Cognates between Northern Atlantic Groups and Bantu

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This is a work-in-progress list of cognates between the following Niger-Congo (or "Atlantic-Congo" depending on preferred terminology) groups:

	# of extant languages	size of lexica	# of reconstructed roots
Fula-Sereer	2+ (many Fula dialects)	~15,000 each	>400
Cangin	3~5 (3 dial. continua)	~2000 each	>500
Wolof	1	~15,000	—
Bainunk-Kobiana-Kasanga	~5 (3 Bai. groups)	4x 1500-2000, ~500 (Kas.)	>350
Biafada-Pajade	2	3500 (P), 600 (B)	>200
Tenda	3	~4000 each	400, +400 Bassari-Bedik
Joola	10~20	3x ~5000, 1x ~3000, 1x ~1000, ~15x 200	(preliminary)
Manjak cluster	2~4	1x ~3000, 1x 2000, 2x 600	>1000 (Doneux)
Balanta	1~2 (2 dialect areas)	~3000, ~2000	—
Bijogo	1~3 (3 dialect areas)	1x ~1800, 2x ~600	—
Benue-Congo	~1000		very few
Bantu	>500		1367 "main" in BLR3

Comparisons with Benue-Congo are for the most part limited to Bantu. Bantu reconstructions are given in the form they appear in the BLR3, but with Guthrie's vowel symbols. The few PBC reconstructions (in fact "pseudo-reconstructions") are from De Wolf (1971). Some of the Manjak cluster reconstructions can be found in Doneux (1975), others are my own. All other reconstructions are my own.

1 The development of consonants in each group

The identification of cognates assumes the regular consonant correspondences in Table 1. This presents the reconstructed Proto-Niger-Congo consonants and their regular reflexes in root-initial position, when not preceded by a consonant (which leads to mutation in some groups). The regular reflexes are usually the same in other positions, but there are numerous differences. Table 2 is a full chart of the regular outcomes in all positions for proto-languages (all columns shaded in blue, +Balanta) as well as modern languages. "#" indicates a word boundary, and "$C" gives the outcome in stem-initial position. In the case that there are different reflexes in combination with a preceding consonant, these are also indicated in Table 2. A "gem" column shows the outcome of consonants when geminated, which is caused by certain oral consonants assimilating to the following consonant. A "nas" column shows the outcome of consonants when prenasalized, i.e. preceded historically by a nasal consonant. There are two environments in which these fortis/geminated and prenasalized outcomes arise. 1) In root-initial position, consonant-final prefixes can lead to these outcomes. This results in the consonant mutation

systems of modern Fula, Sereer, Wolof, Kobiana-Kasanga, Biafada, Pajade, and Tenda languages. 2) Consonant clusters (or simply original geminates and NC clusters) were originally found in root-final position in CVCC roots. The outcomes of CC clusters are generally the same in these two environments. Table 2 also shows the reconstructed consonants in each group that cannot be traced to a PNC consonant. Reconstructions with these "extra" consonants generally do not have cognates outside of the group, but their origin in as of now unaccounted for. Cangin is an exception, for which cognates do exist for Proto-Cangin *x and *r (discussed below). The few consonants in parentheses in Table 2 have not been identified with external cognates, so are simply hypothesized to have descended from the corresponding PNC consonant. In both tables, sound changes (from PNC in Table 1 and from each subgroup's proto-language in Table 2) are shaded as follows: lenition, devoicing, lenition+devoicing, (de)nasalization, deimplosion, fortition, hardening+devoicing, hardening+voicing, other change.

Table 1: Regular consonant reflexes in each proto-language (in root-initial position)

NC	FS	Cang.	Wolof	BKK	BP	Tenda	Joola	Manj.	Bal.	Bij.	Bantu
p	f	p	f	f	f	f	f	f	f	p	p
t	t	t	t	r̥	r̥	r̥	l, t	ɬ	t	t	t
c	s	s	s	ʃ	s	ʃ	s, c	c	s	c	c
ţ	s	s	s	s	s	ʃ	ɬ, t	t	s	ţ	c
k (pal)	x	k	h	k	h s	x ʃ	Ø, k	k	h	k	k
x	x	H	x	h	h	x	Ø, k	h	h?	k	k
h	h	h	h	h	w/Ø	x	Ø, k	h	h	Ø	Ø
b	b	w	b	b	b	w	f, p	p	f	β	b
d	r	l	d	d	r	r	t	tr̥	θ	r	d
g (pal)	g	ɣ	g	g	g j	ɣ y	k	k	g	g	g y
w	w	f	w	w/Ø	w/Ø	w	w	w		β	
l	l	n	r	n	y	n~l̃	l	l	l	Ø	Ø?
j~y	y	y/Ø	y	y	y	y	y	y		y/Ø	y
ɓ	ɓ	ɓ	w/Ø	Ø	ɓ	ɓ	b	b	b	b	b
ɗ	ɗ	ɗ	l	r	ɗ	ɗ	d [d~r]	d [d~r]	d	ḍ	d
ƴ	ƴ	ƴ	y?	y	ƴ	ƴ	j	j?	j	j	y?
m	m	m	m	m	m	m~w̃	m	m	m	m	m
n	n	n	n	n	n	n~l̃	n	n	l	n	n
ñ	ñ	ñ	ñ	ñ	ñ	ñ~ỹ	ñ	ñ	ñ		ɲ?
ŋ	ŋ	(ŋ)	ŋ	ŋ	ŋ	ŋ~ỹ		ŋ			

Table 2: Regular consonant reflexes in all positions in each proto-language and in modern languages

Niger-Congo	Fula-Sereer	Fula			Sereer			Cangin	Noon-Laalaa	Saafi	Ndut-Paloor	Wolof			BKK	Bainunk			Kobiana, Kasanga			Biafada-Pajade	Biafada			Pajade			Tenda	Konyagi			Bassari			Bedik			Bak	Joola	Fonyi	Banjal	Kuwaataay	Huluf	Manjak cluster	Mank.-Hula	Bok	Cur	Pepel	Balanta (f.-Ja)	Bijogo	Orango	Ka-gbaaga	Ka-mona	Bantu
		C	gem	nas	C	gem	nas					C	gem	nas		C	gem	nas	C	gem	nas		C	gem	nas	C	gem	nas		C	gem	nas	C	gem	nas	C	gem	nas																	
p	f	f	pp	mp	f	p	mb	p f#	p f	p f	p f	f	pp	mp	f	f	p	mp	f	pp	pp	f	f	pp	mp	f	p(p)	p(p)	f	f	p	p	f	p	p	f	p	p	f w#	f w/Ø	f Ø	f w/Ø	h w/Ø	h w/Ø	f w						p ...Ø	p Ø	p Ø	p Ø	p
t	t d#	t t	tt	nt	t d	t	t	t ɽ#	t s	t s	t l	t	tt	nt	ɽ #t	l t	t	nt	h, r t	tt	tt	ɽ	r	tt	nt	s	t(t)	t(t)	ɽ	r	t	t	s	t	t	s	t	t	ʈ	l, t	l, t	l, ʈ	n, t	l, t	ɬ	ʃ	s	s	ɬ	t	t	ʈ	t	t	t
c	s	s	cc	nc	s	s/c	s	s	s	s	s	s	cc	nc	ʃ #c	s c	c	nc	s s	cc	cc	s	s	cc	nc	s	c(c)	c(c)	ʃ	s	c	c	ʃ	c	c	ʃ	c	c	c	s, c	s, c	s, ʃ	s, c	s, c	c	θ	c	c	s	s	c	s	c		c
ʈ																s	r	?	?	s	cc	cc																		ʈ	ɬ, t	l	Ø	l	ɬ	t	t	t	t	t	s	ʈ	ʈ̪	(ʈ)ʂ	ʈ	
k	x [χ]	h	kk	nk	x [χ]	q	nq [NG]	k	k	k	k	h	kk	nk	#$k x	k x	k k	nk nk	h h	kk kk	kk kk	h s(i)	h s	kk cc	nk nc	Ø/w/y s	k(k) c(c)	k(k) c(c)	x ʃ(i)	x s	k c	k c	x ʃ	k c	k/ng c	h ʃ	k c	k/ng c	k						k	k	k	k	k		k, kp	k, kp	k, kp	k, kp	k
x								H	h	h	h	x [χ]	qq	nq		h	h	h	w/y	w/y	w/y		w Ø	ww	ww	w Ø	w	w										h	Ø, k	Ø, k	Ø, x	Ø, k	Ø, k	h	h	Ø/w	h	Ø/y	h					
h	h	h	kk	nk	$h x	k	ng	h	Ø	Ø	h	h	kk	nk								#w Ø																		Ø	Ø	Ø	Ø	Ø	Ø							Ø	Ø	Ø	Ø	Ø
b	b	w	bb	mb	f	p	mb	w Ø#	w Ø	w Ø	w Ø	b	bb	mb	b	b	b	mb	b	bb	mb	b	b(w)	bb	mb	p	p	mp	w	w	b	mp, nk	w	b	mb	w	b	mb	p w#	f, p w	f, p Ø	f, ɸ w/Ø	h, f w/Ø	h, f w/Ø	p w	p w	p w	p w	p w	f Ø	β	β	w/Ø	β/w	b
d	r	r	dd	nd	r	t	nd	l	l	r	l	d	dd	nd	$d d #d	d r d	d d	nd nd	l l d	dd dd	nd nd	r #d	l l	r	nr	r t	t	nt	r	l	d	nt	r	d	nd	r	d	nd	t	t	t	ɽ	t	t	ʈ̪	ɳ	ʈʂ	h	ʐ̪s	θ	d, r	ɖ, r	d, r	d, r	d
g	g	*ɣ	gg	ng	g	k	ng	ɣ	h	h	Ø	g/Ø	gg	ng	g	g	g	ng	g, g/Ø	gg	ng	g j(i)	g j	gg jj	ng nj	k/Ø c	k c	nk nc	ɣ y(i)	y/w y	g j	nk nc	ɣ y	g j	ng nj	ɣ y	g j	ng nj	g	k	k	x	k	k	k	k	k	k	k	g	g, (gb)	g, gb	g, gb	g, gb	g y
w	w	w	bb	mb	w	b	mb	f	f	f	f	w	?	w	w/Ø	w	w	w	w	w	w	#w Ø	w Ø	ww	ww	w Ø	w	w	w	w	b	mp, nk	w	b	mb	w	b	mb	w	w	w	w	w	w	w	w	w	w	w	(w)	β	β	w/Ø	β/w	?
l	l	l	ll	ll?	l	l	l	n	n	n	n	r	?	r	n	n	n	n	n	n	n	y	y	yy	yy	y	y	y	n~l̪	l̪	n	n	n	n	n	l	l, n	n	l	l	l	l	n	l	l	l	l	l	l	Ø	Ø	Ø	Ø	Ø?
j~y	y	y	jj	nj	y	y	y	y/Ø	y/Ø	y/Ø	y/Ø	y	?	y	y	y	y	y	y	y	y								y	y	j	nc	y	j	nj	y	j	nj	y	y	y	y	y	y	y	y	y	y	y	(y)	y/Ø	y/Ø	Ø	Ø	y
ɓ	ɓ	ɓ	ɓɓ	(Nɓ)	ɓ	ɸ̀	ɸ̀	ɓ	ɓ	ɓ	ɓ	w/Ø	b(b)?	?	Ø	Ø	?	?	Ø	bb?	?	ɓ	b	bb	mb	b	bb [ɓɓ]	mb	ɓ	v	ɓ	mb	ɓ	ɓ	m	ɓ	ɓ	m	b	b	b	β	b	b	b	b	b	b	b	b/β	β/w	b	b	ḇ	b	b	b
ɗ	ɗ	ɗ	ɗɗ	(Nɣ)	ɗ	f	f	ɗ	ɗ	ɗ	ɗ	l	d(d)?	?	r	n	nd/r?	nd/r?	r, d	dd	dd	ɗ	d	dd	nd	d	dd [ɗɗ]	nd	ɗ	ry	ɗ	nd	l	ɗ	n	ɗ	ɗ	n	d	d [d~r]	r	r	r	l ʔ#	d [d~r]	d~r	d~r	d~r	d~r	d	ḍ	ḍ	d	d	d
ɣ	ɣ	ɣ	ɣɣ	(Nɣ)	ɣ	c̀	c̀	ɣ	ɣ	ɣ	ɣ	ɣ?	j(j)?	?	y	y	?	?	y	jj?	?	ɣ	j	jj	nj	j	jj [ɣɣ]	nj	ɣ	y	ɣ	nj	ɣ	ɣ	ñ	ɣ	ɣ	n	j	j	j	j	j	j	j	j	ʒ	j	j	j	j	j	j	y?
m	m	m	mm	mm	m	m	m	m	m	m	m	m	mm	mm	m	m	m	m	m	m	m	m	m	mm	mm	m	m	m	m~w̃	w̃	m	m	w̃	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
n	n	n	nn	nn	n	n	n	n	n	n	n	n	nn	nn	n	n	n	n	n	n	n	n	n	nn	nn	n	n	n	n~l̪	l̪	n	n	n	n	n	l	l, n	n	n	n	n	n	n	n	n	n	n	n	n	l	n	n	n	n	n
ñ	ñ	ñ	ññ	ññ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ññ	ññ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ~ỹ	ỹ	ñ	ñ	ỹ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ	(ñ)	ñ	ñ	ñ	ɲ
ŋ	ŋ	ŋ	ŋŋ	ŋŋ	ŋ	ŋ	ŋ	(ŋ)	ŋ	ŋ	ŋ	ŋ	ŋŋ	ŋŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋŋ	ŋŋ	ŋ	ŋ	ŋ	ŋ~ɣ̃	ỹ/w̃	ŋ	ŋ	ɣ̃	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	(ŋ)	ŋ	ŋ	ŋ	ŋ	ŋ	ñ	ñ	ñ	ñ	(ŋ)	(ŋ)	ŋ	ŋ	ŋ	...Ø
	j	j	jj	nj	j	c	nj	x#	k	k	h	j	jj	nj	j	j	j	nj	z, j	jj	nj																								g	g	g	g/ɣ	g	gb				
	d	d	dd	nd	d	t	nd	VrV	t	t	l				l?	l	?	?	l	dd	nd																													n				
																																																		r				

I am rather confident in the phonetic value of most of the reconstructed Proto-Niger-Congo consonants, but a few require comment.

- **c and **ʈ were either stops or affricates. Both usually end up as fricatives in the modern languages, but remain as stops/affricates in a number of distant groups (e.g. Kamona Bijogo, Swahili). A change from a stop/affricate to a fricative would be trivial, but the other direction is much less likely. Nonetheless, these quite possibly had optional fricative allophones in PNC.
- Uvular **x was either a stop [q] or fricative [χ], perhaps both in variation.
- Given its realization in Cangin (f) and Bijogo (β), it is possible that **w was a fricative [β]. However changes of the sort [w > v] are amply attested cross-linguistically.
- **l has a tendency to nasalize or lenite, but [l] seems by far the most likely original value.
- **j~y was likely a stop/afficate word-initially (as in class prefixes), but a glide elsewhere. It is true that in Benue-Congo the sound associated with this phoneme often becomes [z], but this could be due to hardening ([y > ʒ > z]), and in some cases (often in Bantu) many tokens of "j~y" in fact come from earlier *g.

Naturally, evidence from other Volta-Congo groups (and more evidence from the rest of Benue-Congo) would be very valuable, especially in determining which roots are shared between Volta-Congo and the various Atlantic groups. However, under the hypothesis that the Atlantic groups represent primary branches of Niger-Congo, evidence from Volta-Congo as a whole would be of equal importance to each Atlantic group in reconstructing the Proto-Niger-Congo phonemes and roots. This of course assumes that Volta-Congo is a valid subgroup, which may turn out to be incorrect. Incorporating evidence from the remaining Atlantic groups (Nalu, Rio Nuñez, Mel, Sua, Limba, Gola) will be extremely important.

For now I do not have a strict hypothesis of regular vowel correspondences, though I do not ignore vowels in deciding cognacy. Generally front vowels correspond with front vowels across subgroups, back with back, and /a/ with /a/. Between certain groups the exact vowel correspondences are quite clear, but in other cases they are messy. Even in Proto-Bantu reconstructions, the same root often has multiple variants with different vowels. Notes on each family follow for changes that are not fully explained by Tables 1 and 2.

1.1 Fula-Sereer

a) In Fula, geminates degeminated word-initially, and voiceless prenasalized stops denasalized word-initially. Some word-initial "geminates" are in truth consonants that were hardened by a prefix-final *l, before the prefix became a suffix (still retaining the unassimilated /l/).
b) Unlike in all other languages, Fula retains a number of C_1C_2 clusters in CVCC roots, rather than always forming geminates or prenasalized stops. As such, the "gem" and "nas" columns do not in fact show the full range of outcomes for original CC clusters.
c) The development of **t is not straightforward. In most cases, it becomes Sereer /d/ and Fula /t/ in root-final position. I take this to be the result of *d in Proto-Fula-Sereer, which then devoiced stem-finally in Fula (cf. Fula *mut-* 'sink' vs. *mud-aa-* 'sink intentionally' = Sereer *mud-oox*). In two words Sereer has /t/: *ŋat* 'bite' and *a-fat* 'road.' For the first, cf. *ŋaʂ and *ŋatt 'bite' co-existing in Tenda. For the second, the noun is in the *a-II* class, which sometimes causes fortition of root-final consonants, in addition to the regular fortition of root-initial consonants; cf. *a-qooq* 'farming' from the verb *xoox* 'farm.' More relevant are *o-feet* 'tomorrow' and *mbeet* 'dawn' from *feed* 'to dawn,' and *maat* 'government' vs. *o-maad*

‘king.’ These /t~d/ alternations are irregular, but support the idea that PFS root-final *d in nouns can sometimes become Sereer /t/. In root-initial position, PFS *t (from **t) sometimes becomes Sereer /d/. This is the result of the analogical reassignment of certain roots from one mutation series t~t~t to another, d~t~nd, made possible by their shared grade II consonant. E.g. from the noun *a-toƀ* ‘rain’ in the *a-II* class, the root could be etymologically-correct *toɓ*, or innovated *doɓ*— the second of these analogically replaced the former. Being an analogical change, there are many *t-initial roots in which this t > d switch does not take place.

d) There are some complications involving root-final k/g. Native root-final /k/ does not appear in Fula, and in Sereer can derive only from earlier *gg. However there are also four roots (all very widespread) in which Sereer has final /k/ that does not derive from *gg: *naak* ‘cow’ (Fula *nag-ge*), *fa-ñiik~fa-ñiig* ‘elephant’ (Fula *ñii-wa*), *ɓook* ‘mosquito’ (Fula *ɓow-ngu*), *ɓaak* ‘baobab fruit’ (Fula *ɓoh-re*). In the first three, Fula shows the reflex of **g, and in ‘baobab’ the reflex of **k or **x. It is also significant that all four Sereer words have a long vowel, but not in other groups. Comparing between other groups, there is disagreement about the final consonant in ‘baobab’ and ‘mosquito,’ with some groups showing the outcome of **g, and others **k. ‘Cow’ and ‘elephant’ seem to all derive from **g-final roots in other groups (but *k in some of Bainunk?). ‘Baobab’ has a number of irregularities across and within groups, but for the other three roots it seems most likely that the PFS roots were *g-final as in other groups. Thus there was a Sereer change: PFS *Vg# > VVk~g. The devoicing took place only optionally in ‘elephant,’ and did not take place at all in *ndiig* ‘rainy season’ and *o-maag* ‘older sibling,’ while the vowels do lengthen. In *ɓog* ‘bathe’ there is no change, perhaps because it is a verb (which are generally suffixed).

e) The final /k/ in the Sereer numerals ‘2-5’ is not straightforward. I assume it was original only in ‘2’ and spread by contamination to ‘3-5.’ However [k] should not exist even in ‘2,’ as singleton *[k] does not exist in PFS.

f) Proto-Fula *ɣ becomes ʔ/w/y depending on the vocalic context, and varying by dialect.

g) PFS roots with *j and root-initial *d no not have outside cognates, and were presumably innovated. In fact PFS root-initial *d is quite rare, though d-initial roots are common in both modern languages.

h) Given that it develops to Fula /w/, Sereer /f/, *b was likely a fricative [β].

i) Both Fula and Sereer have modern b-initial roots, but these are all borrowed or otherwise innovated; likewise for Fula g-initial roots (PFS *g > F. *ɣ).

1.2 Cangin

a) For justification of the Proto-Cangin reconstructions, see Merrill (in preparation).

b) In morpheme-initial position, **t often becomes Cangin *s (see ‘leaf’), supported by a few Cangin-internal alternations (e.g. *tị̀ɓ ‘forge,’ *sị̀sị̀ɓ ‘smith’). This is in fact a post-vocalic lenition, as nouns were all earlier prefixed. This does not happen in verbs, which were unprefixed. However it also seems to occur word-finally in some cases, for example in the reversive suffix *-ị̀s. This lenition to *s must post-date the earlier lenition of final **t to *r̥, affecting tokens of *t that could not originally lenite (non-final tokens and, likely, some earlier geminates).

c) **y is often deleted root-initially: seemingly always after a class prefix (‘honey, elephant’), and in Noon-Laalaa-Saafi before a front vowel, cf. NLS *e*ɗ́ vs. Ndut-Paloor *ye*ɗ́ ‘give.’

d) Cangin *H was likely uvular [χ], and is the reflex of **x. It appears in all positions.

e) Cangin *x cannot appear word-initially (like *r̥). It is distinct from *H, but in the few outside cognates it also corresponds to **x ('four' and the anticausative suffix). For now this issue is unresolved.
f) Cangin *r is very rare, as it can only appear intervocalically— in fact only stem-initially in prefixed nouns. Its phonetic value is not known. It becomes Noon-Laalaa-Saafi /t/ and Ndut-Paloor /l/. The root *-reɓ can appear in *ɓe-reɓ 'woman' and *reɓ 'female'; the unprefixed root becomes NLS /leɓ/, vs. prefixed /ɓeteɓ/. Only four *r-initial roots are reconstructed, but all have potential outside connections. *kV-ra 'pot' is from the Mande Wanderwort *daa* (cf. Wolof *ndaa*, Tenda *-ɗaa). *a-roɣ 'stone' can be compared with Manjak *pə-laak, Balanta f-làagí, in which the root initial consonant must come from **l. *ki-rik 'tree' appears to be cognate with **t-initial roots like Tenda *-r̥əx, Bantu *-tí. *ɓe-reɓ 'woman' may be cognate with Fula-Sereer *-rew, in which the initial consonant comes from **d. Thus, Cangin *r might correspond to PNC **l, **t, **d in three different roots, and Mande /d/ in the borrowing 'pot.' This issue is unresolved.
g) 4 voiced prenasalized stops existed in Cangin. Some class prefixes result in root-initial prenasalized stops, most notably *n- but also probably *ca- (animals) and perhaps some others. However there are hardly any roots which appear both nasalized and not nasalized (one that does is *leen ~ *n-deen 'kapok' in two different classes), so it is hard to know which consonants become ND when prenasalized, and which ones simply delete the nasal.
h) There is no direct evidence for geminates in Cangin, but the existence of earlier root-final geminates is the easiest explanation for root-final *p, *t, *c, since **p, **t, **c become PC *f, *r̥, *s in root-final position. There is no evidence of any sort for geminates in root-initial position— note that PC *c is never found root-initially.
i) The development of consonants in prefixes is not represented in Table 2.

1.3 Wolof

a) Geminates (created by the prefixes *ba^{X}- and *si^{X}-) are degeminated word-initially. Voiceless prenasalized consonants were only recently denasalized in word-initial position— they remain in older sources.
b) **ɓ > Ø after a C- class prefix, > w elsewhere
c) PNC implosives are lenited, but seem to remain as voiced egressive stops when geminated. However the evidence is quite limited; cf. *gàddaam g-* 'spleen' and *gàddeem g-* 'megabat' (vs. Sereer *(g)a-ɬeem*). In root-final position, this assumption is important in at least *xob* 'leaf.' It is unknown what happens to implosives in NC clusters, though it is quite likely that the class prefix in 'spleen' and 'megabat' was *gaN-*, since there is independent evidence for a prefix of this shape, but none for hypothetical *ga^{X}-*.
d) *g is deleted root-initially after a C- class prefix, e.g. *b-opp*, †*i-gopp* 'head(s),' *b-ët*, †*i-gët* 'eye(s).' Intervocalic deletion of *g did occur in other positions, e.g. earlier sources' *Lagatir* (proper name), *jagaraf* and *jagodin* (government officials) > modern *Latir*, *jaraf*, *jawrin*.
e) /h/ is preserved in Saalum, but becomes Ø/w/y in other dialects. Postvocalic /d/ becomes /r/ in most dialects, but remains in Saalum. Wherever relevant I cite the Saalum form of words (if available), which can be easily identified by having /h/ and postvocalic /d/.
f) Wolof exhibits gemination of root-final consonants in many roots (e.g. *nopp* 'ear,' *honn* 'swallow'). This is not a predictable change, and is currently unexplained.
g) Wolof roots with /j/ do not have outside cognates; the consonant was presumably innovated.

1.4 Bainunk-Kobiana-Kasanga

a) There are some differences between outcomes in the "Bainunk" columns of Table 2 and the individual Bainunk languages.
b) Proto-Bainunk did likely contain geminates, and these are (irregularly?) maintained in root-final position in Guñaamolo. They seem to be indicated in the earliest Bainunk wordlist from the 17th century (published in D'Avezac 1845). Kasanga is not reported to have geminates (except /dd/?), but the language is extremely poorly documented.
c) In the 17th century list, *d is always /d/. Thus it seems that it was not lenited in any position in Proto-BKK or Proto-Bainunk. In all modern Bainunk languages *d > r except word- and stem-initially.
d) In Guñaamolo, the /t/ of other Bainunk varieties (from *tt or *nt) becomes /r/ word-finally. This is a recent change, seen even in recent borrowings.
e) The proto-phoneme *k~x was [k] in word- and root-initial position (and when geminated), and [x] elsehwere. It remains as [x] in Gubëeher, and develops to [h] in Guñaamolo. Gujaher sources are inconsistent in transcribing [x] vs. [h]— it seems the language is in the final stages of merging the two sounds. In Gubëeher, root-initial *[k] spirantizes to /x/, but word-initial *[k] remains /k/. Geminate *kk is also /k/, and /x/ becomes [k] after a nasal. Prefixes with *ki develop to /si/ in all varieties but two: Gujaher has /ci/, and the 17th century wordlist has either [ci] or [ki] (the spelling <qui> is ambiguous, but it cannot be /s/).
f) All modern languages show palatalization of velar stops before front vowels to some extent. It is most common in Gubëeher and Gujaher, and rarest in Kobiana and Guñaamolo. Nonetheless it had not taken place in Proto-BKK, as in the relevant cognates at lease one language always preserves the original velar (assuming a Kobiana cognate exists). When palatalization affects *k in Gubëeher, it becomes /c/, escaping the later spirantization change.
g) **w > BKK *w, but > Ø/y before a front vowel; there is only one relevant example of this second outcome, 'fish scale.'
h) The proto-phoneme *c~ʃ was only realized as [c] in word-initial position, which in effect was only in noun class markers. It is retained as /c/ in Gujaher, but becomes /s/ in all other BKK languages, including the variety recorded in the 17th century list.
i) As *s becomes Bainunk /r/, KK /s/, and *ʃ becomes /s/ in all languages, it may be that *ʃ was [s], and *s [ʂ], informed by its historical origin as **ʈ.
j) In Kasanga, *g > Ø except in word- and root-initial position.
k) A number of changes involving prenasalized consonants in root-final position are seemingly inconsistent. Especially in Guñaamolo and Gubëeher, VNC often becomes VVC. In other roots, the oral stop of NC is lost in one or more languages, most often Kobiana, though it is possible that it was added somehow in the others— see 'nose' and 'breast' in particular.
l) Given the Kasanga reflex /d/, *r may in fact have still been [ɗ] as in PNC.
m) *j is reconstructed in an appreciable number of roots, but these do not have outside cognates. *j-initial noun class prefixes simply come from PNC *j~y, which becomes BKK *y in roots.
n) There are no outside cognates for *l, and in fact only a few non-borrowed roots can be reconstructed with this consonant in Proto-BKK. It did likely exist in Proto-BKK, but was rare and perhaps a borrowed sound.

1.5 Biafada-Pajade

a) **h, **w > *w word initially (only possible in verbs), > Ø elsewhere
b) Velar palatalization occurs only before *i; this had already taken place in Proto-BP.

c) PB *j is almost exclusively from earlier **g before *i, but there are two reconstructed roots with *j in other positions: **jakk* 'give present' and **mij* 'think.' I consider these exceptional. In the prefix *ji-, *j may come from PNC **j~y, which becomes BP *y in roots, but in theory could come from **gi.
d) Original geminate implosives always remain geminate in Pajade. Wilson (1965) describes Pajade voiced geminate stops as implosive (indeed they all come from Proto-BP implosives). For voiceless stops, the situation is unclear. In Meier's (2001) and Cover's (2010) data, Pajade does have voiceless geminates in some words, but only relatively rarely (including zero tokens of /cc/). From an etymological standpoint, it is not clear why these appear in the words that they do and not others. Wilson reports many more tokens of voiceless geminates, and proposes that they derive regularly from the fortition or prenasalization of original voiceless obstruents, versus the singletons which derive from the fortition of voiced egressive obstruents/sonorants (i.e. *pp, *mp > pp, but *bb > p, though he does not put it in these terms). All three sources report geminate nasals, but only Wilson has them root-initially (as in Biafada). Meyer has no examples of /ññ/, and only one of /ŋŋ/. Biafada also sometimes has a singleton for an expected geminate; recall that documentation is very limited.
e) Biafada /bw/ is always from Proto-BP *b, usually next to a round vowel, as in the class prefix *bo- > *bwa-*. However in some cases there is not an adjacent round vowel.
f) In Pajade, BP *g > Ø except word initially or when preceded by a consonant
g) Similarly, in Pajade, BP *h > Ø, or > w/y word-initially (in verbs)

1.6 Tenda

a) Velar palatalization occurs only before *i, which then becomes *ə. This had already taken place by the Proto-Tenda stage.
b) Labialized velars develop in all languages from velars next to round vowels. The round vowel then generally becomes /ə/.
c) Prenasalized Proto-Tenda *x > BB /k/ or /ng/ inconsistently; this is due to an intervocalic voicing change *x > /ɣ/ in Bedik and southern Bassari which seems to have exceptions, or dialect borrowing was involved.
d) No Proto-Tenda roots are easily reconstructable with *ɣ outside of root-initial position, and /ɣ/ does not appear in this position in Bassari-Bedik. The reflex of non-root-initial **g is Ø in all languages, as in 'cow,' 'rainy season,' and 'elephant.' However *ɣ did exist in this position in Proto-Tenda, and leaves a trace in the preceding vowel. Konyagi has /i/ in *ỹi-l̰ì* 'cow' which has *a in all outside groups. A reconstruction *ji-na (with **g lost) cannot account for the Konyagi form, but *ji-naɣ can, as *ɣ becomes Konyagi /y/ except next to a round vowel (> /w/). The monophthongization *aɣ > *æy > i is straightforward. The same change took place in **i-ñí* "elephant," and here it seem the Proto-Tenda reconstruction must be *geŋ-ñaɣ, based on Bedik *ge-ñò*, which could develop as *ñaɣ > *ñaw > *-ño*. A reconstruction with *y or *w could not account for both languages. In *nuuɣ > *l̰ə̀w̃* 'song,' Konyagi retains a consonantal reflex, as do Bassari and Bedik in **aa-ɗiiɣVr* 'stranger' (though the /y/ could be epenthetic). Geminate *gg is found in final position, and simply degeminates in the modern languages like all other Proto-Tenda geminates.
e) In Konyagi, *ɣ, ɣ̃ > w, w̃ next to a round vowel, > y, ỹ elsewhere.
f) In Bedik *l̰ "geminates" to /l/ when the preceding consonant was *r from the prefix *er-, e.g. *er-l̰iil̰ > *i-líl* 'egg,' but true *nn > /n/.
g) In Bassari and rarely Konyagi, there can be a "nasalization transfer" between a nasalized and oral continuant in a root, e.g. *-yə̰w̃ 'sing' > Bassari *-ỹúw*, vs. Konyagi *-yə́w̃*, Bedik *-yùm*.

h) Konyagi /w/ is in some roots phonologically labial, and in others velar, as it can derive from Proto-Tenda *w or *ɣ. Most /w/s were reanalyzed as velar, and now take part in the w~g~nk mutation series. The opposite direction of reanalysis is rarely seen, as in *gaŋ-ɣur > *æ-mpùl* 'cricket.'
i) In Konyagi *y̆ and *y merge as /y/, but remain distinct when geminated or prenasalized, yielding two series y~y̆~nj and y~j~nc. The second of these has become overwhelmingly preferred, with most y-initial roots (including all verbs) reassigned to this mutation series.
j) I do not consider tone here, but both Konyagi and Bassari have inverted the Proto-Tenda tones, preserved for the most part in Bedik. This accounts for the high number of rising tone patterns in Konyagi and Bassari. In general, the Bedik tones line up with Proto-Bantu.

1.7 Bak

Bak as a whole is characterized by the following set of consonant changes:

PNC	Proto-Bak	Joola	Manjak	Balanta
**ɓ, ɗ, y̆	*b, d, j	*b, d~r, j	*b, d~r, j	b, d, j
**b, d, g	*p, t, g	*f, t, k	*p, t̪, k	f, θ, g
**p, t, k	*f, ţ, k	*f, l, Ø	*f, ɬ, k	f, t, h

Proto-Bak *ţ from **t is some lenited voiceless coronal. Given the Balanta reflex [t], it was possibly still [t], but if so **d could not have already become [t] in Proto-Bak. Another shared Bak change involves the development of word-final **p and **b. These tend to be /w/ or Ø in the modern languages, suggesting a change to Proto-Bak *w in this position. Words exhibiting this change are most notably 'head, ear, pour, millet.' In Joola the development is to *w after a mid vowel (further deleted in Fonyi), and Ø after a high vowel. However all of these words have a round vowel, and based on some Proto-Bak forms like *-ţap 'sting,' and the outside cognates for Joola *-lefej 'sole' (**t-p) and Manjak *-t̪raf (**d-p), it seems this change only took place after a round vowel. Furthermore geminate **pp was not subject to this change.

Proto-NC CC clusters do have different reflexes in Bak languages versus single consonants. However the evidence for their development is somewhat limited, since no productive system of root-initial consonant mutation arose in Bak (though see the discussion of the Joola fortis series below), so evidence comes only from original **CC-final roots. Thus these reflexes are not shown in Table 2. The development of Joola prenasalized consonants is recoverable from Joola-internal comparison, and involves some notable changes (e.g. *-wunkul > Eegimaa -*vvugul* 'new').

1.7.1 Joola

Proto-Bak {*ţ, c, ţ̩, k, h, p} each have two regular root-initial reflexes in Joola. The first is more common, and the second "fortis" reflex less common. Note that Proto-Bak *f (from PNC **p) does not have a fortis reflex, and all other Proto-Bak consonants show only a single Joola reflex.

Proto-NC	**t	**c	**ţ̩	**k	**x, h	**b
Proto-Bak	*ţ	*c	*ţ̩	*k	*h	*p
Joola regular reflex	l	s	ɬ	Ø	Ø	f
Joola fortis reflex	t	c	t	k	k	p

These split reflexes are supported by the following cognates:

**NC > *Bak	Joola	Manjak	Balanta	PNC	
**p > *f	f	f	f	**p	
no Jo. fortis	*-feɬul	*fət	(fʊr, fɛr)	p-ʈ	‘flay’
	*-fu̱uten	*fuutr̥		p-d	‘blow’
	F. -fac			p-cc	‘split’
	*bu-fal	*ka-fal			‘body hair, fur’
	*-fum	*fʊm~fɔm			‘break’
	*ka-fin	*ka-fiin			‘white hair’
	Kw. -fa̱an	fʌl			‘joke’
	Gus. -fiiten	*fiitr̥			‘lightning (v)’
	Gus. ga-fuul	*fɔl			‘(be) empty shell’
**b > *p	f	p	f	**b	
	*e-fool		(mfôl)	b-t	‘toad’
	*-fint	*pintr̥			‘lie (down)’
	*-faal	*pal			‘surpass’
	*-fu̱l	*pul-a			‘crawl’
*p > Jo. fortis	p	p	f	**b	
	*-puum/piim	*puman	fɔɔm	b/p-m	‘be blind’
	*-put	*pʊʊtr̥		b-d	‘rot’
	*-pi̱n	*pɪn			‘count’
**t > *ʈ	l	ɬ (Bok s)	t	**t	
	*-lub	*ɬʊb	tʊb	t-ɓ	‘rain’
	*-liir	*ɬiir	tɪɪd	t-ɗ	‘braid’
	*e-liw		tîw	t-w	‘meat’
	*bu-lefej			t-p	‘sole’
	*-liik	siɛk			J ‘measure/try’ M ‘take’
	F. u-lur	u-suar			‘mountain’
*ʈ > Jo. fortis	t	ɬ (Bok s)	t	**t	
	Eeg. -ttuŋ	*ɬɔn	(rɔŋ)	t-N	‘pound in mortar’
	*e/fu-ʈuk	*u-ɬʊk			‘fist’
	*e/fu-tu̱k	u-suk			‘knot’
	*fu-tonj	*pə-ɬɔnj			‘heel’
	Kasa -tuul	sʊəl			‘pick fruit’
**c > *c	s	c	s	**c	
	*e-saamay			c-m	‘leopard’
	*fa-si̱m		g-sáàm		‘blood’
	*e-su̱k	*u-caak			‘country’
	*-sant	*caat			‘comb’
	*-sow	*cɔw			‘grill’
	*fu-si̱ŋa	*u-ncaŋ			‘guinea fowl’
*c > Jo. fortis	c	c	s	**c	
	*ba-caam	*u-ncaam		c-m	‘pay, money, livestock’
	F. coop		sɔɔf	c-pp	‘pound in mortar’
	*ba-caar				‘hunger’

**ʟ > *ʟ	ɬ	t	s	**ʟ	
	*-ɬuk		sʊg	ʟ-g	‘sow’
	*-ɬí	*tɛ	siim		‘hear, understand’
	SJ *o-ɬṵm	*m-tum	b-súm		‘mouth’
	*ɬṵba	*təb	sìbí		‘two’
	*fu-ɬi~ɬe	*pə-ti	rɛ́sɛ̀		‘rainy season’
	*ka-ɬiw	u-tiw			‘horsefly’
	*-ɬạab	u-tuba			‘pigeon’
	*-ɬook	*tuh			‘stop up’
	Kasa ɬaj	tuj			‘spit’
*ʟ > Jo. fortis	t	t	s	**ʟ	
	*-taf	*tap	saf		‘*piquer*’
	*bu-tṵm	*m-tum	b-súm		‘mouth’
	*ka-toj	*ka-tɔ			‘leaf’ (?)
**k > *k	Ø	k	h	**k	
	*fu-iñ		f-híɪñɛ̀	k-ñ	‘liver’
	*e-ol			k-t	‘fish’
	*fu-et			k/x-d	‘tail’
	*ka-ur	ka-nkuərum			‘fingernail’
*k > Jo. fortis	k	k	h	**k	
	*-ket	*kɪɪtr̥		k-d	‘die’
	*-kur			k-ɗ	‘rear child’
**x, h > *h	Ø	h	h	**x, h	
	*f-unt	*pə-hʊʊntr̥	(f-θʊ̀ʊnθí)	h/x-nd	‘pestle’
	*a-are	*a-har		h-ɗ	‘wife, woman’
	*ka-uul		f-hʊ̂ʊl	h/x-l	‘bone’
	*e-ut			x-d	‘star’
	*e-aaj	*u-haaj			‘bee’
	*ka-ot	*ka-hɔtr̥			‘leg’
	*-iif	*hɪɪfəntr̥			‘breathe’
	Bl. y-al	*u-haaɬ			‘heart’
*h > Jo. fortis	k	h	h	**x, h	
	*ka-kub	*ka-huub		x-ɓ	‘bark’
	*e-kondor			h-n	‘swallow,’ J ‘throat’

These fortis reflexes are the only source of Joola *p- and *c-initial roots (*t and *k also come from **d and **g). As a consequence, there are relatively few *p- and *c-initial roots that can be reconstructed to Proto-Joola when compared with other consonants. The reason for these split reflexes is not known, but the most likely explanation is gemination yielding the fortis series. Though based on rather limited evidence, the fortis reflexes in root-initial position are the same as the Joola reflexes of reconstructed PNC geminates (or oral CC clusters) in root-final position. Another possibility is prenasalization, since no Proto-Joola roots begin with prenasalized consonants. This fortition change must have taken place between Proto-Bak and Proto-Joola, as there is no evidence for it in other Bak languages, and both series of reflexes must be

reconstructed to Proto-Joola. The trigger of fortition is unknown. In other Atlantic groups, prefix-final consonants are responsible for fortition and nasalization changes, leading to systems of consonant mutation when multiple different prefixes can appear on the same root. No mutation system exists in Joola, but it is still possible that specific class prefixes are responsible for fortition (note that lexically-specific class prefixes appear on infinitive verbs, as well as nouns). Notably, 'mouth' appears with a fortis consonant in Central and Western Joola *bu-tụm, but the lenis consonant in Southern Joola *o-ɬụm* (from Proto-Joola *fu-ɬụm). In this case, a difference in noun class co-occurs with a difference in consonant series. However in another case, a difference in series exists for two nouns with the same prefix: Proto-Joola *ka-kub 'bark' vs. Gusilaay *ga-wub* 'shell.' More broadly, it is not possible to identify the roots with fortis reflexes with particular classes. For now the question of how the Joola fortis series arose is unresolved.

Other Joola notes:

a) Eegimaa (Banjal) exhibits a new gemination phenomenon, unrelated to the earlier fortition change. All Proto-Joola consonants can be either singleton or geminate in Eegimaa, with the singletons lenited; note that *w geminates as /vv/. These geminates are lexically-specific, and appear only in intervocalic position. They do not alternate with singletons. Geminate-initial roots are evenly distributed across noun classes, and in verbs. Banjal has lost the Proto-Joola vowel length distinction, and it is possible that the gemination change took place when a following long vowel was shortened (it cannot be conditioned by the preceding vowel, since it does not take place word-finally, and long vowels do not appear in Central Joola prefixes). Etymologically, Eegimaa geminate-initial roots do often line up with long vowel roots in the rest of Joola, but this is not always the case, so the question of how gemination arose is for now not resolved.
b) Eegimaa <ţ> is the lenited realization of Proto-Joola *t, but neither A. Bassène (2007) nor M. Bassène (2012) give a phonetic description. This same symbol is used for roughly [tu̥] in Manjak cluster languages (though the sound varies considerably by dialect). Eegimaa <ţ> is realized [l] root-finally before a vowel, and Proto-Joola *t > Eegimaa [l] root-internally.
c) In Banjal and Gusilaay (closely related), *k becomes /g/ in class prefixes.
d) I do not yet take Southern Joola (Bayot) into account in treating Joola. It should be noted that Bayot has a number of consonant phonemes not found in other Joola languages, including retroflexes.
e) Barry (1987) reconstructs a number of additional Proto-Joola consonant phonemes (*x, s^2, s^3, $ɬ^2$, r^2) based entirely on correspondences between Central+Western and Southern Joola (though notably these do not involve the "extra" Bayot phonemes). Since I have not taken Southern Joola into account yet, I have no explanation for these additional sound correspondences— it remains to be seen if they can be explained by conditioned sound changes.
f) Barry also reconstructs *g in *-gog 'narrow' and *ng in *ka-pongol 'skin' (*ka-pol in many languages). As *g is rare, I have left it out of Table 2 for now.

1.7.2 Manjak cluster

a) The presentation of reflexes for Proto-Manjak consonants in modern languages/dialects is adapted from the chart in Doneux (1975: 3-4).
b) Some additional reflexes of *ɬ are [ʂ] in Woo (Mankanya), [l] in Yu, and [ɬ] in Pexixe (*pəɬiɬ*). Doneux reconstructs *s, but this consonant must be *[ɬ].

c) The Proto-Manjak vowel system is: *[i, ɪ, ɛ, a, ɔ, ʊ, u, ʌ, ə]. The 4 high vowels and [a] can be contrastively long. Long high vowels diphthongize in Bok (the best studied dialect), and in Mankanya and some Manjak dialects (including Pepel) short [ɪ, ʊ] lower to [e, o]. Doneux reconstructs [e, o], but based on external and internal comparison [ɪ, ʊ] are much more likely.
d) A number of Manjak noun roots are prenasalized. This seems to be the result of earlier prefix-final consonants, though any alternations have for the most part been leveled. However some exist, often optionally e.g. *bə-tr̥ɪɪn 'canoe,' *pə-ntr̥ɪɪn or *pə-tr̥ɪɪn 'kapok tree,' *ka-ntr̥ɪɪn or *ka-tr̥ɪɪn 'shuttle (weaving).' Prenasalization does not have any effect on following consonants, except that /d/ has its allophone [d] rather than [r]. Voiceless fricatives are not prenasalized, but for now I'm not sure if this is due to the nasal being deleted, or the fricative being hardened.

1.7.3 Balanta

a) Balanta is by far the most lexically divergent of all the languages examined here— more so even than Bijogo. The identification of regular sound correspondences is aided greatly by comparison with the rest of Bak, since Balanta shares so few cognates with languages outside of Bak. Nonetheless, even the shared cognates with Joola and Manjak are relatively few.
b) The consonant system of the northern variety (f-Ja) is more conservative with regard to stops, as the Proto-Bak voiced stops remain (underlyingly) voiced. F-Ja does often lose /h/ (> Ø/w/y), including in the personal singular class prefix /ha-/ but it remains underlyingly in most words.
c) All consonants (including fricatives) can be prenasalized, but the development of a consonant after a nasal is exactly as in other positions. Root-initial prenasalization seems to be historically associated with particular prefixes, notably *gɪ-, suggesting Proto-Bak *gaN-.
d) The source of /gb/ is unknown. The best potential cognate is *f-gbʊ́ʊθɛ̀* 'star' for **x-d, where root-initial /h/ would be expected.
e) The source of /r/ is unknown. There are multiple potential cognates to roots with /r/, but with different original consonants: *fʊr/fɛr* 'flay' with **p-ʈ, *rʊŋ* 'pound in mortar' with *t-N, and *ŋar* 'scratch' with *ŋ-ɗ. See also 'flower' and 'snore,' where the final consonant correspondence is irregular across multiple groups.
f) The source of /n/ is unknown. The regular reflex of **n is Balanta /l/. There are in fact relatively few Balanta n-initial roots: 18 not obviously borrowed in Creissels and Biaye (2016), vs. e.g. 53 m-initial. However some are very basic, e.g. *a-nîn* 'woman.' So far the best possible outside connections are *f-dĭɪn* 'breast' with Sereer *ɬeen*, and *gɔ́mnà* 'hippo' with Manjak *u-kɔmal*, Bijogo *e-gɔmɔr*.

1.8 Bijogo

a) Orango and Kamona (Caravela) are recorded as having contrastive /w/ and /β/, while Kagbaaga (Bubaque) has only /w/. Wherever Orango has /w/ in Wilson's data (only 23 words, vs. 57 with /β/), the other two dialects have Ø. This may represent an original *w, but it's quite likely that the /w/ is epenthetic in Orango. There are two possible outside cognates for Orango /w/: *wes* 'sweep' (Kagbaaga *ɛs*) with Kobiana *sa-yées* 'broom,' and *ɛ-wade* 'mouse' (Kagbaage *ɛ-adik*) with the more widespread root **yaad. I take Orango /w/ as epenthetic, probably in most cases involving the loss of original **y and **h.
b) Proto-Bijogo *β is the regular outcome of both **b and **w. In Orango it is always /β/, and in Kagbaaga it is usually deleted, but is sometimes /w/ root-initially. In Kamona the evidence

is limited— it is usually /β/, but Segerer records /w/ in a few words, notably both ‘hair’ and ‘goat.’ For now I assume only a single proto-phoneme *β in all these words.

c) Root-initial *y is always deleted in Kagbaaga and seemingly Kamona; Segerer lists just 5 y-initial roots for Kagbaaga. It is often retained in Orango, cf. *yegen* ‘know,’ *ka-yoga* ‘elephant,’ vs. Kagbaaga *egen*, *e-oga*, but lost in other words (‘swallow, mouse’). In unprefixed *yaare* ‘buffalo’ it is likely originally the class prefix *e-* found on animals.

d) Wilson describes Orango /ḍ/ as a voiced alveolar, usually realized as a tap (and presumably as a stop when not a tap). It corresponds to /d/ in other dialects, and is the reflex of **ɗ.

e) In Orango *t and *d are dental stops (this distinguishes /d/ [d̪] from alveolar /ḍ/).

f) Orango /b/ is linguolabial [b̪], and corresponds to bilabial [b] in other dialects. This is an exceedingly rare sound cross-linguistically, and I doubt that Proto-Bijogo *b was realized as such. It simply comes from **ɓ.

g) I assume the loss of **ɓ in *kɔ-ɔkɔ* ‘arm,’ which does not occur in any other root, but does in the prefix *u-*. This deletion may be regular between round vowels, as there is no contradictory evidence.

h) *num* ‘bite’ has /n/ for expected *ḍ, as does *nu-numɛ* ‘tongue.’ In both cases I assume a regular nasalization of *ḍ to /n/ triggered by the following nasal. However ‘tongue’ also has an unexpected vowel, and may in fact be either contaminated by, or built from the root ‘bite.’ I do not yet know if this or other nasalization changes have occurred in other Bijogo roots.

i) In the few cognates identified for **d, Bijogo has /r/ and /d/. Based on very limited evidence, /r/ is the reflex in root-initial position (‘feather, be’), and /d/ elsewhere (‘fly, mouse’). However /r/ does appear in non-root-initial position, and there are /d/-initial roots, though no cognates have been identified for these.

j) Similar to Bak, word-final **p is lost in ‘head, ear.’ In Segerer’s Kagbaaga data, only six roots have non-root-initial /p/ (when not in a cluster /mp/), none with outside cognates. It seems that **p was lost in non-root-initial position. This could be seen as an innovation shared with Bak, but recall that in Bak the change seems to only occur after a round vowel. Orango and Kamona /β/ appears relatively often in non-root-initial position, and so it seems the same fate did not befall **b and **w (in contrast with the Bak change). Non-initial /b/ is common in all dialects— the only sound affected by this change was **p.

k) In *bu* ‘head,’ I assume the deletion of root-initial **g (recall the Wolof change), as proposed by Segerer. However this may not be warranted— root-initial /g/ is found elsewhere, including in roots with outside cognates, and unlike in Wolof there is not evidence for intervocalic *g-deletion in other environments. Nonetheless ‘head’ is already irregular in that it retains marker-initial /b/, which is regularly lost. Segerer also proposes this change in *nɛ* ‘eye,’ making it cognate with the root in all other groups, but I find this somewhat doubtful, since there is no support for the loss of final **t.

l) The labiovelars /kp/ and /gb/ likely all derive from earlier *k and *b when labialized. This change is clear in the class prefix *kɔ-* which has an allomorph *kpa-*. The clearest example of this change in a root is *-kpa* ‘bark’ from **xoba; roughly **xoba > *koβa > *kwa > kpa. Another possible example is *-kpa* ‘tap palm tree,’ compared with Cangin **kop*; roughly **kopa > *koa > *kwa > kpa (though this example is much more speculative, the root having much less external support). A third possible example is *-kpɛ* ‘die,’ cf. Bantu *kʊ́. See also ‘feather.’ There are unfortunately no similar examples for /gb/, but presumably the development from *g was parallel.

1.9 Benue-Congo and Bantu

a) In eight words I rely on Benue-Congo roots not found in Bantu— it must be stressed that I am not truly relying on regular sound correspondences here, since Proto-BC has no agreed-upon reconstructions. Nonetheless, most of these are very strong cognate candidates, and are found in other Volta-Congo groups (especially 'cow, elephant, ten'). For one root, De Wolf's reconstructed BC *i-kote 'fish,' I have been unable to find the modern forms that are the basis of this (pseudo-)reconstruction.

b) In Bantu, there is a great deal of uncertainty regarding vowel-, *y-, and *j-initial roots. Guthrie (1967) reconstructs contrastive *y- and *j-initial roots, with many more of the former. In fact his *y is by far the most common root-initial consonant. However this is guided by an assumption that all Bantu roots were consonant-initial, which is not well-supported by the evidence. Many roots like *-yàdí 'woman' and *-yámí 'chief' never show a consonantal reflex in any modern language. I assume that many Proto-Bantu roots were in fact vowel-initial, and that the regular reflex of **h and **l (and perhaps **w?) is Bantu Ø in all positions. Guthrie's *j vs. *y distinction is based on different outcomes in modern Bantu languages, but the data is rather messy. The BLR3 combines these two consonants as *j, such that there is an even larger number of *j-initial roots than Guthrie's *y-initial roots (183 out of 1367). I cite roots as they appear in the BLR3, but recall that some of these were almost certainly vowel-initial, and it is possible that a *j vs. *y contrast also existed.

c) Bantu *g is weakened to *y (or *j) in many roots. Often *g- and *y/j-initial roots are reconstructed as variants of each other. This change is important in *-jímb 'sing' and *-jɻ́cò 'eye' which have /g/ in outside groups. 'Eye' in particular requires comment. A number of Bantoid languages have the root as t-final, e.g. Dzodinka *-līt~mīt* 'eye(s)' (in which the initial consonant is a fused class 5/6 prefix), which suggests that the final stop was palatalized in Bantu. For the initial consonant, cf. Gerhardt's (1983: 226) reconstruction *-gis for a subgroup of the Plateau languages. Thus the BC form seems to be *-gito or similar. It is not currently clear to me if the weakening/palatalization of *g to *y in Bantu is regular in any sense, nor if any other roots exhibit palatalization of *t to *c.

d) Voiced prenasalized stops in roots are common in C2 position, but voiceless ones are not. Of the 1367 "main" reconstructions in the BLR3, three have *nt, five have *nk, and there are none with *mp, *nc. It seems likely that original NT clusters were eliminated at some point prior to PB, with these few roots being innovations. This is relevant in connecting BC *-tak "leg" with forms in Wolof and Biafada-Pajade, but remains to be confirmed.

e) In two roots, PB has root-final *mb for **m: *-jímb 'sing' and *-dámba 'spleen.' This seems to be a Bantu innovation, as at least 'sing' is found in other BC languages with /m/. Note also PB *-gòmb 'beat drum' vs. *-gòmà 'drum (n).'

f) Bantu is known to have lost Benue-Congo *ŋ, but the roots cited always involve non-root-initial *ŋ (e.g. *-tuŋi > *-túì̩ 'ear'). The only relevant example cited here is **t-ŋ 'pound in mortar.' I do not know what the outcome of root-initial *ŋ is in Bantu, or even if it existed in this position in Proto-BC. *ŋ is a relatively rare root-initial consonant in the Atlantic groups.

2 Cognates between groups

The cognates on the following pages are proposed with two levels of confidence: those shaded dark blue I judge to be likely, and those in light blue I judge to be unlikely, either due to irregular sound correspondences or significant differences in meaning. Words which are not shaded are listed for various reasons, but are not proposed as potential cognates. Words shaded in red are look-alikes which cannot be true cognates. In the first column I give the number of groups in which a likely cognate appears, followed by the higher number when unlikely cognates are included (e.g. 57 = 5 groups with likely cognates, and two more with unlikely cognates). The table is sorted by these numbers, with all of the roots having BC cognates shown first. The second column gives an explanation for the shared form and meaning of the proposed cognates, identified by the following codes:

1 cognacy
2 borrowing between groups
3 universal form-meaning mapping (e.g. [tu] 'spit')
0 coincidence

Often more than one code appears with a cognate set, as multiple explanations are plausible. The use of "2" simply indicates that at least one language might have borrowed the root from another NC language. The third column gives the meaning. This meaning holds for the listed cognates unless specifically noted. The next two columns give the PNC consonants in root-initial and non-initial position that can be reconstructed for the root. Transcription systems are adapted for some languages: a "+" below a Cangin, Joola, Bainunk, or Tenda vowel indicates +ATR (or "tense" in Tenda), which in Joola and Bainunk spreads throughout the word.

Some notes:

- For some roots, groups show reflexes of different consonants in C2 position; i.e. the sound correspondences cannot be regularly attributed to a single original consonant. This is of course not ideal, and these proposed cognates should be treated with much greater skepticism. 22 out of 150 roots that appear in three or more groups show this sort of discrepancy.
    - Four of the 22 involve a discrepancy in gemination.
    - Some of these discrepancies are seen even within Bantu, specifically **d vs. **n in 'breast' and **ɗ vs. **n in 'swallow,' so it is likely that some of these irregularities can be traced to original root variants in PNC.
    - In some cases, it seems that a CV root was extended with various different consonants, see especially 'sleep, fart, white, urinate,' resulting in discrepancies.
- For some roots there is not enough evidence to decide between reconstructing **c vs. **ʈ, or **k vs. **x. For the first set, evidence is needed from Bainunk, Joola, Manjak, or Bijogo. For the second, evidence is needed from Cangin, Wolof, BKK, or Manjak.
- For cognates only found in Pajade and Tenda (which are possible borrowings anyway), it can furthermore be impossible to choose between **k/x/h.
- For now I have not reconstructed the vowels of the PNC roots.
- In the Bantu/VC column, I have also given potential Gbaya (Gb) cognates, which sometimes show support for roots shapes not present in BC (e.g. in 'arm').

The principal lexical sources that I rely on are listed below. Note that some are unpublished manuscripts/wordlists available in the RefLex database (Segerer & Flavier 2011-2020).

Sereer:	My fieldnotes (2012-15; Saalum dialect), Crétois (1973/77)
Fula:	Seydou (1998), Seydou (2014), De Wolf (1995), Niang (1997), Bah (2009)
Noon:	My fieldnotes (2014; Northern dialect), Soukka (2000; Padee dial), Lopis-Sylla (2010; Thies dial.)
Laalaa:	Dièye (2010), Thornell et al. (2016), Pichl (1981)
Saafi:	Botne & Pouille (2016), Pouye (2015), Mbodj (1983)
Ndut:	Morgan (1996), Pichl (1977), Doneux fieldnotes (RefLex)
Paloor:	Thornell et al. (2016), D'Alton (1983), Pichl (1977)
Wolof:	Diouf (2003), Kobès (1923 [1869]), see additional sources in Merrill (2021)
Kobiana:	My fieldnotes (2016), Doneux (RefLex), Wilson fieldnotes (2008: RefLex)
Kasanga:	Wilson fieldnotes (2008: RefLex), Lüpke fieldnotes (p.c.)
Gujaher:	Goudiaby (2016), Lüpke fieldnotes (p.c.), Wilson fieldnotes (2008: RefLex), D'Avezac (1845 [1670s])
Gubëeher:	Cobbinah (2013, 2017 p.c.)
Guñaamolo:	Bao Diop (2013), Bodian (2014)
Pajade:	Meier (2001), Cover (2010)
Biafada:	Wilson fieldnotes (1993), Wilson (RefLex), Bassène (2015)
Konyagi:	Santos (1996)
Bassari:	Ferry (1991)
Bedik:	Ferry (1991)
Joola Fonyi:	Sapir (1970), Weiss (1939) — preserves /l/ vs. /ɬ/
J. Eegimaa:	A. Bassène (2007), M. Bassène (2012)
J. Gusilaay	GIE CLOA et SIL Sénégal (2018)
J. Kuwaataay:	Payne (2000), Coly (2012)
Bayot:	Diagne (2009)
All Joola:	Barry (1987), Carlton & Rand (1994)
Manjak:	Doneux (1975), Buis (1990)
Mankanya:	Trifkovic (1969), Gaved (2020)
Balanta:	Creissels and Biaye (2016)
Bijogo:	Segerer (2000), Wilson (2008: RefLex), Segerer (1998: RefLex)
Proto-Bantu:	BLR 3 (Bastin et al. 2002), Guthrie (1967)

			initC	othrC	Proto-FS	Fula	Sereer	Cangin	Wolof	Proto-BKK	Kobiana	Gujaher	Gubëeher	Guñaamolo	Proto-BP	Pajade	Biafada	Proto-Tenda	Konyagi	Bassari	Bedik	Joola	Manjak	Balanta	Bijogo	Bantu/VC	Mandinka
9	1	bark	x	ɓ(ɓ)	*-xoɓ	koɓ-al	o-xoƥ ol-	*huɓ *pi-huɓ ‘leaf’	xob w- ‘leaf’	*	Ka. gu-hubud (< guj)	gu-hubut		gu-kub (< Joola)	*gan-huɓä	ka-ŋubɛ	gu-ŋudə	*-xV́ɓɓ	væ-kùɓ	-xóɓátá ‘strip bark’	ga-ngóɓətél	*ka-kub ‘bark’ Gus. ga-wub ‘shell’	ka-wəb, Mank. ka-huub		kɔ-kpa	*mu/di-kóbá ‘skin/bark’ *-jùb~jòb ‘peel/skin (v)’	húbúmbu
89	1	eye	g	t	*-gid	yit-ere	a-ngid al-	*ɣɨɟ/ɣaɟ	b-ët b-/gët y-	*si-ggiɟ	sí-ggəh	ci-gil	si-jil	si-gil	*-gəɟä	maa-sɛ	gəra	*-ɣəɟ	i-nkór	a-ngə́s	gi-ngùs	*-kil	*pə-kəł	f-gít	n-ɛ	*di-jí́cò	
79	13	spit/saliva	t	Ø	*tuxud	tuut-o- Arn. tuhut-	duxud, tuxud	*tuHuɽ (< ser?)	tëfli	*-ɽoott		-loot	-loot	-lott	*ɽəmp (v) *ma-tto (n)	səp; ma-to (n)	rəmp	*-ɽo (n) *-ɽəpp (v)	u-ró, wæ-tó i-tə́p	ɓa-tó -sə́p	ga-tōtō -səp	Kasa -łaj	tuj	tʊfaj	tu	*-tʊ́, -tʊ́-ij, -tʊ́-id	
78	12	king/chief	l	m	*ox-lam	lam-ɗo	o-lam ‘heir’ lam ‘inherit’	*lam ‘inherit’ < ser.	borom b- ‘master’	*u-nam	u-nám	u-nam	u-nam		*u-yam-ä *yam ‘reiŋn’	u-yamɛ yam	u-yamä	*aa-nam *-nam ‘reign’	-ɟæ̀w̃		a-lám			a-lámà	Or ɔ-am ‘boss’	*mu-jámí	
78	13	tongue	ɗ	m	*-ɗe(le)m	ɗem-ngal	ɗelem l-	*pe-ɗem	làmmiñ w-	*	jaarə́(m)	bu-lɛ̨emac	bu-lemes	bu-lemes	*bu-ɗeemä	pə-deemɛ	bu-deema	*-ɗím	ryə́w̃	a-nĭw̃	i-ɗém	*fu-rim ‘voice’	*pə-rim ‘speech’ *pə-ndɪmməntɽ ‘tongue’	gi-dèmét	nu-numɛ	*du-dímɨ̀	
7	13	eat	ñ	m	*ñaam	ñaam-	ñaam	*ñam	ñam w- ‘food’	*-ñaam(ɽa)	-ñaam(ta)		-ñama ‘taste’	-ñaamla				*-ñamm ‘gnaw’		-ɣămá	-ñám		ñaam ‘chew’			*n-ɲàmà ‘meat’; Mundabli nām ‘fufu’	
7	1	cow	n	g	*ge-nag	nag-ge	naak l-	*-noɣ	nag w-						*-nagä	ku-naa	nnagä	*ji-naɣ ~ > K. *yi-ɟæy	ɣi-ɟì					jílà		BC *i-nak, Amo ɓə-ná	Son. ná
68	12	block/stop up/ram in	ƭ	x	*	sukk-	sux; o-soxoof ol- ‘cork’	*sox ‘plant’ *soH ‘seeds’	sox ‘load gun’	*-sox	soh		-roox	-rokk	*	sukk (< ful?)	soog ‘load gun’	*-ʃo(y)	-sòy	-ʃó	-ʃòy	*-łook	*tuh			*-còk ‘poke in, ram in’	súki
67	1	four	n	x	*naxi-	nai	naxik	*nixiiɽ		*saN-naC	sána(ŋ)	rẹnek	rendek	ha-renek	*-nVhi	man-ne	nnihi~nihi	*-nax	-ɟæ̀x	-nàx	-lá			-tàllá		*-nàɨ̀	
67	10	breast (breast)milk	ɓ	d/n	*ɓir- ‘milk(v)’	ɓir- ɓir-am	ɓir	*ɓiɨɓ	ween w- meen m-	*bu-ɲ(d) *muN-ɲ(d) *bu-muN-ɲ(d) ‘breast’	bu-bín	mu-yiin bu-mɲn	mind bu-mind	mɲnd bu-mɲnd	*pa-ɓɓər *mam-ɓər	pə-bər mam-bər	bbəl	*er-ɓər *maŋ-ɓər	i-ɓə̀lə́ wæ-mbə̀lə́	e-ɓər o-mər	e-ɓər ma-mər	*fi-iɬ	*pə-(y)ɪl			*di-béɛ̀dè (var. *-béenè) Gb *bèrè	
67	10	tooth	Ø/N	N	*re-ñiiñ	ñiin-de	ñiiñ l-		b-ën b-/gën y-						*	pi-ñɛ/maa-ñɛ		*-ñVngaa		ɣ̈ə̀ŋgə̀	gi-ñángà	*ka-ñiɨŋ~ŋiɨŋ	Mank., Pepel pə-ñiŋ/pə-ñĩ		ka-ñi	*di-jínò BC *-nino~i Irigwe rì-ñì	ńíŋ
67	1	rear/raise child	k	ɗ				*koɗ	hudd ‘raise livestock’	*-kur/n	-h~kkun ‘bear child’	-kunah ‘be polite’	-xun	-kun	*	kud		*-xoɗ/xuɗ	-xwə́ɗ	-xʷə̀l		*-kur	*kuł			*-kúd ‘grow up’	Bam. kólo
6	1	mosquito	ɓ	g/k	*gun-ɓog	ɓow-ngu	ɓook n-	*ɓuk	yoo w- < *y-oh (pl.)	*-ung~ux	joong	a-yung	a-wux	a-wụug								*e-buk				*m/du-bú, Somyev tə-bogo	
6	1	ten clap	p	h	*		fox	*puh/poh	fukk						*ba-ppo	pa-ppo fuk ‘hit with fist’	ba-ppo	*-foox/fuux *-fok(k)-a, *-fox ‘hold in 2 hands’	i-pə́xw -fə́kwá	f~pox/pux -fòxwá, -fòxw	ma-fú/pó -fōwà, -fó					BC *pu	
6	1	arm	ɓ	x, y	*		o-ɓay ol- xarɓaxay ‘ten’		loxo l-						*		ga-mbahay ‘hand’	*-ɓaakk	i-vàkə́ ‘hand’							kɔ-ɔkɔ	*ku-bókò Gb *ɓàkà	
6	1	elephant	ñ/(n)	g/y	*ban-ñig	ñii-wa	fañiik/g f-		ñey w-	*jan-ñix/g		jɛ̨ñah	ja-ñix	jạnnịig						e-ñàmb	ge-ñò	*e-ñaab E. e-ñix < Bai?				BC *i-ni, Humono è-ñì	
4	1	elephant	y	g				*ca-oɣ							*wan-yoogä	wa-ywɛ	yyoogä								e-oga, Kam, Or ka-yoga	*n-jògʉ̀	
6	13	rot/be ripe	b	d	*boor	woor-	foor, fot			*-bud	(-boh), Ka. -bul	-pʊt (< jo.)	-bur, -put (< jo.)	-pur (< jo.)	*bor	pər	bwəl	*-wə̟r	-wə́l	-wə̟́r	-wʊ́r	*-put	Mank. -pootɽ			*-bòd P-Plateau 4 *bor Gb *mbə́r	
6	10	be able/can/know how	m	n				*mɲn	mën	*-min	-min	-mɲn	-min	-min	*mən	mən	mənr					*-manj ‘know’	mɛ			*-màn(ɟ) ~màŋ~mèŋ ‘know’	
6	10	flay/skin skin (n)	p	ƭ			fas ‘strip bark’		fees		-ppaacc ‘strip bark’	-pas ‘strip bark’			*fəs	fəs	fəs	*-feʃ	-fès	-fèʃ	-féʃ	F -feɬul (Weiss)	*fət	fʊr, fɛr	peƭak~pɔƭak kɔ-pɔƭɔ	*-púcud *di/du-pùcù	
57	1	dog	ɓ	h/(C)	*	ɓoosaa-ru	o-ɓox ol-	*ɓuh							*	ci-baa		*	i-vé				*u-bʊł		e-booƭi	*m-búà	
57	10	smile	m	ɣ/ñ	*	moos-o-	muuɣ-oox	*mooɓ	muuñ	*	-mozəzə(n)				*	miñ									moj	*-mùè(ɲ)	
57	123	be mute	m	m	*muum	muum-ɗ-	muum		muuma	*			-mụmune		*	ku-miim		*			-mòm ‘be quiet’	F, E, Gus e-mụmune, F e-mumun, Kw a-mụuma		múumúní		*-mʉ́m	múumúnee
57	10	tree	t	k/h	*-reex ?	leg-gal; lek-ki ‘medicine’	ndaxar n-; a-teex al- ‘wood’	*ki-rik	matt m- ‘wood’						*ɓu-ɽe *ma-tte (pl)	mat	bur, †bure	*gaŋ-ɟəx		a-tə̆x	ga-tò				ŋu-te	*mu-tí, Pinyin -tə́k, medum. -túx Gb *tè	
56	1	hippopotamus	g	b/(ɓ)	*	ngabb-u		Sa. cahuɣ < *ca-ɣuɣ~ɓ?		*ja-gọ	jaagó	jọgo	jọgo	jọgo	*wan-guwä	wan-kuwe	nguwa					*e-kaw				*n-gʉ̀bú Gb *ngʉ̀bú	
2	1	hippopotamus	g	m																			*u-kɔmal	gómnà	ɛ-gɔmɔr		
5	1	sing	g	m	*gim	yim-	gim			*-yịn	-yin	-yịin	-yịn		*jim	cim	jəm	*-yə̟m	-yə́w̃	-ỹúw	-yʉ̀m	*-kịm				*-jímb Gb *gìmà	
5	13	goat	b	Ø	*ban-be	mbee-wa	fambe f-		béy w-	*fa-bị ?		fẹbbi	fẹebi	†fa-be									*u-pɪ		e-we Or ee-βe		baa

			initC	othrC	Proto-FS	Fula	Sereer	Cangin	Wolof	Proto-BKK	Kobiana	Gujaher	Gubëeher	Guñaamolo	Proto-BP	Pajade	Biafada	Proto-Tenda	Konyagi	Bassari	Bedik	Joola	Manjak	Balanta	Bijogo	Bantu/VC	Mandinka
3	13	goat	p	Ø				*pɛ’										*ji-fe ‘sheep’	i-fé	i-fêỳì	jə-fè					Idoma òpí, Basa-Benue u-pi, etc.	
5	1	child	ɓ	Ø	*-ɓiy	ɓiɗ-ɗo	o-ɓiy ol-								*nin-ɓe	nəm-be	nə-mbe	*ha-ɓi ‘girl’		ạ-ɓí	hɛ́ɓɛ̀			mbî	ɔ-ngbya	*-bɟ́-ad ‘bear child’ Reshe ú-bì	
5	1	split	p	cc	*	fecc-, fels-	fac(it), pasit		fàcc ‘crack’	*-facc	-f~ppaacc ‘strip bark’	-fac	-pac ‘sculpt’	-fac								F -fac (Fonyi only)			Or piiɟ	*-pàc	
5	1	jump/fly	k/(h)	d			yet			*-kịd, hịid?	-h~kkil	-cịr	-cịr	-hịir	*siir	siir-o	fiil					*-yịt	*(y)itɟ	hiθ, yiθ ‘jump’	kid Or gịd	*-kíd-uk ‘jump over’	
5	13	pound in mortar	t	ŋ/n											*	ku-ton ‘mortar’		*-ɽə̀ŋŋ		-sə̀ŋ	-súŋ	JE ɛ-ttuŋ *-ɬoŋ(g)	*ɬɔn Mank. pə-soñ ‘mortar’	roŋ	toñ ka-tɔ ‘mortar’	*-tó	tuu Bam. tòntà
46	1	spleen	ɗ	m/(ɓ)	*gol-ɗaam(b)	ɗaam-ol	o-ɗaam(b) ol-		gàddaam g-						*	pə-deebo		*gaŋ-ɗeem		a-nɛ̀ẅ	ga-nèm		*u-dııb ‘liver’		Or. ɛ-ḍamba ‘love’	*di-dámba	
45	1	three	t	t	*tad-	tati	tadik~daduk		ñ-ett	*-ɽaɽ	-héh	-laal	-lall	-lall				*-ɽaɽ	-rèr	-sə̀s	-sás					*-tátù	
45	1	hear/understand	y	g					yég ‘be informed’	*-yẹg	-yeg	-yɛg	-yẹeg		*	yec									(y)egen ‘know, understand’	*-jíg̣u ‘hear’ *-jíg ‘learn’	
45	1	daylight	ʈ	n					ceeñeer l- ‘sunbeam’, ciñaag ‘warm self in morn’	*-senn ‘be clear’	-s~ccɛn, má-sɛn ‘daylight,’ tá-ccɛn ‘dawn’	-ren	-renn	-renn, harenaam ‘dawn’				*-ʃan ‘dawn, tomorrow, morning’	æ-cǽl̰	e-cán	bāʃàl				ʈen(e) ‘shine’	*mu-càná	
45	1	white	p	ʈ/Ø						*-fes	(-f~ppundu)	-fer	-fer	-fer	*faas *fVc	faas fac~fic ‘be clean, pure’	f~paas fəc ‘be clean’	*-feʃ		-fɛ̃ʃ	-fɛ̀ʃ	*-fiit	*fac~faac			*-pe Lamnso fɔ́ɾ, etc. Gb *fɛ́ŋ	
45	10	pound in mortar	c	p(p)						*	-s~ccupp				*	soof		*-ʃif		-ʃîf	-ʃɛ́f	F -coop ‘thresh 2nd time’		sɔɔf		*-copud (zones K, L)	
37	1	plant (a stake)	ʈ	p			sip (< wo)	*yịp~yỹp	sëpp	*-sif-un	-s~ccifə(n)	-rịfan	-rifun	-rufun	*	cif	jəbw	*-ʃif		-ʃîf	-ʃɛ́f	F -cuɲ	cɔf, capəj Mank. θɛp pə-cap ‘pillar’			*-còp ‘prod w/ stick’	
4	12	bathe	ɓ	g	*		ɓog	*ɓo(ɣ)-ox										*-ɓoggən	-vəgwə́l̰						ɔk ‘swim’ Kam yɔk	*-jóg ? Tikar ɓɔʔ < *ɓɔk Gb *ɓɔ̀sá	
4	1	guest/stranger	g	n	*		genar (pl.)		gan g-	*gVnaal	ú-gunaal	u-jinaal	(u-jinaer)													*mu-gènì Gb *gènɛ̀	
4	1	thresh (pound to remove chaff)	c	xx	*-sox(x)	sokk-	sox		soq	*-sakk			-sak ‘thresh 2nd time’													*-cókud	
4	12	foot shoe	p	ɗ	*	faɗ-o	o-ñafaf ol-	*ñafaɗ ~ñofaɗ < ser		*ta-pper	tá-ppe(r)							*ɽa-ppar, *-feeɗ(ɗ)	i-fə̀ry i-pə̀ry	sàpàr ɓa-pɛ̀ɗ	i-tápár gi-pə́ɗ					*di/m-pàdɟ	
4	1	sleep lie down	ɗ	Ø	*ɗaan	ɗaan-o-	ɗaan ɗaasoox ‘lie on stomach’ ɗaaɗ ‘dream’								*	datta daaso	daanəh	*-ɗakk	-ryǽk	-lə̰̀k	-dāk					*-dá-ad Gb *l̰á	
4	1	armpit	n	p	*ho-naaf(-faand)	naaf-ko, naaw-ki	o-naapaand ol-								*go-naafä	ko-naawɛ	gə-naafo	*gaŋ-naafaañ		a-nə̀fə̰̃ỹ						*ku-jápà Patapori nápkì	
4	10	medicine man	b	n	*		o-pan ox-fan w- (pl.)																*na-pɛna		ɔ-banɛ	*ki-m-bàndà	
4	1	toad	b	t					mbott m-									*fa-woɽ ?	for			*e-fool		mfôl	ɛ-pɔnɔ	*m-boto	
4	10	hill	t	nd					tund									*		e-tə́nd			*u-ntʊnda			*n-tùndà, *mu/di-dúndù	
4	1	eat	ɗ	h					lekk													*-ri	*rɛ		deak	*-dí Fefe -zə́h < *-dik	
4	10	fish	k	t						*fa-katt			ʃa-xaat	fa-kat								*e-(w)ol			ŋɔ-katɔ	BC *i-kote	
36	10	hyena	m	nɗ, m?	*		o-moon ol-	*ngumụ		*mụnrum ?	muddú(m)	mụddum	mụndum	mụdum	*	wuntuɲe						*e-munduŋo ~e-munguno				*m-bùngú BC *i-mudum	
35	10	leave	p	d	*ful	ful-	pul ‘rush out’	*pụl		*-fụd	-f~ppul	-fụr	-fụr	-fụr								*-fụl *-pụr (borr. BKK?)	*pən			*-púduk ‘go out, escape’ Bamenkombit fúrə̀	
35	10	leg	t	nk					tank b-	*-dịnk	a-ddíkk	ci-dịix, d’A *quidinc*	si-dịix	si-dịih	*-ɽankä	pa-takkɛ	ge-rankä	*xo-nə̰ng	u-xòl̰ənk	ɣónə̰̀ng						BC *ku-tak	
35	10	wing	b	p	*	wib-jo, wiifoo-ngo		*paɓ							*-baafo	mam-paafo	ge-bwaho	*gaŋ-waf	(æ-mpæẅ)	a-mbàf	ga-mbáf					*di/du-bàbá, *di/du-pàpá	
35	1	swallow	m	n/ɗ	*	moɗ-	meef ‘choke’		mëdd ‘gulp, swallow up’	*	-min	-dạm	-dọm	-dọm				*-mɛ̀r	*yɔr	nad						*-mị̀d~mị̀n ~mèd	
34	10	woman	k	d											*u(N)-haar ?		u-naal	*aa-ɽo-xaar cf. *aa-ɽo-ʃann ‘man’		ạ-sə́xə́ɾ	a-sóɣár		*na-kaatɽ			*mu-kádɟ	
34	1	bite	ɗ	m				*ɗoɓ														*-rum	*rʊm	dʊm	num	*-dúm	

			initC	othrC	Proto-FS	Fula	Sereer	Cangin	Wolof	Proto-BKK	Kobiana	Gujaher	Gubëeher	Guñaamolo	Proto-BP	Pajade	Biafada	Proto-Tenda	Konyagi	Bassari	Bedik	Joola	Manjak	Balanta	Bijogo	Bantu/VC	Mandinka
3	1	person	n	t	*	neɗ-ɗo			nit k-																o-to	*mu-ntù	
3	10	be hungry hunger	h/Ø	ɗ				*(h)aɗ-ox *(h)aɗ																	aɗ-ɔk u-ado Or aaɗu	*n-jàdà	
3	10	eyelash	x	p					xef w-	*	gú-haf	ci-haaf														*n-kópè	
3	1	dawn (v)	x	y				(borr Wo.)	xéy									*-xey		-xèy	-hé					*-ké	
3	1	heart, breastbone	x	ɗ					xol ‘heart’									* ‘chest’			i-kǫ̀l					*n-kódò	
3	1	be	d	Ø			ref, reef		di																re ‘dwell’	*-dì	
3	1	tortoise	k/x	ɗ											*-huɗ(ä)	fa-wud	kuda	*fa-xuɗ		fòxól						*n-kʊ́dʊ̀	kuta, kutu
3	1	bee	c/ʈ	Ø											*gun-cu *ɓee-su	ku-cu bee-su ‘mead’	gun-cege	*er-ʃu *ɓeeʃu ‘mead’ (borr. Pajade)	i-cú ɓésù	ɓèʃû	ɓɛ̀ʃù					*n-jʃ́kì ? BC *i-swaki Amo fə-ʃù Irigwe ì-ʃwì	
3	13	blow	p	d											*fuur	fuur	fuul					*-fuuten	*fuutʈ			*-pʊ́d (*-pód ‘cool down’)	
3	10	give	n	?						*-nan	-nan	-nan			*nVŋg ?	nink	nuŋ								nink ‘lend’	*-jɲ́nk~nɲ́nk	
23	10	buffalo	y	?											*wan-yarä ?	wa-yrɛ	wwal								yaare / kɔ-yaare	*n-játí	
23	10	cry	ɗ	ɗ											*ɗənɗ	dənd	dənd	*			-ɗə̀ɗ					*-dìd	
2	1	two	ɗ	?	*ɗîk	ɗìɗî	ɟik																			*-bàdí	
2	10	name	g? Ø?	n	*	in-de	gon l-																		Or ŋa-βini	*di-jɲ́nà	
2	10	farm, cultivate	d	m	*	rem-		*liɲ																		*-dìm	
2	10	egg	g	N	*		gin l-																			*di-gí	
2	1	do, act, make	p	ng				*ɲang ‘do’																		*-páng	
2	10	wound	p	t				*puuʈ																		*ki/m-pútá	
2	1	split	ɗ	ɗ				*ɗaɗ																		*-dàd	
2	1	small	n	?			neew (< wo)		néew																	*-nʃ́ò	
2	1	ember	x	ɗ					xal w-																	*di-kádà Gb *kɛ́lì	
2	1	voice	ɗ	k					làkk w- ‘language’																	*di/n-dáká	
2	1	froth/foam	p	d					fuur																	*-pʊ́d	
2	10	baobab	ɓ	y					guy g- (root wuy)																	*mu-bùjú	
2	1	long, be	t	d											*-ɼar	sar	ral									*-tádí	
2	10	see	y˙	n											*	jeen										*-jén	
2	1	louse	ɗ	Ø/h											*		nda									*n-dá	
2	10	tail	k/x	d																		*fu-et				*mu-kídà	
2	10	woman	h	ɗ																		*a-are	*a-har ‘wife’			*mu-jàdí	
2	10	fish	d	ɓ																			*u-tɼəb (n)			*-dób, -dʊ̀b (v)	
2	10	die	k/x	Ø			xon	*Hụl																	kpɛ	*-kʊ́	
2	10	saliva	t	Ø																					n-ta	*ma-táị̀	
2	10	neck	k/x	t																					ŋɔ-kɔta	*di/n-kòtị̀	
8	1	ear	n	p	*ru-nof	nof-ru	nof n-	*nuf	nopp b-	*ki-nuf	si-núf	ci-nuf	-nufąla ‘clean ears’		*go-nəfä	ko-nəfa	ge-nəfa	*gaŋ-nəf	æ-nɔ́f	a-nɔ̀f	ga-nɔ̀f	*ka-nu		gɪ-lɔ́	kɔ-nnɔ		
7	10	smoke	ʈ	Ø/C	*-suuC	cuur-ki	(f)o-suun ol-	*sụt (v)	suur (v)	*	á-cculugg				*hu-ccV	ku-ci	fu-cu, fu-ci	*-ʃən (v) *xoC-ʃ...	-sə́ị̀ xwə-cìcə́	-ʃə́n o-kwocán	-ʃəl go-kwòc				ʈukp (v) maaʈukpa (n)		
7	10	hair	w	l	*wil	bilee-wol (A)	wil l-	*fen f-	kawar g-						*-i		ga-i/bwa-i	*-waan		e-mbăn	gu-mbál	*ka-wal	*ka-wɛl	gi-húl	ɛ-wa Or ɛɛ-βa		
7	1	head	g	p				*ɣaf	b-opp b- /gopp y-	*bu-gof	bu-góf	bu-gof, bi-gof	bu-gof	bi-gof	*bu-gafä	po-ofɛ	boofa (maa-gafa)	*-ɣaf	æ-nkæ̀f	gàf	gàf	*fu-kow	Mank. bə-kow	b-gɔ́	bu		
6	123	ant	ñ	ñ	*-ñuuñ-	ñuuñ-u	ñiiñax l-	*ñịiñ		*-ñuuñ	jáñuuñ	a-ñuuñ		a-ñuuñ	*gun-ñuñu~-ñiñi	ku-ñiñi	gu-ññuñu	*-ñVññ	æ-núñ ‘red ant sp.’	gi-ñìñ	e-ñíní		*u-nʊʊn ‘small ant’				
6	1	liver/heart	k	ñ	*re-xeeñ	heeñ-ere	xeeñ l-	*keeñ		*	baasɔ́(n)	bu-ciin ‘heart’ bu-sąñankool ‘liver’	bu-ciiñ	bu-kiiñ	*bu-seeñ(i)	pə-seeñi	bu-señ ‘chest’	*	i-cə̀nj			*fu-iñ	Pepel fiñ (borr?)	f-híɪ̀ñè			
6	1	star	x	d	*-xoor	hood-ere	o-xoor ol-	*Hul		*-huụd	a-wóol	gu-huur		gu-huụr	*-hVVr(ä)	pu-oor	wweela	*er-xor	i-kòl		e-kór	*e-uut		f-gbúʊθè			
57	1	chew/eat	y˙	k(k)	*ɣ̇ax(x)	ɣ̇akk-	ɣ̇ax	*ɣ̇aak ‘cut w/ teeth’	yéy < yéh ?	*-yaax(Vɼa) ‘eat’		-yaah	yaax(ëla)	-yahala	*ɣ̇ah	jaa	jah	*-ɣ̇aakk	u-yàkàlé̱	-yák	-yàk			gi-njáagám ‘jaw’			

			initC	othrC	Proto-FS	Fula	Sereer	Cangin	Wolof	Proto-BKK	Kobiana	Gujaher	Gubëeher	Guñaamolo	Proto-BP	Pajade	Biafada	Proto-Tenda	Konyagi	Bassari	Bedik	Joola	Manjak	Balanta	Bijogo	Bantu/VC	Mandinka
56	1	dance	g	m	*gam, gom	'am-, wom-	gom 'do wrestling dance'	*ɣam		*	-gom				*gam	kam	gam	*-ɣam	-wæ̀w̃	a-ngàw̃á 'dancing place'		Huluf, Esu. -gom				*-gòmb 'clap hands/beat drum,' *n-gòmà 'drum'	
56	1	nose	k	n	*	hin-ere			bakkan ~bakken b-	*gu-ñan-kin(d)	gu-ñíkkə(n)	gu-ñankin	gu-cind	ñan-kindeŋ	*ña-sin	ña-sin	ña-siiñ	*er-ʃən	i-cə̀l̰	e-cén	e-cə̀l	Kw e-hinu < *e-fi-inu ?					
56	10	bowels, intestines	b	t	*		o-fud ol- 'belly'		butit b-, butti 'eviscerate'		a-bbú 'belly'				*		bu-bur	* 'eviscerate'			-bʊ̀ʊt		*pə-pəs 'belly'	m-mbʊ̀té			
56	1	feather	d	ng?					dunq w-	*gu-dung	gú-lung Ka. gu-lung				*-rungä	kan-tunkɛ	bu-lungu	*-rong	u-lónkw	e-ndòngw	ge-ndóng		*ka-lung (< KK?)		ku-runkpe Or ku-runke		
5	1	rainy season	d	g	*-ri(i)g		ndiig n-, riig (v)	*laɣ~leɣ		KK *boo-lug	bóolug				*bo/paˣ-rigV~rugV	pa-tio	bwa-logu	*-ruu	æ-lú		mɯ-dù, ɓu-rù		*pə-ti				
5	12	baobab baobab fruit	ɓ	g/(k)	*-ɓVk *re-ɓVk	ɓok-ki ɓoh-re	ɓaak n- ɓaak l-	*ɓoɣ		*ki-o̱og		ci-bok	si-o̱og bu-o̱og	si-bokk				*gaŋ-ɓakk/ɓu *er-ɓakk/ɓu *ɓu < **ɓoɣ	æ-mbù i-ɓù	a-màk o-màk (pl.)	ga-mák e-ɓák	*bu-bak *fu-bak	*bə-bak				
5	1	rain	t	ɓ	*toɓ	toɓ-	doɓ	*toɓ	taw b-									*-ɾo̱ɓ	-rɔ́v	-sɔ́ɓ	-sʊ́ɪ̀ɓ	*-lub	*ɬub	tʊb	e-nobo		
5	13	bite	ŋ	t	*ŋat	ŋat-	ŋat		ŋet 'gnaw'	*-ŋaɾ	-ŋah	-ŋal	-ŋal		*ŋaɾ	ŋas; ŋat 'break w/ teeth'	ŋar	*-ŋaɾ, -ŋatt	-w̃ær, -w̃æ̀t	-ɣ̃ɑ́s, -ɣ̃àt	-ŋás, -ŋát						
5	1	bear child, give birth	d	m	*rim	rim-	rim	*liṃ		*-diṃ		-diṃ	-diim	ba-diṃ 'family'	*rəm	rəm	ləm	*-rəm	-lɔ́w̃	-rôw̃	-rə̀m						
5	1	fly (insect)	w	Ø/?	*-wuC	mbuub-u	buc' n/k-	*caa-fu		*-wu̱ɾund	jóohund	a-wu̱lund	a-wu̱lur	a-wu̱lul				*-wu (or -ɣu)	æ-nkú			*(e-)(a-)wu	*u-wu				
5	1	sun/day	n	g	*	naa-nge		*noɣ		*bu/bi-nẹg	bu-nég	bu-nẹg, bi-nẹg	bi-nẹg		*		nnagə	*-nəkka 'evening' < 'last (v)'	æ-nɔ́kà	e-nɔ̀ká		*ti-nak	*pə-nak 'noon' *bə-nʊ 'sun'	lɛ̆y 'sun' f-lɛ̆y 'day'			
5	1	live, reside	g	n	*		gen	NdP gin < *ngin 'village'		*-gi̱n		-ji̱n	-ji̱n									*-kin	cən, cina < *kin Mank. kintɽ 'cohabitate'		ne-gen 'village'		
5	10	fish scale	w	ɭ	*-was	bacc-e	o-was	Pa. wasin (borr)	waas (v) waasintoor w-	*-(y)es	sá-yeese(n)	gu-yer	gu-er	gu-yer								*ka-weɬ			oɭ (v) Kam. ŋɔ-ɛɭ		
5	1	tick	p	ɗ	*	fett-o	feeɗ l-		fel w-	*-fer/n		a-fen						*		e-pɔ̀l 'louse'		F ba-fet 'body louse'			ka-pɛdɛ 'louse'		Son. féttè
5	10	calabash gourd (for liquid)	g	m(b)				*ngum	gamb b-						*bu-gomm ?	pomm(a)		*gaŋ-ɣo(o)m		a-ngòw̃	gi-ngǫ́m	F e-kǫmboon Kw e-kǫmb 'c. w/ lid'	pə-kumbɛ			*du-kómbò (LM), *mu-gubu (GNS)	
5	12	kapok	d	n				*leen		*-dẹen	u-ndéeno	ci-dẹen	si-dẹen	si-dẹen	*	bə-riin		*gaŋ-riin	gi-ndìl		a-ndín	Karon hi-tẹeni, Bayot bu-tẹn	*pə-tɻɪn				
5	1	braid	t	ɗ				*teɗ 'weave, braid'	létt	*-ɻiir 'weave'	*bá-ttiir-ttiir 'weaverbird'	-liin	ra-liin		*-ɻeeɗ	seed 'weave, braid'		*-ɻiɗ			-sɛ́ɗ	*-liir	*siir	tɯd			
5	10	fart	d	?				*liɻ̈x		*-diɻ(t)	gú-litt	-diɻl	gu-diɻl	gu-diɻl	*	ric		*-rəcc	-lɔ́c	-rə̌cá	-rəc	E. ma-ttiɻ	*tɻɪ̃n	θɛ			
5	1	egg	n	n					nen b-	*-niin	a-níi(n)	bu-niin	bu-niin	bu-niin	*-nVNä	maa-ninɛ, nin 'lay egg'	nnaña	*er-niin	i-nìl̰		i-líl		*pə-nɪɪn				
5	1	crocodile	ʈ	g					jasig j-	*ja-sẹeg		jẹreeg	ja-rẹeg	jareg	*		jaasugu						*u-tɪk		ɛ-ʈɛɛga		
45	1	pour out	y	p	*yVpp	yupp-	yip	*(y)i̱if		*	yipp 'plant seed'				*	yipp 'plant a nursery'		*yiif *-yiippət		-yìf -yìpə́t	-yìf -yìpə́t	*-yu				*-jɪ̀t	
45	12	suck	ɓ	ʈ	*	ɓuuc-o-	ɓuus	*ɓaas										*-ɓuuʃ	i-ɓús	-ɓûʃ	-ɓùʃ		Pepel boot		bɔɔʈ		
45	10	peel/flay	k	p	*hutt (<huf-t?)	hutt-	hut	*kof		*-keef-uɾ, kuuf-uɾ	-h~keefəh	-ceḛful	-keeful	-keeful, -kuuful	*hoof	woof		*-xuf ?	-xáfél̰	-xʊ̀f							
45	10	termite	m	yˀ	*	mooyˀ-u		*maas		*	jaméjj				*-mayˀyä	pa-majjɛ	gu-mmajja	*-mayˀ ~yˀamm ?	æ-mæ̀ÿ	o-ỳàm (pl.)	gi-ñám						
45	12	stoke fire bellows	b	p	*	-wif				*-biɟf *jan-biɟf-	$jembifa	-biɟf	-biɟf $jambif	jambife	*-buuf; *gan-buufã	-puuf kan-puufɛ	ga-mbufu	*-wVf	-wɔ́f	-wɛ̀f	-wʊ̀f	*-biɟf					
45	1	resemble	m	nd?	*nand < nan 'hear'	nand-	nand	*mand	mel	*-miɲd	-minda	-miɲd	-miir	-miir	*mVVr	miir	meel	*-mənd	-wɔ́nt	-wə̀ndâr	-mə̀ndàl						
45	12	pestle	x/h	nd	*gal-'un	'unu-gal	a-'un al-	*kuɗ	kuud g-	*-hụnd	a-wúnd	bu-hụnd	bu-hụur	bu-hụur	*bu-hund	pu-unt		*-xond	xɔ̀ntɔ́	i-ngɔ̀nd	e-gɔ̀nd	*f-unt	*pə-hʊʊntɻ	f-θɔ̀ʊnθɪ́			kudaa
4	120	put into bag/container	ʈ	ɗ	*soɗ	soɗ-	soɗ	*soɗ (<ser?)	sol 'wear'	*gu-ʃol 'shirt' (< Port.?)		gu-sol	gu-sol	gu-sol									*tɔr				
4	10	pound in mortar	h	ɗ				*hoɗ	hol	*-hur	Ka. -wud	-hụnah	-hun	-hun	*wuuɗ	wuud											
3	10	pound in mortar	Ø	n	*'un	'un-	'un	*mụn m- 'flour'	gënn g- 'mortar'																		
45	1	old, be	d	p				*ɓitif 'old woman'		*-def	-l~ndef	-def	-def	-def	*raf	raf	laf	*-raf, -ɗaf	-ryæ̀f	-rà̰f	-ráf		*tɻaf				
45	10	scratch	ŋ	ɗ	*ŋoos	ŋoos	ŋoos			*	gu-ŋúru 'claw/nail'				*	ŋud, ŋədd	ŋənc	*-ŋVɗɗ, *-ŋocc	i-ŋóc~i-ŋwɔ́c i-ŋwɔ̀ɗ	-ỹàɗ			*ŋər~ŋir, ka-ŋəri 'claw'	ŋar			
4	1	dawn (v)	b	t	*beed	weet-	feed; o-feet 'tomorrow'	*wi̱i̱ɾ	bët-set						*biiɻ	piis	bwir										
4	1	new	h	c/ʈ	*xVs	hes-	xas	*has	hees									*-xaʃ	-xàsɔ́k	-xáʃàx	-ɣàʃá						
4	1	millet	g	b	*ri-gaab	gaw-ri	kaaf k-, ngaaf n-	*to-ɣo	dugub j-													E. e-ggub 'maize'		bɔ̀gɔ́, pl. yɔ̀gɔ́			
4	10	path, road	ɗ~Ø	t	*gal-ɗat	ɗat-al	a-fat al-	*waaɻ		*bi-(r)aaɻ	baah Ka. bu-war	bu-naal	bi-naal	bi-naal	*faaɻ(e)	faase	faar		u-ryæ̀t 'rat path'							Gb *ĺí-wár	

			initC	othrC	Proto-FS	Fula	Sereer	Cangin	Wolof	Proto-BKK	Kobiana	Gujaher	Gubëeher	Guñaamolo	Proto-BP	Pajade	Biafada	Proto-Tenda	Konyagi	Bassari	Bedik	Joola	Manjak	Balanta	Bijogo	Bantu/VC	Mandinka
4	12	birth, beget	ɓ	c/ʈ	*ɓas-	ɓes-n-	ɓasil	*ɓasi̯l (<ser)	wasin	*-boʃ		gu-bos ‘fertility ritual’	gu-bos	-bos	*	bas		*-ɓaʃ		-ɓâʃ	-ɓàʃ						
4	10	swim	w	y	*		wey	S, P wey (<ser?)	féey, fóoy	*-way ~wọoy		-wọoy	-way	-wọoy	*way	waj	waj					*-waj		waa			
4	1	black	ɓ	l	*ɓaal	ɓal-w-	ɓaal, ɓal-ig								*ɓa(y)	ba(y)	bang	*-ɓan	-væ̀l	-ɓ~mànà̰x	-ɓ~málà	Kw -bạani					
4	1	ask	m	k(k)?				*meex-iŋ		*-miix		-mihila	-miix	-miihul	*	məkəndaan, micəndaan	meek	*		-ŵəká							
4	12	livestock/money	c	m					càmm g- <sàmm ‘herd’	*ba-ccaam	ba-ccáa(m)	ba-caam ‘animal’ gu-saanum ‘wealth’	ba-caam, -saam ‘pay’	ba-caam				*-ʃam		u-sɛ̃ẅ		*(ba-)caam	u-ncaam ‘herd, money’ ngə-ncaam ‘livestock’		ʈamad ‘pay’ Or ʈamaḍɛ (borr.)		
4	12	die/disappear	n	m						*-niim	-niim	-niim	-niim	-niim	*	niim ‘become skinny’		*-neemɓ	i-næmb	-nɛ̀m	-lɛ̀m	*-nim	*nɯm				
4	1	mouse	y	d											*fa-yaar	fa-yaar	fiiyaal	*-yer		i-njɛ́r-o-ʃɛ́ñ	go-yer		*u-yaatᵻ		ɛ-adik Or ɛ-waḍe		
4	12	leopard	c	m											*		ncam	*-ʃam	i-sɛ̃ẅ	e-càẅ	e-cám	*e-saamay			ɛ-nsam		
36	1	body	ɓ	l	*-ɓaal	ɓan-ndu/ɓal-li	fo-ɓaal ol-	*f-aan	yaram	*saN-(a)an	saa(n) Ka. saan				*-ɓo	mam-bo		*geŋ-ɓa(a)n	i-mbæ̀lɔ́	e-mà̰n	gi-māl				ku-gbi	*mu-bìdì	
35	10	honey/bee	y	m	*-yuum ‘honey’	ŋjum-ri	yuum f-	*k-ụum ‘honey, bee’	yamb w- ‘bee’	*-yVm ‘bee’	joom <*ja-yum	a-yom	a-yum	a-yom								*mu-kụm ‘honey’			m-mɛ		
35	13	swallow	h	n				*hon	honn						*ŋun	ŋun	ŋun	*-xon	-xòl̰		-hòl	*e-kondor ‘throat’					
35	10	finger	k	l	*ru-xol	hon-ndu	nqol n-	*kun	baaraam <ba-hVrVm?	*-kunum	á-kkunu(m)	gu-kunumb	gu-xunum	gu-kunum									*pə-kɔnj				-kóndiŋ
34	10	burn	d	ɓ	*		raaɓ ‘burn field’	*laaɓ (<ser?)		*	-l~ndeb				*	rab											
34	1	older sibling	m	g	*ox-mag	maw-ɗo	o-maag ox-		mag j-						*		may					*-maḳ ‘big’	*tᵻ̀ə-mak				
34	10	belly	ɓ	d	*	ɓer-nde ‘heart’		*pi-ɓil ‘lower abdomen’	biid b-	*bu-yẹd		bu-yạr	bi-yẹr	bu-yẹr								*fu-ar				*-bàdì ‘liver, heart’	
34	12	blind, be	b	m				*mbụum (<Wo?)	buum	(<joola)	-f~ppuumə(n) (<manj)	-pụum	-piim	-pịm	*	puum						*-puum ~piim	puman ‘close eyes’	fɔɔm ‘close eyes’ a-fɔ̀ɔmɛ́ ‘blind person’		*-pùm (J)	
34	1	love	ŋ	l						*	-ŋan				*ŋay ?	ŋii		*-ŋan	i-ŋæ̀l	-ɣ̌àn	-ŋál		*ŋal	naŋ			
34	120	leak, drain, ooze	ʈ	Ø	*si’	si’-	si’								*	suu		*-ʃuu		-ʃú	-ʃù		tu				
3	12	year	h	t	*-hiid	hitaa-nde	o-hiid ol-	*ku-hi̯iŋ (<ser?)	hat m-																ne-kena Oe ni-kina		
3	1	last long	m	ñ	*		miñ	*maañ		*-miñ		-miñ	-miñ	-miñ		biñ											
3	12	tear (crying)	g	n	*gol-goon	gon-gol	o-gooniit ol-	*mu-ɣon (<ser?)										*-ɣon(n)	u-wón, wæ-nkwə́n	a-ngwɔ̀n	ge-ngól						
3	1	give	y	ɗ	*	yeɗ-		*(y)eɗ										*-yVɗ(ɗ)	-yɔ̀ɗ	-yḭ̀l	(-yén)						
3	1	inherit	d	n	*	ron-			donn													Gus. -tun					
3	120	quit, let	w	ʈ	*waas	waas- ‘lack’	waas		wacc														*wət~wʊt	yis			
3	1	short, be	d	x				*luH(oy)		*-dox	-loh	-doxolin	-dox	-doh				*-rokk/rukk	-lə́kw								
3	10	exchange	ɓ	cc/ʈʈ					wecci	*-wocc *-becc	-beccə(n)	-woc	-wooc	-wocc	*ɓacc	bac	bac		-wə́cə́t (<wo?)								
3	1	move	y	ng					yëngu						*ying	yink	ying ‘shake’	*-yVng	-ỹɛ̀nk	-ỹíngɔ̀ná	-yíng	*-yoŋ					
3	1	choose	t	n					tànn						*	san		*-ɲan	-ræ̀l		-sál						
3	1	dark	m	ɗɗ						*-murr	-mudd		mundiin	murul	*məɗɗ	mədd	mədd	*gə̰ŋ-məɗɗ ‘night’	u-máɗ	e-mə́ɗ	gẹ-múɗ						
3	1	sew	t	p						*-ʈuf	-h~ttuf	-luf	-luf	-luf	*ʈəf	səf	rəf	*-ʈəf	-rə́f	-sə́f	-sə̀f						
3	1	run	g	d						*-gịd	-gil	-jịr	-jịr	-gịr	*	kər	gudd	*-ɣə̰r	(i-gə̀ry)	-ɣə́r	-ɣṵ̀r						
3	1	far, be	ŋ	m						*-ŋom~ŋam	-ŋom	-ŋamitin	-ŋamar	-ŋantiina	*	ŋam		*-ŋam	-ỹɛ̀ẅ	-ỹà̰w							
3	1	dry, be	y	d		yoor-	weer			*yịd(d)	-yidd, Ka. -yil	-yịr	-yịr	*yịd(d)	*yir		yil	*			-yə̀r						
3	10	cow	x	y						*hay/hajer?	baazé(r)	a-hay		a-hay	*ba-kkayä	pa-kkajɛ ‘bull’		*-xeey		i-kèy	gi-kə̀y						
3	1	full/many, be	y	ɓɓ						*	-yebb				*yaɓɓ	yabb	yabb	*-yaɓɓ/yeeɓɓ	-yǽɓ								
3	12	sole	t	p						*-ɟVf	gu-háf ‘foot’	gu-lef	gu-tep	bu-lefej <joola	*		ga-ntaf					*bu-lefej				*-támbi	
3	1	new	h	m						*-haam	-wáamoo(n)	-haam	-haam		*wVm	wam	woom							háamɛ̀			
3	1	laugh	ɗ	c											*ɗas	das	das	*-dVʃ	i-ɗæ̀s	-lə́ʃ	-ɗə́ʃ				dɛs Or ḍɛs		
25	10	burn	ɗ	k/x	*		dox		lakk	*-dux		-duh	-duxun ‘hot’	-duhuna	*ɗuh	ɗuu ‘grill’	ɗuh ‘shine’ ɗuha ‘grill’	*-ɗox *xoC-ɗox ‘fire’	-ryə́xw xwə-ɗə̀x	-lòxw xo-ɗúx	ñu-kúɗò						
25	10	dig	g	c/ʈ	*gas	’as-	gas	*hac	gas	*		-wuc						*-wəcc ‘dig up’	-wɔ́c		-wɨc						

			initC	othrC	Proto-FS	Fula	Sereer	Cangin	Wolof	Proto-BKK	Kobiana	Gujaher	Gubëeher	Guñaamolo	Proto-BP	Pajade	Biafada	Proto-Tenda	Konyagi	Bassari	Bedik	Joola	Manjak	Balanta	Bijogo	Bantu/VC	Mandinka
24	10	lie down	w	n(d)	*		wond-oox	*faan-ox		*-waan-ah		-waana	ku-waan	waana									*wɛntŋ-a			*-bánd ‘lie flat’	
24	10	scratch	h	ʈʈ	*ŋoos	ŋoos	ŋoos	*hoc	xoos																Or oʈɛ		
24	10	bird	c/ʈ	ɗ	*	son-du/col-li		*sel							*gun-cid~cudu	ku-cid	gu-ncudu	*-ʃəd	sə́ry	a-cə́l	e-cə̀d						
24	1	sky/god	d	n						*diin	dii(n)	diin	diin	diin	*go-ɗan(V)	ko-dan	ge-dana	*o-rənn		o-rə̀n	u-rùn		*ba-tɻı, na-tɻı				
23	10	kidney	ɓ	ñ	*	ɓoyre		*ɓuñ																	nu-bunu		
23	120	be used to	m	d	*		mer	*meeɗ										*-mər		-wə̀r	-mə́r						
23	12	be clean	l	ɓ	*laaɓ	laaɓ-	laaɓ ‘wash butt’		laab ‘wash butt’ (<FS?)									*-nVɓ		-nɛ́ɓ	-làɓ						
23	1	clam	p	ñ	*baañ ‘hunt clams’	waañ- (v)	mbaañ n-; faañ (v); o-faambaañ ol- ‘seashell’		paañ b- ‘ark clam’	*f~ppaañ ‘oyster shell’		d’A *guifaigne*	ba-paañ														
23	1	armpit	p	nd	*		o-naapaand ol-			*-fand		gu-fan	ji-fand											f-fáandì			
23	10	buttock	t	t				*taɻ	taat w-							pa-tte		*ma-tta (pl.)	wə-tà	o-tà							
23	10	leaf	t	p				*saaf		*-ɻuf	sá-ntufa	ci-luf	gu-luf	gu-luf	*gan-taaf	ka-taaf											
23	10	black, be	ñ	ɗ				*ñụus ‘be dark’	ñuul	*	-ñuru																
23	1	smoke	x	d					saxaad s-	*bi-họod		bu-họor	bi-họor	bu-họor								*fa-koor					
23	10	bent, be	ŋ	?						*-ŋodd	-ŋudd	-ŋora	-ŋoodun	-ŋọdd ‘twist’	*	ŋod	ŋind (Koelle)						ŋɔnt				
23	10	die	k	d						*-kịid		-cịid	-cịir					*-ʃəɻ		-ʃə̀s	-ʃə́s	*-ket	*kuɪtɻ				
23	12	sand	l	n/ñ	*		o-leeñ ol-	*ko-leñ (<ser?)	salleñ s-						*gun-yeen(V)	ku-yeenə	gu-yyeen	*er-niinnii		e-dĩnì	i-níní						
23	1	carry on head	ɗ	ɓ						*	-l~ndoob				*dVɓ	deb	dab	*-ɖə̰ɓɓ	-də̀bɔ́ ‘be encumbered’	-lə̰́ɓ	-ɖúúɓ						
23	10	hot, be	y	kk											*yVk	jaak	jook	*-yĩikk/-yeekk	-yǽk	-yĩkə̀	-yĩkɛ́		*yık~yik				
23	120	split	ʈ	b											*sab	sap	sabw	*-ʃapp <paj?	i-cæ̀p	-ʃà̰p	-ʃáp		*taw				
23	10	person	Ø	n											*u-NV	wu-nə	u-ña	*aa-an ?	a-àl/v-æ̀l	ạ-là	hál	*an	*ñaŋ	hál, bi-ñâŋ			
23	1	wound	y	n											*	ka-cinɛ <konyagi?		*xaC-yə̰n	xæ-jə̀l	i-kɛ́yə̰́n	hə̀yə́l		ka-jin				
2	1	twin	c/ʈ	t	*ox-siwd	siwtaa-ɗo	o-siid ox-	*sịis																			
2	13	blow	w	ɗ	*wuuɗ	wuuɗ- ‘whistle’	wuuɗ	*fụɗ																			
2	10	inside(s)	d	d	*reer	reed-u ‘belly’	a-ndeer al- ‘inside’	*liil ‘intestines’		*-dịitt															nadede / ñadede	*du-dìdà ‘umbilical c.’	
2	1	finish	d	Ø	*	re’-		*le-oɣ																			
2	12	help to eat	x	ɗ	*		xoɗ ‘make drink’		xol																		
2	1	heavy, be	m	ɗ	*	tedd-	meɗ	*ɓịt	diis	*mịrVk(k)	Ka. midik	-mịnik		-mẹnuh		nədd	rih	*-ɻiɓ	-lə́n			*-liti, *-lébi	*ditɻ	leb		*-dito, *-dem	
2	10	pimple	p	ʈ	*		o-fus ol-			*-fụs	á-ppoocc		gu-fur	ko-pụr													
2	10	be bitter	h	xx?	*		heq			*				-hekk													
2	10	hard, be	k	d	*		xiir			*				-kiir												*-kód	
2	10	defecate	k	m	*		xom			*				-kum													
2	10	twist	ɓ	nɗ	*		ɓof ‘strangle’								*ɓonɗ	bond	bwond										
2	10	twist	ɓ	d		ɓorl~ɓosl-												*		-ɓə́rúk		*-bot	*bɔt	bɔθ			
2	10	spread out to dry in sun	l	l	*liil	liil-, liir-	liil								*	yii											
2	10	hurt	ɗ	m	*		ɗom								*	dəm											dimi
2	10	push	d	ñ	*		riñ								*	riñ											
2	13	growl	ŋ	d	*ŋuur	ŋuur-	ŋuur											*-ŋə̰ra		-ỹə̰rá	-ŋə̰rɛ̰						
2	1	day	ñ	l	*re-ñaal	ñaan-de	ñaal l-											*geŋ-ñan		e-ñàn	gi-ñál						
2	1	cheek	c/ʈ	kk	*	sekk-ere												*		o-ʃék							
2	10	meat	t	w	*	teew-u																*e-liw		tîw			
2	10	be stuck in mud	l	p	*loof	loof-al ‘mud’	loof															F -luufo Kasa ha-luf ‘mud’					
2	10	take off, remove	w	t	*		wat																was				
2	10	anus	c	ʈ	*		o-suus ol-																pə-cut				

			initC	othrC	Proto-FS	Fula	Sereer	Cangin	Wolof	Proto-BKK	Kobiana	Gujaher	Gubëeher	Guñaamolo	Proto-BP	Pajade	Biafada	Proto-Tenda	Konyagi	Bassari	Bedik	Joola	Manjak	Balanta	Bijogo	Bantu/VC	Mandinka
2	10	breast	ɗ	?	*		feen n-																	f-dĭʊn			
2	10	lip	t	n	*	ton-ndu	o-don ol-'mouth'																		kɔ-tɔnɔ		
2	12	today	t	y				*wV-te	tey j-																		
2	1	oil (animal or vegetable)	d	w				*ki-lif	diw g-																		
2	1	tooth	ƭ	t				*siƨ		*-siƨ	á-ccih 'mouth'	gu-rụl	gu-ril	gu-ri										f-síj			
2	10	two	n/l	?				*anax		*-naC	-ná(ŋ)	-naak	-naak	-nakk													
2	1	bring	ɓ	y				*ɓay							*	bay											
2	10	lean	h	yˊ			gecˊ	*hayˊ										*-xaayˊ	-xày	-xə̀yˊ	-héyˊ						
2	10	see	g	tt	*gi~ga	yi'-	gi', ga'	*ɣot	gis									*		-ɣàt							
2	10	big	y	k				*yak															yʌk < *yɛk?				
2	1	be spicy/bitter'	h	y				*ha(a)y															*hay				
2	10	tap palm for wine	k	p				*kop																	kpay (v) ŋɔ-kpa (n)		
2	1	fish (v)	n	pp					napp	*-naapp	-naapp	d'A *houɲap* 'fisher'															
2	10	water	d	x					ndox m-	*mun-duux ?		mund	baa-ruux	baaru														
2	10	termite	m	x					max m-	*-meh		a-meh	a-meh	a-meh														
2	1	blood	d	t					deret j-	*bi-deƨ	Ka. bi-ler																
2	10	tell	n	x			nax (< wo)		nax 'tell story'	*			-naax														
2	1	wet (tr. v)	x	yyˊ			xooyˊ (< wo)		xooj 'dunk'									*-xoyʸyˊ	-xòyˊ	-xòyˊ	-hʷóyˊ						
2	1	break stalks	g	b(b)			gub (< wo)		gub 'mow'									*-ɣuubb	i-gùb	-ɣə́b	-ɣúb						
2	1	mouth	t	ñ					tuñ 'lip'									*		e-têỹ							
2	10	long, be	g	d				*ɣut	gudd															gʊθ			
2	1	steal	d	g				*lox		*-duƨu(y)	-l~ndúgu	-duƨuy	-duƨ	-duƨi	*rugu	ruu	lug										
2	1	fire	Ø	t						*ku-uƨ	kooh		kuul	kuul	*hu-uƨ(V)	nu-kus	fuuru										
2	1	name	ƭ	tt						*-set(t)	gu-séh	gu-ret d'A *gourel*	gu-ret	gu-reet	*		gə-səttə										
2	1	neck	d	p						*-dạaf	a-ddáaf	bu-dọof			*ba-rraafã		raafa										
2	1	close	g	ɗɗ						KK *-gidd	-g~ngidd, Ka. -gidd				*jiɗɗ	cid	jədd										
2	1	pour out	h	pp						*-hupp		-hup	-hup	-hupp	*	wupp											
2	1	hunt	c/ƭ	m						*	-s~ccaamaal				*	saam											
2	1	tired, be	n	g						*	-nigg				*		nəg										
2	1	elbow	k	ƭ						*gu-kuus	gú-huuso	gu-xụur	gu-huur	gu-huur				*-xoʃ	u-xósós	e-kóʃ	e-kòʃ						
2	1	lie down	n/l	nk						*-nVnk	-nikka			jinenku 'setting of sun'				*-nəkka 'evening'	æ-nə́kà	e-nə̀ká							
2	10	hand/arm	t	k						*ki/ji-ɾak(k)	ji-hákk	ci-lax	si-lax	si-lah				*gaŋ-ɾaxaan		a-tằhə̀n							
2	1	monkey	k	d						*-kkịd	bɛɛl	fạkar	fa-cịr	fạkkir				*			go-kə̀r						
2	1	know	y/yˊ	tt						*-yitt		-yit 'recognize'	-yit	-yitt 'perceive'			yitt 'be awake,kindle'	*	-yə̀t								
2	1	chin	d	m						*a-ddem	a-ddém							*er-rem		e-dèw̃							
2	10	hurt	ñ	m						*	-ñam, Ka. -ñem							*		e-ñèw̃ 'wound'						Gb *ñím	
2	1	draw water	d	Ø						*	-l~ndu							*		a-ndú 'well'							
2	12	sow, plant seeds	ƭ	g				*sox		*-suƨ(u)gg	-s~ccugg	-ruƨug	-ruƨug	-ruƨ								*-ɬuk		sʊg			
2	10	bone	x/h	l						*gu-huun		gu-huun	gu-huun	gu-huun								*ka-uul		f-hôʊl			
2	10	river	k	l						*-kan	á-hakka(n) 'sea'		gu-xan									*f-al					
2	10	finish	b	c						*-bạc(c) ?	-b~mbacc		-bạsiin												Or βasɛ		
2	10	sweep	h/y	c						*	sa-yées 'broom'														ɛs, Or wes		
2	1	snake	d	nn											*bu-rənnä	pə-rənnɛ	bu-lənna	*-rə̣nn	lə̀n	a-ndə̣̀n	gu-ndə̣́n						
2	1	do/make	d	Ø											*rii	rii	lii	*-rii	-lí	-rǐ	-rì					Gb *dɛ́	

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2	1	sharp, be	ŋ	kk											*ŋakk	ŋak	ŋakk	*-ŋakk	-ỹæ̀k	-ỹàk	-ŋák						
2	1	breathe	y	nn											*yinn	yin	yinn	*-yVnn	-yə̀n	-yìn	-yēn						
2	1	kill	ɗ	m											*ɗam	dam	dam	*-ɗam	-ryæ̀w̃	-làw̃	-ɗám						
2	1	two	k/x	Ø											*-he ?	maaɛ	bihe	*-xii	-xí	-xí	-hí						
2	1	sow	l	ɗɗ											*yaɗɗ	yadd	yadd	*naɗɗ	i-næ̀ɗ	-nẹ̀ɗ	-láɗ						
2	12	meat	t	Ø											*ña-r̥e	ñase	ña-re	*ñar̥ (< BP?)	fæ-ỹæ̀r	ỹàs	ñás						
2	12	knife	c/ʈ	t											*-sVr̥-	pa-caasɛ	ceran	*er-ʃa(a)r̥	i-càr	i-càs	i-cás				ni-nsar 'sword, knife'		
2	1	hunt	c/ʈ	ɗ											*saaɗ	saad 'search'	saad	*-ʃaaɗ	-sáry	-ʃạ̀l							
2	13	vomit	b	t				*ɓot	woccu						*bVVr̥	poos	bwuur	*-wVr̥	-wúr	-wǐs, -wǎc							
2	1	animal	d	m											*-ram	ŋan-tam	nramar	*geŋ-ram	i-ntæ̀w̃	a-ndâw̃							
2	1	mouth	m	c/ʈ											*ba-mməs(ə)	pə-məs	mməsə	*məʃ	w̃ə́s		ɓə-mə̀ʃ						
2	1	guard, protect	k/x	ɗ					haar						*haɗ ?	kad	haad	*-xVɗ	-xèry		-háɗè						
2	12	song	n	g											*bu-nugä	pə-nuɛ	bu-nəgə	*nuuɣ	l̰ə̀w̃		lú						
2	1	short, be	d	m											*room	room	loom	*-romm-ax		-rǒmàx	-rōmà						
2	1	stranger	ɗ	g, d											*u-ɗiigär	u-diɛr	u-diigal	*aa-ɗiiɣVr		ạ-lìyér	a-ɗìyàr						
2	1	fish	g/y	c/ʈ											*yVs-	iisan	yyesä	*-yiʃ ?	i-gís								
2	12	climb	k/x	yƴ											*hayƴ	yaj	hajj	*	-xǽƴ								
2	1	scorpion	k/x	ɗ											*-huɗä	wa-kədɛ	hudə	*		e-kwə̀l							
2	1	plant	d	ɗɗ											*	rəd 'plant a stake'		*-rəɗɗ 'plant crops'	*-rəɗɗ	-rə́ɗ	-rə̀ɗ						
2	1	tail	c/ʈ	ɓ											*	pa-sabɛ		*ʃVɓ	sǽv	ʃẹ́ɓ	ɓə-ʃẹ̀ɓ						
2	1	knot (v)	m	ɗ											*	məd		*-mə̣C	-w̃ə́j	-wə̣́ɗạ́	-mə̣̀ɗ						
2	10	antelope sp.	g	w?											*ju-gao ?	cuao		*geŋ-ɣaaw	i-nkàw	e-ngạ̀wu	ge-ngéw						
2	12	wrap up	p	ɗ											*	fəd		*-fəɗ	-fə̀ry	-fə̀l	-fə́ɗ						
2	12	flour	p	k/x/h											*	ku-piɛ		*gə̣ŋ-fiix	u-píx	pìx	gə̣-pîh						
2	12	broadcast (sowing seed)	p	n											*	fan		*-fan	-fæ̀l̰	-fàn	-fál						
2	12	leave	c/ʈ	n											* 'remove, make leave'	sann		*-ʃan	-sǽl̰	-ʃàn	-ʃàl						
2	10	inherit	d	ŋ											*	rəŋ		*-rəŋ(g)	-lə́w̃	-rə̣́ng							
2	12	be good	n	ŋ											*	niŋ		*-nə̣n(g)	i-nə̀ŋ	-nə̣̂ngà							
2	12	be ashamed	c/ʈ	p											*	səf		*-ʃəfən	-sə̀fə́l̰	-ʃə̀fə́nə̣́n							
2	12	play instrument	t	mb											*	səmpət		*-r̥əmb	i-tə̀mp	-sə̀mb							
2	12	tree trunk	d	pp											*	pə-rəp		*er-rəpp	i-də̀p	e-də̀p							
2	12	name	m	cc											*	ko-mic		*macc	u-w̃æ̀cə́		o-w̃âc						
2	12	demolish, destroy	n	k/x/h											*	ni		*-nix	i-nìx		-lẹ́h						
2	12	finger	ñ	tt											*	ko-ñit		*-ñVtt	wæ-ñə̀t (pl. only)		e-ñēt						
2	12	okra	w	ɗ											*	ña-udə		*ña-wVɗ	ỹa-w̃ə́ry		ñu-wùɗ						
2	12	inhale	c/ʈ	d, ɓ											*	sərəb		*-ʃəroɓa		-ʃə̂róɓá	-ʃə̣̄rọ̀ɓẹ̀						
2	12	remove	d	h											*	riit		*-rəxətt		-rə̀xə́t	-rə̄t						
2	12	sprout from ground	ɗ	gg											*	dikk		*-ɗə̣gg		-lə̣̌g	-ɗə̣̀g						
2	12	shade, shadow	ɓ	ɗ											*-ɓooɗ	kum-boodɛ, bood-aan (v)		*gaŋ-ɓooɗ		a-mọ̀l	ga-móɗ						
2	12	tuft of grass	d	ñ											*	pa-tañ		*gaŋ-rañ		e-dáỹ, a-ndáỹ	ga-ndáñ						
2	120	face	k/x/h	t											*du-(h)ar̥ä	taasɛ~toose		*-xar̥		də̀xás	i-gàs						
2	10	buffalo	y	d											*	wa-yrɛ		*-yəra	i-jə́lá								
2	1	carry child on back	d	nd			dond 'carry on saddle'								*	rənt		*		-rə́ndá							
2	10	take	k/x	l											*		hay	*-xanna		-xàná	-hánà						
2	1	dig	l	cc											*		yaac	*-nacc		-nàc	-lác						
2	1	soft, be	l	mb						*-nVb	-nib		-nẹb	-naab	*		yəmb	*		-nâmb							

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2	12	leaf	ñ	t											*gan-ñaṛ		ga-ññar	*gaŋ-ñaṛ			ga-ñãs						
2	10	swallow	y	ɗ																		*-yor			ɔd, Or ɔḏu		
2	12	termite	ɓ	ɓ																			*u-bɔb		ɛ-babu		
2	1	be full, be many	c	m																			*cʊm		som		
13	10	intestine	l/ṭ	w	*		laaw k-			*	si-ncáaw Ka si-caw											CJ *mu-law Kw mu-law <*mu-ɬaw				*n-dà	
Ø8	10	urinate	c	?	*		sayid	*soox	saw, seben	*-ʃVt(t)	-sett	-saal	-sẹl	-saal	*sah	saa	sah	*	-sǽw̃			*-sʊr	*tʊʊn	sɛɛrɛ		*-cù(b)	
Ø7	10	cover			*	huur-	hul	*kụn *(h)ụul <sr? Pa. húun		*-kụdd	-h~kkudd	-kụd	-xụd	-kụdd	*wuɗɗ	wudd	wudd	*	ì-kúrá				kul (Bok only)			*-kṹník	
Ø4	10	put (in)	ɓ	k			ɓek	*ɓek (<ser?)															Mank. bək			*-bíík~béék <bá-ik	
Ø4	10	go (aller)				yah-		*y̆aH										*-y̆V	i-yî	-yə̀	-yé	*-jaw				Jukunoid -jaka	
Ø3	10	give							joox						*jakk	cak	jakk									Jukunoid -ja	
Ø2	10	sift	c/ṭ	ɗ	*sVɗ	seɗ-	siɗ	*sịɗ (<ser)																		*-cèd (NS)	
Ø2	10	come	g	d	*gar	’ar~ngar-	gar																			*-gàd ‘come back’	
Ø2	10	only	l	k					rekk																	*jèká	
Ø2	10	grains	c																			F e-cese				*mu-céké	
Ø7	13	flower/bloom	p		* (verb)	fuɗ-	bus, foos, fiɗ	*(sa-)pus	focci (v)	KK *ta-mpooṛ Bai. *gu-foon <BKK -foor ?	tá-ppooh	gu-foon	gu-foon		*feeṛ *gun-peeṛ(ä)	fiis ku-piis	feer gu-mpeera	*-fətter	u-fətél		go-pátèr			fɛr, gì-mfɛ́r			fíri
Ø6	2	horse	p	l, c	*gun-pVls	pucc-u	pis n-	*paṇis	fas w-, †fars						*	ŋa-fas		*	i-pǽḻæ̀cə́		fándàc	F e-piling Kw e-falinj	*u-mpəlınc	fálás			
Ø6	13	blow nose	ñ		*ñis(ɓ)-d-oox ?	ñitt-o-	ñiitoox	*ñịind	ñand	*-ñiiṛ	-ñiih	-ñịil	-ñiil	-ŋiil	*	ñinkət		*-ñVtt, *ña-ñən ‘snot’	y̆æ-y̆əḻ	-y̆ə̀t	-ñètà ña-ñə̀l						
Ø6	23	sneeze	t	c	*		disoox	*tịs	tisóoli	*			-tisya		*	tisoŋ						F -tiso E -ttẹsulo Kw -tẹsum Huluf -tiɬo					tisoo
Ø5	3	cough up phlegm			*xaax-d-oox	haakt-o-	xaaqoox	Pa. xaakisox	xaax (ideophone)	*-kaak(k)	-haakk		gu-xaax					*-xax	-xàx ‘spit’	-xǎx	-hàh						Son. xáaxì
Ø5	3	gape	ŋ		*	ŋaaɓ-o-	ŋaɓ ‘bite (animal)’; ŋaaɓ ‘overfill mouth’	*ŋaɓ ‘hold betw teeth’	ŋàpp	*	-ŋaappə(n) ‘yawn’											Kasa, Bliss, Ejamat -ŋaf, Bliss -ŋaap ‘bite’					
Ø5	120	spread out cloth	d/ɗ	ɗ	*	daɗɗ-		*laɗ	lal							dəd ‘sprinkle, spread’						F, E -tal	taar				
Ø5	12	grandparent, ancestor	m	m	*	maama	maam f-		maam j-	*maam	maam	maamaam	maamam	maamaam		maamɛ						Kw a-maam		mǎam			maama
Ø5	2	cotton	m		* ‘spin thread’	mott-	mod			*-mo(o)tt	ja-móott	ja-mot	ja-moot	bu-mott	*	muut ‘spin thread’		*ña-mədd	yæ-ŵə̃d				*pə-muutṛ				
Ø5	12	porcupine	c		*	sa(n)ŋal-de	siñeel l-		suññeel b- ‘hedgehog’	*	baccáañaali		bu-saamil	bu-samel	*	u-cañawɛ						F, Gus fu-sañeel E fu-saṇel	*u-cagal ‘p’ u-sñel ‘hedgehog’				
Ø5	2	cloth			*		liir n-	*lịil		*	sa-líih	gu-liit	bu-lịit	bu-lịir				*			gə-nə̀r	F, Gus -liir ‘weave’	Pepel liir ‘weaver’				
Ø5	123	turn/spin	w	d	*		wid (<wo), wiril	No. wịlal Sa. wil Pa. wil, yiil Nd. yid	wĕd							wisa ‘return’							wɪtṛ ‘return’		Or βɛrɛŋ		
Ø5	13	small					duƈuuƈ	*	tuut(i)	*ti(ṛ)itt	-l~ndiicc	-tịleet	-tilit	-tiir	*	kan-tiiti	tiiti	*	tíy̆ ~tóy̆ ~túy̆ ~tíj ~tój ~túj	tîl / sîl		E -titti F -tiiti	*tiiɬ	dʊʊl			
Ø5	10	be (copula)	g						*ngw-	*-gụ(y)	-go	-guy	-gụ	-gụy	*gi ?	i	ga~ge~gə	*-ɣii	i-gè	-ɣì	-y~gé			gɪ			
Ø5	120	twin	c							*jam-binc(a)	ñáabəcca, Ka. jaabinca	jambinc	-jam-bụsen		*gun-ca	ku-caa	ba-gun-ca	*ɓəC-ʃaa		ɓə-cá̧	ɓə-cà	F, Gus kunsa		gùnsâ	kambanc		
Ø4	12	jaw			*gal-gaXɓ-	gaɓɓu-gal	a-kaβaar al-	*kaaɓaaɓ ‘cheek/jaw’ (<wo)	kaabaab g- ‘temple’	*der. ‘chew’	Ka. gu-habar	bu-kabaat	gu-xạbạat	gu-kạbạḷạar	*	ma-kalabaaso											
Ø4	10	swell, abscess			*’uut	’uut- (N)	’uut, a-’uut al-			*-wụdd	-wudd, á-wudd	-wụd		-wụdd, bu-wụdd	*er-wu(u)ṛ	i-bùr							*ur, wur				
Ø4	10	brood			*	woof-, woofoo-nde ‘egg’	ɓoof	*ɓoof (borr ser?)	ɓóof						*	woof (<ful?)											
Ø4	130	slap	p	ɗ	*	faɗɗ- ‘hit’	faɗ	*paɗ	fël ‘hit, kick’							padd ‘hit, kick’		*	-fóry								
Ø4	10	ash	d		*rin-Daw	ndoo-ndi	ndaw n-		dóom b-	*a-ddont ?	á-ddett	bu-dont	bu-rot	bu-door	*	kun-taanə	gu-nro									*-tó BC *toŋ	
Ø4	10	skin					fool n- ɗel ‘peel’		der w-						*	kun-daar		*-ɗVr	æ-ndíl	a-nǎr	ga-nàr		*ka-təl				
Ø4	13	boil					way̆	*woy̆		*-faj	-faz	-faj			*	faj	bwaj										fáji

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Ø4	2	*Cola cord.*			*		mbamb			*	ú-mbon		si-bạmb					*gaŋ-wamb		a-mbàmb	ga-mbàmb	F bu-bạmb E bu-bạm					
Ø4	12	jackal					o-yaxal ol- 'panther'								*	yakala		*yaakkəra	yákɔ́lá	yą́kɔ̀rą́	yà̰kərá	F/Gus ka/ga-jaagal					
Ø4	10	one, other						*-ịno	-enn	*-ɟeen	-h~ttee(n) 'other', -h~tteena 'one'				*	painɛ											
Ø4	10	stone						*a-roɣ							*ba-yyangä	pa-yankɛ	yyangä		i-táká				*pə-laak	f-làagí		Gb *tà	
Ø4	10	and								*	ngo	ụnga, $ạnga	anga	ịngi	*nga	nka	nga	*	gà		ngə			ngì			
Ø3	3	rasp			*hiixx?	hiik-	hiiq	*hịix 'breathe'	xiix																		
Ø3	12	heal	p		*		fay̆	*pay̆	faj																		
Ø3	10	thunder			*		o-xiiñ ol- 'lightning'	No. (h)ịṇiŋ, etc.	xiin w- 'storm cloud'																		
Ø3	10	bury			*'uwb ?	'ubb-,'uw-	'uup	*hụumb		*-hụbb	-wubb	-wọbun	-hụb	-wụbb													
Ø3	10	scorpion	?	ng, d	*-rangar ?		a-tangaranga al-	*ndangal (<ser?)														*e-ɬankut			ɛ-ʈɛngɛmɛr		
Ø3	120	snore			*	har-	xil	*Hịl															Mank. heerntṛ	hiir			
Ø3	120	be hung/stuck up high			*		ɗang	*ɗaang (<ser?)															*dɯng				
Ø3	10	add, do again	ɓ	tt	*		ɓaat	*ɓaat (<ser?)										*ɓətt 'do again'; *ɓạtt 'grow'		-ɓə́t; -ɓə́t	-ɓə́t; -ɓúut						
Ø3	120	be present	m		*maad	maat-	maad	*maas <ser?														F -maat Gus -maareer					
Ø3	12	yawn	h	ɓ	*		haɓaas	*haɓaang-ịs-ox															Mank. hab *habəntṛ *haban mtum 'open mouth'	yaab			hábáasi
Ø3	12	oyster	y	x	*		o-yuux ol-	Nd. yoho	yoxos j-	*-yoh	gú-yo	ba-yoh										*e-uɬ	*-uut	yə́gɔ́s (<wo)			
Ø3	120	point w/ finger					joox		joxoñ	*				-johun													
Ø3	12	pray, ask for					ñaan (<wo)		ñaan														*ñaan				
Ø3	120	twine, braid, twist	m		*	mirɗ- 'twine'	mirig 'twine' mor-oox 'be intertwined'		mërgal w- 'circle'																mɔr 'twist'		Son. mìrí 'weave/braid'
Ø3	3	open mouth	ŋ		*	ŋaañ-	ŋaaŋ 'take big bite'			*ŋaaŋ	-ŋaaŋ		-ŋaaŋun									F -ŋaaŋ					
Ø3	10	good, be					faax (<Wo)	*wax 'be healthy'	baax									*-fakk 'heal'		-fàk	-fák						
Ø3	10	cut						*ngụɗ	god 'chop down'									*-ɣuuɗ	æ-nkwə̀ry-gwə̀ry 'piercing insect'		-ɣùɗ						
Ø3	10	thing						*yin~iñ~oñ		*k-onj	koñ, Ka. honj	xonj	honj	honj				*-yVñ ~ñVñ ~ñVy	i-nín ~i-ñə́ ~i-ỹín ~ỹə́; ñónə̃ 'nothing'	ỹɛ̀ỹí; a-ñéy 'animal'	jíñ; gi-njə́ɣə́ 'mosquito'						
Ø3	10	walk	d						dox	*-dẹkk	-l~ndekk	-dạk, $-dek	-dạak	-dẹk											Or ɖɔ		
Ø3	2?	baby							liir b-	*		gu-lẹr		ko-ler										líɪr			
Ø3	10	(millet) stalk							jàmb 'sugarcane'						*	pa-jampar		*-ɣaamb	æ-ncàmp	o-ɣə̃mb	u-ɣə̃mb						
Ø3	12	left (hand)								*-may (<jo?)	-maañ Ka. -may	ci-maay	-may					*-ɓay (may?)		ʃàmè	ʃámáy, i-ɓáy	*-may	*may				
Ø3	12	sell	w							* (KK)	-waaf							*	-wàfə́				*waap				
Ø2	10	woman			*ox-rew	debb-o	o-tew ox-	*ɓe-reɓ																			
Ø2	2	megabat			*gal-ɗeem		a-feem al-		gàddeem g-																		
Ø2	10	cheek	ɗ		*		o-ɗek ol-		lex b-																		
Ø2	10	louse	t		*	ten-ngu, tem-mba, ten-ngii		*ɗiñ	teeñ w-, dëññ w- 'nit'													*e-tem	*u-tṛɛm				
Ø2	120	horn			*		o-jan ol-		béjjén b-																		
Ø2	120	weekly market	l	m	*	luum-o				*bi-noom (also 'week')	bú-noo(m)	bu-noom 'day'	bi-noom	binoom 'eighth day'														
Ø2	10	face			* (not a velar root)	yees-o, pl. jees-e				*bu-gịis	bi-gíis	bu-jịir	bi-jịir	bi-gịir														
Ø2	10	chew					koɓ			*-kạbb	-h~kkobb	-kạb	-xạab	-kạb														
Ø2	10	hit			*na(a)b	naaw- 'hurt'	naf								*naf	naf	naf										
Ø2	10	insult			*wenn	yenn-	wen								*bənn	pənn	bwən										

			initC	othrC	Proto-FS	Fula	Sereer	Cangin	Wolof	Proto-BKK	Kobiana	Gujaher	Gubëeher	Guñaamolo	Proto-BP	Pajade	Biafada	Proto-Tenda	Konyagi	Bassari	Bedik	Joola	Manjak	Balanta	Bijogo	Bantu/VC	Mandinka
Ø2	120	take, snatch			*jaɓ	jaɓ-t-aa- (A)	jaɓ									cab < fula?											
Ø2	10	catch fire			*jaɓ(ɓ)	jaɓ-	jaƥ															*-yab					
Ø2	10	measure			*		liiƥ	ljiɓ~njiɓ 'think' < ser?															*niib				
Ø2	10	pass over			*		jol																*cɔl				
Ø2	10	mouse	d		*	doomb-ru																		θὺὺbú			
Ø2	12	firstborn	t				taaw f- (< wo)	*saaw	taaw b-																		
Ø2	10	burn						*hoñ	xóoñ b- 'burnt rice'																		
Ø2	10	speak	w					*woh	wax																		
Ø2	10	bone	y	x				*yuH	yax b-																		
Ø2	10	river	d	x				*laaH	dex g-																		
Ø2	10	long, be	w					*wuṛ 'be far'		*-wud		d'A *houd*		-wur													
Ø2	10	hate						*sang							*		sank										
Ø2	12	dare						*kaañ		< Joola?		-kạañin	-xaañun	kạañin 'help'								*-kaañen					háañi
Ø2	10	milk	m/Ø	ţ				*miis														*mịiɬ					
Ø2	10	big							rév	*-dẹ	-l~nde		-dẹe	-dẹ													
Ø2	10	dog							xaj b-	*ji-xi		jịhi	jixi	jihi													
Ø2	10	chest							fit w- 'spirit/courage'	*gu-fitt		gu-fit	ha-fitt	gu-fit													
Ø2	10	be sick							neer 'be seasick'	*-nẹd		-nạr, d'A *ned*	-nẹr	-ɲer													
Ø2	10	five							judóom	*ju-roog	júroog																
Ø2	10	tail							geen g-	*bu-yend	bi-yénd																
Ø2	10	swear							waat	*-baat(t)	-b~mbaah	< batt > (D'Avezac)															
Ø2	10	drink						*an?	naan						*naaŋ	naaŋ	naaŋ										
Ø2	10	be slack, loose	y	mb					yomb 'be easy/cheap'						*	yomp											
Ø2	0	be thick (viscous)		ŋ					daŋ									*-ɗoŋ		-lòỹ	-ɗòŋ						
Ø2	12	sword							saamaar									* 'scabbard'		a-cómàr	ga-cómár						
Ø2	12	scabbard							mbar									*-ɓar	u-vàlɔ́								
Ø2	12	rafters							càkkar									*	i-cɛ́kɛ́ry								
Ø2	10	sweet, be							lem g- 'honey'									*	-lɔ́m								
Ø2	120	know							xam									*		-xàm							
Ø2	12	hurt/wound	g	ñ					gaañ									*			-ɣàñè						
Ø2	10	look at	ţ	n					séen 'see, glimpse'														*tɛn				
Ø2	10	sweep								*	sa-ppɛ́cc, Ka. sa-pec 'broom'				*	pees	bwees								Or. wes		
Ø2	10	inside								*	bámeena, Ka. baameena				* 'back'	paaməns	gə-bwaaməna										
Ø2	120	calm, be	ŋ	b/ɓ?						*	-ŋaab				*	ŋaab											
Ø2	10	snore								*	-ñində(n) 's., thunder' Ka. -ŋidd 'thunder'				*		ŋənr										
Ø2	12	seer								*	u-láag, Ka. u-laag				*		u-daagə										
Ø2	10	hole								*ka-ttVg	gú-hattəgg Ka. gu-hatti							*xaC-təx	xæ-tóx	o-kàtɔ̀x	gu-kāt						
Ø2	10	meat								*a-had	Ka. ko-har < guj	ka-haar	a-har	ahar				*-xaar 'love meat'	-xál	-xạ́r							
Ø2	2?	long pole (for picking fruit)								*	ú-ngɔtt		gu-ŋot					*geŋ-ɣott	i-ŋòt~i-nkòt	e-ngót	ge-ngòt	F, E e-gol					
Ø2	12	be dirty								*-ñungul	-ñungəl	-ñụngul						*			-ñúŋ̀əl 'be ugly'						
Ø2	10	stand								*	-h~kkaant							*-xaan	-xáḷ		-hàl						

			initC	othrC	Proto-FS	Fula	Sereer	Cangin	Wolof	Proto-BKK	Kobiana	Gujaher	Gubëeher	Guñaamolo	Proto-BP	Pajade	Biafada	Proto-Tenda	Konyagi	Bassari	Bedik	Joola	Manjak	Balanta	Bijogo	Bantu/VC	Mandinka
Ø2	10	braid/weave (vines)								*	sa-kkánj-kkanj ‘palm frond’							*	i-kɛ̀ɛnc								
Ø2	12	untie													*bətt/butt ?	fət	bwət	*-fətt > paj?	-fə́t	-fə̂t	-fə̂t						
Ø2	2	wash													*ɗag	dak	dag	*	i-ɗɛ́g < BP?								
Ø2	10	man	c/ʈ	l?				Pa. sa f- ‘person’							*	u-siɛ	u-sa	*aa-ʃann	a-sɛ̀ɛn	ạ-ʃə̀n	a-ʃán						
Ø2	10	be smooth, slippery	l	t					rattax						*	yoos		*-nVr̥	-l̰ùr	-nìsêl	-lës						
Ø2	10	be lightweight	k/x/h	l											*	haay		*-xVn	-xl̰		-hél						
Ø2	10	branch	n	l?											*		gə-nay	*-nii(n)	l̰ì	e-nînî	u-lí						
Ø2	10	moon													*		bu-lampa	*	u-lèpèrá								
Ø	2	rice				maar-o	maalo f-	maalu, maalo	maalo (dial)		máanə(m)	maanum	maano			pa-maano	bwa-maan		æ-màlú	màlú	mālǫ̀ŋ	*e-maano	u-maani	mààlú	ɛ-man		Bam. malo
Ø	2	millet (often one sp., not general)					maac f- ‘pearl millet’									maaja	maaja		màjà	màyà			bə-maaj		na-maji Or nɛ-maaji		maaji
Ø	2	sitting mat							basaŋ g-	*	básə(n)	ram-basa	ram-basa	ram-basaŋ	*gVn-ɓasa	kam-basa	gə-mbasa	*	æ-mbæ̀sæ̀l̰	bàʃání		F ka-basa	u-basa				basa
Ø	2	fishnet			*		mbaal n-		mbaal m-	*			ja-mbaal	jambaal								F, G, Kw ja-mbaal					Son. baalu
Ø	0	be lightweight			*		yelef	*hɛɗVf	hoyof																		
Ø	0	full (sated), be							suur < suud?														*ɬuutr̥			Gb *súr	
Ø	3	throat			*	holo-nde		*ngol-ngol										*		e-gə̀lə̀	e-gə́lá						
Ø	3	close mouth			*muɓ(ɓ)	muɓɓ-	muɓ	*maɓ																			
Ø	2	sword			*	laɓ-i	laɓ n-	*kalaɓ (< ser)														F ka-liba F e-rap ‘machete’					So. làbó
Ø	2	knife			*		japil f-	No. jɛpil Sa. japil Pa. japil		*	jóppul																
Ø	2?	yam			*	happ-ere	xaɓ l-	Sa. haɓtaɓ Pa. kap								kappe < fu?		*-ɣaaɓ	u-nkwàv	o-ŋa̰ɓ	e-géɓ						Susu xabe
Ø	2?	despise			*yab	yaw-	yaf		yab									*-yaf	-yàfâŋ	-yàf							(term?)
Ø	3	sniffle			*ñisiɓ	ñisɓ-o-	ñisiɓ											*-ŋoʃəɓa		-ɣ̀òʃə́ɓá	-ŋóʃə̀ɓà						
Ø	0	beat			*xaw	haw-	xaw	*hap ‘kill/beat’																hab ‘kill’			
Ø	0	inherit			*		lam	*lam										*	-lə́w	(-rə́ŋg)							
Ø	0	die			*		xon	*kaan																			
Ø	3	lightning					melɛc ‘sparkle’	No. melic Sa. meleñ Pa. ɓiɲiñ Nd. pilliŋ	mellax ‘shine’		wémbəl-wembəl	gu-meetet	ba-melej ‘sparks’	jammen ‘spark’		welej		*	-vìlìñə́t				ka-mpalambamb				Bam. férén ‘thunder’
Ø	0	draw water								*-diin *-diin ‘well’	a-ddíi(n)	bu-diin		-diin diin	*dîhi	dii	bu-dihi , bu-dii ‘well’										
Ø	2	scar/brand			*ñaas-	ñaas-t-	ñaas	(*ñand)	ñaas													F -ñaas					
Ø	0	word							baat b-						*		maat										
Ø	2	carry child on back								*-bamb	-bamb	-bamb	-bomb	-bamb							ga-mbɔ̀mb ‘child carry cloth’		bamb				bambu
Ø	3	blow							fuuf										-fâf ‘stoke fire’					$faafe ‘wind, breath’		*-pɛ̀ɛp, *-pùùp *-pṵ̀ṵ̀p	
Ø	2	man			*ox-goor	gor-ko	o-koor ox-		góor g- (NOT góod)																		
Ø	0	leg						*kot														*ka-ot	*ka-hɔtr̥			*ku-gùdù	
Ø	20	branch (n, v)			*sal (v)	sal-t-	sal	*sal ‘intersection’	sél (v)												-ʃə́l (v)					Gb sàrà ‘forked stick’	Susu sale (n)
Ø	30	vomit milk			alyˀ-, galyˀ-, wolc-		goloyˀ	No. golic Pa. golac	woccu ‘vomit’									*-wacc	i-gwæ̀c	-wằc							
Ø	0	live long			*		xuuɗ																	guud-i			
Ø	0	shoulder				wakk- ‘carry on shoulder’			mbagg m-, pl. wagg															bag ‘carry on shoulder’		*di-bègà	
	2	cola nut (incomplete)														nkur								f-ngùrú			
	2	cowrie (incomplete)																						gódì ‘money’			
	2	okra (incomplete)					xanja f-		kànja																		
	2	wax (incomplete)							linkañ, D’A < cagna >															gi-gàañ			kaañi