

Gender and number in Kadu with particular reference to Krongo

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1 Introduction

- + Krongo is a member of the small Kadu family (of less than ten languages in the Nuba Mountains of the Sudan) and the only sufficiently described one due to Reh (1985)
- + we propose a detailed analysis of the available Krongo data on the basis of a novel, universally applicable framework for gender systems (Güldemann and Fiedler forth.)

2 Agreement, agreement classes, and apparent genders

- + various agreement targets: anaphoric pronouns, prepositions, demonstratives, verbal cross-reference (see (2) below)
- > Table 1: four agreement classes defined by consistent agreement pattern across all targets (irrespective of the gender and number values of a given noun form)

AGR class		1. Pronoun (anaphoric)	2. Preposition suffix		3. Verb suffix		4. Verb prefix		5. Dem. prefix	Number value(s)
Here	Reh		(a)	(b)	(a)	(b)	(a)	(b)		
1	"M"	ìṅṅ	-ìṅṅ	-níṅ	-tíní	-ní	∅	ṅ-	y-	SG, PL
2	"F"	àakù	-àakù	-nákù			m-	m-	m-	SG, PL
3	"N"	àay	-àay	-náy			n-	n-	n-	SG, PL
4	"PL"				-táy	-táy	k-	nk-	y-	PL

Table 1: Agreement classes of Krongo

- + classes are labelled by Reh (1985) somewhat misleadingly as "M(asculine)", "F(eminine)", "N(euter)", and "PL(ural)", based on semantic correlation in morphologically simple nouns
- > some classes are insensitive to number (AGR2 in (2)b. vs. c.) and gender (see below)

- (1) a. *músi* *ŋ-òoróobó*
 wizard 1~“M”-be.evil
 an evil wizard (Reh 1985: 135)
- b. *mà-cò-mòtò* *m-àdéelá*
 F-AGT-work 2~“F”-be.good
 a good (female) worker (Reh 1985: 135)
- c. *fólóttó* *mú-sírí*
 bean.pods 2~“F”-be.long
 long bean pods (Reh 1985:130)

+ gender identification by mapping of agreement classes over number (cf. Corbett 1991)

> Reh’s (1985) lexicon of 485 nouns allows this as it lists each item with:

- a) the unmarked noun form and its relevant AGR, followed by
 b) the marked number form (by means of number affix or full noun form) and its AGR, e.g.:

- (2) a. *tìsàanà*, N, pl. *ní-* 'word'
 b. *mòtò*, F, pl. *ní-kòtò* 'work'

+ these data present a highly complex picture of eight apparent genders established by attested agreement class pairings over two canonically assumed number categories

> agreement classes appear to be weakly dedicated to gender and/or number values (similar to languages of the Kalahari Basin or the Caucasus, cf. Güldemann 2000: 28)

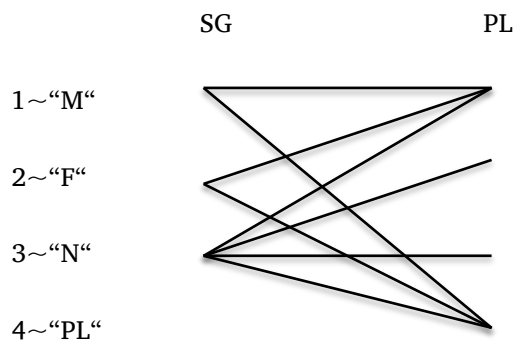


Figure 1: Apparent gender system of Krongo after Reh (1985)

3 Number, nominal morphology, and genders

3.1 The tripartite number system

- + above gender analysis hinges on the assumption of a simple bipartite number system
- > but complex system with suspicious situation of nouns falling under the same agreement class pairing but exhibiting different unmarked number reference and form
- > Kadu languages have in fact a complex, so-called tripartite number-marking pattern that is recurrent in the area in both Nilo-Saharan and Afroasiatic languages (Dimmendaal 2000)

Number-marking pattern		Example	Marked (SG/SGV)	Unmarked (SG/COLL/GEN)	Marked (PL)
A	SG unmarked/ PL marked	'work' 'tin can'		<i>mòtò</i> <i>càalèlì</i>	<i>ní-kòtò</i> <i>Ø-àalèlì</i>
B	COLL~PL unmarked/ SG(V) marked	'hair' 'skin'	<i>n-tín-áaw</i> <i>tùn-tò</i>	<i>áaw</i> <i>tò</i>	
C	SG marked/ PL marked = "REPLACEMENT"	'lion' 'bed'	<i>tì-kàamù</i> <i>tìn-kìryá</i>		<i>à-kàamù</i> <i>ò-kìryá</i>

Table 2: Three basic types of Krongo nouns according to number marking pattern

- + before this background any simple gender system as in Figure 1 fails to give an adequate picture (e.g., all nouns but 'work' in Table 2 belong to a single structural gender (= agreement class pairing 3/1) but to three different number marking patterns)
- > to ensure a more conclusive assessment of the gender system, agreement classes, noun form classes, and complex number marking patterns must be integrated in the analysis

Noun form class	Function	Example	AGR
Elision of initial C: <i>b, f</i> and <i>c</i>	PL	PL <i>Ø-ànbàŋ</i> vs. SG <i>fànbàŋ</i> 'drum'	1
<i>c</i> À-	SG of agent noun	SG <i>càa-màliŋ</i> vs. PL <i>kà-màliŋ</i> 'thief'	
À-	PL	PL <i>à-kìrishà</i> vs. SG <i>tìn-kìrishà</i> 'gazelle'	

mÀ-	F.SG of agent noun	SG <i>mà-càa-màliŋ</i> vs. SG <i>càa-màliŋ</i> 'thief'	2
mVtV-	SGV	SGV <i>mèté-kóofó</i> vs. PL <i>kóofó</i> 'cow dung'	
m-	SG of m-/k-	SG <i>m-ìsì</i> vs. PL <i>k-ìsì</i> 'stone'	
n-	SG of n-/k-	SG <i>n-íicì</i> vs. PL <i>k-íicì</i> 'adult'	
b-	SG of b-/k-	SG <i>b-òtórò</i> vs. PL <i>k-òtórò</i> 'frog'	
t-	deverbal nominalization	<i>t-òyòdó</i> 'Kranksein' vs. <i>òyòdó</i> 'krank sein'	3
(tV)(n)- (henceforth tin-)	SGV; specification; individuation; diminutive	SG <i>tìn-ítò</i> vs. PL <i>ítò</i> 'horn'	
nV-	PL	PL <i>ní-fàtà</i> vs. SG <i>fàtà</i> 'cave'	4
nVkV-	PL	PL <i>nì-k-átì</i> vs. SG <i>àtì</i> 'stomach'	
k-	PL of b-/k-, n-/k- or m-/k-	PL <i>k-ìsì</i> vs. SG <i>m-ìsì</i> 'stone'	
kà-	PL of agent noun	PL <i>kà-màliŋ</i> vs. SG <i>càa-màliŋ</i> 'thief'	
kV-	PL	PL <i>kù-rúkùŋ</i> vs. SG <i>mùtù-rúkùŋ</i> 'bowels'	

Table 3: Noun form classes of Krongo (simplified)

- + Table 3: complex noun affix system, particularly for number but also for derivation
- > noun form classes correlate considerably with agreement class (cf. rightmost column)
- > indicates important role of formal assignment in terms of Corbett (1991)

3.3 Number inflection, agreement, and genders

- + unmarked nouns without number distinctions (aka transnumeral nouns) occur in all four agreement classes
- + marked noun form classes of Table 3 pattern over number according to close to ten abstract number inflection patterns, some of which are diverse regarding the eight attested agreement pairs (cf. Figure 1)
- > 15 combinations of inflection classes and agreement pairs: Table 4 + Figure 2

No.	Number pattern and inflection	Examples	Marked SG(V)	Unmarked SG/COLL	Marked PL	Agreement patterns	Noun no.
1	A	Ø/nV(kV)-		<i>kàbùkwà</i>	<i>ní-kàbùkwà</i>	1 4	116
2				<i>fàṭà</i>	<i>nì-fàṭà</i>	2 4	40
3				<i>tìbbá</i>	<i>ní-tìbbá</i>	3 4	30
4		Ø/C-elision		<i>fànbàṅ</i>	<i>Ø-ànbàṅ</i>	1 1	15
5				<i>bòròrò</i>	<i>Ø-òròrò</i>	2 1	3
6				<i>càdyàanù</i>	<i>Ø-àdyàanù</i>	3 1	2
7	B	(n)tV(n)-/Ø	<i>n-tìn-àafún</i>	<i>àafún</i>		3 1	11
8			<i>tì-mìtikí</i>	<i>mìtikí</i>		3 2	11
9			<i>tù-sùlì</i>	<i>sùlì</i>		3 3	6
10			<i>tìn-ùtò</i>	<i>ùtò</i>		3 4	9
11		mVtV-/Ø	<i>mèté-kóofó</i>	<i>kóofó</i>		2 4	4
12	C	cV-/kV-	<i>cò-díiyò</i>		<i>kò-díiyò</i>	1 4	11
13		C-/k-	<i>b-òtórò</i>		<i>k-òtórò</i>	2 4	5
14		(n)tV(n)-/nV(kV)-	<i>tìn-kòròdò</i>		<i>ní-kòròdò</i>	3 4	24
15		(n)tV(n)-/à-	<i>tìn-kìrìshà</i>		<i>à-kìrìshà</i>	3 1	6

Table 4: 15 combinations of number inflection and agreement pairs in Krongo

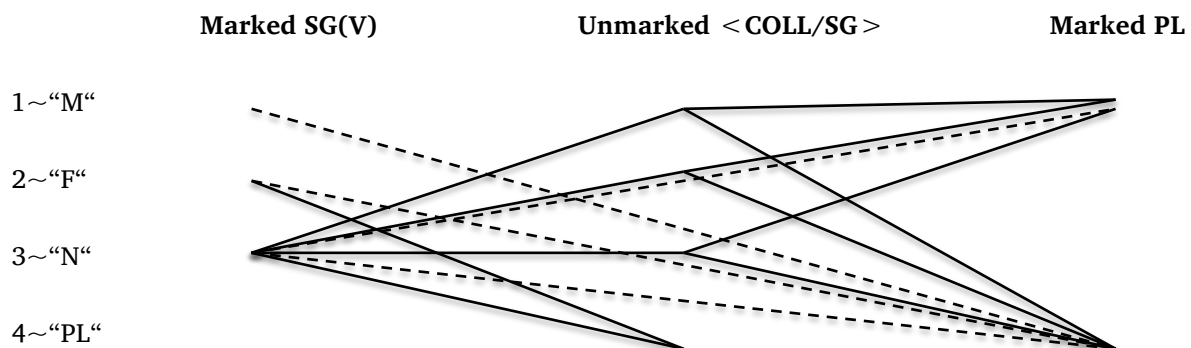


Figure 2: 15 combinations of number inflection and agreement pairs in Krongo

+ 4 "replacement" patterns in C of Table 4 (dashed lines in Figure 2) differ from marked-PL patterns in A of Table 4 only by morphology but not semantics: typically count nouns
 > merged in Table 5 and Figure 3 with type-A nouns displaying the same agreement

No.	Number infl.	Examples	Marked SGV	Unmarked	Marked PLV	Noun no.
1	Ø/nV(kV)- Replacement 12	'well' 'friend'	1 <i>cò-díyò</i>	1 <i>àti</i>	4 <i>ní-kàbùkwà</i> <i>kò-díyò</i>	127 116 + 11
2	Ø/nV(kV)- Replacement 13	'cave' 'frog'	2 <i>b-òtóro</i>	2 <i>fàtá</i>	4 <i>ní-fàtá</i> <i>k-òtóro</i>	45 40 + 5
3	Ø/nV(kV)- Replacement 14	'stalk' 'calabash '	3 <i>tìn-kòròdò</i>	3 <i>tìbbá</i>	4 <i>ní-tìbbá</i> <i>ní-kòròdò</i>	54 30 + 24
4	Ø/C-elision	'drum'		1 <i>fànbàŋ</i>	1 <i>Ø-ànbàŋ</i>	15
5		'hill'		2 <i>òròorò</i>	1 <i>Ø-òròorò</i>	3
6	Ø/C-elision Replacement 15	'earthworm' 'gazelle'	3 <i>tìn-kìrìshà</i>	3 <i>càdyàanù</i>	1 <i>Ø-àdyàanù</i> <i>à-kìrìshà</i>	9 3 + 6
7	(n)tV(n)-/Ø	'ants'	3 <i>n-tìn-àafúŋ</i>	1 <i>àafúŋ</i>		11
8		'stars'	3 <i>tì-mìtikí</i>	2 <i>mìtikí</i>		11
9		'eggs'	3 <i>tì-sùlì</i>	3 <i>sùlì</i>		6
10		'horn'	3 <i>tìn-ítò</i>	4 <i>ítò</i>		9
11	mVtV-/Ø	'cow dung'	2 <i>mèté-kóofó</i>	4 <i>kóofó</i>		4

Table 5: 11 combinations of number inflection and agreement pairs in Krongo

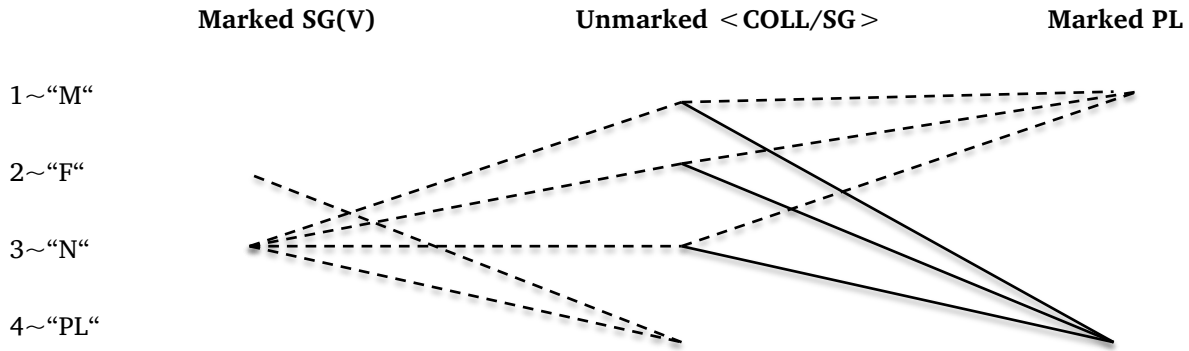


Figure 3: 11 combinations of number inflection and agreement pairs in Krongo

+ eight of 11 inflection-agreement pair combinations (rows 4-11 of Table 5) can be viewed as "inquate" following Corbett (1991: 170-175):

- 3 AGR-specified unmarked noun groups converge in a single PL form of AGR1
- 4 AGR-specified unmarked noun groups converge in a single SGV form of AGR3
- 1 AGR-specified unmarked noun group has a SGV counterpart of AGR2

+ only transnumeral nouns and the first three of 11 inflection-agreement pair combinations are frequent and/or productive (see rightmost column of Table 5)

> comprise four unmarked AGR-specified noun groups of which three can be count nouns that all converge in PL forms of AGR4

+ final picture confirms the decisive gender-specifying role of unmarked nouns as reflected in Reh's (1985) semantically driven labels for agreement classes (quite similar to mainstream European gender systems)

> however, not simply a tripartite gender system (as per Corbett 1991: 190) but rather a quadripartite one comprising an additional, if minor, gender for some transnumeral nouns

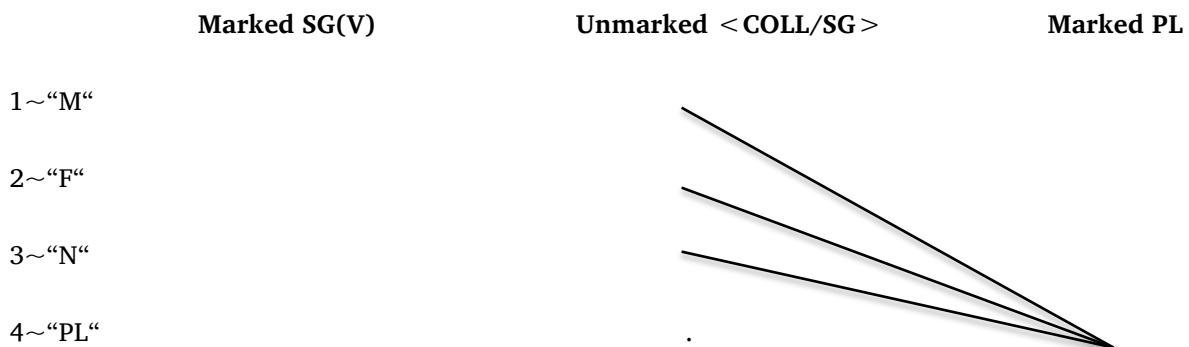


Figure 4: Gender system in Krongo

+ preliminary token count in Reh’s (1985) noun list strongly confirms genders involving count nouns but less so the transnumeral gender, which we consider necessary for structural reasons (statistically so far no difference to cases analyzed above as in Quorate)

Gender	Transnumeral nouns	Count nouns	Total
Masculine	24	151	175
Feminine	16	57	73
Neuter	37	41	78
Plural	7	15	22
Total	84	264	348

Table 6: Preliminary frequencies of the four genders in Krongo

4 Gender assignment

+ typologically expected assignment hierarchy (Corbett 1991):
 semantic criteria > morphological criteria > phonological criteria

4.1 Semantic assignment

+ semantic criteria indeed take precedence over formal noun features
 - natural sex is primary feature, most human terms with 'double gender' (Corbett 1991: 181)

- (3) a. *káaw* *m-íísò*
 person.M/F.S AGR2-IPFV.run
 die laufende Frau (Reh 1985: 186)
- b. *káaw* *ŋ-íísò*
 person.M/F.S AGR1-IPFV.run
 der laufende Mann (Reh 1985: 186)

- certain terms denoting persons or pets exhibit distinctive forms for males as well as females (either as suppletive forms or marked by the derivational prefixes *cÀ-* for male nouns and *mÀ-* for female nouns)
 - large animals are often associated with M, whereas small animals are associated with F
 - possible signs of so-called “associative” gender assignment

4.2 Formal assignment and noun form classes

+ in the absence of semantic criteria, agreement is often assigned according to a noun form
 > agreement of nouns correlates quite strongly with morphological form, notably noun form class prefixes > Table 3

+ in the absence of morphology, agreement can be assigned according to phonological form
 > initial noun segment of affixless nouns recurrently correlates with central exponent of some agreement classes (see Table 1, cf. also form of typical affixes in Table 3):

AGR2 (verbal) agreement exponent *m-* vs. *m*-initial nouns

AGR3 (verbal) agreement exponent *n-* vs. *n*-initial nouns

AGR4 verbal agreement exponent *k-* vs. *k*-initial nouns

5 Comparison to other Kadu languages

5.1 Katcha

+ the Katcha agreement system comprises only three distinctive agreement classes (Gilley 2013, Turner 2016)

> M, F and N (henceforth 1 - 3)

+ agreement markers can be found on modifiers in NPs (attributive adjectives, demonstrative pronouns, possessive pronouns, relative clauses) and verbs (subject agreement)

AGR class		Demonstrative pronoun	Possessive pronoun	Relative pronoun (initial)	Relative pronoun (final)	Verbal prefix (subject)	Adjective (attributive)
Here	Turner 2016						
1	“M“	ja	ja	ja	ja	∅-	j-
2	“F“	mɔ	ma	ma	mɔ	m-	m-
3	“N“	nɔ	na	na	nɔ	k-	n-

Table 7: Agreement classes of Katcha

+ many nouns exhibit AGR polarity, so that a change in number is accompanied by a change in AGR

- + if a noun is morphologically marked for number (singulative or plurative), its AGR is determined by the affix
- > AGR allocation as a property of the affix, not of the noun's root
- > therefore a change in number (in most cases) causes a change in AGR

Noun form class	Function	Example	AGR	
ɓ-	SG	SG <i>ɓ-elétté</i> vs. PL <i>elétté</i> 'bat'	1	
t-	SG of t-/k-	SG <i>t-atalá:ná</i> vs. PL <i>k-atalá:ná</i> 'teacher'		
ajɲ-	PL of s-/ajɲ-	SG <i>s-é:dé</i> vs. PL <i>ajɲ-é:dé</i> 'water pot'	2	
mV-	PL	SG <i>kantá</i> vs. PL <i>ma-kantá</i> 'spear'		
s-	SG of s-/ajɲ-	SG <i>s-é:dé</i> vs. PL <i>ajɲ-é:dé</i> 'water pot'		
-iní	PL suffix	SG <i>kibe</i> vs. PL <i>kibi-iní</i> 'goat'	3	
k-	PL of t-/k-	SG <i>t-atalá:ná</i> vs. PL <i>k-atalá:ná</i> 'teacher'		
kV-	PL	SG <i>timbi</i> vs. PL <i>ki-timbi</i> 'rooster'		
nt(in)-	SG	SG <i>nt-oké</i> vs. PL <i>oké</i> 'guinea fowl'		
nV-	PL	SG <i>kerdé</i> vs. PL <i>ne-kerdé</i> 'calabash plate'		
tV(n)-	SG	SG <i>te-mereké</i> vs. PL <i>mereké</i> 'sesame'		
mVtV-	SG	SG <i>mutu-kule:lé</i> vs. PL <i>kule:lé</i> 'shell'		not specified
p-	SG	SG <i>p-erembé:ré</i> vs. PL <i>erembé:ré</i> 'instrument'		
f-	SG	SG <i>f-ereké</i> vs. PL <i>ereké</i> 'tree'		

Table 8: Noun form classes of Katcha (simplified)

+ by mapping the different AGR classes over the three number categories, the following (potential) gender system can be established for Katcha

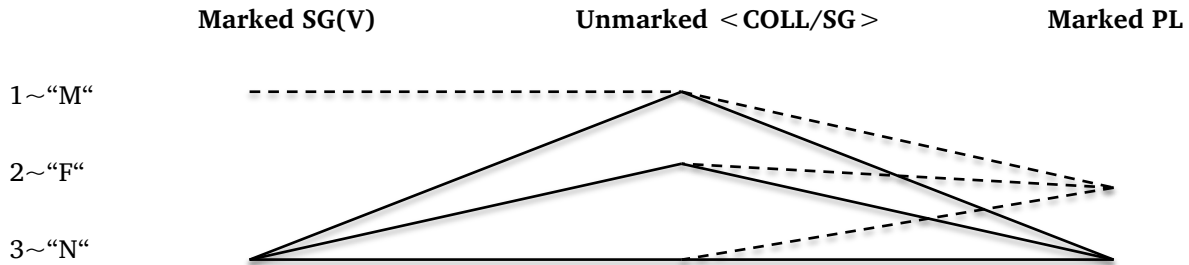


Figure 5: (Potential) gender system in Katcha

5.2 Keiga

- + only Kadu language lacking a gender system (Reh 1994)
- + consequently there is no gender agreement in Keiga, but number agreement can be found
- + Keiga exhibits a tripartite number system with unmarked forms, singulatives and pluratives
- + nouns are either inherently or overtly marked for number
- > if marked inherently, the number reference can be deduced from the agreement targets (verbs, demonstrative pronouns)
- > if marked overtly, the number reference can be deduced from the noun form class prefixes

Noun form class	Function	Example
a-	PL	SG <i>dígí</i> vs. PL <i>à-dígí</i> ‘spine’
ay-	PL of s-/ay-	SG <i>s-ádí</i> vs. PL <i>ay-ádí</i> ‘pot’
ḃ-	SG	SG <i>ḃ-àdrùk</i> vs. PL <i>àdrùk</i> ‘pigs’
d-	SG	SG <i>d-ùudá</i> vs. PL <i>ùudá</i> ‘meat’
dV(ŋ)-	SG	SG <i>dù-sùlé</i> vs. PL <i>sùlé</i> ‘eggs’

gV-	PL	SG <i>dèfik</i> vs. PL <i>gì-dèfik</i> ‘mouse’
mi-	SG in RP	SG <i>mì-fɪnik</i> vs. PL <i>gù-fɪnik</i> ‘stone’
nV-	PL	SG <i>gúsúŋ</i> vs. PL <i>nì-gúsúŋ</i> ‘owl’
s-	SG of s-/ay-	SG <i>s-ádí</i> vs. PL <i>ay-ádí</i> ‘pot’

Table 9: Noun form classes of Keiga (simplified)

5.3 Summary

Language	Krongo	Katcha	Keiga
Agreement	yes	yes	no
AGR classes	4	3	-
AGR targets	pronouns, verbs, prepositions	pronouns, verbs, adjectives	-
thematic AGR1 exponents	no thematic exponent	j-	-
thematic AGR2 exponents	m-	m-	-
thematic AGR3 exponents	n-	n-	-
thematic AGR4 exponents	no thematic exponent	-	-
(productive) PLV affixes	nV(kV)-	nV-	nV-
(unproductive) PLV affixes	C-elision	kV-, -iní, mV-	gV-, a-
(productive) SGV affixes	(n)tV(n)-	tV(n)-	dV(ŋ)-
(unproductive) SGV affixes	mVtV-	mVtV-, ɓ-, f-, p-, nt(in)-	ɓ-, d-

Table 10: Comparison of gender and number features in Krongo, Katcha and Keiga

6 General conclusions

- + agreement class and gender should be treated as separate analytical categories
- + agreement classes interact with tripartite number system and need to be disentangled
- > agreement classes not fully dedicated to a single gender and number value due to existence of a considerable number of inquirate nouns with exceptional agreement

- + resulting gender system is similar to:
 - a) European cases with central gender specification in unmarked number form, but also
 - b) nearby Cushitic cases with an additional agreement class that crucially involves number

- > necessary analysis of a fuller lexicon of Krongo as well as other Kadu languages in order to substantiate the above analysis and determine the historical dynamics of such systems

Abbreviations

AGR Agreement class, AGT Agent, COLL Collective, DEM Demonstrative, F Feminine, IPFV Imperfective, M Masculine, N Neuter, PL Plural, SG Singular, SGV Singulative

References

- Corbett, Greville G. 1991. *Gender*. Cambridge: Cambridge University Press.
- Dimmendaal, Gerrit J. 2000. „Number marking and noun categorization in Nilo-Saharan languages“. In: *Anthropological Linguistics* 42, 214-261.
- Gilley, Leoma. 2013. „Katcha noun morphology“. In: Schadeberg, Thilo and Roger Blench (Eds.). *Nuba Mountain Language Studies*. Köln: Rüdiger Köppe. 501-522.
- Greenberg, Joseph H. 1963. *The languages of Africa*. Bloomington: Bloomington University Center in Anthropology.
- Güldemann, Tom. 2000. „Noun categorization systems in Non-Khoe lineages of Khoisan“. In *Afrikanistische Arbeitspapiere* 63, 5-33.
- Güldemann, Tom & Ines Fiedler. forth. „Niger-Congo “noun classes” conflate gender with declension“. In: Francesca Di Garbo und Bernhard Wälchli (eds.). *Grammatical gender and linguistic complexity*. Berlin: Language Science Press, 85-135.
- Neuhaus, Simon. 2008. *Das Genussystem des Krongo*. Zürich: Universität Zürich. (Lizenziatsarbeit).

- Reh, Mechthild. 1985. Die Krongo-Sprache (Nìino Mó-dì): Beschreibung, Texte, Wörterverzeichnis. Berlin: Dietrich Reimer.
- Reh, Mechthild. 1994. „A grammatical sketch of Deiga“. In: Afrika und Übersee 77, 197-261.
- Schadeberg, Thilo C. 1981. „The classification of the Kadugli language group“. In: Nilo-Saharan: Proceedings of the 1. Nilo-Saharan linguistics colloquium, Leiden. Dordrecht: Foris, 291-305.
- Stevenson, Roland C. 1956. „A survey of the phonetics and grammatical structure of the Nuba Mountain languages, with particular reference to Otoro, Katcha and Nyimang“. In: Afrika und Übersee, Band 40: 73-84; 93-115 & Band 41: 27-65; 117-152; 171-196.
- Turner, Darryl John. 2016. Morphosyntax of Katcha nominals: a dynamic syntax account. Edinburgh: University of Edinburgh.