The numeral system of Proto-Niger-Congo

A step-by-step reconstruction

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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 **moʔ* or **moi/mwi* of uncertain etymology. The misleading similarity of the Bantu roots *mòì, mòdì, mòtí* may be due to the merger of the noun class prefix ***mò-** with the nominal base[1]. 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), *mòtí* (ABCEGHKLRS) < **mò-òtì*, *mŏégá* (zones BH) (BLR3: «*mòì* + suffix»), and *mòì* (ABCDEFGJKLMRS). 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 ***-di**, ***ti**, and ***ʔ-** in Bantu within this hypothesis. Moreover, the etymological relationship between these roots (disregarding **di* and *mɔ(m)* (Tivoid), *ó-mè* (Mbe), *ma* (Mamfe), etc.) would be much less transparent than that in case of *modi ~ moti* or even *-odi ~ -oti*.

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[1]I 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.).

[2]Larry 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			nòòní
*Mambiloid		mwi	cin, jer	
Fam				wuni[a]
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		mɔʔ		(ɗik)
*Mamfe		mɔt /ma		
*Mbam		mwe/mùʔ		
Mbe	Mbe	ó-mè		
Ndemli	Ndemli	mɔ̀hɔ́		
Tikar	Tikar	mbɔʔ		
*Tivoid		mɔ(m)		
*Esimbi				nə
Wide Grassfields	Befang	moʔ		
GF: Mbam-Nkam	Bamileke	moʔ		cu
GF: Mbam-Nkam	Ngemba	mɔʔɔ		
GF: Mbam-Nkam	Nkambe	moʔ(sír)		
GF: Mbam-Nkam	Nun	moʔ		
GF: Momo		moʔ		fiŋ
GF: Ring		moʔ		

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[a]The 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.

[b]An 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.

[c]Concerning 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''.

The secondary PB form *ókó (zones ABCHF) (BLR3: ''Janssens 1994: alternance C1 p/m/b-ókó- protoforme secondaire, cf. ʿseulʾ") is comparable to *baka (Beboid: Fio *mbákâ ~ nbáhá*, 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 *ʃɯʔ*, Medumba a*ntʃʊʔ*, Nda'nda' *ŋtʃɔ̂ʔ*, etc.) is possibly related to the Bantu *tʊ (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/bìdí 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), *bìdí* (CDEFGJKLMNPS), *bídì* (?).

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 *kaìkò* as well as the Proto-Eastern Grassfields *-kùa 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.

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[3]John 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-ɓēē̄r-á	à-tár-á
Southern				
*Bantu			**bàdí /bìdí**	**tátɤ̀ /cátɤ̀**
*Beboid		fe		tat, te
*Yemne-Kimbi		fi(n)		to
*Ekoid			ba(l)	sa/ra
*Jarawan			ɓar	tat
*Mamfe		pay /pea		rat /lɛ
*Mbam		fande?	bante?	tat
Mbe	Mbe	pʷâl		sá
Ndemli	Ndemli	ifέ		ítáá
Tikar	Tikar		ɓî	lê
*Tivoid		hal/har/vial		tat
*Esimbi		ra-kpə?		kələ (< *lə?)
Wide Grassfields	Befang	fe		táí
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 *nlɔn*, Ejagham *érôn*, Nkem-Nkum *írɔ̂n*) is a reflex of **tan*).

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

Table 4.4: Bantoid stems for '4' and '5'

		'4'	'4'	'5'	'5'
Northern					
Dakoid	Chamba-Daka	nàà-sá		túùná	
*Mambiloid		na(n)		tien/tin/con/son	ngii?
Fam			daare	tʃwiine	
Tiba (Fà)		à-nè-á		à-tǫ̀ǫ̀ŋ-á, tūùŋ	
*Bantu		**nàì/(nàí)**		**táànò/cáànò**	
Southern					
*Beboid		na, ne		ti(n)	
*Yemne-Kimbi		ni			kpɔn
*Ekoid		ni			don/lon[4]
*Jarawan		yi-ne?		towun/twan	
*Mamfe		n(w)i		ta(y)	
*Mbam		ni(s)		taan	
Mbe	Mbe	ñî		tʃân	
Ndemli	Ndemli		itʃìjè	ítâŋ	
Tikar	Tikar	ɲî		ʃɛ̃̂	
*Tivoid		ɲi(n)		tan	
*Esimbi		ɲi		tǝnǝ	
Wide Grassfields	Befang	kᶣà (kɥà)		ìt̚ʲə̂n	
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 /tɛn	
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 *tóꜜóbá '6' attested in zones ABCD is related to the Grassfields forms.

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[4]John 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' > *kʲà-tò* '6'; this pattern is possibly attested in Tutomb (Mbam) *pé-dààt* '3' > *pí-tʃín-dìt* '6', Elip *bɔ́-dáɖ̣* '3' > *bɔ́-thín-dàɖ̣* '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.?	tɔ́ɔ́bá		càmb-, kaaga
*Beboid					so
*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		toɣo		
GF: Mbam-Nkam	Ngemba		toʔo		
GF: Mbam-Nkam	Nkambe		ntunfu		
GF: Mbam-Nkam	Nun		ntúwó/tuʔo		
GF: Momo					foɣ
GF: Ring			tufa		

that in Tunen (another Mbam language) that has *tat ‘3’ > lal (bɛ́-lálɔ́), the term for ‘six’ also contains [l]: pɛ́-lɛ́ⁿdálɔ.

2. The combination of ‘three’ and ‘two’: Lyive: hjâl ’2’, tàt ‘3’, kɔ̀lɔ̀-kɔ̀-tàt ‘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 bɛ́-sá ‘3’ >bè-sê-sárˊ‘6’, Tiv ú-tárˊ ‘3’ > á-tér-á-tárˊ (this pattern is marked as ‘3+3’ in the table above).

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

In this case, the form tɔ̌ɔ́bá (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) vùndʒà ɛ́ nɛ́ɛ́ ‘6’ (‘10’ ‘break’ ‘4 (fingers)’), vùndʒà ɛ́ táâːtō ‘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					dùtím
*Mambiloid					5+2	
Fam					5+2	
Tiba (Fà)					5+2	
*Bantu		càmbà-dì/càmbʊ̀-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	sàᵐbá				
Tikar	Tikar	ʃâmɓì				
*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)/càamànò (ABCHLR)/càmbombo (L)	càmbà-dì/càmbʊ̀-à-dì
A40 Bankon	bi-sámá	bi-sámbɔ̀k
A80 Kol	twáb	tábɛl
B20 Mbangwe	-syami	ntsaami
B60 Mbere	-syaami	ntsaami
B70 Teke-Tege	ósámìnì	ónsààmì
B80 Tiene	ísyam	nsam
C40 Sengele	ísama	ísambiálé
C90 Ndengese	isamo	isambé

- 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	tʷɔ́p	tʷɔ́p ɓə̀l (6+?)
C10 Yaka	βúè	βúè nà -mɔ̀tí (6+1)
D30 Budu	mèɗìà	mèɗìàníkà (lit: níkà 'to come')
M20 Malila	ɔ́mʊtʰaːⁿda	ɔ́mʊtʰaːⁿda na jě:kʰa (6+1)
B10 Myene	òɾówá	òɾwáɣénô (6+1)

Table 4.9: '6' and '7' from '5' in Bantu

	'6'	'7'
H10 Koongo	sàmbánù	sàmbú-wàlì (wálì '2')
K20 Nyemba	pàndù	pàndù vàlì (-vali '2')
K60 Mbala	sambanu	nsambwadi (mbadi '2')
L30 Luba-Katanga	isamba	isambaibindi (ibindi '2')
R10 Khumbi	epándú	epándúvalí (valí '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:mɔ́	
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	

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?				fumḅɔ?
*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	bùʔɛ̀				
Tikar	Tikar		5+4?			
*Tivoid			5+4	8+1		
*Esimbi			5+4			
Wide Grassfields	Befang		5+4			
GF: Mbam-Nkam	Bamileke	fuʔu				
GF: Mbam-Nkam	Ngemba	buʔu /puʔu				
GF: Mbam-Nkam	Nkambe	bùʔû? búum?			10-1?	
GF: Mbam-Nkam	Nun	puʔu?				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-pɔ́:t* in Ipulo (Tivoid). This form is probably related to Tiv *púè/ púwè* and Lyive e*pùè* 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): *mɔkɔ́* 'ten' but *e-kómi í-ɓalé* '20' (*í-ɓalé* 'two'). The root *kam* will be discussed below in connection to the terms for 'hundred'.

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[5]John 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''.

Table 4.12: Bantoid stems for '10'

		'10'	'10'	'10'	'10'	'10'
Northern						
Dakoid	Chamba-Daka		kúūm-kə́rə́rə́			
*Mambiloid				cóŋ		job-, jer, jula ? fέŋ ?
Fam						kwoy
Tiba (Fà)						à-wə́ə́b-á
Southern						
*Bantu			**kə́mì/ kámá**			**dòngò**
*Beboid		jo-fi/jo-fu				
*Yemne-Kimbi		jo-fu		koŋ?		
*Ekoid		fo				gol, wobo
*Jarawan						lum
*Mamfe		fia, bjo				
*Mbam					p-wat/b-wad	
Mbe	Mbe	fwɔ̂r				
Ndemli	Ndemli		dʒòm			
Tikar	Tikar		wûm			
*Tivoid		puɛ	*ham		pɔt	
*Esimbi						bu ɣu? (< 9?)
Wide Grassfields	Befang		éɣúm			
GF: Mbam-Nkam	Bamileke		ɣam			
GF: Mbam-Nkam	Ngemba		ɣám			
GF: Mbam-Nkam	Nkambe		ʔum			ri/ru
GF: Mbam-Nkam	Nun		ɣom			
GF: Momo			ɣum			
GF: Ring			ɣəm			

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 *báà* 'two', *tà-wûm / nì-wûm* 'ten' > *mì-wúm mí-mbáà* 'twenty', while *tà-ghûm* 'ten' ~ *mì-ghum* 'twenty' in another. At the same time, Limbum *bá:* 'two' ~ *m̩-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 búi* 'twenty' = 'whole person'), 'head' (Suga (Mambiloid)) *ɓʉʉ bíb* 'twenty' < *ɓʉʉ* 'head') or some other lexical bases (e.g. Bantu A50: Bafia *ì-tín / mà-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, *gànà* DEFGJNPS, *tʊa* 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.

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[6]John 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.).

[7]John 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, gànà, tʊa, jànda**	
*Beboid				gbi			
*Yemne-Kimbi				gbi?ŋwe?			
*Ekoid		20*5					
*Jarawan			10*10			luru?	< Hausa
*Mamfe		20*5					
*Mbam							< Engl.
Mbe	Mbe	20 *5					
Ndemli	Ndemli					m̀bókó	
Tikar	Tikar					nɗu?	
*Tivoid		20*5					
*Esimbi			10*10				< Engl
Wide Grassfields	Befang					bɔ̀mí^{n}dáŋgàŋ	
GF: Mbam-Nkam	Bamileke				k(h)u		
GF: Mbam-Nkam	Ngemba				k(h)i/kirə		
GF: Mbam-Nkam	Nkambe				ŋkù?	rdʒèe?	
GF: Mbam-Nkam	Nun				ŋku		
GF: Momo					ki, ko		
GF: Ring					ɣɨ́/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, kɔ́tɔ̀**
*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		ítʃɔ́n ~ étʃɔ́n
GF: Mbam-Nkam	Bamileke		tsa /sa?
GF: Mbam-Nkam	Ngemba	kamə?	tsuʔu?
GF: Mbam-Nkam	Nkambe		cuki?
GF: Mbam-Nkam	Nun		100*10
GF: Momo			< engl
GF: Ring		kam	

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

Table 4.15: Proto-Bantoid numeral system[8]

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 ***-ˈkə'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 *kēnā́* '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 *bùɣù nə-nə* (*bùɣù* '10'). In other words, the base for 'one' in Esimbi is *-ni/-nā* (!), while the first syllable should be interpreted as the noun class prefix, just as in other numerals (cf. the forms *mə̄rākpā́* '2', *mōɲī́* '4', *mātə̄nə̀* '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) *tʃínī*, Mambila *tʃɛ́n* (with palatalization assumed). However,

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[8]My 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, Igboid, 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		-bɔ́ŋè?	
2. Delta-Cross				
Upper Central Lower	sin/cin, ki/ge, kiet/keed (D:*cèèd)	ni (D[9]: *gʷá-nì) nin	wɔ̀n, guŋ?	mɔ́ɔ̀?
Ogoni	zȉȉ	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

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

Cross and Proto-Lower Cross reconstructions, proposed by Dimmendaal (1978) and Connell (1991). From the Appendix D, it is clear that Connell accepts the Dimmentaal hypothesis, according to which in Upper Cross *$g^w\acute{a}$-* 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/bɛrɛ		

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		ŋa	
Lower	tá (D:*ítá)		nàaŋ/nìàŋ (D:*ìnìàŋ)	
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	tɔ́ɔ́n/tāŋ/zen/cen	gbo/buo(k)	
Central		oɣ/wʊ?	
Lower	tîŋ/tin/tion, go?(D:*ítíòn)		
Ogoni	*rɛ̀	ʔòò/vòò/wò/*ʔa	

'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)		ɗùal/ɗuən	4PL	súɣó
Lower	5+1			5+2	5+3	5+4
Ogoni	5+1	nìʔĩ̃?	ʔɔ̀rɔ̀?	5+2	5+3	10-1, 5+4
CROSS	**5+1**	**diʔ**	**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		ɗìoβ		lisiíβ/rusuβ	poɣ, 2PL	kùròn, 5*20, 80+20
Lower	kɔp (D:*lùgòp)	duob/duop, dugu/lugu		e-dip (D: *édíp)		i-kie (D: *íkíɛ̀)
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, diʔ, 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: -nɛ (Arigidi), -jẽ (Ayere), -rin/-hɛ̃/-ɛ̃ (Yoruba), -lɛ̀ (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	kɛ̀ɛ́-ɲɛ̃	ĩ-kã̰	ē-nĭ, ɔ̀-kɔ̰̄	é-ɲɛ́ /ŏ-kâ	*ɲɛ́ , ka(n)	*ɲɛ́ , ka(n)
2	kè-ji	ì-dʒì	è-jì	è-dʒì	*jì	*jì
3	ke-dà	ī-tā	ɛ̀-tā	ɛ̀-ta	*tā	*tā
4	ke-nɛ	ĩ-jẽ	ɛ̀-rḭ̄	ɛ̀-lɛ̀	*lɛ(n)	*lɛ(n)/ ne, je
5	ké-ntɔ̀	ĩ-tṵ̃	à-rṵ́	ɛ̀-lú	*lú(n)	*lú(n)/tu(n)
6	ke-fà	ì-fà	ɛ̀-fà	ɛ̀-fà	*fà	*fà
7	ke-ɸi	ī-dʒʷī	è-jē	è-bʲe	*byē	*byē
8	ke-rò	ī-rō	ɛ̀-jɔ̄	ɛ̀-dʒɔ	*jɔ̄	*jo/ ro
9	ké-ndà	ĩ-dã̰	ɛ̀-sɔ́	ɛ̀-lá	*sá(n)	*sá(n), dà
10	ké-è	ī-gʷá	ɛ̀-wá	ɛ̀-gʷá	*gwá	*gwá
20	u-gbɔrɔ̀	ē-gbɔ̄lɔ̄	ō-gṵ́	ó-gʷṵ́	*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 *lɛ(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	ɛ́lɔ̃	ərɔ̃	ɛ́la
toad	àkèlé	àkèré	àkèlé
four	èlĩ	èrĩ	èlè̀
five	èlṵ́	àrṵ́	èlu
ant	èlìlà	èèrà	èlìlà
ashes	élílú	eérú	élúlú
feel	gbɔ́ òlílù̀	gbɔ́ òórù̀	é-gbúlù
star	ìlàwɔ̀	ìràwɔ̀	ìlàwò
small	kékélé	kékeré	kékélé
buy	là	rà	é-là
see	lí	rí	é-lí
plow	lo	roko	é-lo
body	ɔ́la	ara	ɔ́la
word	ɔ̀là	ɔ̀rɔ̀	ɔ̀là
sun	ólìlù̀	òòrù̀	ólù
sleep	oólũ	oorũ	ólu
neck	ɔ́lù̀	ɔrù̀	ɔ́lɔ̀
thirst	òlù̃gbə	òrù̃gbə	òlùgbə
ring	ɔ́lù̀-ìka	òrùka	èlìka
run	sVlé	sáré	é-rúlé
fat	ùla	ɔ̀rá	ùlà
seed	úlú	irú	úlú

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

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

Meaning	*Yoruba-Igala	Yoruba	Igala
leg	ɛ́ʃɛ̀	əsɛ̀	ɛ́rɛ̀
fruit	èʃo	èso	ɛ̀ro
block/ close	ʃé	sé	é-ré
launch	ʃɔ	sɔ	é-rɔ
nine	ɛ̀sɔ́	ɛ̀sɔ́	ɛ̀lá
sleep	sṵ̀	sṵ̀	*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	ɛ̀byɛ̀	ɛ̀jɛ̀	ɛ̀byɛ̀
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	ɛ̀gwá	ɛ̀wá	ɛ̀gwá
beans	ɛ̀gwà	ɛ̀wà	ɛ̀gwà
dig	gwà	wà	é-gwà
swim	gwà	wɛ̀	é-gwà
sweat	(ò)úgwὺ̰	òógὺ̰	úgwὺ
bone	égwṵ́gwṵ́	egũ̀gũ	ógwúgwú
ascend	gwὺ̰	gὺ̰	é-tə-gwὺ
war	ógwũ	ogũ	ógwu
twenty	ōgwṵ́	ōgṵ́	ó-gwú
vulture	úgwṵ́nú	igṵ́nugṵ́	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).

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	βʊ	kpa, wo/gwo	kpa	vʊ		**kpa, wo/gwo/vu**
2	βə/βa	va	va	vɛ	i-və	**va/və**
3	saa	sa	sa	sa	ɩɪ-chaGɪ	**sa**
4	ni	ne	ni	ni	niə	**ni**
5	súwón /syònì	sen /ʃen	sie	soi/siorin/jorin	ɪ̃-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	ɣwrɛ́/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/ɟè/ʒè	u-gheGi ~ u-ɟh	**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	nɛ̀, 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

[a]Please 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, ŋìnɛ́ (Ekpeye)?	7	saà
2	bɔ́	8	5+3
3	tɔ́	9	totu /tolu
4	nɔ́	10	ɗì/ri/li
5	sé	20	gwɔ̃́ /ɣʰɔ̃, kpɔrɔ
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' – Īsóāma *oo-te*, Íṣiēle *mfuu*, Ábādṣa *na*, Aro *mbɔ*, Mbọ́fīa *mpoŋ* (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.

4.1.2.6 Jukunoid

Table 4.34: Jukunoid numerals

	1. Bete (Juk.)	2. Central	3. Yukuben-Kuteb	Proto-Jukunoid
1	ʃíʃe	(d)zun/(d)zuŋ	nzo, ji?, yʊn?, ŋgēmé?, tɔ́ŋ?	*d)zun? ʃíʃe? tɔ́ŋ?
2	há	pye(na)	pa(n)/fa(n)	*pa(n) /fa(n)
3	tà	(t)sara	ta	*ta
4	ɲè	nye(na)	ɲi, nje/nzì	*nye
5	tsòŋ	(t)swa(na)	t(s)oŋ	*tsoŋ
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			diŋkɛ	ɪnde
Jera	Bunu		ù-ŋ̀ŋínì	díŋkà	
Jera	Buji			díŋkà	
Amo	Amo			*lu-ruŋ	
Western					
Basa	Basa	hĩn			
Duka	C'lela	tʃĩ́			
Duka	Hun-Saare(Duka)	cɔɔn			
Duka	Ut-Ma'in	tʃɘ̄:n			
Duka	Rijau	tʃoon			
Duka	Darangi	tʃooɾ			
Duka	Bunu	dɨɨ			
Duka	Iri	dən			
Duka	Dukku	dɛn			
Duka	Giro	dɨɨn			
Kambari	Tsishingini (Kambari)		íyyán		
Kambari	Agaushi (Tsikimba)				'-tè
Kambari	Kambali (Koelle)		íína		
Kamuku	Western Acipa (Cicipu)				tô:
Kamuku	Kamuku (dial.)		ĩ́já		
Kamuku	Hungworo (Hungwere)		ĩ́:jɜ̃́		
Kamuku	Pongu (Pangu)	hĩ́:			
Kamuku	Kamuku (Koelle)	híía			
Kamuku	Fungwa	hĩ̆			
Reshe	Reshe (Tsureshe)	tsúnnɛ̀			

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. *hĩn, tʃɘ̄:n* and *dɛn* or *dínkā* and **lu-ruŋ*) is not immedi-

ately apparent. On the other hand, some of the forms placed in separate columns might be etymologically related (e.g. *dɨɨn* Giro and *dínkā* 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			rɛ̀:pú	
Jera	Janji		tɪ-rɛ (~wa-~a-)	-rɛ̀ɛ̀pó	
Jera	Bunu				
Jera	Buji			rɛ̀pó	
Amo	Amo				im-ba
Western					
Basa	Basa	jɛ̀bí (yééwì)			
Duka	C'lela		ʔílɨ̀		
Duka	Hun-Saare(Duka)		yoor		
Duka	Ut-Ma'in		jə̄:r		
Duka	Rijau		jooɾ		
Duka	Darangi		jooɾ		
Duka	Bunu		jɔɔɾ		
Duka	Iri		jooɾ		
Duka	Dukku		juuɾ		
Duka	Giro		jooɾ		
Kambari	Tsishingini (Kambari)		ì-ɾɛ̀		
Kambari	Agaushi (Tsikimba)		-rè		
Kambari	Kambali (Koelle)		íí-lɛ		
Kamuku	Western Acipa (Cicipu)	jápù			
Kamuku	Kamuku (dial.)	ⁿdə́ɥə̀			
Kamuku	Hungworo (Hungwere)		ʔʲə̃̂-dʒə̀		
Kamuku	Pongu (Pangu)		ɾê:nù		
Kamuku	Kamuku (Koelle)				wúúlee
Kamuku	Fungwa	jó:gó			
Reshe	Reshe (Tsureshe)				rìsə̄

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	tàràrū	nà:nzī		ʃù:bì
Jera	Janji		tɪ-naze		ʧibi
Jera	Bunu		nà:zé		ʃí:bì
Jera	Buji		nàzé		ʃíbí
Amo	Amo		nnas	n-ntaun	
Western					
Basa	Basa	tàtɔ	néʃì (nááʃii)	táná	
Duka	C'lela	tɨ:ʧù	ná:sé	tǎ	
Duka	Hun-Saare(Duka)	tett	náss	táán	
Duka	Ut-Ma'in	tɘ̄t	ná:s	tán	
Duka	Rijau	tɪtʰ	nəss	taan	
Duka	Darangi	tɪtʰ	nas	taan	
Duka	Bunu	tɪtʰ	nas	tan	
Duka	Iri	tɪɪt	nass	taan	
Duka	Dukku	tɨɨt	nas	taan	
Duka	Giro	tɨtʰ	nass	taan	
Kambari	Tsishingini (Kambari)	tàʔàtsú	nə̀˫ʃín	tá:˫wún	
Kambari	Agaushi (Tsikimba)		'-nə́ʃì	'-tǎ̃	
Kambari	Kambali (Koelle)	tááatsu	nóóʃin	tááu̱	
Kamuku	Western Acipa (Cicipu)	tâ:tù	nósì	tə̃u	
Kamuku	Kamuku (dial.)	tátɔ̀	nə́ʃì	táɑ̀	
Kamuku	Hungworo (Hungwere)	tâ̰tɔ̀	ùnə́sɪ̃̀	sàtá	
Kamuku	Pongu (Pangu)	tâ:tù	nǎ̃:ʃĩ̀	tá	
Kamuku	Kamuku (Koelle)	tááto	náʃii	taa ~ tááa	
Kamuku	Fungwa		nó:ʃì	tá	
Reshe	Reshe (Tsureshe)	tàtswā	nāʃě̃	tɔ̃̌	

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 ʧibi (ʧi-bi?) '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		súnā:rí
2	Jera	Janji		tɪ-rɛ		tase		sunare
3	Jera	Bunu				tá:sè ~tà:sé		súnà:ré
4	Jera	Buji				tásé		súnàrí
5	Amo	Amo			n-ntaun	ku-toʧin	kuzor	
	Western							
6	Basa	Basa	hĩn		táná	ʧìhin	ʧéndʒe	
7	Duka	C'lela	ʧĩ́	*ʔí-lɨ̀	tã́	ʧíhĩ̀	tã̀ʔílɨ̀	
8	Duka	Hun-Saare	coͻn	* yoo-r	táán	cînd	tá'yoor	
9	Duka	Ut-Ma'in	ʧɘ̄:n	*jɘ̄:-r	tán	ʃiʃin	tà̀ʔèr	
10	Duka	Rijau	ʧoon	*joo-ɾ	taan	ʧiin	ta'jooɾ	
11	Duka	Darangi	ʧooɾ	*joo-ɾ	taan	ʧin	taŋ'joɾ	
12	Duka	Bunu	dɨɨ	*jɔɔ-ɾ	tan	ʧiin	ta'juu	
13	Duka	Iri	dən	*joo-ɾ	taan	ʧinnd	ta'jooɾ	
14	Duka	Dukku	dɛn	*juu-ɾ	taan	ʧɪŋ	ta'jaaɾ	
15	Duka	Giro	dɨɨn	*joo-ɾ	taan	ʧind	ta'jooɾ	
16	Kambari	Tsishingini	ì-rɛ̀	tá:wún	tə̀:lí	ʧìndɛ̀rɛ́		
17	Kambari	Agaushi	-tè	-rè	-tã́ũ	-tə̀:lì	ʧìndèrè	
18	Kambari	Kambali	íí-lɛ, *rɛ	tááu̯	tɔ́ɔli	tsíndɛɛrɛ		
19	Kamuku	West.Acipa	*jà	tã̀u̯	tóríhĩ̀	tíndàjà		
20	Kamuku	Cinda	*ɰə̀	táù̯	tə́nə́hì	tə́ndə́ɰə̀		
21	Kamuku	Hungworo	ʔʲə̃́-dʒə̀, *rʲə̀	sàtá	ū-t̪únìhĩ̀	ū-tə́ndə̀rʲə̀		
22	Kamuku	Pongu	hĩ́:	rê:nù, *rə̀	tá	ʧíníhì	tə̃́ndə́rə̀	
23	Kamuku	Kamuku	híía	*lee	taa ~ tááa	túnui	tandálee	
25	Kamuku	Fungwa	hĩ́	*lò	tá	ʧĩ́hĩ̀	tíndàlò	
25	Reshe	Reshe	tsúnnɛ̀		tɔ̃́	tēnzɔ̄	tànsã̄	

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 > taŋ'joɾ* '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*), *tʃéndʒe < *tan-re* '7'. In this case, **tan-re > tan-dʒe > tendʒe* (regressive assimilation) > *tʃendʒe* (palatalization before the front vowel). Hypothetical as it may be, this example is phonetically plausible.

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	jíːɾù		
Duka	Hun-Saare(Duka)	yéér		
Duka	Ut-Ma'in	éːr		
Duka	Rijau	eeɾ		
Duka	Darangi	eɾ		
Duka	Bunu	ɛɛɾ		
Duka	Iri	ɪɪɾ		
Duka	Dukku	ɛɛɾ		
Duka	Giro	ɛɛɾ		
Kambari	Tsishingini (Kambari)			kùnlə̀
Kambari	Agaushi (Tsikimba)			kúnlə̀i
Kambari	Kambali (Koelle)			kúnlo
Kamuku	Western Acipa (Cicipu)			kùríːl:ò
Kamuku	Kamuku (dial.)		tə́ntátɔ̀ (5+3)	
Kamuku	Hungworo (Hungwere)		ū-tátàt̰ɛ̄ (5+3)	
Kamuku	Pongu (Pangu)		tə̃́ndáːtù (5+3)	
Kamuku	Kamuku (Koelle)		túndaat (5+3)	
Kamuku	Fungwa		tíndátù (5+3)	
Reshe	Reshe (Tsureshe)		dálànzɔ̀	

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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 **ʃín/ ʃík* 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 subgroups. These forms and patterns are represented in the table below (Table 4.40).

Table 4.40: Kainji summarized data for BC reconstruction

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

Table 4.41: Kainji stems and patterns for '9' and '10'

		'9'	'9'	'9'	'10'	'10'
Eastern						
Jera	Iguta		tɔ̀rbɔ̀ (10-1)			bū-tú:rú
Jera	Janji		toroəi (10-1)			turo, kɪrəu
Jera	Bunu		tò:rêj (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	tʃíndʒìʃì (5+4)			uḿpwá	
Duka	C'lela			dó:rè	ʔó:pá	
Duka	Hun-Saare(Duka)			jírò̠	o̠pp	
Duka	Ut-Ma'in			dʒʷə̄:r	ɔ̄p	
Duka	Rijau			dʒirɔ	ɔpʰ	
Duka	Darangi			dʒirɔ	'ɔpʰ	
Duka	Bunu			dʒirɔ	ɔpʰ	
Duka	Iri			dʒɪrɔ	ɔpʰ	
Duka	Dukku			dʒɪrɔ	ɔpʰ	
Duka	Giro			dʒɛdɔ	ɔp	
Kambari	Tsishingini (Kambari)	kùttʃí			kùppá	
Kambari	Agaushi (Tsikimba)	kùtʃì			kùpà	
Kambari	Kambali (Koelle)	kúciici			hókpa̠	
Kamuku	Western Acipa (Cicipu)	kùtít:í (5+4)			ùkúp:à	
Kamuku	Kamuku (dial.)	tə́ndə́ʃì (5+4)			òpá	
Kamuku	Hungworo (Hungwere)	ūtə́nə̀sĩ (5+4)			īkópʲè	
Kamuku	Pongu (Pangu)	tə̃ndúʃì (5+4)			úpwá	
Kamuku	Kamuku (Koelle)	tándaaʃii (5+4)			ópaa	
Kamuku	Fungwa	tíndíʃì (5+4)			úpá	
Reshe	Reshe (Tsureshe)	tānāʃě̃ (5+4)			úpwà	

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	wéʃi (K:wóóʃi)			dupu íjèbi (50*2)
Duka	C'lela	dᵊkʷèzè			kʷɛtʃtǎ /vzíŋgù
Duka	Hun-Saare(Duka)	ɛr-kwo̲o̲z			kwo̲o̲z-ɛt táán (20 * 4), o-zùngu
Duka	Ut-Ma'in		ɔ̄rʃīk		ɔ̄ʔʃīkɔ̄ʔtán (20 * 5)
Duka	Rijau				
Duka	Darangi				
Duka	Bunu				
Duka	Iri				
Duka	Dukku				
Duka	Giro				
Kambari	Tsishingini (Kambari)		ú:ʃín		?
Kambari	Agaushi (Tsikimba)			kà-màngà	
Kambari	Kambali (Koelle)		úʃi̲		
Kamuku	Western Acipa (Cicipu)			10*2	10*10, mándá
Kamuku	Kamuku (dial.)			10*2	ɗə̀rí (< Hausa) or dè òpá
Kamuku	Hungworo (Hungwere)			10*2	íhɔ̄ŋgʷà, 10*10
Kamuku	Pongu (Pangu)	wə́ʃí			bìjǐnɔ̃
Kamuku	Kamuku (Koelle)			10*2	
Kamuku	Fungwa		kùʤìjò		ìkwà:ku, < Hausa
Reshe	Reshe (Tsureshe)			álə̀sə̀	ránɔ̄kū

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-īnìŋ/(d)-īnìŋ		
3.	Biromic	Eten	dáy			
4.	Cenral	Izere		z-iníŋ		
4.	Cenral	Irigwe				ʾzrú
4.	Cenral	Kaje (dial.)				yiruŋ/yirəŋ
4.	Cenral	Tyap			a-nyuŋ	
5.	Hyamic	Hyam		ʒ-ìnì		
6.	Ninzic	Mada		*nɛn		gyə̄r
6.	Ninzic	Ninzo		*nì		jír
7.	Northern	Ikulu				íńjí
8.	Southeastern	Fyam		kʲ-éŋ, *in		
9.	Southern	Lijili	lɔ̄			
10.	Taroid	Tarok (dial.)			ù-zìŋ, *ɗ́ɨŋ?	
11.	Western	Yeskwa (dial.)				è-nyí
11.	Western	Rukuba (dial.)		gy-ín		
11.	Western	Eggon (dial.)				á-kiə́n
11.	Western	Eggon (dial.)	ò-rí			
11.	Western	Hasha		nʸ-ìnāŋ		
?	Sambe		ɲ-íɲínā			

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*.

Table 4.44: Platoid stems for '2', '3' and '4'

			'2'	'2'	'3'	'4'
1.	Alumu-Tesu	Tesu		à-hùrwi	à-taatɔ	a-anɛ
2.	Ayu	Ayu	ahwa/afah		a-taar	a-naŋaʃ
3.	Biromic	Birom		-bā	-tāt	-nā:s
3.	Biromic	Eten	fà		tàt/tʃàt	nà:s
4.	Cenral	Izere	fà		taar	nààs
4.	Cenral	Irigwe		ˀʍʲè	ˀtsʲὲ	ˀni
4.	Cenral	Kaje (dial.)	'-hwa		'-tat	-nai
4.	Cenral	Tyap	a-feaŋ		a-tat	a-naai
5.	Hyamic	Hyam	fẹri, *fo		taat	naaŋ
6.	Ninzic	Mada		y-wā, *gba	tar	nlyɛ̄
6.	Ninzic	Ninzo	há	*gba	tár	nə̄(s)
7.	Northern	Ikulu	íń-pààlá		íń-táá	íń-nāā
8.	Southeastern	Fyam	por		táár	naas
9.	Southern	Lijili		à-bẹ̄	à-tʃɛ́	à-nàrọ́
10.	Taroid	Tarok (dial.)	ù-pàrɨ́m		ù-ʃádɨ́ŋ	ù-nèdɨ́ŋ
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-ɲí
11.	Western	Eggon (dial.)	ɔ̀-hà		ɔ̀-cá	ò-ɲì
11.	Western	Hasha	à-pʷò		ā-tāt	à-nìŋ
?	Sambe	bèkà-fà	kà-tú	kà-tār/béká-tār	kà-nɛ̀/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-túŋgú		térékífí (<3?)	
2.	Ayu	Ayu	a-tugen		a-tɛɛr (3PL)	
3.	Biromic	Birom	-tūŋūn			-tĭːmìn
3.	Biromic	Eten		wí	tàːrà (<3)	
4.	Cenral	Izere	tùwùn		ìgà-ràːr (3PL)	
4.	Cenral	Irigwe	ˀtɕʷòô		rí-tsʲɛ́ (3PL)	
4.	Cenral	Kaje (dial.)		-pfwɔn	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	tʷí		tā-nì (5+1)	
7.	Northern	Ikulu	íń-cūū		íń-cúnú (5+1?)	
8.	Southeastern	Fyam	tóón		táár-in (5+1)	
9.	Southern	Lijili	à-sǫ́		mìn-zí (3PL?)	
10.	Taroid	Tarok (dial.)	ù-túkún		ù-kpɔ́-dĩ̃ŋ (X+1?)	
11.	Western	Yeskwa (dial.)	èn-tyúò		èn-cí (5+1)	
11.	Western	Rukuba (dial.)	-túŋ		tàiŋ	
11.	Western	Eggon (dial.)	ò-tnó	*fúúɲ	ù-fĩ́n (5+1?)	
11.	Western	Eggon (dial.)	ɔ̀-tnɔ̂	*fɔ̀ɲ	ɔ̀-fĩ̀(5+1?)	
11.	Western	Hasha	ā-tūkūn			à-kʷìp
?	Sambe	kà-tûn		kù-hɔ̀/dɔ̀gɔ̀-hɔ̀	

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).

Table 4.46: Platoid stems and patterns for '7' and '8'

			'7'	'8'	'8'
1.	Alumu-Tesu	Tesu	térékífí naɲí (6+X)		tsyátsyá
2.	Ayu	Ayu	a-taraŋaʃ (3+4)	a-na-ba-bog (4+X)	
3.	Biromic	Birom	-tā:mà (5+2)		-rwī:t
3.	Biromic	Eten	nìtà (4+3)	nàràs (4+X)	
4.	Cenral	Izere	kà-nàsàtáár (4+3)		ì-kárá
4.	Cenral	Irigwe	natsʲɛ́ (4+3)		klaǹvà
4.	Cenral	Kaje (dial.)	ti:ruŋ (cf. yiruŋ '1')	nai-mʊwak (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	tāŋgbā (5+2)	tāndàr (5+3)	
7.	Northern	Ikulu	tɔ̀ɔ̀pāā (5+2)	níǹnāā (4 redupl.)	
8.	Southeastern	Fyam	támor (5+2)		tʃínít
9.	Southern	Lijili	mú-tá		rúnǫ́
10.	Taroid	Tarok (dial.)	ù-fàŋ-ʃát (X+3)	ù-nɛ̀nnɛ̀ (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.)	ɔ̀-fɔ́hà (5+2)	ɔ̀-fɔ́tɛ́ (5+3)	
11.	Western	Hasha	à-kʷìp nʸīnāŋ (cf. 6, 4)	nànìŋ (4 redupl.)	
?	Sambe		kɔ̄rɔ̄nkɛ́rā /kúrkə́nrā	ī-tɔ́r	

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	tsyátsyá naɲí (8+X)				gòròmàvɔ
2.	Ayu	Ayu	a-tu-lu-bog (5+4?)			i-ʃog/ a-ja-la-bog	
3.	Biromic	Birom	syā:-tāt (12-3)				12-2
3.	Biromic	Eten	dù:dʒàŋ (10-X)				dù:bɔ̀
4.	Cenral	Izere	kàtúbɔ́k (5+X?)			kù-sɔ́k	
4.	Cenral	Irigwe		kruvájá		ʃʷá	
4.	Cenral	Kaje (dial.)	kumʊwi:ruŋ (10-1?)		*ku?	swak	
4.	Cenral	Tyap	akubunyuŋ (10-1?)		*kub?	swak	
5.	Hyamic	Hyam	mbwan kɔb (10-1)		kɔ́b		
6.	Ninzic	Mada	tīyār (X-1?)				gùr
6.	Ninzic	Ninzo	tīr(s) (3-X?)				wūr
7.	Northern	Ikulu		tɔ̀llāā	nù-kɔ̄p		
8.	Southeastern	Fyam	téres (3-X?)				dukút
9.	Southern	Lijili	zà-tʃɛ́ (X-3?)				zà-bɛ̀
10.	Taroid	Tarok (dial.)	ùfàŋzíŋtíŋ (X+4)			ù-gbɔ́pei	
11.	Western	Yeskwa (dial.)		tyúôrá	ó-kóp		
11.	Western	Rukuba (dial.)	ta:ras (3-X?)				u-wùruk
11.	Western	Eggon (dial.)	àfúúɲí (5+4)		ó-kpo		
11.	Western	Eggon (dial.)	ɔ̀fɔ̂ɲí (5+4)		ɔ̀-kbɔ́		
11.	Western	Hasha	nànìŋ màrēŋ (4+X)				ā-wūk
?	Sambe		tōrō/kà-tɔ́rɔ́			jɔ̀-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' (Birom) and '9=8+X (Tesu)) are of interest for the linguistic typology.

According to Bouquiaux (1962) the term for 'twelve' (*kūrū*) is attested in Birom. In this language '21' (*kūrū ná syā:-tāt*) = '12+9' (*syā:-tāt*), while '80' (*bākūrū bātī: mìn ná rwī:t*) = '12*6' (*-tī̄: mìn*) + '8'(*-rwī:t*). 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-cʷɔ́* '12' is discernible in Eggon (beside the composite term '12=10+2'). This root is also found in Rukuba (Che) in *u-sɔ́k* '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 isɔk 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.

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[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	?

4.1.2.9 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	ɔ̀ɔ̀-nyɪ̄	gbᵐaː-ɾí,*wĩ	gú-ní	ni-ní	**ni/ nyi, wi? ri?**
2	ɛ̀ɛ̀-vā	ŋʷã̂-ba	gú-bà	gú-bà	**ba**
3	ɛ̀ɛ̀-tá	ŋʷã̂-tʃa	gú-tá	gú-tá	**ta**
4	ɛ̀ɛ̀-nà	ŋʷã̂-ɲi	gú-ni	gú-ni	**na/ ni**
5	ɛ̀ɛ̀-hí	ŋʷã̂-tⁿù	gú-tũ	gú-tsũ	**tun/ tnu/tsun, hi?**
6	hǐ-nɔ̌-nyɪ̄ (5+1)	tⁿú-wĩ (5+1)	gú-tua-ɲĩ̀ (5+1)	gú-tswà-ɲĩ (5+1)	**5+1**
7	hǐ-ḿ-bā (5+2)	tⁿâ-ba (5+2)	gú-tua-bà (5+2)	gú-twà-bà (5+2)	**5+2**
8	hǐ-ń-tá (5+3)	tⁿã̂-tʃa (5+3)	gú-tò-tá (5+3)	gú-to-tá (5+3)	**5+3**
9	hǐ-ǹ-nà (5+4)	tⁿâ-ɲi (5+4)	gú-tua-ni (5+4)	gú-twã̂-ni (5+4)	**5+4**
10	ɛ̀ɛ̀-wɔ́	ŋʷã̂-wò	gú-wo	gú-wo	**wo**
20	òò-hū,*tʃɛ́	wo-ʃì	e-ʃĩ	e-ʃi	**ʃi, hu?**
100	ɛ̄-tʃɛ́-hí (20x5)	40*2+20	ʃit-ũ (20*5)	ʃit-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	ʃí	7	h-ránèʃì ('6+1')
2	wà	8	nà:ná^j (4 redupl.)
3	tā:s /h-rāhr	9	h-ráòʃì (X-1)
4	nā^j /nā/náhí̧	10	ò-pú/fú
5	tò:n/h-rɔ̀:n/sɔ̀n/cɔ̀n̥v	20	ù-gbɔ́rɔ́ (< 'sack'), * à-gbá
6	h-ràdá/sàdá/sàrá	100	à-gbá à-h-rùn̄(20*5)

4.1.3.2 Akpes

Table 4.51: Akpes numerals

1	í-gbōn, ē-kìnì	7	ī-tʃēnētʃ(ì)
2	ī-dīan(ì)	8	ā-nāānīŋ(ì) (4 redupl.)
3	ī-sās(ì)	9	ɔ̀-kpɔ̄lɔ̀ʃ(ì)
4	ī-nīŋ(ì)	10	ī-yōf(ì), *t-ēfī
5	ī-ʃōn(ì)	20	ɔ̄-gbɔ̄(lɔ̄)
6	ī-tʃānās(ì)	100	ī-gbɔ́ ʃōnì (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.

4.1.3.3 Oko

Table 4.52: Oko numerals

1	ɔ̀-ɔ́rɛ, ɔ̀-jɛ́rɛ	7	ú-fɔ́mbɔ̀rɛ̀ (5+2)
2	ɛ̀-bɔ̀rɛ̀	8	ɔ̀nɔ́kɔ́nɔkɔ́nɔ(4 redupl.?)
3	ɛ̀-ta	9	ù-bɔ́ɔ̀rɛ̀(10-1)
4	ɛ̀-na	10	ɛ̀-fɔ
5	ù-pi	20	ɔ́-gbɔlɔ
6	ɔ̀-pɔ́nɔ̀ɔ́rɛ (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-ɲì	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 Ijo languages) suggesting a derivation of BC froms from a triconsonantal root **- *'kə'gəni̱* '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-nì* 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'gəni̱* '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, becaused it includes the root *-ni/-nə̄*. 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 *tʃɛ́n*. 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

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 ɔ̀-kɔ̃		Basa kə
		Pyem kēŋ
		Bete-Bendi ì-kə̄n, Bokyi kìn, PLC *-kèèn
		Jukun kā
Eloyi kònzé		Tiba a-kina

	Williamson 1992: Proto-Atlantic-Congo **-ʼkə̰ʼgə̰nḭ'1'	
Gbagyi gmànyi		
Yoruba ɔ̀-kɔ̃	Ikeram ɛ-ki	PP2-J -gini, PP4 -ɣan
		PUC gá-ni? , PLC -kèèn
Eloyi kònzé		Tiba a-kina, Esimbi keni, Bendi: Bekwarra o-kin

	*kin-/cin- forms for '1' (step-by-step data)	
	ē-kìnì, *si	tsin, hin
	ʃí	(y)in, kyeŋ, gyin
		kin/cin
		ʃíʃe?
		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 *nā̰ / ni* is distinguishable in Esimbi, it seems logical to treat it together with another set of terms for 'one' (*#-diiŋ*). 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: ***#-diiŋ***

Gwari ǹ-ɲī	Oko ɔ́ɔ́rɛ	Gurmana nɪ
PY *i-nɛ̃́		PP2K *-niiŋ
		OG ɛ̀-nɛ̃, CD #-niin
Ikwere ń-ním		PJ *-yiŋ
PId *-nyí		Lamja nūnɛ́, Ekoid #-jid, -jiŋ

*****ni* forms for '1' (step-by-step data)

*ni/nyi		Bunu ù-ŋ̀ŋínì
*ɲɛ́		nìŋ, (y)in, di(n)
		*ni(n)
ŋìnɛ́?		*-jin?
nze/je/nye/ye		Esimbi -nə/-ni

Let us review the distribution of this root within the Benue-Congo 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: *ŋì-nɛ́ (ŋ-ìnɛ́?).* The root is possibly found in some of the Idomoid languages as well: Etulo *o-ɲiī*, 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 *kɔ̀p-ìrì-zɪ̄ŋ* '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 *tʃíŋ* – cf. *ɔ̀-kbɔ́ à-tʃíŋ* '11', *ɔ̀-kβɔ́há là-tʃíŋ* '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 *ʒìnì* '1' but *twaa-ni* '6' ('5+1', *twoo* '5'), Mada *tānn-ɛ̀n* '6' ('5+1', *tun* '5'), Ninzo *tānì* '6' ('5+1', *tʷí* '5'), Rukuba *tàiŋ* '6' ('5+1', *-túŋ* '5'). These Platoid forms bring to mind the case of the Jukonoid term for 'six'. Kay Williamson quotes a Proto-Jukunoid root *-yiŋ*. 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 ≠ 1), cf. e.g. Jibu *sùn-jin* '6' (*swana* '5', *zyun* '1'), *cìn-jen/ ʃì-ʒen* (*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-kìnì, í-gbōn*) find close parallels in the Cross languages (*kin/cin, *ni(n), *gboŋ/gwan*). The Icheve form *à-mɔ́ɔ̀* 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 (*gboŋ*) 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		bɔ́	
West	Nupoid		ba	
West	Akpes			ī-dīan(ì)
West	Oko		ɛ̀-bɔ̀rɛ̀	
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.

These hypotheses will be discussed below, after the evidence from the other BC branches has been reviewed.

4.1.4.3 'Three', 'four', 'five'

Table 4.57: BC stems for '3', '4' and '5'

		'3'	'4'	'5'	'5'
East	Bantu	tat	nài /(nàí)	táànò	
East	Bantoid (−Bantu)	tat	nai	tan	
East	Cross	ta(t)/ca(t)	na(n)	tan	*gbo(k)
East	Jukunoid	ta	nye	tsoŋ	
East	Kainji	tat	nas	tan	
East	Platoid	tat	nai/nas	tu(ku)n	
West	Defoid	tā	lɛ(n), ne, je	tu(n) /lú(n)	
West	Edoid	sa	ni	sien/su(w)on	
West	Idomoid	ta/la	nɛ̀, ndo, he	do/lo, ho, ro/rwo	
West	Igboid	tɔ́	nɔ́	sé	
West	Nupoid	ta	na/ni	tun/tnu/ tsun, hi?	hi?
West	Akpes	ī-sās(ì)	ī-nīŋ(ì)	ī-ʃōn(ì), *tan	
West	Oko	ɛ̀-ta	ɛ̀-na		ù-pi
West	Ikaan	tā:s/h-rāhr	nāʲ/nā/náhí̧	tò:n/h-rò:n/ sò̧n/cò̧nv̧	

This is the most stable group of numerical terms within BC. It comprises the roots *tat '3', *nai '4', and *tan/ ton '5' that are very well-known among the specialists in NC studies. Issues pertaining to the phonetic realization of their reflexes will be treated in the next chapter.

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	diʔ		
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				ʃĩi	
West	Nupoid		5+1			
West	Akpes		5+1?			
West	Oko		5+1			
West	Ikaan					h-ɾàdá/ 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.

4.1.4.5 '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-tʃēnētʃ(ì)
West	Oko	ú-fɔ́mbɔ̀rɛ̀ (5+2)			
West	Ikaan			h-ránèʃì ('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(ì) (4 redupl.)			
West	Oko	ɔ̀-nɔ́kɔ́-nɔkɔ́nɔ (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.

4.1.4.7 '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					ɔ̀-kpɔ̄lɔ̀ʃ(ì)
West	Oko		ù-bɔ́ɔ̀rɛ̀ (10-1)			
West	Ikaan		h-ráòʃì (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		kɔ́mì/ 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						dì/ri/ li
West	Nupoid	(hu '20)			wo		
West	Akpes					ī-yōf(ì), *t-ēfī	
West	Oko	ɛ̀-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.

4.1.4.9 'Twenty'

Table 4.63: BC stems and patterns for '20'

East	Bantu	10*2				
East	Bantoid (–Bantu)	10*2				
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			gwṍ /ɣʰṍ, kpɔrɔ		
West	Nupoid		ʃi		hu?	
West	Akpes			ɔ̄-gbɔ̄(lɔ̄)		
West	Oko			ɔ́-gbɔlɔ		
West	Ikaan			ù-gbɔ́rɔ́ (<'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	gànà, tʊa, jànda	nùnù, pɔ̀mbì, kɔ́tɔ̀
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-gbɔ́ ʃōnì (20*5)			
West	Oko			í-pì	
West	Ikaan	à-gbá à-h-rùn̄(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' → *kum* by analogy with *kam* '100'. The term for 'thousand' was certainly nonexistent in BC.

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.

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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.