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THE PROTO-POTOU-AKANIC-BANTU RECONSTRUCTIONS UPDATED (2004)

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. Introduction

In this paper I propose an updated version of my Proto-Potou-Akanic-Bantu (Proto-PAB) reconstructions of 2002, taking account, among other things, of extensive e-mail exchanges with invitees to the Santa Fe workshop, most notably with Raymond Boyd, Larry Hyman and Kay Williamson, to all of whom I am greatly indebted.

As I noted in my 2002 article, my Proto-Potou-Akanic-Bantu is the only true protolanguage on offer that is ancestral to Proto-Bantu. Mukarovsky, like Westermann before him, provides starred forms, and the unwary have often mistaken these for true reconstructions arrived at by the comparative method, though Mukarovsky himself accurately characterizes Westermann's starred forms as "pseudo-reconstructions of Proto-Western Sudanic" (vol.1:36) and, to his credit, refrains from claiming that the status of his own Proto-Western Nigritic starred forms is any different. Pseudo-reconstructions differ from true reconstructions in that it is not possible to derive from them, by a specified set of diachronic rules, their putative reflexes in the daughter languages. Mukarovsky's treatment of the vowels illustrates; he reconstructs five Proto-Western Nigritic/ Proto-Nigritic vowels, which he writes I,E,A,O,U (vol.1:158), but notes that "besides open i and u the 'close vowels' i̱ and u̱ also existed in Proto-Bantu," and that "these [latter] may ... have originated from the contraction of other vowels." Where one of his pseudo-reconstructions has I or U, we have no way of knowing whether its Proto-Bantu reflex will have an "open" vowel or a "close" vowel, e.g. BÍL- 'become, be cooked; ripe', Common Bantu (CB) *-bíd-, but -BÍN- 'excrements', CB *-bi̱ When we turn to the comparative method, we are virtually forced to reconstruct a seven-vowel system in Proto-PAB (Stewart 2000a, 2000b); moreover, although certain specified changes affect specified vowels in specified contexts, the system itself survives unchanged - though not necessarily unexpanded - both in Proto-Bantu and in Akan, as we see in this paper. Compare the above examples from Mukarovsky with my comparative pairs 65 'become cooked' and 66 'dirt', in which Proto-Bantu ɪ and i correspond to Akan ɪ̃ and ĩ respectively (where the nasalization has been introduced by a late rule, namely Akanic-to-Akan 11 in Section 4.5 below).

In my 2002 article, I offered (i) a comprehensive account of the consonants and vowels of the whole of the Proto-PAB CV(CV) root, together with (ii) the diachronic rules for the derivation of the reflexes, both in Proto-Bantu and in Akan, of each consonant or vowel in each position, and (iii) a list of 109 comparative pairs across Proto-Bantu and Akan displaying the regular sound correspondences on which the reconstruction of the Proto-PAB sound system was founded; each entry included the Proto-PAB reconstruction and references to the diachronic rules accounting for derivation of the respective reflexes of the initial CV in Proto-Bantu and in Akan.

In Section 2 below, I state how I abstract the respective reflexes of a Proto-PAB CV(CV) root from Guthrie's Common Bantu (CB) starred form and from the present-day Akan form. In Section 3 I update my earlier accounts of (3.1) the stem-initial consonant system, (3.2) the first-position vowel system, (3.3) the consonant system at second position in the CVCV root, and (3.4) the vowel at second position in the CVCV root. In Section 4 I update (4.1) the PAB-to-Bantu rules, i.e. the ordered set of diachronic rules accounting for the differences between Proto-PAB and Proto-Bantu, (4.2) the PAB-to-Potou-Akanic rules, (4.3) the Potou-Akanic-to-Akanic rules, (4.4)

the Akanic to Central Akanic rules, and (4.5) the Central Akanic-to-Akan rules. In Section 5 I update the list of comparative pairs across Akan and Proto-Bantu, and increase their number by 19.

2. The Proto-PAB CV(CV) root

Where a CB noun stem is segmentally CVV and there is no evidence that a P-PAB C2 has been lost, I treat the V2 as a suffix even where I have no other evidence, synchronic or diachronic, of its status as a suffix, and insert a hyphen enclosed by square brackets before it, e.g. Comparative Pair (CP) 66a CB *-bù[-]ɛ̀ 'stone'. Where a CB noun stem is segmentally CVCV (or CVV but presumed to be derived from P-PAB CVCV) and the V2 is not the vowel expected in a CVCV root (see Section 3), I again treat the V2 as a suffix, and insert [-] before it, e.g. CP 67c CB *-mèd[-]ò 'throat, gullet'. The CVCV noun root of Proto-PAB is reduced to CVC before this suffix. Compare the fate of the CVCV verb root in CB: it regularly has only a CVC reflex since, in CB, the typical verb root does not occur without a suffix; compare CB *-mèd- 'swallow' in CP 67b with Proto-PAB *-mĭlĭ and Akan -mĩnĩ, and compare CP 67b with CP 67c above. An exception is the CVCV noun stem in CB *-yò[-]yò in CP 62, which I tentatively treat as having a postvocalic variant of an *-o suffix.

Where a CB verb stem is segmentally CVCVC, I treat the V2C3 as an extension and insert [-] before it, e.g. CP 25 CB *-kóp[-]ud- 'cough'. Where a CB verb stem is segmentally CVVC and V1 = V2, I similarly treat the V2C2 as an extension provided the C2 is not a regular correspondent of a C2 in the Akan root, e.g. CP 53 CB *-dị̀[-]ị̀k- 'bury', Akan -si[-]e. Where the C2 is a regular correspondent of a C2 in the Akan root, I treat the V2 as an infix and enclose it in square brackets, e.g. CP 9 CB *-pú[ú]m- 'breathe; rest', Akan -hũm[-]ĩ, where I tentatively assume that the Bantu infix, or vowel lengthening, is cognate with the Akan extension -ĩ.

Where a CB noun stem is segmentally CVVCV and V1 = V2, I similarly treat the V2C2 as an extension and insert [-] before it provided the C2 is not a regular correspondent of a C2 in the Akan root, in which case I treat the V2 as an infix and enclose it in square brackets, e.g. CP 71 CB *-dè[-]èd[-]ó 'today', Akan n-nɛ, but CP 28 CB *-kù[ù]gú 'sugar-cane', Akan a-ɕʷɪr[-]ɪw.

In several Akan forms, a Proto-PAB C2V2 has been lost. A possible explanation is suggested by a present-day alternation in the Asante dialect between full CVC(V) forms and truncated CV forms. Some verb roots have the full form before a noun object but only the truncated form before a postclitic pronoun object, e.g. ɔ̀-círì kòfí 'he catches Kofi', but ɔ̀-cí-nṵ̃ 'he catches him'; ò-nĭm kòfí 'he knows Kofi', but ò-nĭ-nṵ̃ 'he knows him'. Presumably, when such alternations have been abandoned in the past, the surviving form has just happened to be the full form in some cases and the truncated form in others.

In some cases the C2(V2) of an Akan CVC(V) form is not the true correspondent of the C2V2 of a CB CVC(V) form. It is then encosed in square brackets, e.g. CP 4 CB *-púd- 'blow (with mouth)', Akan -hu[w]; cf. the true correspondence in CP 2 CB *-púd- 'froth over', Akan -huru. Such irregularities are not at all unexpected where there has been an alternation such as that just posited between full CVC(V) forms and truncated CV forms; speakers will make mistakes in deriving the full form from the truncated form, and in some cases the historically incorrect full form will prevail.

An Akan form containing more than one foot is treated as containing at least one suffix or extension, and [-] is inserted at the end of the root, e.g. CP 9 CB *-pú[ú]m- 'breathe; rest',

Akan -ɦũm [-] ĩ), and where nothing following the root has any segmental support, ø is added after the [-], e.g. CP 46 CB *-kón [-] ud- 'break off', Akan -poŋ [-] ø. In most cases the corresponding CB form contains an infix, suffix or extension, but comparison of those of CB with those of Akan falls outside the scope of this article.

3. The consonants and the vowels of the Proto-Potou-Akanic-Bantu CV(CV) root

A figure in brackets after a consonant or vowel in any of the three Tables 2-4 indicates the number of Proto-PAB starred forms in the list of CPs in Section 5 below containing that consonant or vowel. The figures in Table 1 relate to the 2002 version of the list.

3.1. The first-position consonants

The first-position consonants, which were formerly presumed to display two mutation grades, unmutated and mutated, as in Table 1 (Stewart 2002: 208), are now presumed to display three, I, II and III, as in Table 2. This major revision arises from a comparative study of the well-known three-grade systems of Fulanic languages such as Fula and Serer with those reported in Nzema and other West Central Akanic languages (Stewart, to appear), and the numbering of the three grades follows Fulanic practice; the old mutated grade is now grade III ("nasal"), and the old unmutated grade is now split into grades I ("continuant") and II ("stop"). Grade II, the "stop" grade, is the base grade.

Table 1. The former first-position consonants (Stewart 2002:208).

a. Unmutated	p (10)	t (10)	c (4)		k^w (6)
	ɓ (3)	ɗ (5)		ɠ (6)	$ɠ^w$ (4)
	b (2)	d (8)	j (1)	g (1)	g^w (2)
	ɓ~m (5+5)	ɗ~n (6+4)	ʃ (1)		$ɠ^w$ (1)
			y (1)		
	ʊ̃ (5)	ɪ̃ (8)		ɯ̃ (8)	w̃ (2)
b. Mutated	mp	nt	ɲc		ŋk^w
	mɓ	nɗ		ŋɠ	ŋ$ɠ^w$
	mb	nd	ɲj	ŋg	ŋg^w
	m	n	ɲ		ŋ^w
			ɲ		
	m	n		ŋ	ŋ^w

Table 2. The first-position consonants (C). revised.

Grade I	p	t	c		k^w		
	ɓ	ɗ		ɠ	$ɠ^w$		
	υ~ʋ	l~ɭ	y~ỹ	ɰ~ɰ̃	w~w̃		
	υ~ʋ	l~ɾ	y~ỹ		w~w̃		
	ʋ	ɾ		ɰ̃	w̃		
b. Grade II	p (10)	t (6)	c (4)		k^w (8	-vd -son	
	ɓ (2)	ɗ (9)		ɠ 10	$ɠ^w$ (5	-vd +son	
	b (3)	d (8)	j (3)	g 1)	g^w (4	+vd -son	
	ɓ~m (6+	ɗ~n (7+5)	ʃ~ɲ (2+3)		$ɠ^w$~$ŋ^w$	4+1) +vd +son	
	ʋ (5)	ɾ (8)		ɰ̃ (6)	w̃ (3)	+cont	
Grade III	mp	nt	ɲc		$ŋk^w$		
	mp	nt		ŋk	$ŋk^w$		
	mb	nd	ɲj	ŋg	$ŋg^w$		
	m	n	ɲ		$ŋ^w$		
	m	n		ŋ	$ŋ^w$		

Wherever an oral/nasal or oral/nasalized alternation is shown in either table, the nasal or nasalized alternant occurs if and only if the following vowel is nasalized. In these cases, separate figures are given for the oral and nasal or nasalized alternants respectively.

The former six manners of articulation are now reduced to five; in the base grade these are the plain and non-explosive unvoiced non-continuants, the plain and non-explosive voiced non-continuants, and the nasalized sonorant continuants. The manner of articulation now excluded had only one representative in the base grade, the oral sonorant continuant y, and that in turn was represented in only one of the Proto-PAB lexical reconstructions, namely that for what is now CP 74a; it was obviously a prime candidate for reappraisal. The former y is now replaced with ʃ~ɲ (see next paragraph re the nasal variant), and the former gradation pair y/ɲ is thus replaced with the gradation set y~ỹ/ʃ~ɲ/ɲ. The ʃ of the present CP 59b, which was formerly the only entry with ʃ in Proto-PAB, is now replaced with j and thereby merged with the existing j; this is at a cost of one extra rule in PAB-to-Bantu (see 2.2 in Section 4.1 below), but there is a saving of two rules in PAB-to-PA (see 2 in Section 4.2 below, and the note following it).

The only Proto-PAB reconstruction directly affected by the replacement of y with ʃ~ɲ, namely that for the present CP 74a, is now of course cited with initial ʃ instead of y. A second Proto-PAB reconstruction from 2002, however, that for the present CP 74c, is also allocated to the new gradation set; it differs from those for the former CPs 91-7, the others formerly allocated to the pair ɰ̃/ŋ, in that it is better allocated not to the new ɰ̃/ɰ̃/ŋ but to the new y~ỹ/ʃ~ɲ/ɲ. It thus now cited with initial ɲ instead of ɰ̃.

The former distinction in grade III between prenasalized plain and prenasalized non-explosive unvoiced stops is now abandoned, and there are now no longer any prenasalized non-explosive stops, unvoiced or voiced. The distinction had formerly appeared to be indicated by the situation in the Potou languages, but this now seems better accounted for in terms of a diachronic (PA-to-Potou) change in the synchronic rules for the derivation of the the grade III forms from the grade II forms.

A highly significant revision in the respective numbers of Proto-PAB starred forms with t and ɗ arises from a comparative study by Williamson (2003) with her Proto-Igboid; she writes (p.5):

"The PPAB reconstructions ... do not correspond to the Proto-Igboid ones in all cases. In the case of 'three', for example, Proto-Igboid has *t, which indicates PPAB *ɗ, whereas Akan has *s, which indicated PPAB *t. In this and three other cases, however, Akan and PPAB have nasality in the root ... I suggest that nasality was a conditioning factor at some point between PPAB and Akan, causing the implosive [my non-explosive; J.M.S.] *ɗ to merge with its plosive counterpart *t."

I accept this, and now reconstruct the former CPs 16 'three', 18 'ear', 19 'ashes' and 20 'send' with ɗ instead of t (and renumber them 35a-d). The respective numbers of Proto-PAB starred forms with t and ɗ are thus changed from 10 and 5 to 6 and 9, and the explosive t is no longer in the majority.

The great significance I see in this derives from the fact that the Igboid languages that retain the ɗ appear to be the only Niger-Congo languages apart from Ebrié (Potou, Potou-Akanic) that have not completely lost the direct contrast between explosive and non-explosive unvoiced stops, and that even in the Igboid languages the contrast appears to have survived only in the alveolar case. The non-explosive unvoiced stops of Proto-PAB thus appear to have been lost on a vast scale, and it seems likely that their frequency at C1 in Proto-PAB substantially exceeded that of their explosive counterparts not only in the alveolar case but across all points of articulation. Considering the situation in the voiced stops, this is not quite so startling a conclusion as it might at first appear; note that the frequency of the non-explosive voiced stops is the same as that of their explosive counterparts both in Table 1a and in Table 2b.

In view of this, we should be less surprised to find that in PAB-to-Bantu (see 4.1), when the non-explosives and the explosives of Proto-PAB merge, it is the non-explosives that prevail, whether unvoiced or voiced.

The proposed revision immediately presents a problem; we cannot just say that ɗ becomes t before nasalized vowels, as it does not happen in CPs 36-8. We can, however, say that it happens only before nasalized non-ATR vowels, provided we reconstruct CPs 36 and 37 with ũ at V1 in Proto-PAB as in Proto-Bantu instead of with ʊ̃ as in Proto-Potou-Akanic and Akan; then CPs 36-38 all have nasalized ATR vowels at V1 in Proto-PAB. We then need a new rule (PAB-PA 1d below), ordered after the PAB-to-PA rule whereby ɗ becomes t (PAB-PA 1c below), to change ũ to ʊ̃ at V1 after an unvoiced non-explosive. This rule applies not only after ɗ but also after ɠ in a revised CP 44 with ũ instead of ʊ̃ at V1 in Proto-PAB as in CPs 36 and 37. CP 33, in which the rule would have failed to apply after the ɓ reconstructed in 2002, is now reconstructed with b instead.

The increased complexity in the PAB-to-PA rules is balanced by a simplification in the PAB-to-Bantu rules, since CPs 36, 37 and 44 now have ũ at V1 both in Proto-PAB and in Proto-Bantu and no longer need rule 3.1. The 2002 rules 3.1 and 3.2 between them then affect only three CPs, and could be collapsed into a single rule 3 which affected only three CPs, 106-8 in 2002, and which changed ɪ̃ or ʊ̃ to ɪ̃ or ũ at V1 after n; this single rule 3 is however suspect in its turn, as we shall see in 3.2 below.

3.2. The first-position vowels

The first-position vowels, which are unchanged from Stewart 2002:208 otherwise than in the numbers of instances, are as in Table 3.

Table 3. The first-position vowels (V1).

i (8)	ɪ (11)	ɛ (2)	a (14)	ɔ (4)	ʊ (9)	u (12
ĩ (8)	ɪ̃ (19)	ɛ̃ (4)	ã (10)	ɔ̃ (6)	ʊ̃ (14)	ũ (7)

We saw at the end of the last section that the revisions proposed there would have allowed the collapsing of PAB-to-Bantu rules 3.1 and 3.2 into a single rule 3 which affected only the three former CPs 106-8 (the present 73b-d) and which changed ɪ̃ or ʊ̃ to ĩ or ũ at V1 after n. Now in each of these three CPs, the Proto-PAB root structure is CV, and in Proto-Bantu the root occurs only prevocalically, with the result that the V is invariably reduced to y if front and to w if back; the Proto-PAB -nɪ̃ of CP 73b is thus reduced to -ny- in Proto-Bantu and the Proto-PAB -nʊ̃ of CPs 73c-d to -nw- in Proto-Bantu. What is the point, then, of a PAB-to-Bantu rule which changes ɪ̃ or ʊ̃ to ĩ or ũ in these three CPs and these alone?

The traditional treatment of such -C-, -Cy- and -Cw- verb roots in Common Bantu (CB) or Proto-Bantu is to recontruct them not thus but as -CV-. Guthrie reconstructs 32 of them in CB (1967-71 vol.2:161), all but five of them -Cy- or -Cw- roots; the five -C- roots with a, and, of the rest, three with ɛ or ɔ, eleven with ɪ or ʊ, and thirteen with i or u (my retranscriptions). Apparently, the three with ɛ or ɔ are identified on the basis of their taking extensions or suffixes in variant forms which occur only after ɛ or ɔ, and the thirteen with i or u on the basis of the the preceding consonant being spirantized in those Bantu languages in which stops are spirantized before i or u. In the -ny- and -nw- roots under consideration, however, the consonant is not a stop but a nasal and nasals do not undergo spirantization, so that the case for the i or u is not apparent and I abandon my former PAB-to-Bantu rule 3 altogether.

The reliance on spirantization is unsound even when the consonant is a stop as it fails to take account of significant differences between the Proto-Bantu consonant system and the later Proto-Savanna Bantu (SB) system which generally constitutes the input to spirantization. Spirantization operates on Proto-SB explosive stops and these, in general, go back to non-explosives in Proto-Bantu, and I suggest that if Guthrie had known about this he would have reconstructed his C.S. 550 'eat' (which I now propose to reconstruct as Proto-Bantu *-ɗy- from Proto-PAB *-ɗi) as *-ɗí-, i.e. with [+ATR] i, and not as *-ɗɪ́- (my retranscriptions), and would not have had occasion to note that "many languages have ɗɪ [and not the expected lɪ] as the reflex of *ɗɪ" (1967-71 vol.1:62).

3.3. The second-position consonants (C2)

The second-position consonants differ from those of Stewart 2002:208-9 (i) in the numbers of instances, (ii) in that the oral and nasalized sonorant continuants are no longer in complementary distribution, (iii) in that the prenasalized voiced stops and the simple nasals are no longer in complementary distribution, and (iv) in that ɲc is added as is required by the new P-PAB entry 74e *-ɲĩɲci 'eye'; they are as in Table 4.

Table 4. The second-position consonants (C2).

p (4)	t (7)		k (2)
	nt (4)	ɲc (1)	ŋk (4)
ʊ (1)	l (10)		ɯ̄ (2)
ʊ̄ (10)	ɪ (23)		ɯ̄̄ (4)
mb (10)	nd (2)		ŋg (1)
	n (7)		ŋ (2)

A sonorant continuant at C2 can differ from V1 in its specification for [nasal] only where C1 is a voiced sonorant stop or where, as in the case of the new CPs 41a-b, it can be plausibly assumed to go back to a voiced sonorant stop in late Pre-PAB. Diachronically, the oral sonorant continuants are presumed to go back to plain voiced stops; it seems that at one stage of Pre-PAB, although there was a fairly full series of nasalized sonorant continuants, there were no oral sonorant continuants, and that this yawning gap in the system was filled by replacing the plain voiced stops intervocalically with sonorant continuants.

3.4. The second-position vowels (V2)

As before, I reconstruct no vowel contrast at V2. Except for its specification for [nasal], V2 is, as before, a copy of V1 where V1 is [+high]; where, however, V1 is [-high], V2 is now not ɪ but i; see below. V2 is [+nasal] if and only if C2 is a nasalized continuaant or a simple nasal.

Where, in Proto-PAB, V1 is [-high] and V2 is i, at V2 Akan ɪ corresponds to Proto-Bantu i. In the former treatment, ɪ became Proto-Bantu i by rule PAB-B.11X (p.212); this applied in three CPs 40-1, 91. Now, of course, this rule is no longer required. .

The reconstruction of i instead of ɪ at V2 yields a more satisfactory account of the development of the ten-vowel ATR harmony system of Proto-Potou-Akanic from the seven-vowel system of Proto-PAB. The 2002 treatment did include some rules, namely PAB-to-PA 1 and PA-to-Akanic 1.1-2, which derived one or more of the three new [-high, +ATR] vowels from [-ATR] vowels in specific contexts within the CV(CV) root, but it was not explicit as to how the ten-vowel system was presumed to have been created in the first place.

There is now a PAB-to-PA rule, number 2a, which spreads [+ATR] throughout any word containing a [+ATR] vowel, i.e. i or u. This rule was in fact already assumed (see Stewart 2000a, 2000b), but was not mentioned as the scope of the study was limited to the CV(CV) root, within which the rule applied only vacuously; now, of course, it applies to those new CVCi roots in which V1 is [-high]. It is assumed that as a consequence, if no adjustment supervened, a [-high] root vowel would be [+ATR] in CVCi roots in their full form, and [-ATR] both in CV roots and in the truncated CV forms of CVCi roots (see Section 2). This, however, would create an unlikely situation in which a word containing a CVCi root in its full form was [+ATR] throughout while a word containing the truncated form of the same root was [-ATR] throughout. It is assumed that this alternation was disallowed in favour of the [-ATR] form except that where, in grade II, C1 was a voiced non-explosive dorsal stop or its nasal variant, i.e. in effect ʃ~ɲ or gʷ~ŋʷ, it was the [+ATR] form that prevailed; and that where it was the [-ATR] form that prevailed, the i at V2 was replaced with its [-ATR] counterpart ɪ as the vowel harmony would require.

It is not unexpected, in the light of Greenberg's work on synchronic and diachronic universals in phonology, that an exception should be made in the case of this particular class of sounds. In a study of "glottalic consonants, especially implosives" (1970), which latter he does not distinguish from non-explosive stops, he posits a "hierarchy of dissolution by which the least

favored positions will undergo loss of the glottalic feature first." He notes that in the case of his implosives, the least favoured positions are the non-front positions (1970:127), and that "the point of articulation hierarchies of ejectives and injectives are obviously based on preference for a small and large chamber respectively" (1970:139). Our ʃ and gʷ are thus prime candidates for dissolution. However, as I have noted elsewhere (Stewart 1999:212-4), the size of the chamber does not depend solely on the point of articulation, as it is larger in a [+ATR] than in a [-ATR] context, and cases have in fact been noted of the loss of ɗ before [-ATR] vowels only. The motivation of the exception made in the case of our ʃ and gʷ would thus appear to be to generalize the more favourable [+ATR] environment. In fact in the remaining instances in which these sounds occur before [-ATR] oral vowels at this stage, these vowels are the [+high, -ATR] vowels ɪ,ʊ, and these are promptly merged with the new [-high, -low, +ATR] vowels e,o (cf. Stewart 2002:211 rule 6.3.1.1), with the result that the endangered sounds no longer occur otherwise than in [+ATR] harmony spans; see the new PAB-to-PA rule 2b.

4. From Proto-PAB to Proto-Bantu and from Proto-PAB to Akan

The following five subsections update the rules as follows: 4.1 covers Proto-PAB to Proto-Bantu, 4.2 Proto-PAB to Proto-Potou-Akanic, 4.3 Proto-Potou-Akanic to Proto-Akanic, 4.4 Proto-Akanic to Proto-Central Akanic, and 4.5 Proto-Central Akanic to Akan. These subsections represent revisions, taking account not only of base grade II but of all three grades, of the PAB-to-Bantu, PAB-to-Potou-Akanic, Potou-Akanic-to-Akanic and Akanic-to-Akan rules of Stewart (2002:209-12); note that here the Akanic-to-Akan rules of Stewart (2002) are divided into the Akanic-to-Central Akanic rules and the Central Akanic-to-Akan rules. The rules are cross-referenced where appropriate to those of Stewart (2002).

A figure in brackets after a rule indicates the number of comparative pairs in Section 5 which illustrate the rule. Where there are fewer than five, their reference numbers are added.

Where, at the stage at which a rule applies, V2 is a copy of V1 otherwise than in its specification for [nasal], a rule affecting V1 otherwise than its specification for [nasal] affects V2 also unless otherwise indicated. Where C2 is a sonorant continuant, a change in the specification of V1 for [nasal] affects C2 and V2 also, again unless otherwise indicated.

4.1. From Proto-PAB to Proto-Bantu

The Proto-Bantu C1 system which emerges from the above proposals is as in Table 5.

Table 5. The Proto-Bantu C1 system.

a. Grade I-II			c	
	ɓ̣	ɗ̣		ɠ
	ɓ~m	ɗ~n	ʃ~y~ỹ~ɲ	ɠ~ɯ~ɯ̃~ŋ
		ɪ		ɯ̃
b Grade III			ɲc	
	mp	nt		ŋk
	mb~m	nd~n	ɲj~ɲj~ɲj~ɲ	ŋg~ŋg~ŋg~ŋ
		n		ŋ

In Tables 6 and 7, the Proto-PAB and Proto-Bantu C1 systems are presented in a more concise format, and the gradation sets are given reference numbers.

Table 6. The Proto-PAB C1 system (alternative format); cf. Table 2.

Set number	1	2	3	4		6	7	8	9	10	11	12	13	14	15	16	18	19	20	21	22
Grade I	p	t	c	k^w	ɓ	ɗ	ɠ	$ɠ^w$	ʊ	l	y	ɯ	w	ʊ	l	y	w	ʊ̃	Ɪ	ɯ̃	w̃
									~ʊ̃	Ɪ	ỹ	~ɯ̃	~w̃	~ʊ̃	~Ɪ	~ỹ	~w̃				
Grade II	p	t	c	k^w	ɓ̣	ɗ̣	ɠ	$ɠ^w$	b	d	j	g	g^w	ɓ	ɗ	ʃ	$ɠ^w$	ʊ̃	Ɪ	ɯ̃	w̃
														~m	~n	~ɲ	~ŋ^w				
Grade III	mp	nt	ɲc	ŋk^w	mp	nt	ŋk	ŋk^w	mb	nd	ɲj	ŋg	ŋg^w	m	n	ɲ	ŋ^w	m	n̠	ŋ	ŋ^w

Table 7. The Proto-Bantu C1 system (alternative format); cf. Table 5.

Set number	3	5	6	7	14	15	16	17a	20	21
Grade I-II	c	ɓ	ɗ	ɠ	ɓ~m	ɗ~n	ʃ~y~ỹ~ɲ	ɠ~ɯ~ɯ̃~ŋ	Ɪ	ɯ̃
Grade III	ɲc	mp	nt	ŋk	mb~m	nd~n	ɲj~ɲj~ɲj~ɲ	ŋg~ŋg~ŋg~ŋ	n	ŋ

The Proto-Bantu V1 system is presumed to be unchanged from that of Proto-PAB in Table 3 in the case of the Proto-PAB CVCV roots, and also in the case of those CV roots that still occur otherwise than prevocalically; see Section 3.2. The C2 system is presumed to be unchanged from that of Proto-PAB in Table 4. The V2 situation is presumed to be unchanged from that of Proto-PAB in the case of the minority of CVCV roots that still have a V2 as they still occur otherwise than prevocalically; see Section 2.

The Proto-Bantu phonological system tentatively reconstructed here differs considerably from that of the traditional Proto-Bantu of Greenberg, Guthrie and Meeussen, which is now widely recognized as being more a Proto-Savanna Bantu than a Proto-Bantu. In the traditional Proto-Bantu, the non-explosive stops have generally been replaced with plain stops, and the nasalized vowels and voiced continuants have generally been denasalized and merged with their oral counterparts. As a consequence of the denasalization, there is a fully autonomous series of simple nasals in grade I-II.

The rules from Proto-PAB to Proto-Bantu, cross-referenced to the PAB-to-Bantu rules of Stewart (2002:209-10, 6.1, and 212, 7.PAB-B), are as follows:

1.1. (2002 rule 6.1.1.) Grade II ʊ̃ becomes Ɪ at C1, merging with the existing Ɪ, with the result that gradation set 19 merges with set 20. 5 cases.

1.2.1. (2002 rule 7.PAB-B.11XX) ʊ̃ becomes m at C2. 8 cases.

1.2.2. (A new rule required in connection with a revision at C2 in P-PAB; see Section 3.3.) Where V1 is oral, a nasalized voiced continuant at C2 is denasalized, together with the vowel at V2. 5 cases.

2.1. (2002 rule 6.1.2.) u, ũ become i, ĩ at V1 after a non-labial voiced sonorant, merging with the existing i, ĩ. 5 cases.

2.2. (A new rule required as an indirect consequence of the reconstruction of ʃ instead of y in Proto-PAB grade II; see Section 3.1.) u, ũ become i, ĩ at V1 after a palatal voiced non-sonorant, merging with the existing i, ĩ. 1 case: CP 59b.

(2002 rules 6.1.3.1-2 are dropped; see Section 3.2.

4.1. (2002 rule 6.1.4.1.) Where i or ĩ follows a round C1, it is replaced with the sequence uɪ or ũĩ respectively. 1 case: CP 99.

4.2. (2002 rule 6.1.4.2.) A non-round V becomes round after a round C1. 12 cases.

Rules 4.1-2 give effect to a new structure condition that disallows a non-round V1 after a round C1: a non-round V1 becomes round unless it is [+ATR], in which case the non-round V1 is i and u is inserted before it, and the i itself is replaced with its non-ATR counterpart ɪ.

5. (A revised version of the admittedly *ad hoc* 2002 rule 6.1.5.) The sequence ũmũ is denasalized to uuu after a non-labial sonorant at C1. 2 cases: CPs 47 CB *-kúb- 'hit' and 81 CB *-dùb- 'make a mistake'. In these two cases, the rule accounts in a highly tentative way for the fact that CB has b instead of the expected m at C2. The 2002 rule was not sensitive to the C2V2 situation, and applied in seven cases, but in the additional five cases there is no evidence that it was at this particular stage that the denasalization took place, and it is now tentatively assumed that it did not take place early enough to affect Proto-Bantu.

6.1.1. (2002 rule 6.1.6.1.) A base grade non-sonorant C1 becomes sonorant. 47 cases.

6.1.2. (2002 rule 6.1.6.2.) ʃ is replaced with its non-sonorant counterpart c. 4 cases: CPs 21-4.

Rules 6.1.1-2 say in effect that except in the case of c, which has no sonorant counterpart, a grade II non-sonorant C1 becomes sonorant, merging with its sonorant counterpart. The neutralization results in the merger of sets 1-2 and 4 with sets 5-6 and 8 and of sets 9-11 and 13 with sets 14-16 and 18, and in the replacement of set 12 with the new set 17a.

6.2. (A revised version of 2002 rule 6.1.7.) The dorsal oral voiced (non-explosive) stops ʃ, ɠ, ɠʷ become oral or nasalized y, ɰ, w before a [-ATR] vowel. See Section 3.4 on [-ATR] as an unfavourable environment for the survival of dorsal oral voiced non-explosive stops. Three sets are affected in principle, namely 16, 17a and 18, but no case of 17a is attested. 9 cases.

6.3. (2002 rule 6.1.9.) A nasalized V1 is denasalized after a grade II oral voiced sonorant stop. Rule 1.2.2 automatically reapplies to extend the denasalization to C2V2 where C2 is a nasalized voiced continuant. In Proto-PAB, nasalized vowels do not occur after oral voiced sonorant stops, and the present rule applies only to preserve this structure condition on the creation of new oral voiced sonorant stops by rules 6.1.1-2. 3 cases: CPs 49, 57-8.

6.4. (A new rule required by the extension of coverage to the non-base grades and affecting grade III only.) When the non-sonorant stops at C1 are merged with their sonorant counterparts by rules 6.1.1-2, the neutralization is not extended to grade III in quite the way we might have expected, as the grade III counterparts of the new oral voiced sonorant stops are not simple nasals in all contexts, but only where a prenasalized stop follows at C2; elsewhere, we find the prenasalized voiced stops which were the grade III counterparts of the oral voiced non-sonorant stops before the merger. The outcome of the merger of the II/III pairs b/mb, d/nd, j/ɲj, g/ŋg, gʷ/ŋgʷ with ɓ/m, ɗ/n, ʄ/ɲ, gʷ/ŋʷ is thus ɓ/mb~m, ɗ/nd~n, ʄ/ɲj~ɲ, ɠ/ŋg, gʷ/ŋgʷ~ŋʷ. The following new two-part synchronic rule 6.4 generates the correct output thus: first, the grade II oral stops, whether sonorant or non-sonorant (but recall that they are now sonorant in every case but one), become prenasalized non-sonorant stops in grade III, and second, where the result is a prenasalized voiced stop, it is immediately reduced to a simple nasal where a prenasalized stop follows at C2. The second part is widely known as Meinhof's law or Meinhof's rule; the present diachronic account, however, is original in that it treats the phenomenon as a consequence of the loss of the non-sonorant/sonorant contrast in grade II.

(For a revised version of 2002 rule 6.1.7 see the present rule 6.2.)

8.1. (A new rule, required to accommodate three new CPs.) The oral rounded velar consonants ɠʷ, gʷ are replaced with the corresponding labials ɓ̥, ɓ before u, and merge with the existing labials. The affected instances change sets accordingly. The rule does not however apply in CP 28a, possibly because it is a pronoun. 3 cases: CPs 28b, 44a, 75c.

8.2. (2002 rule 6.1.8.) A round C1 becomes non-round, merging with its non-round counterpart; Proto-PAB gradation sets 8, 18 and 22 merge with sets 7, 17a and 21 respectively. As rule 8.2 does not apply until after rules 4.1-2 and 8.1, the round C1s of proto-PAB are not always lost without trace even where there is a merger. 22 cases.

8a. (A new rule, required primarily by the extension of coverage to the non-base grades.) Grade I, which at this stage is phonetically marked only in those sets that have an oral voiced non-explosive stop in grade II, i.e. 14-16 and 18, ceases to be marked phonetically in any way, and the base grade is now designated I-II.

(2002 rule 6.1.9 is the present rule 6.3.)

10. (A revised version of the 2002 nasalized vowel lowering rule 6.1.10.) The nasalized high non-ATR vowels ĩ, ũ are optionally lowered to ɛ̃, ɔ̃ at V1, taking with them any identical vowel which follows at V2 after a nasalized continuant at C2. 12 cases. I have elsewhere argued that Bantu vowel height harmony has its origin in this change (Stewart 2000). The 2002 version of the rule applied obligatorily, and only to ĩ; the revised version acknowledges significant osculation in the Proto-Bantu forms.

(2002 rule 6.1.11 is dropped; ɯ̃ is now presumed to have survived unchanged in Proto-Bantu.)

(2002 rule 6.1.11X, p.212, is dropped in accordance with the reconstruction of i instead of ɪ at V2 in Proto-PAB in the context in question; see Section 3.4.)

(2002 rule 6.1.11XX, p.212, is now rule 1.2 above.)

(2002 rule 6.1.11XXX, p.212, whereby a prenasalized voiceless stop at C2 is simplified to a plain voiceless stop, is now excluded from PAB-to-Bantu; it is demoted to post-Bantu.)

12. (A new rule required by a revision in P-PAB; see 3.3.) A simple ŋ at C2 is deleted. 2 cases: CPs 35b-c.

4.2. From Proto-PAB to Proto-Potou-Akanic

The Proto-Potou-Akanic C1 system which emerges from the above proposals is as in Table 8. The top line in Table 8 retains the set numbers of Proto-PAB in Table 6, but note that set 3 has dropped out and that there is a new set 17a.

Table 8. The Proto-Potou-Akanic C1 system.

	2	4	5	6	7	8	9	10	12	13	14	15	16	17a	18	19	20	21	22
I	p	t	k^w	ɓ	ɗ	ɠ	ɠɓ	ʊ	l	ɰ	ʊ	l	y	ɰ	w	ʊ̃	Ɪ	ɰ̃	w̃
								~ʊ̃	~Ɪ	~ɰ̃	~ʊ̃	~Ɪ	~ỹ	~ɰ̃	~w̃				
II	p	t	k^w	ɓ	ɗ	ɠ	ɠɓ	b	d	g	ɓ	ɗ	ʃ	ɰ	g^w	ʊ̃	Ɪ	ɰ̃	w̃
												~m	~n	~ɲ	~ŋ	~$ŋ^w$			
III	mp	nt	$ŋk^w$	mp	nt	ŋk	ŋkp	mb	nd	ŋg	$ŋg^w$	m	n	ɲ	ŋ	$ŋ^w$	m	n	ŋ	$ŋ^w$

The Proto-PAB seven-vowel system at V1 shown in Table 3 is presumed to have been converted into a ten-vowel system in Proto-PA by rules 2a and 2b below; see also Section 3.4. The Proto-PAB C2 system shown in Table 4 is presumed to have been first reduced to just the four consonants ʊ, l, ʊ̃, Ɪ in Proto-PA by rules 1 and 1a below, and then modified by the introduction of the simple nasal variants m, n of the nasalized continuants ʊ̃, Ɪ by rule 1b below. The V2 situation is presumed to be unchanged from that of Proto-PAB where V1 is [+high], but where V1 is [-high] the [+high] vowel at V2 is now presumed to copy the specification of V1 for ATR; see again Section 3.4, and see also rules 2a and 2b below.

The rules from Proto-PAB to Proto-Potou-Akanic, cross-referenced to those of Stewart (2002:210, 6.2, and 212, 7.PAB-PA), are as follows:

(2002 rule 6.2.1 is now rule 2c below.)

1. (2002 rule PAB-PA.OX.) Any C at C2 which is not both sonorant and continuant becomes both sonorant and continuant, and, if oral and preceded by a nasalized vowel, automatically becomes nasalized, together with the V at V2, in accordance with the structure conditions; see Section 3.4. 21 cases.

1a. (2002 rule PAB-PA.OXX.) A velar (or, theoretically, a palatal) at C2 is replaced with its alveolar counterpart; ɰ, ɰ̃ thereby become l, Ɪ. 10 cases.

The two rules 1 and 1a together drastically reduce the C2 consonant inventory. The first merges all the non-continuant series with their two continuant counterparts, which, with their 54% share, are already the dominant series in Proto-PAB; see Table 4. The second rule then further reduces the inventory to four, ʊ, l, ʊ̃, Ɪ, by eliminating the velars and the theoretical palatals.

1b. (A revised version of 2002 rule 6.2.6, taking account of a revision in Proto-PAB; see Section 3.3.) A ũ or Ĩ at C2 becomes m or n respectively after an oral vowel. 7 cases.

1c. (A new rule required by a revision in Proto-PAB; see Section 3. ʠ becomes t before a nasalized non-ATR vowel. 4 cases: 35a-d.

1d. (A new rule required by a revision in Proto-PAB; see Section 3.1.) ũ becomes ũ after an unvoiced non-explosive stop. 3 cases: 36-7, 44.

2. (2002 rule 6.2.2.1.) j becomes c at C1 before a non-ATR vowel, with the result that the items affected found a new set 3x (which survives only as far as rule 3 below). 2 cases: CPs 59, 59a.

(2002 rules 6.2.2.2-3 are no longer required following the abandonment of P-PAB y; see Section 3.1.)

2a. (A new rule required by a revision in Proto-PAB; see Section 3.4.) [+ATR] spreads throughout any non-compound word containing a [+ATR] vowel, i.e. containing oral or nasalized i or u. This introduces [+ATR] counterparts of (oral or nasalized) ɛ, ɔ, a, namely e, o, ɜ. For adjustments which supervene in the distribution of the [-ATR] and [+ATR] sounds, see Section 3.4. 3 cases in which the final output differs from the input: CPs 74c, 75, 75b.

2b.1. (A new rule required to accommodate the new CPs 75c-d.) ɡʷ~ŋʷ becomes ɯ~ŋ at C1 before ɪ, ʊ, ĩ, ũ, and leaves set 18 to found a new set 17a. 2 cases: CPs 75c-d.

2b.2. (A promoted and simplified version of 2002 PA-to-Akanic rules 6.3.1.1-2, made possible by the introduction of rule 2a above; see again Section 3.4.) After a dorsal oral voiced non-explosive stop at C1, ɪ, ʊ become e, o. Any ɪ, ĩ, ʊ, ũ that follows at V2 becomes i, ĩ, u, ũ, thereby preserving the ATR harmony introduced by rule 2a above without violating the constraint which disallows non-high vowels at V2. 1 case: 74a.

2c. (2002 rule 6.2.1.) ɪ, ĩ become e, ẽ at V1 after t, and any ɪ, ĩ that follows at V2 becomes i, ĩ in the usual way; see rule 2b above. 2 cases: CPs 13,17.

3. (2002 rule 6.2.3.) c becomes t at C1. This has the effect of merging the palatal set 3x (see rule 2 above) with the alveolar set 2. 6 cases.

4. (2002 rule 6.2.4.) ɡʷ becomes ɡʠ. As a consequence of this change, set 8 is protected from subsequent merger with set 13 in the third part of the Akanic consonant shift (Potou-Akanic-to-Akanic rule 3 below). 5 cases.

(2002 rule 6.2.5 is now demoted; see PA-to-Akanic rule 4a below.)

(For a revised version of 2002 rule 6.2.6 see rule 1b above.)

4.3. From Proto-Potou-Akanic to Proto-Akanic

The Proto-Akanic C1 system is here assumed to be as in Table 9. The top line retains the set numbers of Proto-Potou-Akanic in Table 8 as far as possible; note that six further sets, 5, 6, 7, 17a, 21 and 22, have dropped out, and that there are three new sets, 3a, 21a and 22a.

Table 9. The Proto-Akanic C1 system.

	1	2	3a	4	8	9	10	11	12	13	14	15	16	18	19	20	21a	22a
I	f	s	h	h^w	kp	p	t	c	h	h^w	ʊ	l	y	w	ʊ	l	ɯ	w
			~ħ	~$ħ^w$					~ħ	~$ħ^w$	~ʊ̃	~ɪ	~ỹ	~w̃	~ʊ̃	~ɪ	~ɯ̃	
II	f	s	h	h^w	kp	p	t	c	k	k^w	b	d	j	g^w	ʊ	l	ɯ	w
			~ħ	~$ħ^w$							~m	~n	~ɲ	~$ŋ^w$	~ʊ̃	~ɪ	~ɯ̃	
III	m-f	n-s	ŋ-h	ŋ-h^w	ŋ-kp	m-p	n-t	ɲ-c	ŋ-k	ŋ-k^w	m	n	ɲ	$ŋ^w$	m	n	ŋ	$ŋ^w$
			~ŋ-ħ	~ŋ-$ħ^w$														

The ten-vowel system of Proto-PA is presumed to survive in Proto-Akanic in the case of the oral vowels, though not within the CV(CV) root, in which the ɜ is presumed to have been lost at V1; see rule 1 below. In the case of the nasalized vowels, the ten-vowel system is presumed to have been reduced to a six-vowel system with the loss of all the nasalized mid vowels by rule 4a below. The systems at C2 and V2 are presumed to be unchanged from those of Proto-PA.

The rules from Proto-Potou-Akanic to Proto-Akanic, cross-referenced to the Potou-Akanic-to-Akanic rules of Stewart (2002:211, 6.3), are as follows:

(2002 rules 6.3. -2 have been promoted to PAB-to-PA; see PAB-to-PA rules 2b.1-2.)

1. (2002 rule 6.3.2.) ɜ, the [+ATR] counterpart of a, becomes ia at V1 and thus no longer survives within the CV(CV) root; it does however survive in other contexts. 2 cases: CPs 74c, 75.

1a. (No 2002 counterpart as the consonants affected occur only in grade III and the 2002 rules cover only grade II, the base grade.) The nasal element of a prenasalized stop splits off to become a syllabic nasal prefix. As an indirect result of this, there is no longer any true grade III mutation. Where in Proto-Potou-Akanic the grade III form is not a prenasalized stop it is a simple nasal, and that nasal is phonetically unchanged in Proto-Akanic, but it still loses its status as a synchronic mutation: the nasal prefix is presumed to be present synchronically and to condition the reduction of all stem-initial voiced consonants to simple nasals, but to be deleted before all simple nasals in the service of a constraint that disallows double nasals.

1b. (A new rule required for the new CPs 41a-b.) ɡ becomes ʄ before a front oral vowel, moving from set 7 to found a new set 6a. 2 cases: 41a-b.

2.1-2. (2002 rules 6.3.3.1-2, the first two of the three parts of the Akanic consonant shift.) All the plain voiceless stops become continuants (see sets 1, 2 and 4) and all the plain voiced stops become plain voiceless stops (see sets 9-10 and 12-13). The second part would, in the absence of any adjustment, complicate the former stop/continuant manifestation of the grade II/grade I distinction in sets 9-10 and 12-13, as the manifestation would no longer be simply stop/continuant but voiceless stop/voiced continuant. The simple stop/continuant manifestation of the distinction is

however restored by devoicing approximants in grade I opposite plain voiceless stops in grade II. First part, 34 cases; second part, 18 cases.

3. (2002 rule 6.3.3.3, the third of the three parts of the Akanic consonant shift.) All the non-explosive stops, whether unvoiced as in sets 5-6, 6a and 7-8, or voiced as in sets 14-16 and 18, become plain stops. Since, following the first two parts of the Akanic consonant shift (see 2 above), there are no longer any existing plain voiced stops, this third part results in mergers only in the case of new plain voiceless stops. By these mergers, sets 5-6, 6a and 7 merge with sets 9-12 in grade II, the base grade. If no adjustment supervened, this would create a violation of the principle that in any set, the non-base grades are predictable from the base grade. The violation is avoided by merging set 7 totally with set 12, which, unlike set 7, has a continuant in grade I, and by abandoning the phonetic manifestation of grade I altogether in the remaining sets, namely 9-11.

4. (Revised version of 2002 rule 6.3.4.) The nasalized dorsal continuants ɰ̃, w̃ of the base grade are devoiced, becoming ɦ̃, ɦ̃ʷ. Set 22 is thereby merged with set 4, while set 21 is converted into a new voiceless set 3a alongside set 4. (The 2002 rule 6.3.4 also changed oral ɰ to h, but as the oral ɰ in question was always a nasalized ɰ̃ before the application of the 2002 PAB-to-Potou-Akanic denasalization rule 6.2.5, and as that rule has now been demoted so as not yet to have applied at this stage (see 5 below), the devoicing rule no longer applies to any oral sound.) 9 cases.

4a. (Demoted and restated version of 2002 PAB-to-Potou-Akanic rule 6.2.5.) Any nasalized mid vowel, and with it any nasal or nasalized consonant or vowel elsewhere in the root, is denasalised, except that any following I changes to n and the nasalized vowel following that n remains unchanged. As a consequence, the nasalized continuants in sets 3a, 19 and 20 acquire oral variants. (See 4 above for a benefit arising from the demotion of the 2002 rule.) 11 cases.

(2002 rule 6.3.5 is dropped, as it now appears that the palatalization in question, whereby at C1 in grade II, oral h, hʷ became ɕ, ɕʷ before front vowels, did not happen at this stage, and is adequately covered by the later, more general, palatalization rule Central Akanic-to-Akan 13.)

5a. (A new rule required to accommodate a new CP.) ŋ at C1 becomes ɰ̃, and set 17a becomes set 21a. 1 case: CP 75d.

6. (Revised version of 2002 rule 6.3.6.) In grade II, oral hʷ becomes w before non-front vowels at V1, and thereby creates a new set, number 22a. This affects set 4 but not set 13, which has hʷ in grade I only; in set 13, the synchronic rule deriving the hʷ~ɦ̃ʷ) of grade I from the kʷ of grade II remains in force. Grade I of the new set 22a follows grade II in becoming w and grade III becomes ŋʷ; compare the former set 22, in which grade III was ŋʷ opposite the nasalized counterpart of w, namely w̃. 7 cases.

(2002 rule 6.3.7 is no longer required under the revised treatment of CP 90; see Section 3.1, and rule 1 above.)

8. (2002 rule 6.3.8.) t becomes c at C1 before oral front vowels. The affected instances of set 10 move to set 11. 4 cases: CPs 53-5, 58.

9. (A new rule required as a consequence of the reconstruction of ʃ instead of y in Proto-PAB grade II; see Section 3.1.) At V1, e becomes o before m. 1 case: CP 74a.

4.4. From Proto-Akanic to Proto-Central Akanic

The Proto-Central Akanic C1 system is here assumed to be as in Table 10. The top line retains the set numbers of Table 9 as far as possible; note that sets 1, 9, 11 and 21a have dropped out, and that there are three new sets, 1a, 16a and 20a.

Table 10. The Proto-Central Akanic system

	1a	2	3a	4	8	10	12	13	14	15	16	16a	18	19	20	20a	22a
	f	s	h	hʷ	kp	t	h	hʷ	ʊ	l	y	yʷ	w	ʊ	y	yʷ	w
			~ħ	~ħʷ			~ħ	~ħʷ	~ʊ	~l	~y			~ʊ		~ỹʷ	
II	f	s	h	hʷ	kp	t	k	kʷ	b	d	j	jʷ	gʷ	ʊ	y	yʷ	w
													~g				
			~ħ	~ħʷ					~m	~n	~ɲ			~ʊ		~ỹʷ	
III	m-f	n-s	ŋ-h	ŋ-hʷ	ŋ-kp	n-t	ŋ-k	ŋ-kʷ	m	n	ɲ	ɲʷ	ŋʷ	m	ɲ	ɲʷ	ŋʷ
													~ŋ				
			~ŋ-ħ	~ŋ-ħʷ													

The systems at V1, C2 and V2 are presumed to be unchanged from those of Proto-Akanic.

The rules from Proto-Akanic to Proto-Central Akanic, cross-referenced to the Akanic-to-Akan rules of Stewart (2002:211-2, 6.4), are as follows:

1. (2002 rule 6.4.1.) l~I becomes y~ỹ in grade II. This affects set 20 but not set 15, which has l~I in grade I only; in set 15, the synchronic rule deriving the l~I of grade I from the d~n of grade II remains in force. In set 20, the change from l~I to y~ỹ in grade II entails an identical change in grade I, and a change from n to ɲ in grade III. 8 cases.

2. (2002 rule 6.4.2.) Palatal consonants become rounded before round vowels. The new rounded palatals are non-distinctive at this stage, but go on to become distinctive on the application of rule 3 below and thereby to found the new sets 16a and 20a. 7 cases.

3. (2002 rule 6.4.3.) A round vowel becomes non-round between a rounded palatal at C1 and a non-labial at C2. Rounded palatals thereby acquire distinctive status; see rule 2 above. 6 cases.

4. (A revised version of 2002 rule 6.4.4, extended to accommodate the new CP 74g.) A C1V1 sequence of unrounded ỹ or ɯ̃ plus a nasalized vowel becomes oral throughout; see sets 20 and 21a. 2 cases: CPs 74g, 82.

5. (2002 rule 6.4.5.) f becomes h or ħ according to whether the following vowel is oral or nasalized. Set 1 is thereby merged with set 3a. 10 cases.

6. (2002 rule 6.4.6. p becomes f. Set 9 is thereby removed and a new set 1a created. 5 cases.

7. (2002 rule 6.4.7. c becomes s. Set 1 is thereby merged with set 2. 7 cases.

7a. (Not mentioned in 2002.) g^w, the only rounded velar stop that still occurs before round vowels, becomes unrounded g in that context; the two sounds are then in complementary distribution. See set 18. 2 cases: 75a-b.

7b. (A new rule required for the new CPs 74f-g.) ɱ becomes w, merging with the existing w. Set 21a is thereby merged with set 22a. 2 cases: CPs 74f-g.

4.5. From Proto-Central Akanic to Akan

The Akan C1 system is basically as in Table 11. The top line retains the set numbers of Table 10; note that set 19 has dropped out.

Table 11. The basic C1 system in Akan

	1a	2	3a	4	8	10	12	13	14	15	16	16a	18	20	20a	22a
I-II	f	s	h	h^w	p	t	k	k^w	b	d	j	j^w	g^w	y	y^w	w
			~ɕ	~$ɕ^w$			~c	~c^w					~g			
			~ɦ	~$ɦ^w$					~m	~n	~ɲ	~$ɲ^w$				
III	m-f	n-s	ŋ-h	ŋ-h^w	m-p	n-t	ŋ-k	ŋ-k^w	m	n	ɲ	$ɲ^w$	$ŋ^w$	ɲ	$ɲ^w$	$ŋ^w$
		~ɲ-ɕ	~ɲ-ɕ	~ɲ-$ɕ^w$			~ɲ-c	~ɲ-c^w					~ŋ			
		~ŋ-ɦ	~ŋ-ɦ	~ŋ-$ɦ^w$												

The V1 system is unchanged from that of Proto-Central Akanic except for the effect of rule 12. The C2 system differs considerably from that of Proto-Central Akanic; see rules 8b, 9, 9b-c and 11. After oral vowels the C2 system is w, r, m, ŋ, and after nasalized vowels it is m, n, ŋ; r and n are thus in complementary distribution. V2 survives only after r or n; see rule 9a.

The rules from Proto-Central Akanic to Akan, cross-referenced to the Akanic-to-Akan rules of Stewart (2002:211-2, 6.4 and 212, Akanic-Ak.8X), are as follows:

8. (No 2002 counterpart as the consonants affected occur only in grade I and the 2002 rules cover only grade II, the base grade.) Grade I, which at this point is distinguished from grade II, the base grade, only in sets 12-16, 16a and 18, ceases altogether to be distinguished from grade II. The only nasalized voiced continuants that still survive in stem-initial position at this stage are the ʊ̃ of set 19 and the $ỹ^w$ of set 20a.

8a. (2002 rule 6.4.8.) In principle ʊ~ʊ̃ becomes f, though all the instances found are in fact of ʊ̃. Set 19 is thereby merged with set 1a. 5 cases.

8b. (2002 rule Akanic-Ak.8X.) n becomes ŋ at C2. 13 cases.

9. (2002 rule 6.4.9.) All the remaining nasalized voiced continuants in all positions become simple nasals. $ỹ^w$, the only remaining nasalized voiced continuant in grade I-II, becomes the simple nasal $ɲ^w$. The affected instances of set 20a move to set 16a. The only surviving voiced continuants in

stem-initial position are now the oral semivowels; see sets 20-20a and 22a. 5 cases at C1, 31 at C2.

Rules 8b and 9 appear to constitute a push-chain: at C2, ʊ̃, ɪ become m, n by 9, and although the new m merges with the existing m, the new n displaces the existing n, which becomes ŋ by 8b. Note that the creation of the new ŋ exploits the velar gap at C2 created by PAB-to-PA rule 1a.

9a. (2002 rule Akanic-Ak.9X.) V2 is deleted after a non-coronal C2, i.e. after a C2 other than l or n. 32 cases.

9b. (2002 rule Akanic-Ak.9XX.) ʊ becomes w at C2. 7 cases.

9c. (2002 rule Akanic-Ak.9XXX.) l becomes r at C2. 11 cases.

10. (2002 rule 6.4.10.) kp becomes p. 5 cases.

11. (2002 rule 6.4. 1.) A high V becomes nasalized before a nasal C. 6 cases.

12. (2002 rule 6.4.12.) Oral or nasalized ia, which was first introduced by PA-to-Akanic rule 1, is reduced to ^{i}a, where ^{i} has no segmental manifestation and is manifested solely by leftward [+ATR] spreading. 2 cases: CPs 74c, 75.

12a. (A new rule required by the adoption of the new P-PAB entries CPs 74b, 74e.) j~ɲ becomes d~n at C1 before i, ĩ, u, ũ. The items affected move from set 16 to set15. 2 cases: CPs 74b, 74e.

13. (2002 rule 6.4.13.) Oral dorsal consonants at C1 are palatalized before front vowels, though not before a front vowel with no segmental manifestation; see rule 12 above. Sets 3a, 4, 12 and 13 are affected, but not 22a, which occurs only before non-front vowels, or, apparently, 18, which remains unattested before front vowels. 9 cases.

14. (A new rule required by the adoption of the new CPs 40a, 75b.) A non-high V1 becomes high where C2 is followed by a non-high vowel. 2 cases: CPs 40a, 75b.

5. The Bantu-Akan comparative pairs and the reconstructions

In this section I give 128 (as compared with 109 in 2002) comparative pairs (CPs) across Proto-Bantu and Akan displaying fully, except in the cases of CPs 28a and 50a, the presumed regular segmental sound correspondences throughout C1V1 in CV(C(V)) roots, and also throughout the remainder of the root where that has been retained in Akan. The reference numbers of the original 109 CPs have been retained where there is no compelling reason why they should not be, and where they are not retained, cross-references are given. In the second line of each entry I give, in the relevant column (or in the Common Bantu column in the case of Proto-Bantu), the reference numbers of those diachronic rules or groups of rules which have affected C1V1 where C1 is in the base grade, i.e. in grade II or grade I-II (see Section 4). It would greatly complicate the entries to give the reference numbers of all the diachronic rules. See Section 2 for the significance of the square brackets. There is no separate column for Proto-Central Akanic, but in the Akan column the reference numbers of the Akanic-to-Central Akanic rules are separated from those of the Central Akanic-to-Akan rules by the entry CA.

	Common Bantu	Proto-Bantu	Proto-Potou-Akanic-Bantu	Proto-Potou-Akanic	Proto-Akanic	Akan
1.	*-pí-	*-ɓy-	*-pɪ	*-pɪ	*-fɪ	-ɸɪ([w])
	6.1 'become burnt'				2	5 CA 13
2.	*-púd-	*-ɓul-	*-pulu	*-pulu	*-fulu	-huru
	6.1 'froth over'				2	5 CA 'boil, froth'
3.	*-púdù	*-ɓulu	*-pulu	*-pulu	*-fulu	ɜ-huru
	6.1 'foam'				2	5 CA
4.	*-púd-	*-ɓul-	*-pulu	*-pu	*-fu	-hu[w]
	6.1 'blow (with mouth)'				2	5 CA
5.	*-pám-	*-ɓām-	*-pāūī	*-pāūī	*-fāūī	-ɦām
	6.1 'shout; (argue)'				2	5 CA 'quarrel'
6.	*-pèdè	*-ɓɛ̄lɛ̄	*-pīlī	*-pīlī	*-fīlī	-ɦīnī
	6.1,10 'the itch, crawcraw'				2	5 CA 'itchy'
7.	*-pémb-	*-ɓɛ̄mb-	*-pīmbɪ	*-pīūī	*-fīūī	-ɦīm
	6.1,10 'blow (nose)'				2	5 CA
8.	*-pí	*-ɓī	*-pī	*-pī	*-fī	-ɦī
	6.1 'where?'				2	5 CA
9.	*-pú[ú]m-	*-ɓūm-	*-pūūū	*-pūūū	*-fūūū	-ɦūm[-]ɪ
	6.1 'breathe; rest'				2	5 CA
10.	*-pɨ̀n-	*-ɓīn-	*-pīnī	*-pī	*-fī	-ɦī[ŋ]
	6.1 'squeeze (esp. with fingers)'				2	5 CA
						'get caught in or between'
11.	*-tá	*-ɗa	*-ta	*-ta	*-sa	ɔ-sa
	6.1 'war'				2	
12.	*-táp-	*-ɗap-	*-tapi	*-taʊɪ	*-saʊɪ	-saw
	6.1 'draw (water)'				2	
13.	*-tì	*-ɗɪ	*-tɪ	*-te	*-se	-se
	6.1 'that, namely; say'			2c	2	'say'
14.	*-tút-	*-ɗut-	*-tutu	*-tu	*-su	-su, -su[-]a
	6.1 'carry'				2	
15.	*-tát-	*-ɗānt-	*-tānti	*-tā	*-sā	-sā
	6.1 'tie up'				2	
(16 is now 35a.)						
17.	*-tín-	*-ɗīn-	*-tīnī	*-tēlī	*-senī	-seŋ
	6.1 'cut'			2c	2,4a	
					'make by carving or cutting'	
(18-20 are now 35b-d						
21.	*-cí	*-cɪ	*-cɪ	*-tɪ	*-sɪ	a-sɪ
	(6.1.1-2) 'ground'			3	2	
22.	*-cí	*-cɪ	*-cɪ	*-tɪ	*-sɪ	a-sa-sɪ
	(6.1.1-2) 'country'			3	2	(redup of a-sɪ)
23.	*-cí	*-cɪ	*-cɪ	*-tɪ	*-sɪ	a-sɪ
	(6.1.1-2) 'underneath'			3	2	
24.	*-cí	*-cɪ	*-cɪ	*-tɪ	*-sɪ	ɔ-sɪ
	(6.1.1-2) '(his) father'			3	2	
				'father of someone other than the speaker'		
25.	*-kóp[-]ud-,	*-gɔp-	*-kʷapi	*-kʷaʊɪ	*-waʊɪ	ɔ-waw
	4.2,6.1,8.2 'cough'	v			2,6	'cough' n
26.	*-kód[-]á	*-gɔl-	*-kʷali	*-kʷa	*-wa	ŋ-ŋʷa[w]
	4.2,6.1,8.2 'snail'				2,6	(w -> ŋʷ /ŋ

	Bantu	P-Bantu	P-PAB	P-PA	P-Akanic	Akan
27	*-kúp-	*-ɠup-	*-kʷɪpɪ	*-kʷɪʊɪ	*-hʷɪʊɪ	-ɕʷɪw
	4.2,6.1,8.2 'shake off, bale out (water)'				2	CA 13 'throw off, sweep away, bale out (water
28.	*-kù[ù]gú	*-ɠuɱu	*-kʷɪɱɪ	*-kʷɪlɪ	*-hʷɪlɪ	a-ɕʷɪr[-]ɪw
	4.2,6.1,8.2 'sugar-cane'				2	CA 13
			cf. ɕʷɪr[-]ɪw 'wild sugar-cane (a species of grass)'			
(28a-b are new entries; see PAB-B rules 8.1-2.)						
28a.	*-kú	*-ɠu	*-kʷu	*-kʷu	*-wu	-wu
	6.1,8.2 'you' sing				2,6	
28b.	*-pú-	*-ɓw-	*-kʷu	*-kʷu	*-wu	-wu
	6.1,8.1 'dry up'				2,6	
29.	*-kṵ-	*-ɠw-	*-kʷu	*-kʷu	*-wu	-wu
	6.1,8.2 'die'				2,6	
30.	*-kṵ	*-ɠu	*-kʷu	*-kʷu	*-wu	o-wu
	6.1,8.2 'death'				2,6	
31.	*-pát-	*-ɓat-	*-ɓati	*-ɓa	*-pa	-fa
	'hold'				3	6 CA take'
32.	*-pṵ	*-ɓu	*-ɓu	*-ɓu	*-pu	o-fu
	'stomach'				3	6 CA
(33 is now 50a.)						
34.	*-tá	*-ɗa	*-ɗa	*-ɗa	*-ta	ɛ-ta
	'bow'				3	
35.	*-tá	*-ɗa	*-ɗa	*-ɗa	*-ta	n-ta-su
	'spittle'				3	(su: 'water')
(35a-d are former 16 and 18-20.						
35a.	*-tát[-]ù	*-ɗānt-	*-ɗānti	*-tã	*-sã	ɛ-sã
	'three'			1c	2	
35b.	*-túù	*-ɗūū	*-ɗūŋū	*-tũ	*-sũ	a-sũ
	12 'ear'			1c	2	
35c.	*-tú[-]é	*-ɗw̄-	*-ɗūŋū	*-tũ	*-sũ	n-sũ
	12 'ashes'			1c	2	
35d.	*-túm-	*-ɗūm-	*-ɗūūū	*-tūūū	*-sūūū	-sũm[-]ã
	'send'			1c	2	
36.	*-tṵd-	*-ɗūl-	*-ɗūlū	*-ɗūlū	*-tūlū	-tũnũ
	'forge'			1d	3	
37.	*-tṵmb-	*-ɗūmb-	*-ɗūmbu	*-ɗū	*-tū	-tũ
	'roast'			1d	3	
38.	*-tíŋg[-]à	*-ɗīŋg-	*-ɗīŋgi	*-ɗīlī	*-tīlī	n-tīnī
	'vein'				3	
39.	*-kát[-]à	*-ɠat-	*-ɠati	*-ɠa	*-ka-	-ka-hiri
	'headpad'				3	
40.	*-kódị	*-ɠɔli	*-ɠɔli	*-ɠɔlɪ	*-kɔlɪ	ɔ-kɔr[-]ɪ
	'kind of hawk'				3	
(40a is a new entry.)						
40a.	*-kòd[-]um	*-ʔɠɔli	*-ɠɔli	*-ɠɔlɪ	*-kɔlɪ	ŋ-kur[-]ɔm
	'growl' v				3	CA 14 'growl' n
41.	*-kòtị	*-ɠɔ̄nti	*-ɠɔ̄nti	*-ɠɔ̄lī	*-kɔnī	ɛ-kɔŋ
	'neck'				3,4a	

	C. Bantu	P-Bantu	P-PAB	P-PA	P-Akanic	Akan
(41a-b are new entries.)						
41a.	*-kíd-	*-ɠɪl-	*-ɠɪlĩ	*-ɠɪnĩ	*-cɪnĩ	-sĩŋ
	'pass; surpass'				1b,3	7 CA 11
41b.	*-kị̀gí	*-ɠiɰi	*-ɠiɰ̃ĩ	*-ɠinĩ	*-cinĩ	-sĩŋ
	'stump of tree'				1b,3	7 CA 11
42.	*-kí-	*-ɠɣ̃-	*-ɠĩ	*-ɠĩ	*-kĩ	-cĩ
	'dawn' v				3	CA 13
43.	*-kédè	*-ɠɛ̃lɛ̃	*-ɠĩlĩ	*-ɠĩlĩ	*-kĩlĩ	ɲ-cĩnĩ
	10 'salt'				3	CA 13
(43a is a new entry.)						
43a.	*-kódò	*-ɠõlõ	*-ɠũlũ	*-ɠũlũ	*-kũlũ	-kũ-mã
	10 'heart'				3	
44.	*-kụ̀mb-	*-ɠũmb-	*-ɠũmbu	*-ɠũũũ	*-kũũũ	-kũm
	'bend' tr			1d	3	
(44a is a new entry.)						
44a.	*-pṵ̀k-	*-ɓ̰uk-	*-ɠʷʊkʊ	*-ɠɓ̰ʊ	*-kpʊ	-pʊ
	8.1 'shake'			4	3	CA 10
45.	*-kómb-	*-ɠõmb-	*-ɠʷõmbi	*-ɠɓ̰õʊ̃ĩ	*-kpɔʊɪ	-pɔw
	8.2 'scrape'			4	3,4a	CA 10
46.	*-kón[-]ud-	*-ɠõn-	*-ɠʷõnĩ	*-ɠɓ̰õlĩ	*-kpɔnĩ	-pɔŋ[-]ø
	8.2 'break off' tr			4	3,4a	CA 10
47.	*-kúb-	*-ɠʊʊ-	*-ɠʷĩʊ̃ĩ	*-ɠɓ̰ĩʊ̃ĩ	*-kpĩʊ̃ĩ	-pĩm
	4.2,5,8.2 'hit'			4	3	CA 10
48.	*-kùd-	*-ɠʊ̃l-	*-ɠʷĩlĩ	*-ɠɓ̰ĩ	*-kpĩ	-pĩ[ŋ]
	4.2,8.2 'pull'			4	3	CA 10
49.	*-bòmb-	*-ɓɔmb-	*-bõmbi	*-bõʊ̃ĩ	*-pɔʊɪ	-fɔw
	6.1,6.3 'become wet'				2,4a	6 CA
50.	*-bị̀nd[-]ò	*-ɓind-	*-bĩndi	*-bĩ	*-pĩ	e-fĩ
	6.1,6.3 'dirt'				2	6 CA
(50a is former 33, and is tentative.)						
50a.	*-pṵ̀k-	*-ɓ̰ũŋk-	*-bũŋku	*-bũlũ	*-pũlũ	-fũnũ
	Sporadic b>p, 6.1 'dig up'				2	6 CA
51.	*-dàp[-]ò	*-ɗap-	*-dapi	*-da	*-ta	n-ta[m]
	6.1 'oath'				2	
52.	*-dók-	*-ɗɔk-	*-dɔki	*-dɔ	*-tɔ	-tɔ
	6.1 'rain'				2	'fall, incl. of rain'
53.	*-dị̀[-]ị̀k-	*-ɗi-	*-di	*-di	*-ci	-si[-]e
	6.1 'bury'				2,8	7 CA
54.	*-dị̀b-	*-ɗiʊ-	*-diʊi	*-diʊi	*-ciʊi	-siw
	6.1 'stop up'				2,8	7 CA
55.	*-dḭ́t-	*-ɗit-	*-diti	*-di	*-ci	-si
	6.1 'tie a knot'				2,8	7 CA
56.	*-dṵ̀t-	*-ɗut-	*-dutu	*-du	*-tu	-tu
	6.1 'pull'				2	
57.	*-dàmb[-]á	*-ɗamb-	*-dãmbi	*-dãʊ̃ĩ	-tãʊ̃ĩ	ɔ-tãm
	6.1,6.3 'cloth'				2	
58.	*-déd-	*-ɗɛl-	*-dɛ̃lĩ	*-dɛ̃lĩ	*-cɛnĩ	-sɛŋ
	6.1,6.3 'become suspended'				2,4a,8	7 CA

	C. Bantu	P-Bantu	P-PAB	P-PA	P-Akanic	
59.	*-yùdú	*-yulu	*-julu	*-tulu	*-sulu	ɔ-suru, -su
	6.1,6.2 'top; sky'			2,3	2	
(59a is a new entry, and is tentative.						
59a	*-yòg[-]ù̩	*-ỹɔ̃ɰ̃-	*-jũɰ̃ũ	*-tũlũ	*-sũlũ	ɛ-sũnũ
	6.1,6.2,10 elephant'			2,3	2	
(59b is former 74.)						
59b.	*-jí̩	*-ʃi	*-ju	*-ju	*-cu	n-su
	2.2,6.1 'water'				3	7 CA
60.	*-gi̩d-	*-ɠil-	*-gili	*-gili	*-kili	-ciri
	6.1 'abstain'				2	CA 13
61.	*-yò	*-ɰɔ	*-gʷɛ	*-gʷɛ	*-kʷɛ	ɛ-cʷɛ
	4.2,6.1,6.2,8.2 'female genitals'				2	CA 13
62.	*-yò[-]yò	*-ɰ̃ɔ̃	*-gʷã	*-gʷã	*-kʷã	ŋ-kʷã
	4.2,6.1,6.2,8.2 'life'				2	
(62a-b are new entries, and are tentative.)						
62a.	*-gó[ó]d-	*-ɰ̃ɔ̃l-	*-gʷĩlĩ	*-gʷĩ	*-kʷĩ	-cʷĩ
	4.2,6.1,6.2,8.2,10 'pull'				2	CA 13
62b.	*-gògó	*-ɰ̃ɔ̃ɰ̃ɔ̃	*-gʷĩɰ̃ĩ	*-gʷĩlĩ	*-kʷĩlĩ	ɛ-cʷĩnĩ
	4.2,6.1,6.2,8.2,10 'log, especially as bridge'				2	CA 13
(63-4 are now 66a-b.)						
65.	*-bíd-	*-ɓɪl-	*-ɓɪlĩ	*-ɓɪnĩ	*-bɪnĩ	-bĩŋ
	'become cooked'				3	CA 11
66.	*-bi̩d[-]ò	*-ɓil-	*-ɓilĩ	*-ɓinĩ	*-binĩ	e-bĩŋ
	'dirt'				3	CA 11 'dirt, excrement'
(66a-b are former 63-4.)						
66a.	*-bù[-]è	*-ɓw-	*-ɓu	*-ɓu	*-bu	ɔ-bu
	'stone'					
66b.	*-búd-	*-ɓul-	*-ɓulu	*-ɓulu	*-bulu	
	'hit'					
(66c is a new entry.)						
66c.	*-búmb[-]à	*-ɓumb-	*-ɓumbu	*-ɓu	*-bu	
	'clay for pottery'				3	
67.	*-bu̩n-	*-ɓun-	*-ɓunũ	*-ɓu	*-bu	-bu
	'break, snap' tr					
(67a-e are former 100-4.)						
67a.	*-mí	*-mĩ	*-mĩ	*-mĩ	*-mĩ	
	'me'					
67b.	*-mèd-	*-mɛ̃l-	*-mĩlĩ	*-mĩlĩ	*-mĩlĩ	
	10 'swallow'					
67c.	*-mèd[-]ò	*-mɛ̃l-	*-mĩlĩ	*-mĩlĩ	*-mĩlĩ	-mĩnĩ
	10 'throat, gullet'					
67d.	*-mém-	*-mɛ̃m-	*-mĩũĩ	*-mĩũĩ	*-mĩũĩ	-mĩm
	10 'become full'					'sink'
67e.	*-mú[-]é	*-mʷ-	*-mũ	*-mũ	*-mũ	-mũ
	'you' pl					
68.	*-dàd[-]ú	*-ɗal-	*-ɗali	*-ɗa	*-da	-da[m]
	'madness'				3	

	C. Bantu	P-Bantu	P-PAB	P-PA	P-Akanic	Akan
69.	*-dá[-]ád- 'lie down'	*-ɗa-	*-ɗa	*-ɗa	*-da 3	-da
70.	*-dá[-]ád- 'sleep'	*-ɗa-	*-ɗa	*-ɗa	*-da ɔ	-da
71.	*-dè[-]èd[-]ó 'today'	*-ɗɛ-	*-ɗɛ	*-ɗɛ	*-dɛ 3	n-nɛ (d -> n /n
(71a is a new entry; see Section 3.2.						
71a.	*-dí- 'eat'	*-ɗy-	*-ɗi	*-ɗi	*-di 3	-di
72.	*-dị̀t[-]ò 2.1 'heavy'	*-ɗit-	*-ɗutu	*-ɗulu	*-dulu 3	-duru
73.	*-dí̩m- 2.1 'become extinguished, extinguish'	*-ɗim-	*-ɗuũũ	*-ɗumũ	*-dumũ 3	-dũm CA 11
(73a-e are former 105-9.)						
73a.	*-nà 'four'	*-nā	*-nā	*-nā	*-nā	a-nā[ŋ]
73b.	*-nị̀- 'defecate'	*-ny-	*-nī	*-nī	*-nī	-nī
73c.	*-nú- 'drink'	*-nw-	*-nũ	*-nũ	*-nũ	-nũ[m]
73d.	*-nù[-]à 'mouth'	*-nw-	*-nũ	*-nũ	*-nũ	a-nũ
73e.	*-nị̀n[-]à 'his mother'	*-nīn-	*-nīnī	*-nī 'mother of someone other than the speaker'	*-nī	o-nī
(74 is now 59b.)						
(74a is former 76.)						
74a.	*-yímb[-]ò 6.2 'song'	*-yɪmbɪ	*-ʃɪmbɪ	*-ʃemī 2b.2	*-jomī 3,9	e-jʷom 2 CA
(74b is a new entry.)						
74b.	*-yị̀n[-]à 'name'	*-ʃin-	*-ʃinī	*-ʃinī	*-jinī 3	e-dīŋ CA 11,12a
(74c is former 90.)						
74c.	*-nyàmb[-]é 'God'	*-ɲāmb-	*-ɲāmbi	*-ɲɜ̃ũī 2a	*-ɲīãũī 1	-ɲⁱām[-]ī CA 12
(74d-e are new entries.)						
74d.	*-yím[-]ị̀ 'pregnancy'	*-ɲīm-	*-ɲīũī	*-ɲīũī	*-ɲīũī	-ɲĩm (Fante) 'become pregnant'
74e.	*-yí̩c[-]ò 'eye'	*-ɲīɲc-	*-ɲīɲci	*-ɲī	*-ɲī	ɜ-nī CA 12a
75.	*-yó[ó]g- 4.2,6.2,8.2 'bathe'	*-ɯɔɯ-	*-gʷaɯi	*-gʷɜli 2a	*-gʷialɪ 1,3	-gʷⁱar[-]ɪ CA 12
(75a-d are new entries; see 71a above, and Section 3.2, re 75a						
75a.	*-gù- 8.2 'fall'	*-gw-	*-gʷu	*-gʷu	*-gʷu 3	-gu 7a CA
75b.	*-yód[-]ub- 6.2,8.2 'become soft'	*-ɯɔl-	*-gʷɔli	*-gʷoli 2a	*-gʷoli 3	-gur[-]ow 7a CA 14
75c.	*-bút- 8.1 'bear (child)'	*-ɓut-	*-gʷutu	*-ɯu 2b.1	*-ɯu	-wu 7b CA
75d.	*-yúk[-]ì 8.2 'honey'	*-ŋũŋk-	*-ŋʷũŋku	*-ŋũ 2b.1	*-ɯ̃ũ 5a	-wu 4,7b CA
(76 is now 74a.)						

	C Bantu	P-Bantu	P-PAB	P-PA	P-Akanic	Akan
77	*-dàm-	*-lām-	*-ũãũī	*-ũãũī	*-ũãũī	-fãm
	1 'stick to'					CA 8a
78	*-dàmb-	*-lāmb-	*-ũãmbi	*-ũãũī	*-ũãũī	-fãm
	1 'become starved'					CA 8a
79	*-dànd-	*-lānd-	*-ũāndi	*-ũã	*-ũã	-fã (Fante)
	1 'follow'					CA 8a
80	*-dèm-	*-lɛ̄m-	*-ũĭũī	*-ũĭũī	*-ũĭũī	-fĭm
	1,10 'become too difficult for'					CA 8a
81	*-dùb-	*-luu-	*-ũũũũ	*-ũũũũ	*-ũũũũ	-fũm
	1,5 'make a mistake'					CA 8a
82.	*-dà	*-lā	*-lā	*-lā	*-lā	-ya-
	'abdomen'					1,4 CA
83.	*-dèd-	*-lɛ̄l-	*-lɛ̄lī	*-lɛ̄lī	*-l̀ɛnī.	-yɛŋ
	'look after (child)'				4a	1 CA
84.	*-dòd-	*-lɔ̄l-	*-lɔ̄lī	*-lɔ̄lī	*-lɔnī	-yʷɛŋ
	'look at; face towards'				4a	1,2,3 CA 'watch'
85.	*-dùk-	*-lūŋk-	*-lūŋku	*-lūlū	*-lūlū	-ɲʷīnī
	'plait'					1,2,3 CA 9 'weave'
86.	*-dùdù	*-lūlū	*-lūlū	*-lūlū	*-lūlū	-ɲʷīnī
	'bitterness'					1,2,3 CA 9
87.	*-dị̀dị̀	*-līlī	*-lūlū	*-lūlū	*-lūlū	-ɲʷīnī
	2.1 'cold'					1,2,3 CA 9
88.	*-dí́dí́	*-līlī	*-lūlū	*-lūlū	*-lūlū	o-ɲʷīnī
	2.1 'shadow'					1,2,3 CA 9
89.	*-dị̀d[-]ị̀d-	*-līl-	*-lūlū	*-lūlū	*-lūlū	-ɲʷīnī
	*-dị̀d[-]ị̀m-					1,2,3 CA 9
	2.1 'become cold'					
	(90 is now 74c.)					
91.	*-yédị̀	*-ɱɛ̄lī	*-ɱɛ̄lī	*-ɱɛ̄lī	*-hɛnī	ɛ-ɕɛŋ
	'moon'				4,4a	CA 13
92.	*-yéd[-]ù	*-ɱɛ̄l-	*-ɱɛ̄lī	*-ɱɛ̄lī	*-hɛnī	-ɕɛŋ
	'white'				4,4a	CA 13
	(93 is now 97a.)					
94.	*-yéné	*-ɱɛ̄nɛ̄	*-ɱĭnī	*-ɱīlī	*-ɦīlī	o-ɦīnī
	10 'chief'				4	
95.	*-yútù	*-ɱūntu	*-ɱūntu	*-ɱū	*-ɦū	ɛ-ɦū
	'body'				4	
96.	*-yị̀g[-]ad-	*-ɱīɱ-	*-ɱīɱī	*-ɱīlī	*-ɦīlī	-ɦĭnī
	'shut'				4	
97.	*-yị̀g[-]ud-	*-ɱīɱ-	*-ɱīɱī	*-ɱīlī	*-ɦīlī	-ɦī[-]ɛ
	'open'					
	(97a. is former 93.)					
97a.	*-yók[-]à	*-ɱɔ̄ŋk-	*-ɱɔ̃ŋki	*-ɱɔ̃	*-wɔ	ɔ-wɔ
	8.2 'snake'				4,4a,6	
98.	*-yúdù	*-ɱūlū	*-ɱīlī	*-ɱīlī	*-ɦʷīlī	ɛ-ɦʷīnī
	4.2,8.2 'nose'					
99.	*-yú́édé	*-ɱūɛ̄lɛ̄	*-ɱīlī	*-ɱī	*-ɦʷī	ŋ-ɦʷī
	4.1,8.2,10 'hair'				4	

(100-4 are now 67a-e, and 105-9 are now 73a-e.)

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