Emergence or loss
of the number systems in Katlaic?
Colloquium on African languages and linguistics

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The goal of the presentation is:

To explore the question of why the number marking systems of the Katlaic languages are so different.

The assumption so far (by Dimmendaal and others) is that Proto-Katlaic had a noun class system like other languages of the Niger-Congo-Phylum.

I argue for the hypothesis that the modern number marking systems are more recent innovations that have developed to different degrees.

The structure of the talk:

1. Introduction
   Location, Genetic affiliation, Typological properties

2. Starting point
   Current number systems, The fact of nominalisation

3. Hypotheses
   Hypothesis 1, Hypothesis 2

4. Evidence from the data
   Julut development, Tima development

5. Conclusion

1. Introduction
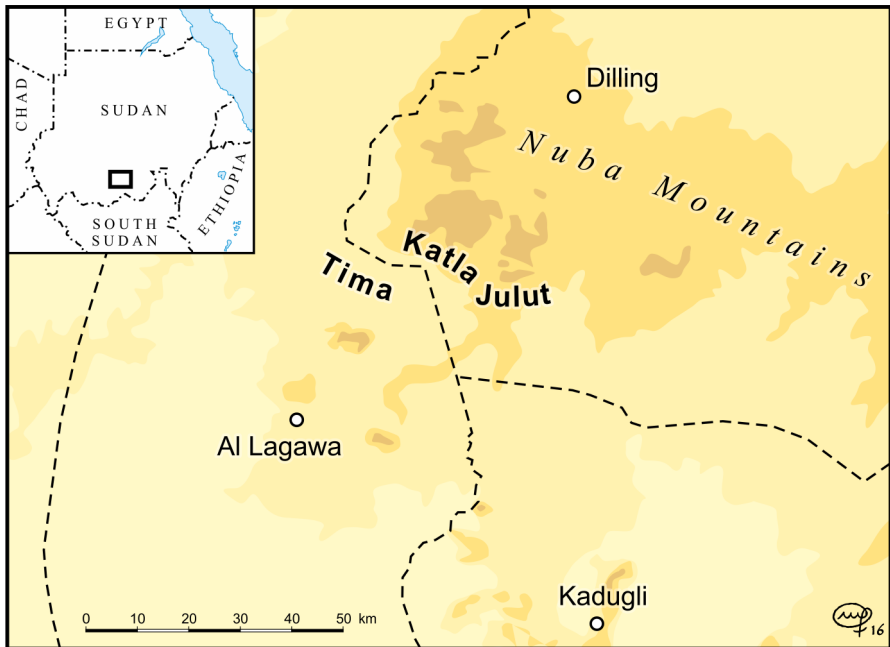
Katlaic language group = Tima, Katla, Julut

Stevenson (1956/1957): apparently unrelated
Tucker & Bryan (1956): isolated group

Greenberg (1963), Schadeberg (1981):
belongs to the Kordofanian branch of the Niger-Congo phylum

Dimmendaal (2013): questions the existence of the Kordofanian branch as such, proposes a Katla-Rashad branch within Niger-Congo

Güldemann (2018): sees Katlaic as an independent group and questions its affiliation with Kordofanian

Hellwig (2013): Katla and Julut form a dialect continuum, East-Katla and (West-)Julut are mutually intelligible

Tima, Katla and Julut:

- agglutinating languages (with very diverse verb morphology)

- all three languages have the feature of Advanced Tongue Root (ATR),
  a, i, o, u, e = [+ATR]; ɑ, ɪ, ɔ, ʊ, ɛ= [-ATR]; A, I, O, U, E = [±ATR],
  the notation of Tima is adjusted to this convention

- Tima and Katla are tone languages, Julut has rather pitch-accent,
  tone is not relevant for number marking, therefore omitted here

- Katla and Julut are the only languages in the Nuba Mountains
  that have labio-velar consonants like g͡b and k͡p

- common noun structure CV.CVC and CV.CV

- nouns only mark number, but not gender or case

2. Starting point

The current number systems

Table (1): Number prefixes in Tima, Katla and Julut

	pattern	ratio	SGV prefix	PLV prefix
Tima (323)	R	64%	$k(V)$-; $c(V)$-; $t(V)$-	ɩ-; i-; j-
	S	13%	c-;k-	∅
	P	8%	∅	ɩ-; i-; j-
	U	14%	∅	∅
Katla (262)	R	32%	g-; $\widehat{gb}(V)$-; $\widehat{kp}$-	a-; a- ∼ V
	S	2%	g-	∅
	P	57%	∅	a-; a- ∼ V
	U	7%	∅	∅
Julut (391)	S	43%	$g(V)$-; $k(V)$- ;$\widehat{gb}$-; ŋ-	∅
	U	55%	∅	∅

Julut: The frequent and unique Singulative marking is special worldwide!

Tima number system

Table (2): Tima

SGV pref.	PLV pref.	SGV	U	PLV	gloss
kV-	i-/ɪ-	ku- rtu	—	i- rtu	'nest'
k-	j-	k- uh	—	j- uh	'bone'
c-	∅	c- ɪlɛj	ɪlɛj	—	'tooth'
c-	j-	c- ɔɔrɔ	—	j- ɔɔrɔ	'basket'
tV-	i-/ɪ-	tə- maadəh	—	ɪ- maadəh	'husband'
t-	j-	t- ɔndɔ	—	j- ɔndɔ	'road'
∅	i-/ɪ-/j-	—	pʊka	ɪ- wʊka	'knife'
∅	∅	—	kɔɔnɔ	—	'thing'

NOTE: SGV = Singulative, PLV = Plurative, U = Unmarked

Katla number system

Table (3): Katla

SGV pref.	PLV pref.	SGV	U	PLV	gloss
g-	a-/a-	g- ogan	—	o- ogan	'honey'
$\widehat{gb}$V-	a-/a-	$\widehat{gba}$- ɟak	—	ʊ- ɟak	'tree type'
$\widehat{kp}$-	a-/a-	$\widehat{kp}$- oti	—	o- oti	'field'
g-	∅	g- aɲɔ	aɲɔ	—	'brother (f.)'
∅	a-/a-	—	bal	a- bal	'oven'
∅	∅	—	lamanɛ	—	'salt'

NOTE: Marking pattern:
R = Replacive, S = Singulative, P = Plurative, U = Unmarked

Julut number system

Table (4): Julut

SGV pref.	PLV pref.	SGV	U	PLV	gloss
k-	∅	k- erɲa	erɲa	—	'louse'
kV-	∅	ka- ɟak	ɟak	—	'root'
g-	∅	g- oti	oti	—	'field'
gV-	∅	ga- mak	mak	—	'beard'
ĝb-	∅	ĝb- al	ʷal	—	'well'
ŋ-	∅	ŋ- oɲiŋ	oɲiŋ	—	'mother'
∅	∅	—	gelele	—	'salt'

Dimmendaal (2018) proposes a complex noun class system for Proto-Katlaic

Table 4: Proto-Katloid noun class prefixes			
PROTO-KATLOID	KATLA	JULUT	TIMA
Singular			
*kU- (underspecified for ATR)	*k-*	*k-*	*kV-, k-*
*g-	*g-*	*g-*	
*gw-	*gb-*	*gb-*	
*p-	?	?	*p-* (incorporated)
*t-	?	?	*t-* (incorporated)
*c-	(incorporated)	(incorporated)	*c-*
*m-	(incorporated)	*m-*	(incorporated)
*bU- (underspecified for ATR)	*ba-*	*ba-*	*bV-*
*dV-	*(d-)*	*d-*	*dV-*
*lV-	*la-*	*la-*	*lV-*
Plural			
*ɪ-/*i-, *y-	*ɪ-/i-, V-*	*ɪ-/i-, ø*	*ɪ-/i-, y-*
*a-	*a-*	*a-*	(incorporated)

The fact of nominalisation

Table (5): Nominalisation affixes in Tima, Katla and Julut

	base	affixes
Tima	verb	*k(V)-* ... *(-Vl)*
	adjective	*b(V)-*
Katla	verb	*?...* -*ál*/-*ál*, *âl*/-*âl*
	adjective	*bà-*/*bà-*
Julut	verb	*k(V)-*, *g(V)-*, -*kA*, -*Al*
	adjective	*be-*, *ɟa-*

Julut has phonological conditions for the realisation of *g(V)-* or *k(V)-*.
Thus, they are allomorphes.

Why is the number of *g* and *k* initial nouns in Katla similar to that in Julut?

Table (6): Number of noun initial sounds in Katla and Julut

	total	*g*	*k*	*t̪*	*A*	*l*
Katla	695	167	126	32	23	9
Julut	724	141	162	33	41	8

Supposition: Katla also had the nominalisation prefixes *g(V)-* and *k(V)-*.

Table (7): Verb - noun correspondences in Julut

gloss	verb	noun	gloss
'shave'	a g i	k- aga	'scar'
'grow'	a la ɲ	k- alak	'teat, tit'
'go'	ɟo	k- iɟok	'body'
'bite'	l imit	ge- let	'tooth'
'connect'	r uwana	gə- rak	'rope'
'pull up'	ʈok	go- ʈak	'dung'
'hit once'	l e	ka- lʈaɲ	'sickle'
'be'	ɟeko	k- iɟeku	'human'

Supposition: all conceptualised as collectives or transnumerals,
see *kiɟok < iɟo* 'they go', *a-laɲ* 'it grows'

3. Hypotheses

1. The **number systems** of the Katlaic languages
   are in the process of **emerging**
   rather than in the process of being lost.

2. **Transnumeral** expressions were at the beginning
   of this process.

Hypothesis 2

Transnumeral nouns were at the beginning
of the emergence of number systems in Katlaic.

Some of these nouns are the product
of deverbal nominalisation.

Table (8): Supposed noun inventory in Proto-Julut

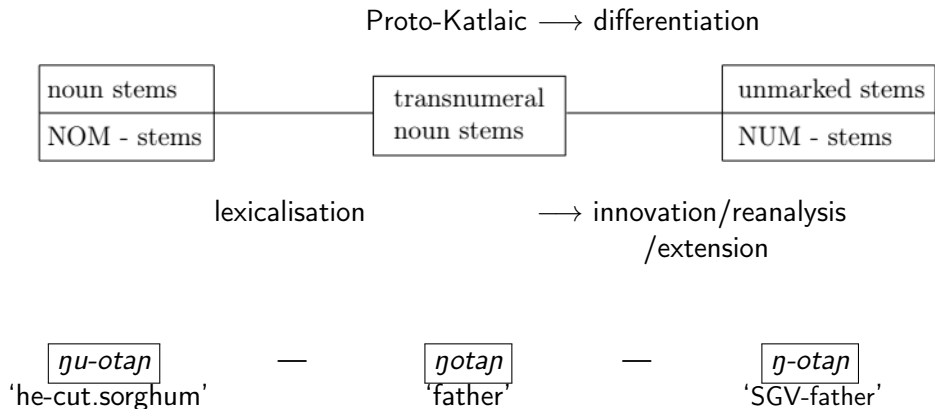| nouns		deverbal nouns		composed nouns	
noun	gloss	noun	gloss	noun	gloss
ŋeŋ	'mouth'	kaga	'scar'	lagaɟ	'fat'
^{n}duraŋ	'rattle'	kalak	'teat, tit'	ŋoɲiŋ	'mother'
. . .		. . .		. . .	

All nouns had been transnumeral, that means they had not been sensitive to the property of number.

Hypothesis 1

The **number systems** of nouns in Tima, Katla and Julut
are more recent innovations.

The number marking systems are so different
because they have developed to different degrees.

General development

Proto-Katlaic $\longrightarrow$ differentiation

noun stems
NOM - stems

transnumeral noun stems

unmarked stems
NUM - stems

lexicalisation $\longrightarrow$ innovation/reanalysis
                                                    /extension

ŋu-otaɲ   —   ɲotaɲ   —   ŋ-otaɲ
'he-cut.sorghum'   'father'   'SGV-father'

Specification

The **number systems** of the Katlaic languages
are in the process to **emerge**.

Julut represents the most basic number marking.
Tima developed the most elaborate number marking.
Katla has a position in between.

Therefore, the three languages show very different
number marking systems.

3. Evidence from the Katlaic data

Julut

Why should Julut be basic?

- a certain relationship of verb and deverbal noun is still discernible
- Julut kept allomorphs *k(V)-* and *g(V)-*

- Julut only made the development up to the reanalysis
  of the most frequent consonants as SGV prefixes
  but not until the extension of the PLV marking

- it is unlikely that Julut would remove the plural first when typologically
  there is plural marking in every language that marks number

- it is not explainable why Julut should mark one half of the noun inventory
  for singular, while the other half represents equally good candidates

Relationship of verb and deverbal noun

Table (9): From nominalisation to number prefixes

nominalised nouns	⇒	lexicalised nouns	⇒	reanalysis of sounds	gloss
		ŋaʈuwet		ŋ-aʈuwet	'maternal aunt'
k-aga		kaga		(k-)aga	'scar'
k-agam		kagam		(k-)agam	'hair'
ge-nak		gənak		(gə-)nak	'sesame seed'
ge-let		gelet		ge-let	'tooth'
ka-lʈaɲ		kalʈaɲ		k-alʈaɲ	'sickle'
k-omaŋ		komaŋ		komaŋ	'stake'
		babaɟ		babaɟ	'wing'
		rumo		rumo	'knee'

Development up to the reanalysis of initial consonants as SGV prefixes

Nominalisation: ka-$^n g$-al "the fat one"

Lexicalisation: $ka^n gal$ 'ewe' (transnumeral)

Reanalysis: k-$a^n gal$ (SGV)

Development not to the PLV marking

Table (10): 'ewe' — *$ka^n gal$

	SGV	U	PLV
T	k-aŋal	●	j-aŋal
K	●	$ka^n gal$	ɑ-$ka^n gal$
J	k-$a^n gal$	$a^n gal$	●

T $^n g \longrightarrow$ ŋ |

Good candidates without nominalisation marker

T applied SGV and PLV marker

J did not apply a PLV prefix *i-* or *a-*

Table (11): 'breast' — $*mi^n ʄi$

	SGV	U	PLV
T	ki-midi	●	i-midi
K	●	$mo^n ʄi$	$a-mo^n ʄi$
J	●	$mi^n ʄi$	●

T $^n ʄ, ʄ \longrightarrow$ d | V[+front]_ V[+front]

A consequence of the innovation of SGV prefixes

- general recognition of initial *k, g, ŋ* as SGV prefixes (*k-a^{n}gal*)

- such noun stems represent the PLV expression (*a^{n}gal*)

- for plurale tantum, the initial consonant must be dropped

- vowel *A* is most frequent, four times as frequent as *O* or *I*

- *A-* personal marker 3.SG, *I-* for 3.PL [NOM-PM-root(-...)]

Table (12): 'honey' — *kogan*

	SGV	U	PLV
T	●	ıhaam	●
K	g-ogan	●	o-ogan
J	●	ogan	●

T kogan > i-kogan > i-hogan > i-haam > ihaam

Tima

Why should Tima be the most developed?

- the form-side of the nouns changed most compared to Julut, Katla
- mainly through introduction of PLV *I-*, maybe 1st person affix pl. incl.

  `I-` dɔɔ `I-` cɪ | kə | taɾʊ | ʊl | 'we(incl.) start to go cleaning'

- the introduction of the PLV *I-* led to the loss of initial *g* (and *g* at all)
  and brought about many other changes

- loss of initial *g* caused also the loss of the prefix *g(V)-* (also as NOM)

- the reanalysis of initial *k* as a prefix and the introduction of a *PLV I-*
  resulted in the establishment of a SGV prefix *k(V)-* and a PLV prefix *I-*

- number marking is extended to all nouns
- there is a tendency to recognise more consonants as a prefix

Different form-side, several changes, loss of *g*

Recognisable rules: – following PL *I-*   → no open syllable *rA•*
                                    → *g > w*
                    (– no final *k* following *A* or *U* > *h* or ∅)

Table (13): 'rope' — *garak*

	SGV	U	PLV
T	k-waa	•	i-waa
K	g-ərɑk	•	ɑ-ɑrɑk
J	gə-rak	rak	•

*garak > i-g̲arak > i-wara k̲ > i-wa r̲ a > i-waa > k-waa/i-waa

$(g > k)$, reanalysis of $k(V)$ as prefix, simultaneously application of *l-*

Table (14): 'hair' — *kagam*

	SGV	U	PLV
T	k-aam	●	j-aam
K	g-ɑgɑm	●	ɑ-ɑgɑm
J	k-agam	agam	●

Table (15): 'fish' — *gumuŋ*

	SGV	U	PLV
T	ku-moŋ	●	i-moŋ
K	g-umuŋ	●	u-umuŋ
J	g-umuŋ	umuŋ	●

Reanalysis not complete, introduction of *I-* earlier

Recognisable rules following PL *I-*   → no *rA•*
                                                 → *g > w*
                                                 → *k > h*

Table (16): 'sesame' — **ganak*

	SGV	U	PLV
T	kʊ-hɔnɔk	•	ɪ-hɔnɔk
K	g-anak	•	a-anak
J	gə-nak	nak	•

*ganak > kanak > ɪ-hanak > ɪ-hɔnɔk > kʊ-hɔnɔk/ɪ-hɔnɔk
- especially with nouns which are almost always used in the plural
- nouns with initial *I, E* show specific SGV *c-* (*c-ɛh/j-ɛh* 'sorghum seeds')

Establishment of *k(V)-/I-*, extension to all nouns, pluralia tantum with PLV *I-*

Table (17): 'mouth' — *ŋεŋ

	SGV	U	PLV
T	kı-ŋε	•	ı-ŋε
K	•	ŋεŋ	•
J	•	ŋeŋ	•

Table (18): 'flour' — *aramak

	SGV	U	PLV
T	•	jamʋh	•
K	•	εrma	•
J	•	arma	•

*aramak > ı-a ra mak > ı-ama k > ı-amah > ı-amʋh > jamʋh

Tendency for the extension to other initial consonants

"lenition $t > r$ occurs with pluralisation of nouns" (Schneider-Blum, in prep.)

Recognisable rules following PL *I-* $\rightarrow$ no $rA\bullet$

                                                    $\rightarrow g > w$

                                                    $\rightarrow T > R$

                                                    $\rightarrow w > p$ stem-initial (in SG)

Table (19): Extension to *t(V)-*

SGV	PLV	gloss
tə-maadəh	ɪ-maadəh	husband
t-ɔkɔr	ɪɾ-ɔkɔr	wound
t-ɔndɔ	j-ɔndɔ	road
ku-tulmu	i-tulmu	base

5. Conclusion

General development

Proto-Katlaic $\longrightarrow$ differentiation

noun stems	transnumeral noun stems	unmarked stems
NOM - stems		NUM - stems
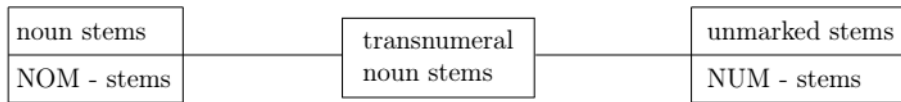
lexicalisation $\longrightarrow$ innovation/reanalysis
                                             /extension

Tima $\longrightarrow$ introduction *l-*, loss of *g*
$\rightarrow$ reanalysis *k(V)-*, application of *l-*
$\rightarrow$ extension of *k(V)-/l-* to all nouns

Julut $\longrightarrow$ innovation to mark number
$\rightarrow$ reanalysis of *g(V)-*, *k(V)-*
$\rightarrow$ loss of *g-*, *k-* for pluralia tantum

It could be shown:

- number marking systems of the Katlaic languages are so different
  because each language developed differently from the same starting point

- the starting point was not a noun class system
- Proto-Katlaic had a noun inventory that was not sensitive to number

- the category number is only developed on the basis of transnumeral nouns
- these transnumeral nouns are partly a product of nominalised nouns
  through lexicalisation

- Tima's system developed via innovation and reanalysis up to extension
- Julut just came up to the innovation of the reanalysis
  of the most frequent consonants as SGV prefixes

Why is Julut unique worldwide?

- Julut just came up to the innovation of reanalysis

- the most frequent consonants have been reanalysed as SGV prefixes

- it has not progressed to the introduction of a plural prefix

- if Julut were to continue as a language in its original environment
  in the Nuba Mountains,
  then this would certainly be the next step in the development of Julut

- currently, Julut only has SGV prefixes as means to mark number

Dimmendaal, Gerrit J. 2013. Where have all the noun classes gone in Tima? In: C. de Feral, M. Kossmann, and M. Tosco (eds.), *In and Out of Africa. Languages in Question in Honour of Robert Nicolaï. Vol. 2*: Contact and Language Change in Africa, Louvain-la-Neuve: Peeters. pp. 103-125.

Greenberg, Joseph H. 1963 (1966). *The languages of Africa.* Bloomington: Indian University Press & The Hague: Mouton.

Hellwig, Birgit. 2013. Verbal morphology in Katla. In: T. C. Schadeberg & R. M. Blench (eds.), *Nuba Mountain Language Studies.* Köln: R. Köppe, pp. 237–250.

Hellwig, Birgit. To appear. A grammar of Katla. Ms.

Nüsslein, Ulrike. 2020. *A grammar of Kordofanian Julut, with particular consideration of the verbal morphology.* Köln: R. Köppe.

Schadeberg, Thilo C. 1981. Das Kordofanische. In: B. Heine, Thilo C. Schadeberg & E. Wolff (eds.), *Die Sprachen Afrikas.* Hamburg: H. Buske, pp. 117–128.

References

Schneider-Blum, Gertrud & Gerrit Dimmendaal. To appear. A grammar of Tima (Sudan). Ms.

Stevenson, Roland C. 1956/1957. A survey of the phonetics and grammatical structure of the Nuba Mountain languages, with particular reference to Otoro, Katcha and Nyimang. *Afrika und Übersee 40:* 73–84, 93–115; 41: 27–65, 117–152, 171–196.

Tucker, A.N. & M.A. Bryan. 1956. *Linguistic analyses: the non-Bantu languages of North-Eastern Africa.* London: Oxford University Press for International African Institute.