The four-way meaning of “tripartite” number: implications for a typology of number morphology

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1 Introduction

+ Dimmendaal (2000) introduced the term “TRIPARTITE”

used widely today to describe the number marking systems of various northeastern African languages

+ according to the original definition, tripartite refers to THREE DIFFERENT NUMBER MARKING PATTERNS in which nouns in the relevant languages can occur, namely:

1 singulative

2 plural

3 replacive

1 Introduction

Encoding type	Lexeme	Singulative	Unmarked base	Plural
Unmarked base/ Plural	‘house’		*còorì*	*nóo-còorǐ*
Singulative/ Unmarked base	‘mosquito’	*tì.n-kíiŋ*	*kíiŋ*	
Singulative/Plural = Replacement	‘lion’	*tì-kàamù*		*à-kàamù*

Table 1: Tripartite number in Krongo (Reh 1985) according to the original definition

1 Introduction

+ looking more closely into the number systems of individual languages, we elaborate on Dimmendaal's approach, proposing that FOUR MEANINGS OF TRIPARTITENESS are potentially involved:

1 system tripartiteness,

2 encoding tripartiteness,

3 lexeme tripartiteness, and

4 lexicon tripartiteness

+ our discussion is restricted to MORPHOLOGICAL ASPECTS of number marking

2.1 System(ic) tripartiteness

+ concerns the NUMBER OF FORMAL CONTRASTS in the paradigmatic system > the opposition of three form types

unmarked vs.

marked singulative vs.

marked plural

Encoding type	Lexeme	Singulative	Unmarked base	Plural
Unmarked base/ Plural	'house'		*còorǐ*	*nóo-còorǐ*
Singulative/ Unmarked base	'mosquito'	*tǐ.n-kíiŋ*	*kíiŋ*	
Singulative/Plural = Replacement	'lion'	*tì-kàamù*		*à-kàamù*

Table 2: Systemic tripartite number in Krongo (Reh 1985)

2.1 System(ic) tripartiteness

+ shows a THREE-WAY STRUCTURAL PARADIGM in which nouns in each column are largely uniform in terms of form and meaning

1. unmarked for number and semantically heterogeneous in having, depending on the lexeme, singular, plural or collective reference
2. formally marked and singular reference = singulative
3. formally marked and plural reference = pluraTIVE

2.1 System(ic) tripartiteness

+ singulaTIVE and pluraTIVE are used in order to make a transparent distinction between plain semantically based number concepts and the concrete forms encoding them

>	Meaning	vs.	Meaning + form
	Singular		Singula**tive**
	Plural		Plura**tive**

2.1 System(ic) tripartiteness

+ our adjusted terminology is also useful for cross-linguistic research, that is, also when dealing with systems that are NOT TRIPARTITE

Language	Lexeme	Singulative	Unmarked base	Plurative
English	‘dog’		*dog*	*dog-s*
English	‘trousers’			*trouser-s*
English	‘people’		*people*	
Swahili	‘child’	*m-toto*		*wa-toto*

Table 3: Singulatives, unmarked forms and pluratives in English and Swahili

2.1 System(ic) tripartiteness

+ semantically, the marked forms (SINGULATIVE and PLURATIVE) are number sensitive, whereas the UNMARKED BASE FORM as a form class is number insensitive

Encoding type	Lexeme	Base+X "Singulative"	Unmarked base	Base+X "Plurative"
"P pattern"	'house'		singular	plural
"S pattern"	'mosquito'	singular	plural/ collective	
"R pattern"	'lion'	singular		plural

Table 5: Semantics and terminology of systemic and encoding tripartite number

2.2 Encoding tripartiteness

+ concerns the different NUMBER MARKING PATTERNS which can be realized by the three different noun form types (described in §2.1) on nouns with a binary number contrast

+ corresponds to the central concept in Dimmendaal's (2000) study, where tripartiteness "involves a tripartite division between singulative, plural, and replacive marking on nouns"

2.2 Encoding tripartiteness

+ to ensure a clear terminology, we use the terms:

Singulative or S PATTERN,

Plurative or P PATTERN,

Replacement or R PATTERN

Encoding type	Lexeme	Base+X "Singulative"	Unmarked base	Base+X "Plurative"
"P pattern"	'house'		*còorǐ*	*nóo-còorǐ*
"S pattern"	'mosquito'	*tǐ.n-kíiŋ*	*kíiŋ*	
"R pattern"	'lion'	*tì-kàamù*		*à-kàamù*

Table 4: Encoding tripartite number in Krongo (Reh 1985)

2.2 Encoding tripartiteness

+ Dimmendaal's central encoding tripartiteness is possibly the LEAST SUBSTANTIVE NOTION in the general phenomenon of tripartite number marking

> not the only marking patterns, even within count nouns with a binary form and value paradigm (e.g. suppletion)

> cases like Gaam (see Stirtz 2012: 97) show that the general phenomenon dealt with by Dimmendaal involving system tripartiteness does not imply tripartite encoding

2.2 Encoding tripartiteness

+ Gaam has all three number form types and thus has systemic tripartiteness dealt with in §2.1

+ however, nouns are only marked for number by means of the P pattern and the R pattern, while the S pattern is so far unattested

> Gaam lacks a crucial ingredient of the “canonical” system shown so far and hence encoding tripartiteness

2.2 Encoding tripartiteness

Encoding type	Lexeme	Singulative	Unmarked base	Plurative
P pattern	‘star’		*rīmáá*	*rīmáā-gg*
S pattern	UNATTESTED	-	-	
R pattern	‘lion’	*bàr-d̪*		*bàr-ààgg*

Table 6: Systemic tripartite number in Gaam with bipartite encoding (Stirtz 2012: 97 f.)

2.3 Lexeme tripartiteness

+ relates to LEXICAL PARADIGMATICITY, where individual lexical items have all three relevant forms:

singulative vs. unmarked vs. plurative

+ following our model of encoding types in §2.2, an additional encoding type can be established for these nouns => tripartite or T PATTERN

+ languages with lexeme tripartiteness are not very frequent cross-linguistically but attested variously

2.3 Lexeme tripartiteness

+ lexemes recurrently involve an opposition of an unmarked form to both a singulative and a plurative within a tripartite paradigm

> here, we use a specific term for the semantically unmarked base form, namely GENERAL NUMBER, in line with Corbett (2000: 10)

Lexeme	Singular by Singulative	General number by unmarked base	Plural by Plurative
'toad'	*totii-ru*	*toti*	*totii-ji*
'hen'	*gerto-gal*	*gerto*	*gertoo-de*
'bottle'	*biinii-ri*	*biini*	*biinii-ji*

Table 7: Lexically tripartite number in Fouta Jalon Fula (Corbett 2000: 12)

2.3 Lexeme tripartiteness

+ fuller systems with lexeme tripartiteness found in the geographical vicinity of the Northeast African tripartite languages, namely in Cushitic

+ phenomena associated with lexeme tripartiteness are also relevant in more complex number systems, insofar as they are extensions of the simpler ones

+ Bayso (Cushitic) has a FOUR-WAY NUMBER PARADIGM for nouns as the number value of PAUCAL is added to a basic tripartite system

2.3 Lexeme tripartiteness

Lexeme	Singular by Singulative	General number by unmarked base	Paucal	Plural by Plurative
‘lion’	*lubán-titi*	*lúban*	*luban-jaa*	*luban-jool*

Table 8: Lexically tripartite number in Bayso (after Corbett 2000: 11)

+ general number in all such cases assumes to a considerable extent a structural status in the overall number system

2.3 Lexeme tripartiteness

+ the concept of GENERAL NUMBER in tripartite lexeme paradigms and extensions thereof is clearly akin to the UNMARKED BASE FORM of the tripartite systems dealt with in §2.1 where nouns overall only display a binary number opposition

+ the major difference is that in systemic tripartiteness UNMARKED BASE FORMS tend to have a less stable status in the overall system and thus lack a fixed let alone single value in the number domain, while this is less so the case with GENERAL NUMBER in lexeme tripartiteness

2.4 Lexicon tripartiteness

+ tripartite number systems allow at least for two TYPES OF NOUN LEXEMES: those with a bipartite number opposition (§2.1 and §2.2) and those with a tripartite number opposition (§2.3)

+ however, yet another type of noun is relevant in these and other languages with grammatical number distinctions

> nouns that do not partake in any relevant number oppositions = TRANSNUMERAL NOUNS

2.4 Lexicon tripartiteness

+ in languages exhibiting lexicon tripartiteness, nouns of all three LEXICAL TYPES exist

Lexicon type	Lexeme	Singulative	Unmarked base	Plurative
Transnumeral	'milk'		*ado*	
Bipartite	'sibling'		*rodo*	*rod-uwa*
Tripartite	'peach'	*kook-iccˇo*	*kooke*	*kook-uwa*

Table 9: Lexicon tripartiteness in Sidaama (Kawachi 2007: 85 ff.)

2.4 Lexicon tripartiteness

+ a tripartite structure emerges for the entire lexicon:

1. nouns without a number distinction = TRANSNUMERAL
2. nouns with a bipartite distinction
3. nouns with a tripartite distinction

+ even if the notion of a “number-less” transnumeral noun lexeme may appear similar to the above concept of GENERAL NUMBER, the two concepts are clearly distinct and also need to be referred to differently

2.4 Lexicon tripartiteness

+ GENERAL NUMBER is a property of the number system, entailing that a relevant noun has number distinctions whereby one noun form in the paradigm has no overt number specification and is thus semantically ambiguous regarding its meanings

+ TRANSNUMERAL NUMBER is a property of the lexeme and the lexicon in referring to a noun lexeme showing no variation for number and thus being completely outside the distinctions of the overt encoding system of the category of number

2.4 Lexicon tripartiteness

+ TRANSNUMERAL nouns can be formally marked for number and in this sense can be SINGULATIVE and PLURATIVE in line with our terminology

Encoding type	Lexeme	Singulative	Unmarked base	Plurative
Ø	'body'		*òonó*	
P pattern	'knees'			*nʊ́.kʊ́-kkʊ̀cí*
S pattern	'rifle' (< 'fire')	*ǹ.tì.n-ìssì*		

Table 10: Morphological variation in transnumeral number marking in Krongo (Reh 1985)

3 Summary

Noun type	Encoding	Base+X	Unmarked base(s)	Base+X
Trans-numeral	Ø		Variable number	
	P pattern			Plurative tantum
	S pattern	Singulative tantum		
Bipartite	P pattern		Singular	Plurative
	S pattern	Singulative	Plural/collective	
	R pattern	Singulative		Plurative
Tripartite	T pattern	Singulative	General number	Plurative

Table 11: The four meanings of tripartite number systems

3 Summary

+ starting point for a cross-linguistic research program on formal aspects of number marking in various ways:

a) language-based: variable existence and frequency of encoding types in the lexicon of individual languages

> example of Krongo based on Reh's (1985) lexical corpus as a prototypical "tripartite" language of northeastern Africa with two types of tripartiteness:

systemic tripartiteness vs. encoding tripartiteness

- statistical assessment of the available nominal lexicon with respect to number marking

3 Summary

Lexeme type	Encoding type	Singulative	Unmarked base	Plurative	Frequency
Trans-numeral*	Ø				**84 (20%)**
	P pattern				**2 (0%)**
	S pattern				**6 (1%)**
Bipartite	P pattern				**203 (48%)**
	S pattern				**47 (11%)**
	R pattern				**51 (12%)**
	C-deletion				**27 (6%)**
	Tone				**1 (0%)**
Tripartite	T pattern				**Unattested**

Note: * includes 21 nouns that establish number suppletion

Table 12: Number encoding types across the lexicon in Krongo (total: 421 nouns)

3 Summary

a) language-based: variable existence and frequency of encoding types in the lexicon of individual languages

b) type-based: variable markedness of encoding types and their attested combination across languages

c) lexeme-based: expected bias of different nominal concepts toward specific encoding types

> promising insights into the cross-linguistic variation of conceptualizing nominal concepts

Our proposed framework is thus not only relevant for languages with tripartite number marking in northeastern Africa but for a general formal typology of number marking.

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