

1 African language classification beyond Greenberg

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1.1 Before and after Greenberg (1963)

1.1.1 African language classification before Greenberg

- + relying heavily on non-linguistic criteria, couched in colonial European attitudes to Africa (notably "Hamitic theory")
- + highly synthetic: 3-5 genealogically intended super-groups

Sudanic

Bantu

Hamitic (including also Fula, Maasai, Khoekhoe according to Meinhof [1912])

Semitic

Bushman

Figure 1: General pre-Greenbergian classification of African languages

1.1.2 Greenberg (1963) in the making

Greenberg (1950d: 394)	Greenberg (1954: 409)	Greenberg (1963a)
1. Niger-Congo	1. Niger-Congo	1. Niger-Kordofanian
12. Kordofanian	10. Kordofanian	
2. Songhay	2. Songhay	2. Nilo-Saharan
3. Central Sudanic	3. Macrosudanic	
5. Eastern Sudanic		
14. Berta		
15. Kunama		
4. Central Saharan	4. Central Saharan	
8. Maban	7. Maban	
9. Mimi (of Nachtigal)		
10. Fur	8. Fur	
11. Temainian	9. Temainian	
13. Koman	11. Koman	
16. Nyangiya	12. Nyangiya	
6. Afroasiatic (Hamito-Semitic)	5. Afroasiatic	3. Afroasiatic
7. Click	6. Click	4. Khoisan

Table 1: The development of Greenberg's African language classifications

- + his earliest classification was received positively - Westermann (1952: 256):

Greenberg is the first linguist who has attempted to give a classification of the whole range of African languages. He has not contented himself with a general survey, as all his predecessors, including myself, have done, but has gone into considerable detail; in each single case he gives his proofs in word-lists, in tabulated formative elements, and also on sketch maps; he does not quote all his sources, which would have been practically impossible; nor is it essential, since they are known to the expert. He confirms many findings of those who have worked before him, he corrects a number of errors; although many of these had been refuted by others, it had seldom been done with such clarity and definiteness as here. It is quite possible that some of his statements and classifications may prove to be not sufficiently clarified, or that he has overlooked a language which cannot be shown to be related to any other in Africa; he will be criticized, and some of his classifications may be rejected; but all this does not detract from the value of his study, for which all of us have to thank him.

- > Greenberg's (1963) final backshift to a highly synthetic classification appears enigmatic

1.1.3 Greenberg's (1963) overall success

- + major merits:
 - sound linguistic theory of historical language relationships
 - > way out of European ideological crisis of African studies in general and linguistics in particular (pace Newman 1995)
 - virtually exhaustive recognition of previous literature, notably implementing the findings contradicting the pre-Greenberg scheme (made insufficiently explicit by the author): status of Fula vs. Atlantic, Khoekhoe vs. Khoe, Maa etc. vs. Nilotic, Niger-Congo, Saharan, Chadic, Ubangi, and Central Sudanic
 - > crucial step of leveraging these findings against academic inertia in Europe
 - first comprehensive and compact scheme potentially covering any African language
 - + coincidental circumstances unrelated to the work enhanced its success
 - general start of US dominance in academia
 - focus away from canonical comparative linguistics: generative grammar, lexicostatistics
 - already limited scholarly interest in Africa and its languages decreased further

1.1.4 The persistent criticism/skepticism about the general scheme

- + defective data handling (cf. already Berry 1956)
- + ignores contradictory findings by specialists of several language groups: e.g., Khoisan, Kuliak, Songhay, Saharan, Central Sudanic, Ubangi
- + linguistic homogeneity in Africa unlikely for non-linguistic reasons
- + stands in stark contrast to the rejection of all his other classifications that are based on the same methodology in other areas of the globe: Pacific (1971), Americas (1987), Eurasia (2000-2)

Heine (1976: IX-X, in the context of discussing the controversial position of Kuliak):

For more than a century the question as to how the languages of Africa can be classified has attracted the attention of linguists, and numerous hypotheses have been put forward. And yet, the linguistic map of Africa still looks chaotic and none of the many classifications which have been devised so far has found general acceptance among Africanists. This applies even to Joseph Greenberg's genetic classification (1963) which, although being the most important piece of work so far produced on this subject, offers a number of new insights but no real solutions. One of the main reasons for Greenberg's failure to achieve the hoped-for goal is that his method of language comparison is not adequate to cope with the extraordinary diversity of linguistic forms found in Africa. ... It seems that comparative linguistics in Africa today has reached a point where we must begin to think of its limitations. None of the comparative studies on a continental basis has proved successful. The alternative is to dispense with overall classifications and to concentrate on small-scale comparisons between closely related languages, both on the synchronic and on the diachronic level. Only if the relationships within smaller units have been established will it be possible to yield satisfactory results within larger groupings. The results obtained in this way are probably less spectacular but also are less likely to fall into early oblivion.

- > Campbell and Poser (2008: 128): Greenberg's (1963) African classification "badly in need of major reinvestigation and reworking"
- > reorientation, albeit arguably fainthearted, also among Africanists since the late 1990s
- > necessary facilitation of a bottom-up approach rather than attempting new classification

1.2 The new classification approach

1.2.1 Historical-comparative principles

a) morphological evidence over lexical evidence - e.g., Meillet (1958: 91, 97):

Grammatical correspondences are proof, and only they are rigorous proof, provided one makes use of the material detail of the forms and that it is established that particular grammatical forms used in the languages under consideration go back to a common source.

While one can initially establish vocabulary resemblances between two or several languages as an indication of where to do further research, this cannot furnish a definitive demonstration; vocabulary can only orient the research, and proof comes from elsewhere.

b) paradigms over atomic items: not restricted to grams, can also involve structured lexeme sets like numerals, kinship terms, grammatically sensitive suppletives

Family	'mother'	'man/male'	'maternal uncle'	Source
Mundu-Baka	*na~*na	*mɔ.kɔ.(sɛ)	*nɔ.kɔ	Winkhart (2015)
Ndogoic	.nà	..Dā.kō	.nù.kù	Moñino (1988: 118, 122, 127)

Table 2: Shared kinship vocabulary in Mundu-Baka and Ndogoic (Ubangi pool)

Gloss	Ju (Kx'a)		†'Amkoe (Kx'a)	Taa (Tuu)
	!Xuun	Ju!'hoan	†Hoan	East !Xoon
stand (S)	?ŋú	ŋ'ú	!tú	húú
stand (P)	g!à	g!à	g!à	? nǔhā
sit (S)	?ŋǎ	ŋ!áj	?ŋá	ts ^h úu
sit (P)	g! ^h ó	g ^h òó	!q ^h áú 'recline'	! ^h áá
arise (S)	tsáó	tsáú	cú	kx ^h ába
drop (P)	tá ^h m	tá ^h m	(tj ^h á ^h m)	^h áli
take (P)	ŋ!ǔ ^h t	ŋ!ŋú	k ^h -ŋ!ú	? ^h áó
take out (S)	g! ^h xà	g ^h χà	k ^h -! ^h χàó	-
kill (S)	! ^h ú	! ^h ú	! ^h ó	-

Table 3: Verb root suppletion in Kx'a and Taa (after Honken 2010: §1.3.2)

c) lineage history over data quantity

- respect findings of diachronic typology (cf. Greenberg 1995)
- modern language items can only be the reflex of one proto-form
- proto-languages are unlikely to have multiple forms for a basic semantic concept
- dispense with direct comparison of language specific-forms - Sasse (1974: 621-622):

(previous findings of successful historical linguistics) would teach us, for example, to abandon once and for all the comparison of material of individual languages without taking into account smaller genealogically related units. Nobody expects to gain insight into the genealogical relationships within Indo-European by comparing the (German) dialect of the Upper Palatinate with Kurdish. ... Our task thus consists first in the establishment of smaller groups, the genealogical relation of which can be described clearly and unambiguously.

1.2.2 Comparing types of evidence

- + my reassessment of African classification not aiming at a new final scheme of language relationships - instead, give non-specialists an idea about the kind of available evidence for various genealogical hypotheses on all levels beyond the "obvious"

Characterization of evidence type	Code
Morphological reconstructions of a paradigmatic nature	A
Vocabulary reconstructions with regular sound correspondences	B
Recurrent obvious resemblances in vocabulary and/or morphology with bona fide reconstructibility - "self-evidence of relatedness"	C
Scattered resemblances in vocabulary and/or morphology	D
Lexicostatistic calculations	E
Typological-structural similarities	F

Table 4: Different types of linguistic evidence for genealogical hypotheses

1.2.3 Basic classificatory units

- + more fine-grained complete inventory of "basic classificatory units" as a compromise between obvious/proven lineages and poorly substantiated supergroups
- > intended as principal building blocks for more conclusive genealogical hypotheses

Unit type in graphic representation	Comment
<i>Single language</i>	Singleton lineage ~ isolate
Language family	Lineage with more than 1 language
GENEALOGICAL (LANGUAGE) POOL (may comprise more than 1 lineage)	Conventional language group with indeterminate genealogical relationship
<u>AREAL (LANGUAGE) POOL</u> (may comprise more than 1 lineage)	Conventional language group with some historical but not necessarily genealogical relationship

Table 5: Four types of basic classificatory units

- + preliminary adaptation of terminology insuring unique and simple lineage identification: maximally binary terms, clear differentiation from names of single languages

Language name	Rule	Examples
Final consonant	add <i>-ic</i>	Kimic (Adamawa), Heibanic (Kordofanian)
Final <i>-a</i>	add <i>-ic</i>	Gbayaic (Ubangi), Katlaic (Niger-Congo)
Final <i>-e</i>	delete <i>-e</i> , add <i>-ic</i>	Mumuyic (Adamawa), Zandic (Ubangi)
Final <i>-i</i>	add <i>-c</i>	Ngbandic (Ubangi), Talodic (Kordofanian)
Final <i>-o</i>	add <i>-ic</i>	Kulangoic (Gur), Ndogoic (Ubangi)
Final <i>-u</i>	add <i>-ic</i>	Samuic (Gur), Dajuic (Nilo-Saharan)
Single open syllable	retain vowel, add <i>-ic</i>	Mbaic (Ubangi)

Table 6: Present conventions for group names based so far on single-language names

- + survey only includes languages that are/were:

- a) spoken languages > not signed, drummed, whistled, etc.
- b) used by a canonical speech community > no registers etc.
- c) indigenous to Africa before major colonization from outside
- d) sufficiently attested (in the future) > no unclassifiable languages (ca. 40)

- + survey recognizes Greenberg's (1963) four supergroups as organizational reference "domains" for pragmatic reasons without any genealogical implications

- a) inventory of basic classificatory units
- b) diagnostic evidence for core group, if any; does not apply to Khoisan and Nilo-Saharan
- c) summary

1.3 The Khoisan domain

1.3.a Unit inventory

No.	Unit	1	2	3	4	Geographic location
U1	Tuu	7		X	X	southern Kalahari Basin
U2	Kx'a	2				northern Kalahari Basin
U3	Khoe-Kwadi	12				entire Kalahari Basin
U4	<i>Sandawe</i>	1		X		northern Tanzania
U5	<i>Hadza</i>	1		X	X	northern Tanzania

Note: 1 = Number of languages; 2 No grammar sketch before 1965; No comprehensive modern published description: 3 = before 2000, 4 = today

Table 7: Basic classificatory units in the Khoisan domain

1.3.b Diagnostic evidence

- + Greenberg's 30 morphological comparisons flawed (cf. Güldemann 2008b), applies also to Honken (1977) on pronominal elements and Sands (1998a) on noun suffixes
- + Greenberg's reference to Bleek (1956) without discussion inappropriate (cf. Sands 2016)
- > "dense" lexical distributions in the Kalahari Basin (see Traill 1986) likely due to complex contact relations (cf. Güldemann and Loughnane 2012)
- + no typological commonalities across all five units (Güldemann 2013c) - major split of: "Non-Khoe" (= Kx'a + Tuu) vs. Khoe-Kwadi + Sandawe vs. Hadza

1.3.c Summary

- + no language specialist currently argues for a Macro-Khoisan family
- + concrete areal Khoisan Basin hypothesis (Güldemann 1998, Güldemann and Fehn 2017) replaces idea of a narrow Southern African Khoisan family
- + worthwhile to investigate the possibility of consolidating the two typological clusters into real lineages, based on bottom-up reconstruction > e.g., pronominal comparisons

Pronoun element	Proto-Tuu	Kx'a
1st person singular pronoun	*N	*mi ~ ma (Proto-Kx'a)
2nd person singular pronoun	*a	*a (Proto-Ju)
3rd person	*ha	*ha ~ ya (Proto-Kx'a)
3rd person	*hi	*yi ~ hi (Proto-Ju)
Exclusive plural	*si (1st person)	*tsi (3rd person own-group, Proto-Kx'a)

Table 8: Affinities between pronoun elements in Proto-Tuu and Kx'a

Pronoun element	Proto-Khoe-Kwadi	Sandawe
1st person singular pronoun	*ti (Kwadi <i>tʃi</i>)	<i>tsi</i>
2nd person singular pronoun	*sa	<i>ha-</i>
3rd person pronoun base	*xa- (Kwadi <i>ha-</i>)	<i>he-</i>
3rd person masculine singular suffix	*-V ^[front] (Khoe *-bV ^[front] , *-mV ^[front])	<i>-w(e), -m</i>
3rd person feminine singular suffix	*-V ^[front] (Khoe *-sV ^[front])	<i>-su</i>

Table 9: Affinities between pronoun elements in Proto-Khoe-Kwadi and Sandawe

1.4 The Niger-Kordofanian domain

1.4.a Unit inventory

No.	Basic unit	1	2	3	4	Geographic location
U6	BENUE-KWA (> 20)	1065				Ivory Coast to southern Africa
U7	DAKOID	5	X	X	X	northwestern Nigeria
U8	Ijoid	10		X	X	Niger delta (Nigeria)
U9	KRU (2)	39				Liberia, southern Ivory Coast
U10	Pere	1	X	X	X	northern Ivory Coast
U11	ATLANTIC (7)	64				western Atlantic coast (except Fula)
U12	Mande	75				western half of West Africa
U13	Dogon	19	X	X		Bandiagara escarpment (Mali)
U14	Bangime	1	X	X		Bandiagara escarpment (Mali)
U15	GUR (7)	97				central interior West Africa
U16	ADAMAWA (14)	86				western Nigeria to southern Chad
U17	UBANGI (7)	72				Cameroon to South Sudan
U18	<u>KORDOFANIAN</u> (4)	21		X		Nuba Mountains (Sudan)
U19	Katlaic	3		X	X	Nuba Mountains (Sudan)
	Approximate total	1500				

Note: GENEALOGICAL/AREAL POOL; (n) = Number of potentially separate subgroups;

1 = Number of languages; 2 = No grammar sketch before 1965; No comprehensive modern published description; 3 = before 2000, 4 = today

Table 10: Basic classificatory units in the Niger-Kordofanian domain

+ crucial recognition of low-level groups rather than Greenberg's less than ten major units:

In the classification of West African languages, there is a need for some of the larger so-called 'genetic' groupings to be broken down into more coherent and scientifically established units, in order that the *interrelationships* of these closer groupings may be examined in detail. (Dalby 1965: 16)

> even a narrow Niger-Congo is comparable in complexity to Trans-New-Guinea: at least 50 small scale units should independently inform any reconstruction attempts

1.4.b Diagnostic evidence

+ considerable amount of paradigmatic grammatical material defines the core of a large language family

- noun classification involving noun morphology and agreement marking (cf. Westermann 1935), inappropriate tendency to identify any type of nominal suffixing as a reflex of earlier "noun classes" (cf., e.g., prothetic vowels in Ubangi languages)
- pronoun paradigm for speech-act participants (see Güldemann 2017), previously reconstructed forms of 1S and 2S modeled on typical Benue-Kwa pronouns but these can also be viewed as local innovations (independently attested elsewhere)

Geneological pool	Lineage	1S	2S	1P	2P
ATLANTIC	Mel: Temnic	.mi	.mO	.sV	.nV
ATLANTIC	<i>Sua</i>	<i>meN-</i>	<i>mɔɔ</i>	<i>nrɔ</i>	<i>nɔɔ</i>
GUR	Central: Oti-Volta	*mV	*bV/(f)V	*tV	*(n)yV
BENUE-KWA	Bantoid: Bantu	.mi/ *-n-	*u-	*-cú-	*-nú-
BENUE-KWA	<i>Oko</i>	<i>-mɛ</i>	<i>-wɔ</i>	<i>-tɔ</i>	<i>-nɔ</i>
BENUE-KWA	Lagoon: <i>Abé</i>	<i>mə</i>	<i>fə</i>	<i>-lə</i>	<i>ɲə</i>
ADAMAWA	Mumuyic	.mE/ .N	.mo	.rO	.noO
ADAMAWA	<i>Kwa~Baa</i>		<i>ĩyŃ -mù</i>	<i>-(t)</i>	<i>-n</i>
ADAMAWA	<i>Fali</i>	<i>(-)mì</i>	*mu	.-to	*-no
UBANGI	Gbayaic	*mí	*mé	*-lḗ	*-né

Table 11: Pronoun paradigms in presumably conservative subgroups

Source	1S	2S	1P	2P
Güldemann (2017)	.mV ^{front}	.mV ^{back}	.TV ^{close}	.NV ^{close}
Babaev (2012a)	*mi/ *N=	*wU/*U=	*t~*tU	*nI~*nU
Mukarovskiy (1976–1977)	*(a)mi/ *ni	*mu-/- *bhi-	*tiu	*-ni(a)/ *mui
Westermann (1927b)	*mì/ *na~ni	-	*tí~*tú	-

Table 12: Proposed pronoun paradigms of Proto-Niger-Congo

- system of inherited verbal extensions remains only a typological rather than an individual-identifying trait, pace Voeltz (1977) - Hyman (2014: 210):

Because of their distribution in Africa (and worldwide) and their ability to change, renew, and possibly be borrowed, I have not been able to find a reliable morphological property that uniquely indicates Niger-Congo. We therefore are dependent upon demonstration of cognacy, which is difficult because grammatical morphemes are so short and undergo natural reduction processes.

- + extensive amount of lexical comparisons do not meet traditional standards
- > focus on lexemes with co-occurring morphology (e.g., nouns) and lexical paradigms

Source	'two'	'three'	'four'	'five'
Güldemann	.Ri	.ta(C)	.na(C)	.nU
Pozdniakov (2012)	*-di	*thati	-	-
Mukarovsky (1976–1977: LXX, LXIX, LX, LIX)	*-bà.li	*-tháthu	*-nán-/ *-ní(a)-	*-t(s)á.nu
Westermann (1927b: 204, 221, 263–265, 271)	*-bà-/*-gĩ/ *-n(i)u(a)	-	*-na(n)-/ *-ni	-nú-

Table 13: Proposed lower numeral paradigms of Proto-Niger-Congo

1.4.c Summary

- + against the currently available diagnostic evidence, not all units conventionally subsumed under Niger-Kordofanian are robust members - subsets according to likelihood
- a) robust: Benue-Kwa (> 20), Dakoid, Atlantic (7), Gur (8), Adamawa (14), Ubangi (7)
- b) promising: Kru (except Siamou), Pere, Dogon, Bangime
- c) less likely/weak: Kordofanian (4), Katlaic/ Ijoid, Siamou, Mande

Classificatory unit		'you'	'person'					'five'			'two'		
Code	Name	*mV ^{back}		1/2- *nV ^{front} tV ^{back} -1/2					*nV ^{back}			*RV ^{front}	
U16.N	<i>Fali</i>	m	u	-	n	i	d	u		-		-	
U16.B	Longuda	m	o	-E/bE	(n)	yI	(r)	∅	∅	ny	O-	-	
U16.A	Tula-Waja	m	o	-∅/b(U)	n	I	(r)	∅	∅	n	U-	-	
U15.A	(Oti-Volta)	b	V	-V/ba	n	i	t	(V)	∅	n	u	∅	l e
U6.M	Yoruboid	b'	V	ɔ/e-	n	ĩ	∅	∅	rɔ	~	á	∅	j ì
U6.I	Ukaan	(h)	o	ɔ/à-	n	í	∅	∅	tjũ	n	ĩ	wà	∅ ∅
U7	(Samba Daka)	w	èè	-	n	èé	∅	∅	tO	(ŋ)	o-	ba	r a
U6.C	(Ninzic)	?		u/ba-	n	E	t	∅	tó	ŋ	∅	pah	∅ ∅
U6.A	(Ekoid)	?		h/(b)à-	n	è	∅	∅	Dó	n	∅	ba	(l) ∅
U6.A	(Bantu)	∅	u	mu/ba-	n	∅	t	u	taa	n	o	bV	d i

Note: (...) = data only from a subentity of the classificatory unit, ? = no data

Table 14: Potential innovations defining a partial Niger-Congo subclassification

- + reconstruction bias toward Bantu (and Benue-Kwa) against low position in likely family tree > focus on geographically peripheral pools: Adamawa, Atlantic, Ubangi
- + Ubangi pool largely lacks major morphological traits but appears to be a robust member (pace Dimmendaal 2011) > potentially significant for Proto-Niger-Congo

1.5 The Nilo-Saharan domain

1.5.a Unit inventory

No.	Lineage	1	2	3	4	Geographic location
U20	Kadu	6				Nuba Mountains
U21	Kuliak	3	X			Ethiopian escarpment-Rift valley
U22	Central Sudanic	65				from northeastern DRC to southern Chad
U23	Songhay	10				Niger bend
U24	Kunama	1		X	X	Ethiopian escarpment-Rift valley
U25	Shabo	1	X	X		Ethiopian escarpment-Rift valley
U26	Furan	2	X			Western Nile watershed
U27	Saharan	10				Central Sahara
U28	Maban	10		X		Western Nile watershed
U29	Taman	4		X	X	Western Nile watershed
U30	Nyimang	2		X	X	Nuba Mountains
U31	Nara	1		X	X	Ethiopian escarpment-Rift valley
U32	Meroitic	1		X	X	Middle Nile
U33	Nubian	13				Western Nile w., Nuba M., Middle Nile
U34	Dajuic	7		X		Western Nile watershed, Nuba Mountains
U35	Temeinic	2	X	X	X	Nuba Mountains
U36	Nilotic	51				South Sudan, Uganda, Kenya, Tanzania
U37	Surmic	10				Ethiopian escarpment-Rift valley
U38	Jebel (2)	4	X	X		Ethiopian escarpment-Rift valley
U39	Berta	1		X	X	Ethiopian escarpment-Rift valley
U40	Koman (2)	4		X		Ethiopian escarpment-Rift valley
U41	Baga	?3	X	X		Ethiopian escarpment-Rift valley
	Total	~200				

Note: (n) = Number of potentially separate subgroups; 1 = Number of languages; 2 = No grammar sketch before 1965; No comprehensive modern published description; 3 = before 2000; 4 = today

Table 15: Basic classificatory units in the Nilo-Saharan domain

1.5.b Diagnostic evidence

- + no individual-identifying paradigmatic morphology defining at least a core, instead a many comparisons of atomic items of unspecific sound shape from arbitrary selections of modern individual languages: e.g., Greenberg (1963), Bryan (1959, 1968, 1975), Dimmendaal (2010a), numerous studies by L. Bender and C. Ehret
- > missing methodological "yardstick" for promising membership

Suffix form	Ø	V	N	T	K	S	R
S	Taman	X	X	(X)	X	(X)	-
	Maban	X	X	(X)	(X)	X	- (X)
P	Taman	(X)	X	X	(X)	X	-
	Maban	(X)	X	X	X	(X)	(X)

Note: Frame = full form-meaning correspondence

Table 16: Suffixal number morphology in Taman and Maban (after Edgar 1991a: 122)

+ lexical evidence equally unacceptable and discredited, notably by C. Ehret (cf. critical reviews) and L. Bender

Language group	Language	Root 1	Root 2
NILO-SAHARAN			
U21 Kuliak	Ik	<i>nok^a</i>	
U22 Central Sudanic			
	A Bongo-Bagirmi	Sara	<i>bísi</i>
		Baka	<i>isi</i>
	G Lenduic	Baledha	<i>tsée</i>
	I Mangbetu-Asua	Mangbetu	<i>nesi</i>
U26 Furan	Fur		<i>asa</i>
U28 Maban	Maba	<i>nok</i>	
U29 Taman	Tama		<i>wi</i>
	Mararit		<i>wiš</i>
U31 Nara	Nara		<i>was</i>
U34 Dajuic	Shatt		<i>iis</i>
U36 Nilotic			
	West	Burun	<i>gɔk</i>
	West	Naath	<i>jiok</i>
	South	Nandi	<i>sese</i>
AFROASIATIC			
U42 Semitic	Amharic		<i>wišša</i>
U45 Cushitic	Sidamo		<i>wɔšš-ico</i>
U46 Omotic: C Ari-Banna	Ari		<i>aksi</i>
NIGER-KORDOFANIAN			
U18 Kordofanian: D Rashadic	Orig		<i>wùsù</i>
U17 Ubangi: B Zandic	Zande	<i>ango</i>	

Note: see Bender's footnote 4 for the data from Amharic and Sidamo

Table 17: Comparative series for 'dog' (after Bender 1981b: 258-7, 266)

Family	(Proto)-language	Singular	Plural	(Additional) source
Nyimang	Proto-Nyimang	.(m)bV̄r	.(m)bV̄r	Bender (2000c: 107, 118)
Nara	Nara	<i>ar</i>	<i>aré</i>	Reinisch (1874: 105)
Meroitic	Meroitic	? <i>dime</i>	?	Rilly (2010: 120)
Taman	Tama*	<i>tεε</i>	<i>tεεŋ</i>	-
	Proto-Taman	.tEE	.tE(-)	Edgar (1991d: 218)
Nubian	Proto-Nubian	.tEE	.tE(-)	Rilly (2010: 521-522)
Dajuic	Daju of Lagowa*	<i>tepe</i>	<i>tukke</i>	-
	Proto-Dajuic	* <i>tepe</i>	* <i>take</i>	Thelwall (1981b: 139)
Temeinic	Temein*	<i>n-ɛ̄ɛŋ</i>	<i>kr-tók</i>	Stevenson (1976-1986)
	Keiga Jirru	<i>a-ɛ̄ɛŋ</i>	<i>ku-ɖuk</i>	Blench (nd.)
	Tese	<i>ε-ɛ̄ɛŋ</i>	<i>kwú-ɖùk</i>	
	Proto-Temeinic	.-Tɛŋ	.kV-TUk	-
Nilotic	Proto-Nilotic*	* <i>ɖeŋ</i>	* <i>ɖok</i>	Dimmendaal (1988: 36)
Surmic	Majang*	<i>taŋ</i>	<i>tɔgi</i>	Joswig (2011: 12)
	Proto-Southwest	* <i>taŋ(a)</i>	.tiin	Moges (2001: 318, 327, 364)
	Proto-Southeast	* <i>bi</i>	.bio	Dimmendaal and Last (1998)
	Proto-Surmic	? . <i>taŋ</i>	?	-
Jebel	Gaam*	<i>tɔɔ</i>	<i>tɔgg</i>	Stirtz (2011: 101)
	Aka	<i>mɔɔ-gɔ</i>	<i>mɔɔ</i>	Bender (1997a: 208)
	Molo	<i>mɔ</i>	-	
	Kelo	<i>mɔ</i>	<i>mɔ</i>	
	Beni Sheko	<i>mu</i>	-	
	Proto-Jebel	. <i>mɔ</i>	. <i>mɔ</i>	-

Notes: * = Language presented by Dimmendaal (2007: 52-53, 2011: 97), **boldface** = apparently valid reflex of suppletion pattern

Table 18: Forms for 'cow/cattle' across East Sudanic

- + extreme typological diversity, so far without mediating scenarios of diachronic typology
- > some typological traits are entertained as genealogical evidence but are evidently of an areal nature that transcends the boundaries of Nilo-Saharan - recurrently shared with various lineages subsumed conventionally under Afroasiatic:
 - word order (Heine 1975, 1976)
 - tripartite number (Dimmendaal 2000)
 - peripheral case (cf. Iggesen 2005) with a variety of alignment types:
 - marked nominative (König 2006; Dimmendaal 2014a)
 - DOM within nominative-absolutive (Dimmendaal 2010a)
 - ergative-absolutive (König 2012)

1.5.c Summary

- + hardly any convincing evidence for an all-comprising language family, not even a larger core group like East Sudanic
- + various lower-level lineages with geographically significant clustering - in the order of robustness of evidence:
 - Central Sudanic
 - Nilotic-Surmic (subpart of conventional "Southern East Sudanic")
 - Wadi Howar (= "Northern East Sudanic": Taman, Nyimang, Nara, Nubian, Meroitic)

Subgroup	1S	2S	1P.(E)	2P
Bongo-Bagirmi	*má	*(?)í	*jE	*SE
Sinyar	maa(-)	ì-	cE-	sE-
Kresh	.a-ma	.u-mu	.(m)á-gV	.í-gí
Aja	(m)a.ma	(m)umu	(m)àmà	(m)ùmù
Birri	má	mú	maà	muù
Moru-Madi	.má	.mí	.(a)-ma	.(V)-mí
Lenduic	.(V)-ma	.(V)-ní	.(V)-mà	.(V)-ní
Mangbutu-Efe	.V-mu	.V-Ní	.à-mù	.à-Ní
Mangbetu-Asua	*í-má	*í-mí	*(m)à-mà	*(m)à-mì
Proto-Central Sudanic	*(V).ma	*(V).mV ^H	*(V).ma	*(V).mV ^H

Table 19: Speech-act participant pronouns across Central Sudanic (Güldemann 2017)

Element	Nara	Nubian	Taman	Nyimang
1S pronoun	*a	*a-i	*wa	*a-i
1P pronoun	*ag	*a-	*wag	*agV
2S pronoun	*e-n	*e-/en-	*i	*i
2P pronoun	*enj/eg-n	*u-	*ig	*igV
3S pronoun	*t-u	*ta-	*an	*an
3P pronoun	*t-ug	*te-	*aŋg	*aŋgi
Object	-go	*-gV	-iŋ (Tama)	-(u)ŋ (Ama)
Singulative	*-t	*-ti	-t (Tama)	-
Plural	*-gu	*-gu	-Koo (Sungor)	-go (Dinik)
Adjectivizer	-ku	?*-ko	*-k	-iŋ (Ama)
Negative	ma	*m(a)-	mɔ (Merarit)	? fa (Ama)

Table 20: Morphological similarities across Northern East Sudanic (after Rilly 2005)

1.6 The Afroasiatic domain

1.6.a Unit inventory

No.	Lineage	1	2	3	4	Geographic location
U42	Semitic	98				North Africa and Arabian peninsula
U43	Egyptian	1				upper and middle Nile Valley
U44	Berber	27				western North Africa
U45	Cushitic (2)	46				from Horn of Africa to Tanzania
U46	OMOTIC (4)	31				southwestern Ethiopia
U47	Ongota	1	X	X	X	southwestern Ethiopia
U48	Chadic	199				central Sahel (Niger to Chad)
U49	Laal-Laabe	2	X	X	X	southern Chad
U50	Kujarge	1	X	X	X	southern Chad
	Total	~400				

Note: (n) = Number of potentially separate subgroups; AREAL POOL; 1 = Number of languages; 2 = No grammar sketch before 1965; No comprehensive modern published description; 3 = before 2000, 4 = today

Table 21: Basic classificatory units in the Afroasiatic domain

1.6.b Diagnostic evidence

- + several types of morphological paradigms as central evidence for the family core
- > notably exponent sets of person (P), gender (G), and number (N) marking of various types that are also useful for determining the likely membership of still controversial units, notably the four subgroups subsumed under the Omotic pool

P	N.G	Chadic	Berber	Egyptian	Semitic	East Cushitic	Beja	Afroasiatic
1	S	*ni	-i	-j	*i/*ya	*yi/*yu	∅	*I
	P	*mu	-na, -nəy	-n	*nV	*nV	-n	*N
2	S.F	*ki	kəm	-t < *ki	*kí	*ki	-ki	*K
	S.M	*ka	-k, kai	-k < *kV	*kV	*ku	-ka	
	P.F	*ku	kunəmti	-tn < *kin	*kin(n)a	*kunu	-kna	
	P.M		kunnə		*kumu			
3	S.F	*ta	-s/t	-ś	*šā	*(i)ši	-s	*S
	S.M	*si		-f	*šū	*(u)su		
	P.F		-s/tənt		*šin(n)a	*sunu(?)		
	P.M	*su	-s/tən	-śn	*šumu		-sna	

Table 22: "Absolutive" pronouns across Afroasiatic (after Sasse 1981a: 144)

P	N.G	Berber	Semitic		Cushitic		Afroasiatic
		Tamazight	Akkadian	Arabic	Beja	Somali	
1	S	∅	a-	ʔa-	ʔa-	ǰ-	?
	P	n-	ni-	na-	ni-	nǰ-	*n-
2	S.F	t	ta-	ta-	ti-	tǰ-	*t-
	S.M						
	P.F						
	P.M						
3	S.F	∅	i-	ya-	ʔi-	yǰ-	*i-
	S.M						
	P.F						
	P.M						

Table 23: Person prefixes on verbs across Afroasiatic (after Sasse 1981a: 138–139)

P	N.G	Yem	Gonga	Gimira	Ometo-C'ara	Proto-Ta-Ne		Afroasiatic
1	S	ta	.ta(-)	.ta(na)	.ta(nV)	.ta(nV)	*T	*N
	P	inno	.no(-)	.nu(na)	.nu(nV)	.nu(nV)	*N	
2	S	ne	.ne(-)	.ne(na)	.ne(nV)	.ne(nV)	*N	*T
	P	nitto	.i(n)t(-)	.int(-)	.inte(nV)	.i(n)t(-)	*T	
3	S.M	bár	.bí	.(y)isi	.izV	.bV/.iS	*S	*S
	S.F	bàr	.bì	?	.izV	.bV/.iS	*S	
	P	bassó	.-bo-	ic	.usu/.V(C)tV	.bV/.VS	*S	

Table 24: Thematic consonants in pronouns of Ta-Ne and Proto-Afroasiatic

P	N.G	Nayi	Sheko	S. Guraferda	Dizin	Proto-Maji	Afroasiatic
		Aklilu (2001)	Hellenthal (2010)	Beachy (2005)			
1	S	na	na(ta)-	yín-	(yi)n-	.-n-	*N
	P	ná	ńa(ta)-	yín-	(i)n'-	.-n'-	
2	S	jet-	ye(ta)-	yet-	(j)Et-	.yet-	*T
	P	it-	ítí(-)	ítí(-)	it-	.it(i)	
3	S.M	is-	aS-, há-	ás-, á-	iz-, a-	.is-	*S
	S.F	if-	if-, yt-	íf-, í-	iǰ-, i-	.if-	
	P	ʔuf-	ʔí(-)	íní(-)	if-	.if-	

Table 25: Thematic consonants in pronouns of Proto-Maji and Proto-Afroasiatic

P	N.G	Ta-Ne	Maji	East Cushitic	Semitic	Afroasiatic			
1	S	.ta(nV)	.-n-	*'ani	*'anā(ku)	*N			
	P	.nu(nV)	.-n'-	*nV	*naḥna/u				
2	S.F	.ne(nV)	.yet-	*'ati	*'anti	*T			
	S.M				*'anta				
	P.F				.i(n)t(-)		.it(i)	*'atin	*'antin(n)a
	P.M								*'antummu
3	S.F	.iS	.if-	*'išii	*šī	*S			
	P.F	.VS	.if-	*'išoo	*šin(n)a				
	P.M				*šumu				
	S.M	.iS	.is-	*'usuu	*šū				

Table 26: n:tS pronoun paradigms across Afroasiatic

PN.G	Gamo "perfect"	Aari "imperfect"	Aari pronouns	Proto-Ari-Banna pronouns	
				Moges (2005b)	Fleming (1976b)
1S	-d-i-s	-d-i-t	ʔi	*ʔi	*inta
1P	-d-o-s	-d-ǝ-t	wǝ (ǝ)	*wo	*wat
2S	-d-a-s-(a)	-d-a-y	ǝǝ	*ha	*ya
2P	-d-eta	-d-e-t	ye	*yΔ	*yes
3S.M	-d-e-s	-d-e	ki (k-i)	*ki	*no
3S.F	-d-u-s		ko (k-o)	*ko	*na
3P	-d-a	-d-e-k	ke	*ke	*ket

Table 27: Pronominal vowel canons in Gamo (Ta-Ne) and Aari (Ari-Banna) (after Hayward (1998: 107) in comparison with Proto-Ari-Banna pronouns

+ Afroasiatic proto-lexicon remains hard to reconstruct - Hodge (1983: 147):

At present one has two choices: do only basic work on the internal family level, or endeavor to see what results can be obtained with controlled use of the limited data available. To do the latter is to risk writing material which in a few years will be worse than useless. On the other hand, it is just possible that the data are sufficient to enable one to draw some valid conclusions. Naturally one will not be sure that they are valid until the more basic work is done and proper procedure followed. A number of scholars have opted for the second course of action, including the present writer. The result of these efforts has been a considerable literature which it is very difficult to assess. Contradictory etymologies abound.

1.6.c Summary

- + Afroasiatic core still the most robust large lineage in Africa
- + Omotic should be assessed by its individual subgroups
- + three isolated languages so far unlikely members

1.7 Overall summary and outlook

- + when applying standards of the general historical-comparative discipline to the evidence that is so far publicly available, Africa is far more diverse than assumed since Greenberg (1963) - **Appendix table + Map: 40-45 independent lineages**
- > new picture turns out to more in line with global patterns of diversity and compatible with Africa's status as the cradle of humans - Greenberg (1950d: 393–394):

Some may consider the relatively large number of families, compared to previous analyses, an unwelcome result of the present investigation. The number is moderate when contrasted with the American Indian situation, or even that of Eurasia. That there should be sixteen language families in Africa is, I should think, not really surprising in view of the admitted antiquity of Africa as a place of human habitation. Previous investigations have shied away from admitting the existence of language families of small membership. No doubt large and equally balanced areas on a map and vast syntheses which include languages whose relationship cannot be demonstrated have a certain esthetic appeal, but I do not see that such considerations can play a part in scientific analysis. The results arrived at here for Africa are quite similar to those for North and South America and for Oceania in this respect, that vast areas are occupied by a small number of widely extended families while in other regions numbers of small isolated groups are found. The present results therefore tend to make Africa, in this respect, much more like other areas of the world than has previously appeared to be the case.

- + neither my classificatory units nor my accepted higher-order families should be viewed as a final set of independent lineages but rather as building blocks for a renewed effort of a historical-comparative assessment of African languages
- > no proof of unrelatedness but only proof of relatedness within standard methodology
- > new "conservative" approach hopefully convinces specialist scholars to make their unpublished evidence publicly available
- > promising hypotheses to be assessed for further consolidation:
 - Wadi Howar
 - Khoe-Kwadi vs. Sandawe
 - Nilotic-Surmic vs. Temeinic and other groups of East Sudanic
 - Tuu vs. Kx'a
- + considerable drawbacks of premature genealogical lumping - Greenberg (1949a: 83):

I feel that far greater harm is done by a premature acceptance of a possibility [of a genealogical link] than by a provisional rejection coupled with an allusion to its existence. This is particularly true in African languages where the primary evidence is not likely to be checked for long periods and where anyone who sets forth a general scheme assumes a greater burden of scientific responsibility than in areas where there is a more active scholarly interest.

- > negative effects in both the discipline and wider academia, notably concerning typological sampling, prioritization of language documentation, research agenda on language contact, integration with non-linguistic prehistorical modelling

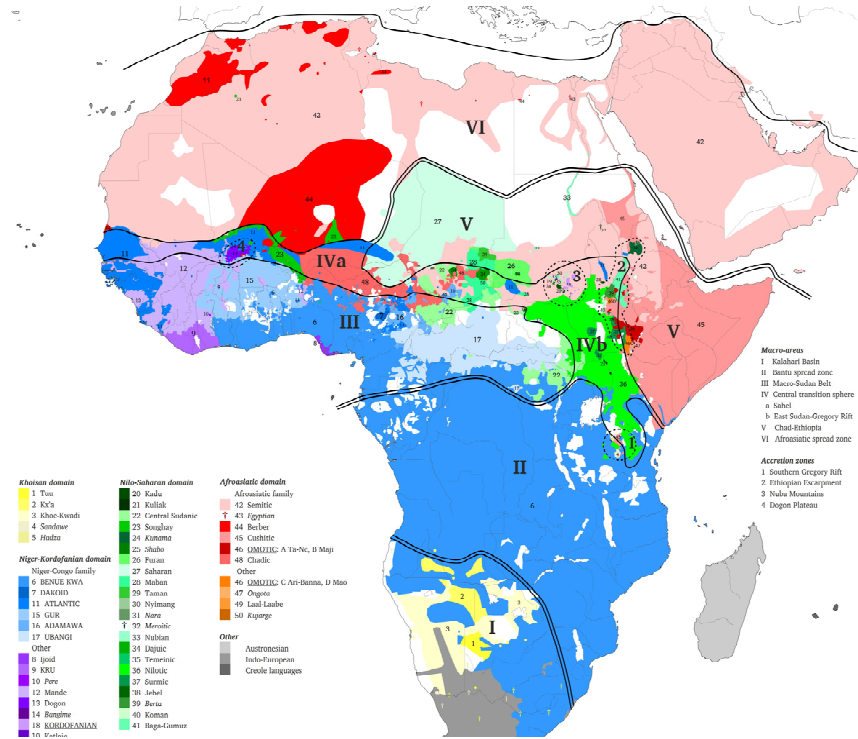
Appendix: African language groups and genealogical evidence

No.	Classificatory unit	Internal	External		
01	Tuu	A, C	Tuu-Kx'a:	South African	Khoisan (domain): D, F
02	Kx'a	B	D, F	Khoisan:	
03	Khoe-Kwadi	A, C	Khoe-Kwadi-	D, F	
04	<i>Sandawe</i>	n.a.	Sandawe: D, F		
05	<i>Hadza</i>	n.a.			
06.A	BANTOID	D	BENUE-KWA: D	Niger-Congo: A, C	Niger- Kordofanian (domain): D
06.B	CROSS-RIVER	D			
06.C	KAINJI-PLATOID	D			
06.D	Igboid	C, E			
06.E	Idomoid	C, E			
06.F	Nupoid	C, E			
06.G	Edoid	A, B			
06.H	Akpes	C, E			
06.I	<i>Ukaan</i>	n.a.			
06.J	<i>Oko</i>	n.a.			
06.K	Owon-Arigidi	C, E			
06.L	Ayere-Ahan	C			
06.M	Yoruboid	B			
06.N	Gbe	B			
06.O	GHANA-TOGO M.	D			
06.P	Potou-Akanic	B			
06.Q	Ga-Dangme	B			
06.R	LAGOON	D			
06.S	<i>Ega</i>	n.a.			
07	DAKOID	D	ATLANTIC: D, F		
11.A	(CORE) ATLANTIC	D			
11.B	Mel	A, B			
11.C	<i>Gola</i>	n.a.			
11.D	<i>Limba</i>	n.a.			
11.E	<i>Sua</i>	n.a.			
11.F	<i>Nalu</i>	n.a.			
11.G	Rio Nunez	C, E			
15.A	(Central) Gur	A, B	GUR: D, F		
15.B	Kulangoic	C			
15.C	<i>Miyobe</i>	n.a.			

15.D	Tiefo	C	ADAMAWA: D	
15.E	<i>Viemo</i>	n.a.		
15.F	Tusian	C		
15.G	Samuic	C		
15.H	Senufo	C, F		
16.A	Tula-Waja	C		
16.B	<i>Longuda</i>	n.a.		
16.C	Bena-Mboi	C		
16.D	Bikwin-Jen	C		
16.E	Samba-Duru	C		
16.F	Mumuyic	B		
16.G	Maya	C		
16.H	Kebi-Benue	C		
16.I	Kimic	C		
16.J	Buaic	A, C		
16.K	<i>Day</i>	n.a.		
16.L	<i>Baa~Kwa</i>	n.a.		
16.M	<i>Nyingwom~Kam</i>	n.a.		
16.N	<i>Fali</i>	n.a.		
17.A	Gbayaic	A, B	UBANGI: D	?
17.B	Zandic	C, E		
17.C	Mbaic	A, B		
17.D	Mundu-Baka	A, B		
17.E	Ngbandic	C, E		
17.F	Bandaic	C, E		
17.G	Ndongoic	D		
09.A	(Narrow) Kru	A, C	KORDOFANIAN: D	
10	<i>Pere</i>	n.a.		
13	Dogon	C, E		
14	<i>Bangime</i>	n.a.		
18.A	Heibanic	A, B		
18.B	Talodic	A, B		
18.C	<i>Lafofa</i>	n.a.		
18.D	Rashadic	C		
19	Katlaic	C		
08	Ijoid	A, B		
09.B	<i>Siamou</i>	n.a.		
12	Mande	C, E		

20	Kadu	C, F	Northern East Sudanic ~ "Wadi Howar": D, E, F	East Sudanic: D	Nilo- Saharan (domain): D			
21	Kuliak	B						
22	Central Sudanic	A, B						
23	Songhay	C						
24	<i>Kunama</i>	n.a.						
25	<i>Shabo</i>	n.a.						
26	Furan	C						
27	Saharan	A, C						
28	Maban	A, B						
29	Taman	A, B						
30	Nyimang	C						
31	<i>Nara</i>	n.a.						
32	<i>Meroitic</i>	n.a.						
33	Nubian	A, B						
34	Dajuic	A, B						
35	Temeinic	C						
36	Nilotic	A, B	Nilotic-Surmic: C, F					
37	Surmic	A, B						
38	Jebel	(C), F	Jebel-Berta: D, F					
39	<i>Berta</i>	C						
40	Koman	B	Koman-Baga: D, F					
41	Baga	C						
48	Chadic	A, B	Afroasiatic: A, C		Afroasiatic domain: D			
42	Semitic	A, B						
43	<i>Egyptian</i>	n.a.						
44	Berber	A, B						
45	Cushitic	A, C						
46.A	Ta-Ne	B, C				OMOTIC: D, F		
46.B	Maji	B, C						
46.C	Ari-Banna	A, C						
46.D	Mao	C						
47	<i>Ongota</i>	n.a.						
49	Laal-Laabe	C						
50	<i>Kujarge</i>	n.a.						

Notes: GENEALOGICAL/AREAL POOL; *Single language (complex)*; n.a. = not applicable;
A = Reconstructed morpheme paradigms; B = Regularly reconstructed lexicon;
C = Strong resemblances of bona fide reconstructibility; D = Scattered
resemblances; E = Lexicostatistic calculations; F = Structural similarities.



Map: Basic classificatory units and genealogical relations in Africa

For references see:

Güldemann, Tom. 2018. Historical linguistics and genealogical language classification in Africa. In Güldemann, Tom (ed.), *The languages and linguistics of Africa*. *The World of Linguistics* 11. Berlin: Mouton de Gruyter, 58-444.