

The numeral system of Proto-Niger-Congo

A step-by-step reconstruction

Konstantin Pozdniakov

Niger-Congo Comparative Studies 2



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Contents

Acknowledgments	xv
Abbreviations	xvii
1 Preface	1
1.1 Introduction	1
1.1.1 Niger-Congo: the state of research and the prospects for reconstruction	1
1.2 Sources and the monograph structure	6
1.2.1 Sources	6
1.2.2 Monograph structure	7
2 Noun classes in the Niger-Congo numeral systems	11
2.1 Noun classes in the counting forms of numerals	15
2.1.1 The specific marking of numerals	17
2.1.2 The grouping of numerals by noun class	18
2.2 Noun classes in derived (reduplicated) numerals	23
2.3 Noun class as a tool for the formation of numerals	32
3 Analogical changes in numerals	37
3.1 Issues pertaining to the detection of alignments by analogy . . .	37
3.2 Mande	40
3.3 Atlantic	41
3.4 Kwa	43
3.5 Adamawa	49
3.6 Ubangi	51
3.7 Gur	51
3.8 Dogon	52
3.9 Kordofanian	53

4	Step-by-step reconstruction of numerals in the branches of Niger-Congo	55
4.1	Benue-Congo	55
4.1.1	The Bantoid languages (including Bantu)	56
4.1.2	Benue-Congo (the Bantoid languages excluded)	73
4.1.3	Isolated BC languages	103
4.1.4	Proto-Benue-Congo	104
3.2	Kwa	113
3.2.1	Ga-Dangme	113
3.2.2	Gbe	114
3.2.3	Ka-Togo	115
3.2.4	Na-Togo	116
3.2.5	Nyo	117
3.2.6	Proto-Kwa	124
3.3	Ijo	136
3.4	Kru	137
3.4.1	‘One’, ‘Two’ and ‘Three’	138
3.4.2	‘Four’ and ‘Five’	139
3.4.3	‘Six’ to ‘Nine’	140
3.4.4	‘Ten’ and ‘Twenty’	141
3.4.5	‘Hundred’ and ‘Thousand’	142
3.5	Kordofanian	143
3.6	Adamawa	146
3.6.1	Fali-Yingilum (G11)	150
3.6.2	Kam (Nyimwom, G8)	151
3.6.3	Leko-Duru-Mumuye (G4, G2, G5)	152
3.6.4	Mbum-Day (G13, G14, G6, Day)	154
3.6.5	Waja-Jen (G9, G10, G1, G7)	157
3.6.6	Laal	159
3.6.7	Proto-Adamawa	160
3.7	Ubangi	175
3.7.1	Banda	175
3.7.2	Gbaya-Manza-Ngbaka	176
3.7.3	Ngbandi	177
3.7.4	Sere-Ngbaka-Mba	177
3.7.5	Proto-Ubangi	179
3.8	Dogon and Bangime	185

3.9	Gur	187
3.9.1	Bariba	195
3.9.2	Central Gur	196
3.9.3	Kulango	203
3.9.4	Lobi-Dyan	204
3.9.5	Senufo	205
3.9.6	Teen	206
3.9.7	Tiefo	206
3.9.8	Tusia	207
3.9.9	Viemo	207
3.9.10	Wara-Natorio	207
3.9.11	Proto-Gur	209
3.10	Mande	219
3.10.1	‘One’	221
3.10.2	‘Two’	222
3.10.3	‘Three’	223
3.10.4	‘Four’	225
3.10.5	‘Five’	226
3.10.6	‘Six’	227
3.10.7	‘Seven’	228
3.10.8	‘Eight’	230
3.10.9	‘Nine’	231
3.10.10	‘Ten’	232
3.10.11	‘Twenty’	234
3.10.12	‘Hundred’	235
3.10.13	‘Thousand’	236
3.11	Mel	238
3.11.1	Southern Mel	239
3.11.2	Northern Mel	240
3.11.3	Proto-Mel	241
3.12	Atlantic	241
3.12.1	Northern	241
3.12.2	Bak	251
3.12.3	North Atlantic and Bak Atlantic numerals in the comparative perspective	262
3.13	Isolated languages vs. Atlantic and Mel	263
3.13.1	Sua	263
3.13.2	Gola	263

Contents

3.13.3	Limba	264
4	Reconstruction of Numerals in Niger-Congo	265
4.1	‘One’	265
4.2	‘Two’	268
4.2.1	‘Two’	268
4.2.2	‘Two’ = ‘one’ PL?	269
4.3	‘Three’	271
4.4	‘Four’	281
4.5	‘Five’	284
4.6	‘Six’	294
4.7	‘Seven’	295
4.8	‘Eight’ (‘Four’ and ‘eight’)	296
4.9	‘Nine’	303
4.10	‘Ten’	304
4.11	Large numbers (‘twenty’, ‘hundred’ and ‘thousand’)	308
4.12	Proto-Niger-Congo	309
5	NC numbers as reflected in particular families, groups and branches	311
5.1	Benue-Congo	312
5.2	Kwa	314
5.3	Ijo	316
5.4	Kru	317
5.5	Kordofanian	318
5.6	Adamawa	319
5.7	Ubangi	322
5.8	Dogon	324
5.9	Gur and Senufo	325
5.10	Mande	327
5.11	Mel	329
5.12	Atlantic	330
5.13	West African NC isolates	332
5.14	Summary	333
5.15	Conclusion	336
	References	337
	Index	339
	Name index	339

Language index	339
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4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

In this chapter we will try to create a step-by-step reconstruction of numeral systems for each separate family independent of the data from the other NC families. For each family we shall examine the range of basic numerals from ‘1’ to ‘10’ and then the numerals for ‘20’, ‘100’ and ‘1000’. We begin our overview with the largest family, Benue-Congo.

4.1 Benue-Congo

There is no Benue-Congo classification that is accepted by all scholars. As noted, the inventory of Benue-Congo groups mainly follows the classification of Kay [Williamson \(1989: 266-269\)](#). We repeat here the scheme of BC given above, in the introduction as Table 4.1.

Table 4.1: Benue-Congo languages

*Western BC	*Eastern BC	Isolated BC
Nupoid	Kainji	Oko
Defoid	Platoid	Akpes
Edoid	Cross	Ikaan
Igboid	Jukunoid	Lufu
Idomoid	Bantoid	

Let us begin our overview with the largest group of Bantoid languages.

4.1.1 The Bantoid languages (including Bantu)

The reconstruction of numerals in the Bantoid languages is based on 140 sources for the major branches of this family. What follows is the result of our step-by-step analysis of numeral systems in these languages.

4.1.1.1 ‘One’

We shall collect the main forms for ‘1’ in different branches of the Bantoid languages. The last column of Table 4.2. shows some isolated forms for ‘1’ which seem to be innovations.

At first glance, the terms for ‘1’ in the majority of the Bantoid languages appear to be quite homogeneous, their roots being traceable to either **mo?* or **moi/mwi* of uncertain etymology. The misleading similarity of the Bantu roots *mòì*, *mòdì*, *mòtì* may be due to the merger of the noun class prefix **mò-* with the nominal base¹. This hypothesis (developed in detail in Vanhoudt 1994) has now found its way into the BLR (cf. BLR3 *sub mòdì* (NC): ‘*plutôt mò-òdì*: voir Vanhoudt 1994’).

Among other common Bantu forms are *mócà* (zones KN), *mòtì* (ABCEGHKLRS) < **mò-òtì*, *múégá* (zones BH) (BLR3: «*mòì* + suffix»), and *mòì* (ABCDEFGJKLMS). As will be shown below, the presence of a nasal prefix in the Bantoid numerals is suggested by the distribution of these forms in Benue-Congo. Those BC branches that have nasalless roots within the nominal classes ‘one’ and ‘three’ lack the terms for ‘one’ with a nasal consonant.

This interpretation, however, does not address two major issues, namely 1) whether the forms in question (e.g. **-òdì/ -oti/ -oʔi*²) consist of one or more roots and 2) whether the open back vowel belongs to the root.

A solution to the former problem may turn out to depend on how the latter is treated.

Within the context of Niger-Congo, it is conceivable that the Proto-Bantu *òdì* may go back to **ò-dì*, with **ò-* being a marker of the NC noun class 1 (**ko-/ ʔo-* according to my reconstruction). This hypothesis will receive a more detailed treatment in the next chapter. At this point, we will only note that it is quite problematic to explain the common reflexes of **-dì*, **tì*, and **ʔ-* in Bantu within this hypothesis. Moreover, the etymological relationship between these roots (disregarding **dì* and *mɔ(m)* (Tivoid), *ó-mè* (Mbe), *ma* (Mamfe), etc.) would be much less transparent than that in case of *modì ~ moti* or even *-odi ~ -oti*.

¹I agree with Larry Hyman who reacted to this point: “This would suggest that ‘1’ was a noun; possible, just like ‘10’, but note that ‘2’–‘5’ are not nouns!” (p.c.).

²Larry Hyman: “The glottal stop goes back to a velar in Grassfields; it could be either alveolar or velar in Tikar”.(p.c.).

Table 4.2: Bantoid stems for ‘1’

Branch	Language	‘1’	‘1’	‘1’
Northern				
Dakoid	Chamba-Daka	mwi	cin, jer	nòòní
*Mambiloid				wuni ^a
Fam				
Tiba (Fà)				à-kīn-á
Southern				
*Bantu ^b		mòì/mòdì, mòtí		p/m/b-ókó
*Beboid		mwi/mu		baka, kpaŋ
*Yemne-Kimbi		mwe		
*Ekoid			ji(ŋ) /rəŋ?	yet? ^c
*Jarawan		mo?		(dik)
*Mamfe		mɔt /ma		
*Mbam		mwe/mù?		
Mbe	Mbe	ó-mè		
Ndemli	Ndemli	mòhó		
Tikar	Tikar	mbɔ?		
*Tivoid		mɔ(m)		
*Esimbi				nə
Wide Grassfields	Befang	mo?		
GF: Mbam-Nkam	Bamileke	mo?		cu
GF: Mbam-Nkam	Ngemba	mɔʔ		
GF: Mbam-Nkam	Nkambe	moʔ(sír)		
GF: Mbam-Nkam	Nun	mo?		
GF: Momo		mo?		fɪŋ
GF: Ring		mo?		

^aThe Fam and Tiba (Fà) forms are quoted according to [Blench \(n.d\)](#) and [Boyd \(1999\)](#) respectively. The online version of Boyd (<https://hal.archives-ouvertes.fr/hal-00323718v3>) differs from the printed one.

^bAn asterisk (*) in the second column of the tables (here and below) means that in the corresponding line all the forms are reconstructed. However, with the exception of the Proto-Bantu line, which indicates real reconstructions in BLR3 (*), all other reconstructions are hypothetical (#) and reflect the most typical form /forms attested in a particular branch of Benue-Congo. Forms that may be related are grouped in tables within the columns. The last column of the tables shows isolated forms that are likely to be innovations.

^cConcerning the form *yet* in Ekoid, I quote a precious remark of John Watters (p.c.): “The actual root for Proto-Ekoid may be -t ~-d. The /aŋ/in some Ekoid languages may be an accretion. The *yét* morphologically is /yé-t/with the CV being a class agreement prefix, and -t being the root. So the -t may be closer to the Bantu *moti*. I’m not sure how *ó-mè* in Mbe figures in with the rest of Ekoid, but one possibility is that the -mè root derives from /me-t/. Ekoid needs further work”.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

The secondary PB form *ókó (zones ABCHF) (BLR3: "Janssens 1994: alternance C1 p/m/b-ókó- protoforme secondaire, cf. 'seul'") is comparable to *baka (Beboid: Fio mbákâ ~ nbáhâ, Nchane (Mungong) m⁴ba³ka⁴). It should be noted that the above considerations allow us to explain the initial consonant (and the following back vowel) in these forms as noun class morphemes, too.

The Northern Bantoid *kin/cin* is remarkable and will be addressed later in this chapter.

The Bamileke *tʃu (Fefe ʃuʔ, Medumba antʃuʔ, Nda'nda' ɲtʃʔ, etc.) is possibly related to the Bantu *tv (BCDEGLP) 'alone, empty, vain'.

4.1.1.2 'Two' and 'Three'

Without exception, the reconstructed root for 'two' in all Bantoid branches has an initial labial consonant, either voiced (b-) or voiceless (p-/f-). A more precise reconstruction of the proto-form is beyond my cognizance. The forms cited above do not permit a conclusion with regard to the number of roots involved (one or two). When comparing the most commonly attested forms *pa/ fe and *baa, it is necessary to keep in mind that at least the Proto-Bantu *bàdí/bidí could be a reflex of *di. In the case of ba- the proto-form should be interpreted as a prefix of a plural noun class (possibly class 2).³ The latter proposal finds support in the dialectal Proto-Bantu form jòdè (zones BH) (< *jò-dè?). The main forms show the following zonal distribution: bàdí (ABCHKLR), bidí (CDEFGJKLMNPS), bídí (?).

It was repeatedly stressed that the root for 'three' (*tat) is one of the most stable in NC and in the Bantoid languages in particular. Phonetic variation within this root will be studied in Chapter ??.

4.1.1.3 'Four' and 'Five'

The well-known NC root *nai 'four' is represented in all of the pertinent languages. The only exception is Grassfields, where it was replaced with the innovative *kwa/kya. According to Roger Blench, Momo -kpi and Ring kaikò as well as the Proto-Eastern Grassfields *-kùà go back to the Proto-Benue-Congo #-kpà(ko) (Blench 2004: #387). This root, however, is commonly found in Mbam-Nkam, i.e. in all Grassfields languages, and is barely attested outside this branch.

³John Watters: "This analysis, if correct, could work also for most of Bantoid. So Ekoid would derive from ba- prefix and -l ~ -d ~ -n root. However, the /b/ may derive from /p/. Ekoid may derive from *-pal and then you have the many other Bantoid languages with /p/" (p.c.).

Table 4.3: Bantoid stems for ‘2’ and ‘3’

	Language	‘2’	‘2’	‘3’
Northern				
Dakoid	Chamba-Daka		bààrá	tárā
*Mambiloid		fee/fal/hal	baa	taar
Fam			baale	tawnə
Tiba (Fà)			à-ḡēṛ-á	à-tár-á
Southern				
*Bantu			bàdí /bídí	tátò /cátò
*Beboid		fe		tat, te
*Yemne-Kimbi		fi(n)		to
*Ekoid			ba(l)	sa/ra
*Jarawan			ḡar	tat
*Mamfe		pay /pea		rat /lɛ
*Mbam		fande?	bante?	tat
Mbe	Mbe	p ^w âl		sá
Ndemli	Ndemli	ifé		ítáá
Tikar	Tikar		ḡi	lê
*Tivoid		hal/har/vial		tat
*Esimbi		ra-kpə?		kələ (< *lə?)
Wide Grassfields	Befang	fe		tái
GF: Mbam-Nkam	Bamileke	pu/pwe	bo/bie	tat
GF: Mbam-Nkam	Ngemba	paa	baa /bəgə	tarə
GF: Mbam-Nkam	Nkambe		baa	tar
GF: Mbam-Nkam	Nun	paa	baa	tɛt
GF: Momo			be	tat
GF: Ring			bo/ba	tat

The root for ‘five’ is almost invariably **tan*. One possible exception is the Ekoid form, unless **don/ron/lon* (Ekajuk *nlon*, Ejagham *érôn*, Nkem-Nkum *irôn*) is a reflex of **tan*.

It should be noted that the Ndemli root *it/ijè* may be related to *kwV* in the Grassfields languages. As we hope to demonstrate below, this is probably not a coincidence.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Table 4.4: Bantoid stems for ‘4’ and ‘5’

		‘4’	‘4’	‘5’	‘5’
Northern					
Dakoid	Chamba- Daka	nàà-sá		túúná	
*Mambiloid		na(n)		tien/tin/con/son	ngii?
Fam			daare	tʃwiine	
Tiba (Fà)		à-nè-á		à-tṵṵṵ-á, tūṵṵ	
*Bantu		nàì/(nàí)		táànò/cáànò	
Southern					
*Beboid		na, ne		ti(n)	
*Yemne-Kimbi		ni			kpon
*Ekoid		ni			don/lon ⁴
*Jarawan		yi-ne?		towun/twan	
*Mamfe		n(w)i		ta(y)	
*Mbam		ní(s)		taan	
Mbe	Mbe	ñî		tʃân	
Ndemli	Ndemli		itʃijè	ítân	
Tikar	Tikar	ɲî		ʃǣ	
*Tivoid		ɲi(n)		tan	
*Esimbi		ɲi		tənə	
Wide Grassfields	Befang		kʷà (kʷà)	itʰən	
GF: Mbam-Nkam	Bamileke		kwa/kwo	tan	
GF: Mbam-Nkam	Ngemba		kwa/kya	taa(n)	
GF: Mbam-Nkam	Nkambe		kwe/kye	tan /ton	
GF: Mbam-Nkam	Nun		kwa/kpa	tan /tən	
GF: Momo			kwe	tan	
GF: Ring			kwi /kye /tsə	tan	

4.1.1.4 ‘Six’

The Grassfields languages show a common root **toʔo*. Outside Grassfields, it is attested only in Ndemli (just like the Grassfields root for ‘five’) and thus can hardly be reconstructed for Proto-Bantoid. However, we cannot exclude this, if PB **tʰóʔá* ‘6’ attested in zones ABCD is related to the Grassfields forms.

⁴John Watters: the Proto-Ekoid probably is **-ron* (p.c.).

As in some other NC branches, three patterns that can be used to derive ‘6’ from ‘3’ are attested in the Bantoid languages (the following observations are even more relevant in the case of the patterns for ‘eight’ based on ‘four’):

1. The change of a class prefix (or its addition): Ajumbu tò ‘3’ > *k’là-tò* ‘6’; this pattern is possibly attested in Tutomb (Mbam) *pé-dààt* ‘3’ > *pí-tfín-dìt* ‘6’, Elip *bó-dáḍ* ‘3’ > *bó-thín-dàḍ* ‘6’ (this pattern is marked ‘3PL’ in the table above). To strengthen the etymology for ‘six’ in Tutomb, it should be noted

Table 4.5: Bantoid stems and patterns for ‘6’

		‘6’	‘6’	‘6’	‘6’
Northern					
Dakoid	Chamba-Daka			<5?	
*Mambiloid				5+1	
Fam				5+1	
Tiba (Fà)				5+1	
Southern					
*Bantu		tándà < 3redupl.?	tóṣbá		càmb-, kaaga so
*Beboid					
*Yemne-Kimbi		3PL?			
*Ekoid		3+3			
*Jarawan				5+1	
*Mamfe					kene?
*Mbam		3PL		5+1	
Mbe	Mbe	3+3			
Ndemli	Ndemli		tóhó		
Tikar	Tikar	3PL?			
*Tivoid		3redupl., 2*3?			
*Esimbi		<3redupl.?			
Wide Grassfields	Befang		ⁿdòfú		
GF: Mbam-Nkam	Bamileke		toyo		
GF: Mbam-Nkam	Ngemba		toʔo		
GF: Mbam-Nkam	Nkambe		ntunfu		
GF: Mbam-Nkam	Nun		ntúwó/tuʔo		
GF: Momo					foy
GF: Ring			tufa		

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

that in Tunen (another Mbam language) that has **tat* ‘3’ > *lal* (*bé-láló*), the term for ‘six’ also contains [l]: *pé-léⁿdáló*.

2. The combination of ‘three’ and ‘two’: Lyive: *hjá*l ‘2’, *tát* ‘3’, *kàl-là-kà-tát* ‘6’ (<‘2*3’?).
3. The reduplication of ‘three’ (or the simple addition ‘3+3’): Ekajuk *n-ra* ‘3’ > *n-ra-ke-ra* ‘6’, Ejagham *é-sá* ‘3’ > *è-sá-gà-sá* ‘6’, Nkem-Nkum *i-ra* ‘3’ > *i-ra-ra* ‘6’, Mbe *bé-sá* ‘3’ > *bè-sè-sár* ‘6’, Tiv *ú-tár* ‘3’ > *á-tér-á-tár* (this pattern is marked as ‘3+3’ in the table above).

The Kenyang (Mamfe) form *bé-tándât* ‘6’ (cf. *bé-rát* ‘3’) deserves special discussion. This form is reminiscent of the common Bantu form *tándâ* ‘6’ attested in zones DGM. Its extended variant *tándâtó* is found in EFGJS, while the GNS zones use the form *tántâtó* which is even more interesting. Are the Bantu *tándâ* forms cited above based on ‘3’? If so, **tat-tat* > *tatat* (*tántâtó*) in the languages to which Dahl’s law is applicable as well (> *tandat*, *tanda*).

In this case, the form *tóóbá* (zones ABCD) that can be interpreted as ‘*3*2’: **tat-X-ba* may also be a derivative form.

If so, the aforementioned Bantu forms (as well as the Kenyang form) are probably not innovations. They may reflect a Proto-Bantoid model where ‘six’ is based on ‘three’. It should be noted that a close parallel to the Kenyang form is attested in the Mbam branch: Nomaande *be-tíndétú* ‘6’.

In sum, it appears that the most probable word-formation pattern for ‘six’ in Proto-Bantoid is ‘3+3’ or ‘3PL’.

4.1.1.5 ‘Seven’

The case of ‘seven’ seems pretty straightforward. In the majority of the Bantoid branches (including Bantu) the root is **samba/camba*. However, there is still a question whether this root is indeed primary: its Bantu reflex is strikingly similar to the root for ‘six’. Table 4.7 shows some selected examples.

It is noteworthy that the terms for ‘six’ and ‘seven’ show similarity not only in case of the root in question, but in case of other roots as well, e.g. J50: Fuliiru - *lindátù* ‘6’ ~ *-linda* ‘7’, Shi *ńdarhu* ‘6’ ~ *ńda* ‘7’. This similarity is usually conditioned by one of the following factors:

- the terms for ‘six’ and ‘seven’ follow the patterns ‘10–4’ and ‘10–3’ respectively: Yeyi (Bantu R40) *vùndzà é néé* ‘6’ (‘10’ ‘break’ ‘4 (fingers)’), *vùndzà é táâ:tô* ‘7’ (‘10’ ‘break’ ‘3 (fingers)’). This, however, is very rarely attested.

Table 4.6: Bantoid stems and patterns for ‘7’

		‘7’	‘7’	‘7’	‘7’	‘7’
Northern						
Dakoid	Chamba-Daka					dùtìm
*Mambiloid					5+2	
Fam					5+2	
Tiba (Fà)					5+2	
*Bantu		càmbà-dì/càmbò-à-dì	6+1?			púngàtí
Southern						
*Beboid		fumba?	6+1	4+3		
*Yemne-Kimbi				4+3		
*Ekoid		sima?		4+3?		
*Jarawan					5+2	
*Mamfe			6+1			
*Mbam			6+1			
Mbe	Mbe				5+2	
Ndemli	Ndemli	sà ^m bá				
Tikar	Tikar	jâm̀bì				
*Tivoid			‘6+1		5+2	
*Esimbi					5+2	
Wide Grassfields	Befang			4+3		
GF: Mbam-Nkam	Bamileke	samba				
GF: Mbam-Nkam	Ngemba	samba				
GF: Mbam-Nkam	Nkambe	samba				
GF: Mbam-Nkam	Nun	samba		4+3		
GF: Momo		sambe				
GF: Ring		samba				

Table 4.7: Similarities between ‘6’ and ‘7’ in Bantu

	‘6’	‘7’
PB	càmbànò (HL)/cààmànò (ABCHLR)/càmbombo (L)	càmbà-dì/càmbò-à-dì
A40 Bankon	bi-sámà	bi-sàmbòk
A80 Kol	twáb	tábèl
B20 Mbangwe	-syami	ntsaami
B60 Mbere	-syaami	ntsaami
B70 Teke-Tege	ósámìni	ónsààmì
B80 Tiene	ísyam	nsam
C40 Sengele	ísama	ísambiálé
C90 Ndengese	isamo	isambé

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

- the term for ‘seven’ is based on ‘six’ (‘6+1’). This pattern is much more common (see Table 4.8).
- The similarity may also be due to the derivation of these terms from ‘five’ using ‘5+1’ and ‘5+2’ patterns, respectively (this is the most common case). It should be noted that there is another, much less transparent pattern for ‘seven’ (‘X+2’ or ‘5+X’). It is frequently attested not only in the Bantoid languages, but also in the Mande languages.

- Finally, we may be dealing with an alignment by analogy.

maybe
reference the
relevant
tables
here

Table 4.8: Common stems for ‘6’ and ‘7’ in Bantu

	‘6’	‘7’
J50 Fuliiru	-lindátù	-linda
J50 Shi	ńdarhu	ńda
A80 Byep	tʷóp	tʷóp ɓəl (6+?)
C10 Yaka	βúè	βúè nà -mòtí (6+1)
D30 Budu	mèdĩà	mèdĩànikà (lit: níkà ‘to come’)
M20 Malila	ómɔtʰaːˀda	ómɔtʰaːˀda na jě:kʰa (6+1)
B10 Myene	òrówá	òrwáyénô (6+1)

Table 4.9: ‘6’ and ‘7’ from ‘5’ in Bantu

	‘6’	‘7’
H10 Koongo	sàmbánù	sàmbú-wàlì (wàlì ‘2’)
K20 Nyemba	pàndù	pàndù vâlì (-valì ‘2’)
K60 Mbala	sambanu	nsambwadi (mbadi ‘2’)
L30 Luba-Katanga	isamba	isambaibindi (ibindi ‘2’)
R10 Khumbi	epándú	epándúvalì (valì ‘2’)

Staying within the Bantoid family, it is difficult to say which of these explanations should be applied in the present case. If it is alignment by analogy, we should reconstruct a Proto-Bantoid primary root **samba/camba* for ‘seven’ and then explain the many irregular shifts in the forms of ‘six’ (e.g. t > s) by analogy with this root (as shown above, the Proto-Bantu ‘six’ is based on ‘three’ (*tat)).

We may also be dealing with a derived proto-form **sam-ba/cam-ba* with the second element probably going back to ‘two’.

4.1.1.6 ‘Eight’

Both Grassfields and Ndemli share the common primary root for ‘nine’ (**famV*). We have already seen this distribution, which only suggests that Ndemli belongs to the Grassfields branch (at least on the basis of their numeral systems). The majority of other branches point to the reconstruction of the term for ‘eight’ as

Table 4.10: Bantoid stems and patterns for ‘8’

		‘8’	‘8’	‘8’
Northern				
Dakoid	Chamba-Daka			7+1
*Mambiloid				5+3
Fam				5+3
Tiba (Fà)				5+3
Southern				
*Bantu		nainai(4 redupl.)/ nake		
*Beboid		ɲaŋ (<4?)		
*Yemne-Kimbi		4 redupl.		
*Ekoid		4+4		
*Jarawan				5+3
*Mamfe		4PL		
*Mbam		4 redupl.		
Mbe	Mbe	4 redupl.		
Ndemli	Ndemli		fɔ:mó	
Tikar	Tikar			
*Tivoid		4 redupl.		
*Esimbi		4 redupl.		
Wide Grassfields	Befang		éfómó	
GF: Mbam-Nkam	Bamileke		fum/hum/fo?	
GF: Mbam-Nkam	Ngemba		famə	
GF: Mbam-Nkam	Nkambe		waami	
GF: Mbam-Nkam	Nun		fame	
GF: Momo			fami/foŋ	
GF: Ring			faamə	

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

based on ‘four’ (either by means of reduplication or by the noun class switch, or both).

4.1.1.7 ‘Nine’

Table 4.11: Bantoid stems and patterns for ‘9’

		‘9’	‘9’	‘9’	‘9’	‘9’
Northern						
Dakoid	Chamba-Daka					kúūm
*Mambiloid			5+4			
Fam			5+4			
Tiba (Fà)			5+4			
Southern						
*Bantu		bùá	5+4	10-1		kèndá/ jèndá
*Beboid		bùkə?				fùmḃə?
*Yemne-Kimbi			5+4			
*Ekoid			5+4	10-1		
*Jarawan			5+4			
*Mamfe				8+1		
*Mbam			5+4	8+1		
Mbe	Mbe		5+4			
Ndemli	Ndemli	bù?è				
Tikar	Tikar		5+4?			
*Tivoid			5+4	8+1		
*Esimbi			5+4			
Wide Grassfields	Befang		5+4			
GF: Mbam-Nkam	Bamileke	fu?u				
GF: Mbam-Nkam	Ngemba	bu?u /pu?u				
GF: Mbam-Nkam	Nkambe	bù?â? búum?		10-1?		
GF: Mbam-Nkam	Nun	pu?u?				cipo?
GF: Momo		bok				ko?
GF: Ring				10-1		

It seems likely that there was a primary root for ‘nine’ in Proto-Bantoid. It can be tentatively reconstructed as **bukV*.⁵ In Bantu, this root is found in the ABCDHL zones. The most common pattern ‘5+4’ (as well as the less frequently attested ‘10–1’) often develops independently in various languages. A marginal pattern ‘8+1’, attested in Mamfe, Mbam and Tivoid is noteworthy. Because of its rarity, it is relevant for the genetic classification of the Bantu languages, since it is hard to imagine that this form developed independently in each of these branches. The last column of the table below lists bases that are exclusively found in a specific Bantoid branch.

4.1.1.8 ‘Ten’

At least two Bantoid roots (**fu* and **kum/ kam*) may be useful for our reconstruction purposes. Both of them are attested in no fewer than six of the Bantoid branches (note also the Chamba-Daka *kúūm* ‘nine’). The Mambiloid languages show the greatest variety of roots.

It should be noted that a separate Proto-Bantoid form for ‘ten’ is not traceable in some of the pertinent languages. Despite this, it has been preserved as a part of the term for ‘twenty’, e.g. ‘ten’ is attested as *é-pɔ:t* in Ipulo (Tivoid). This form is probably related to Tiv *pùè/ púwè* and Lyive *epùè* and may be attested in the Mbam branch as well (Nubaca *mwa-pwat* ‘ten’, etc.).

It is clear, however, that the Ipulo ‘twenty’ (*i-ham*) is derived from the Proto-Bantoid term for ‘ten’ by means of a noun class switch. The same can be applied to Bhele (D30): *mɔkɔ* ‘ten’ but *e-kómi í-balé* ‘20’ (*í-balé* ‘two’). The root *kam* will be discussed below in connection to the terms for ‘hundred’.

⁵John Watters: “Given the distribution of these forms for ‘nine’ I would conclude that Proto-Bantoid likely used 5+4 and that **bukV* was an innovation in the pre-Bantu era when Proto-Bantu had not yet separated from what became Grassfields and other closely located Bantoid groups”.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Table 4.12: Bantoid stems for ‘10’

		‘10’	‘10’	‘10’	‘10’	‘10’
Northern						
Dakoid	Chamba-Daka		kúũm- kóróró			
*Mambiloid				cóŋ		job-, jer, jula ? fěŋ ?
Fam Tiba (Fà)						kwoy à-wóḡb-á
Southern						
*Bantu			kómì/ kámá			dòngò
*Beboid		jo-fi/jo- fu				
*Yemne-Kimbi		jo-fu		koŋ?		
*Ekoid		fo				gol, wobo lum
*Jarawan						
*Mamfe		fia, bjo				
*Mbam					p-wat/b- wad	
Mbe	Mbe	fwôr				
Ndemli	Ndemli		džòm			
Tikar	Tikar		wùm			
*Tivoid		pue	*ham		pət	
*Esimbi						bu yu? (< 9?)
Wide Grassfields	Befang		éyúm			
GF: Mbam-Nkam	Bamileke		yam			
GF: Mbam-Nkam	Ngemba		yám			
GF: Mbam-Nkam	Nkambe		?um			ri/ru
GF: Mbam-Nkam	Nun		yom			
GF: Momo			yum			
GF: Ring			yəm			

4.1.1.9 ‘Twenty’

It is not necessary to quote the forms for ‘twenty’, since in the majority of the Bantoid branches (including Bantu) this term is based on ‘ten’ and follows the pattern ‘10*2’. Some minor but peculiar variations should be noted here, but all of them are of little significance for our reconstruction. E.g. the term for ‘twenty’ often employs the plural noun class with the two components in agreement. However, non-compound forms based on ‘ten’ or ‘two’ in the plural are also attested. For instance, in one of the Bafut dialects *bàà* ‘two’, *tà-wûm* / *nî-wûm* ‘ten’ > *mî-wûm mí-mbàà* ‘twenty’, while *tà-ghûm* ‘ten’ ~ *mî-ghum* ‘twenty’ in another. At the same time, Limbum *bá*: ‘two’ ~ *m-bá*: ‘twenty’. These patterns (especially the former) are common in the majority of the Bantu languages as well.

Primary roots for ‘twenty’ are rarely attested. They may go back to the lexical base ‘man’ (e.g. in D30 Komo *nkpá búí* ‘twenty’ = ‘whole person’), ‘head’ (Suga (Mambiloid)) *b̥b̥b̥ bíb* ‘twenty’ < *b̥b̥b̥* ‘head’) or some other lexical bases (e.g. Bantu A50: Bafia *î-tín* / *mλ-tín* ‘twenty’ < ‘score’)⁶.

4.1.1.10 ‘Hundred’ and ‘thousand’

It appears that the term for ‘hundred’ cannot be reconstructed for Proto-Bantoid: in most of the branches the pattern employed is ‘20*5’,⁷ whereas in some of the branches the term is borrowed. Both Grassfields and Bantu show innovations. The Grassfields root may be tentatively reconstructed as **ku*. Several roots are known for Bantu, their use being limited to certain zones: *kámá* ABCDHL, *gàná* DEFGJNPS, *tva* DL, *jànda* MNP. None of these roots is attested with this meaning elsewhere in the Bantoid languages, except for Bantu. The similarity of *kámá* with the root reconstructed for ‘ten’ is noteworthy. Moreover, it is attested with the meaning ‘thousand’ in at least three of the Bantoid branches as the table below shows (Table 4.14).

The root *kam* allows multiple interpretations. We will return to it after the evidence from other Benue-Congo branches has been examined.

⁶John Watters: “The Bakor group of Ekoid attest something like **-tên* and Mbe has *-têl*. The other two Ekoid groups have a form *-rim* or *-sam*. I would reconstruct for Proto-Ekoid **-têl* or **-tên* which is like Bantu Bafia. They are a few hundred kilometers apart with many languages and a significant mountain range in between, so this is not borrowing” (p.c.).

⁷John Watters: “The distribution of this form is suggestive of an older vigesimal system for Bantoid rather than a decimal one. I would take the decimal ones as innovations” (p.c.).

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Table 4.13: Bantoid stems for ‘100’

		‘100’	‘100’	‘100’	‘100’	‘100’	‘100’
Northern							
Dakoid	Chamba-Daka	20*5					
*Mambiloid		20*5					< fula
Southern							
*Bantu						kámá, gàná, twa, jànda	
*Beboid				gbi			
*Yemne-Kimbi				gbi?ɲwe?			
*Ekoid		20*5					
*Jarawan			10*10			luru?	< Hausa
*Mamfe		20*5					
*Mbam							< Engl.
Mbe	Mbe	20 *5					
Ndemli	Ndemli					mbókó	
Tikar	Tikar					ndu?	
*Tivoid		20*5					
*Esimbi			10*10				< Engl
Wide Grassfields	Befang					bòmí ⁿ dángàŋ	
GF: Mbam-Nkam	Bamileke				k(h)u		
GF: Mbam-Nkam	Ngemba				k(h)i/kirə		
GF: Mbam-Nkam	Nkambe				ɲkù?	rdʒèè?	
GF: Mbam-Nkam	Nun				ɲku		
GF: Momo					ki, ko		
GF: Ring					ȳí/vi	ntu?	

Table 4.14: Bantoid stems for ‘1000’

		‘1000’	‘1000’
Northern			
Dakoid	Chamba-Daka		100*10
*Mambiloid			ndúúŋ ‘sack’, < Fula
Southern			
*Bantu			nùnù, pòmbì, kótò
*Beboid			cuku
*Yemne-Kimbi		kam?	kia?
*Ekoid			200*5?
*Jarawan			?
*Mamfe			nka?
*Mbam			< Engl.
Mbe	Mbe		400*2+200
Ndemli	Ndemli		kòlí
Tikar	Tikar	ŋkæm	
*Tivoid			20*10, engl.
*Esimbi			< engl
Wide Grassfields	Befang		ítʃán ~ étʃán
GF: Mbam-Nkam	Bamileke		tʃa /sa?
GF: Mbam-Nkam	Ngemba	kamə?	tsuʔu?
GF: Mbam-Nkam	Nkambe		cuki?
GF: Mbam-Nkam	Nun		100*10
GF: Momo			< engl
GF: Ring		kam	

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

The Proto-Bantoid numeral system can be reconstructed as in Table 4.15.

Table 4.15: Proto-Bantoid numeral system⁸

1	m-o-ʔ, m-o-i, m-o-ti, mo-di	7	samba /camba (< *c/saN+2?)
2	pa/fe, badi (*ba-di?)	8	na-nai (< 4 redupl.)
3	tat	9	bukV
4	nai	10	fu, kum/kam
5	tan	20	10*2
6	ta-ta(t) (< 3 redupl.?)	100	gbi? ki? 20*5? kam?
		1000	?

According to Kay Williamson, the base for ‘one’ in Benue-Congo should be reconstructed as *#-kani*. The only form quoted in support of this hypothesis in her first article (Williamson 1989: 255) is a supposed Bantoid reflex of the root in Tiba (*a-kina* ‘1’). Later (Williamson 1992: 396) she adduced one more Bantoid form, a Southern Bantoid Esimbi term *keni* ‘1’. That Williamson gives too much weight to these two marginal Bantoid forms is evident from the fact that she reconstructs this base not only for Benue-Congo, but for Niger-Congo as well. This leads her to the idea (probably expressed in the latter work for the first time) that Niger-Congo originally roots had a triconsonantal structure, hence her reconstruction of the proto-form for ‘one’ as ***-kə’gəni*. This Niger-Congo etymology will be studied in detail below. At this point we will only note that the Esimbi form cited above is strikingly unusual for the Bantoid languages and was probably misinterpreted. The form *kēnə* ‘1’ is indeed attested in some of the Esimbi sources (see Brad Koenig, <https://mpi-lingweb.shh.mpg.de/numeral/Esimbi.htm>). However, in other sources the form *ɔ-nə* is attested (Cristin Kalinowski in (Chan)), so the term for ‘eleven’ is *bùyù nə-nə* (*bùyù* ‘10’). In other words, the base for ‘one’ in Esimbi is *-ni/-nə* (!), while the first syllable should be interpreted as the noun class prefix, just as in other numerals (cf. the forms *mārākpā* ‘2’, *mōjī* ‘4’, *mātānə* ‘5’, etc. in Koenig).

As for Tiba, it is still not certain whether this language indeed belongs to the Bantoid group (cf. Boyd 1999, where Tiba is considered an Adamawa language). The only Bantoid forms that could have been used by Williamson in support of her hypothesis are found in some of the Northern Mambiloid languages, cf. Twendi (Cambap) *tʃĩnĩ*, Mambila *tʃén* (with palatalization assumed). However,

⁸My competence does not allow me to reconstruct the tones in the numeral Bantoid languages, especially in Benue-Congo.

these forms are extremely marginal as well, so they cannot give ground for the proto-language reconstruction (in any case, not for Proto-Bantoid).

4.1.2 Benue-Congo (the Bantoid languages excluded)

After the numerals of the Bantoid languages, let's consider the numerals in each of the other groups within this vast family, namely Cross, Defoid, Edoid, Idomoid, Igbooid, Jukunoid, Kainji, Platoid, Nupoid (Sections 4.1.2.1–4.1.2.9) and in some isolated BC languages – Ikaan, Akpes, Oko and Lufu (Sections 4.1.3.1–4.1.3.4). After this, we will generalize the results obtained in order to try to reconstruct the numerals of Proto-BC (§4.1.4).

4.1.2.1 Cross

Let us consider the typical stems for numerals in the Cross languages.

Table 4.16: Cross stems for '1'

	'1'	'1'	'1'	'1'
1. Bendi				
Bendi	ken		-bójè?	
2. Delta-Cross				
Upper		ni (D ⁹ : *g ^w á-nì)	wòn, guŋ?	móò?
Central		nin		
Lower	sin/cin, ki/ge, kiet/keed (D:*cèèd)			
Ogoni	zìì	nɛ(n)		

Let us dwell on this table, using it as an example for understanding the majority of the subsequent tables given in this book. Almost every table represents the synthesis of the primary data. We cannot publish all of these primary forms. Let's make an exception. In order to make clear to the reader on what basis the generalizations were made, we present in Appendix D all the forms available for the numerals '1' in the Cross languages, including intermediate Proto-Upper

⁹Here and below, index D introduces the reconstruction proposed by [Dimmendaal \(1978\)](#).

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Cross and Proto-Lower Cross reconstructions, proposed by [Dimmendaal \(1978\)](#) and [Connell \(1991\)](#). From the Appendix D, it is clear that Connell accepts the Dimmendaal hypothesis, according to which in Upper Cross **g^wá-* is interpreted as a prefix, and the lexical stem is represented by **-ni*, attested also in Central Delta-Cross and Ogoni. Based on the 60 sources listed in Appendix D, in table 3.15 for the numeral ‘1’, the root *ni(n)* is allocated. The table also identifies the second root for ‘1’, also possibly represented in the three branches of their five. Connell reconstructs it as **cèèd*, but the data from various Lower Delta-Cross, as well as from Dendi, suggests that perhaps we are dealing with a palatalization of the velar before the front vowel: **ked / ket / kin > ced / cin* (unfortunately, for most groups of the Niger-Congo, including Cross, we do not have sufficient grounds for reconstructing the tones). Finally, the third root presented in Icheve *à-mɔɔ* is probably related to Bantu.

‘Two’ (Table 4.17)

Table 4.17: Cross stems for ‘2’.

	‘2’	‘2’	‘2’
1. Bendi			
Bendi		fe, ha?	
2. Delta-Cross			
Upper		fa(n)/poo (D:*ppán)	
Central			jal/yal/zal/wal
Lower	bà (D:*íbà)		
Ogoni	bàè/bèrè		

The roots **bae* and **po/pa* are noteworthy.

‘Three’ and ‘Four’ (Table 4.18) The common Niger-Congo roots are attested for these numerals in all of the branches (**ta(t)/ ca(t)* and **na(n)* respectively).

Table 4.18: Cross stems for ‘3’ and ‘4’

	‘3’	‘3’	‘4’	‘4’
1. Bendi				
Bendi	kie/cia/cat		ne	
2. Delta-Cross				
Upper	tat/tan/*sa/, kia(t) (D: ttán ~ ttáD)	naan?	na (D: *nàŋì ~ này)	
Central	sar/rar		ɲa	
Lower	tá (D:*ítá)		nàaŋ/niàŋ (D:*ìniàŋ)	
Ogoni	taa		nia	3+1

‘Five’ (Table 4.19) Two roots can be postulated for Cross, namely **tan* and its alternative, tentatively described as **gbo(k)*.

Table 4.19: Cross stems for ‘5’

	‘5’	‘5’	‘5’
1. Bendi			
Bendi	taŋ		dʲoŋ
2. Delta-Cross			
Upper	táón/tāŋ/zen/cen	gbo/buo(k)	
Central		oɣ/wɔ?	
Lower	tīŋ/tin/tion, go?(D:*ítìon)		
Ogoni	*rè	ʔòò/vòò/wò/*ʔa	

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

‘Six’ to ‘Nine’ (Table 4.20) At this stage it seems reasonable to maintain the forms and patterns represented in the last line of the table.

Table 4.20: Cross stems and patterns for ‘6’-‘9’

	‘6’	‘6’	‘6’	‘7’	‘8’	‘9’
1. Bendi						
Bendi	5+1			5 + 2	5 + 3	5 + 4
2. Delta-Cross						
Upper	5+1		ránē , 3+3	5+2, 4+3	4+4	10-1, 5+4
Central		di(n)		ḍùal/ḍuən	4PL	súyó
Lower	5+1			5+2	5+3	5+4
Ogoni	5+1	nìŋĩ?	ʔòrò?	5+2	5+3	10-1, 5+4
CROSS	5+1	di?	3+3	5+2	4+4	10-1, 5+4

‘Ten’, ‘Twenty’, and ‘Hundred’ (Table 4.21) It should be noted that providing a detailed reconstruction for each of the Cross numerals lies beyond the scope of the present investigation, so there is probably no point in trying to establish which of the roots for ‘ten’ (**kpo* or **job*) should be reconstructed in the Proto-Cross (especially impossible without external evidence).

The Cross languages are highly divergent in regard to numerals (an exception should be made for ‘three’ and ‘four’ which are remarkably stable in Cross, as well as in the other NC branches). However, the forms cited above do not provide sufficient reason to suggest a closer relationship within any randomly selected pair of the Cross branches. Hence, it would be too daring to interpret the roots attested in both of these branches as shared innovations. Let us count the numbers of related numeral forms in different pairs of the Cross branches (Table 4.22).

This distribution is remarkable with regard to the total absence of shared forms (with the ‘three’ and ‘four’ excluded) between Bendi and Central Cross. Keeping this in mind, all of the established alternative roots and patterns can be reserved for a later discussion. At this point the following reconstruction of the Proto-Cross numerals can be suggested (Table 4.23).

Table 4.21: Cross stems and patterns for ‘10’, ‘20’ and ‘100’

	‘10’	‘10’	‘20’	‘20’	‘20’	‘100’
1. Bendi						
Bendi	kpu, hwo, fo		ci/si		jam	20*5
2. Delta-Cross						
Upper		jo(b)/zob/ jop (D:*jòb)	ti	lop, nip (D:*níb)	zol ...	20*5
Central		díob		lisiíβ/rusuβ	poy, 2PL	kùròn, 5*20, 80+20
Lower	kəp (D:*lùgòp)	duob/duop, dugu/lugu		e-dip (D: *édíp)		i-kie (D: *íkíè)
Ogoni	òb, ʔò				tub/cu	5*20
CROSS	kpo	job	ti/ ci?	dip?		20*5

Table 4.22: Number of related numerals in different pairs of the Cross branches

	Central	Lower	Ogoni	Upper
Bendi	0	4	4	5
Central		2	2	4
Lower			5	4
Ogoni				4

Table 4.23: Numeral system of Proto-Cross(*)

1	*kin/cin, *ni(n), *gboŋ/gwan	7	5+2
2	*bae, *po/pa	8	4+4
3	*ta(t)/ca(t)	9	10-1, 5+4
4	*na(n)	10	*kpo/kop, fo? ʔo? *job
5	*tan, *gbo(k)	20	*ti/ci ? dip ?
6	5+1, di?, 3+3	100	20*5

4.1.2.2 Defoid

The Defoid branch is relatively compact: it is composed of four languages including Yoruba and its dialects. Historical phonetics of these languages should be considered for a proper reconstruction of the Defoid numeral system, because most of the terms show great phonetic variety. E.g. for ‘four’ several forms are attested: *-ne* (Arigidi), *-jē* (Ayere), *-rin/-hē/-ē* (Yoruba), *-lè* (Igala). The main forms are given in the following table (Table 4.24), and their reconstruction will be discussed below.

Table 4.24: Defoid numerals

	Arigidi (dial.)	Ayere (dial.)	Yoruba	Igala	*Yoruba- Igala	*Proto- Defoid
1	kèé-jē	ĩ-kǎ	ē-ní, ð-kǔ	é-jé / ò-kâ	*jé , ka(n)	*jé , ka(n)
2	kè-ji	ì-dzì	è-jì	è-dzì	*jì	*jì
3	ke-dà	ī-tā	è-tā	è-ta	*tā	*tā
4	ke-ne	ĩ-jē	è-rĩ	è-lè	*le(n)	*le(n)/ ne, je
5	ké-ntò	ĩ-tũ	à-rú	è-lú	*lú(n)	*lú(n)/tu(n)
6	ke-fà	ì-fà	è-fà	è-fà	*fà	*fà
7	ke-phi	ī-dz ^w ī	è-jē	è-b ^l e	*byē	*byē
8	ke-rò	ī-rō	è-jō	è-dzɔ	*jō	*jo/ ro
9	ké-ndà	ĩ-dǎ	è-sǔ	è-lá	*sá(n)	*sá(n), dà
10	ké-è	ī-g ^w á	è-wá	è-g ^w á	*gwá	*gwá
20	u-gbòrò	ē-gbǎlǎ	ò-gú	ó-g ^w ú	*gwú(n)	*gwú(n)/ gbolo
100	20*5	20*5	20*5	20*5	20*5	20*5

Following the Proto-Yoruba-Igala reconstruction (Pozdniakov, ms), the terms **le(n)* ‘4’, **lú(n)* ‘5’ and **sá(n)* ‘9’ are reconstructed on the basis of the following regular phonetic correspondences (Table 4.25).

These examples illustrate the phonetic correspondences coming from *l ‘(Table 4.26).

Table 4.25: Fragment of the Yoruba-Igala phonetic reconstruction

	Yoruba	Igala
*l	r	l
*r	r	d
*d	d/j	d
*n	l/n	n
*s	s	l
*ʃ	s	r
*c	ʃ	c

Table 4.26: *L-stems in Proto-Yoruba-Igala and their regular reflexes

Meaning	*Yoruba-Igala	Yoruba	Igala
animal, meat	élɔ̃	ərɔ̃	éla
toad	àkèlé	àkèré	àkèlé
four	èlĩ	èrĩ	èlè
five	èlú	àrú	èlu
ant	èlilà	èèrà	èlilà
ashes	élílú	eérú	élúlú
feel	gbɔ̃ òlílù	gbɔ̃ òórù	é-gbúlù
star	ilàwò	ìràwò	ilàwò
small	kékélé	kékeré	kékélé
buy	là	rà	é-là
see	lí	rí	é-lí
plow	lo	roko	é-lo
body	óla	ara	óla
word	òlà	òrò	òlà
sun	ólílù	òòrù	ólù
sleep	oólũ	oorũ	ólu
neck	ólù	orù	ólò
thirst	òlùgbà	òrùgbà	òlùgbà
ring	ólù-ika	òrùka	èlika
run	sVlé	sáré	é-rulé
fat	ùla	òrà	ùlà
seed	úlú	irú	úlú

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Yoruba [s] is correspondent to Igala [r] (< *f) or [l] (< *s) in at least six examples, see Table 4.27 below.

Table 4.27: Reflexes of *f and *s in Yoruba-Igala

Meaning	*Yoruba-Igala	Yoruba	Igala
leg	éṣè	əsè	érè
fruit	èfo	èso	èro
block/ close	fé	sé	é-ré
launch	ṣo	so	é-ro
nine	èsú	əsú	èlá
sleep	sù	sù	*é-lu-

The reconstruction of the term for ‘seven’ (*byē) is based on the following correspondences (Table 4.28).

Table 4.28: One more fragment of the Yoruba-Igala regular correspondences

	Yoruba	Igala
*by	j	by
*j	j	j
*b	b	b

The reflexes of *by- can be represented as follows (Table 4.29).

Table 4.29: Reflexes of *by in Yoruba-Igala

Meaning	*Yoruba-Igala	Yoruba	Igala
dog	abyá	ajá	abyá
blood	èbyè	èjè	èbyè
seven	ebye	èje	ebye

Finally, the terms *gwá ‘10’ and *gwú(n) ‘20’ are reconstructed in view of *gw > Yoruba w (before [a]) /g (before [u]) ~ Igala gw (Table 4.30).

Table 4.30: Reflexes of *gw in Yoruba-Igala

Meaning	*Yoruba-Igala	Yoruba	Igala
ten	ègwá	èwá	ègwá
beans	ègwà	èwà	ègwà
dig	gwà	wà	é-gwà
swim	gwà	wè	é-gwà
sweat	(ò)úgwù	òógù	úgwù
bone	égwúgwú	egũgũ	ógwúgwú
ascend	gwù	gù	é-tə-gwù
war	ógwũ	ogũ	ógwu
twenty	ōgwú	ōgú	ó-gwú
vulture	úgwúnú	igúnugú	úgwúnú

These correspondences are treated here in detail because they may be of special interest for the comparative study of the Defoid languages.

4.1.2.3 Edoid

The following reconstruction is based on nearly forty sources which represent twenty languages within this group. The reconstruction proposed by Elugbe was also considered.

Being no specialist in the comparative study of the Edoid languages (unlike Elugbe), I don’t feel competent enough to criticize his ideas. Elugbe likely had his reasons for reconstructing the same consonant (*ch-) in the terms for ‘three’, ‘five’, ‘six’ and ‘seven’. Indeed, the comparison of data from the four Edoid branches confirms that the terms for ‘three’ and ‘five’ (but not for ‘seven’) have the same initial consonant. This is common for many of the NC branches (and probably for the Proto-NC as well).

In view of this, I would like to suggest a simplified reconstruction that is closer, in my opinion, to the actually attested forms (Table 4.31).

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Table 4.31: Edoid numeral systems and Proto-Edoid

	1. Delta	2. North-Central	3. North-western	4. South-western	Proto-Edoid (Elugbe)	*Proto-Edoid
1	βɔ	kpa, wo/gwo	kpa	vɔ		kpa, wo/gwo/vu
2	βə/βa	va	va	vɛ	i-və	va/və
3	saa	sa	sa	sa	u-chaGɪ	sa
4	ni	ne	ni	ni	niə	ni
5	súwón /syòni	sen /fen	sie	soi/siorin/jorin	chiNənhi	sien/ su(w)on
6	3PL	3+3?	3+3	3PL?	chaN	3PL, 3+3
7	5+2	hiron/hilon, 5+2	sie/hi/rhi	ɣwré/hre	i-chiə	ghie?
8	4PL, 4 redupl	renren /lelen	nien	re(r)e	nhɪNanhɪ	4 redupl.
9	10-1	sin(rin), tili	5+4	rhi(r)i, zi	i-ciənhi	cien/ sin
10	gbeny/gbei	gbe	gbe	kpe/xwe	gbeNi	gbe, kpe
20	jow/yei	gie/je	gboro, ghe/ze/ye	dhe/ʒè/ʒè	u-gheGi ~ u-ʒh	gie/ jie
100	20*5	20*5	10PL	20*5		20*5
1000		ria /li, gbele	500*2	du, riorin		du, ria/li

4.1.2.4 Idomoid

The roots attested in about ten of the Idomoid languages are represented in Table 4.32.

Table 4.32: Idomoid numerals

1	nze/je/nye/ye, kpokpoh? ^a	7	5+2, renyi
2	pa, miyeh?	8	5+3
3	ta/la	9	5+4
4	nè, ndo, he	10	gwo/wo, jwo
5	do/lo, ho, ro/rwo	20	fu/hu, su
6	rowo/riwi, ji, hili	100	20*5, 10*10

^aPlease note that hypothetically related forms are separated by a slash (/), whereas unrelated ones are separated by a comma.

It should be noted that the data on the Yatye-Akpa branch (one of the two Idomoid branches) is systematically absent. The analysis is based on the Akweya languages only, so unexpected issues may arise.

4.1.2.5 Igboid

This is a small group consisting of several languages. The forms which could be found in modern Igboid languages are listed in Table 4.33.

Table 4.33: Igboid numerals

1	tù, ɲìné (Ekpeye)?	7	saà
2	bó	8	5+3
3	tó	9	totu /tolu
4	nó	10	dî/ri/li
5	sé	20	gwǝ́ /ɣ ^h ǝ́, kpǝ́ɔ
6	ʃíi	100	20*5
		1000	puk(w)u

Interestingly, the terms for ‘one’ attested in the Igboid languages (as found in Koelle 1963[1854]) are subject to significant variation. The following forms are noteworthy: ‘1’ – Īsôāma *oo-te*, Íṣiēle *mfiuu*, Ábādṣa *na*, Aro *mbɔ*, Mbófia *mpon* (the transcription of the forms and languages follows Koelle). The rest of the numerals quoted by Koelle are essentially the same as the ones found in Table 4.34.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

4.1.2.6 Jukunoid

Table 4.34: Jukunoid numerals

	1. Bete (Juk.)	2. Central	3. Yukuben-Kuteb	Proto-Jukunoid
1	ɟife	(d)zun/(d)zun	nzo, ji?, yɔn?, ŋgēmé?, tɔŋ?	*d)zun? ɟife? tɔŋ?
2	há	pye(na)	pa(n)/fa(n)	*pa(n) /fa(n)
3	tà	(t)sara	ta	*ta
4	ɲè	nye(na)	ɲi, nje/nzi	*nye
5	tsòŋ	(t)swa(na)	t(s)on	*tson
6	5+1	5+1	5+1	*5+1
7	5+2	5+2	5+2	*5+2
8	5+3	4 redupl., 5+3	5+3	*4 redupl., 5+3
9	5+4	5+4?	5+4	*5+4
10	wo	dub (< Hausa?), dz(w)e	kur? kuwub, bji/bzi, jwēr	*jwe, wo? kur?
20	?	'body' (á-dì)	kam /k(w)om	*'body' (di)
100	?	20*5	20*5, Hausa	*20*5
1000	?	< Hausa	Hausa	< Hausa

Tentative reconstructions for the three major branches of this relatively small family are presented in the table above. The terms for 'one' and 'ten' vary significantly.

4.1.2.7 Kainji

The comparative analysis of the Kainji group is hindered by the fact that there is no linguistic description for the majority of its languages. However, there is a great range in numerical terms within those languages, for which reliable data is available. The following analysis is based on thirty pertinent sources, including the comparative list of forms compiled by [Dettweiler & Dettweiler \(1993\)](#). What follows is a step-by-step analysis of the available data that will hopefully yield some answers.

4.1.2.7.1 ‘One’

Table 4.35: Kainji stems for ‘1’

Language		‘1’	‘1’	‘1’	‘1’
Eastern					
Jera	Iguta			dínkā	
Jera	Janji			dínkɛ	inde
Jera	Bunu		ù-ṛṛṇì	dínkà	
Jera	Buji			dínkà	
Amo	Amo			*lu-run	
Western					
Basa	Basa	hīn			
Duka	C’lela	tʃí			
Duka	Hun-Saare(Duka)	cɔɔn			
Duka	Ut-Ma’in	tʃɔ:n			
Duka	Rijau	tʃoon			
Duka	Darangi	tʃoor			
Duka	Bunu	dii			
Duka	Iri	dən			
Duka	Dukku	dɛn			
Duka	Giro	diiin			
Kambari	Tsishingini (Kambari)		íyyán		
Kambari	Agaushi (Tsikimba)				‘-tè
Kambari	Kambali (Koelle)		íípa		
Kamuku	Western Acipa (Cicipu)				tô:
Kamuku	Kamuku (dial.)		ĩjá		
Kamuku	Hungworo (Hungwere)		ĩ:jǎ		
Kamuku	Pongu (Pangu)	hĩ:			
Kamuku	Kamuku (Koelle)	hĩíá			
Kamuku	Fungwa	hĩ			
Reshe	Reshe (Tsureshe)	tsúnnè			

The grouping principles for the forms included in this table are admittedly haphazard. On the one hand, the relationship between some of the forms arranged into the same column (e.g. *hīn*, *tʃɔ:n* and *dɛn* or *dínkā* and **lu-run*) is not immedi-

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

ately apparent. On the other hand, some of the forms placed in separate columns might be etymologically related (e.g. *dii*n Giro and *dinkā* Iguta). In these circumstances it seems reasonable to go back to the reconstruction of the Kainji term for ‘one’ on the basis of the data provided by other Benue-Congo branches (see §4.1.4).

4.1.2.7.2 ‘Two’

The above considerations regarding the term for ‘one’ are applicable to the term for ‘two’ as well. The inventory of forms found in Table 4.36 is neither helpful

Table 4.36: Kainji stems for ‘2’

		‘2’	‘2’	‘2’	‘2’
Eastern					
Jera	Iguta			rè:pú	
Jera	Janji		ti-rɛ (~wa--a-)	-rèpó	
Jera	Bunu				
Jera	Buji			rèpó	
Amo	Amo				im-ba
Western					
Basa	Basa	jèbí (yééwi)			
Duka	C’lela		ʔílí		
Duka	Hun-Saare(Duka)		yoór		
Duka	Ut-Ma’in		j̥ɔːr		
Duka	Rijau		joor		
Duka	Darangi		joor		
Duka	Bunu		jɔːr		
Duka	Iri		joor		
Duka	Dukku		juur		
Duka	Giro		joor		
Kambari	Tsishingini (Kambari)		ì-rè		
Kambari	Agaushi (Tsikimba)		-rè		
Kambari	Kambali (Koelle)		íí-lɛ		
Kamuku	Western Acipa (Cicipu)	jápù			
Kamuku	Kamuku (dial.)	ⁿdɔ́wɔ̀			
Kamuku	Hungworo (Hungwere)		ʔíḏ-dʒò		
Kamuku	Pongu (Pangu)		rê:nù		
Kamuku	Kamuku (Koelle)				wúúlee
Kamuku	Fungwa	jó:gó			
Reshe	Reshe (Tsureshe)				rìsɔ̃

for the reconstruction of the Proto-Kainji term for ‘two’, nor suggestive of the morphemic analysis of the pertinent forms within each of the branches. As we hope to demonstrate below, additional information that may prove useful for the reconstruction of the term for ‘two’ can be obtained through the analysis of the term for ‘seven’.

4.1.2.7.3 ‘Three’, ‘Four’ and ‘Five’

Table 4.37: Kainji stems for ‘3’-‘5’

		‘3’	‘4’	‘5’	‘5’
Eastern					
Jera	Iguta	tààrū	nà:nzī		ʃù:bì
Jera	Janji		tɪ-naze		ʃɪbì
Jera	Bunu		nà:zé		ʃí:bì
Jera	Buji		nàzé		ʃíbí
Amo	Amo		nnas	n-ntaun	
Western					
Basa	Basa	tàtɔ	néʃi (nááʃii)	táná	
Duka	C’lela	tí:ʃʃù	ná:sé	tǎ	
Duka	Hun-Saare(Duka)	tett	náss	táán	
Duka	Ut-Ma’in	tɔt	ná:s	tán	
Duka	Rijau	tɪt ^h	nəss	taan	
Duka	Darangi	tɪt ^h	nas	taan	
Duka	Bunu	tɪt ^h	nas	tan	
Duka	Iri	tɪrt	nass	taan	
Duka	Dukku	tiit	nas	taan	
Duka	Giro	tɪt ^h	nass	taan	
Kambari	Tsishingini (Kambari)	tàʔàtsú	nóʃín	tá:ʷwún	
Kambari	Agaushi (Tsikimba)		‘-nəʃi	‘-tǎũ	
Kambari	Kambali (Koelle)	tááatsu	nóóʃín	tááu	
Kamuku	Western Acipa (Cicipu)	tá:tù	nósi	tǎu	
Kamuku	Kamuku (dial.)	tátɔ	nəʃi	tóú	
Kamuku	Hungworo (Hungwere)	tâɔtɔ	ùnəʃĩ	sàtá	
Kamuku	Pongu (Pangu)	tá:tù	nǔ:ʃĩ	tá	
Kamuku	Kamuku (Koelle)	tááto	náʃii	taa ~ tááa	
Kamuku	Fungwa		nó:ʃi	tá	
Reshe	Reshe (Tsureshe)	tàtswā	nāʃě	tǔ	

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Unlike the terms for ‘one’ and ‘two’, the numerals covering the sequence from ‘three’ to ‘five’ are quite homogeneous and thus can be reliably reconstructed (just as in the majority of other NC branches). The provisional forms suggested for ‘three’, ‘four’, and ‘five’ are **tat*, **nas*, and **tan* respectively. The latter form can also be reconstructed for Eastern Kainji on the basis of the Amo evidence. Thus *fibi* (*fī-bī*?) ‘five’ is an innovation of the Jera subgroup.

4.1.2.7.4 ‘Six’ and ‘Seven’

Table 4.38: Kainji stems and patterns for ‘6’-‘7’

			‘1’	‘2’	‘5’	‘6’	‘7’	‘7’
Eastern								
1	Jera	Iguta				twà:sì		súnà:rì
2	Jera	Janji		ti-rɛ		tase		sunare
3	Jera	Bunu				tá:sè ~tá:sé		súnà:ré
4	Jera	Buji				tásé		súnàrì
5	Amo	Amo			n-ntaun	ku-toŋfin	kuzor	
Western								
6	Basa	Basa	hīn		táná	tʃihin	tʃéndʒe	
7	Duka	C’lela	tʃĩ	*ʔi-lì	tá	tʃihĩ	táʔilĩ	
8	Duka	Hun-Saare	cɔɔn	*yoo-r	táán	cind	tá’yoor	
9	Duka	Ut-Ma’in	tʃɔ:n	*jɔ:r	tán	ʃiʃin	tàʔèr	
10	Duka	Rijau	tʃoon	*joo-r	taan	tʃiin	ta’joor	
11	Duka	Darangi	tʃoor	*joo-r	taan	tʃin	taŋ’jor	
12	Duka	Bunu	dii	*jɔɔ-r	tan	tʃiin	ta’juu	
13	Duka	Iri	dən	*joo-r	taan	tʃinnd	ta’joor	
14	Duka	Dukku	dən	*juu-r	taan	tʃinɟ	ta’jaar	
15	Duka	Giro	diin	*joo-r	taan	tʃind	ta’joor	
16	Kambari	Tsishingini		i-rè	tá:wún	tà:lí	tʃindèrɛ	
17	Kambari	Agaushi	-tè	-rè	-táũ	-tə:lí	ʃindèrè	
18	Kambari	Kambali		íí-le, *rɛ	tááu	tóólí	tsindeɛrɛ	
19	Kamuku	West.Acipa		*jà	táũ	tóríhĩ	tíndàjà	
20	Kamuku	Cinda		*uɔ	tóù	tánəhĩ	təndəuɔ	
21	Kamuku	Hungworo		ʔʔ-dʒə, *rʔ	sàtá	ũ-túnihĩ	ũ-təndəʔʔ	
22	Kamuku	Pongu	hĩ:	rɛ:nù, *rə	tá	tʃinĩhĩ	tʃəndəɾə	
23	Kamuku	Kamuku	hĩja	*lee	taa ~ tááa	túnui	tandálee	
25	Kamuku	Fungwa	hĩ	*lò	tá	ʃihĩ	tíndàlò	
25	Reshe	Reshe	tsúnnè		tʃ	tēnzō	tànsǎ	

Some of the previously discussed terms for ‘one’, ‘two’ and ‘five’ are quoted in the table above alongside the terms for ‘six’ and ‘seven’. Such grouping might facilitate a better understanding of compound numerals (if ‘six’ and ‘seven’ are indeed compounds) as well as the methodological and theoretical aspects behind their reconstruction. In addition, it might help to establish whether parts of compound numerals can be used to enhance the reconstruction of the primary numerical terms such as ‘one’, ‘two’, and ‘five’.

The compound nature of the term for ‘seven’ is betrayed by its ‘length’: the forms quoted in the table normally have two to three syllables, whereas the primary numerals are as a rule mono- or (rarely) bisyllabic.

At the same time, in some of the cases the pattern ‘7=5+2’ is immediately apparent (cf. languages 7-11, 13-15).

At this point, however, we will deal with those languages that show only faint (or no) traces of the pattern in question (‘7=5+2’). E.g. in Tsishingini (16) we have to assume the pattern ‘7=X+2’, where ‘X’ is an unknown element, whereas in language 12 the pattern is ‘7=5+X’ (the relationship between ‘X’ and the term for ‘two’ is questionable).

Let us assume that the Proto-Kainji terms for ‘two’ and ‘five’ are *CL-re (cf. e.g. Duka **jo-re* > *joor*) and **tan* respectively. In this case, the compound term for ‘seven’ would be **tan*-(CL)-re or **tan*-X (connector)-(CL)-re. The most typical diachronic scenarios for the emergence of the ‘X’-patterns effective on the synchronic level are as follows:

1. Both basic elements of the compound ‘seven’ (i.e. reflexes of the terms for ‘two’ and ‘five’) are preserved in the language, as is the compound itself (sometimes slightly modified in accordance with the relevant phonotactic rules). Cf. e.g. the Darangi (11) evidence: **jo-re* > *joor* ‘2’, **tan* > *taan* ‘5’, **taan-jo-re* > *tan’jor* ‘7’. In this case, the reconstruction comes down to the simple statement that in the Darangi language ‘7=5+2’.
2. The compound ‘seven’ (even if slightly modified) is preserved in the language, while the term for ‘two’ is replaced with an innovation. Let us assume that in the Basa language (6) *jèbí* (Koelle: *yééwi*) ‘2’ < **jo-bi* (innovation), *táná* ‘5’ (the reflex of **tan*), *tféndze* < **tan-re* ‘7’. In this case, **tan-re* > *tan-dze* > *tendze* (regressive assimilation) > *tféndze* (palatalization before the front vowel). Hypothetical as it may be, this example is phonetically plausible.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Any of these model processes may result in the loss of phonetic resemblance between a derived form and its source. This may lead to a situation where a derivation pattern is no longer recognizable by speakers. As a consequence, the term for ‘seven’ becomes opaque on the synchronic level and can no longer be analysed as ‘5+2’.

This means that the replacement of the original term for ‘two’ by an innovation does not affect the compound term for ‘seven’, i.e. that its second part is not automatically replaced. Moreover, in case there is sufficient evidence that the second of the aforementioned scenarios was applied, we may enhance the reconstruction of the primary term for ‘two’ on the basis of the compound term for ‘seven’. E.g. the form *tʃéndʒe* suggests that the original Basa root for ‘two’ was **dʒe / re* and not **bi* as in the majority of the Kainji languages.

The available pertinent forms point toward the reconstruction of the Proto-Kainji form as **tan-da-re* (‘5’-connector-‘2’). The reconstructed forms for ‘two’ (marked with [*] in Table 4.38) suggest a Proto-Kainji form **re* ‘2’ and the pattern **7=5+2*. The Eastern Kainji forms for ‘seven’ are probably innovations.

However, some of the forms attested for ‘seven’ may point toward the reconstruction of ‘two’ as **ba/bi* in Proto-Kainji. In this case our reference list should be expanded by adding dialects that were not included for reasons of space: it is not possible to quote every single NC source every time. E.g. Cawai (Eastern Kainji) *a-ba* ‘2’, *a-tar-ba* ‘7’, Ngwoi (Hungworo) *e-bia* ‘2’, *sa-bia* ‘7’ (the root **ba/bi* is also suggested by Eastern: Gure *pi-ba*, Gyem *ve*, Piti *ba*, Surubu *ka-va*).

The forms for ‘six’ are more problematic since they may go back to a primary root (or roots). They may be tentatively reconstructed as **ci(hi)n*, **tas*, and **tel*. We will come back to these forms in order to enhance their reconstruction in case similar forms are detected in other BC branches.

4.1.2.7.5 ‘Eight’

The Eastern Kainji and Duka forms (if related) suggest that the primary root **-ru* should be reconstructed for ‘eight’ in Proto-Kainji. At this point, let us reserve a preliminary form **u-ro/ ji-ru* for further comparison. In most of the Kamuku languages the pattern ‘8=5+3’ is traceable (but note the Western Acipa form that is comparable to those attested in Kambari and possibly Amo (Eastern)). This points towards an alternative form of uncertain morphological structure (**kunle(v)/ kunlo* ‘8’).

Table 4.39: Kainji stems and patterns for ‘8’

		‘8’	‘8’	‘8’
Eastern				
Jera	Iguta	ùrū		
Jera	Janji	uro		
Jera	Bunu	ùrú		
Jera	Buji	úrú		
Amo	Amo			kuliv
Western				
Basa	Basa		tɔndatɔ (5+3)	
Duka	C’lela	jé:rù		
Duka	Hun-Saare(Duka)	yéér		
Duka	Ut-Ma’in	é:r		
Duka	Rijau	eer		
Duka	Darangi	er		
Duka	Bunu	εεr		
Duka	Iri	ɪr		
Duka	Dukku	εεr		
Duka	Giro	εεr		
Kambari	Tsishingini (Kambari)			kùnlà
Kambari	Agaushi (Tsikimba)			kúnlài
Kambari	Kambali (Koelle)			kúnlo
Kamuku	Western Acipa (Cicipu)			kùrìl:ò
Kamuku	Kamuku (dial.)		tántátò (5+3)	
Kamuku	Hungworo (Hungwere)		ũ-tátàṭò (5+3)	
Kamuku	Pongu (Pangu)		ṭénda:tù (5+3)	
Kamuku	Kamuku (Koelle)		túndaat (5+3)	
Kamuku	Fungwa		tíndátù (5+3)	
Reshe	Reshe (Tsureshe)		dálànzò	

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

4.1.2.7.6 ‘Nine’ and ‘Ten’

There are several forms and patterns for ‘nine’ whose reconstruction is equally plausible: ‘9=5+4’, **tor(b)oj* (possibly < **10-1*), **jiro*. Each of the forms/patterns is characteristic of a particular sub-group of languages. The term for ‘ten’ is reconstructed as **pwa*, with its reflexes attested in all Western Kainji branches. Three alternative forms (**turu*, **kuri*, **kup/ kpa*) are found in Eastern Kainji, where they are employed for counting and in quantity measures.

4.1.2.7.7 ‘Twenty’ and ‘Hundred’

The diversity of patterns for ‘hundred’ may indicate the absence of the term in Proto-Kainji. The term for ‘twenty’ likely followed the pattern ‘20=10*2’. However, the form **fín/ fík* attested in three of the Western Kainji branches is noteworthy.

4.1.2.7.8 Summary

It should be noted that a full reconstruction of the Kainji numeral system is not presently achievable for a number of reasons: some of the forms have multiple alternative variants, many terms are not attested outside Kainji (or have an obscure morphological structure), the elements of the compound terms are not always identifiable (e.g. in the patterns ‘7=X+2’ or ‘7=5+X’), etc.

The numerals attested within this group are so peculiar (at least for a non-specialist in the Kainji languages like myself) that one may wonder whether the Kainji group should indeed be treated as a branch of Benue-Congo. In any case, it seems reasonable to record all the forms reconstructable within the Kainji sub-groups. These forms and patterns are represented in the table below (Table 4.40).

Table 4.40: Kainji summarized data for BC reconstruction

1	<i>*tsin, hin, din, jan/yan, *te ...</i>	7	<i>*5+2</i>
2	<i>*re, *ba/bi, -pu?</i>	8	<i>*ro/ru, *5+3, *kunle(v)/kunlo</i>
3	<i>*tat</i>	9	<i>*5+4, *10-1, *jiro</i>
4	<i>*nas</i>	10	<i>*pwa, *turu, *kuri, *kup/kpa</i>
5	<i>*tan</i>	20	<i>*10*2, *fín/fík</i>
6	<i>*ci(hi)n, *tas (< 3?), *tel</i>	100	?

Table 4.41: Kainji stems and patterns for ‘9’ and ‘10’

		‘9’	‘9’	‘9’	‘10’	‘10’
Eastern						
Jera	Iguta		tòrbò (10-1)			bū-tú:rú
Jera	Janji		toroəi (10-1)			turo, kɪrəu
Jera	Bunu		tò:rēj (10-1)			bì-tú:rú; rú-kúrí
Jera	Buji		toroj (10-1)			bì-túrú; rì-kùrì
Amo	Amo		ku-tivi			ku-lidir *li-kure
Western						
Basa	Basa	tʃindʒɪɲi (5+4)				uɲpɰá
Duka	C’lela			dó:rè	ʔó:pá	
Duka	Hun- Saare(Duka)			jírò	opp	
Duka	Ut-Ma’in			dʒʷɛ:r	ɔp	
Duka	Rijau			dʒirɔ	ɔp ^h	
Duka	Darangi			dʒirɔ	’ɔp ^h	
Duka	Bunu			dʒirɔ	ɔp ^h	
Duka	Iri			dʒirɔ	ɔp ^h	
Duka	Dukku			dʒirɔ	ɔp ^h	
Duka	Giro			dʒedɔ	ɔp	
Kambari	Tsishingini (Kambari)	kùttʃi				kùppá
Kambari	Agaushi (Tsikimba)	kùtʃi				kùpà
Kambari	Kambali (Koelle)	kúciici				hókpa
Kamuku	Western Acipa (Cicipu)	kùtít:í (5+4)				ùkúp:à
Kamuku	Kamuku (dial.)	tə́ndɔ́ɲi (5+4)				òpá
Kamuku	Hungworo (Hungwere)	ùtə́nə́sĩ (5+4)				ìkóp’è
Kamuku	Pongu (Pangu)	tṹndúɲi (5+4)				úpɰá
Kamuku	Kamuku (Koelle)	tándaafii (5+4)				ópaa
Kamuku	Fungwa	tíndíɲi (5+4)				úpá
Reshe	Reshe (Tsuresshe)	tānāfě (5+4)				úpɰá

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Table 4.42: Kainji stems and patterns for ‘20’ and ‘100’

		‘20’	‘20’	‘20’	‘100’
Eastern					
Jera	Iguta			12+8	12*8+4
Jera	Janji				
Jera	Bunu				rì:mú
Jera	Buji			10*2	*ri-nu
Amo	Amo			akut-2	li-kalt
Western					
Basa	Basa	wéfi (K:wóófi)			dupu íjèbi (50*2)
Duka	C’lela	d ^o k ^w èzè			k ^w èffjǎ /vzíngù
Duka	Hun- Saare(Duka)	ɛr-kwooz			kwooz-ɛt táán (20 * 4), o-zùngu
Duka	Ut-Ma’in		ɛrfík		ɛʔfíkɛʔtán (20 * 5)
Duka	Rijau				
Duka	Darangi				
Duka	Bunu				
Duka	Iri				
Duka	Dukku				
Duka	Giro				
Kambari	Tsishingini (Kambari)		ú:fín		?
Kambari	Agaushi (Tsikimba)			kà-màngà	
Kambari	Kambali (Koelle)		úfí		
Kamuku	Western Acipa (Cicipu)			10*2	10*10, mándá
Kamuku	Kamuku (dial.)			10*2	dàrí (< Hausa) or dè òpá
Kamuku	Hungworo (Hungwere)			10*2	ihɔŋg ^w à, 10*10
Kamuku	Pongu (Pangu)	wéfi			bijĩnǎ
Kamuku	Kamuku (Koelle)			10*2	
Kamuku	Fungwa		kùdǵijò		ikwà:ku, < Hausa
Reshe	Reshe (Tsureshe)			álèsà	ránǎkū

4.1.2.8 Platoid

4.1.2.8.1 ‘One’ (Table 4.43)

The grouping of roots here is admittedly provisional, because their morphological structure is often obscure. In addition, phonetic changes that may have taken place are unknown. It is very difficult to propose any etymological interpretation for the forms represented in the table. Which of them could be attributed to the Proto-Platoid is unclear (**(y)in* represents a possibility, in case noun class markers are indeed incorporated into the numerical terms).

Table 4.43: Platoid stems for ‘1’

1.	Alumu-Tesu	Tesu				à-nyimbere
2.	Ayu	Ayu	ɪ-dɪ			
3.	Biromic	Birom		gw-ìniŋ/(d)-ìniŋ		
3.	Biromic	Eten	dáy			
4.	Cenral	Izere		z-ìniŋ		
4.	Cenral	Irigwe				ʔzrú
4.	Cenral	Kaje (dial.)				yirun/yirən
4.	Cenral	Tyap			a-nyun	
5.	Hyamic	Hyam		ʒ-ìni		
6.	Ninzic	Mada		*nen		gyār
6.	Ninzic	Ninzo		*ni		jír
7.	Northern	Ikulu				ínjí
8.	Southeastern	Fyam		kʰ-éŋ, *in		
9.	Southern	Lijili	lō			
10.	Taroid	Tarok (dial.)			ù-zìŋ, *dǐŋ?	
11.	Western	Yeskwa (dial.)				è-nyí
11.	Western	Rukuba (dial.)		gy-ín		
11.	Western	Eggon (dial.)				á-kián
11.	Western	Eggon (dial.)	ò-rí			
11.	Western	Hasha		nʷ-ināŋ		
?	Sambe		n-ínínā			

Tesu data are taken from [Blench & Kato 2012](#).

4.1.2.8.2 ‘Two’, ‘Three’ and ‘Four’ (Table 4.44)

The roots for ‘two’ containing voiced and voiceless labials are attested in the Platoid languages (as well as in some other BC branches). They may be tentatively reconstructed as **pa/ fa/ ha* and **ba/ wa*.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Table 4.44: Platoid stems for ‘2’, ‘3’ and ‘4’

			‘2’	‘2’	‘3’	‘4’
1.	Alumu-Tesu	Tesu		à-hùrwi	à-taato	a-ane
2.	Ayu	Ayu	ahwa/afah		a-taar	a-naŋaɟ
3.	Biromic	Birom		-bā	-tāt	-nā:s
3.	Biromic	Eten	fà		tāt/tfāt	nà:s
4.	Cenral	Izere	fà		taar	nààs
4.	Cenral	Irigwe		ʔm̩è	ʔts̩è	ʔni
4.	Cenral	Kaje (dial.)	’-hwa		’-tat	-nai
4.	Cenral	Tyap	a-feaŋ		a-tat	a-naai
5.	Hyamic	Hyam	f̥eri, *fo		taat	naaŋ
6.	Ninzic	Mada		y-wā, *gba	tar	nlyē
6.	Ninzic	Ninzo	há	*gba	tár	nō(s)
7.	Northern	Ikulu	ín-pààlá		ín-táá	ín-nāā
8.	Southeastern	Fyam	por		táár	naas
9.	Southern	Lijili		à-bē	à-tf̥é	à-nàró
10.	Taroid	Tarok (dial.)	ù-pàríim		ù-fádíŋ	ù-nèdíŋ
11.	Western	Yeskwa (dial.)		èn-và	èn-tât	èn-nà
11.	Western	Rukuba (dial.)	’-hàk		-tát	-nàs
11.	Western	Eggon (dial.)	à-hàà		à-tráá	ù-jí
11.	Western	Eggon (dial.)	ò-hà		ò-cá	ò-jì
11.	Western	Hasha	à-p ^w ò		ā-tāt	à-nìŋ
?	Sambe	bèkà-fà	kà-tú	kà- tār/béká- tār	kà- nè/bèkà- nè	

The roots for ‘three’ and ‘four’ are more stable. Some of their reflexes suggest that the Proto-Platoid forms must have been close to the NC forms: *tat ‘3’ and *nai / *nas ‘4’.

4.1.2.8.3 ‘Five’ and ‘Six’ (Table 4.45)

Table 4.45: Platoid stems and patterns for ‘5’ and ‘6’

			‘5’	‘5’	‘6’	‘6’
1.	Alumu-Tesu	Tesu	a-túngú		térékífi (<3?)	
2.	Ayu	Ayu	a-tugen		a-teer (3PL)	
3.	Biromic	Birom	-tūjūn			-tī:mìn
3.	Biromic	Eten		wí	tà:rà (<3)	
4.	Cenral	Izere	tùwùn		ìgà-rà:r (3PL)	
4.	Cenral	Irigwe	ʔtɛʷòò		rì-tsʰé (3PL)	
4.	Cenral	Kaje (dial.)		-pɸwɔn	kə-tat (3PL)	
4.	Cenral	Tyap		a-fwuon	a-taa (3PL)	
5.	Hyamic	Hyam	twoo		twaa-ni (5+1)	
6.	Ninzic	Mada	tun		tān-nèn (5+1)	
6.	Ninzic	Ninzo	tʰí		tā-nì (5+1)	
7.	Northern	Ikulu	ín-cūū		ín-cúnú (5+1?)	
8.	Southeastern	Fyam	tóón		táár-in (5+1)	
9.	Southern	Lijili	à-sǝ		mìn-zí (3PL?)	
10.	Taroid	Tarok (dial.)	ù-túkún		ù-kpǝ-dǝŋ (X+1?)	
11.	Western	Yeskwa (dial.)	èn-tyúò		èn-cí (5+1)	
11.	Western	Rukuba (dial.)	-túnj		tàɪŋ	
11.	Western	Eggon (dial.)	ò-tnó	*fúúŋ	ù-fín (5+1?)	
11.	Western	Eggon (dial.)	ò-tnô	*fǝŋ	à-fǝ(5+1?)	
11.	Western	Hasha	ā-tūkūn			à-kʷip
?	Sambe	kà-tūn			kù-hò/dǝgǝ-hò	

The term for ‘five’ is reconstructed as **tu(ku)n*. It is likely that there was no primary term for ‘six’ in the Proto-Platoid group: in all pertinent languages (except for Eggon, Hasha and Sambe) the term in question either follows the pattern ‘5+1’ or is built by adding a plural class to the term for ‘three’.

4.1.2.8.4 ‘Seven’ and ‘eight’ (Table 4.46)

Word-building patterns for the term for ‘seven’ are normally quite transparent: ‘7=5+2’ is attested in the majority of the sub-groups, whereas ‘7=4+3’ is more rare. The same can be applied to the term for ‘eight’, which either follows the pattern ‘8=5+3’ or is built by partial reduplication of ‘four’ (4 redupl.). Sometimes the archaic primary terms for ‘two’ and ‘five’ are traceable in the forms for ‘seven’ and ‘eight’ (such forms are marked with an asterisk in the respective tables).

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Table 4.46: Platoid stems and patterns for ‘7’ and ‘8’

			‘7’	‘8’	‘8’
1.	Alumu-Tesu	Tesu	térékífi napí (6+X)		tsyátsyá
2.	Ayu	Ayu	a-taraŋaf (3+4)	a-na-ba-bog (4+X)	
3.	Biromic	Birom	-tā:mà (5+2)		-rwīt
3.	Biromic	Eten	nītà (4+3)	nàràs (4+X)	
4.	Cenral	Izere	kà-nàsàtáár (4+3)		ì-kará
4.	Cenral	Irigwe	nats’è (4+3)		klañvà
4.	Cenral	Kaje (dial.)	tì:ruŋ (cf. yiruŋ ‘1’)	nai-mɔwak (4+X)	
4.	Cenral	Tyap	a-natat (4+3)	a-ninai (4 redupl.)	
5.	Hyamic	Hyam	twarfo (5+2)?	naaraŋ (4+X)	
6.	Ninzic	Mada	tāmgbā (5+2)	tāndà (5+3)	
6.	Ninzic	Ninzo	tāngbā (5+2)	tāndār (5+3)	
7.	Northern	Ikulu	tóòpāā (5+2)	nínñāā (4 redupl.)	
8.	Southeastern	Fyam	támor (5+2)		tjínít
9.	Southern	Lijili	mú-tá		rúnò
10.	Taroid	Tarok (dial.)	ù-fàŋ-ját (X+3)	ù-nènnè (4 redupl.)	
11.	Western	Yeskwa (dial.)	tònvà (5+2)	tóndát (5+3)	
11.	Western	Rukuba (dial.)	taŋbák (5+2)	ta:rat (5+3)	
11.	Western	Eggon (dial.)	à-fóhà (5+2)	à-fóté (5+3)	
11.	Western	Eggon (dial.)	ǝ-fóhà (5+2)	ǝ-fóté (5+3)	
11.	Western	Hasha	à-k ^w ip n ^y ināŋ (cf. 6, 4)	nàniŋ (4 redupl.)	
?	Sambe	kōrōnkérā /kúrkónrā		ī-tōr	

4.1.2.8.5 ‘Nine’ and ‘Ten’ (Table 4.47)

Table 4.47: Platoid stems and patterns for ‘9’ and ‘10’

			‘9’	‘9’	‘10’	‘10’	‘10’
1.	Alumu-Tesu	Tesu	tšyátsyá napí (8+X)				gòròmàvo
2.	Ayu	Ayu	a-tu-lu-bog (5+4?)			i-fog/ a-ja-la- bog	
3.	Biromic	Birom	syā:-tāt (12- 3)				12-2
3.	Biromic	Eten	dù:džàŋ (10-X)				dù:bò
4.	Cenral	Izere	kàtúbók (5+X?)			kù-sók	
4.	Cenral	Irigwe		kruvájá		ʃ ^w á	
4.	Cenral	Kaje (dial.)	kuməwi:ruŋ (10-1?)		*ku?	swak	
4.	Cenral	Tyap	akubunyun (10-1?)		*kub?	swak	
5.	Hyamic	Hyam	mbwan kób (10-1)		kób		
6.	Ninzic	Mada	tīyār (X-1?)				gùr
6.	Ninzic	Ninzo	tīr(s) (3-X?)				wūr
7.	Northern	Ikulu		tšòllāā	nù-kōp		
8.	Southeastern	Fyam	téres (3-X?)				dukút
9.	Southern	Lijili	zà-tfě (X-3?)				zà-bẹ
10.	Taroid	Tarok (dial.)	ùfàŋzíní (X+4)		ù-gbápei		
11.	Western	Yeskwa (dial.)		tyúôrá	ó-kóp		
11.	Western	Rukuba (dial.)	ta:ras (3-X?)				u-wùruk
11.	Western	Eggon (dial.)	àfúújí (5+4)		ó-kpo		
11.	Western	Eggon (dial.)	òfòjí (5+4)		ò-kbó		
11.	Western	Hasha	nàniŋ màrēŋ (4+X)				ā-wūk
?	Sambe		tōrō/kà-tóró			jò-wō	

It is likely that the term for ‘nine’ attested in Ikulu, Yeskwa and Sambe (*toro/cora*) is primary. The hypothetical inter-relationship of these roots may be of interest for the Proto-Platoid reconstruction, because these languages do not belong to the same sub-group. The forms of ‘nine’ in the majority of the languages show traces of ‘five’, ‘four’, ‘ten’ and ‘one’, which suggests that two alternative patterns (‘9=5+4’ or ‘9=10-1’) could have been in use. Some rare patterns (e.g. ‘9=12-3’ (Biom) and ‘9=8+X (Tesu)) are of interest for the linguistic typology.

According to Bouquiaux (1962) the term for ‘twelve’ (*kūrū*) is attested in Biom. In this language ‘21’ (*kūrū ná syā:-tāt*) = ‘12+9’ (*syā:-tāt*), while ‘80’ (*bākūrū bātī: mìn ná rwīt*) = ‘12*6’ (*-tī: mìn*) + ‘8’ (*-rwīt*). The pattern ‘9=12-3’ is not totally unexpected within this context. A similar system can be traced in the Mada language. As stated in our source (Abiel Barau Kato), “Like many languages in Platoid area, Mada has an old duodecimal numeral system up to 24.”¹⁰ The Mada terms for ‘twelve’ and ‘twenty-one’ are *tsɔ* and *tsɔtīyār* (*tīyār* ‘9’) respectively. The same root for ‘twelve’ (*tsó* ‘12’) is found in Ninzo for which our source notes that “In the traditional counting system, to count beyond twelve (12), that is from thirteen onwards, entails counting in sets of twelve.”¹¹ Moreover, the same root is attested in Tesu (*tsɔ* ‘12’). According to Uche Aaron, a primary root *ɔ-c* “12” is discernible in Eggon (beside the composite term ‘12=10+2’). This root is also found in Rukuba (Che) in *u-sók* ‘12’. The duodecimal numeral system as attested in this language is of the utmost sophistication. According to Luc Bouquiaux: “There are two words for number ‘72’, *kitu* and *atu*, 144 can be expressed as *atu ahak* and 200 is *atu ahak ni isók inas ni hak ni ta:rat* (72 * 2) + (12 * 4) + 8.”¹² Other languages in this group normally use less exotic systems. In some of them, however, e.g. in Eten, “The highest number that can be counted in traditional way is 144,”¹³ i.e. ‘12*12’. To sum up, it seems that a primary term for ‘twelve’ can be reconstructed on the Proto-Platoid level, hence the pattern for ‘nine’ should most probably be reconstructed as *9=12-3’.

The system outlined above adds a new perspective to the forms with the meaning ‘ten’. Presumably, there was a Proto-Platoid primary term for ‘ten’ that may be tentatively described as **kop*. The alternative forms *sok/swak* may be etymologically related to the forms for ‘twelve’ cited above. If so, their change of meaning may have resulted from the adoption of a decimal system. The root *gur/wur* is distinguished as well.

¹⁰ <https://mpi-lingweb.shh.mpg.de/numeral/Ninzo.htm>

¹¹ <https://mpi-lingweb.shh.mpg.de/numeral/Ninzo.htm>

¹² <https://mpi-lingweb.shh.mpg.de/numeral/Rukuba.htm>

¹³ <https://mpi-lingweb.shh.mpg.de/numeral/Aten.htm>

The specific nature of the Platoid numeral system prevents us from providing separate forms for ‘twenty’ and ‘hundred’. The pattern *’20=12+8’ traceable in a number of pertinent languages is reconstructed for Proto-Platoid. A compound nature is also assumed for ‘hundred’.

The results pertaining to the advanced reconstructions of numerals in Proto-Platoid are summed up in the table below (Table 4.48).

Table 4.48: Proto-Platoid numeral system (*)

1	(y)in, di(n), jir, nìŋ	7	5+2, 4+3
2	pa/fa/ha, ba/wa.	8	4 redupl., 5+3
3	tat	9	5+4, 10-1, 12-3, tu(ku)n
4	nai/nas	10	kop, gur/wur
5	tu(ku)n	20	12+8
6	5+1, 3PL	100	?

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

4.1.2.9 Nupoid

Let us try to reconstruct the Proto-Nupoid numeral system.

Table 4.49: Nupoid numerals and Proto-Nupoid (*)

Nupoid	Ebira	Gbari	Kakanda	Nupe	*Nupoid
1	òð-nyĩ	gb ^{ma} :- rí,*wĩ	gú-ní	ni-ní	ni/ nyi, wi? ri?
2	èè-vā	ŋ ^{wā} -ba	gú-bà	gú-bà	ba
3	èè-tá	ŋ ^{wā} -tʃa	gú-tá	gú-tá	ta
4	èè-nà	ŋ ^{wā} -ɲi	gú-ni	gú-ni	na/ ni
5	èè-hí	ŋ ^{wā} -t ⁿ ù	gú-tũ	gú-tsũ	tun/ tnu/tsun, hi?
6	hĩ-nɔ̄-nyĩ (5+1)	t ⁿ ú-wĩ (5+1)	gú-tua- ɲĩ (5+1)	gú-tswà- ɲĩ (5+1)	5+1
7	hĩ-m̄-bā (5+2)	t ⁿ â-ba (5+2)	gú-tua-bà (5+2)	gú-twà- bà (5+2)	5+2
8	hĩ-ñ-tá (5+3)	t ⁿ ā-tʃa (5+3)	gú-tò-tá (5+3)	gú-to-tá (5+3)	5+3
9	hĩ-ñ-nà (5+4)	t ⁿ â-ɲi (5+4)	gú-tua- ni (5+4)	gú-twā- ni (5+4)	5+4
10	èè-wó	ŋ ^{wā} -wò	gú-wo	gú-wo	wo
20	òò-hũ,*tʃĩ	wo-ɲi	e-ĩ	e-ɲi	ɲi, hu?
100	ē-tʃĩ- hí (20x5)	40*2+20	ɲit-ũ (20*5)	ɲit- sũ (20*5)	20*5
1000	400*5???	100*10		kpá- tsũ (200*5)	?

The Nupoid group is relatively small and homogeneous and poses no problem for reconstruction.

4.1.3 Isolated BC languages

4.1.3.1 Ikaan

The following description of the Ikaan numeral system (Table 4.50) is based on the analysis of data from a number of its dialects.

Table 4.50: Proto-Ikaan numeral system (*)

1	ǰí	7	h-ránèǰí ('6+1')
2	wà	8	nà:ná' (4 redupl.)
3	tā:s /h-rāhr	9	h-ráòǰí (X-1)
4	nā' /nā/náhí	10	ò-pú/fú
5	tò:n/h-rò:n/sò:n/cò:nv	20	ù-gbóró (< 'sack'), * à-gbá
6	h-ràdá/sàdá/sàrá	100	à-gbá à-h-run(20*5)

4.1.3.2 Akpes

Table 4.51: Akpes numerals

1	í-gbōn, ē-kìnì	7	ī-tǰēnētǰ(ì)
2	ī-dīan(ì)	8	ā-nāānīǰ(ì) (4 redupl.)
3	ī-sās(ì)	9	ò-kpǒlǒǰ(ì)
4	ī-nīǰ(ì)	10	ī-yōf(ì), *t-ēfī
5	ī-fōn(ì)	20	ō-gbō(15)
6	ī-tǰānās(ì)	100	ī-gbó fōnì (20*5)

The original BC forms for 'five' (**tan*) and 'one' may have been preserved in the term for 'six'. These forms will be treated below as hypothetical.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

4.1.3.3 Oko

Table 4.52: Oko numerals

1	ò-óré, ò-jéré	7	ú-fómbòrè (5+2)
2	è-bòrè	8	ònókónókónò(4 redupl.?)
3	è-ta	9	ù-bóòrè(10-1)
4	è-na	10	è-fò
5	ù-pì	20	ó-gbòlò
6	ò-pónòóré (5+1)	100	í-pì

4.1.3.4 Lufu

Table 4.53: Lufu numerals

1	ù-tí	7	5+2
2	(ba)-máhà	8	5+3
3	bá-tá	9	5+4
4	ba-pì	10	ú-wó
5	bá-tsó	20	e-ce
6	5+1	100, 1000	?

4.1.4 Proto-Benue-Congo

4.1.4.1 ‘One’

The reconstruction of the term for ‘1’ is objectively the most challenging (the term is especially difficult to reconstruct in languages with noun classes and complex systems of determinatives). This situation is even more complicated in the Benue-Congo languages, since more than one reconstruction of the term has been suggested. The existing hypotheses must be studied here, especially because the ones pertaining to the etymology of the term were proposed by Kay Williamson, the leading specialist in NC comparative studies. Moreover, Kay [Williamson \(1989\)](#) used her reconstruction of the term for ‘one’ as an argument in favor of triconsonantal structure of Niger-Congo roots. This hypothesis has been actively developed by Roger Blench (2012 etc.).

It should be noted that our evidence does not support Kay Williamson's reconstruction. Furthermore, her hypothesis regarding the triconsonantal nature of Niger-Congo roots is, in my opinion, untenable. The Bantoid data utilized by Williamson was discussed above. Now let us review the evidence she uses in support of her hypotheses. Originally she treated the root *#-kani* '1' as one of the basic BC roots ('old root', Williamson 1989: 255). Later she changed her approach (on the basis of a wider NC context, namely on the data from the ljo languages) suggesting a derivation of BC froms from a triconsonantal root *** - 'kə'gəni* '1', for which she assumed a different set of reflexes (Williamson 1992: 396). The changes introduced by Williamson in this article are significant. She adds the reflexes of the reconstructed root in Akpes and Nupoid, includes its additional reflexes in Esimbi and Bekwarra (Bantoid), adjusts its reflexes in Cross and Platoid (e.g. by reinterpreting PUC *gá-ni/ *-gwá-ni* previously analysed as an isolated form as a reflex of the root in question), and, finally, omits Kanji and Jukunoid reflexes.

In further interpretation of the BC numeral systems we will use a template chart representing the fourteen branches of BC (Table 4.54). It should be noted that Bantu (as the largest sub-branch of the BC family with the most detailed reconstruction) is treated separately. This means that the Bantoid field will only include non-Bantu forms. The chart below reproduces the data published by Kay Williamson (middle sections) as well as the relevant forms obtained as a result of our step-by-step reconstruction (the rightmost section).

It should be noted that the difference in the results achieved by means of our step-by-step reconstruction (see above) and those of Williamson is significant. According to our evidence, the postulation of the root *** - 'kə'gəni* '1' for Western Benue-Congo is unsustainable. The existence of this root in Bantoid is also questionable. In her earlier publication, Kay Williamson quoted its only Bantoid reflex (*a-kina* '1') supposedly attested in Northern Bantoid Tiba (Williamson 1989: 255). However, the affiliation of Tiba with the Bantoid languages is debatable (a connection with the Adamawa languages is suggested in Boyd 1999). In the article that followed, Williamson quoted another Bantoid form, this time the one attested in Southern Bantoid Esimbi (*keni* '1'). As noted above, this form was probably misinterpreted, because it includes the root *-ni/-nā*. At the same time, as I tried to demonstrate above, a number of related forms may be attested in the Mambiloid languages (Northern Bantoid): Twendi (Cambap) *tʃínī*, Mambila *tʃén*. Thus, we are possibly dealing with Proto-Eastern Bantoid **cin/kin*. In order to decide whether this form is an innovation or a reflex of an inherent Niger-Congo root (as Kay Williamson says) we need to place it into a wider linguistic context. This issue will be addressed later. At this point we will deal with another root

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

Table 4.54: BC *kin/cin ‘1’ and alternative reconstructions

Benue-Congo		
Nupoid	Oko	Kainji
Defoid	Akpes	Platoid
Edoid	Ikaan	Cross
Igboid	Lufu	Jukunoid
Idomoid	Bantu	Bantoid

Williamson 1989: #-*kani* ‘1’

Yoruba ò-kǝ		Basa kǝ Pyem kēŋ Bete-Bendi ì-kǝn, Bokyi kǝn, PLC *-kǝn Jukun kǝ
Eloyi kǝnzé		Tiba a-kina

Williamson 1992: Proto-Atlantic-Congo **-**kǝ’gǝni* ‘1’

Gbagyi gmǎnyi		
Yoruba ò-kǝ	Ikeram ɛ-ki	PP2-J -gini, PP4 -yan PUC gǝ-ni? , PLC -kǝn
Eloyi kǝnzé		Tiba a-kina, Esimbi keni, Bendi: Bekwarra o-kin

**kin-/cin-* forms for ‘1’ (step-by-step data)

		tsin, hin
	ē-kinì, *si	(y)in, kyeŋ, gyin
	ʃi	kin/cin
		ʃife?
		cin (Mambiloid)

Different colors are used in the charts to distinguish between the Eastern and the Western BC languages. A special marking is used for the Bantu languages due to their overall importance for the reconstruction. The abbreviations in the middle sections follow Williamson op. cit. with PLC-Proto-Lower Cross, PUC – Proto-Upper Cross, PP – Proto-Platoid.

for ‘one’ postulated by Williamson. According to her, the root is a Benue-Congo innovation.

Since the root *nǝ / ni* is distinguishable in Esimbi, it seems logical to treat it together with another set of terms for ‘one’ (#-*diin*). This data (termed BC innovation by Williamson) compared to the results of our step-by-step reconstruction is quoted in the table below (Table 4.55).

Table 4.55: BC *ni ‘1’ and alternative reconstructions

Benue-Congo		
Nupoid	Oko	Kainji
Defoid	Akpes	Platoid
Edoid	Ikaan	Cross
Igboid	Lufu	Jukunoid
Idomoid	Bantu	Bantoid

Williamson 1989: BC innovations: #-*diɪŋ*

Gwari ñ-pĩ	Oko ɔ́ɔɾɛ	Gurmana nɪ
PY *i-ně		PP2K *-niɪŋ
		OG è-ně, CD #-niin
Ikwere í-ním		PJ *-yiŋ
PIđ *-nyí		Lamja nūné, Ekoid #-jid, -jiŋ

**ni* forms for ‘1’ (step-by-step data)

*ni/nyi		Bunu ù-ŋŋínì
*jɛ́		nìŋ, (y)in, di(n)
		*ni(n)
ŋiné?		*-jin?
nze/je/nye/ye		Esimbi -nə/-ni

Let us review the distribution of this root within the Benue-Congo branches.

are there
only two
branches?

Western Benue-Congo. This root can be reliably reconstructed in Nupoid and Defoid, but not in Edoid. In Igboid it might be attested in Ikpeye: *ɲì-né* (*ɲ-iné?*). The root is possibly found in some of the Idomoid languages as well: Etulo *o-piĩ*, Agatu *ó-yè*, Idoma *é-yè*, Alago *ó-je*, Eloyi (dial.) *ò-nzé*, *ńgwò-nzé*.

Eastern Benue-Congo. Several Kainji forms deserve closer attention. The Gurmana form quoted by Williamson is unfamiliar to me. It may be related to the Bunu form, but the root itself is uncommon for Kainji and thus cannot be reconstructed. Moreover, the root is only marginally attested in the Platoid languages (single occurrences include Eskwa *è-nyí* ‘1’ and possibly Ikulu *í-ń-jí* ‘1’, and *kàp-ìrì-zĩŋ* ‘11’). Another rare form is *di(n)* with an initial oral consonant (e.g. Ayu *ɪ-dɪ* ‘1’, Eggon *ò-rí* ‘1’ and its palatalized variant *tʃĩŋ* – cf. *à-kbɔ́ à-tʃĩŋ* ‘11’, *à-kbáhá là-tʃĩŋ* ‘21’). These (etymologically unrelated?) forms, however, should not be reconstructed for Proto-Platoid, because the root *kin* (see above) is clearly

distinguishable in the majority of the Platoid branches. At the same time, the Platoid data discredits the reconstruction of the root as **kin/cin*. Multiple arguments can be adduced in favor of the interpretation of the initial velar as a reflex of an archaic noun class prefix, which would yield a Proto-Platoid form **k-in*. This invites the possibility of an etymological connection between the Benue-Congo roots studied above, namely **-in* and **-ni*. The analysis of the Platoid compound numerals points toward the same conclusion. A number of noteworthy forms can be quoted in support of this, cf. Hyam *zìni* ‘1’ but *twaa-ni* ‘6’ (‘5+1’, *twoo* ‘5’), Mada *tānn-èn* ‘6’ (‘5+1’, *tun* ‘5’), Ninzo *tāni* ‘6’ (‘5+1’, *tʷí* ‘5’), Rukuba *tàin* ‘6’ (‘5+1’, *-tún* ‘5’). These Platoid forms bring to mind the case of the Jukonoid term for ‘six’. Kay Williamson quotes a Proto-Jukunoid root **-yinj*. The reasons behind this reconstruction are not immediately apparent, since in the majority of the languages other forms are reserved for this meaning. Her reconstruction may be based on the compound terms for ‘six’ that follow the pattern ‘5+1’ (or rather ‘5+X’, with $X \neq 1$), cf. e.g. Jibu *sùn-jin* ‘6’ (*swana* ‘5’, *zyun* ‘1’), *cìn-jen/ʃi-zen* (*tswana* ‘5’, *dzun* ‘1’). As noted above, the root in question is not reconstructable for the Platoid languages. The reconstruction of **ni(n)* is assured only for the Eastern Benue-Congo branch (Cross), where it is systematically attested in at least three branches out of five, cf. Proto-Upper Cross (**ni*), Central-Cross (*nin*), and Ogoni (*nɛ*). Since **ni* can be safely reconstructed for Nupoid, Defoid and Cross, its further comparison to the pertinent roots attested in the languages that belong to other NC branches is required.

In conclusion, it should be noted that regardless of whether a conservative or a more speculative reconstruction (i.e. **kin* and **ni* vs. **k-in/ ni*) is preferred, the resulting root (or roots) is not tri- or disyllabic but rather monosyllabic.

In addition to this, several isolated roots for ‘one’ are attested in Benue-Congo. Undoubtedly, they represent local innovations. At first glance, this is applicable to the most common Bantoid roots for ‘one’, including the Bantu forms *mòì/mòdì mòtí*. This, however, may not be entirely correct for reasons that will be discussed in the next chapter. Another noteworthy root that may be tentatively described as **jir* is attested in both Oko and Platoid.

The table is subject to further interpretation. We will return to it later after the evidence from the other Niger-Congo branches has been collected. A few remarks are in order here:

1. Both Akpes terms for ‘one’ (*ē-kìni*, *í-gbōn*) find close parallels in the Cross languages (**kin/cin*, **ni(n)*, **gbon/gwan*). The Icheve form *à-móó* is probably borrowed from one of the Bantu languages;

2. The Kainji term finds parallels in the Platoid languages (Ayu, Eten, Tarok, Eggon) and may be etymologically related to the Bantu and Nupoid terms (the morphological structure of the Proto-Bantu form is, however, unclear: **mòdì?* **m-òdì?* **mò-dì?*);
3. The Oko form is reminiscent of another Platoid form that is tentatively reconstructed as **jir*. The Akpes root *gbōn* '1' finds parallels in the Cross (*gbon*) and possibly Edoid languages (*gwo/ wo/ wu*).

4.1.4.2 'Two'

Table 4.56: BC stems for '2'

		'2'	'2'	'2'
East	Bantu			bà-dí /bì-dí
East	Bantoid (-Bantu)	pa/fe	ba	
East	Cross	po/pa	bae	
East	Jukunoid	pa(n) /fa(n)		
East	Kainji	-pu?	*ba/bi	re
East	Platoid	pa/fa/ha	ba/wa	
West	Defoid			jì
West	Edoid		va/və	
West	Idomoid	pa		
West	Igboid		bó	
West	Nupoid		ba	
West	Akpes			ī-dian(i)
West	Oko		è-bòrè	
West	Ikaan		wà	

The root **pa* (also found in the Idomoid languages) is reconstructable for Eastern Benue-Congo, but is not systematically attested in Bantu.

The Bantu form (as represented above) does not seem to be related to other Bantoid forms. However, it finds parallels in Defoid and possibly Akpes and Kainji. The most common BC form (**ba/bai*) may go back to **ba-i*, with **ba-* being a noun class prefix. In this case, the BC form may be reconstructed as **ba-di* / *ba-ji* > *bai* > *ba*, which would make the Bantu form the most archaic within Benue-Congo.

4.1.4.4 ‘Six’

Table 4.58: BC stems and patterns for ‘6’

East	Bantu	3 redupl.				
East	Bantoid (–Bantu)	< 3 redupl.?				
East	Cross	3+3	5+1	di?		
East	Jukunoid		5+1			
East	Kainji	< 3?			ci(hi)n	tel
East	Platoid	3PL	5+1			
West	Defoid					fà
West	Edoid	3PL, 3+3				
West	Idomoid			riwi/rowo	ji	hili
West	Igboid				ʃi	
West	Nupoid		5+1			
West	Akpes		5+1?			
West	Oko		5+1			
West	Ikaan					h-ràdá/ sàdá/ sàrá

As the table shows, there was probably no primary Proto-Benue-Congo root for ‘six’. Two alternative patterns are traceable, namely ‘3PL’ (‘3 redupl.’, ‘3+3’) and ‘5+1’. Other forms are marginal. The phonetic resemblance of the Kainji and Igboid forms is noteworthy.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

4.1.4.5 ‘Seven’

Table 4.59: BC stems and patterns for ‘7’

East	Bantu	càmbà (< **c/saN+2?)		
East	Bantoid (–Bantu)	samba (5+2?)		
East	Cross	5+2		
East	Jukunoid	5+2		
East	Kainji	5+2		
East	Platoid	5+2		4+3
West	Defoid		byē	
West	Edoid		ghie?	
West	Idomoid	5+2	renyi	
West	Igboid			saà
West	Nupoid	5+2		
West	Akpes			ī-tfēnētʃ(i)
West	Oko	ú-fómbòrè (5+2)		
West	Ikaan		h-ránèʃi (‘6+1)	

A primary root for ‘seven’ is also indistinguishable. The form **camba/samba* may have lost any phonetic resemblance to its Benue-Congo prototype **7=5+2* in Proto-Bantoid. The Defoid and Edoid forms are phonetically comparable (a shared innovation?).

4.1.4.6 ‘Eight’

Table 4.60: BC stems and patterns for ‘8’

East	Bantu	nai-nai (< 4 redupl.)			
East	Bantoid (–Bantu)	na-nai (< 4 redupl.)			
East	Cross	4+4			
East	Jukunoid	4 redupl.	5+3		
East	Kainji		5+3	ro/ru	kunle(v)/kunlo
East	Platoid	4 redupl.	5+3		
West	Defoid			jo/ro	
West	Edoid	4 redupl.			
West	Idomoid		5+3		
West	Igboid		5+3		
West	Nupoid		5+3		
West	Akpes	ā-nāānīŋ(i) (4 redupl.)			
West	Oko	ò-nókó-nókóno (4 redupl.?)			
West	Ikaan	nà:ná ^j (4 redupl.)			

In this case, the pattern **nai* ‘4’ > **na(i)-nai* ‘8’ fits the reconstruction better than its alternative. The similarity between Kainji and Defoid is peculiar and may be due to innovations.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

4.1.4.7 ‘Nine’

Table 4.61: BC stems and patterns for ‘9’

East	Bantu			bùá	
East	Bantoid (-Bantu)			bukV	
East	Cross	5+4	10-1		
East	Jukunoid	5+4			
East	Kainji	5+4	10-1		jiro
East	Platoid	5+4	10-1		12-3, tu(ku)n
West	Defoid			sá(n)	dà
West	Edoid			cien/sin	
West	Idomoid	5+4			
West	Igboid				totu /tolu
West	Nupoid	5+4			
West	Akpes				ò-kpɔ̀lɔ̀f(i)
West	Oko		ù-bɔ̀ɔ̀rɛ̀		
			(10-1)		
West	Ikaan		h-ráòfɪ		
			(X-1)		

The rightmost column of the table includes many isolated forms (among them some primary ones). The term **buka*, which may appear as an important BC innovation, is reconstructed for Proto-Bantoid. In addition, the pattern ‘9=5+4’ is distinguishable in Proto-Benue-Congo. Like for ‘8’, Defoid and Edoid forms closely resemble each other.

4.1.4.8 ‘Ten’

Table 4.62: BC stems for ‘10’

East	Bantu		kómì/ kámá			
East	Bantoid (–Bantu)	fu	kum/ kam			
East	Cross	fo?		kpo/ kop	ʔo?	job
East	Jukunoid			wo?	kur?	jwe
East	Kainji	pwa		kup/ kpa	kur?	turu
East	Platoid			kop	gur/ wur	
West	Defoid				gwá	
West	Edoid			kpe	gbe	
West	Idomoid	(fu ‘20’)			gwo/ wo	jwo
West	Igboid					dî/ri/ li
West	Nupoid	(hu ‘20’)			wo	
West	Akpes					ī-yōf(ī), *t-ēfi
West	Oko	è-fɔ				
West	Ikaan	ò-pú/ fú				

This is a heterogeneous group of forms. The root **pu/fu* attested in both Eastern and Western BC is the most likely candidate for BC reconstruction. However, it is missing from Bantoid, for which the term **kum/kam* is reconstructable. The latter form must be a Bantoid innovation. However, assuming that the second consonant may have undergone nasalization in Proto-Bantoid, this form is comparable to a number of other roots, suggesting that **kup/ kop* should be reconstructed for Eastern Benue-Congo. As the table shows, other roots should not be neglected either. They will be treated in combination with the evidence from other NC branches.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

4.1.4.9 ‘Twenty’

Table 4.63: BC stems and patterns for ‘20’

East	Bantu	10*2			
East	Bantoid	10*2			
	(–Bantu)				
East	Cross		*ti/ci?		dip?
East	Jukunoid				‘body’ (di)
East	Kainji	10*2	ʃín/ʃík		
East	Platoid				12+8
West	Defoid			gwú(n), gbolo	
West	Edoid			gie/jie, gboro	
West	Idomoid				fu/hu, su?
West	Igboid			gwɔ̃ /ɣ ^h ɔ̃, kpɔɔ	
West	Nupoid		ʃi		hu?
West	Akpes			ɔ̃-gbɔ̃(lɔ̃)	
West	Oko			ɔ̃-gbɔ̃ɔ̃	
West	Ikaan			ù-gbɔ̃rɔ̃ (< ‘sack’), *à-gbá	

It is highly unlikely that the Proto-BC term followed the pattern reconstructed for Proto-Bantoid (*‘20=10*2’). In all likelihood there was no root for ‘twenty’ in Proto-BC at all. It should be noted that numerous branches of Western BC use the root (*g*)*bolo* (possibly related to the lexical root with the meaning ‘sack’) to make ‘twenty’. A shorter root (**gba/ gwe*) is reconstructable in the same Western BC branches as well. Its source is likely lexical: it is well-known that the term for ‘twenty’ in the NC languages often goes back to lexemes with the meaning ‘man’, ‘leader’, and ‘body’ (cf. Jukonoid). The resemblance between the reconstructed Idomoid and Nupoid forms is noteworthy. However, these forms might be etymologically related to the term for ‘ten’.

4.1.4.10 ‘Hundred’ and ‘thousand’

Table 4.64: BC stems and patterns for ‘100’ and ‘1000’

		‘100’	‘100’	‘100’	‘1000’
East	Bantu		kámá	gàná, tsa, jànda	nùnù, pòm̀bì, kótò
East	Bantoid (–Bantu)	20*5?	kam?	gbi? ki?	?
East	Cross	20*5			
East	Jukunoid	20*5			< Hausa
East	Kainji	?			
East	Platoid	?			
West	Defoid	20*5			
West	Edoid	20*5			du, ria/li
West	Idomoid	20*5, 10*10			
West	Igboid	20*5			puk(w)u
West	Nupoid	20*5			?
West	Akpes	ī-gb́ó fṑnì (20*5)			
West	Oko			í-pì	
West	Ikaan	à-gb́á à-h- rùn(20*5)			

If Proto-Benue-Congo did not have the term for ‘twenty’, it probably did not have the term for ‘hundred’ either, because the only pattern it could follow is $^{*}100=20^{*}5$. In this respect the Proto-Bantoid innovation ($^{*}kam$) is noteworthy. It resembles another Proto-Bantoid innovation, namely the term for ‘ten’ ($^{*}kum/kam$), which is hardly a coincidence. The possibility that in the cases of ‘ten’ and ‘hundred’ we are dealing with alignment by analogy cannot be excluded. This could explain the irregular nasalization of the root for ‘ten’, cf. Proto-Bantoid $^{*}kup$ ‘10’ $\rightarrow kum$ by analogy with $^{*}kam$ ‘100’. The term for ‘thousand’ was certainly nonexistent in BC.

4 Step-by-step reconstruction of numerals in the branches of Niger-Congo

4.1.4.11 Summary

Taking this into account, the segmental reconstruction of the Proto-BC numeral system may be suggested (Table 4.65).

Table 4.65: Proto-Benue-Congo numeral system (*)

1	ni, kin/cin (<k-in?), gbon, (o-)di(n)?, (o-)ti?	7	5+2
2	ba-di /ba-ji, pa? ba(i)?	8	4 redupl.
3	tat	9	5+4
4	nai	10	pu/fu, kup/kop, gwo /jwo
5	tan/ton	20	absent? gwa/gwe? < 'person'?
6	3PL/3 redupl./3+3, 5+1	100	absent? 20*5

This table gives an overview of the BC evidence that will be used for further comparison with other NC branches.

References

- Blench, Roger. 2004. *The Benue-Congo languages: A proposed internal classification*. Cambridge. (working document not a draft paper).
- Blench, Roger. 2012. *Supposing we have been completely wrong about the shape of early Niger-Congo roots?* Cambridge. Ms.
- Blench, Roger. n.d. *Fam wordlist and etymological commentary*. Cambridge. Ms.
- Blench, Roger & Barau Kato. 2012. *The Tāsu language of Central Nigeria and its affinities*. Cambridge. Ms.
- Bouquiaux, Luc. 1962. A propos de numération: L'emploi du système décimal et du système duodécimal dans la langue birom (nigéria septentrional). *Africana linguistica Tervuren* 1. 7–10.
- Boyd, Raymond. 1999. A linguistic sketch of tibia (gà), part 1. *Afrika und übersee*, 82: 1-17, part 2. *Afrika und Übersee* 82. 213–249. . Hal-00323718v3.
- Connell, Bruce A. 1991. *Phonetic aspects of the Lower-Cross languages and their implications for sound change*. University of Edinburgh dissertation.
- Dettweiler, Stephen H. & Sonja G. Dettweiler. 1993. *Sociolinguistic survey of the Duka (Hun-Saare) people*. Ilorin. <http://www.sil.org/silesr/2003/silesr2003-014.pdf>. Ms. [electronic version dated 2003].
- Dimmendaal, Gerrit Jan. 1978. *The consonants of Proto-Upper Cross and their implications for the classification of the Upper Cross languages*. Department of African Languages, State University of Leiden dissertation.
- Janssens, Baudoin. 1994. Étude comparative du thème *-poko 'un, autre' dans le bantou de zone A et des Grassfields. *Africana linguistica* XI. 93–104.
- Koelle, Sigismund Wilhelm. 1963[1854]. *Polyglotta africana, or a comparative vocabulary of nearly three hundred words and phrases in more than one hundred distinct African languages*. London: Church Missionary House.
- Vanhoudt, Bettie. 1994. *L'expression de "un" dans la numération référentielle en protobantou*. Tervuren.
- Williamson, Kay Ruth Margaret. 1989. Benue-Congo overview. In John T. Bendor-Samuel (ed.), *The Niger-Congo languages: A classification and description of africa's largest language family*, 247–274. Lanham MD, New York & London:

References

- University Press of America. by arrangement with the Summer Institute of Linguistics (SIL).
- Williamson, Kay Ruth Margaret. 1992. Some Bantu roots in a wider context. In Erwin Ebermann, E. R. Sommerauer & K. E. Thomanek (eds.), *Komparative Afrikanistik: Sprach-, geschicht- und literaturwissenschaftliche Aufsätze zu Ehren von Hans G. Mukarovsky anlässlich seines 70. Geburtstages*, 1–2. Wien: Afro-Pub.

The numeral system of Proto-Niger-Congo

This book proposes the reconstruction of the Proto-Niger-Congo numeral system. The emphasis is placed on providing an exhaustive account of the distribution of forms by families, groups, and branches. The big data bases used for this purpose open prospects for both working with the distribution of words that do exist and with the distribution of gaps in postulated cognates. The distribution of filled cells and gaps is a useful tool for reconstruction.

The first chapter of this book is devoted to the study of various uses of noun class markers in numeral terms. The second chapter deals with the alignment by analogy in numeral systems. Chapter 3 offers a step-by-step reconstruction of number systems of the proto-languages underlying each of the twelve major NC families, on the basis of the step-by-step-reconstruction of numerals within each family. Chapter 4 deals with the reconstruction of the Proto-Niger-Congo numeral system on the basis of the step-by-step-reconstructions offered in Chapter 3. Chapter 5 traces the history of the numerals of Proto-Niger-Congo, reconstructed in Chapter 4, in each individual family of languages.

