and may also have uses of intention and future" (Bybee et al. 1994: 320). Itives (movement away from the here-and-now) and ventives (movement towards the deictic centre) are both directionals, abbreviated as DIR in the Ewe example.

2. Tense-aspect versus aspect languages

Some general features of a Bantu tense-aspect language are illustrated in the matrix of Bukusu, a variety of Luhya, to be seen in Appendix 1.[1] Down the left side and in the corresponding rows is a set of tenses: P_1 (marked by low-toned /a/) refers to a very recent situation (last hour or so) on the same day, P_2 to a situation of today, P_3 to a situation of the few days preceding today, P_4 refers to the most remote situations; similarly F_1 refers to the nearest future, F_3 to the farthest, etc. In languages with just three degrees of past reference, more common than those such as Bukusu with four, it is typical for P_1, P_2, and P_3 to refer to today, yesterday and the few preceding days, and remote past, respectively. Bukusu is somewhat anomalous in having this P_1 for very near situations.

Across the top and in the columns is a fairly typical set of aspects: PFV, IPVF, PRG, PER, and ANT. The whole display represents the intersection of tense and aspect. In a single word verb, tense can co-occur with aspect, or aspect with aspect, but rarely tense with tense. In a compound (two or three word) verb, tenses do sometimes co-occur with other tenses. Some languages express tense and

[1] Bukusu data are from L.H. Hyman, W. Khisa, L. Kisembe, and N. Mutonyi. The analysis is partly theirs, partly mine. Two comments are necessary. First, PFV and IPFV are here used morphologically, as in (1) of the respective definitions above: IPFV's are defined by the presence of *-ang-*, PFV's by its absence. Second, the *-la-* in three forms in the IPFV column is not the same as the F_1 morpheme: N. Mutonyi (p.c.) says of it that it refers to an event that was "done repeatedly over an extended period".

aspect in a single word, others in two or three words. As can be seen, Bukusu does both, as does English: (*she*) *worked* (Past + PFV), *had worked* (Past + ANT), *had been working* (Past + ANT + PRG), *might have been working* (mood + tense + ANT + PRG).

Ewe (a Kwa language) and Ejagham (Ekoid Bantu) serve to illustrate purely aspectual languages. The Ewe example (1) is followed by a general verb template for Ewe, in which it can be seen that most verbal categories are represented by discrete items preceding the verb stem.[2] The Ejagham examples (2) are likewise followed by a general verb template, from which it can be seen that many verbal categories in Ejagham are represented by inflectional prefixes and/or tone patterns:

(1) Ewe:[3]

wó	m-áa	ga	xa nɔ	nú fo-m´
they	NEG-POT	ITR	M PRT	be talk-at

'Won't they be barely talking…'

SP= # NEG_1= # M_1= # ITR # DIR_1 # M_2 # M_3 # DIR_2 # root-suffix # =OP # NEG_2

(2) Ejagham:[4]

á-∅-gbɔ̂
they-∅-fall (and tone pattern)
'They fell' (PFV)

tíg	n-∅-sɛ̂ŋ nwɛd
FUT	I-∅-write letter

'I will write the letter' (PFV)

á-∅-gbɔ
they-∅-fall (tone pattern different from the PFV)
'They have fallen' (ANT)

á-∅-gbɔ̌-g
they-∅-fall-IPFV
'They fall' (IPFV)

á-kí-gbɔ̌
they-PRG-fall
'They are falling' (PRG)

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[2] In the template, '=' indicates a clitic boundary.

[3] The example is adapted from Schadeberg (1985: 24). The Ewe system is sketched in Schadeberg (ibid) or Pasch (2002), who also has a bibliography. Ewe has never been analyzed as a tense language (see also section 4, and fn. 4). For other facts, insights, and discussion on Ewe I am indebted to Felix Ameka. Abbreviations used here and in the rest of the essay are as follows: A aspect, DIR directional, EXT extension, FUT future, FV final vowel, ITR iterative, M mood, NC Niger-Congo, NEG negative, O object (which includes object pronouns), PB Proto-Bantu, PNC Proto-Niger-Congo, POT potential, PROG progressive, PRT particle, OP object pronoun, REP repetitive, S subject, SBJ subjunctive, SM subject marker (inflectional), SP subject pronoun (self standing). TA tense-aspect, VC Vowel Copy. Some of these are taken from the sources, so may not be defined in section 1.2. The symbols -, =, # represent bound inflection, cliticization, and word boundary, respectively. Other abbreviations appear after some entries in section 1.2.

[4] Data are from Watters (1981). I have replaced his Continuous by Progressive (PRG). Watters (ibid) is the only published source for Ejagham. I follow him in interpreting the forms above as aspectual. Time reference, as in Ewe, can be indicated by use of appropriate adverbs (e.g. *tí*g, as in (2)).

SM-A-REP-root-suffix # O

Between fully aspectual and fully tense-aspect there are many intermediate languages.

3. Database

Reconstructing features of any intermediate node in a genetic tree, in this case Proto-Bantu, ideally requires examining evidence from below, that is, from Bantu, and above, that is, from non-Bantu NC. Since many languages are involved, some pragmatic choice has to be made as to which languages will be sampled. Gordon (2004) has 1514 NC languages, 513 Bantu, 1001 non-Bantu. Guthrie divided Bantu into fifteen zones, subdivided into eighty-five groups. I examined in detail one Bantu language from each group, plus another fifteen, to make a hundred (so one in five), as a basis for statistical generalizations and careful analysis, but also considered another hundred or so in less detail.[5] This gave good geographical and hopefully good typological coverage for Narrow Bantu.

The non-Bantu languages were less easy to cover, because they are so numerous, because many are not described and because I am less familiar with them. I chose in principle at least one language from each family within NC as set out in Williamson and Blench (2000), the choice being largely determined by the availability of a reasonable description. There are objections to such a procedure, the most obvious being whether the chosen language is typical of its family. The families and languages are listed in Appendix 4. Of some 1000 non-Bantu NC languages I examined some twenty-five, that is, one in fifty (compared to one in five for Bantu), and the coverage was not even. I should also add that I am more familiar with the Bantu material, so references to Bantu data and analyses stand a better chance of being correct. I am a newcomer to the non-Bantu languages and have had to rely entirely on work by others, so there may be some factual and analytical errors.

4. Distribution of tense-aspect versus aspect within Niger-Congo

The map in Appendix 2 shows the geographical distribution of the families (and some) languages just mentioned. The general distribution of aspect (the majority) versus tense-aspect (the minority) languages is as follows, where a question mark indicates uncertainty about the analysis. Numbers in brackets are the number of languages in the family/group, according to Gordon (2004):

(3) Aspect: some Atlantic (Bijogo), Mande (70), Kwa (80), Gur (100), Adamawa (90), most Ubangi (70), Ekoid (8).

Aspect and tense: Narrow Bantu (500), Grassfields Bantu (65), eastern Kru, Ubangi (Zande), some West Benue-Congo (Igbo), ?some Cross River.

Aspect, and one or more “futures”: Kordofanian (31), some Atlantic (Kisi, Fula), Ijo (9), western Kru, Dogon (1), some West Benue-Congo (Yoruba), Jukunoid (16), ?some Cross River.

At first sight the number of languages/families in the three sets in (3) is roughly equal, thus apparently belying the claim that aspect languages form a majority. However, if Narrow Bantu is removed, then the second set is reduced to a small number of complete families, while the first set represents nearly half the 1000 or so non-Bantu Niger-Congo languages of West Africa.[6]

The third category is an obvious anomaly: the apparent co-existence of a basic aspect system with a future tense, or, in a few cases, two future tenses. Crosslinguistically, if there is a binary tense contrast, it is usually past versus non-past (Comrie 1985: 44, 49). It is rarely future versus non-future, but across a fairly large part of West Africa, and cutting across language phyla (Creissels et al. 2007),

[5] See Appendix 3. Those underlined are the 100 languages used for statistical generalizations.

[6] Some of the 1000 or so non-Bantu Niger-Congo languages, especially in Eastern Benue-Congo, are missing. Some families are visibly split in their behaviour: Atlantic (90), Kru (40), Cross River (67).

such a contrast is described as occurring. Felix Ameka (pers. comm.) wonders whether such analyses are accurate.[7] Ewe, his own language, has traditionally been analyzed as having future tense, but in a forthcoming book,[8] he replaces future (tense) by potential (mood). If a language functions as English, having two forms with two distinctive meanings (*We will verb* versus *We might verb*), there might be grounds for distinguishing tense and mood; but in at least a couple of the languages examined, authors labeled a single form as future in one place, with an appropriately translated example (*will verb*), while elsewhere in the same analysis the same form was glossed as *might verb.* This suggests strongly at least a modal content, if not basic meaning. It is possible to state accurately when a situation took place in the past —tense— but future time reference is almost inevitably bound to the degree of certainty —mood— about whether the situation will in fact occur. It may be that as a language moves from an aspect to a tense-aspect system, imperfective and perfective can be interpreted as present and past, and that in that move future tense evolves from modal reference. In sum, these future "tenses" need further investigation.

5. Historical Niger-Congo

What was the likely structure of the verb complex in Proto- and early NC?

Eleven of the twenty-five non-Bantu NC languages (plus most Bantu) have a verb stem consisting of root + extension + final vowel, with an active and relatively large set of extensions.[9] Another eleven have a small set or just traces. Three seem to have lost all trace of extensions. This geographical structure suggests that the stem shape root + extension + final vowel can surely be assigned to Proto-NC, spoken some 10,000 years ago.[10] Some languages in a large area of West Africa have undergone phonetic attrition, whereby phonetic substance at the right of the verb is lost, which has led to loss of morphological substance, including some or all extensions (EXT) and final vowels (FV). If a language loses EXT and FVs, it has in principle a choice: it can lose the categories encoded by those suffixes, or it can express them some other way. In practice, that seems to be hardly a choice as all the languages I have looked at that have lost suffixes keep the categories and express them some other way, either by keeping the tones from the lost morphemes and using them to encode the categories, or by replacing the extensions by using prepositions or auxiliaries. So in Ejagham, for instance, several aspects which were most likely once expressed by FVs are now differentiated tonally (see (2, 4)). The Applicative EXT ('to, from, for') is typically replaced by the use of word order, or prepositions, while the Causative is expressed by use of some auxiliary, 'to make/cause to verb', as can be seen in Ejagham in (4):

(4) Causative: a-∅-ýìm ɛtá a-∅-gbɔ̂
he-∅-made Eta he-∅-fell
'He made Eta fall' (-yim 'make, do')

The FV originally expressed aspect (and maybe mood). By far the commonest aspectual contrast is and was that between PFV and IPFV, and in many NC languages PVF is unmarked and IPFV marked. Contrasts between final lexical vowel and some other vowel, between final -*a* and final -*i*, or

[7] Ameka is in good company. Comrie (1985: 49) says: "Turning to the possibility of a future versus non-future binary split, it is important to be able to distinguish this as a tense split from a split which is occasioned primarily by mood, but gives the impression of a tense split because of the implicature links between certain modal and time reference oppositions."

[8] Edited by himself and M-E Kropp-Dakubu. Possibly, as perfective was increasingly interpreted as past, and imperfective as present, the need for a discrete future was felt.

[9] Languages with a "large" and active set of extensions are: Otoro, Moro, Fula, Bijogo, Kisi, Kru, Gur, Adamawa, Gbaya, Zande, Igbo. Those with a restricted set or traces (often these languages have neutralized the distinction between EXT and FV) are: Ijo, Dogon, Jukun, Supyire, the Cross River varieties, the Grassfields varieties, and maybe Ejagham. Bambara, Ewe, and Yoruba seem to have no signs of EXTs. This breakdown corresponds roughly to that in the Tables in Williamson and Blench (2000).

[10] This approximate date was suggested independently by R. Blench and C. Ehret.

between zero and *-i*, are common. Unfortunately I found no convincing correlation between PFV/IPFV and a specific FV. That is, I would like to be able to say that, for example, *-i* represented PFV and not IPFV or vice versa, but there are almost as many cases with *-i* PFV as *-i* IPFV (e.g Ubangian Gbaya has *-a* PFV versus IPFV *-i*, but neighbouring Ubangian Zande has IPFV *-a* contrasting with PFV marked by some other vowel or vowels). However, where *-i* participates in the contrast, it is most often the marked member. The details need more investigation across NC. Comparative evidence suggests that the functions of the PFV were probably as in the Otoro example in (5) - a past or present reading when used with a dynamic verb, but a present reading with stative verbs. Examples of active FVs and various ways of encoding the PFV versus IPFV contrast:

(5) Otoro (Kordofanian):[11] *ŋi-gwu-∅-man-u* 'I cook, cooked' (PFV) *ŋi-gw-ati-man-a*[12] 'I cook' (IPFV, HAB) *ŋi-gw-a-man-i* 'I may, shall cook' ("subjunctive-like"). The FV in the first example is the lexical vowel, in the second the IPFV, in the third it has many uses.

Bijogo (Atlantic): *ibooti i-tont-ɛ* 'Dogs jumped' (PFV), *ibooti i-tont-i* 'Dogs are jumping' (IPFV)

Fula (Atlantic): *o war-ii* 'He came' (PFV), *o-ɗon-war-*a 'He is coming' (IPFV)

Bandi (Mande): *i ha-i* 'He died (PFV), *i ha-a* 'He is dead' (stative)

Dogon: *gɛɛndɛ-m* 'I'll look', *gɛnd-i-m* 'I have looked', *gɛnd-aa-zɛ-m* 'I looked'
FV in the first example is the lexical vowel, in the second the PFV, in the third the ANT.[13]

Supyire: *nah-a* 'herd' (PFV), *nah-i* 'herd' (IPFV)

Ditammari (Gur): *o twɔk-á* 'He has arrived (PFV), *o twɔk-u* 'he arrives' (IPFV)

Gbaya (Ubangi): *gɔm* 'split' (unmarked, IPFV), *gɔm-a* 'split' (marked, PFV),
kɔli 'cough' (unmarked, IPFV), *kɔl-a* 'cough' (marked, PFV)

Zande (Ubangi: *sir-a* 'lick' (IPFV), *sir-i* licked (PFV)

Tikar: *a ʃâ* 'He spoke' (near past), *a ʃê* 'He spoke' (far past)

Lokele (Narrow Bantu C55): *to-∅-kol-í* 'We did' (PFV), *to-∅-kol-a* 'We always do, will do', *to-kol-ek-e* SBJ

The Proto-NC stem (root + EXT + FV) was likely preceded by a string of independent morphemes expressing other verbal categories, such as negation, other aspects, mood, focus, time reference, sequencing devices, etc., represented by A, B, C, and D in (6). In (6) both S and O could be pronouns:

(6) S # NEG # A # B # C # # D # root + EXT + FV # O.

Judging by what we see today in some languages, such strings could be quite long, up to six morphemes (particles, AUXs, adverbs). This pre-stem string also contained other aspects. That is, there is no contemporary language where the only aspectual contrast is a binary one between PFV and IPFV. Though that might be the basic aspectual contrast, several other aspects appear in the pre-radical string in all contemporary languages. The commonest are ANT ("Perfect"), PROG, and HAB. There

[11] Otoro example from Stevenson, R. forthcoming, thanks to Thilo Schadeberg.
[12] Where Otoro has *-ati-*, neighbouring Moro has *-ti-*. It is not clear if the *a* here is the same *a* as in the fourth ("subjunctive-like") example.
[13] In Dogon the old FVs are now followed by suffixal morphemes for aspect, negation, and subject.

are typical ways of encoding these in NC, thus PROG by *be+locative* (hence *be-root-locative*), and ANT by auxiliaries deriving from 'finish'. Over time, these isolated elements came to adhere, to each other and to the stem. Agglutinating forms occur in Narrow Bantu, Kordofanian, western Atlantic, and in some other languages adjacent to northwestern Bantu, in western Cameroon and eastern Nigeria.

6. The shift from aspect to tense/aspect

The addition of tense contrasts to an original aspect system did not only occur, or even necessarily start, in Narrow Bantu. It was mentioned above that some eastern varieties of Kru, at least one Gur language (Supyire), an Ubangian language (Zande), some West Benue-Congo languages (e.g. Gwari), maybe some Cross River languages, and many Bantoid (e.g. Tikar, Mambila, Grassfields Bantu) and a few Benue-Congo languages have also developed tense contrasts.[14] There is a strong correlation between the acquisition of tense and the acquisition of a synthetic verb structure. That is, the independent pre-radical morphemes seen in (6) become fused, forming the typical verb structure that characterizes Bantu and a few other NC families. This correlation, though strong, is not absolute, as can be seen in Grassfields Bantu, which has tense distinctions but keeps the older analytic structure, whereas Ekoid Bantu has no tense distinctions but has moved to a synthetic structure.

A number of factors, taken together, suggest these tense contrasts are innovations, not retentions. One is that only a minority of NC languages and families have them. A second is that some languages/families express them by pre-stem morphemes (e.g. Kru, Zande, Grassfields and Narrow Bantu) while others have suffixes (Ijo, Igbo). A third is that comparison of the pre-stem morphemes involved across families indicates that they are mainly quite different.[15] A fourth is that at least in some cases the morphemes are transparent and recent grammaticalisations (e.g. the two futures in Kru derive from 'have' and a motion verb, respectively). A fifth is that at least some authors state explicitly their feeling that tense is superimposed on an original aspect base —see the quotation at the beginning.

A crucial step in the acquisition of tense is that one or more of the independent pre-radical morphemes shown as A, B, C, D, etc., in (6), above, becomes selected as a tense marker. Which morpheme or morphemes are so selected varies among those families or languages which have introduced tense. This can be seen by examining such families or languages —the morphemes are local or very local.[16] The languages which have developed tense can be divided into two geographically, those which are genetically and geographically close to Narrow Bantu, and those which are not. It seems likely that the geographically sporadic rise of tense in the latter is an independent phenomenon. But the presence of tense distinctions, often multiple, in many Bantoid languages geographically and genetically close to Narrow Bantu suggests that tense may have arisen not at the Narrow Bantu level, but rather above Narrow Bantu in the family tree, somewhere in Bantoid or southern Bantoid. I find this likely but do not currently have access to enough data to deal seriously with it. So in what follows I do not deal with it, although I do not discount it.

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[14] I am grateful to Stephen Anderson, Bruce Connell, Robert Hedinger, Larry Hyman, Victor Manfredi, Rhonda Thwing, and John Watters for information on this topic.

[15] The two exceptions are pre-stem zero and /a/. Pre-stem zero occurs most often when aspectual meaning is carried by the FV. More puzzling and disturbing is the morpheme /a/, 'past' in Kru, Zande, some Kordofanian, some Grassfields, and many Narrow Bantu. But since a morpheme of the same shape, but different tone, occurs as 'present' in some Kordofanian and Grassfields, 'future' in Zande and some Grassfields, and 'non-past' in Mende, it would be rash to designate it a marker of past (tense).

[16] Of the "aspect and tense" languages listed in (3), most are individual languages or small groups. Only Grassfield and Narrow Bantu are coherent families. Grassfields illustrates the local nature of tense innovation. Of the three Grassfields varieties, one (Mundani) has simple binary categorial contrasts in past and future tenses (near versus far), and both pasts involve tonal variants of /mɔ/. In both respects it resembles the Narrow Bantu language A11, but not the other two Grassfields languages, Aghem and Dschang. They have multiple past and future contrasts, and make use of /le/ in some past contrasts and tonally contrastive /a/ in futures and other pasts.

7. Historical Bantu

Although Narrow Bantu is but a small branch on the NC tree, it is fairly well defined, and not only can all or most the 500 languages labeled "Bantu" be assumed to have a common ancestor, but they represent a third of all NC languages; so the genesis of tense in Narrow Bantu is worth considering.

At what point did Narrow Bantu languages develop tense contrasts? Was Proto-Bantu aspectual — had it already added tense distinctions to its repertoire, either at some Bantoid stage or at Proto-Bantu, or were these added later? All Narrow Bantu languages have added tenses to the original aspect base.[17] Although contemporary Bantu languages are far from having identical tense-aspect systems, it is unlikely that they or their several ancestors innovated the general phenomenon of tense at separate times and places, because the similarities are much greater than the differences and it would be uneconomical to think such similarities evolved separately.

My approach to this was to assume all/most Narrow Bantu languages are related and descended from a common ancestor, and to apply the classical Comparative Method to the pre-stem and stem-final morphemes bearing tense and aspect meaning in the 100 languages forming the database. That is, I examined all verbal morphemes occurring at the pre-stem and final vowel position in the database languages, including morphemes of the shapes and meanings in (7) and (8). I then looked at the statements of phonological correspondences in Guthrie (1971) and elsewhere and made decisions about which were likely to be cognate.

(7) Distribution and relative frequency of pre-stem TA morphemes in Bantu (subject marker - NEG - ___ - object pronoun - stem)[18]

Morpheme	**Distribution**	**Reconstructability, and its plausibility**
-∅- 'vast present'[19]	Bantu 50%, NC	High for PB and PNC
-a- 'past'	Bantu 78%, NC	High for PB, possible for PNC
-ka- 'itive, narrative, far future, far past, etc.'	Bantu 71%, NC	High for PB, ?NC
be + loc + infinitive 'progressive'	Bantu 59%, NC Bantu 66% have PROG, 59% have *be+loc+infinitive*	High for PB and PNC
-a- 'non-past'	Bantu 27%, NC	High for PB, ?NC
? *-laa-* 'future'	Bantu 17%, some Grassfields Bantu	Uncertain for PB. Not PNC

The commonest morphemes, with their percentages of frequency and approximate meanings, are as in (7) —since the database languages give good geographical and hopefully good typological coverage, I assume these percentages[20] are roughly true for all Bantu. Column 1 shows the morphemes and their probable reference, reconstructed on the basis of their distribution in Bantu. Column 2 shows their percentage distribution in Narrow Bantu and NC. Regarding column 3, the abbreviation PB (Proto-Bantu) means they are reconstructible for PB. The abbreviation PNC means I think they are

[17] A couple of northeastern Bantu languages —Comorian and some Pokomo varieties— have neutralized their single past tense with anterior, so have partly lost their tense system.

[18] The dash between 'NEG' and 'object pronoun' means the position, referred to as "pre-stem" in the text, in the Bantu structural template. The 'progressive" *be + loc + infinitive* is of course anomalous because it refers to a source string much longer than the single morphemes encoding the other categories. In many Bantu languages, it has been reduced to a CV structure.

[19] The 'vast present' refers to the stretch of time that covers the present and an indefinite period on either side of it, as in *Cows eat grass.* The term originates with John Hewson.

[20] All percentages below, based on the database languages shown in Appendix 3, are from Nurse (forthcoming).

widely enough distributed across NC to be assumable for Proto-NC, but as independent pre-stem morphemes, of course, not as prefixes.

(8) repeats this procedure for FV morphemes:

(8) Distribution and relative frequency of FV[21] morphemes (aspect, mood) in Bantu (root - EXT - _____#)

Morpheme	**Distribution**	**Reconstruction, and its plausibility**
-a 'neutral'	Bantu 85%, NC	High for PB, ?NC
-é 'subjunctive'	Bantu 80+%, limited NC	High for PB, not NC
-ag(a) 'imperfective'	Bantu 69%, limited NC	High for PB, not NC
-ilɛ 'ANT' or perfective?	Bantu 66+%, PB	?Allomorphic in PB with *–i*
-i 'positive near past'	Bantu 28%, Bantu zones A, B, C, D, K, L	High for PB, see previous line, PNC 'perfective'
-Vowel Copy[22] as previous	Bantu 8%, mainly zones H, K, L, R	Not PB nor PNC

In this display the figure of 80% for the subjunctive should probably be higher: 80% includes only languages with a full [é], but of the other 20% several if not many had structural or tonal traces of it. Likewise the 66% figure for *-ilɛ* should probably also be higher, for similar reasons. I assume that *-ilɛ* and *-i* were allomorphic in PB, the longer form occurring after short (CV) roots, the shorter form elsewhere, so they are represented in (10) below as *-i(lɛ)*. *-ilɛ* itself appears to be a Bantu innovation.

The morphemes at pre-stem and FV co-occur; so combining (7) and (8) gives (9), which represents the synchronic situation, i.e. the relative frequency of various combinations in Bantu languages today. It therefore represents the frequency of co-occurrence in contemporary languages of morphemes at TA and FV. The items in the left hand column correspond to those in the first column in (7), while those across the top correspond to those in the left hand column in (8).

(9) Percentages of contemporary languages with combinations of TA and FV morphemes

	***-a* 'neutral'**	***-ilɛ* 'ANT' Or 'PFV'**	***-i* 'positive near past'**	**-VC, as left**	***-ag(a)* 'IPFV'**	***-é* 'SBJ'**
***-a-* 'past'**	97% (of which 59% past 27%, nonpast 11% ANT)	45%	9%	4%	50% (of which 38% 'past', 12% 'nonpast')	-
***-∅-* 'present'**	50%	47%	23%	3%	30%	80%
***-ka-*'various'**	71%	3%	-	-	17% (of which 12% future, 5% past)	22+%
***Be+loc+infin* 'PROG'**	59%	1%	-	-	14%	-
***-laa-* 'future'**	13%	1%	-	-	8%	2%

[21] Whereas final vowel (FV) for non-Bantu NC does refer to a single vowel, here it also includes two longer morphemes, as can be seen.

[22] The Vowel Copy suffix (VC) 'positive near past' consists of a single vowel copy of the stem vowel.

There are interesting similarities and differences in the patterns for pre-stem zero and *a.* Not surprisingly, *a* 'past' co-occurs with all the (aspectual) suffixes, but not with the subjunctive, because very few Bantu languages have past subjunctives. The pre-stem zero marker has a similar distribution, except that it combines universally with the subjunctive, because subjunctives are typically timeless.

The other obvious difference in the patterns for pre-stem *a* and zero lies in the lower figure for the combination of zero and suffixal *a*. The lower incidence of zero here is explained by it having been replaced by more marked forms involved in present reference, deriving principally from progressives, imperfectives, non-past *a,* and even disjunctives.

It should be remembered that *ka* has several meanings (Botne 1999), also Nurse (forthcoming), so the first figure in (9) for *ka* (71%) is the total of all meanings combining with final *-a*. Most meanings of *ka* are semantically incompatible with suffixal *-ile*/*-i*/*-VC*, whereas in its tense (future, past) meaning it can combine with IPFV *-ag-a*. The final figure in the *ka*-row (22+%) is probably much too low. Since it typically occurs in the subjunctive with meanings such as "Go and verb" or "Go in order to verb", it can be expected to be common but the sources were often simply silent on this.

Based on (7, 8, 9), a plausible TA system for Proto- or early Bantu is sketched in (10):

(10) A plausible tense and aspect system for Proto- or early Bantu[23]

	PFV	**IPFV *-ag-(a)**	**PRG *-lɪ(..)kʊ-**	**ANT *-i(lɛ)**
Past *-a-	**tʊ-a-gʊl-a* 'We bought'	**tʊ-a-gʊl-ag-a* '…used to buy, were buying'	see below	**tʊ-a-gʊl-i(lɛ)* '…had bought'
Present *-∅-	**tʊ-∅-gʊl-a* 'We buy'	**tʊ-∅-gʊl-ag-a* '…buy regularly'	**tʊ-∅-lɪ(mʊ)kʊ-gʊla* 'We are buying'	**tʊ-∅-gʊl-i(lɛ)* 'We've bought'
? Future *-laa-	**tʊ-laa-gʊl-a* 'We will buy'	**tʊ-laa-gʊl-ag-a* 'We will buy regularly'	see discussion below	see discussion below

Bearing in mind that as early *ka* probably had itive or narrative function and followed other TA morphemes, then forms such as **tw-a-ka-gula* and **tu-∅-ka-gula* would also have occurred.[24]

Given that most morphemes involved in the schematic reconstructions above are low-toned or toneless,[25] it might be thought that the total forms above would be all low-toned. In some languages today, a tonal phenomenon known as the Melodic High[26] then intervenes. No linguist has speculated on its possible function in PB.

The doubt about the future is indicated by the use of the question mark. Few contemporary languages have any evidence for combining this future *laa* with PRG or ANT in a single word, hence the blanks in the future PRG and ANT boxes above.

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[23] This display differs in several ways from some previous works. It differs from Guthrie (1971) and Meeussen (1967) in two ways: they reconstruct more items than I do, and their lists contrast with this system. It differs from others (e.g. Givón (1971), Mould (mentioned in Givón (1971: 115)), Voeltz (1980) in its treatment of the morpheme **-ilɛ*: since it is only possibly attested outside Bantu in some Igbo varieties, I assume it is a PB innovation, and I assume it is an outgrowth of older /*-i*/, where they see it as a grammaticalised form of a verb 'finish'. It differs from Botne (1999) in assuming that most functions of *-ka-* can be derived from its itive function (Nurse (forthcoming)).

[24] This display omits non-past/disjunctive *a* and other minor categories, either because their meanings or functions are currently unclear, or because they did not mark tense.

[25] The possible exception is *-ilɛ*.

[25] Proto-Bantu is variously dated at between 3000 and 2000 BC, spoken by as community possibly living in the valley of the Benue River, which runs between Nigeria and Cameroon.

[26] A melodic (also suffixal or posterior) high is a high tone that appears across Bantu in contexts and functions not yet well understood. It is widespread and may go back to PB. See Kisseberth and Odden (2003: 61-2).

From a historical point of view, the system outlined in (10) has two obvious features. One is that it represents tense added on to a base of aspect. The other is that it is a simple tense system compared to the systems that occur in most Bantu languages today. It has one past and a doubtful future, but only 17% of the database languages have a single past today, and 9% have no future, 47% one future. The average number of past tenses is 2.38 per language; the average number of futures is 1.59 per language. The conclusion here is that the system outlined in (10) expanded greatly and in the last four millennia.[27] The main mechanism for encoding new pasts has been to play with /a/: either to endow it with a tone contrast, or a length contrast, or to add it to other morphemes (e.g. *aka*, as in *tw-a-ka-gula*, or *tw-a-gul-ile*). New futures are produced more often, from modals (want/wish), mood (subjunctive), motion verbs (come, go), or the itive *ka*.

8. Summary

Evidence from most NC languages suggests the original NC system was based on aspect, in which a PFV versus IPFV distinction, encoded at final vowel, was central. The evidence suggests that PFV was the unmarked category.

Pre- (i.e. Bantoid) or Proto-Bantu tacked tense on to the aspectual base inherited from NC. Some other NC languages have also done this but apparently separately. The comparative evidence for Bantu presented above suggests it started with one past. Evidence for an original future "tense" is not solid.

The hypothesis that the original system had a single past, based on *-a-*, is based on applying the Comparative Method to pre-stem grammatical morphemes but ignores tonal material. If we had more comprehensive tonal data for past tenses across Bantu, it might be possible to show that Proto-Bantu had a binary past tense contrast based on tonally distinct /a/.[28] If the hypothesis is correct, then degrees of tense distinction —past (especially) and future— have multiplied hugely over the four or so millennia since PB, and differentially from one group of Bantu languages to another.

Analyses produced by grammaticalisation theory over the past two decades have shown repeatedly that individual aspects may take on tense functions, and even become tenses (e.g. perfects lose the requirement that they have present relevance and so become past perfectives, progressives become general presents, etc). The analysis above suggests that whole systems based on aspect may add a tense component and become tense-aspect languages.

This presentation deals with the what, the how, and to a lesser extent with the when. A more important question is why, and I have to say I don't know why the NC aspect-based system added a major tense component in pre- or Proto-Bantu, nor why it expanded in later Bantu.[29]

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[26] Proto-Bantu is variously dated at between 3000 and 2000 BC, spoken by a community possibly living in the valley of the Benue River, which runs between Nigeria and Cameroon.

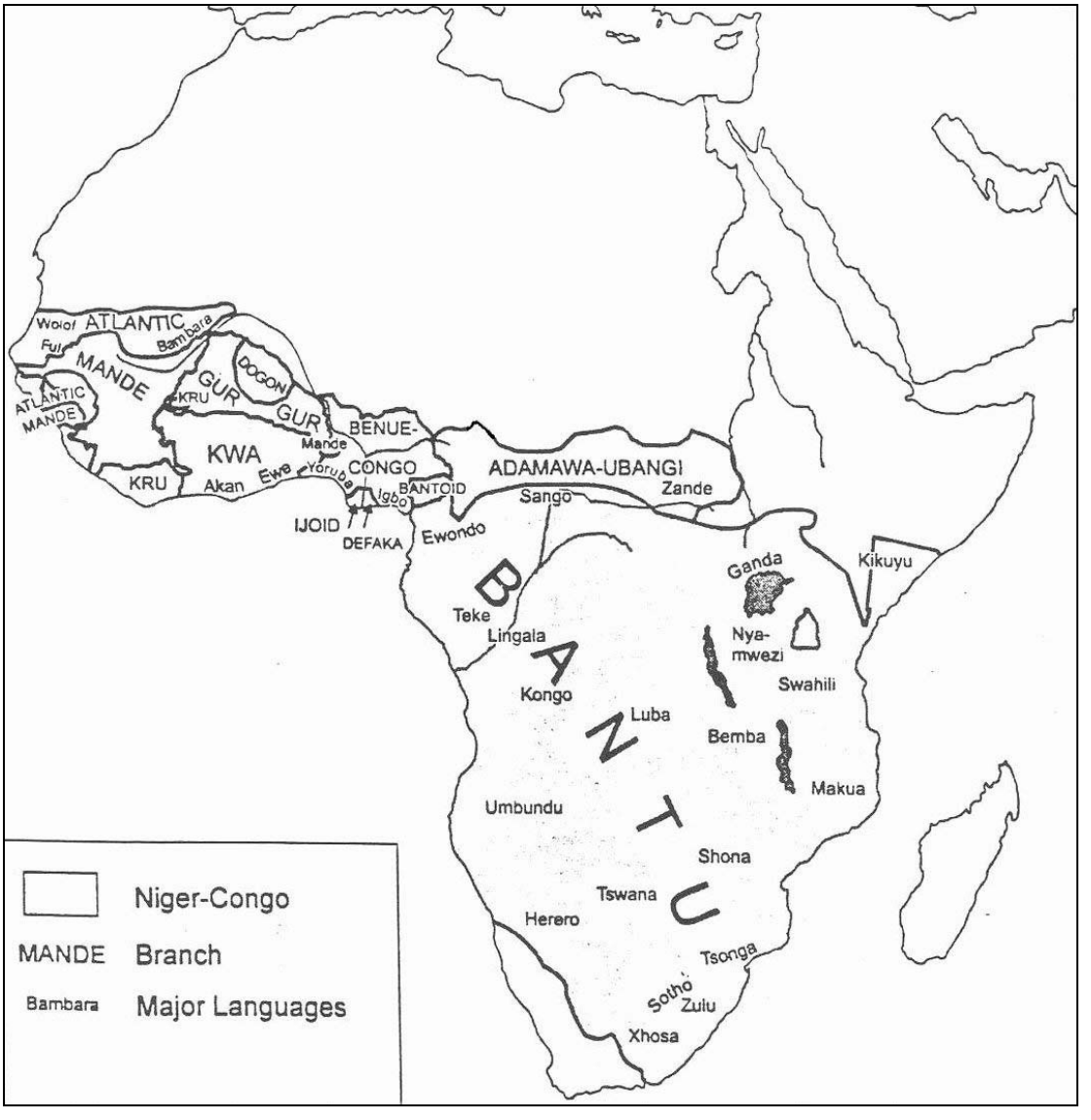
[28] The meaning of /*-a-*/ in non-Bantu NC is unclear; see fn. 15.

[29] My thanks to Doris Payne and Jaime Peña for their careful editing of this manuscript, and to the University of Oregon for agreeing to host the conference at short notice.

Appendix 1: Intersection of tense and aspect in Bukusu (E31)

	Perfective	Imperfective **-ang-**	Progressive **('be' +) xu-**	Persistive **('be' +) -sii-**	Anterior
P_4 **-à-**	xw-**a**-kul-á *we bought*	xw-**á**-kul-**aang**-a *we used to buy, were buying*		xw-**á**-**b**-á xu-**sii**-kul-a *we were still buying, still used to buy*	xw-**á**-b-á xw-áa-kúl-a *we had bought or P_3 and P_2 below*
P_3 **-áá-** ... **-il**é	xw-**aa**-kúl-**ile** *we bought*	xw-**aa**-kúl-**il-aang-e** *we were buying*	xw-**aa-b-éélé** **xu**-kúl-a *we were buying*	xw-**aa-b-éélé** xu-**sii**-kul-a *we were still buying*	xw-**aa**-b-**éélé** xw-aa-kul-**ile** *we had bought*
P_2 **-ilé**	xu-kúl-**ile** *we bought*	xu-kúl-**il-aang-e** *we were buying*	xu-**b-eelé xu-** kúl-a *we were buying*	xu-**b-eelé** xu-**sii**-kul-a *we were still buying*	xu-b-**eele** xw-aa-kul-**ile** *we had bought*
P_1 **-aaxa-**	xw-**aaxa**-kul-a *we just bought*	xw-**aaxa**-kul-**aang**a *we just stopped buying*	xw-**ááxá-b**-á **xu**-kúl-a *we were just buying*	xw-**ááxá-b**-á xu-**sii**-kul-a *we were still buyingt*	xw-**aaxa**-b-a xw-aa-kul-**ile** *we have/had just bought*
-Ø-	xu-**Ø**-kúl-a *we buy (in general)*	xu-**Ø**-kúl-**aang**-a *we buy regularly* xu-**la**-kul-**aang**-a *we have been buying*	xu-**lí-xó** **xu**-kúl-a *we are buying*	xu-**sii**-kul-a *we still buy, are still buying*	xw-aa-kul-**ile** *we have bought (recently)* xw-áa-kul-a *we have bought (remoter)*
F_1 **-la-** **káne** + **SBJ**	xu-**la**-kul-a *we will buy* **káne** xú-kúl-**e** *we will buy (less definite for some people)*	xu-**lá**-b-á xu-**la**-kul-**aang**-a *we will have been buying* **káne** xú-b-**é** xu-**la**-kul-**aang**-a *we will have been buying*	xu-**lá-b**-á **xu**-kúl-a *we'll be buying* **káne** xú-**b-é** **xu**-kúl-a *we will be buying*	xu-**lá-b**-á xu-**sii**-kul-a *we will still be buying* **káne** xú-**b-é** xu-**sii**-kul-a *we will still be buying*	xu-**la**-b-a xw-aa-kul-**ile** *we will have bought* **káne** xú-b-**é** xw-aa-kul-**ile** *we will have bought*
F_2 **-xa-** ... **-e**	xu-**xa**-kul-**e** *we will buy*	xu-**xa**-kul-**aang-e** *we will have been buying*	xu-**xá-b-é** **xu**-kúl-a *we will be in the process of buying*	xu-**xá-b-é** xu-**sii**-kul-a *we will still be buying*	xu-**xá**-b-**é** xw-aa-kul-**ile** *we will have bought (recently)* xu-**xá**-b-**é** xw-áa-kúl-a *we will have bought (remoter)*
F_3 **-lí-**	xu-**li**-kúl-a *we will buy*	xu-**li**-kúl-**aang**-a *we will be buying, we will buy* (HABITUAL)	xu-**li-b**-á **xu**-kúl-a *we will be buying*	xu-**li-b**-á xu-**sii**-kul-a *we will still be buying*	xu-**li**-b-á xw-áa-kúl-a

Appendix 2: Map of Niger-Congo languages



From Kay Williamson, R. Blench. 2000. "The Niger-Congo Languages", in Bernd Heine and Derek Nurse (eds), African Languages, map of the Niger-Congo Languages (p.12).

Appendix 3: Bantu languages examined

A11a Londo, A11e Mbonge, A15b Akoose, A22 Bakwiri, A24 Duala, A32 Noho A34 Benga, A42 Bankon, A43 Basaa, A44 Nen, A46 Nomaande, A53 Bafia/Kpa?, A62 Yambasa/(Nu)gunu, A72a Ewondo, A74 Bulu, A83 Makaa, A84 Koozime, A93 Kako, B11a Mpongwe, B11c Galwa, B25 Kota, B302 Himba(ka), B43 Punu, B51 Duma, B52 Nzebi/Njabi, B61 Mbede/Mbete, B63 Ndumu, B73c Iyaa/Yaka, B82 Boma, B85 Yans/Yanzi, B87 Mboon, C101 Babole, C14 Leke, C25 Mboshi, C32 Bobangi, C36d Lingala, C301 Doko, C373 Gbuta, C41 Ngombe, C53 Sogo, C55 Lokele, C61 Mongo, C75 Kela, C76 Ombo, C83 Bushong, D12 Lengola, D13 Mituku, D14 Enya, D23 Kumu, D25 Lega, D27 Bangubangu, D28 Holoholo, D311 Forest Bira, D33 Nyali, D41 Konzo, D42 Nande, D43 Nyanga, D53 Shi, D61 Rwanda, D62 Rundi, D64 Shubi, D65 Hangaza, D66 Ha, E101 Gungu, E102 Bwisi/Talinga, E11 Nyoro, E12 Tooro, E13 Nyankore, E14 Ciga, E15 Ganda, E16 Soga, E17 Gwere, E22 Haya, E24 Kerewe, E25 Ruri (also Regi/Kwaya/Jita), E31c Luhya-Bukusu (also other Luhya), E42 Gusii, E43 Kuria (also other E40), E46 Sonjo, E51 Gikuyu, E55 Kamba, E56 Daisu, E61-62a W. Kilimanjaro, E62b C. Kilimanjaro, E62c E. Kilimanjaro, E65 Gweno, E701 Ilwana, E71 Pokomo, E72 Giryama, E73 Digo, E74b Dawida, F10 Bende/Tongwe, F21 Sukuma, F22 Nyamwezi, F24 Kimbu, F25 Wungu, F31 Nilyamba, F32 Nyaturu, F33 Langi, F34 Mbowe, G11 Gogo, G22 Asu, G23 Shambala, G31 Zigula, G33 Zaramo, G35 Lugulu, G401 Mwani, G41-42-43 Swahili, G411 Mwiini, G44d Comorian, G51 Pogoro, G52 Ndamba G62 Hehe, G63 Bena, H10a Kituba, H16 Kongo-Zombo (and several other varieties), H21 Kimbundu, H32 Suku, H33 Hungu, H41 Mbala, H42 Hung'an, K11 Cokwe, K13 Luchazi, K14 Lwena/Luvale, K21 Lozi, K31 Luyana, K333 Mbukushu, K332 Dziriku, K352 Mwenyi, K401 Mbalan'we, K41 Totela, K42 Subiya, L11 Pende, L13 Kwezo, L21 Kete, L23 Songe, L31a Luba-Kasai, L32 Kanyok, L33 Luba-Katanga, L41 Kaonde, L52 Lunda, L53 Ruund, L62 Nkoya, M11 Pimbwe, M12 Rungwa, M13 Fipa, M14 Rungu, M15 Mambwe, M201 Lambya, M21 Wanda, M22 Namwanga, M23 Nyiha, M24 Malila, M25 Safwa, M31 Nyakyusa, M301 Ndali, M41 Taabwa, M42 Bemba, M54 Lamba, M61 Lenje, M62 Soli, M63 Ila, N101 Ndendeuli, N11 Manda, N12 Ngoni, N13 Matengo, N14 Mpoto, N21 Tumbuka, N201 Mbamba Bay Mwera, N31 Nyanja, N44 Sena, P11 Ndengereko, P12 Rufiji, P13 Matumbi, P14 Ngindo, P15 Mbunga, P21 Yao, P22 Mwera, P23 Makonde, P311 Koti, R11 Umbundu, R22 Ndonga, R31 Herero, R41 Yeyi, S10 Shona, S20 Venda, S31a Tswana, S33 S. Sotho, S42b Zulu, S53b Tsonga, S62 Gi-Tonga.

Sources for these languages (and others) can be found at *http://www.ucs.mun.ca/~dnurse*.
Bantu language numbers can be found after most entries.

Appendix 4: Non-Bantu Niger-Congo languages examined

Kordofanian (Otoro, Moro), Atlantic (Fula, Bijogo, Kisi), Mande (Bambara), Ijoid (Ijo), Dogon (Donnɔ Sɔ), Kru (various), Senufo (Supyire), Gur (various), Adamawa (Doyayo), Ubangi (Gbaya, Zande), Kwa (Ewe), West Benue-Congo (Yoruba, Igbo), Central Nigeria (Jukun), Cross River (Obolo, Ibibio, Lokaa), Ekoid Bantu (Ejagham), Grassfields Bantu (Aghem, Dschang, Mundani).

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