INSTITUT FÜR ASIEN- UND AFRIKA-WISSENSCHAFTEN

Number marking in the Hill Nubian language Karko

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Afrikalinguistisches Kolloquium

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Contents

1 Introduction

1.1 Project

+ the contents of today‘s talk are extracted from my dissertation project “A typological study on tripartite number systems in the languages of Northeastern Africa” (working title)

+ the dissertation is associated with the research project “Noun classification in Africa between gender and nominal declension (deriflection)” (Principal investigator: Tom Güldemann)

+ my project‘s focus is on the typological description and analysis of the notion of “tripartite number” as a whole within selected languages of Northeastern Africa

> in today‘s talk data from the Hill Nubian language Karko will be presented which was collected during and after a field trip to Khartoum in February 2023

> the data is based on a self-compiled 600 word list comprising various semantic domains

+ in addition to the presentation of my own data, number marking in der Nubian language group will be discussed with a focus on potential tripartite number systems

> in order to cope with the partly ambiguous nature of tripartite number terminology, different domains of number tripartiteness have to be distinguished

1.2 Tripartite number

Four types of tripartiteness:
> systemic, encoding, lexeme, lexicon

Lexicon type	**Encoding**	**Base + SGV**	**Unmarked base**	**Base + PLV**	**Example**
Bipartite	P pattern		*mine*	*min-**na***	'house'
	S pattern	*atar-**čo***	*atara*		'pea'
	R pattern	*kin-**čo***		*kin-**na***	'rock'
Tripartite	T pattern	*midaan-**čo***	*midaano*	*midaan-**na***	'clay bin'
Transnumeral	Various		ado		'milk'

Table 1: Four concepts of tripartiteness in Sidama (Cushitic)

1.2 Tripartite number

Important for this talk:
> systemic tripartiteness, encoding tripartiteness + transnumeral nouns

Lexicon type	Encoding	Base + SGV	Unmarked base	Base + PLV	Example
Bipartite	P pattern		*mine*	*min-**na***	'house'
	S pattern	*atar-**čo***	*atara*		'pea'
	R pattern	*kin-**čo***		*kin-**na***	'rock'
Tripartite	T pattern	*midaan-**čo***	*midaano*	*midaan-**na***	'clay bin'
Transnumeral	Various		ado		'milk'

Table 1: Four concepts of tripartiteness in Sidama (Cushitic)

1.3 Aims of the talk

+ analysis of nominal number marking in Karko with a focus on pattern distribution, number marking morphology and semantic tendencies

+ brief comparison of Karko with other tripartite number marking languages from Northeastern Africa

+ overview of nominal number marking in the Hill Nubian language group

> description of situation in modern Nubian languages

> introduction to diachronic theories

2 Number marking in Nubian

2.1 The Nubian language group

+ the Nubian language group stretches from the border area of Sudan and Egypt by the Nile down to the south of Sudan (Nuba mountains, Darfur)

+ the following languages/branches are included (from north to south):

1. Kenzi-Dongola
2. Nobiin
3. Haraza
4. Midob
5. Birked
6. Hill Nubian (Kordofan Nubian)

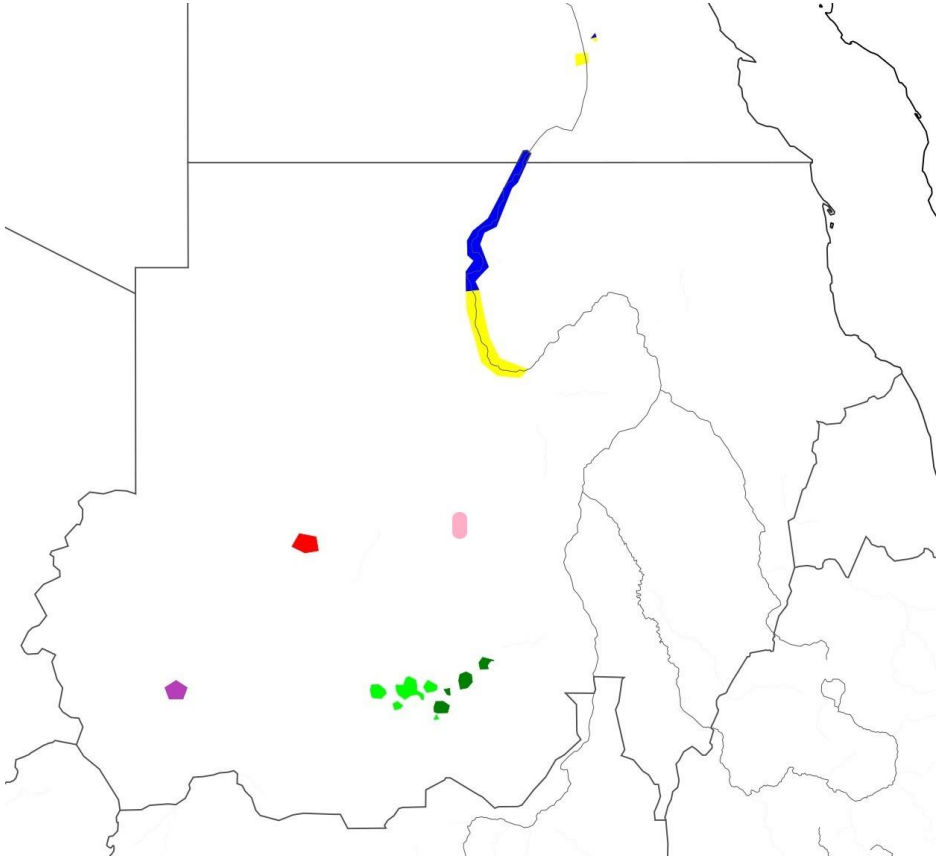

Figure 1: Nubian language map

2.1 The Nubian language group

+ while the affiliation of the member languages to the Nubian language group is undisputed, the internal classification of the group is partly unclear (see Güldemann 2018: 282 f.)

> issue of a possible Nile Nubian branch including Nobiin and Kenzi Dongola (for contra, see e.g. Bechhaus-Gerst 1989; for pro e.g. Rilly 2010)

+ unaffected by this controversy, Hill Nubian is generally accepted as unified branch

+ the most widely accepted classification (used e.g. in Glottolog, Ethnologue) goes back to Bechhaus-Gerst (1989: 92) which compares to Rilly (2011: 278) as follows:

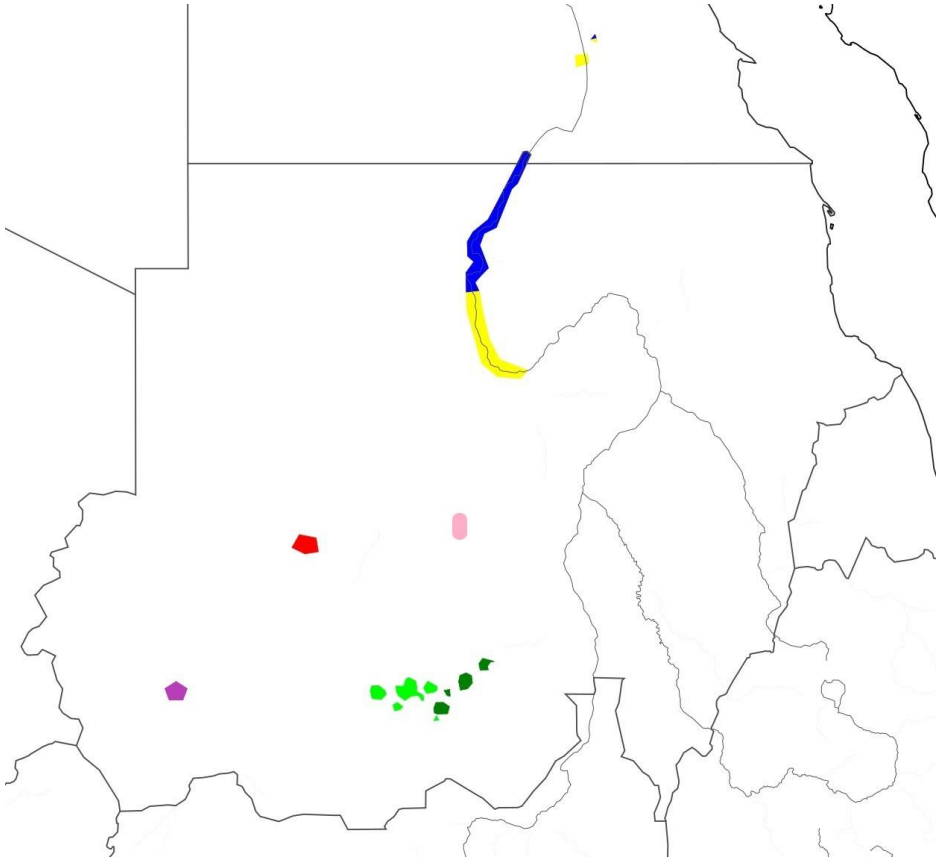

Figure 1: Nubian language map

2.1 The Nubian language group

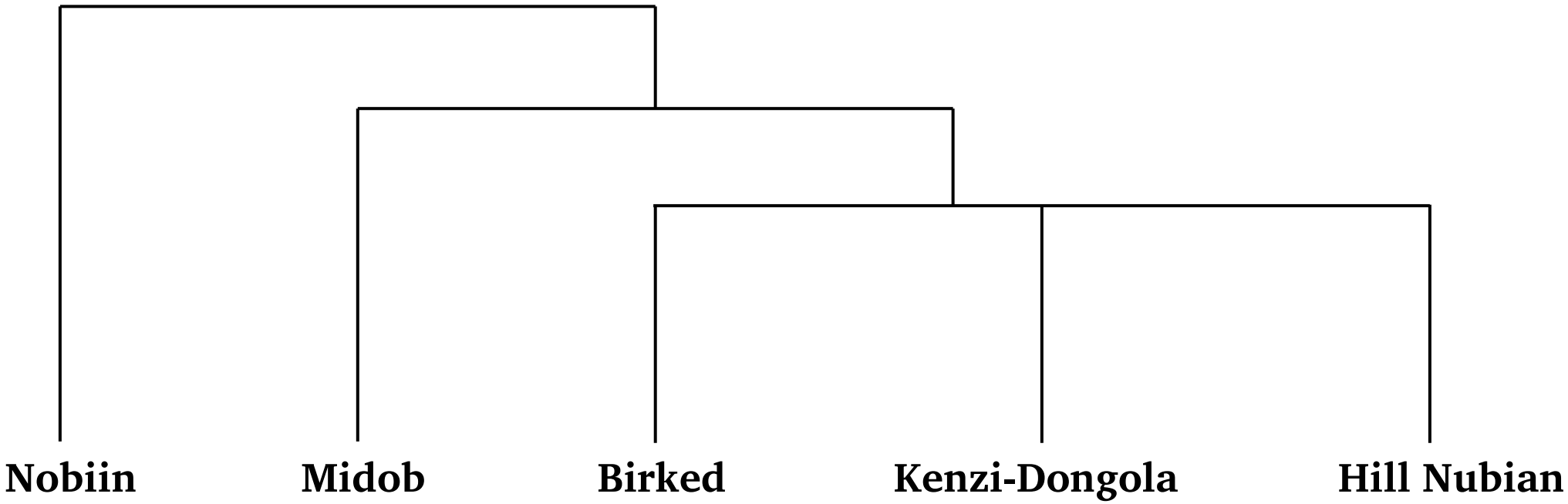

Figure 2: Internal classification of the Nubian language group according to Bechhaus-Gerst (1989:92)

2.1 The Nubian language group

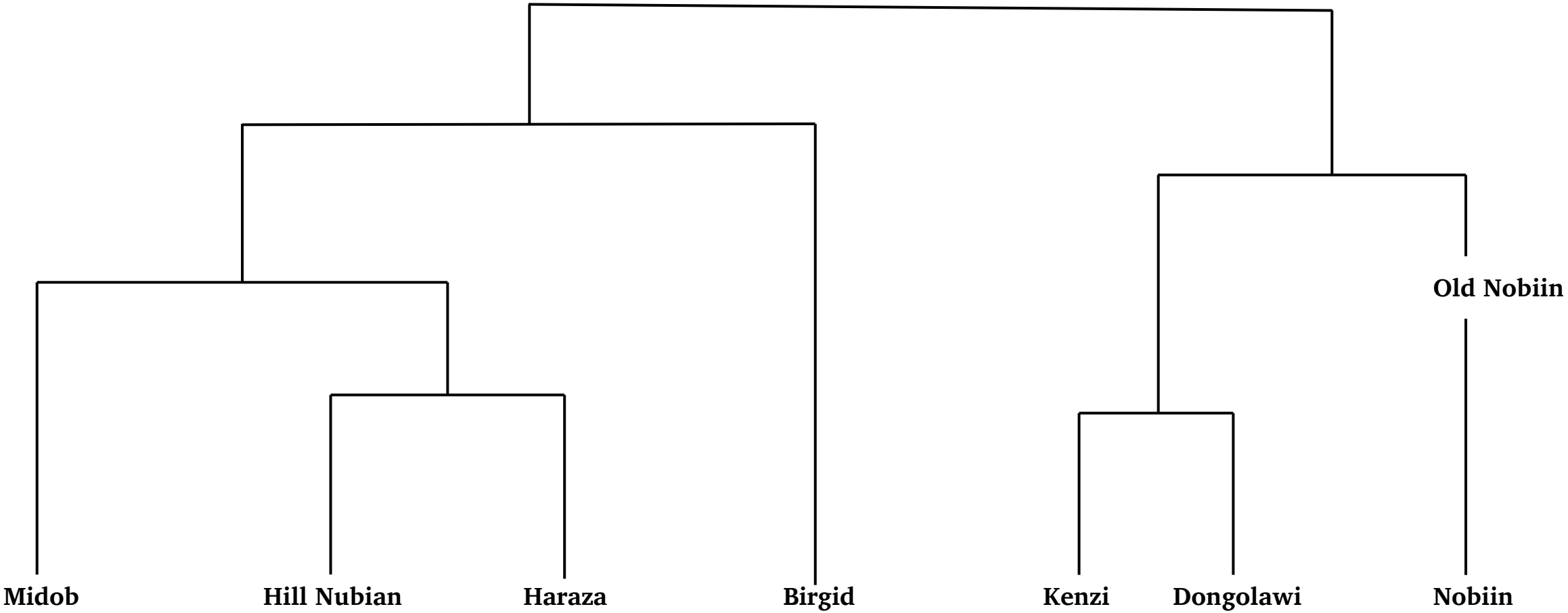

Figure 3: Internal classification of the Nubian language group according to Rilly (2011:278)

2.2 Modern Nubian number systems

Nobiin (Nobiin Nubian)

+ 605.000 speakers in 2017 (Eberhard et al. 2023, as for all numbers)

> by far the largest Nubian language

+ constitutes an isolated branch of the Nubian language group (Bechhaus-Gerst 2011:22)

+ lineal descendant of Old Nobiin

+ diachronically best described Nubian language

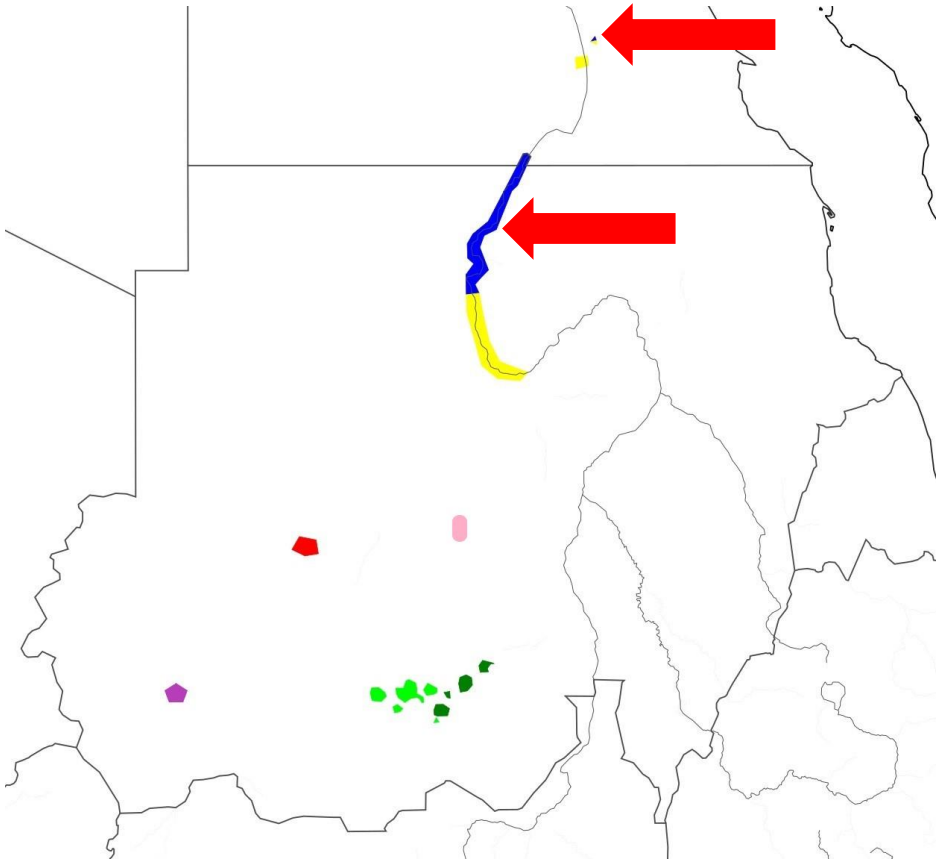

Figure 4: Location of Nobiin

2.2 Modern Nubian number systems

+ Werner (1987: 80) distinguishes between four plurative morphemes and two tone patterns

> high tone: *-ríi* and *-gúu*

> low tone: *-ìi* and *-ncìi*

(1) *kòog - kòog-rìi* ‘raven’

(2) *kúrsí - kùrsì-gùu* ‘chair’

(3) *dìrbád - dìrbàd-ìi* ‘chicken’

(4) àrrée - àrrèe-ncìi ‘waterfall’

+ allocation of plurative morphemes is mostly arbitrary (Werner 1987: 81, Bechhaus-Gerst 2011: 31)

+ however, certain tonological and phonological rules apply

> singular with stem-final low tone is never pluralized by *-ìi*

> singular with stem-final high-toned *-ée* tend to be pluralized by *-ncíi*

2.2 Modern Nubian number systems

+ according to Bechhaus-Gerst (2011: 31), both high and low-toned plurative suffixes can be traced back to different origins

> high-toned (*-ríi* and *-gúu):* Old Nobiin

> low-toned (*-ìi* and *-ncìi):* Dongolawi

+ for Old Nobiin (a predecessor of Nobiin) only plurative marking can be attested with *-gu* as the only plurative morpheme (Zyhlarz 1928: 35, Smagina 2017: 33, for more information on Old Nubian, see also Browne 2002, Gerven Oei 2021)

(5) *uk(u)r - ukr-igu* 'day'

+ in addition, transnumeral nouns can also be found triggering either singular **or** plural morphology

> singulare tantum*: ámán* 'water'

> plurale tantum*: úttú* 'people'

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern		*dìrbád*	*dìrbàd-ìi*	‘chicken’
	S pattern				
	R pattern				
Trans-numeral	singulare tantum		*ámán*		‘water’
	plurale tantum		*úttú*		‘people’
	SG/PL tantum				
	marked tantum				

Table 2: The number marking system of Nobiin

2.2 Modern Nubian number systems

Midob (West-Central)

+ 85.000 speakers in 2017

+ constitutes an isolated subbranch of the West-Central Nubian branch

+ spoken in Northern Darfur‘s Midob hills

+ surrounded by the Eastern Saharan Berti and Zagahawa as well as some “arabized nomadic tribes” (Werner 1993: 13)

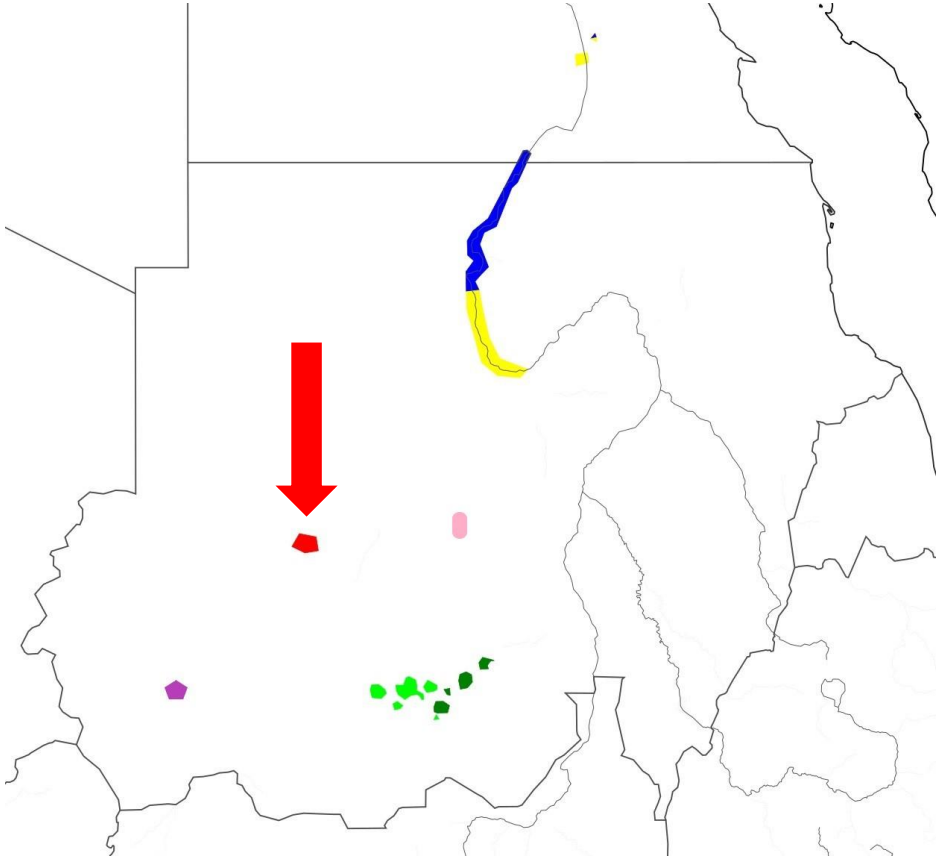

Figure 5: Location of Midob

2.2 Modern Nubian number systems

+ according to Thelwall (1983: 107) and Werner (1993: 27), only plurative marking can be attested in Midob

+ however, morphological number marking is never obligatory as every noun can be realized in a transnumeral way with either number agreement or numeral expressions indicating the nouns number value

(6)	*ákán*	*ír*	*íi-hùm*	vs.	*ákán*	*ír*	*íi-hàm*
	DEM	man.SG/PL	come-SG		DEM	man.SG/PL	come-PL
	‘the man came’				‘the men came’		

+ if plurality is indicated through plurative morphology, the suffix *-ti* proved to be the only option

(7) tóorí - tóorí-tí ‘woman’

+ no information is given on possible selection criteria of pluralization methods

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern		*kòosǐ* (optional)	*kòosǐ-tǐ*	‘lip’
	S pattern				
	R pattern				
Trans-numeral	singulare tantum				
	plurale tantum				
	SG/PL tantum		*ír* (optional)		‘man’
	marked tantum				

Table 3: The number marking system of Midob

2.2 Modern Nubian number systems

Kenzi-Dongola (West-Central, Central)

+ 50.000 (Kenzi) + 70.000 (Dongola) speakers in 2014

+ “closely related languages which can be classified as dialects” (Bechhaus-Gerst 2011: 23)

> Kenzi spoken in Egypt, Dongolawi in Sudan

+ mainly surrounded by Arabic and in some places Nobiin

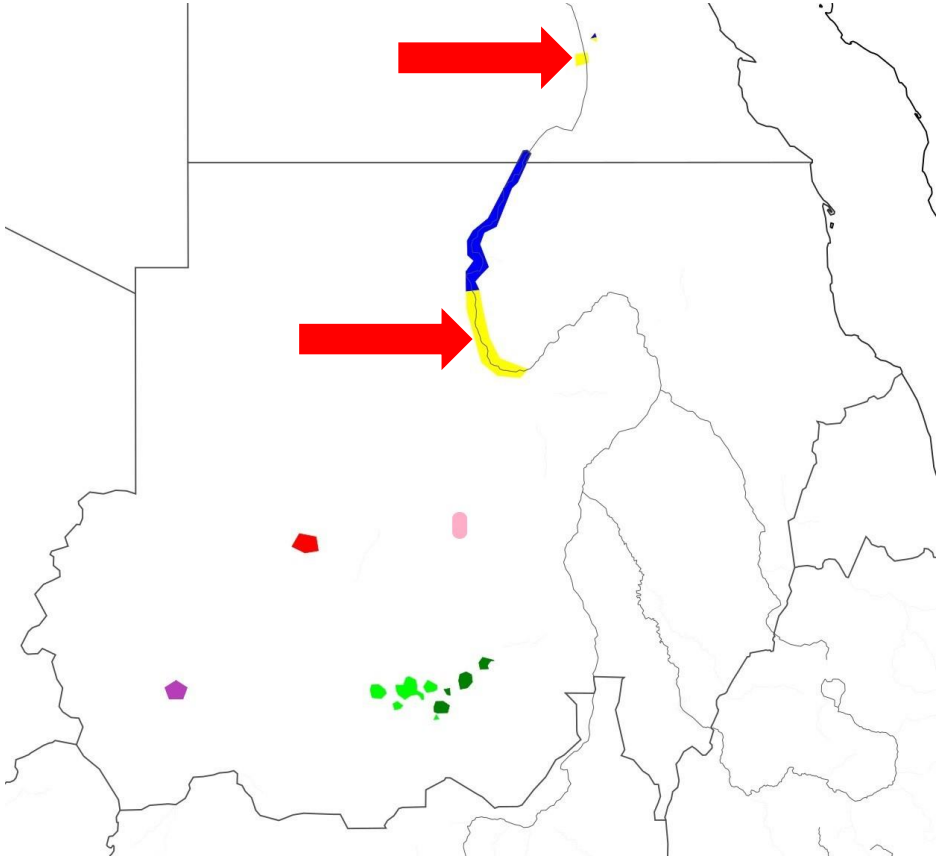

Figure 6: Location of Kenzi-Dongolawi

2.2 Modern Nubian number systems

+ in both Kenzi and Dongolawi, the singular of a noun is never morphologically marked (Armbruster 1960: 132, Massenbach 1963: 245, Hofmann 1983: 29, Abdel Hafiz 1988: 80)

> pluratives are the only attested number marking morphemes

+ only one productive plurative suffix with two allomorphs

> *-i* (on noun stems ending in a consonant)

> *-cci* (on noun stems ending in a vowel)

(8) *wel - wel-i* 'dog'

(9) *berti - berti-cci* 'goat'

+ in addition, a few less productive morphemes can be found: *-li, -ri, -gu*

+ transnumeral nouns are nowhere to be mentioned

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern		*wel*	*wel-i*	'dog'
	S pattern				
	R pattern				
Trans-numeral	singulare tantum				
	plurale tantum				
	SG/PL tantum				
	marked tantum				

Table 4: The number marking system of Dongolawi

2.2 Modern Nubian number systems

Haraza (West-Central, Central)

+ extinct since first half of 20th century (Sommer 1992: 351)

+ spoken around the free-standing mountain Jebel Haraza in Norther Kordofan

+ word list with 36 entries as only known linguistic evidence (Newbold 1924)

> some nouns included, without information on number

+ could not be further classified within the Western-Central branch

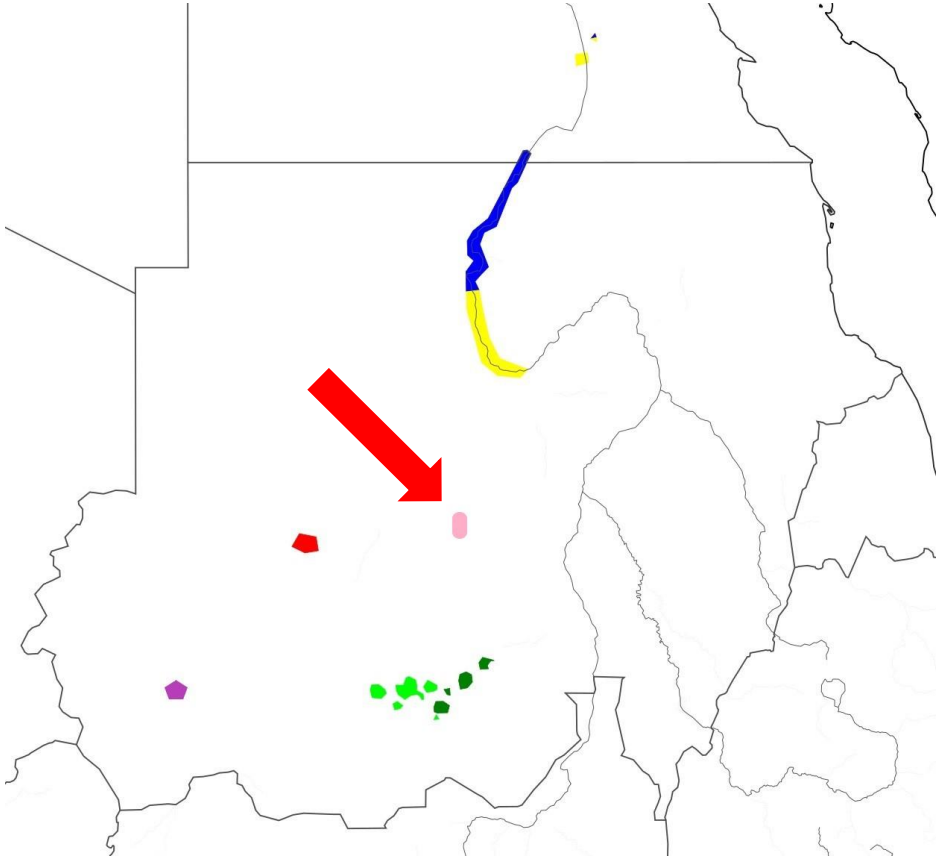

Figure 7: Location of Haraza

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern				
	S pattern				
	R pattern				
Trans-numeral	singulare tantum				
	plurale tantum				
	SG/PL tantum				
	marked tantum				

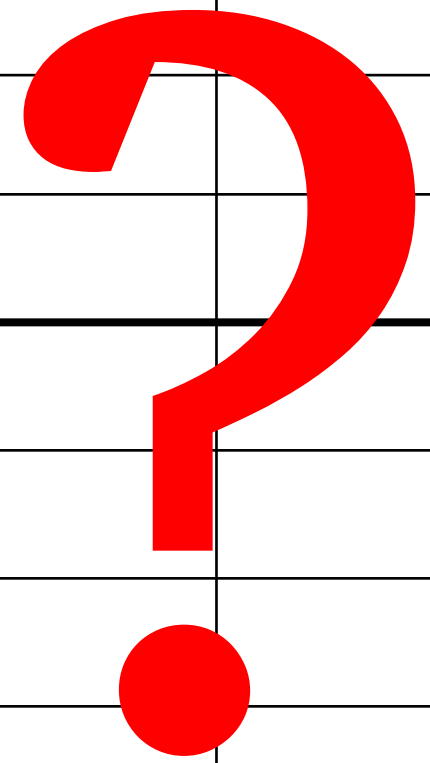

Table 5: The number marking system of Haraza

2.2 Modern Nubian number systems

Birked (West-Central, Central)

+ extinct since first half of 20th century (Sommer 1992: 316)

+ spoken in Darfur around Jebel Ghor Abeshei just north of Nyala (O'Fahey and Hales 1970)

+ surrounded by Furan and Dajuic languages

+ no grammar, only a comparative word list (Thelwall 1977)

> number information partly included

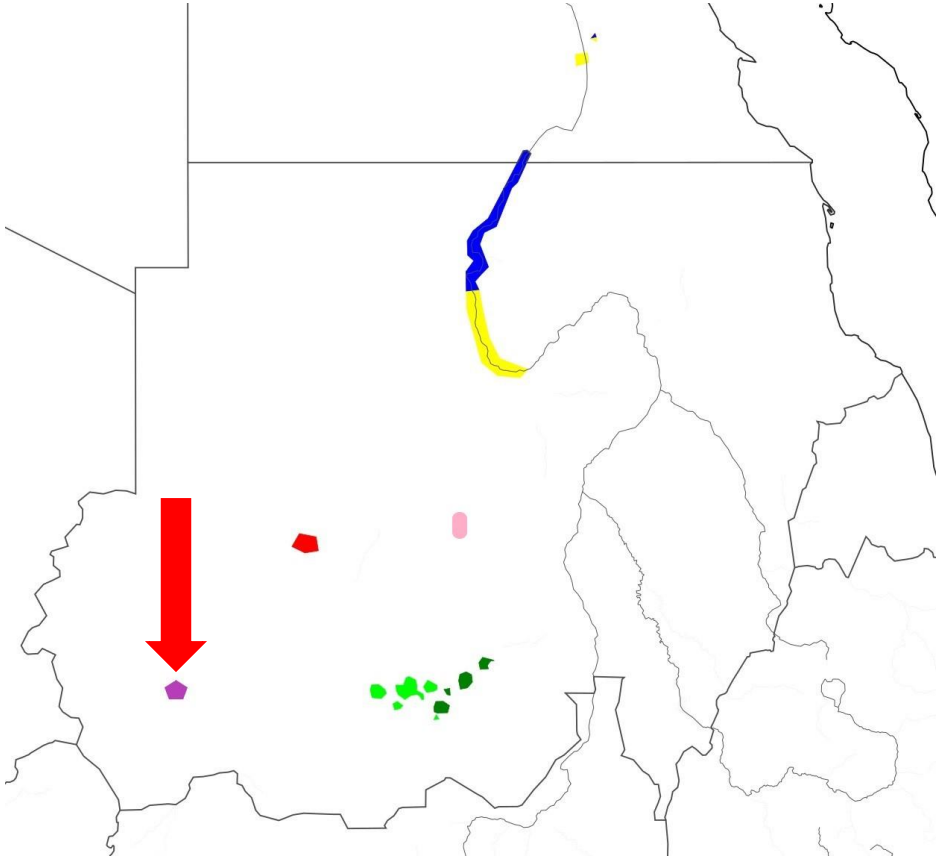

Figure 8: Location of Birked

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern		*kildi*	*kildi-r*	'house'
	S pattern	*fɛrgi-di*	*ferge*		'vein'
	R pattern	*tod-ugi*		*tod-idi*	'termite'
Trans-numeral	singulare tantum				
	plurale tantum				
	SG/PL tantum				
	marked tantum				

Table 6: The number marking system of Birked

2.2 Modern Nubian number systems

Dair (Central, Kordofan, Eastern)

+ 1.000 speakers in 1978

+ last mentioned in 2006 (Jabr el Dar 2006: 184)

> questionable if still spoken

+ has not been examined thoroughly

> no grammar, no word list

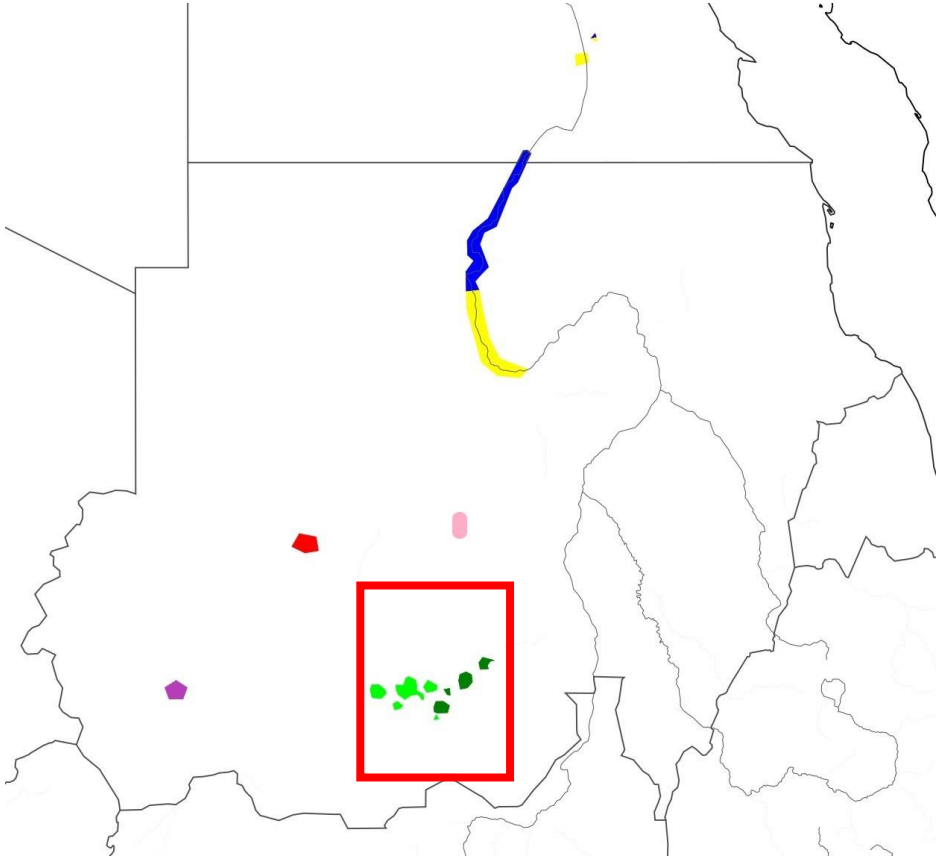

Figure 9: Location of Dair

2.2 Modern Nubian number systems

Dair (Central, Kordofan, Eastern)

+ 1.000 speakers in 1978

+ last mentioned in 2006 (Jabr el Dar 2006: 184)

> questionable if still spoken

+ has not been examined thoroughly

> no grammar, no word list

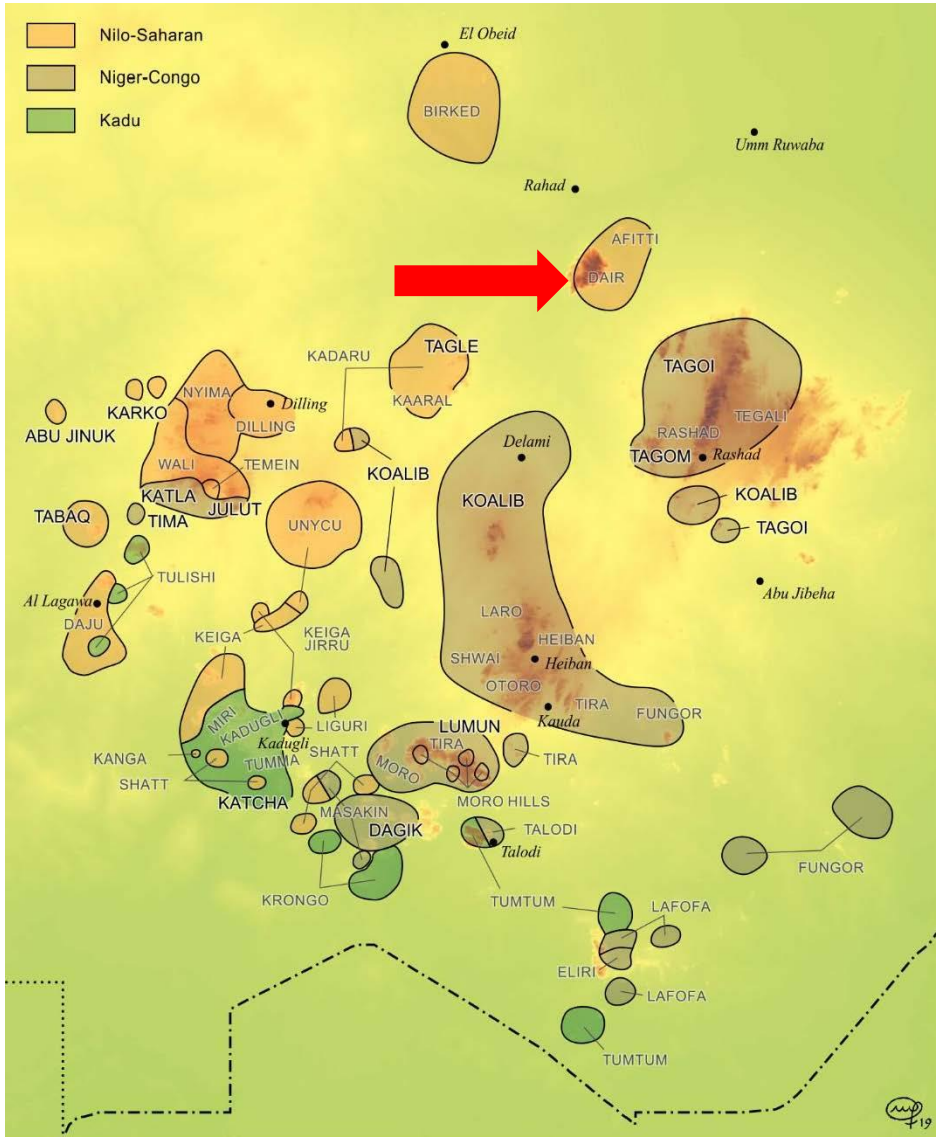

Figure 10: Location of Dair

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern				
	S pattern				
	R pattern				
Trans-numeral	singulare tantum				
	plurale tantum				
	SG/PL tantum				
	marked tantum				

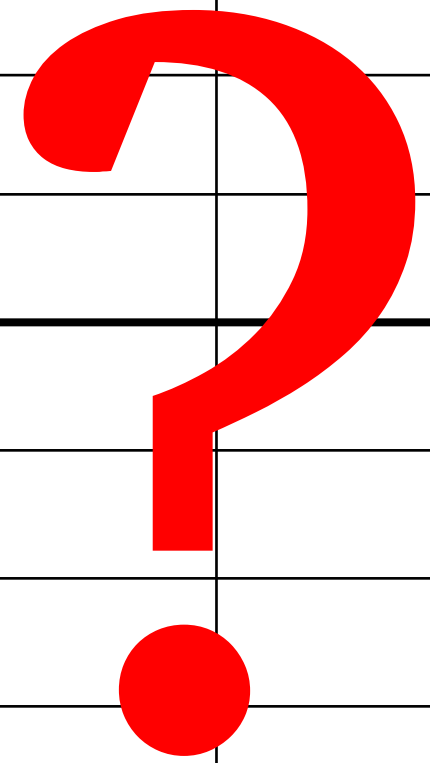

Table 7: The number marking system of Dair

2.2 Modern Nubian number systems

Tagle (Kordofan, Eastern)

+25.00 speakers in 2013

+ supposed to be the Eastern Kordofan Nubian counterpart to Karko in my study

+ even though certain areas are well-described (e. g. phonology; see Ibrahim and Huttenga 2007, Alaki and Norton 2015), neither grammar nor word list exists

+ based on personal communication with two speakers, Tagle features encoding tripartiteness

> still waiting on data

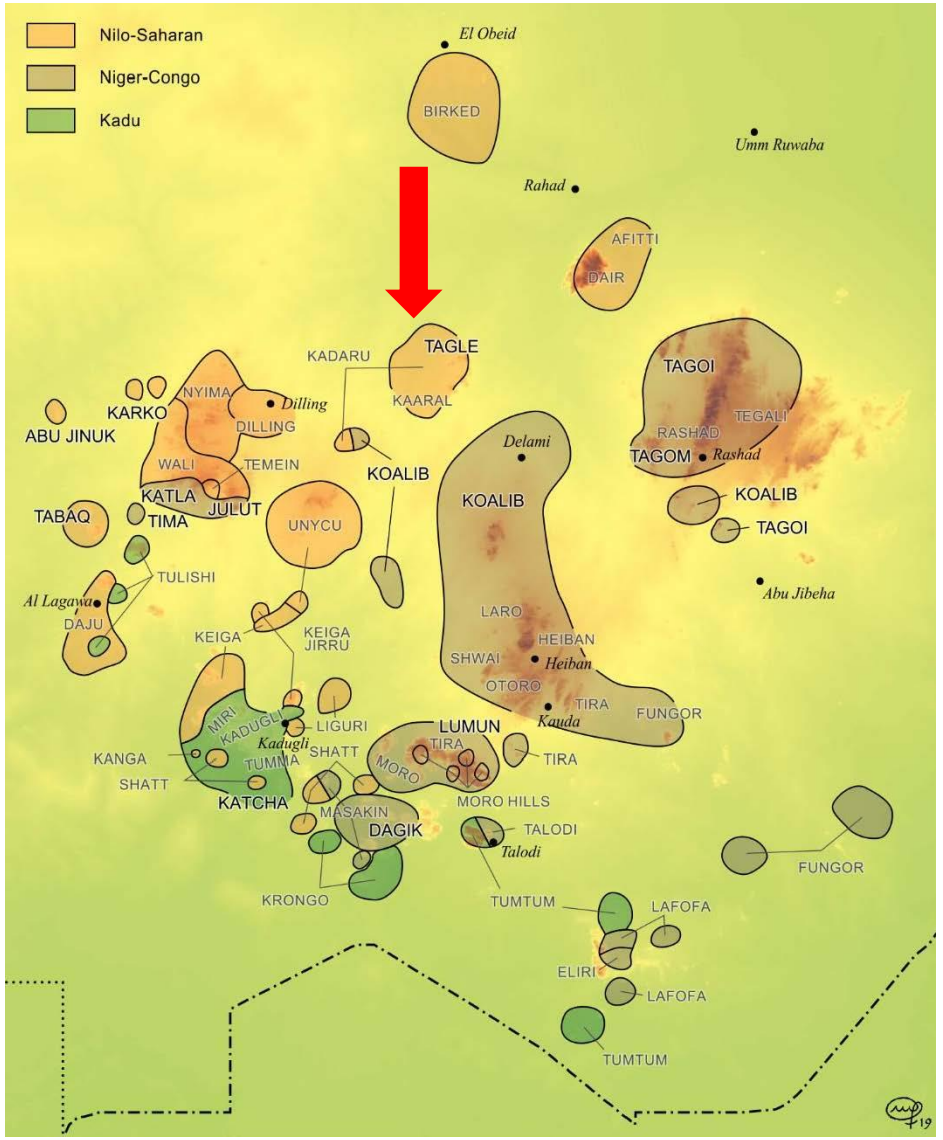

Figure 11: Location of Tagle

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern		xxx	xxx	xxx
	S pattern	xxx	xxx		xxx
	R pattern	xxx		xxx	xxx
Trans-numeral	singulare tantum				
	plurale tantum				
	SG/PL tantum				
	marked tantum				

Table 8: The number marking system of Tagle

2.2 Modern Nubian number systems

Uncunwee (Kordofan, Eastern)

+ 37.000 speakers in 2017

+ situated in the middle of the Nuba Mountains between Dilling and Kadugli

+ surrounded by other Hill Nubian languages as well as Temeinic, Kadu and Heiban

+ however, the only grammar was compiled with the help of displaced speakers in Cairo (Williams and Comfort: n. d.)

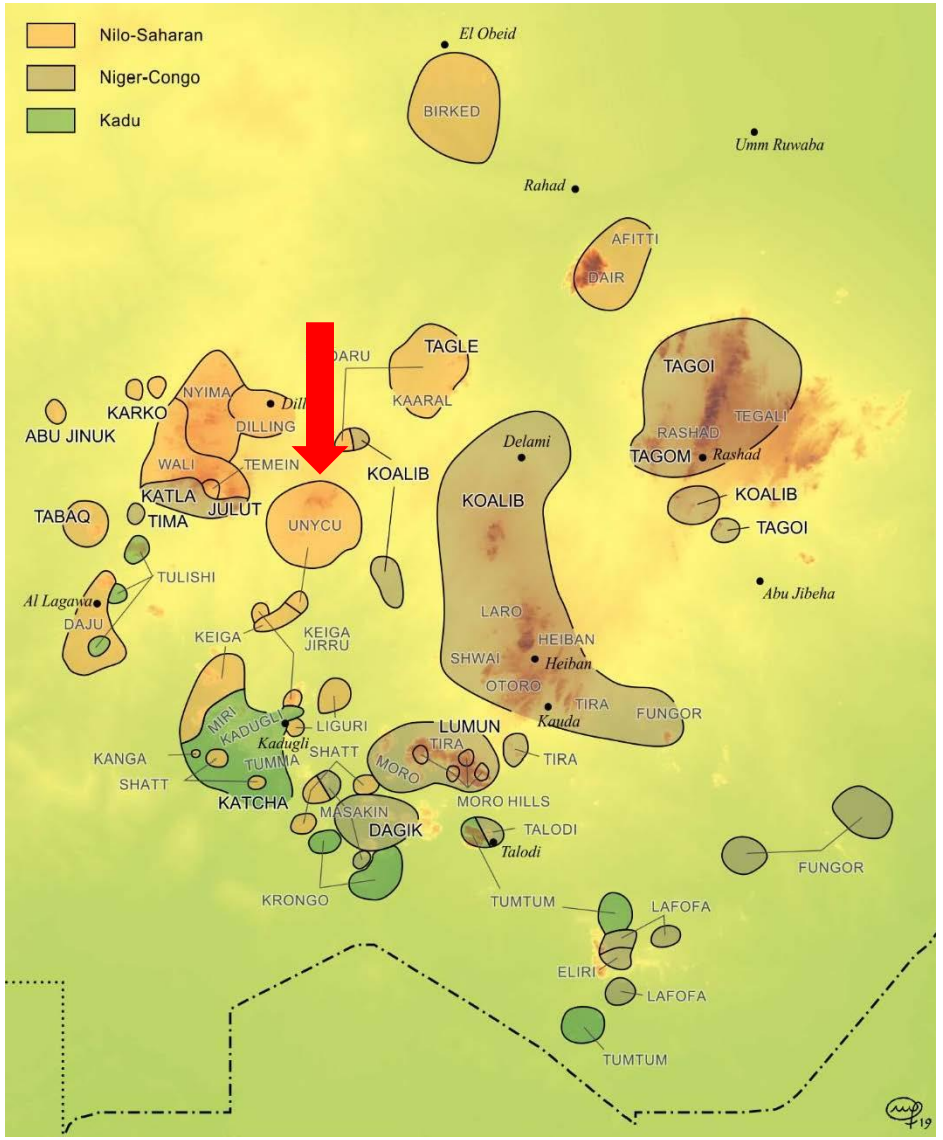

Figure 12: Location of Uncunwee

2.2 Modern Nubian number systems

+ according to Williams and Comfort (n.d.), Uncunwee contains a number system comprising the “typical” three marking patterns: P pattern, S pattern and R pattern

+ within this framework, number is marked exclusively by suffixes

(10) *bórul - boru-dé* ‘fox’

(11) *bɪrkɛ-tu - birké* ‘worm’

(12) *dék-atu - dek-itɪ́* ‘bruise’

+ only information given on the morphological repertoire concerns the singulative marker *-tu*

> semantically motivated, as it individuates items from natural collectives, groups or pairs

+ kinship terms constitute an exception, distinguishing number by tone only

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern		*bórul*	*boru-dé*	‘fox’
	S pattern	*bɪrkɛ-tu*	*birké*		‘worm’
	R pattern	*dék-atu*		*dek-itɪ́*	‘bruise
Trans-numeral	singulare tantum				
	plurale tantum				
	SG/PL tantum				
	marked tantum				

Table 9: The number marking system of Uncunwee

2.2 Modern Nubian number systems

Dilling (Kordofan, Western)

+ 12.000 speakers in 2017

+ surrounded by other Hill Nubian languages, Katlaic and Temeinic

+ only one grammatical description dealing with nominal number (Kauczor 1920)

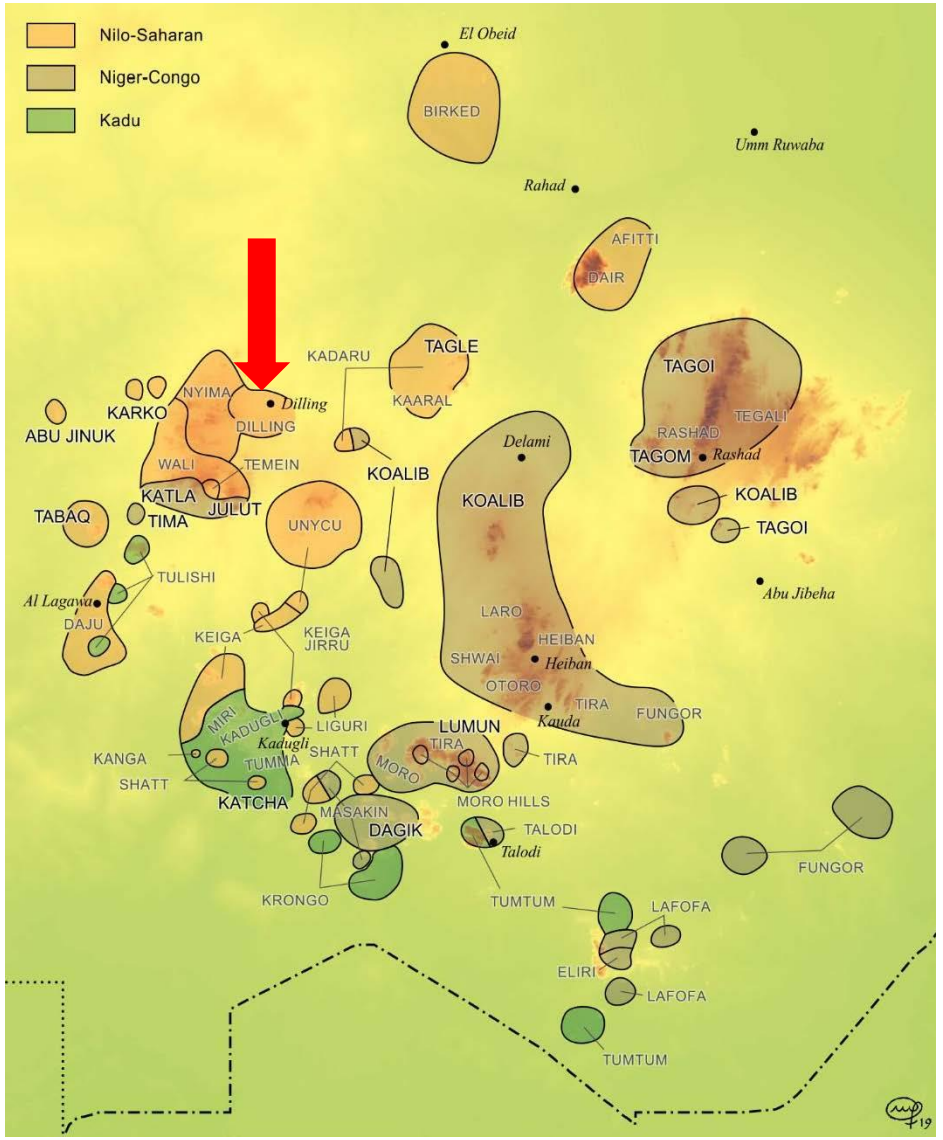

Figure 13: Location of Dilling

2.2 Modern Nubian number systems

+ Kauczor (1920: 60 ff.) notes a variety of singulative and plurative suffixes in the marking patterns P, S and R

(13) *kọli - kọli-ń* ‘vulture’

(14) *šele-ndu - šele* ‘rib’

(15) *kum-e - kum-i* ‘mouse’

+ the SGV suffix *-ndu* is identical to the singular diminutive morpheme and appears exclusively in the S pattern

+ the exact choice of a certain morpheme cannot be predicted (e.g. on a semantic basis) and seems to be arbitrary

+ in addition, nouns can be transnumeral either distinguishing singular and plural morphosyntactically or occurring as plurale tantum

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern		*kọli*	*kọli-ń*	‘vulture’
	S pattern	*šele-ndu*	*šele*		‘rib’
	R pattern	*kum-e*		*kum-i*	‘mouse’
Trans-numeral	singulare tantum				
	plurale tantum		*ọti*		‘water’
	SG/PL tantum		*ulde*		‘ear’
	marked tantum				

Table 10: The number marking system of Dilling

2.2 Modern Nubian number systems

El Hugeirat (Kordofan, Western)

+ 50 speakers in 2007

+ located at the western fringe of the Nuba mountains

> a bit further away from other Hill Nubian languages

+ questionable if still spoken

+ short word list 15 entries (MacDiarmid and MacDiarmid 1931: 160) as only linguistic evidence

>no information on number

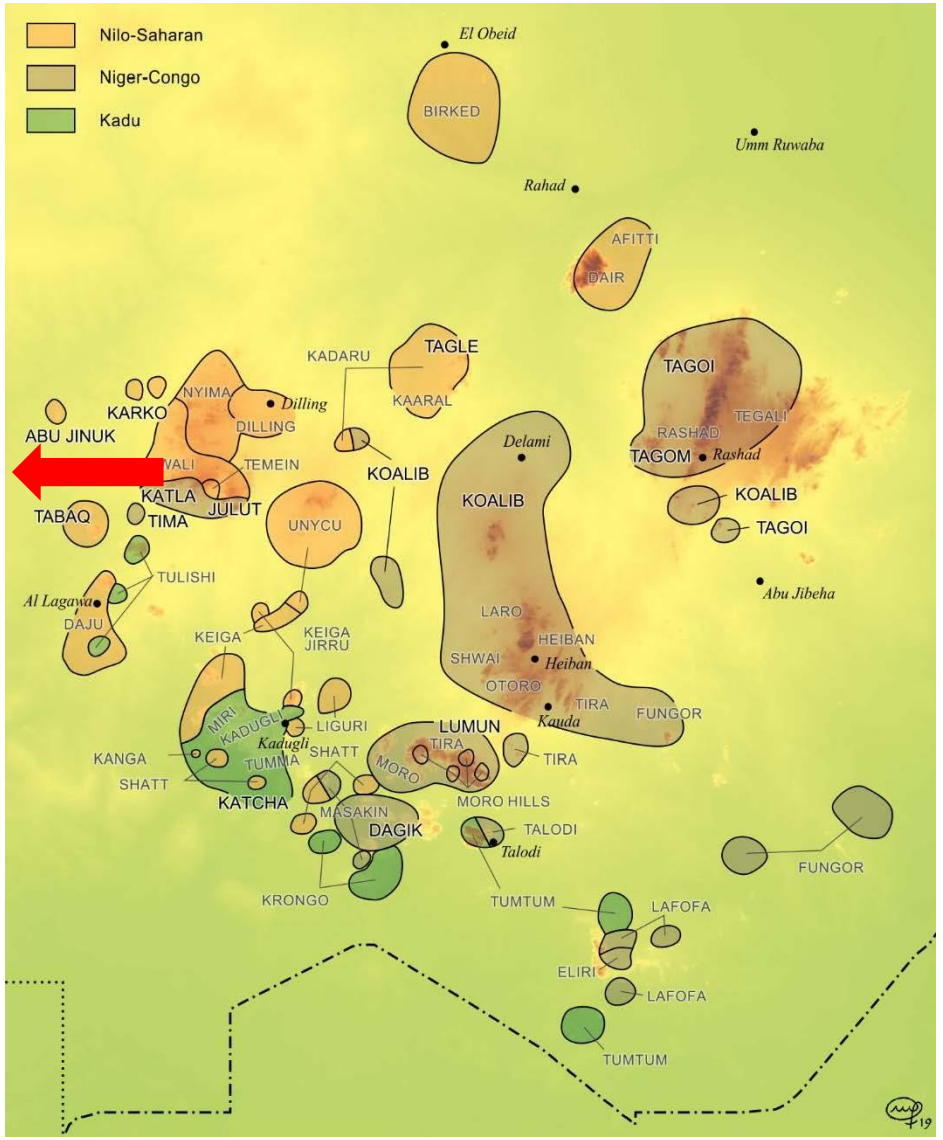

Figure 14: Location of El Hugeirat

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern				
	S pattern				
	R pattern				
Trans-numeral	singulare tantum				
	plurale tantum				
	SG/PL tantum				
	marked tantum				

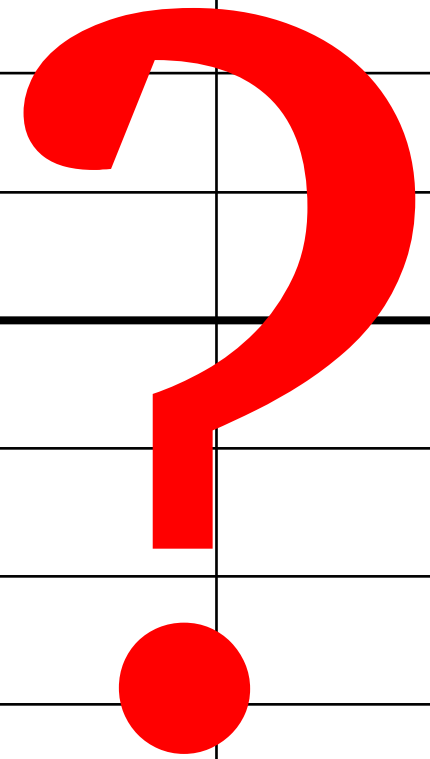

Table 11: The number marking system of El Hugeirat

2.2 Modern Nubian number systems

Wali (Kordofan, Western)

+ 9.000 speakers in 2007

+ still vivid (even among younger speakers) (Krell 2012: 16)

+ closely related to Karko

+ isolated from other (Hill Nubian) villages

+ no linguistic evidence except for a comparative word list (Krell 2012)

> no information on number

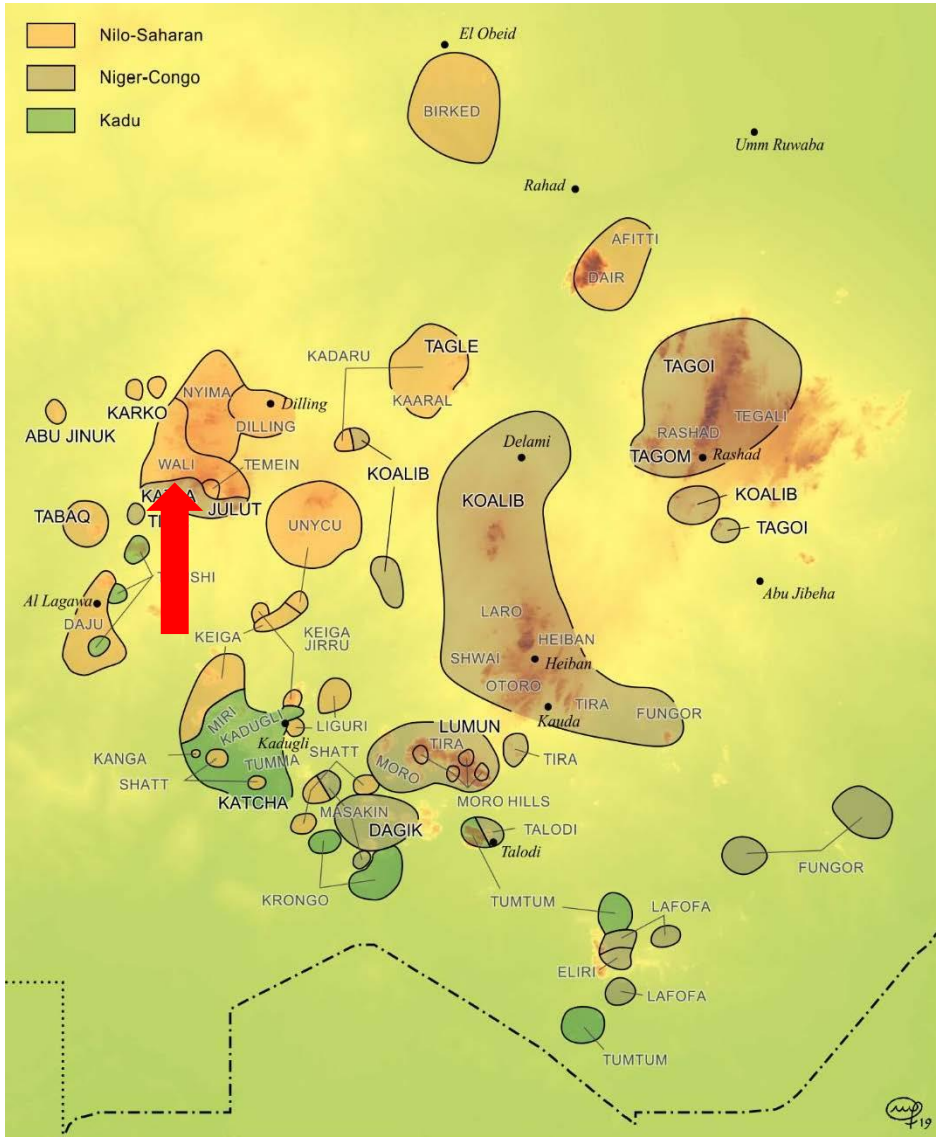

Figure 15: Location of Wali

2.2 Modern Nubian number systems

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern				
	S pattern				
	R pattern				
Trans-numeral	singulare tantum				
	plurale tantum				
	SG/PL tantum				
	marked tantum				

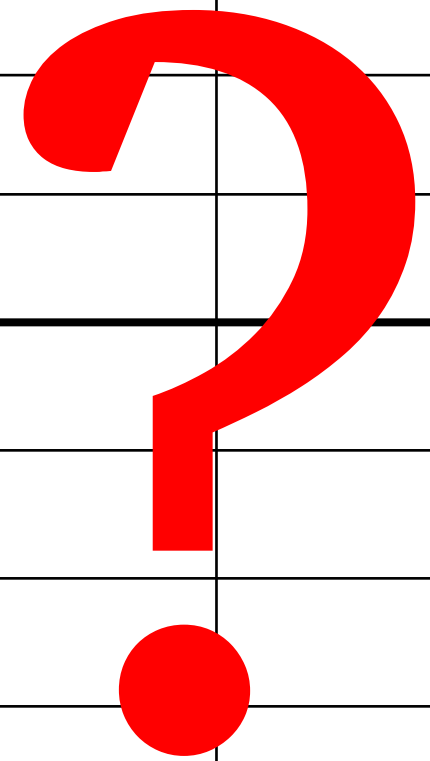

Table 12: The number marking system of Wali

3 Number marking in Karko

3.1 Overview

Karko (Kordofan, Western)

+ 7.000 speakers in 2004

+ spoken in six villages in the northwestern part of the Nuba mountains on and around the Karko hills (Jakobi and Dimmendaal 2022: 63)

+ according to Krell (2012: 11), the language is also spoken in bigger towns of the area (e.g. Dilling) as well as displaced communities (in e.g. Khartoum)

> collection of my data was also initiated in Khartoum

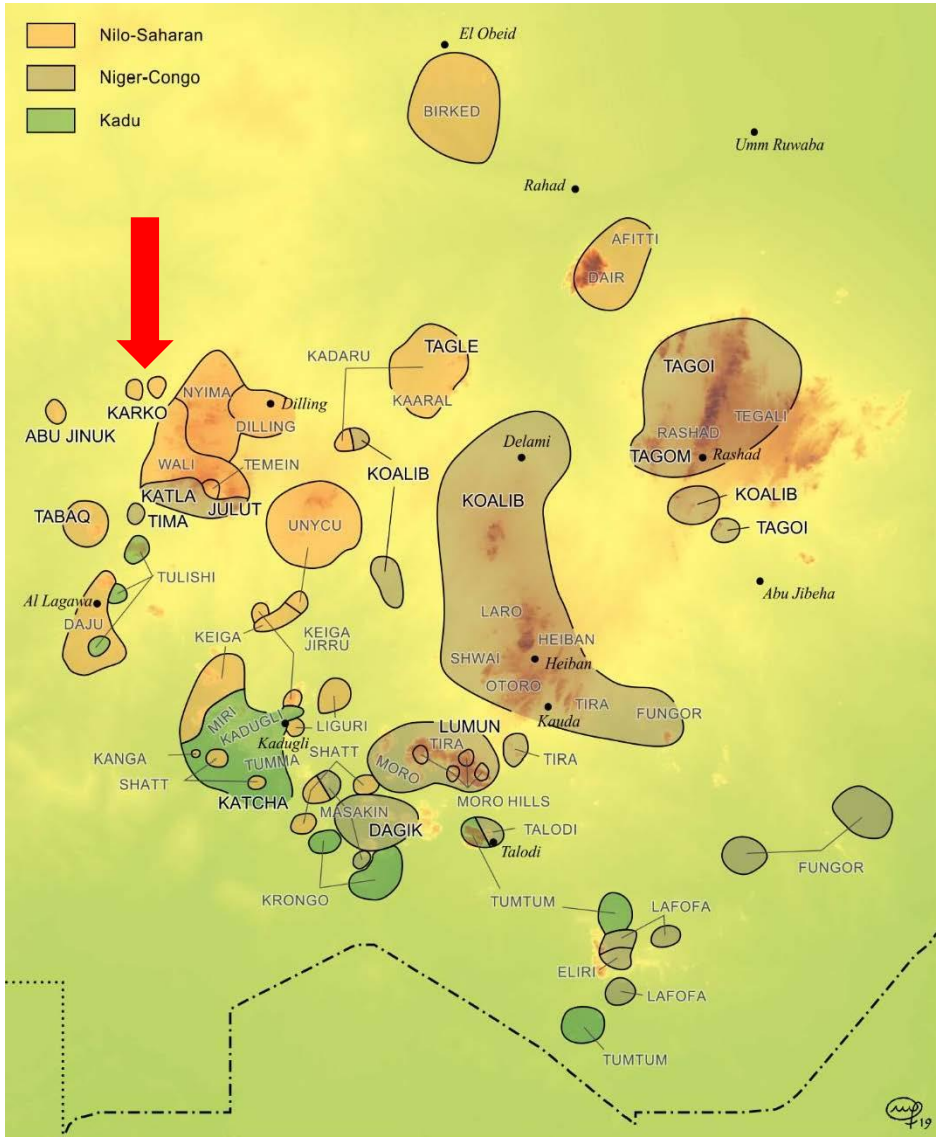

Figure 16: Location of Karko

3.1 Overview

+ in contrast to Wali, Karko is listed as shifting to Sudanese Arabic (ethnologue.com)

+ even in Karko, not all people speak the language anymore (Krell 2012: 11)

+ besides other Hill Nubian languages, Karko is adjacent to Katlaic languages in the south

> partly living in the same village with Katla speakers (Krell: 2012: 11)

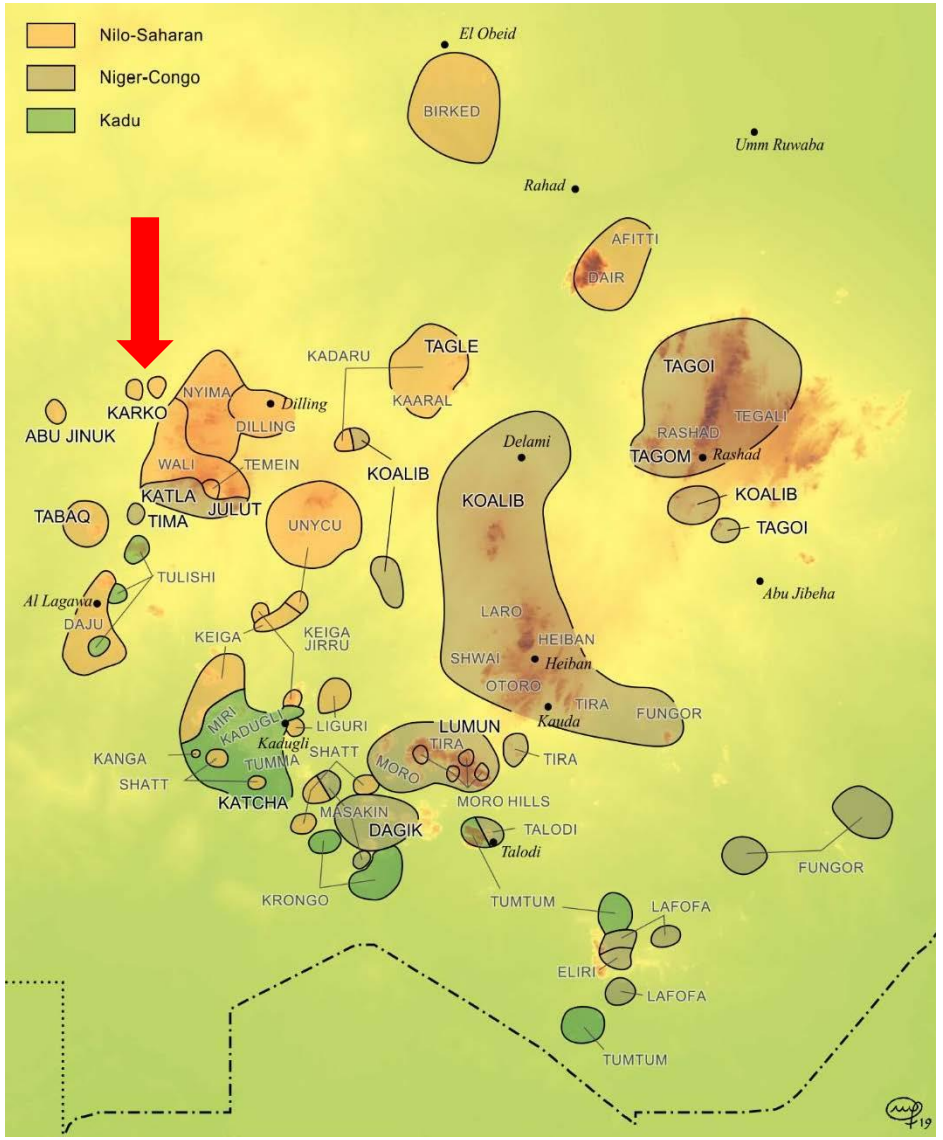

Figure 16: Location of Karko

3.1 Overview

+ verb final language with SOV word order

+ no grammatical gender

+ tone language with five tone levels

> high, low, mid, rising, falling

+ number agreement differentiating between singular and plural

> targets: demonstratives, interrogatives, adjectives, participles, verbs (Jakobi and Dimmendaal 2022: 65)

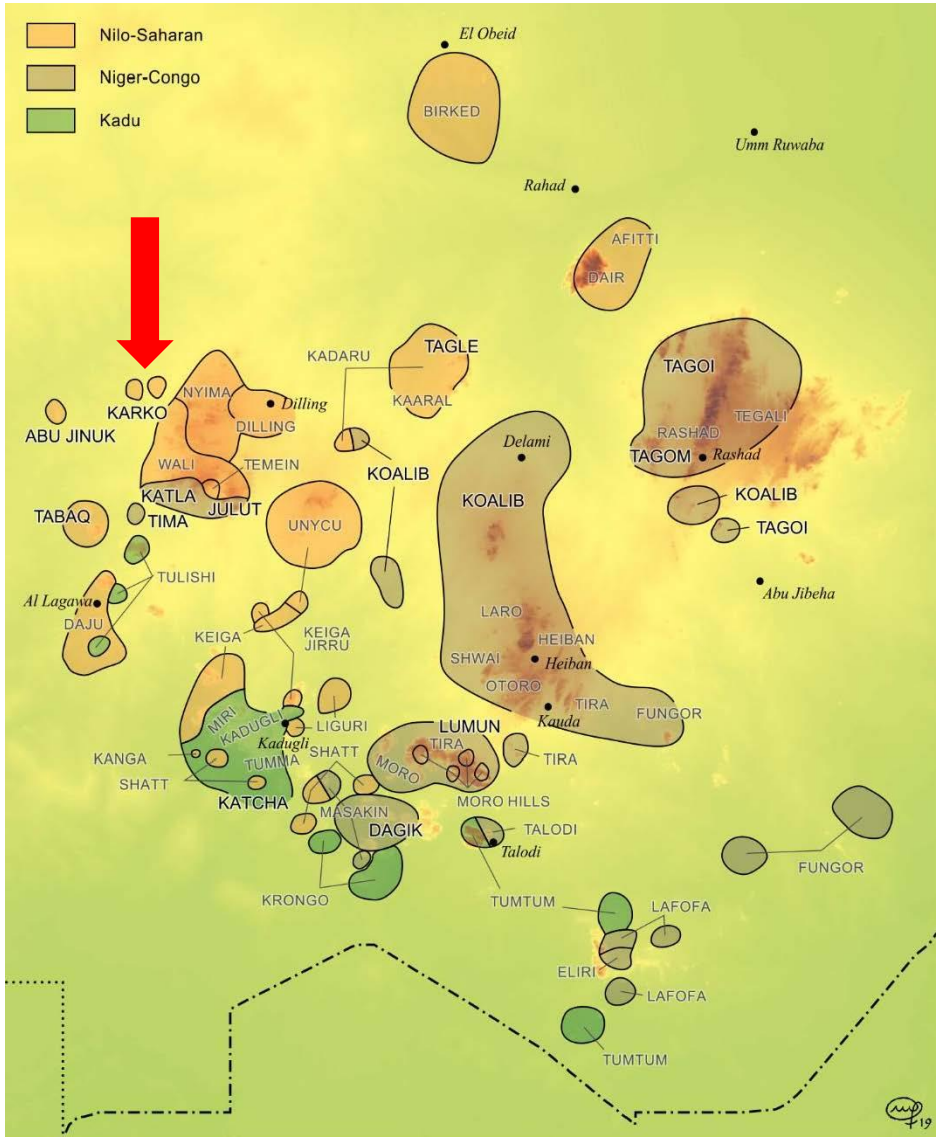

Figure 16: Location of Karko

3.2 Distribution

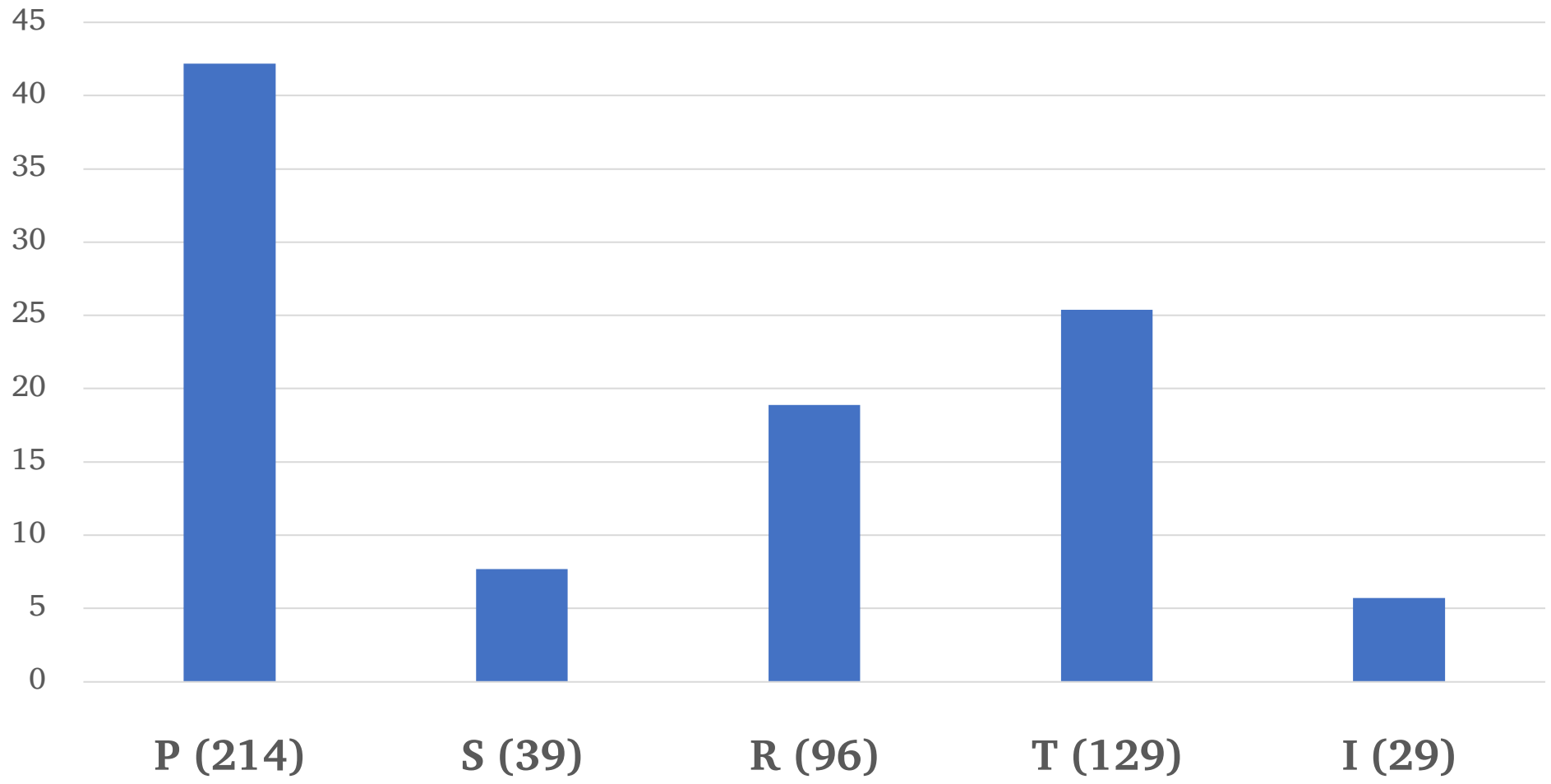

Figure 17: Distribution Karko nouns over marking patterns

3.2 Distribution

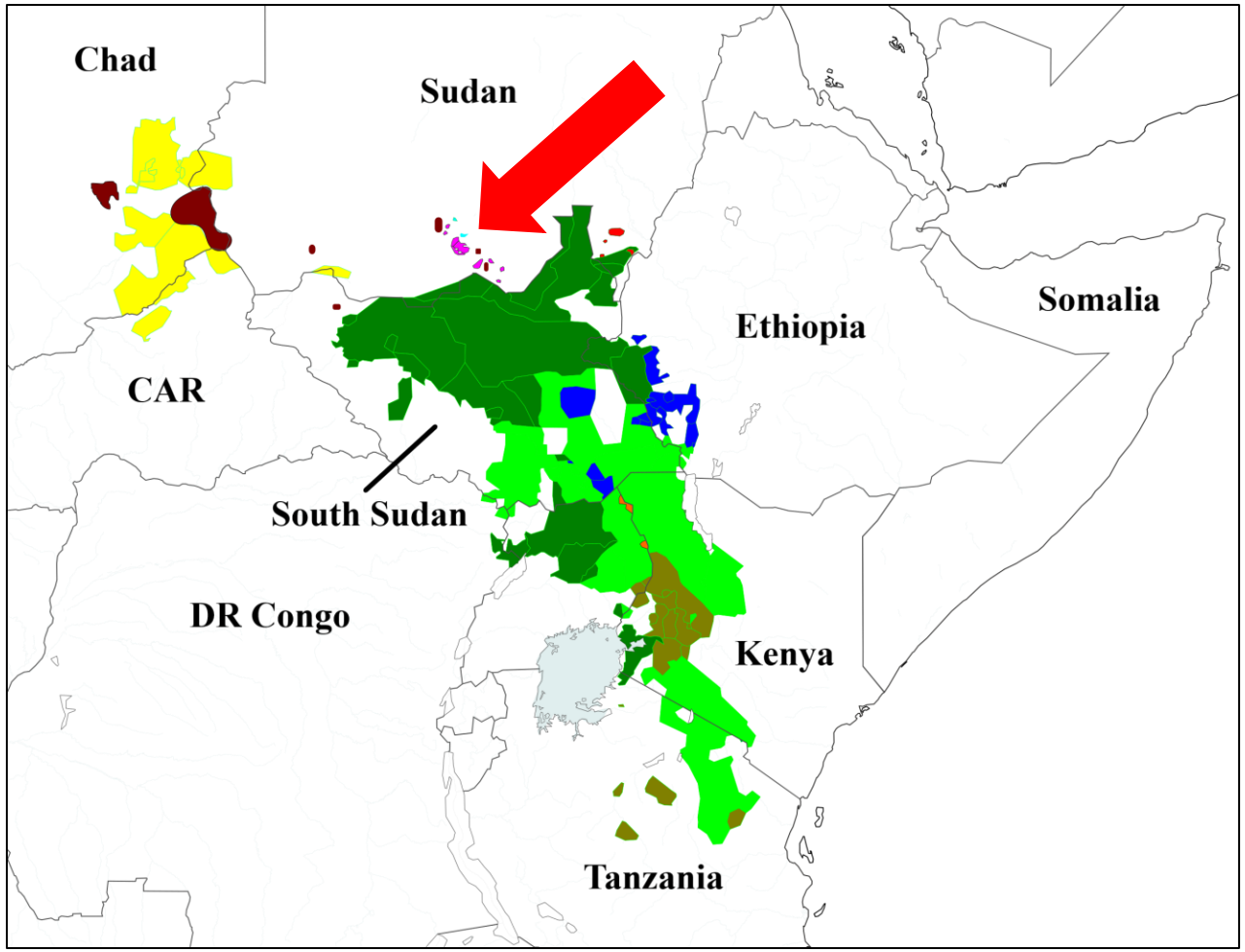

Figure 18: The location of Karko among the other sampled language groups in Northeastern Africa

1. Kadu
2. Temeinic
3. Eastern Jebel
4. Kuliak
5. Dajuic
6. Maban
7. Surmic
8. Nilotic
    - Eastern
    - Western
    - Southern

3.2 Distribution

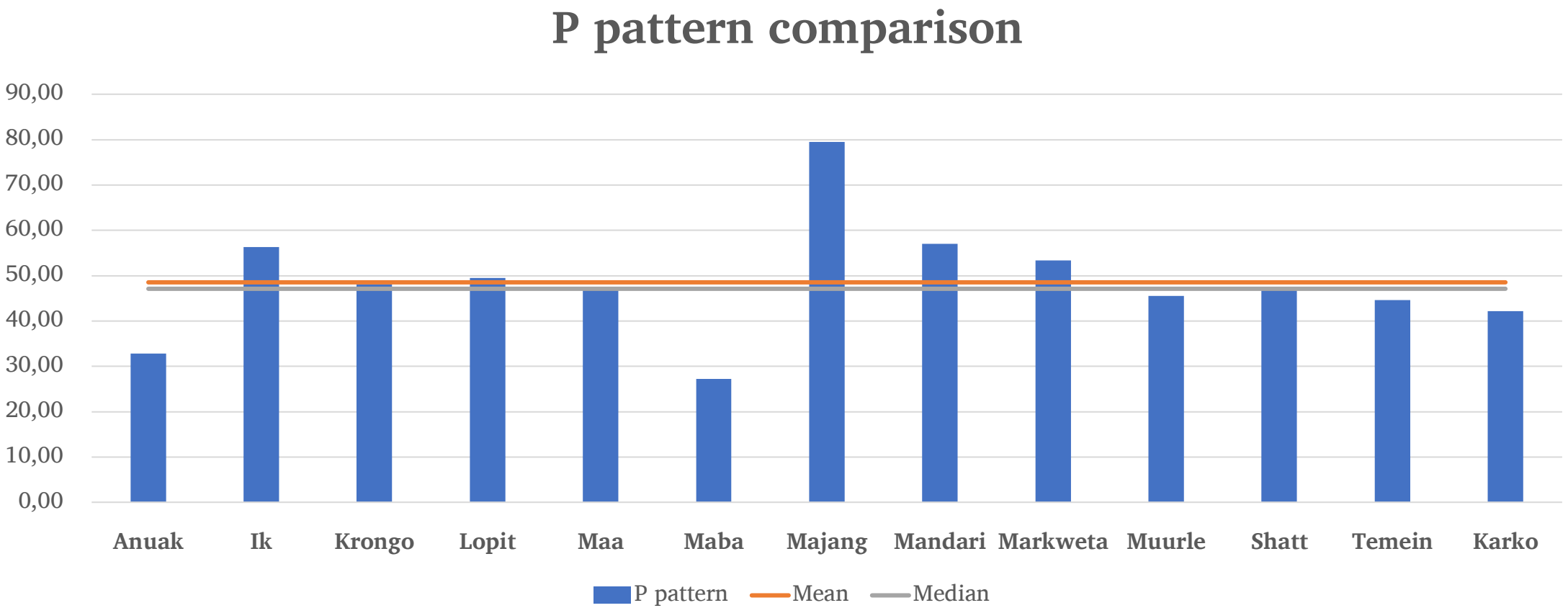

Figure 19: Share of P pattern nouns in all sampled languages (in %)

3.2 Distribution

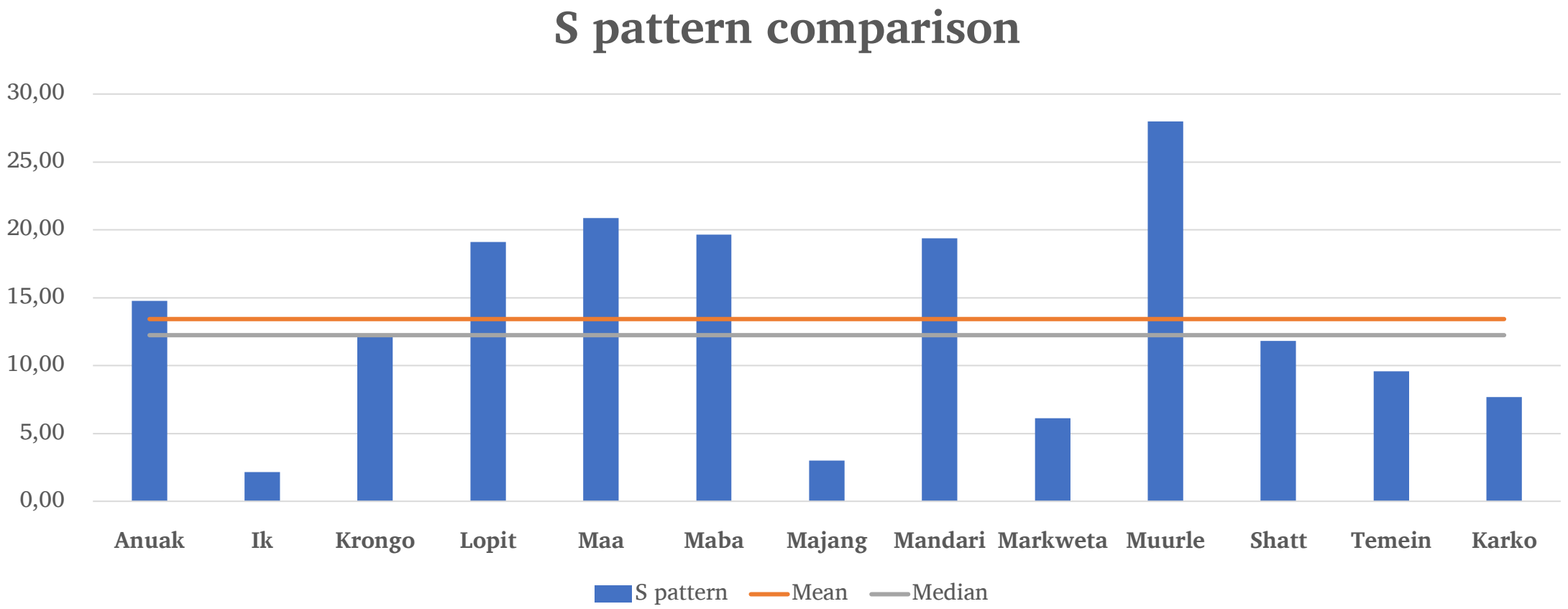

Figure 20: Share of S pattern nouns in all sampled languages (in %)

3.2 Distribution

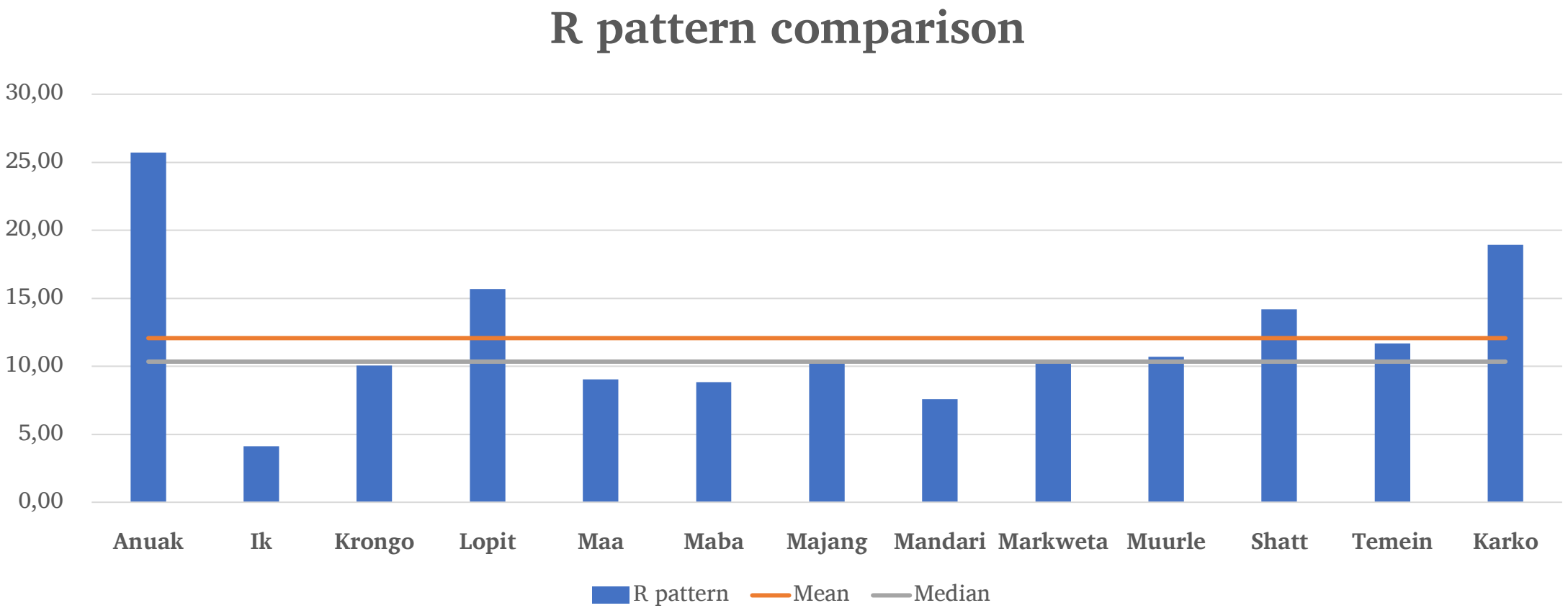

Figure 21: Share of R pattern nouns in all sampled languages (in %)

3.2 Distribution

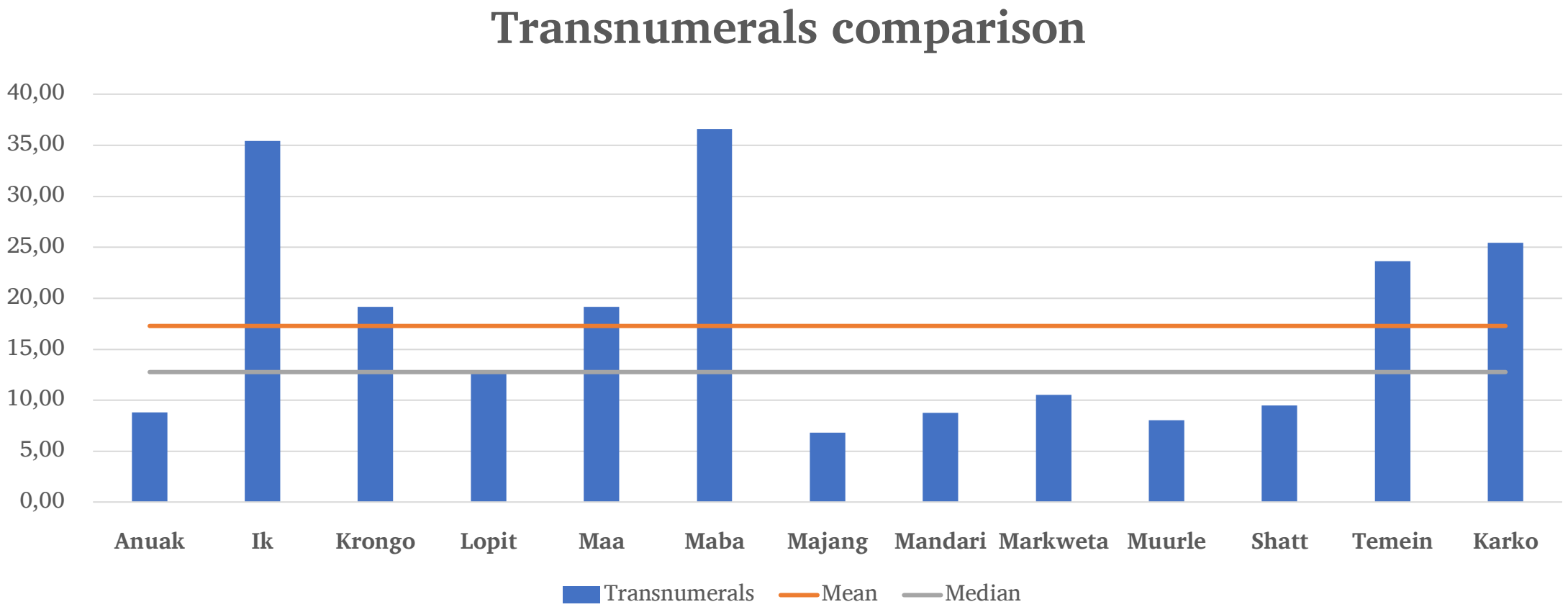

Figure 22: Share of transnumeral nouns in all sampled languages (in %)

3.2 Distribution

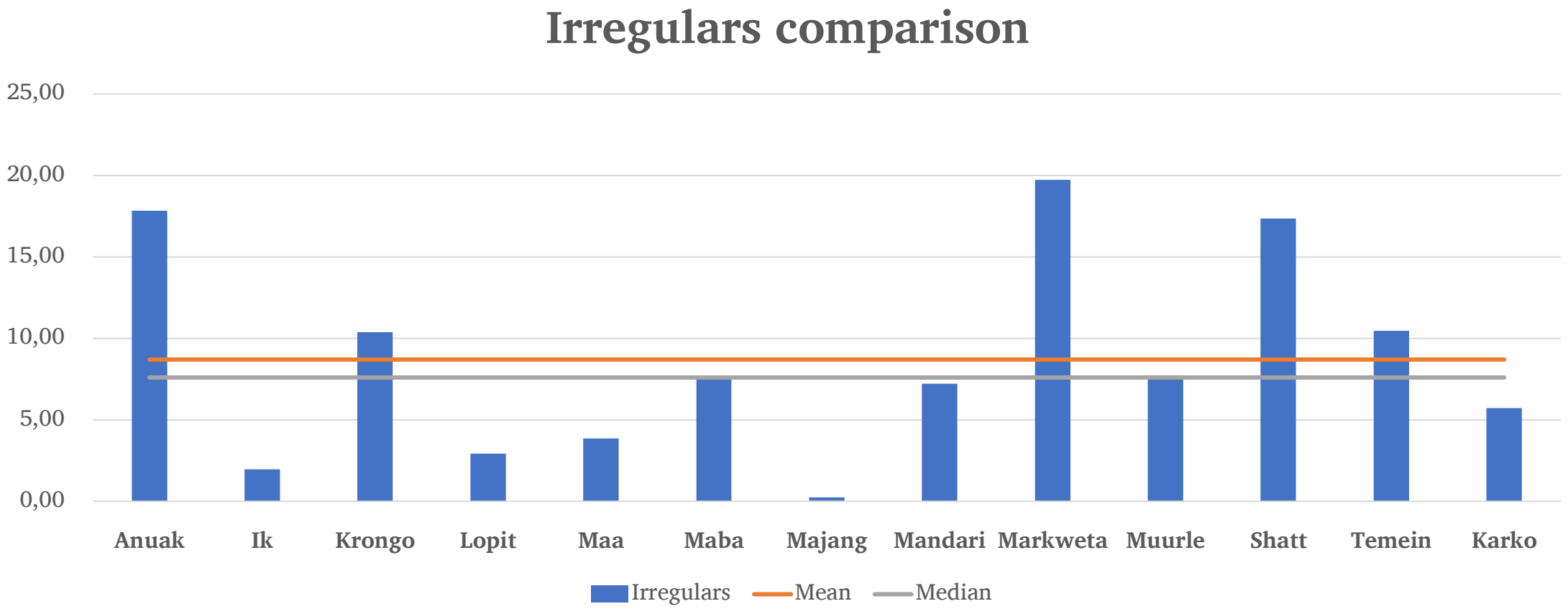

Figure 23: Share of P pattern nouns in all sampled languages (in %)

3.3.1 Morphology: P pattern

\+ four major plurative suffixes with a variety of allomorphs

\> *-Vl, -Vŋ, -Vr, -Vnd*

\+ all four appear to function in the same way

\> pluralizing stems with a consonantal ending: -VC

\> pluralizing stems with a vocalic ending: -C

(16)	*ɕàɟ - ɕāɟ-âl*	‘valley’	*ərtîi - ərtī-l*	‘sheep’
(17)	*ɖâlɖ - ɖâlɖ-āŋ*	‘drum’	*ŋāālɖúù - ŋāālɖúù-ŋ*	‘hyena’
(18)	*ɕàb - ɕàb-àr*	‘brush’	*bùù - bù-r*	‘antelope’
(19)	*aām - aām-ānd*	‘ram’	*kālîi - kālīī-nd*	‘door’

3.3.1 Morphology: P pattern

+ as a result of vowel harmony, the vowels of all four morphemes can vary based on the last vowel of the noun stem

(20)	*dwēēd - dwēēd-ēl*	‘cloud’
(21)	*tùt - tūt-ûl*	‘bowl’
(22)	*kòɕ - kòɕ-òŋ*	‘plate’
(23)	*bər - bər-əŋ*	‘ox, buffalo’
(24)	*ɖōōl - ɖōl-ōnd*	‘neck’
(25)	*kúùl - kūl-ūnd*	‘wrist’
(26)	*tɨ̀ɨ̀m - tìm-ìr*	‘wall’
(27)	*kùd - kùd-ùr*	‘pig’

3.3.1 Morphology: P pattern

+ in bisyllabic noun stems ending in a consonant, the vowel of the second syllable is regularly dropped in the process of pluralization

(28) *kābāɟ - kābɟ-âl* ‘carob tree’

(29) *bīrīɕ - bīrɕ-īl* ‘mat’

(30) *tɛ̀ndɛ̀r - tɛ̀ndr-ɛ̀ŋ* ‘ladder’

(31) *bùrùl - bùrl-ùŋ* ‘fox’

+ the majority of noun stems pluralized by one of these morphemes does not change its tonal pattern in the plural and passes on the tone (or the tone of its last syllable) to the plurative suffix

3.3.1 Morphology: P pattern

+ the suffix *-ḍ* seems to be productive but appears far less frequently then the four major ones

(32) *bāgāl - bāgāl-ḍ* ‘lion’
(33) *āāl - āl-ḍ* ‘heart’
(34) *kāmāl - kāmāl-ḍ* ‘axe’

+ it can be exclusively found attached to nouns stems ending in /l/
> however, not all P pattern nouns with a final /l/ in their are pluralized by the suffix

(35) *kúùl - kūl-ūnd* ‘wrist’

+ a change of tone cannot be attested on any noun with the plurative marker *-ḍ*

+ interestingly, -ḍ also appears as allomorph of the singulative morpheme *-Vt*

3.3.1 Morphology: P pattern

+ in addition, there are four infrequent suffixes, all of which occur less than three times

> *-b, -éè, -Vm, -n*

(36) *ʈɔ̄ɔ̄ - ʈə̀-b* ‘calabash’

(37) *ādādáám - ādādáám-éè* ‘flying ant’

(38) *ʈìʈ - ʈìʈ-ìm* ‘dove’

(39) *ōrkɛ̄ɛ̄ - òrkɛ̀ɛ̀-n* ‘physician’

+ in two of four cases, tonal change can be observed on the stem after pluralization

3.3.2 Morphology: S pattern

+ Jakobi and Hamdan (2015: 277) distinguish between two singulative suffixes
> *-ḍ* and *-Vt*

+ both suffixes can also be found in my dataset

+ *-Vt* is realized as *-Vt* if attached to noun stems with a final consonant

+ its exact form is conditioned by vowel harmony (determined by the stems last syllable)

(40) àl-ât - àl ‘leaf’
(41) bìg-ìt - bìg ‘worm’
(42) tāŋgūūl-ût - tāŋgùùl ‘intestines’

3.3.2 Morphology: S pattern

+ in the few cases of a vocalic ending of the stem, *-Vt* is realized as *-t*

(43) *wēē-t - wèè* ‘sorghum’
(44) *ɛ̀ɛ̀-t - ɛ̀ɛ̀* ‘cheek’

+ if the stem ends in /i/ or /n/, *-t* is voiced and appears as *-d*

(45) *úkún-d - úkún* ‘matches’
(46) *ɕāālîî-d - ɕāālîî* ‘sickle’

+ the suffix *-ɖ*, which is analyzed as seperate singulative morpheme by Jakobi and Hamdan (2015: 277) occurs exclusively with stems ending in /l/

(47) *ɟāl-ɖ - ɟâl* ‘physician’
(48) *bèkèl-ɖ - bèkèl* ‘room’

3.3.2 Morphology: S pattern

+ two questions arise

> if /l/ could be part of the morpheme (rendering the suffix *-lḍ*)

> if *-ḍ* is an allomorph of *-Vt*

+ when searching for loan words among all noun stems ending in /l/, only one could be identified

(49) *bāɕàál-ḍ - bāɕāl* ‘onion’ (from Arabic *basal)*

+ this could dismiss the hypothesis of /l/ being a part of the potential singulative morpheme *-lḍ*

+ more realistic that the suffix is assimilated to the final sound of the stem (/l/)

3.3.2 Morphology: S pattern

+ in addition, one infrequent singulative morpheme can be found in my dataset

> *-b*

(50) ʈâ-b - ʈâ ‘weeds’

+ tone seems to play no role in singulative marking

+ in the vast majority of cases, the attachment of a singulative suffix to the stem does not alter the stems tonal structure

+ the singulative suffix itself can occur in a variety of tone level

> M, L, H, F are attested, R not

3.3.3 Morphology: R pattern

+ overall, four frequent (more than five instances) and 14 infrequent morpheme pairings (two or less instances)

+ three out of four frequent combinations are made up of suffixes which can also be found in P and S pattern

> *-Vt* (with the allomorphs *-t* and *-d*)*/-n, -Vt/-l, -Vt/-r*

(51) *fālā-d - fālā-n* ‘bark’

(52) *kà-t - kà-n* ‘field’

(53) *wìì-t - wìì-l* ‘charcoal’

(54) *kwà-t - kwà-r* ‘gravel’

+ these groups exclusively contains noun stems with vocalic endings

3.3.3 Morphology: R pattern

+ in a fourth group, the singular and plural form of the diminutive marker function as singulative and plurative suffixes respectively (Jakobi and Hamdan 2015: 285)

> *-nd/-néè*

(55) *kāā-nd - kāā-néè* ‘spoon’

(56) *kəbàá-nd - kəbàá-néè* ‘bird’

(57) *tǒ-nd - tōō-ɲéè* ‘child’

+ infrequent ones contain mostly one R pattern exclusive suffix

> no frequent number marking morphemes exclusive to R pattern

3.3.3 Morphology: R pattern

+ the remaining combinations appear very infrequently and are in most cases composed of a frequent P pattern plurative suffix and an R pattern exclusive singulative suffix

> no frequent number marking morphemes exclusive to R pattern

(58) *ɕēgē-ɟ - ɕēgê-l* ‘liver’

(59) *ɖūɟ-àà - ɖūɟ-ûr* ‘tailor’

(60) *īɕtì-g - īɕtī-ɲ* ‘wheel’

(61) *kùtkū-m - kùtkû-r* ‘rat’

+ in most cases the tonological rules of S and R pattern morphemes apply

> noun stem identical in number forms

> seemingly arbitrary tone distribution on number marking morphemes

3.3.4 Morphology: Transnumerals

+ the majority of Karko transnumeral nouns is number sensitive triggering **either** singular **or** plural agreement

+ however, a non-neglectable number of transnumeral nouns can trigger both singular **and** plural agreement depending on the context

(62) *tɔ̄ɔ̄* (SG) ‘time’

(63) *twáà* (SG) ‘bottom’

(64) *wèè* (PL) ‘grain’

(65) *ɕəbnêe* (PL) ‘pair’

(66) *gāɟāɟ* (SG, PL) ‘glass’

(67) *ɕɛ̀ɛ̀* (SG/PL) ‘language’

3.3.4 Morphology: Transnumerals

+ questionable if transnumeral nouns contain number morphology (inducing singulative tantum or plurative tantum)

+ analyzing the structure of all transnumeral nouns (SG, PL and SG/PL), hints of singulative as well as plurative morphology can be found on a few lexemes

(68)	*bēēl-ɖ* (SG)	‘heaven’
(69)	*ìk-îr* (PL)	‘parents’
(70)	*ɟīī-t* (SG/PL)	‘gums’
(71)	*kwēē-nd* (SG/PL)	‘okra’

+ however, potential singulative morphology can also be detected on PL transnumerals and vice versa

(72)	*kōɕ-ôl* (SG)	‘good fortune’
(73)	*āgǎ-t* (PL)	‘ancestors’

3.3.5 Morphology: Irregulars

+ three different processes are subsumed under the term „irregular“

> suppletion, tonal change, sound change

+ the majority of irregular nouns marks plural through tonal change

(74) *êt - ĕt* ‘brother’

(75) *ʈwāŋàr - ʈwāŋăr* ‘hammer’

+ the singular forms can include all (M, L, H, F) but one (R) tone, which then change into LH in the plural

+ only one exception to the rule, where singular H is changed to plural L

(76) *ʈə́lɖ - ʈə̀lɖ* ‘feather’

3.3.5 Morphology: Irregulars

+ sound changes occur in two different ways

> ATR change and vowel shortening

+ in both cases, tonal change is also involved, but never changing to R in plural

+ instead, the vast majority of these nouns display a tonal change from M to F

(77) *ɕīīl- ɕîl* ‘chief’

(78) *nōōm - nôm* ‘thorn’

+ suppletive forms seem to be very rare with only one attested case in the whole dataset

(79) *āgād - wēē* ‘ewe’

3.3.6 Summary

Lexicon type	Encoding	Base + SG	Unmarked base(s)	Base + PL	Lexeme
Bipartite	P pattern		*kɛ̄ʈ*	*kɛ̄ʈ-ɛ̄l*	‘lizard’
	S pattern	*mōōɟ-ôt*	*mōōɟ*		‘banana’
	R pattern	*ɲēmē-t*		*ɲēmē-n*	‘bracelet’
Trans-numeral	singulare tantum		*dət*		‘mud’
	plurale tantum		*kèɟ*		‘pasture’
	SG/PL tantum		*ət*		‘water’
	marked tantum	*(bēēl-ɖ)*		*(ìk-îr)*	‘heaven’ ‘parents’

Table 13: The number marking system of Karko

3.4 Semantics

+ although it would be appealing to assign certain semantic features to the different marking patterns, this would not do justice to the system‘s complexity

+ even Jakobi and Dimmendaal (2022: 76) mention a certain semantic motivation for the allocation of nouns to marking patterns (e.g. natural pairs and collectives in S pattern)

+ however, my data allowed me solely to provide tendencies drawing on some basic binary semantic features

> concreteness, countability, animacy

+ for this purpose, a *conditional inference tree* was plotted, as they have been fruitfully used in models of linguistic variation, where the task is to find out which linguistic and extralinguistic factors determine a particular outcome (Levshina 2021: 611)

3.4 Semantics

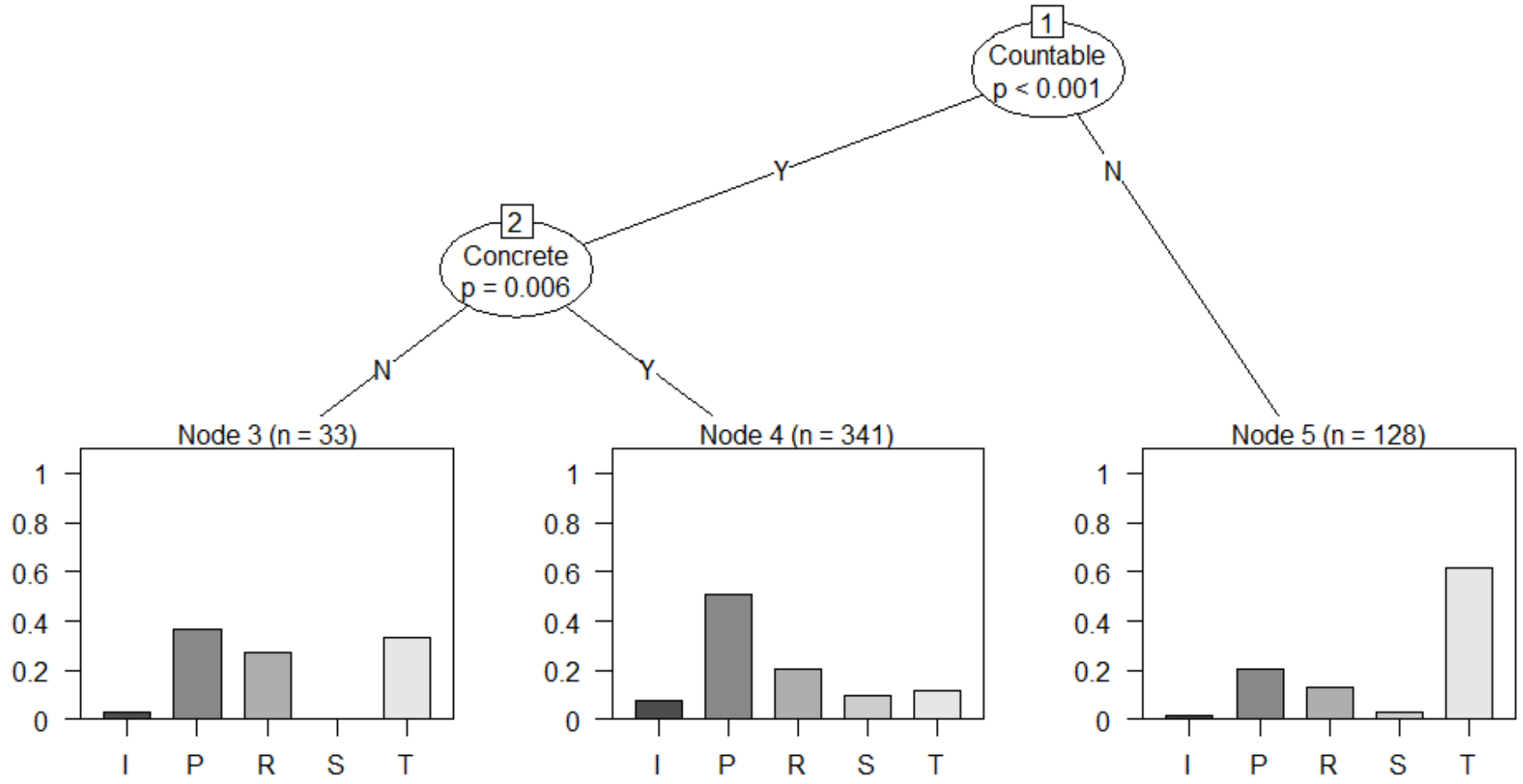

Figure 24: Conditional inference tree with countability and concreteness as predictors

4 Diachronic aspects

4 Diachronic aspects

+ with regard to their number marking systems the Nubian languages can be divided into tripartite and bipartite

> bipartite: Nobiin, Dongolawi, Midob

> tripartite: Birked, Hill Nubian (all attested languages from both branches)

> the status of Haraza cannot be determined

+ based on the available data, a north-south divide becomes apparent

+ question: can this divide be explained diachronically?

+ in order to answer this question, origin and development of the Nubian language group have to be identified

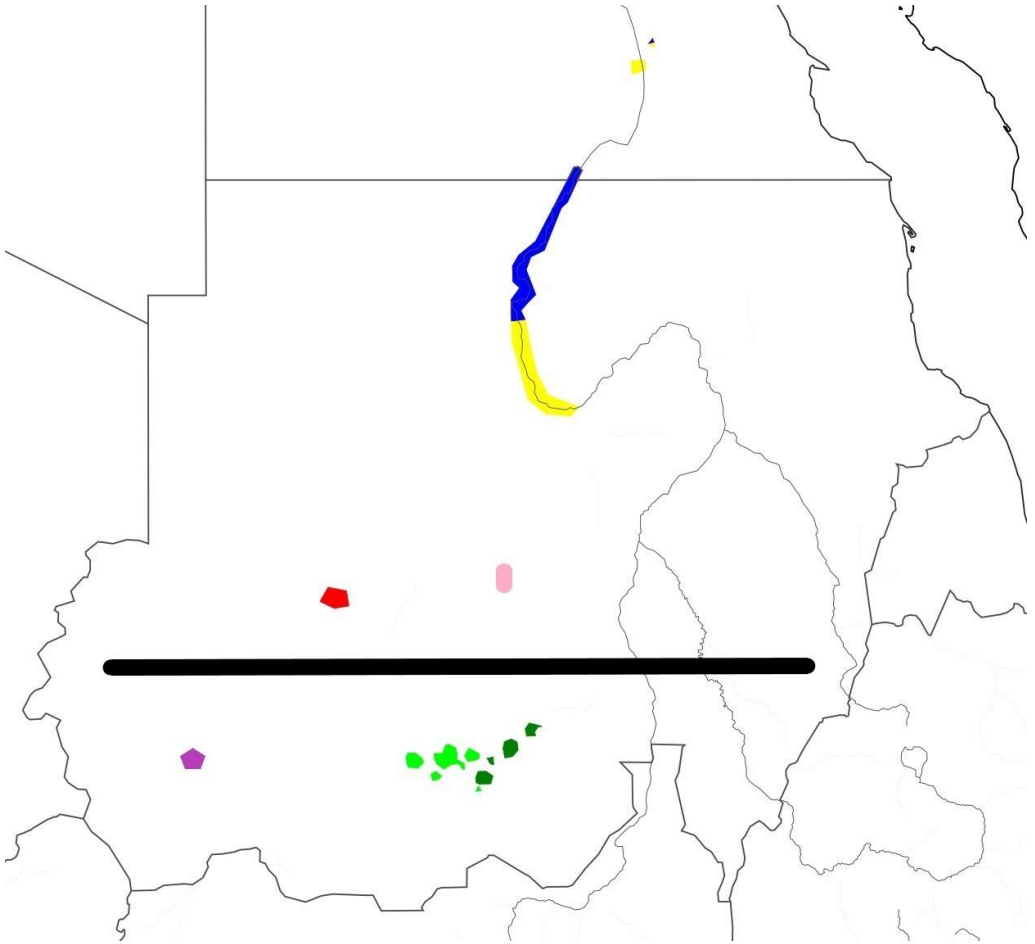

Figure 25: Nubian language map

4 Diachronic aspects

+ after it was claimed that the Nubian language group was composed of two branches (Nile Nubian and Hill Nubian) as well as two individual languages (Birked and Midob), the group‘s geographical origin was debated (Bechhaus-Gerst 2011: 22)

+ two major theories were established:

1. Hill Nubians and Darfur Nubians were fugitives from the Nile valley
2. Nile Nubian had migrated to the Nile region from an area further west of the nile

+ in terms of nominal number marking, implications could be as follows

1. tripartite number marking as innovation in Hill Nubian and Birked, possibly influenced by the number systems of the neighboring languages in the Nuba Mountains and in Darfur

2. tripartite number marking as original feature of Nubian which got lost in the Nile Nubian languages

4 Diachronic aspects

+ even though there was disagreement on the internal classification of the Nubian language group (see Güldemann 2018: 282 f.), it was consistently concluded that the Nile Nubian languages had migrated to the Nile valley from the west (Thelwall 1982, Rilly 2010, Bechhaus-Gerst 2011)

+ regarding the formation of today‘s tripartite number systems, Rilly (2010: 273 f., 285) assumes that:

> the singulative marker *-ti existed in Proto-Nubian, even though it was uncommon to morphologically mark number on the noun itself (rather through agreement on e.g. verbs)

> in course of time, plurative marking became more and more common

> while singulative number marking was preserved in Hill Nubian and Birked, it got lost/was fossilized in Nile Nubian

> as the number systems of Nile Nubian stayed bipartite, Hill Nubian and Birked developed systems of full-fledged encoding tripartiteness

4 Diachronic aspects

Language	Affiliation	Tripartite encoding	Singulative morphemes	Plurative morphemes
Nobiin	Nobiin Nubian	no	/	*-ríi, gúu, -ìi, -ncìi*
Kenzi-Dongola	West-Central, Central	no	/	-(cc)i, *-li, -ri, -gu*
Midob	West-Central	no	/	-ti
Birked	West-Central, Central	yes	-di (S), -ugi (R) + ?	-r, -idi + ?
Dair	Hill Nubian	?	?	?
Tagle	Hill Nubian	yes	?	?
Uncunwee	Hill Nubian	yes	-tu (S), -atu (R) + ?	-dé (P), -ití (R) + ?
Dilling	Hill Nubian	yes	-ndu (S), -e (R)	-i (P and R), -ili, -in (only P)
El Hugeirat	Hill Nubian	?	?	?
Wali	Hill Nubian	?	?	?
Karko	Hill Nubian	Yes	-ɖ, -Vt	-Vl, -Vn, -Vr, -Vnd, -ɖ
Haraza	Unclassified	?	?	?

Table 14: Overview on nominal number marking morphology in the Nubian languages

5 Conclusions

5 Conclusions

+ Karko contains a nominal number marking system that is both systemically tripartite (with singulatives, unmarked base forms and pluratives) and shows tripartite encoding (with the patterns P, S and R)

+ the P pattern is by far the most frequent one, followed with a significant gap by the R pattern and the S pattern

+ compared to tripartite languages from other Northeastern African language groups, the large amount of R pattern nouns is most striking

> the other patterns are comparable with the other languages, even though transnumerals are slightly more frequent and S pattern nouns slightly less frequent in Karko

+ transnumeral nouns are clearly more frequent than S and R pattern nouns while showing a certain complexity both morphosyntactically as well as morphologically

> they are realized as singulare tantum or plurale tantum (some permitting both), and possibly singulative and plurative tantum

5 Conclusions

+ regarding semantics, countability and concreteness appear to be the most important factors for the allocation of lexemes to number marking patterns

+ within the Nubian language group two significant divisions regarding nominal number marking can be observed

> geographical: southern languages contain tripartite systems, northern ones do not

> genealogical: Hill Nubian languages and Birked contain(ed) tripartite systems, Nobiin, Kenzi-Dongolawi, and Midob do not (Haraza remaining unclear)

+ however, the development toward today's tripartite number marking systems can be traced back to a proto-language with the singulative morpheme *-ti, which is still identifiable in almost every language

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