

THE PUZZLE OF PAN-AFRICAN ROOTS

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ACRONYMS AND CONVENTIONS

#	quasi-reconstruction
C	consonant
IPA	International Phonetic Association
N	nasal
V	vowel

1. INTRODUCTION

African language phyla are generally ‘well-behaved’ in the sense that it is relatively easy to assign a given language to a phylum, based on its core lexicon and morphology. Africa has a relatively small number of isolates (Blench 2017), given that it is the centre of dispersal for modern humans. Until recently, it was deemed to have four phyla, Khoisan being counted as a unit. More recently, Khoisan has been split into three independent phyla. Nilo-Saharan remains the most problematic phylum and not all researchers accept either a) that it is a unit or b) that all purported branches actually fit together (Blench 2026). On the other hand, there has been a persistent thread of argument for uniting Nilo-Saharan and Niger-Congo into a single macrophylum, Niger-Saharan which would join the two families (see Blench 1995 and references up to that date). Westermann (1911) in his first version of the *Sudan Sprachen* put together Nilotic and languages we would regard as Niger-Congo. However, he later seems to have dropped this idea, since he makes no reference to it in his later *Sudansprachen* (Westermann 1927).

In the last few decades there have been various further attempts to bring together Niger-Congo and Nilo-Saharan, including Gregersen (1972), Creissels (1981), Boyd (1999). Hall & Hall (1974) were the first authors to draw attention to the striking similarities of the ATR vowel systems in Niger-Congo and Nilo-Saharan. Unfortunately, all this is rather inconclusive, despite the massive expansion of data over this period. Personally, although my earlier papers argued for a genetic

connection between the two phyla, I now consider the similarities to be the outcome of early borrowing. One reason for that is that the homelands of the two phyla seem to be at opposite sides of Africa, Nilo-Saharan in the Ethio-Sudan borderlands and Niger-Congo in the west of West Africa.

The existence of macrophyla, such as Nostratic or Transeurasian, will always be controversial, in part because it is difficult to disentangle ancient loanwords from true cognates beyond a certain time-depth. So it is with Niger-Saharan; there are certainly common lexical items and strong evidence for typological commonalities, such as ATR vowels. When I wrote my original papers these seemed to me convincing evidence for genetic affiliation. However, I have subsequently come to see that many of the lexical items are also attested in Afroasiatic and more rarely in Khoisan and even the isolates. If so, then some or all of these similarities may be due to ancient loans, although when and where this transmission took place will remain uncertain.

In a first approach to this topic, I focused on crabs, turtles and frogs, at first sight rather unlikely candidates for Pan-Africanisms (Blench 1997). The argument was that, although these are marginal foods at present, this type of aquatic fauna was highly salient at the time when foraging groups were dispersing, and when human beings had yet to learn to fish in open water. This may have something going for it, but subsequent research has revealed some widespread roots which also have Pan-African distributions, but which seem largely arbitrary. Why, for example, should ‘knee’ be so widely attested and not ‘arm’ or ‘leg’?

The purpose of this paper is simply to compile datasets for the most common Pan-African roots and to see what conclusions can be drawn. The data for crabs, turtles and frogs, appropriately updated, is reprised here. §2 consists of the data tables, and the conclusions in §3 ask what emerges from this exercise.

2. DATA TABLES

The data tables have been gradually compiled over many years, as part of a broader exercise to identify common Niger-Congo roots. The attestations are divided by phylum, with isolates cited first. The sources are abbreviated, and the compressed references are keyed in the references at the end. Major proposals for Niger-Congo reconstruction, namely Westermann (1927) [Proto-Western Sudanic] and Mukarovsky (1976-77) [Proto-Western Nigritic] are given although I would not now propose the forms they present. Among other things, they were unaware of the Dogon family of languages, which plausibly provide evidence for the earliest stages of Niger-Congo.

1. come I #6woN-

Ph	Family	Group	Language	Attestation	Comment	Source
AA	Chadic	West	Ywom	bəl	come	JI
AA	Chadic	West	Kulere	bo	come	JI
AA	Chadic	West	Tsagu	bàà	come	JI
AA	Chadic	Central	Tera	ḡa	come	JI
AA	Chadic	East	Mawa	oobon	come	Roberts (p.c.)
NS	ES		proto-Daju	*ḡoN	come	RCS
NS	ES		proto-Nilotic	*ḡun pl. *pḡ	come	D
NS	ES	Nilotic	Nuer	ben	come	RCS

Ph	Family	Group	Language	Attestation	Comment	Source
NS	ES	Nilotic	Padang Dinka	bɔ	come	RCS
NS	ES		Mabaan	bɛɛd	come	RCS
NS	ES		Nara	wɔ	come	Ed91
NS	Fur		Fur	bo-	reach	Ja90
NC			PWS	bía, bá	<i>kommen</i>	W
NC			PWN	pík- (bhik-?)	arrive, come	M
NC	Dogon		Walo	wá	<i>venir</i>	RMB
NC	Dogon		Toro So	vè	<i>venir</i>	C-G
NC	Ijò		Proto-Ijò	*ḡó	come	KW
NC	Mande		Guro	ḡo	<i>venir</i>	ALMCI
NC	Kru		Seme	bɛ	<i>venir</i>	ALKrCI
NC	Atlantic		Fulfulde	ḡad-	come	No89
NC	Atlantic		Temne	-fàt	come near, approach	Wi07
NC	Atlantic	North	Mankanya	bi, ban	<i>arriver</i>	Sg
NC	Atlantic	North	Diembereng	ben	come	Wi07
NC	Atlantic	North	Balanta	-bēn	<i>venir</i>	Sg
NC	Gur		Deg	bà	<i>venir</i>	ALGCI
NC	Gur		Bwamu	bwala	<i>venir</i>	ALGCI
NC	Adamawa		Samba Leeko	bādīn	<i>être proche</i>	Fa04
NC	Adamawa		Gimbe	ḡók	<i>arriver</i>	Di16
NC	Adamawa		Wiyaa	ba-	come	KI90
NC	Ubangian		Mba-ne	ḡó-	<i>venir</i>	Mo88
NC	Kwa	Guan	Gonja	bà	come	Sn89
NC	Kwa		Avikam	bá	<i>arriver</i>	JR
NC	Kwa		Twi	bà	come	Chr33
NC	Kwa		Ga	bà	come	Kr73
NC	VN	Gbe	Ewe	vá		JR95
NC	VN	Yoruboid	Yoruba	èbá	proximity	Ab58
NC	VN	Igboid	Ọ̀nị́ca Igbo	-bía	come	Wi72
NC	VN	Nupoid	Nupe	bé	come	Ba14
NC	VN	Idomoid	Etulo	ba	come	Ar83
NC	EBC	Ukaan	P-Ukaan	*wàg	come	Ab99
NC	EBC	Plateau	Pe	bén	come	RMB
NC	EBC	Plateau	Eloyi	bó	come	Ar83
NC	EBC	Jukunoid	Kuteb	bá	come	Robert Koops
NC	Bantoid	Dakoid	Sama Mum	báá	come	BS10
NC	Bantoid	Tivoid	Tiv	vá	come	Ab40
NC	Bantoid	Ekoid	Ejagham	ḡá	come	John Watters
NC	Bantoid	Beboid	Bebe	bwó	come	SIL wordlists
NC	Bantu		PB	bút	come, go back	BLR3

Commentary: Not attested in Afroasiatic outside Chadic and thus almost certainly a borrowing. Dimmendal (1988:35) notes that the irregular plural *pɔ must be reconstructed to Proto-Nilotic and forms with initial p- appear elsewhere, hinting at a still greater time-depth. The Kru form is

unique and Seme is isolated, so this may be loan, as is the unique citation in Ubangian. The Bantu form makes it only doubtfully cognate. Westermann (1927: 209) noted that this word frequently shows up as a future auxiliary in Niger-Congo languages. Palatalisation is scattered throughout Niger-Congo but nowhere forms a consistent pattern. The *#ba* form is so persistent in Niger-Congo that it seems likely that is where it originated. The appearance in Chadic and only two branches of Nilo-Saharan suggest ancient borrowing. There are also parallels in Indo-European, e.g. French *venir*.

Refs: W. 209; Ar64: 36; M. 435; E. 563;

2. to split, cut, break *#keri*

Ph	Family	Subgroup	Language	Attestation	Comment	Source
KS	Southern		!Xóǝ	t'kx'āla	open meat to flat- ten it	Tr94
KS	Central		Proto-East Khoe	*kade	cut flesh in strips	Vo97
AA	Omoti		proto-Dizoid	k'aat'-	cut	Be03
AA	Agaw		Bilin	kər	break	Ap06
AA	Cushitic	South	Dahalo	k'eer-	chop	To91
AA	Cushitic	South	Iraqw	qeet	be broken	KM03
AA	Cushitic	East	Arbore	k'uur-	cut	Be20
AA	Chadic	Masa	Masa	káná	cut	JI
AA	Chadic	Central	Dghwede	klà	cut	JI
AA	Chadic	West	Warji	kón	cut	JI
AA	Chadic	West	Ngas	can	but	JI
AA	Berber		Kabyle	cerref	<i>couper</i>	Da82
NS	Kuliak		Ik	ka-ukot-	cut	He99
NS	Koman		Uduk	kwal	split	Ot19
NS	Berta		Undu	'kíírà	split hard sub- stance	RCS
NS	ES	Nubian	Dongola	gor	cut grass	RCS
NS	ES		Nyimang	kír	cut	RCS
NS	Fur		Fur	karr-	split	Ja90
NS	Saharan		Beria	kót	<i>couper</i>	JC04
NS	Saharan		Daza	kər	cut	Le50
NS	Songhay		Gao	körtù-	tear, split	Pr77
NC			PWS	ká-	<i>schneiden, ab- brechen</i>	W
NC			PWS	kuà	<i>schnitzen</i>	W
NC			PWN	cet-	cut	M
NC			PWN	kél-	cut	M
NC			PWN	ken-	split	M
NC			PWN	khant-	cut (off)	M
NC			PWN	kwèk-(kwyèk-)	cut	M
NC	Dogon		Ana	keðele	cut	RMB

Ph	Family	Subgroup	Language	Attestation	Comment	Source
NC	Dogon		Toro Tegu	ʃɛ	cut throat	Heath (p.c.)
NC	Ijoid		P-Ijɔ	kāā/kāō	tear	KW
NC	Ijoid		Defaka	kakara	tear	Connell (p.c.)
NC	Ijoid		Defaka	kée	cut	Connell (p.c.)
NC	Mande		Bambara	kári	cut	Ba96
NC	Kordofanian	Talodi	Dagik	kəra	cut, scratch	Va16
NC	Atlantic	North	Wolof	xar	tear, cut	MG91
NC	Atlantic	South	Bullom	keth-	<i>couper</i>	Guillaume Seegerer
NC	Atlantic	South	Kisi	kəl	cut	Ch00
NC	Bijogo		Bijogo	-kəp(i)	<i>abattre</i>	Sg02
NC	Bijogo		Bijogo	-kənk(i)	<i>couper, tailler</i>	Sg02
NC	Kru		Bakwe	ká	fell, cut down	Ye09
NC	Kru		Nyabwa	cei	cut	ALKrCI
NC	Adamawa		Galke	kəŋ	<i>couper</i>	La62
NC	Adamawa		Mumuye	ka	break	Sh83
NC	Adamawa		Mumuye	ko	cut in two	Sh83
NC	Adamawa	Jen	Jen	kə	cut	N117
NC	Ubangian		Ndunga-le	-kələ-	<i>couper</i>	Mo88
NC	Gur		Kulango	kɔ̀rɪ	<i>couper</i>	Mi07
NC	Kwa		Igo	klô	break pot	JR
NC	Kwa		Ga	kɔ́	break off	Kr73
NC	VN		Nupe	ke	be split, be cut	Ba14
NC	EBC		Tarok		break, cut	RMB
NC	EBC	Jukunoid	Hone	káp	break (stick)	Sh80
NC	EBC	Jukunoid	Wapha	kəm	break	Sh80
NC	Bantoid	Furu	Bikyak	kɔ̀	<i>erbrechen</i>	Kiessling (p.c.)
NC	Bantoid	Mambiloid	Mambila	ker3	cut	PM95
NC	Bantoid	Dakoid	Nnakenyare	kék	cut	BS10
NC	Bantoid	Ekoid	Nkim	kəm	cut	Cr69
NC	Bantoid	Ekoid	Mbe	kɔ̀t~ɾ	cut	JP
NC	Bantoid	Tikar	Tikar	kɛti	cut	Ja88
NC	Bantoid	Ring	Oku	kâk	‘to cut loose’	SIL wordlists
NC	Bantoid	Eastern	PEG	*kEk	cut	ELV
NC	Bantu		CB	-kəd	cut	G
NC	Bantu		CB	céc-	cut	G
NC	Bantu		PB	kád	<i>tear, cut</i>	BLR
NC	Bantu	Manenguba	Akɔ̀ɔse	-kwəl	cut	He87

Commentary: This root has almost certainly been loaned very widely in Africa. The occurrence in Chadic is most likely a localised loan, but in Cushitic and Omotic these forms are widespread (see examples under *k'er* ‘split’ and *kaal-ta* ‘axe’ in Lamberti & Sottile 1997:411, 435). This lexeme has been proposed as a ‘world etymology’, and the cognate set would presumably then including English ‘cut’ (see Bender 1997:122 for more Nilo-Saharan examples). Temiar (Aslian, Austroasiatic) has *cer* ‘to cut’. Although the first CV seems to be cognate throughout, the diversity

of C2 may be explained by reduplication and compounding. The common Manenguba forms probably are cognate if $k \rightarrow s$, but the original initial is conserved at least in Akɔɔse as an alternative. The labial-velar is only preserved in Mbe, hence its reconstruction remains doubtful, although the labialisation in Akɔɔse also suggests its presence.

Refs: W. 227+243; Ar64. 43; M. 75+202+203+256+22; G. 280+304+1029+1033+1045; Gr:80; G:97,135,154; B:122, 133; Boyd (1994:106)

3. knee I #kulu

Ph	Family	Sub-group	Language	I	II	Gloss	Source
KS	Southern		!Xóð	g xúu)			Tr94
KS	Central		Kxoe- /Anda	kúdù			Vo97
KS	Central		Shua-Cara	(kú)kúdù			Vo97
KS	Northern		Ju 'hoan	g!xàà			Di4
AA	Omoti	North	Wolaytta	gulba-ta			LS
AA	Cushitic		*PC	*gulb-/*gwilb-			E87
AA	S Cushitic		Asax	ngulu-et			KM03
AA	Cushitic	South	Dahalo	gilli			To91
AA	Cushitic	Agaw	Bilin	gərəb			Ap06
AA	Semitic	Ethiopia	Amharic	gulbāt			Hu89
AA	Chadic		Sukur	kırım			J1
AA	Chadic		Tera	xulukti			J1
NS	Kuliak		Ik	kutuŋ			He99
NS	Shabo		Shabo	hutu/kutti			DA19
NS	Koman		Kwama	dugol			Ot19
NS	Berta		Berta	guʃuŋ			Be89
NS	Kunama		Kunama	tùgà		?C	Be01
NS	ES		Kenzi	kur(ti)			RCS
NS	Kadu		Katcha	kúúgέ	pl. nu-gúúgi		Sch94
NS	Maba		Mesalit	kàdíŋó			Ed91
NS	Fur		Fur		kùrù		Ja90
NS	CS		Mangbetu	nè-káátì pl. è-			DD
NS	Saharan	East	Beria		kurru		JC04
NC			PWN		-kwudi-	knee	M
NC			PWN		-gwùl-	shin; (lower) leg	M
NC	Dogon		Tebul Ure	kúndúgó		knee	RMB
NC	Dogon		Tiranige	kúndzúgó		knee	Heath (p.c.)
NC	Ijoid		Biseni	íkóníée		knee	KW
NC	Mande		Soninke	xuruŋi/o pl. -onu		genou	VV
NC	Katla-Tima		Domurik	kuruŋa		knee	RCS
NC	Kordofanian	Talodi	Dagik	k-əŋgù /n-		knee	Va16
NC	Atlantic	North	Bedik	ε-dəkəla /ma-		knee	Wi07
NC	Atlantic	South	Gola	ké-gòlo		foot, leg	We21

Ph	Family	Sub-group	Language	I	II	Gloss	Source
NC	Bijogo		Caravela	kunu		<i>genou</i>	Guillaume Segerer
NC	Kru		Jrewe		kùrù	<i>genou</i>	Ma83
NC	Kru		Bakwe		koto	<i>genou</i>	Ye09
NC	Adamawa		Leko of Mapeo	dun		leg	Bd94
NC	Ubangian		Yakoma	lì-kũrũ		<i>genou</i>	Mo88
NC	Kwa	Guang	Chumburung	kù-ŋúrí?		knee	Sn89
NC	Kwa	GTML	Igo	ì-lùkù /a-		if metath-JR esis	
NC	VN	Gbe	Ewe		kòlí	<i>genou</i>	Ro95
NC	VN	Edoid	Emai	úgú'òè		knee [òè =SE07 leg]	
NC	VN	Igboïd	Igbo of Udi	íkperè		knee	KW
NC	EBC	Kainji	Vori	dì-rú pl. á-rú		knee	RMB
NC	EBC	Plateau	Hyam	kpurú		knee	RMB
NC	Bantoid	Buru	Buru	enú		knee	Robert Koops
NC	Bantoid	Tivoid	Batu Afi	nún		knee	Robert Koops
NC	Bantoid	Ring	Isu	ínǔ		knee	SIL Wordlists
NC	Bantu		Zones C, H etc.		#-koto, godo	-knee	BLR3
NC	Bantu		Zones E, F etc.		-kónò	forearm, leg	BLR3
NC	Bantu		CB		-gùdu	leg	G

Commentary: A preliminary version of this dataset appears in Blench (1997) and this root appears to have extra-African cognates. Gregersen (1972) treats these as two distinct sets for ‘leg’ and ‘knee’ but they are probably to be put together and the more doubtful cognates discarded. A rather different form, *BU(N)KA is proposed as a ‘world etymology’ in Bengtson & Ruhlen (1994). Dimmendaal (1988:46) reconstructs Proto-Nilotic **kɛlɪ* for leg, a semantic change that also took place in Bantoid. BLR3 says the alternation between dúí/núí ‘*est à étudier*’, but if this reconstruction is correct, the two are simply different erosional results of an original –nd-. Why this word should be so similar in so many parts of the continent and beyond is hard to explain. English ‘knee’ might be added.

Bender (1997:133) pursues linkages that include a purported PNC root **khon* for ‘knee’ and brings in Mende *kon* ‘head’ because the ‘knee as head of the leg’¹. This analysis is not used here. Within Niger-Congo, Biseni is isolated within Ijoid and may thus be a loan from a neighbouring language. East Benue-Congo seems to have a distinctive shift, the loss of the *ku-* prefix and the development of *-ru(ŋ)* as the stem. This is retained in Bantoid as least as late as Ejagham. There are two potential cognates in Bantu, the more widespread #-*kónò* which generally means ‘forearm’ and the less common #-*koto/godo* which is knee directly. These do not resemble Bantoid, and the Bantu forms

¹ A metonymy typical of Amazonia (Aikhenvald 2006)

may be cognate with other branches of Niger-Congo. It is probable that #-*kónò* is just a chance resemblance.

Refs: G.:101,123, G. 884; M. 163+304; B:133; B81:.261, Gr.:82,84,

4. knee II #-duŋ-

Ph	Family	Subgroup	Language	Attestation	Gloss	Source
AA	Chadic	A3	Mupun	fùrùm	knee	Fr92
AA	Chadic	Bole-Tangale	Tangale	purum	knee	Jl
AA	Chadic	Ron	Kulere	‘arôm	knee	Jl
NS	CS	SBB	Bongo	đũ	<i>cuisse</i>	Pierre Nougayrol
NC			PWS	-lu-	<i>Knie</i>	W
NC			PWN	-dui-	knee	M
NC			PWN	-l/dũku	joint, knee	M
NC	Katla-Tima		Kaalak	romə	knee	RCS
NC	Katla-Tima		Domurik	ku-runoo /i-	knee	RCS
NC	Atlantic	South	Mmani	i-donk /n-	knee	Wi07
NC	Bijogo		Bijogo	ku-nu /ka-	<i>genou</i>	Guillaume Segerer
NC	Pere		Pere	gbòndũyũ	<i>genou</i>	DC
NC	Gur		Proto-Central	*dun	<i>genou</i>	Ma75
NC	Gur	Oti-Volta	Konni	dũ-ŋ pl. dũné	knee	Mike Cahill
NC	Adamawa		Leko of Mapeo	dun	leg	Bo94
NC	Adamawa	Jen	Munga Doso	đwǎŋ	knee	N117
NC	Gbaya		P-Gbaya	zũgũr	<i>genou</i>	Mo95
NC	Kwa		Kebu	nũnũ-rə	knee	Jacques Rongier
NC	Bijogo		Caravela	ku-nu /ŋa-	<i>genou</i>	Guillaume Segerer
NC	VN	Nupoid	Nupe	edũ	thigh	Ba14
NC	EBC	Plateau	Fyem	đu-rũm /a-	knee	RMB
NC	EBC	Plateau	Yankam	rũŋ /a-	knee	RMB
NC	EBC	Lower Cross	PLC	*é-lóŋ	knee	Co91
NC	EBC	Upper Cross	Ubaghara	irũŋ	knee	JS
NC	Bantoid	Dakoid	Sama Mum	lũũ		BS10
NC	Bantoid	Buru	Buru	e-nũ /a-nu		Robert Koops
NC	Bantoid	Bendi	Bekwara	irĩnũŋ		RS
NC	Bantoid	Nyang	Kenyang	né-nén /má-		Mb98
NC	Bantoid	Tivoid	Batu Afi	ø-nũn /á-		Robert Koops
NC	Bantoid	Beboïd	Bukwe	ńnyũ		SIL Wordlists
NC	Bantoid	Ring	Isu	ĩŋũ		SIL Wordlists
NC	Bantoid		Ngie	ĩ-nũwyĩ /a-		SIL Wordlists
NC	Bantoid	Ekoid	Ejagham	êrũŋ	5/6	Cr69
NC	Bantoid	Mbe	Mbe	lè-lũ /bè-		JP
NC	Bantu		PB	*dũĩ		BLR3
NC	Bantu		CB	-dũ, -dũĩ-dũĩ		G

Commentary: The cognates of Bullom ‘knee’ in South Atlantic show a wide semantic range, for example, Temne ‘leg’ (*a-ləŋk*) and ‘arm’ *a-loŋk*, Baga Koba *a-raŋk* ‘thigh’. This root is widespread

in West Chadic and the #-*rum* element may have been loaned into Plateau and its prefix re-analysed. *Pere* looks like a composite of the root for ‘knee’ with the root for ‘leg’.

Refs: W. 252; M 109; G.722+729

5. tortoise, turtle #kuru

Ph	Family	Language	Attestation		Gloss	Source
—	Sandawe	Sandawe	khú	rú	tortoise	EPT12
—	Hadza	Hadza	k’õ	ló	tortoise	KM
—	Hadza	Hadza	k’úú	tá-	turtle	KM
—	Laal	Laal	kú	Nán	<i>petite tortue</i>	Boyeldieu (p.c.)
AA	S Cushitic	Gorowa	ka	n ke’	tortoise	KM03
AA	E Cushitic	Burji	ko	c’áa	tortoise, turtle	Hu89
AA	Beja	Beja	se ku	ur	tortoise	Hudson (n.d.)
AA	W. Chadic	Hausa	kùṅ	ku ruu	tortoise	Ab49
AA	W. Chadic	Mwaghavul	kú	r	tortoise	JI
AA	C. Chadic	Huba	kwà	kú rù m	tortoise	Kr81
AA	Masa	Lame	gù	rè i	tortoise sp.	Sa82
AA	E. Chadic	Toram	kùn	gù rù	turtle	Jungrauthmayr (p.c.)
AA	Berber	Kabyle	tafe	k ru rt	tortoise	Da82
KS	North	Auen	!gu	ru	tortoise-shell	Bl56
KS	Central	Naro	go	e	tortoise	Tr86
KS	Central	Mohissa	cu	ru	tortoise	Bl56
NS	Kuliak	Ik	ro ki	ro k	tortoise	He99
NS	Koman	Kwama	k’	u kif	turtle	Ot19
NS	Songhay	Songhay	ń	kúú r Á	small tortoise	BWK94
NS	Saharan	Kanuri	kó	ro wú	tortoise	Cy94
NS	Maba	Maba	fa k	ruu n	tortoise	Ed91
NS	Surmic	Didinga	bo-	ko l	tortoise	RCS
NS	ES	Dinka	le-	ku r	tortoise	RCS
NS	CS	Asua	ùn	gú lú	tortoise	DD
NS	CS	Ma’di	o	kù	tortoise	RCS
NS	Kadu	Krongo	-kó	ò ṇ (ní-)	tortoise	Re85
NC		PWN	-kwú	lu	tortoise	M
NC	Dogon	Tebul Ure	aṅguṅ	gu ru	tortoise	RMB
NC	Ijoid	Furupagha	ɔbo	kɔ rɔ	turtle	KW
NC	Ijoid	Nembe	obo	ṅgo ro	turtle	KW
NC	Mande	Yaure	kú	lú	tortoise	ALMCI
NC	Senufo	Nabaj	xu	ru	tortoise	ALGCI
NC	Kru	Bete G	kó	lɔ	<i>tortue</i>	Ma83
NC	Kordofanian	Masakin	(k)ə	rə	tortoise	RCS

Ph	Family	Language	Attestation			Gloss	Source
NC	Atlantic	Sereer		xɔ	m	<i>tortue</i>	Cr72
NC	Isolate	Mbre		k	ru we	tortoise	Denis Creissels (p.c.)
NC	Gur	Tiefo	ba	kū	ò	<i>tortue</i>	HO13
NC	Adamawa	Mumuye		ku	ru	tortoise	Sh83
NC	Ubangian	Geme		kú	lō	<i>tortue</i>	Mo88
NC	Kwa	Mbatto	ómó	k	rō é	tortoise	ALKCI
NC	VN	Gbe-Ewe		k	lo	<i>tortue</i>	Ro95
NC	VN	Işekiri	ólu	kú	rú mè	tortoise	CO91
NC	VN	Nupe	dù	kú		tortoise	Ba14
NC	EBC	Doka [Plat-a- eau]		ku	l	tortoise	BCCW
NC	EBC	Ankwa [Plat-ì- eau]		k	rù	tortoise	RMB
NC	EBC	Koring Ntezi è		kù	l	tortoise	JS
NC	EBC	Proto-Lower ú- Cross		kút	/ ŋ-	tortoise	Co91
NC	EBC	Səgəmək i- [Kainji]		kú	ru	tortoise	RMB
NC	Bantoid	Cambap [Mambiloid]		kpó	ró	tortoise	Connell (p.c.)
NC	Bantoid	Tikar [Tikar]		kpu	lu'	tortue	Stanley (ined.)
NC	Bantoid	Keme- kə zung]E. Be- boid]		ku	lā	tortoise	SIL wordlists
NC	Bantoid	Balep ṅ- [Ekoid]		kú	l	tortoise	Cr69
NC	Bantoid	Ugarə u [Tivoid]		ku	lu lu	tortoise	SIL wordlists
NC	Bantoid	Mbat [Jara- wan]		kò	l	turtle	Green (p.c.)
NC	Bantu	P-Manen- guba		kú	l'	tortoise	He87
NC	Bantu	CB -		kú	dù	tortoise	G

Commentary: An early version of this table was presented in Blench (1997) where it was argued that the importance of turtles and tortoises in the gathering phase of human history had made this word particularly salient. The diversity of forms attested may reflect the fact that different species may have compound names (see the Kanuri and Aiki forms). Extra-African cognates have been recorded;

Phylum	Family	Language	Attestation
Austroasiatic	Munḍā	Sora	kola
Dravidian		Tamil	kurulaḷai

The diversity of the forms attested may reflect the fact that different species may have compound names (see the Kanuri and Aiki forms). Turtle/tortoise is the only item of fauna to be widely attested in Niger-Saharan. Greenberg cites parallels from Kordofanian and also Keiga, now classified as Nilo-Saharan. Hoffmann (1970:15–16) points out that this word was also borrowed into Chadic from Benue-Congo, occurring throughout West Chadic and sporadically in Central Chadic. Ironically, he concluded that this might be evidence that these attestations were unconnected. Since Afroasiatic cognates seem only to be recorded in languages near to Niger-Saharan, it is reasonable to conclude that they are ancient loans.

Refs: M. 306; G. 321+325+1259+1260; C.:321, Gr.:88, G.:159

6. crab #kala

Ph	Family	Language	Attestation	Gloss	Source
Isolate	Hadza	Hadza		goma:	KM
AA	W. Chadic	Hausa	káágwáá		Ab49
AA	C. Chadic	Bana	kwérekwérekiŋ		Richard Gravina
NS	C. Sudanic	Mbay	ká-bàr		Ke97
NC		PWS	-ka-, -ka(l)-		W
NC		PWN	-kála		M
NC	Ijoid	Nembe	à-kàngà		Ka64
NC	Mande	Gban	klá	crab	Valentin Vydrine
NC	Pere	Pere		kamu	crabe DC
NC	Kru	Bakwe	kāā		crab Ye09
NC	Kru	Tepo	ka		crab Ma83
NC	Kru	Koyo		kèmè	crab Ma83
NC	Atlantic	Temne	a-kara		crab Wi07
NC	Atlantic	Bijogo		e-gomba /u-	crabe GS02
NC	Gur	Mõõre	gará-ga		Ca76
NC	Adamawa	Jen	Jen	kōŋ	crab N117
NC	Gbaya	Bodoe	káyá		crabe Mo95
NC	Kwa	Baule	kángâ		crabe ALKwCI
NC	Kwa	Ga	gà'á		lagoon crab Kr73
NC	VN	Gbe	Ewe	à-gálà	crabe Ro95
NC	VN	Nupoid	Nupe	kara	crab Ba14
NC	EBC	Cross River	Obolo	úka	Co91
NC	EBC	Cross River	PUC	*'-kání	crab JS
NC	Bantoid	Mambiloid	Mambila		kaab21 PM95
NC	Bantoid	Beboid	Kemezong		kikambo crab SIL wordlists
NC	Bantoid	Ekoid	Ejagham	ekáé	crab John Watters
NC	Bantu	CB	-káda		crab G

Commentary: African crabs are highly speciated but can be divided into three categories; marine, freshwater and land crabs. The taxonomy of freshwater crabs is given in Cumberlidge (1999). Material on land crabs is not easily available but they are widespread throughout the continent and are frequently culturally important because of their role in divination systems. Crab divination is reviewed in Blench and Zeitlyn (1990) which shows that the words for ‘spider’ and ‘crab’ are etymologically interconnected in the Bantu borderland because of their comparable significance in divination systems.

There appear to be two intertwined roots, one with r/l/d in C₂ position, the second, less common, with –mb-, in the same slot. All those with a lateral have a copy central vowel, generally –a, whereas the final vowel in type II is much more variable. The table presents a sample of crab names. Mukarovsky (1976:144) adds further Niger-Congo cognates. The Niger-Congo roots are discussed in Williamson & Shimizu (1968:92).

‘Crab’ also has widespread Eurasian cognates (Blench 1997). The table below sets out some attestations and reconstructions that have been proposed for ‘crab’ in Old World language phyla.

Phylum	Family	Language	Attestation	Source
Japonic		Modern Japanese	kani	
Altaic		Modern Korean	ke	
Austroasiatic	Proto-Mon-Khmer		*kə(n)taam	Diffloth (1994)
Austroasiatic	Proto-North Bahnaric		*katam	Smith (1972)
Austronesian	Proto-Austronesian		*kaRaŋ	Blust (ined.)
Austronesian	Proto-Nuclear Micronesian		*karika	Jeff Marck (p.c.)
Andamanese	Great Andaman	Aka Biada	kátta-da	Portman (1887:22)
Andamanese	Little Andaman	Onge	tekandue	Dasgupta & Sharma (1982)
Sino-Tibetan	Tibeto-Burman	Tamang	khakre	Rana (2005)
Kusundic		Kusunda	kakchi	Rana (2005)
Dravidian	Common Dravidian		kup(p)i	Burrow & Emeneau (1984:158)
Indo-European		Greek	karkinos	
Vasconic		Basque	karramorro	Trask (p.c.)

Commentary: Clues to the processes at work in African languages can be gained by comparison with Indo-European associations of words for ‘crab’. Indo-European has a root *#kar-* meaning ‘hard’, which has a complex association with words for ‘crab’². Latin *cancer* and Greek *karkinos* are both derived from reduplications of the original root, the image apparently being the hardness of the crab’s shell. A similar association also exists in Niger-Congo; Westermann (1927:240) reconstructs *#kual-* for ‘to be hard’ in Proto-Western Sudanic, and *#-kal-* for ‘crab’.

² Thanks to Václav Blažek for this observation.

Refs: W. 230; M. 193; G. 981;

7. skin, hide #kulu

Ph	Family	Subgroup	Language	Attestation	Gloss	Source
AA	Omotic		Wolayta	galba	skin	Be03
AA	Beja		Beja	kurbe	skin	Be20
AA	Agaw		Kwaräsa	korbe	skin/leather	Ap06
AA	Cushitic	East	Ba'iso	galba	skin	Ha78
AA	Cushitic	South	Alagwa	kaari	hide, skin	KM03
AA	Semitic		Amharic	qurbät	hide	Hu89
AA	Chadic	East	Ndam	géré	skin	JI
AA	Chadic	Central	Kotoko	ṛkèṛṛ	skin	JI
AA	Chadic	West	Tala	kuur	skin	JI
KS	Southern		!Xóõ	gúnu	dried skin	Tra94
KS	Central		Naro	khò	<i>Haut/Fell</i>	Vo97
NS	Kunama		Kunama	agala		Be01
NS	ES	Nilotic	Nuer	kul		RCS
NS	ES	Surmic	Murle	kween		RCS
NS	Saharan		Teda	koro-ta		Le50
NS	Songhay		Zarma	kúurú		DM78
NC			PWS	-ku, -kua (+Nasal)	<i>Haut</i>	W
NC			PWS	-ge, -gel-	<i>Haut</i>	W
NC			PWN	-kwuba	skin, bark, husk	M
NC			PWN	-puk-, -puak-	bark, skin	M
NC	Dogon		Tebul Ure	gudugo	skin	RMB
NC	Dogon		Yanda Dom	gùzù	skin	Heath (p.c.)
NC	Ijoid		P-Ijò	*ɔpaṛãṛ	bark	KW
NC	Ijoid		Defaka	íkpa	skin	BC
NC	Katla-Tima		Kaalak	kpu	bark of tree	RCS
NC	Katla-Tima		Domurik	k-ààrà /y-	skin	GS13
NC	Rashad	Tagoi	Tagoi	k-awár /h-	bark	RCS
NC	Mande		Kpelle	kɔlɔ	<i>peau</i>	Ma83
NC	Kordofanian	Talodi	Ngile	k-íṛi pl. w-úṛi	bark	Sch81b
NC	Kordofanian	Talodi	Nding	kinjini	bark	Sch81b
NC	Atlantic	North	Nalu	ma-kũ/ a-	skin	Wi07
NC	Atlantic	South	Gola	ókɔlɔ	skin	Wi07
NC	Kru	Isolate	Kuwaa	kũ̀	<i>peau</i>	Ma83
NC	Gur	Oti-Volta	Bieri	kwanu	<i>peau</i>	Ma75
NC	Gur	Oti-Volta	Dagaari	gbani	<i>peau</i>	Ma75
NC	Adamawa	Mumuye	Zing	koo	skin	Sh83
NC	Adamawa	Vere	Jango	kɔku	bark	RMB
NC	Adamawa	Jen	Maghdi	kôṛ	bark	NI17
NC	Ubangian	Ngbaka	Mundu	kòṇò	<i>peau, écorce</i>	Mo88
NC	Ubangian		Baka	kòto	<i>peau</i>	Br10
NC	Ubangian	Sereic	Indri	kua	skin	Sa50
NC	Kwa	GTM	Siwu	à-kó /sì-	skin	RMB

Ph	Family	Subgroup	Language	Attestation	Gloss	Source
NC	VN	Nupoid	Nupe	epà	leather, hide, skin	Ba14
NC	VN	Idomoid	Idoma	apu	skin	Ar83
NC	EBC	Upper Cross	Hohumono	èkpá / ì-	skin	JS
NC	Bantu		PB	pó	skin, bark, peel	BLR3 4790

Commentary: A pan-Africanism with apparently related forms in all four major phyla. A preliminary version of this dataset appears in Blench (1997). Greenberg (1963:21) initially identified this root for Niger-Congo and though he quotes Krongo (p. 157), his form does not correspond to that in Reh (1985), which is not evidently cognate. Creissels (1981:316) points out the Songhay cognate and adds further citations for Niger-Congo. Bender (1997:129) gives further examples for Nilo-Saharan, although he includes ‘basket’ in his semantic set. Other commentators include ‘bark’, for example Uduk (Eastern Sudanic) *khur* ‘bark’. Westermann (1927: 220, 237) separates out two forms which are probably part of a single root. Most Kru languages have reduced to CV, but the nasalisation preserved in Kuwaa provides evidence for the original lateral in C₂ position (Marchese 1983). Nasals are attested in Kru, Gur and Adamawa-Ubangian, which argues for an innovation perhaps at the level of Atlantic-Congo.

Refs: W. 220 + 237; M. 302; G. 392; G.:21, Gr.:84, B:129, E:491

8. fat, oil, grease #morV

Ph	Family	Group	Language	Attestation	Gloss	Source
AA	Omoti		Zayse	moora	fat	Be03
AA	Cushitic		Oromo	moora	fat	Hu89
AA	Semitic		Amharic	mora	fat	Hu89
AA	Chadic		Masa	mùl	oil	Jl
AA	Chadic		Gudu	mar	oil	Jl
AA	Chadic	West	Hausa	mai	oil	Ab49
AA	Chadic	West	Tala	mɔl	oil	Jl
NS	ES		Murle	more	oil	Ly71
NS	ES		*PN	*mɔ-r	oil	Di88
NS	ES		Proto-Daju	*mwi-	oil	RT81
NS	Songhay		Zarma	máání	<i>graisse</i>	BWK94
NC			#PWS	-mì	<i>Fett, Öl</i>	W
NC	Ijoid	Ijo	Furupagha	imeɛlɪ	fat	KW
NC	Rashad		Tagom	omá	oil, fat	RCS
NC	Atlantic	South	Temne	marô	oil, fat	Wi07
NC	Ubangian		Ngbaka	mó	<i>graisse, huile</i>	Mo88
NC	Ubangian	Sereic	Feroqe	mú	oil	Sa50
NC	Kwa		Ga	mù	edible oil	Kr73
NC	VN	Gbe	Ewe	àmì	<i>huile, graisse</i>	Ro95
NC	VN	Igboid	Igbo	mmanɔ	oil	KW72
NC	VN	Nupoid	Nupe	emí	oil, fat, grease	Ba14
NC	EBC	Kainji	Gbiri	mani	oil	RMB
NC	EBC	Kainji	Central Kambari	màni'î	oil	Ho65

Ph	Family	Group	Language	Attestation	Gloss	Source
NC	EBC	Kainji	Lopa	mum	oil	RMB
NC	EBC	Plateau	<u>E</u> ten	mos	fat	RMB
NC	EBC	Plateau	Təsu	amene	fat	RMB
NC	EBC	Plateau	Rukul	manai	fat	RMB
NC	EBC	Cross River	Abua	a-monom	oil	Ga80
NC	Bantoid	Tivoid	Batu	mem	oil	Robert Koops
NC	Bantoid	Ekoid-Mbe	Mbe	mwòr	oil	JP
NC	Bantoid	Jarawan	Mama	murū	oil	MW75

Commentary: The assumption here is that the *m-* is originally a class affix, signifying liquids or mass nouns which have become fused to the stem. Forms for mass nouns with *m-* affixes correspond to Kordofanian *η-* classes in other branches of Niger-Congo (Schadeberg 1989). The ‘original’ form (if that has a meaning in this context) would then have been something like *#muri* or *#ηuri*. The second set of forms appears to be a rather strained correspondence, but there is evidence the *η-* and *m-* do correspond between Kordofanian and the rest of Niger-Congo (Williamson 1989a). Nonetheless, it is possible there are two roots here. Although this form seems well established enough in Plateau and Kainji to imagine that its source is there and gave rise to Hausa *mai*, the Hausa form may well have been borrowed back into some languages giving rise to irregularities.

Refs: D. 40, W. 257; Ehret p. 312

9. fire #(dw)isi

Ph	Group	Language	Attestation	Source
AA	Semitic	Akkadian	ifaat-	
AA	South Cushitic	Iraqw	‘ała	KM03
AA	Chadic	Karekare	ʔèsî	Schuh (p.c.)
AA	Chadic	Miya	osi	Schuh (p.c.)
NS	ES	Meidob	ussi	We93
NS	Kadu	Miri	issi	Sch94
NS	CS	Miza	a(t)si	Be92
NS	CS	Shemyar	dufu-n	Be92
NS	Saharan	Beria	jíé	JC04
NC	Mande	PSM	*síé	Valentin Vydrine
NC	Mande	Dzuun	sà	Valentin Vydrine
NC	Kordofanian	Moro	isia	RMB
NC	Dakoid	Nnakenyare	yísi	BS10

Commentary: An old areal word with dispersed reflexes, it is possible some forms are just chance resemblances. Not attested in Khoisan. Only recorded in some subgroups of West Chadic and thus probably a local loanword. If the Akkadian form is genuinely related, then it is tempting to assume this an old Afroasiatic root loaned into Nilo-Saharan and thence into eastern Niger-Congo. Bender

(1992:43) reconstructs Proto-Central Sudanic *#co*, but as an areal loan, so reconstruction is probably not a meaningful exercise. The Niger-Congo attestations are very scattered and these could be chance or borrowing.

Refs: Bender (1991:5)

10. *#-si* dog

Ph	Family	Subgroup	Language	Attestation	Source
AA	Semitic		Amharic	wifa	Hu89
AA	Cushitic		PHEC	wafa	Hu89
AA	Cushitic		Beja	yas	Hudson
AA	Chadic		Mwaghavul	as	RMB
AA	Chadic		Kola	hàzà	Jl
NS	Fur		Fur	asà	Ja90
NS	ES		Proto-Daju	*iise	RT81
NS	ES		Nara	wos	RCS
NS	CS		Baka	ísì	RCS
NS	CS		Lugbara	atsí	RCS
NS	CS		Lendu	kaẓẓ	RCS
NS	Koman		Anej	kas	Ot19
NS	Maba		Masalit	wasi	Ed91
NS	Kadu		Katcha	is(s)i	Sch94
NS	Songhay		Kaado	hánsi	DM78
NC	Dogon		Tommo So	isé	Heath (p.c.)
NC	Rashad	Tagoi	Orig	wusu	SE79
NC	Atlantic		Manjaku	û-bûs	Guillaume Segerer
NC	Atlantic	South	Gola	ósu'n	We21
NC	Adamawa		Dza	iicwá	NI17
NC	Adamawa	Mumuye	Zing	zaa	Sh83
NC	VN		Nupe	ɛ̃fi	Ba14
NC	EBC		E. Ogbia	isíà	KW
NC	Bantoid	Mambiloid	Ndoro	síe	RMB

Commentary: Although originally cited by Greenberg (1963:120), more complete evidence was marshalled by Bender (1981:258) with attestations in Fur, Sudanic, Kordofanian and possibly Ari [Omoti]. Not attested in Khoesan, Mande and most branches of Afro-Asiatic, which have variants of *kVr/n-*. This root is extremely widespread in Central Africa and yet does not form a convincing pattern. In Central Sudanic, for example, it is attested in almost every language (Bender 1992:40, 48). Bender separates the roots with initial *b-*, but it is likely that the two forms go together.

Refs: G:120

11. to fly, jump *#pur-*

Ph	Family	Subgroup	Language	Attestation	Gloss	Source
AA	Beja		Beja	biir	fly	Richard Hudson
AA	Agaw		Awngi	pərr-	jump	Ap06

Ph	Family	Subgroup	Language	Attestation	Gloss	Source
AA	Cushitic	East	PEC	*bar(ar)	fly	Sa82
AA	Cushitic	East	Burji	burr-	fly	Sa82
AA	Cushitic	South	Gorowa	furuu'	fly	Km03
AA	Chadic	West	Hausa	ɓùráá	jump	Ab49
AA	Chadic	Central	Yedina	fér	jump	JI
AA	Chadic	East	Kwang	bóre	jump	JI
AA	Berber		Kabyle	ferfer	<i>voler</i>	Da82
KS	Khoe		PNKhoe	*pe	<i>springen</i>	Vo97
KS	Khoe		PEKhoe	*pe	<i>springen</i>	Vo97
NS	Maba		Mesalit	fir		Ed91
NS	Berta		Berta	ho'rəŋ		Be89
NS	East Sudanic		Gaam	pərd-	fly	BA80
NS	East Sudanic		*PN	*pär	fly, jump	Di88
NS	Songhay		Djenné Chiini	firri	fly	He98
NS	Saharan		Kanuri	fār	to jump, fly	Cy94
Isolate			Banġeri Mə	dapiru	to fly	RMB
NC			*PWS	*pi, pil-	<i>fliegen</i>	W
NC	Dogon		Bunɔge	pile	to fly	RMB
NC	Ijoid		P-Ijɔ	*ifōĩ	to fly	KW
NC	Ijoid		Nkɔrɔɔ	fĩ	to fly	KW
NC	Mande		Bamana	pá	fly, jump	Valentin Vydrine
NC	Pere		Pere	fiili	<i>voler, se lever</i>	DC
NC	Atlantic N.	Cangin	Saafi-Saafi	pund	fly	B&P16
NC	Atlantic	North	Biafada	fiili	fly	Wi07
NC	Atlantic	South	Temne	fāl	fly	Da66
NC	Kordofanian		Moro	abəro	to fly	RMB
NC	Kordofanian	Talodi	Dagik	piro	to fly, jump	Va16
NC	Kru		Neyo	ɓlií	<i>voler</i>	M83
NC	Kru		Bakwe	plù	<i>sauter</i>	Ye09
NC	Gur		Lobiri	ufir	<i>voler</i>	ALGCI
NC	Gur	Isolate	Kulango	bií	<i>sauter</i>	Mi07
NC	Gbaya		P-Gbaya	bũlũ	<i>voler</i>	Mo95
NC	Kwa		Ega	fè	<i>voler</i>	ALKwCI
NC	Kwa		Ebrie	fè	<i>voler</i>	ALKwCI
NC	Kwa		Nawuri	fùgí	fly, jump	Sn89
NC	Kwa		Ga	filíki	fly	Kr73
NC	VN	Nupoid	Nupe	fù	to fly	Ba14
NC	VN	Nupoid	Nupe	fùrù	jump (n.)	Ba14
NC	EBC		Lokə	fiilá	to fly	JS

Commentary: The meanings of ‘fly’ and ‘jump’ are regularly intertwined throughout African language phyla. Bender (1997:121) lists more Nilo-Saharan cognates in typically elliptical style. This root presents an intriguing methodological problem. The citations are so similar that they must be related in some way. Is this simply a case of ideophonic convergence, where similar languages come to similar conclusions about the sound of beating wings? Not all languages do this,

as many datasets for ‘fly’ are omitted on the grounds of non-cognacy. Similarly, the semantic link with ‘jump’ which seems to be typical for Africa is not generally found elsewhere, where the common association appears to be ‘to flee’. Swadesh (1971) derived a similar form ideophonically as a world gloss, although he spreads the semantic net wider than here. This etymology is reprised in Bengtson & Ruhlen (1994) with a proposed proto-form **par*. Western Kwa seems to have undergone a distinctive reduction to **fe*.

Refs: Gr.:83, D.:42, W.:275, B: 121, E: 382, Ehret (1987:26)

3. CONCLUSIONS

The paper highlights eleven Pan-African roots, which are attested in either three or four phyla and sometimes additionally in isolates. The majority are nouns, although three verbs are included. The most surprising aspect of this is that three words have an almost identical form, *#kuru*, and a fourth, ‘crab’, *#kala*, is extremely similar.

There are two possible explanations; either pervasive sound symbolism or a chain of borrowing. If sound symbolism has driven convergence, it has affected selected concepts, rather like the word families in Southeast Asia or the templatic morphology in Semitic. For some roots, such as ‘fly’ or ‘crab’ their presence outside Africa must suggest phonaesthetic explanations. Alternatively, borrowing is responsible for these similarities at a very early period of contact. It is clear there are few roots which are well attested in Khoesan. These may have been borrowed into Nilo-Saharan at the period when Khoesan was further north and in contact with Nilo-Saharan and Afroasiatic. Similarly, many of the attestations in Afroasiatic look like regional borrowings. They are found in Chadic, Omotic and Cushitic and not in Berber-Egyptian-Semitic. Niger-Congo and Nilo-Saharan seem to have been in contact at an early period, which may explain shared lexicon, but also typological features such as ATR vowel harmony, plural verbs and possibly alternating prefixes, such as are found in East Sudanic and are common to most branches of Niger-Congo.

Under no circumstances are these resemblances chance; the similarities are too great, and the comparison with the diverse lexicon for closely allied concepts (compare ‘leg’ and ‘knee’) argues that either historical processes are at work, or sound symbolism has created convergence. Further work may provide more coherent explanations.

ABBREVIATIONS

1. Principles of deriving acronyms for sources;

1. Single-authored works usually take the first two letters of the surname and add the last two numbers of the year of publication. Thus Childs (2000) becomes Ch00. However, where this might lead to ambiguity, a third letter of the author's name is added to discriminate between two authors. Thus;

Cr81 Creissels (1981)

but;

Chr33 Christaller (1933)

2. Two- and three-authored works usually take the initial letter of each author's surname and combine them into a sequece of capital letters, followed by the last two numbers of the year of publication. Thus Jungraithmayr & Ibrizimow (1995) becomes JI95.

3. Single-authored major comparative sources are identified by a single capital letter. These are;

B Bender (1997)

G Guthrie (1967-1971)

M Mukarovsky (1976, 1977)

W Westermann (1927)

Other publications by these authors are abbreviated in the standard way.

4. Multiply-authored major comparative sources, particularly those in series have slightly idiosyncratic abbreviations derived from the initial letters of the main words in the title.

Acronym	Bibliographic reference	Family
ALGCI	Mensah & Tchagbale (1983)	Gur
ALKCI	Hérault (1983)	Kwa
ALKrCI	Marchese (1983)	Kru
ALMCI	Halaoui, Tera and Trabi (1983)	Mande
BCCW	Williamson & Shimizu (1968) & Williamson (1973)	Benue-Congo

5. No distinction between electronic and paper formats is made for unpublished works. In view of the difficulties of assigning a year to these materials, they are numbered in sequence, following the abbreviation of the author(s) name(s) according to the principles above.

2. Specific languages: classification and source(s)

Table 1. Acronyms for language-specific sources

Acronym	Expansion as reference	Language treated
Ab40	Abrahams (1940)	Tiv
Ab49	Abrahams (1949)	Hausa
Ab58	Abrahams (1958)	Yoruba

Acronym	Expansion as reference	Language treated
Ag86	Agheyisi (1986)	Edo
ALGCI	Mensah & Tchagbale (1983)	Gur
ALKCI	Hérault (1983)	Kwa
ALKrCI	Marchese (1983)	Kru
ALMCI	Halaoui, Tera and Trabi (1983)	Mande
Bd94	Boyd (1994)	Chamba Daka
Be	Bertho (1953)	Dogon
Bo87	Boyeldieu (1987)	Fer & Yulu
Bo93	Boyeldieu (1993)	Sara-Bongo-Bagirmi
BW94	Bernard & White-Kaba (1994)	Zarma
C-G	Calame-Griaule (1968)	Dogon
Ch00	Childs (2000)	Kisi
Chr33	Christaller (1933)	Twi
Cr81	Creissels (1981)	Songhay
Cy	Cyffer (1994)	Kanuri
D	Dimmendaal (1988)	Proto-Nilotic
DC	Ducroz & Charles (1978)	Songhay Kaado
Ed91	Edgar (1991)	Maba group
Fa04	Fabre (2004)	Samba Leko
G	Greenberg (1963)	Africa general
Gr	Gregersen (1972)	Kongo-Saharan
Gt	Guthrie (1967-1971)	Bantu
Ja90	Jakobi (1990)	Fur
Jl	Jungraithmayr & Ibriszimow (1995)	Chadic
JR	Jacques Rongier (ined.)	Kwa languages
JRxx	Jacques Rongier ()	Ewe
Kl90	Kleinwillinghöfer (1990)	Wiyaa
Kr16	Kra (2016)	Kulango
Kri99	Kropp-Dakubu (1999)	Ga
KW	Kay Williamson (p.c.)	Ijoid
LS	Lamberti & Sottile (1997)	Cushitic and Omotic
Lu03	Lux (2003)	Noni
M	Mukarovsky (1976/7)	Proto-Western Nigritic
Man	Manessy (1975)	Oti-Volta
Me	Meeussen (1980)	Proto-Bantu
Mo88	Moñino (1988)	Ubangian
Mo95	Moñino (1995)	Gbaya
No89	Noye (1989)	Fulfulde
P	Prost (1953)	South Mande

Acronym	Expansion as reference	Language treated
PWN	Mukarovsky (1976, 1977)	Proto-Western Nigritic
PWS	Westermann (1927)	Proto-Western Sudanic
PM95	Perrin & Mouh (1995)	Mambila
R	Rottland (1982)	Nilotic
RCS	Roland Stevenson mss.	Nilo-Saharan, Kordofanian
RMB	Author's fieldwork	Various languages
Sch81a	Schadeberg (1981a)	Kadu
Sch81b	Schadeberg (1981b)	Heiban Kordofanian
Sch94	Schadeberg (1994)	Kadu
SE07	Schaefer & Egbokhare (2007)	Emai
Sg	Guillaum Segerer	Atlantic languages
Vo82	Voßen (1982)	Eastern Nilotic
Vo88	Voßen (1988)	Maa
Vo97	Voßen (1997)	Khoesan
Wa	Ejagham	Watters ined
W	Westermann (1927)	Western Sudanic
We21	Westermann (1921)	Gola
Wi07	Wilson (2007)	Atlantic
Ye09	Yepi et al. (2009)	Bakwe

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