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“They are only two, like the teats of a donkey”: Kambaata Denumerals Revisited

Yvonne Treis¹

1. Introduction

Kambaata is a Highland East Cushitic language spoken around the Hambarichcho massif in Southern Ethiopia, about 350km from the Ethiopian capital Addis Ababa. It is spoken by more than 600,000 speakers (Central Statistical Agency 2007: 74), the large majority of whom live in the Kambaata-Xambaaro Zone of the Southern Nations, Nationalities and Peoples’ Regional State. Kambaata is used as a medium of instruction in primary schools and taught as a subject up to grade 8. The official Kambaata orthography is based on the Latin script (Treis 2008: 73-80), which is also adopted in this contribution with minor adaptations, the most important being that stress is consistently marked.² Despite having been taught in schools since 1997, Kambaata has remained an overwhelmingly oral language. The national language Amharic is the written language in private and official contexts. The linguistic landscape of Kambaata towns, e.g. on signs and billboards, is entirely in Amharic, sometimes with English additions. Written Kambaata documents are hardly accessible to the population, but the Kambaata radio programme FM 105.8 can be received for several hours a day.

This article departs from earlier analyses of Kambaata numerals (Treis 2007, Treis 2008: 202-21), significantly expanding and partly revising them with new fieldwork data collected in February 2016³ as well as data from a corpus of educational material, a Kambaata-Amharic dictionary and the Kambaata translation of the

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2 The following graphemes are not in accordance with the IPA conventions: <ph> /p’/, <x> /t’/, <q> /k’/, <j> /dz/, <c> /tʃ’/, <ch> /tʃ/, <sh> /ʃ/, <y> /j/ and <’> /ʔ/. Geminate consonants and long vowels are marked by doubling, e.g. <shsh> /ʃ:/ and <ee> /e:/.

3 I am indebted to my language assistant Deginet Wotango and to my Kambaata language consultants Teshome Dagne, Tessema Handiso, and many others who readily taught me their language over the past few years. I am grateful to the Culture Department of the Kambaata-Xambaaro Zone for their support during my fieldtrips. An earlier version of this paper was presented at the meeting of the project *Les dénuméraux à travers les langues* (led by Bernard Fradin) on 30th June 2014. This research project

Gospel of John.⁴ The title of this contribution is inspired by a comment a Kambaata speaker made about me when he learned that I had only one sister:

(1)

harr-é hanx-í=g-a lám-ee-t
donkeys-fGEN teat-mGEN=SIM-mOBL two-fPRED.VV-COP3
'(They) are (only) two, like the teats of a donkey.'

As the formation of cardinal numerals in Kambaata has already been described in detail, I will focus in this article especially on denumerals, i.e. derivational and compounding processes that have cardinal numerals as inputs. The description of Kambaata was inspired by Fradin's (2015) typological overview of the formation of denumerals. In section 2, I give a brief introduction to Kambaata word classes with a focus on the properties shared and not shared between true adjectives and numerals. In section 3, I summarise the formation of cardinal numerals. In section 4 I elaborate on ordinal derivation. Section 5 is dedicated to adjectival and nominal compounds based on numerals. Sections 6 and 7 deal with the derivation of distributive and multiplicative numerals. Section 8 looks at how fractions are expressed. Section 9 provides information on approximation and, finally, section 10 illustrates the use of numerals in calculation. Whenever possible, denumeral formation in Kambaata is compared to that of the closely related Highland East Cushitic (HEC) languages K'abeena, Alaaba, Hadiyya and Sidaama. No information is available on denumerals in the remaining HEC languages, Libido, Gedeo and Burji.

2. Word classes in Kambaata

Kambaata has five open word classes: nouns, verbs, adjectives, ideophones and interjections, as well as a closed word class of pronouns. Adverbs and conjunctions are two negligible word classes with only a few members. Kambaata distinguishes between fully finite main clause verbs and various types of dependent clause verbs: relative verbs, converbs, purposive verbs and verbal nouns. Verbs are marked inflectionally for subject agreement, aspect, mood and subordination. Nouns are marked for nine cases and two genders. Adjectives are defined in Kambaata as a class of lexemes that display case and gender-agreement with a head if used as modifiers in

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4 Sources are indicated as follows: [K89] and [KXS] = schoolbook texts, [GH] = collection of oral literature, [B/Y] = booklet for religious instruction, [DIC] = Kambaata-Amharic dictionary, [John] = Gospel of John, [Elic.] = elicited data, [TD] and [DW] = natural speech data.

a noun phrase. This feature clearly distinguishes them from nouns and verbs: modifying nouns are marked by the genitive case, modifying verbs are relativised.

The class of adjectives subdivides into true adjectives, demonstrative determiners and cardinal numerals, all of which distinguish two genders (masculine, feminine) and three cases (accusative, nominative, oblique) if used as modifiers in a noun phrase. When I speak of “adjectives” in the remainder of this paper, I refer to true adjectives. Although true adjectives and numerals could be considered two subclasses of a (macro-)class of adjectives, there are also features that clearly help to distinguish numerals from adjectives on formal grounds, for example (for details see Treis 2008: 88-96).

- (i) In the case/gender paradigm, a vowel change can be observed between the feminine and masculine forms of numerals but not of true underived adjectives; compare *mat-ú* (m) / *mat-í-ta* (f) ‘one’ (cardinal numeral) with *qeraa’rr-ú* (m) / *qeraa’rr-ú-ta* (f) ‘long’ (adjective).
- (ii) All underived adjectives have a corresponding zero-derived inchoative-stative verb with the same stem, e.g. *qeraa’rr-ú(-ta)* ‘long’ and *qeraa’rr-* ‘be(come) long’. Cardinal numerals have no such corresponding verbs.
- (iii) Adjectives and numerals are subject to different derivational processes; see, for instance, that quality nouns in *-im-áta* can be derived in a productive way from adjectives but not from numerals: *kall-ú(-ta)* ‘naked’ > *kall-im-áta* ‘nakedness’.
- (iv) Predicative adjectives select copula 2: *-ha* (m) / *-ta* (f) (2). In contrast, cardinal numerals select copula 3, *-VV-t* (1), if they function as the head of the predicate, and trigger a zero copula if they are modifiers to a predicate noun (3).

(2)

ti mán-ch-ut bíiz-a-ta
 DDEM1.fNOM people-SG-fNOM kind-fPRED-fCOP2
 ‘This woman is kind.’

(3)

harr-é hanx-í=g-a lám-e óos-o
 donkeys-fGEN teat-mGEN=SIM-mOBL two-fOBL children-fPRED
 ‘(They) are (only) two children, like the teats of a donkey.’

Not all number words are members of the numeral word class: The numbers *xibb-i-ta* (f) ‘100’, *kum-i-ta* (f) ~ (AMH) *shiih-á* (m) ‘1000’ and *miloon-á* (m) ‘million’ are members of the noun word class. Furthermore, not all members of the numeral word class are numbers. If morphological and (morpho-)syntactic features are taken into account, the lexemes *mexx-ú* (m) / *-i-ta* (f) ‘single’ and *me’-ú* (m) / *-i-ta* (f) ‘how many, how much?’ need to be categorised as numerals: they show the characteristic vowel change between masculine and feminine forms, they lack zero-derived inchoative-stative verbs, they select copula 3 as predicates and they trigger a zero copula as predicate modifiers. Finally, in the same way as other numerals, they serve, for instance, as input for multiplicative derivation (section 7).

The quantifier *hoolam-á* (m) / *-i-ta* (f) or *-á-ta* (f) ‘many’ is difficult to classify. On the one hand it displays the characteristic vowel change of numerals (at least for some speakers) and is the input for multiplicative derivation (section 7). On the other hand, it selects the same copula as adjectives and has a zero-derived inchoative-stative verb *hoolam-* ‘be(come) many’. Other quantifiers do not share the typical features of numerals.

3. Cardinal numerals

The cardinal numerals agree in case and gender with their head noun, if they are used as modifiers. For this purpose, numerals have a masculine and a feminine form. Accusative numerals precede accusative nouns, and nominative numerals precede nominative nouns (4); the oblique form of the numerals is used to show gender agreement with a non-nominative, non-accusative noun, e.g. a locative noun (5). In Table 1, note that the feminine forms do not only differ from the masculine ones in the additional gender morpheme *-ta* / *-t* in the accusative and nominative cases but also in the quality of the case vowel, which precedes the gender morpheme.⁵

ACCUSATIVE		NOMINATIVE		OBLIQUE		
M	F	M	F	M	F	
mat-ú	mat-í-ta	mát-u	mát-i-t	mát-o	mát-e	‘1’
lam-ú	lam-í-ta	lám-u	lám-i-t	lám-o	lám-e	‘2’
sas-ú	sas-í-ta	sás-u	sás-i-t	sás-o	sás-e	‘3’
shool-ú	shool-í-ta	shóol-u	shóol-i-t	shóol-o	shóol-e	‘4’
ont-ú	ont-í-ta	ónt-u	ónt-i-t	ónt-o	ónt-e	‘5’
leh-ú	leh-í-ta	léh-u	léh-i-t	léh-o	léh-e	‘6’
lamal-á	lamal-í-ta	lamál-u	lamál-i-t	lamál-a	lamál-e	‘7’

⁵ Hereafter, the internally complex feminine case/gender-morphemes, i.e. *-i-ta* (fACC) and *-i-t* (fNOM), are no longer subdivided but simply given as *-ita* (fACC) and *-it* (fNOM).

hezzeett-ú ⁶	hezzeett-í-ta	hezzéett-u	hezzéett-i-t	hezzéett-o	hezzéett-e	‘8’
hons-ú	hons-í-ta	hóns-u	hóns-i-t	hóns-o	hóns-e	‘9’
tordum-á	tordum-í-ta	tordúm-u	tordúm-i-t	tordúm-a	tordúm-e	‘10’

Table 1. Case/gender-paradigm of simple cardinal numerals

(4)

[...] lám-it lókk-at yóo-se, caf-í doo’Il-óo
two-fNOM foot-fNOM COP1.3-3fO swamp-mGEN type_of_bird-fDAT
‘[...] it (lit. she) has two legs, a flamingo.’ [TD2016-02-11_001]

(5)

mát-o buud-áani-n shóol-u yóo-haa?
one-mOBL horn-mLOC-N four-mNOM COP1.3.REL-mCOP2
‘On one horn are there four (branches)?’ [TD2016-02-11_001]

Numerals do not require nominalization when used as heads of noun phrases.⁷ In this function, they are simply inflected like nouns. As such, they can be marked for nine different case forms, as illustrated with *shool-ú* ‘four’ (Table 2).

	ACC	NOM	GEN	DAT	LOC	ICP	ABL	OBL	PRED
M	shool-ú	shóol-u	shool-í	shool-íi	shool-óon	shool-íin	shool-íichch	shóol-o	shóol-o
F	shool-í-ta	shóol-i-t	shool-é	shool-ée	shool-éen	shool-éen	shool-éechch	shóol-e	shóol-e

Table 2. Case paradigm of numerals as NP head (example *shool-ú* ‘four’)

In (5) above, the masculine numeral *shóol-u* is used as the head of a nominative NP; the counted referent (*qaf-á* (m) ‘branch(es)’) is understood from the context. In (6), the numeral is marked for ablative case and masculine gender; the case form is determined by its function in the sentence (standard in a comparative construction), and the gender by its implicit referent, i.e. *su’mm-á* (m) ‘name(s)’. In (7), the immediate context mentions what is counted by the numeral, namely *tam-íta* (f) ‘use(s)’, and thus determines its gender. The accusative case of the numeral is due to its function as a direct object of ‘write’. In counting, the masculine oblique case is used, e.g. *mát-o*, *lám-o*, *sás-o* ‘1, 2, 3’.

⁶ The masculine form of the independent numeral *hezzeett-ú* ‘eight’ cannot be formally distinguished from the noun *hezzeett-ú* ‘week’ and is surely etymologically related to it.

⁷ The same is true of adjectives in Kambaata.

(6)

tordum-íichch kot-ún-ka
ten-mABL be_small_in_number-3mJUS-NEG

‘It should not be less than (lit. from) 10 (names).’

[K89: 4.14]

(7)

qaanc-í tam-éechch lam-ú-s xáaf-f [...]
enset_fibres-mGEN use-fABL two-fACC-DEF write-2sPCO

‘Write down two uses of enset fibres [...] (lit. From the uses of enset fibres, write down two [...]).’

[K89: 4.14]

Kambaata has a decimal number system in which tens precede units. The numeral ‘ten’ (historically segmentable as *tor-dum-á*), the translation equivalent of ‘-teen’ in the numbers from ‘11’ to ‘19’ (*tóo-*) and the translation equivalent of ‘-ty’ in ‘20’, ‘30’, ..., ‘90’ (*-dum-á*) are etymologically related but synchronically not identical (see Treis 2007 and 2008: 303f for details). The tens in Table 3 consist of the stem of the simple numeral plus a historically earlier, fairly reduced ‘-ty’-morpheme *-oo/-aa*, a recent ‘-ty’-morpheme *-dum*, plus the usual case morpheme.⁸

‘20’	lam-oo-dum-á	Compare:	‘2’	lam-ú
‘30’	sajj-aa-dum-á		‘3’	sas-ú
‘40’	shool-aa-dum-á		‘4’	shool-ú
‘50’	ont-aa-dum-á		‘5’	ont-ú
‘60’	leh-aa-dum-á		‘6’	leh-ú
‘70’	lamal-aa-dum-á		‘7’	lamal-á
‘80’	hezzeett-aa-dum-á		‘8’	hezzeett-ú
‘90’	hons-aa-dum-á		‘9’	hons-ú

Table 3. Formation of tens

The numbers consisting of tens and units are not just combinations of the synchronic terms for tens and units, rather, they are based on the old tens, i.e. they lack the new ‘-ty’-morpheme *-dum*. The tens are linked to the unit by *-na* CRD (Table 4).⁹

tóo-na	+ NUM _{1...9}	e.g.	‘19’	tóo-na	hons-ú
lam-ée-na	+ NUM _{1...9}	e.g.	‘28’	lam-ée-na	hezzeett-ú
sajj-áa-na	+ NUM _{1...9}	e.g.	‘37’	sajj-áa-na	lamal-á

⁸ For reasons of space only the masculine accusative form is given in Table 3, the tens do however inflect in the same way as e.g. *tordum-á / -i-ta* ‘ten’ (Table 1).

⁹ For reasons of space only the masculine accusative form is given in Table 4.

shool-áa-na	+ NUM _{1...9}	e.g.	'46'	shool-áa-na	leh-ú
ont-áa-na	+ NUM _{1...9}	e.g.	'55'	ont-áa-na	ont-ú
leh-áa-na	+ NUM _{1...9}	e.g.	'64'	leh-áa-na	shool-ú
lamal-áa-na	+ NUM _{1...9}	e.g.	'73'	lamal-áa-na	sas-ú
hezzeett-áa-na	+ NUM _{1...9}	e.g.	'82'	hezzeett-áa-na	lam-ú
hons-áa-na	+ NUM _{1...9}	e.g.	'91'	hons-áa-na	mat-ú

Table 4. Formation of tens plus units

The number words *xibb-íta* '100' and *kum-íta* '1000' are feminine nouns. In everyday language, the number word *kum-íta* '1000' of Cushitic origin is usually replaced by the Amharic loan *shiih-á* '1000', a masculine noun. The numeral *miloon-á* 'million', a masculine noun, is an English loan via Amharic. As modifiers, these noun-like number words are marked for the genitive case (as any other modifying noun), i.e. they are unable to show case or gender-agreement with a head noun.

(8)

kum-é	mann-á	kum-é	lokk-áta
thousand-fGEN	people-mACC	thousand-fGEN	foot-fACC
'(one) thousand people'		'(one) thousand feet'	

For the formation of hundreds and thousands, the numerals *xibb-íta* (f) '100' and *kum-íta* (f) 'thousand' are modified by simple numerals which agree in case and gender with their (numeral) head noun, e.g. *ont-íta xibb-íta* (five-fACC hundred-fACC) '500', *lam-ú shiih-á* (two-mACC thousand-mACC) '2000'. For more details on complex cardinal numerals see Treis (2007; 2008: 202-21).

4. Ordinal numerals

Starting with the number 'two', ordinals are derived from cardinal numerals by the suffixation of one of the ordinal allomorphs {-*kí*, -*qí*, -*iqqí*, -*qqí*} (Table 5).

CARDINAL NUMERAL	ORDINAL NUMERAL	
mat-ú	woná	'1 st '
lam-ú	lan-kí	'2 nd '
sas-ú	sak-kí	'3 rd '
shool-ú	shool-kí	'4 th '
ont-ú	ont-iqqí	'5 th '
leh-ú	leh-iqqí	'6 th '
lamal-á	lamal-qí	'7 th '
hezzeett-ú	hezzeett-iqqí	'8 th '

hons-ú	hons-iqqí	‘9 th ’
tordum-á	tordun-qí	‘10 th ’
tóona mat-ú	tóona mat-iqqí (*tóona woná)	‘11 th ’
tóona lamal-á	tóona lamal-qí	‘17 th ’
lamoodum-á	lamoodun-qí	‘20 th ’
xibb-í-ta (n)	xibb-e-qqí	‘100 th ’
shiih-á (n) ~ kum-íta (n)	shiih-i-qqí ~ kum-e-qqí	‘1000 th ’
me’-ú	me’-iqqí	‘of which rank?’

Table 5. Ordinal numerals

The first ordinal is suppletive: *mat-ú* ‘one’ > *woná* ‘first’. The suppletive ‘first’ is, however not used for the ordinal forms of tens plus one, e.g. ‘21st’, which is literally “twenty-oneth” (9).

(9)

hanqaf-fóo lam-ée-na mat-iqqí bar-éen fushsh-itáa’u
hatch-3f.PVO.REL two-TY-CRD one-ORD day-mLOC take_out-3fIPV
‘They make (them) come out (of their eggs) on the 21st day (after they have started) hatching.’
[K89: 2.101]

The distribution of the ordinal allomorphs $\{-kí, -qí, -iqqí, -qqí\}$ is partly lexically, partly phonologically, and partly morphologically conditioned: ‘second’, ‘third’ and ‘fourth’ are marked by *-kí*. Starting with ‘fifth’, all true numerals attach *-qí* and *-iqqí* to the numeral stem. The short *-qí* is found after stem-final sonorants (see *lamal-qí* ‘seventh’ and *tordun-qí* ‘tenth’), the long *-iqqí* is found elsewhere. Place assimilation between stem-final nasals and the following ORD-morpheme is observed in the case of ‘second’ and ‘tenth’. In the ordinal ‘third’ the stem-final /s/ assimilates totally to the ordinal morpheme. Ordinals of noun-like cardinal numerals (‘100th’, ‘1000th’) are formed by the suffixation of the ordinal morpheme to the genitive form (and not the stem) of the numeral noun. The ordinal morpheme itself could be still further segmented into a consonantal part $\{-k, -q, -iqq, -qq\}$ and a genitive morpheme *-í*.

The interrogative ordinal numeral *me’-iqqí* ‘of which rank (lit. how manieth)?’ (10) is based on the interrogative numeral *me’-ú* / *-íta* ‘how much?’.

(10)

antabée’-u me’-iqqí bar-éen fushsh-itáa-’i?
chicken-mNOM how_many-ORD day-mLOC take_out-3fIPV-Q
‘On which day (lit. on the how manieth day?) do chicken make (their chicks) come out (of their eggs)?’
[K89: 2.101]

In contrast to cardinal numerals, ordinal numerals are (almost) morphologically invariant. As modifiers in a noun phrase, ordinals do not show gender or case agreement with the head noun; they thus behave like modifying genitive nouns.

(11)

sak-kí-na shool-kí maar-aakk-á sawwitt-á xáaf
 three-ORD-CRD four-ORD line-PL-fGEN idea-mACC write.2sIMP
 ‘Write (explain) the idea/message of the third and fourth line.’ [K89: 4.130]

If ordinal numerals are used as the head of an NP, they need to be nominalised. In (12), we find three nominalised ordinal numerals. If the ordinal is to be marked for the accusative or nominative case, it receives the nominaliser =*bii(-ta/-ha)*; for all other cases it receives the nominaliser =*hann/=tann*.¹⁰

(12)

woná semisteer-áan lan-kí=bii(ha) fúll-eemm
 first semester-mLOC two-ORD=NMZ1mACC go_out-1sPVE
 lan-kí=hann-éen woná=bii(ha) ful-íi tass-áa
 two-ORD=NMZ2-mLOC first=NMZ1mACC go_out-mDAT hope-mACC
 ass-áyyoomm
 do-1sPROG
 ‘In the first semester I came second. In the second (semester) I hope to come first.’ [K89: 4.125]

A limited degree of morphological variation is attested for the ordinals *woná* ‘first’ and *lan-kí* ‘second’. Unlike all other ordinals, they can be used adverbially and, for this purpose, special adverbial forms are created. The ordinal ‘first’ allows for four adverbial forms: *wóna* ~ *wónan* ‘earlier, before, in the beginning’ (13), *wonáa* ‘firstly, first of all’ (14) and *wonáchch* ‘than, compared to before’ (15).

(13)

[...] woraqat-t-áan-ta-s wóna yoo-ba’í
 paper-PL-fLOC-L-3mPOSS before COP1.3-NEG.REL
 cafal-ámm-ee=r-a xúujj [...]
 scribble-PASS-3mPVE.REL=NMZp-mACC see.3mPCO
 ‘[...] when he saw the scribbles, which had not been on his papers before [...].’ [K89: 2.17]

¹⁰ For more information on nominalisers see Treis (2008: 236-40).

(14)

malées-u Latám wonáa lám-e oot-áan
 wise-mNOM [NAME] at_first two-fOBL fence-fLOC
 beeh-eennó=g-a sájj-o
 divide-3honIPV.REL=SIM-mACC advise-3mPVO
 ‘[...] the wise Latamo advised (him) to first divide (the herd) into two
 enclosures.’ [K89: 2.45]

(15)

[...] íib-u-si-i muggítt-u-hu-u won-áachch
 fever-mNOM-DEF-ADD diarrhoea-mNOM-ADD first-ABL
 woyy-án marr-óochch [...]
 be_better-3mICO go-3mPVO.REL.ABL
 ‘[...] when the fever and the diarrhoea have become better than before
 [...].’ [K89: 4.8]

For the ordinal ‘second’ two adverbial forms are attested, *lankii* ~ *lankée* ‘a second time, again’, which a consultant considered to be regional variants.

(16)

lan-k-ée dikk-úta mar-eenán abbis-éen
 two-ORD-DAT market-fACC go-3honICO exceed-3honICO
 qoraphh-eennó=g-a yóo’u
 take_care.MID-3honIPV.REL=SIM-mOBL COP1.3
 ‘One needs to be careful when one goes to the market again.’
 [DW2014-12-24_market]

Fractions are based on ordinal numerals (see section 8).

K’abeena, Alaaba and Sidaama make use of an ordinal suffix that is cognate with that of Kambaata. Like Kambaata, Alaaba and Sidaama have a suppletive ordinal ‘first’, which is not used for the ordinals ‘11th’, ‘21st’ etc. Instead, these ordinals are derived regularly and translated literally as ‘ten-and oneth’, ‘twenty-and oneth’ etc. (Schneider-Blum 2007: 132, Kawachi 2007: 137). K’abeena has no suppletive ‘first’ at all but only a regularly derived *mat-ikk’i* lit. “oneth” (Crass 2005: 217f). Compared to these languages, the ordinal formation of Hadiyya is fairly different. Ordinals of simple numerals are derived from cardinals by the replacement of the final vowel and, for some numbers, by the glottalisation of stem-final consonants. Ordinals of numerals higher than ‘ten’ are formed periphrastically with

the noun ‘place’.¹¹ In Hadiyya, too, ‘first’ is suppletive; the suppletive form is, however, not used for ‘11th’, which is lit. “ten oneth place” (Tadesse 2015: 150).

5. Numeral-based compounds

Compounding is only a semi-productive morphological process in Kambaata. Consequently, not many compounds are attested in my database. Below I list all known adjectival and nominal compounds containing a numeral stem. The numeral is the first part in all the examples; compounds whose second stem is a numeral are not (yet) attested. The adjectival compounds in (17)-(23) all have a nominal stem as the second part. The adjectival inflectional morphology is attached to this second lexical stem. If the second stem starts with /h/, there is a tendency to drop this phoneme; see (17) and (22). The meaning of the compounds is not always the sum of its parts, e.g. in (21), and they would thus have to be included in a dictionary.

- (17) *mat-* ‘one’ + *hagar-* ‘type’ (ACC: *hagar-á*) → *matagar-á(-ta)* or (K89: 5.29) *mathagar-á(-ta)* ‘of one type’
- (18) *sas-* ‘three’ + *hagar-* ‘type’ (ACC: *hagar-á*) → *sasagar-á(-ta)* (mostly negative:) ‘of more than one colour, not coloured regularly, not washed properly (e.g. of clothes) (lit. of three types)’
- (19) *mat-* ‘one’ + *ill-* ‘eye’ (ACC: *ill-íta*) → *matill-á(-ta)* ‘one-eyed’ (GH: 96)
- (20) *mat-* ‘one’ + *ang-* ‘hand’ (ACC: *ang-áta*) → *matang-á(-ta)* ‘one-handed (of a person), simple (of a rope with only two threads)’
- (21) *lam-* ‘two’ + *fool-* ‘soul’ (ACC: *fool-í*) → *lamfool-á(-ta)* ‘highly pregnant (lit. two-souled)’
- (22) Udders of different domestic animals:
lam- ‘two’ + *hanx-* ‘teat’ (ACC: *hanx-á*) → *lamanx-á(-ta)* ‘with two teats’
sas- ‘three’ + *hanx-* ‘teat’ (ACC: *hanx-á*) → *sasanx-á(-ta)* ‘with three teats’
shool- ‘four’ + *hanx-* ‘teat’ (ACC: *hanx-á*) → *shoolanx-á(-ta)* ‘with four teats’
- (23) *shool-* ‘four’ + *kof-* ‘upper arm’ (ACC: *kof-ú*) → *shoolkof-á(-ta)* ‘with four branches (of a stick)’ (K89: 6.113)

In (24)-(27), the numeral and the nominal stem of the compounds are further extended by a derivational morpheme, the proprietive derivation (‘having N’), which is described in more detail in Treis (2008: 274-77).

11 The description in Tadesse (2015) is not very clear and only the ordinals ‘first’ to ‘19th’ are provided.

- (24) *lam-* ‘two’ + *macc-* ‘ear’ (ACC: *macc-áta*) + *-aam-ú* / *-íta* PROP → *lammaccaam-ú* / *-íta* ‘with two handles (lit. two-eared)’
- (25) *sas-* ‘three’ + *macc-* ‘ear’ (ACC: *macc-áta*) + *-aam-ú* / *-íta* PROP → *sasmaccaam-ú* / *-íta* ‘with three handles (lit. three-eared)’
- (26) *lam-* ‘two’ + *lokk-* ‘foot, leg’ (ACC: *lokk-áta*) + *-aam-ú* / *-íta* PROP → *lamlokk-ú* / *-íta* ‘two-legged, two-footed’
- (27) *lam-* ‘two’ + *goc-* ‘door’ (ACC: *goc-á*) + *-aam-ú* / *-íta* PROP → *lamgoc-ú* / *-íta* ‘with two doors’ (GH: 148)

By the same mechanism the compound in (28) has been created. Note, however, that the numeral stem is a loan from the neighbouring language Hadiyya.

- (28) *soor-* ‘four’ (Hadiyya) + *macc-* ‘ear’ (ACC: *macc-áta*) + *-aam-ú* / *-íta* PROP → *soormaccaam-íta* ‘four-eared’ (of a type of spear)

One compound adjective (29) is attested in which the second stem is a verb. As in the other examples, the adjectival inflectional morphology is attached word-finally. Furthermore, examples (29) and (18) show that ‘three’ is often interpreted as ‘several, many’ (see also section 11).

- (29) *sas-* ‘three’ + *hoog-* ‘not have, not do’ → *sasoog-á(-ta)* ‘with various bad traits, with various deficiencies, useless (when insulting someone; lit. not having three)’

The compound adjectives can assume the same functions as any simple adjective. In (30) we see the compound as a modifier of the direct object *dist-íta* ‘pot’.

- (30)
- | | | | | |
|----------|------------------|----------|-------------|-------------|
| aayíchch | lammaccaam-íta | dist-íta | dikk-óochch | hir-éemma |
| mum.fNOM | two_handled-fACC | pot-fACC | market-fABL | buy-3honPVE |
- ‘Mum has bought a two-handled pot at (lit. from) the market.’ [Elic.]

A small group of complex adjectives whose first part is a numeral (31)-(34) have an element (*h*)*aqq-* as a second part. Most of these adjectives characterise blankets and shawls with different numbers of layers. It is unclear whether (*h*)*aqq-* goes back to a nominal stem or whether its origin is the middle morpheme *-aqq*. (Only in the first case would the examples merit treatment in this section.) One informant proposed the noun *haqq-á* as the source of the second part. However, according to other native speakers, the noun *haqq-á* is only used with the meaning ‘tree, wood’ but never ‘layer’; therefore I tend to interpret the second element as the middle morpheme.

- (31) *mat-* ‘one’ + (*h*)*aqq-* ‘[?]’ → *mataqq-á(-ta)* ‘one-ply, of one layer’; (neo.) ‘singular’ (K89: 6.131; KXS: 22)
- (32) *mexx-* ‘single’ + (*h*)*aqq-* ‘[?]’ → *mexxaqq-á(-ta)* ‘one-ply, of one layer’
- (33) *lam-* ‘two’ + (*h*)*aqq-* ‘[?]’ → *lamaqq-á(-ta)* ‘two-ply, of two layers (e.g. of woven blankets and shawls such as the *gaab-íta*)’; (neo.) ‘compounded, composite’, e.g. *lamaqq-áta laagaakk-áta* ‘compound words’ (K89: 4.15), ‘reduplicated words’ (K89: 8.26), ‘consisting of two letters, digraph’ (KXS: 4)
- (34) *hool(-am)-* ‘many’ + (*h*)*aqq-* ‘[?]’ → (neo.) *hoolaqq-á(-ta)* ‘plural’ (K89: 6.131; KXS: 22)

Some of the complex adjectives above have been used in local linguistic publications to denote grammatical concepts such as singular (31), plural (34), composite or reduplicated words (33), and digraphs (33).

The compounds in (35)-(37) consist of an ordinal numeral and one or two nouns. The compound itself also belongs to the noun word class. Interestingly, it is not only the stem (*lank-*) but the complete ordinal with its genitive case vowel (*lankí*) which serves as the input. The case vowel (*-i*) assimilates to the initial vowel of the second V-initial constituent, creating a long vowel at the boundary.

- (35) *lankí* ‘second’ + *am-áta* ‘mother’ → *lankaam-áta* ‘maternal aunt’
- (36) *lankí* ‘second’ + *ann-á* ‘father’ → *lankaann-á* ‘paternal uncle’
- (37) *lankí* ‘second’ + *ann-á* ‘father’ + *oos-úta* ‘children’ → *lankaannoos-úta* (DIC: 174) ‘cousins (via the paternal uncle)’¹²

Example (38) demonstrates the use of the compound noun in (36): it serves as a modifier to the predicate noun ‘children’ and thus carries the copula for the predicate noun. The initial syllable of the compound is reduplicated to mark reciprocity.

- (38)
- | | |
|--|--|
| Zaráar-i-i
[Name]-fNOM-ADD
lá-lankáann-i-ta
RED-paternal_uncle-mGEN-fCOP2 | Maassáam-i-i
[Name]-fNOM-ADD
óos-u
children-fPRED |
|--|--|
- ‘Zaraare and Maassaame are cousins via the paternal uncle.’ [K89: 4.138]

Reduplication is not only a means to express reciprocity; it is also a means to create distributive numerals, as we will see in the next section.

¹² The hypothetical term **lankaamoosúta* ‘cousins via the maternal aunt’, modelled on (35) and (37), was not accepted by native speakers.

6. Distributive numerals

Distributive numerals ('1 each', '2 each' etc.) are marked by partial pre-reduplication. The addition of the distributive morpheme to numeral stems is the only prefixing operation in an otherwise entirely suffixing language.

The initial CV of the stem is copied and prefixed. Even if the initial syllable of the numeral contains a long vowel (e.g. *shool-ú* 'four'), the vowel of the prefix is short (e.g. *shó-shshool-ú* 'four each'). In this example, the first C of the numeral stem is realised geminate after the prefix because the second stem consonant is single. In contrast, the stem-final Cs of *hé-hezzeett-ú* 'eight each' and *hó-hons-ú* 'nine each' are not geminate, because the second stem consonants are bi-phonemic, namely *zz* and *ns*, respectively.¹³ Only one example violates this gemination rule, the morpheme *tóona* 'NUM-teen', of which the distributive form is *tó-tóona* (**tó-ttóona*) 'NUM-teen each'; see Table 6, Table 8 and (39).

For reasons of space, the distributive numerals from 1 to 10 are presented only in their masculine accusative form in Tables 6, 7 and 8. As modifiers, the distributive numerals do, however, inflect like ordinary cardinal numerals (see Table 1). They can also be used as heads of an NP, and then they inflect like nouns; see Table 2 and (39).

CARDINAL NUMERAL	DISTRIBUTIVE NUMERAL	
mat-ú	má-mmat-ú	'1 (each)'
mexx-ú	mé-mexx-ú	'a single (each)'
lam-ú	lá-llam-ú	'2 (each)'
sas-ú	sá-ssas-ú	'3 (each)'
shool-ú	shó-shshool-ú	'4 (each)'
ont-ú	ó-'ont-ú	'5 (each)'
leh-ú	lé-lleh-ú	'6 (each)'
lamal-á	lá-llamal-á	'7 (each)'
hezzeett-ú	hé-hezzeett-ú	'8 (each)'
hons-ú	hó-hons-ú	'9 (each)'
tordum-á	tó-tordum-á	'10 (each)'
me'-ú	mé-mme'-ú	'how much (each)?'

Table 6. Distributive numerals (1-10)

¹³ To the best of my knowledge, this phonotactic restriction is not applied elsewhere in the language. It is, for instance, possible that underived lexemes contain more than one geminate consonant or cluster; see e.g. *xillill-ita* 'hawk'.

The formation of distributive numerals for the tens and hundreds follows the same mechanism as that of units. The only exception is ‘1000’, which is fully reduplicated in its distributive form. Recall that the number words ‘100’ and ‘1000’ are nouns.

CARDINAL NUMERAL	DISTRIBUTIVE NUMERAL	
lamoodum-á	lá-llamoodum-á	‘20 (each)’
sajjaadum-á	sá-sajjaadum-á	‘30 (each)’
shoolaadum-á	shó-shshoolaadum-á	‘40 (each)’
ontaadum-á	ó-’ontaadum-á	‘50 (each)’
lehaadum-á	lé-llehaadum-á	‘60 (each)’
lamalaadum-á	lá-llamalaadum-á	‘70 (each)’
hezzeettaadum-á	hé-hezzeettaadum-á	‘80 (each)’
honsaadum-á	hó-honsaadum-á	‘90 (each)’
xibb-íta (f)	xí-xibb-íta	‘100 (each)’
lam-íta xibb-íta	lá-llam-íta xibb-íta	‘200 (each)’
shiih-á (m) [AMH]	shiih-á shiih-á (’shi-shiih-á)	‘1000 (each)’ ¹⁴

Table 7. Distributive numerals (tens and hundreds)

While the formation of distributive forms of non-complex numerals is fairly straightforward, there are two, and possibly even three mechanisms to generate the distributive forms of numerals consisting of tens plus units. As Table 8 illustrates, either (i) only the unit is pre-reduplicated or (ii) both the tens and the units are pre-reduplicated.

CARDINAL NUMERAL	DISTRIBUTIVE NUMERAL	
tóona mat-ú	(i) tóona má-mmat-ú (ii) tó-tóona má-mmat-ú	‘11 (each)’
laméena mat-ú	(i) laméena má-mmat-ú (ii) lá-llaméena má-mmat-ú	‘21 (each)’
xibb-íta mát-o	(ii) xí-xibb-íta má-mmat-ú	‘101 (each)’ ¹⁵

Table 8. Distributive numerals (tens plus units)

In a schoolbook text, even a third possibility is attested. The distributive of the numeral ‘15’ in (39) has a pre-reduplicated ten but no pre-reduplicated unit.

14 As the Cushitic ‘1000’, *kum-íta*, is not in use in daily life, I was unable to elicit a distributive form.

15 No form for ‘101 each’ is attested in which only the unit is pre-reduplicated.

(39)

gaazéex-x-at bar-éen bar-éen, hé-hezzeett-óon
newspaper-PL-fNOM day-mLOC day-mLOC RED-eight-mLOC
tó-tóo-na ont-óon te agan-áan agan-áan attaman-táa'u
RED-ten-CRD five-mLOC or month-mLOC month-mLOC be_published-3fIPV
'Newspapers are published daily, every eight (days) (i.e. weekly), every
fifteen (days) (i.e. fortnightly) or monthly.'
[K89: 4.92]

While (39) shows the use of distributive numerals as heads of NPs, distributive numerals are, of course, also used as modifiers in an NP. The following examples illustrate the distributive numeral modifier of an accusative noun (40) and of a genitive noun (41).

(40)

kifil-í aaz-éen tó-tordum-á rosaan-n-ú
class-mGEN interior-mLOC RED-ten-mACC student-PL-mACC
gur-á-na makk-é wud-íin uurr-ís-s [...]
left_side-fGEN-CRD right_side-fGEN side-mICP stand-CAUS-2sPCO
'Let ten students each stand on the left and on the right sides of the class room
[...].'
[K89: 8.106]

(41)

isso'óont mé-méxx-i-s lá-llám-o-'indo
3pNOM<N> RED-single-fNOM-DEF RED-two-mOBL-DISJ
sá-ssás-o boos-í qax-á
RED-three-mOBL type_of_pot-mGEN amount-mACC
af-fâa-haa=rr-a ikke
hold-3fIPV.REL-mCOP2=NMZp-mPRED INACT
'They (= six *zaale*-pots), each one of them, each held the contents of two or
three *boosu*-pots.'
[John 2, 6]

The distributive form of the numeral one, *mámmat-ú*, means not only 'one each' but also 'some' (Treis 2008: 312).

The formation of distributives is not restricted to cardinal numerals but can also depart from ordinal numerals, e.g. *lá-lankí* 'every second', *sá-sakkí* 'every third', *shó-shoolkí* 'every fourth', *lá-llamalqí* 'every seventh' (42).

(42)

Shaaméeb-i-i Abbís-u-u la-lan-kí kod-áta
[Name]-mNOM-ADD [Name]-mNOM-ADD RED-two-ORD time-fACC
áag-g it-tóo'u
enter-3fPCO eat-3fPVO

‘Shaameebo and Abbiso each entered and ate a second time.’ [Elic.]

The distributive ordinals support the gemination rule proposed for cardinal distributives above, namely that the second stem consonant triggers (or blocks) stem-initial gemination. While, for instance, *sá-ssas-ú* ‘3 each’ has a geminate stem-initial C triggered by the monophonemic /s/ as C₂, the corresponding ordinal distributive, *sá-sakkí* ‘every third’ lacks the gemination because C₂ /kk/ is bi-phonemic.

Fractions (see section 8) can also be the input of the distributive formation: *mat-ú sakkichch-ú* ‘one third’ > *má-mmat-ú sakkichch-ú* ‘one third each’ or *sakkí af-óo* ‘one third (lit. the third share)’ > *sá-sakkí af-óo* ‘one third each’.

While distributivity is often encoded by partial reduplication (43a), conversational data shows that full reduplication is also an option in similar contexts (43b).

(43a) SPEAKER TD

[...] shóol-eanta lokk-a-sé al-éen
four-fOBL<N> foot-fGEN-3fPOSS top-mLOC
shó-shshóol-it zuru'mm-ichch-áakk-at yoo-se-táa [...]
RED-four-fNOM toe-SG-PL-fNOM COP1.3.REL-3fO-fCOP2-ADD
‘[...] she is (an animal) which has, on her four feet, four small toes each and [...].’

(43b) SPEAKER DW

mat-éen-ta-s mat-éen-ta-s
one-fLOC-L-DEF one-fLOC-L-DEF
‘On each one of them (= the feet)?’ [TD2016-02-11_001]

In K’abeena, distributive numerals are always formed by full reduplication (Crass 2005: 218f).

7. Multiplicative numerals

A fully productive derivational process generates multiplicative numerals ‘NUM times’ by the addition of the morpheme *-é* to the cardinal numeral stem. The derivational process can be applied to lower, adjective-like numerals as well as

higher, noun-like numerals; see *lam-ú* ‘two’ + *-é* MULT > *lam-é* ‘twice’ and *xibb-íta* ‘100’ + *é* MULT > *xibb-é* ‘100 times’. Multiplicative numerals are only used in adverbial function. K’abeena and Alaaba have a multiplicative derivation, which does not seem to be cognate with that of Kambaata. In both languages a morpheme *-V-ra* is suffixed to the cardinal numeral stem; see Crass (2005: 219f) on K’abeena and the Alaaba ex. 25-27 and 51 in text 3 of Schneider-Blum (2007: 416f, 421).¹⁶

In (44), the multiplicative *sas-é* ‘three times’ is an adverbial to the verbal noun *xúur-u* ‘milking (mNOM)’. In (45), the multiplicative numeral is focussed and made the predicate of a cleft sentence. The period of time spanning a repeated action is encoded by a locative noun; see *bar-éen* ‘in a day, per day’ (44) and *hezzeett-óon* ‘in a week, per week’ (46).

(44)

bar-éen	sas-é	xúur-u	qal-amm-ó
day-mLOC	three-MULT	milk-mNOM	give_birth-PASS-3mPVO.REL
wo’-ichch-ú	qoh-áno		
calves-SG-mACC	harm-3mIPV		

‘Milking (the cow) three times a day harms the (new-)born calf.’ [K89: 2.40]

(45)

sá’-u	qall-ó=g-anka	bar-éen
cow-mNOM	calve-3mPVO.REL=SIM-mACC<N>	day-mLOC
sas-é-nee-t	has-is-anóo-hu	
three-MULT-L.VV-COP3	want-CAUS-3mIPV.REL.NMZ.VV-mNOM	

‘When a cow has calved, one needs to milk her THREE TIMES a day.’ [Elic.]

Multiplicative numerals can also be derived from the three special members of the numeral word class; see *hoolam-á* / *-íta* ‘many’ > *hoolam-é* ‘many times’, *mexx-ú* / *-íta* ‘single’ > *mexx-é* ‘a single time’ and *me’-ú* / *-íta* ‘how many?’ > *me’-é* ‘how many times?’ (46).

(46)

hezzeett-óon	me’-é	abbaas-seenán?
week-mLOC	how_many-MULT	sweep-2pICO

‘How many times a week do you sweep?’ [K89: 2.13]

16 As pointed out by the editors, the K’abeena and Alaaba morpheme *-V-ra* is possibly cognate with the Kambaata noun *irá* ‘time(s)’ used in the periphrastic multiplicative in (52).

Apart from expressing ‘a single time’, the multiplicative *mexx-é* can also mean ‘at once, instantly’ (47).

(47)

tah-íchch-u dango hitt-íta afuu'll-ít zug-gáni-yan
 fly-SG-mNOM suddenly like_this-fACC sit-3fPCO ambush-3fICO-DS
 waall-ó=da arrab-í-se mexx-é
 come-3mPVO.REL=COND tongue-fACC-3fPOSS single-MULT
 buqqís-s tokkós-s fushsh-ít ke'éechch
 pull_out-3fPCO shoot-3fPCO go_out.CAUS-3fPCO then
 xámmát-t aphph-ít aag-ís-s qúrc at-táa'
 stick do-3fPCO take.MID-3fPCO enter-CAUS-3fPCO swallow do-3fIPV
 ‘When a fly comes suddenly while she (= the chameleon) is sitting in ambush
 in this way, she shoots out her tongue at once, makes (the fly) stick (to it), puts
 (it) in (her mouth) and swallows (it).’ [TD2016-02-11_001]

Finally, the distributive numeral *má-mmat-ú / -íta* ‘one each; some’ can host the multiplicative morpheme: *má-mmat-é* ‘sometimes’ (48).

(48)

múumm-u má-mmat-é bobir-á has-áno
 hair-mNOM RED-one-MULT wind-mACC want-3mIPV
 ‘The hair needs (fresh) air sometimes.’ [K89: 2.35]

Despite having a fully productive multiplicative derivation at hand, Kambaata also makes frequent use of multiplicative periphrases. Two periphrases that are attested in my data: NUM + *kod-áta* ‘NUM times, turns’ and NUM + *j-áata* ‘NUM times’ are in free variation with the multiplicative derivation. In the following examples, from three different schoolbooks, the derived multiplicative *mat-é* (49), the periphrasis with *kod-áta* (50) and the periphrasis with *j-áata* (51) are used in almost identical contexts.

(49)

al-i-nne [...] hezzeett-óon mat-é wo'-iini-i
 body-mACC-1pPOSS week-mLOC one-MULT water-mICP-ADD
 saamun-iini-i áa'll-u has-is-áno-nne
 soap-mICP-ADD wash-mNOM want-CAUS-3mIPV-1pO
 ‘We have to wash our body [...] once a week with water and soap.’ [K89: 5.59]

(50)

mannoom-a-nné-e muumm-i-nné-e [...] hezzeett-óon
body-fACC-1pPOSS-ADD hair-mACC-1pPOSS-ADD week-mLOC
mat-íta kod-áta áa'll-u has-is-áno-nne
one-fACC turn-fACC wash-mNOM want-CAUS-3mIPV-1pO
'We have to wash our body and our hair [...] once a week.' [K89: 4.118]

(51)

muumm-í-nne hezzeett-í aaz-éen lam-íta j-áata
hair-mACC-1pPOSS week-mLOC inside-mLOC two-fACC time-fACC
saamun-íin áa'll-u has-is-áno-nne
soap-mICP wash-mNOM want-CAUS-3mIPV-1pO
'We have to wash our hair twice a week with soap.' [K89: 2.33]

Furthermore, the multiplicative *hoolam-é* 'many times' is in free variation with the periphrasis *hoolam-á ir-á* 'many times' (52). However, *ir-á* cannot be combined with true numerals (**sas-ú ir-á* intended meaning: 'three times').

(52)

hoolam-á ir-á biir-ú-s fanqalaamm-óomm
many-mACC time-mACC office-fACC-3mPOSS return_again_and_again-1sPVO
'I returned to his office many times.' [DW2016-02-12_NB]¹⁷

Kambaata does not have multiplicative verbs of the type 'double, triple, quadruple'. This is instead expressed periphrastically:

(53)

kann-í mat-ú / lam-ú / sas-ú bárg!
IDEM1-mGEN one-mACC two-mACC three-mACC add.2sIMP
'Double / triple / quadruple it! (lit. Add one / two / three of this!)' [Elic.]

Unlike simple adjectives, which all have a corresponding inchoative-stative property verb, e.g. *geraa'rr-ú(-ta)* 'long' – *geraa'rr-* 'be(come) long' (for details see Treis 2008: 268-73), numerals do not share their stems with verbs, nor are they the input of any derivation processes leading to denumeral verbs. The only exception is

17 A native speaker consultant considered *hoolam-á ir-á* equivalent to the derived multiplicative *hoolam-é*.

xibb-is- ‘have a lot of cattle’ (DIC: 310),¹⁸ which is the semantically unpredictable causative form of *xibb-ita* ‘hundred’. The object *lal-ú* ‘cattle’ in (54) is already included in the meaning of the verb *xibbi-is-* and could be left out.

(54)

Shaaméeb lal-ú xibb-íshsh-ee-haa
 [NAME].mNOM cattle-mACC hundred-CAUS-3mPVE.REL-mCOP2
 ‘Shaameebo is someone with a lot of cattle.’ [Elic.]

8. Fractions and percentages

Kambaata makes a formal distinction between fractions with the numerator ‘one’ and with a numerator greater than ‘one’. Fractions with the numerator ‘one’ are expressed periphrastically as ‘Nth mouth, Nth part’, e.g. *sakkí afóo* ‘1/3’, *shoolkí afóo* ‘1/4’ and *ontiqqí afóo* ‘1/5’. When used in an NP, the fraction is the head and the noun referring to the counted entity serves as a genitive (55) or ablative modifier (56).

(55)

uull-á sak-kí af-óo aaqq-ée’u
 land-fGEN three-ORD mouth-mACC take-3mPVE
 ‘He took one third of the land.’ [Elic.]

(56)

Kambaat-í minaadab-iichch tordun-qi-sí af-óo
 Kambaata-mGEN people-mABL ten-ORD-DEF mouth-mACC
 ammanáat-ut yóo-ba’-i-a
 belief-fNOM COP3.1-NEG.REL-mCOP2
 ‘One tenth of (lit. from) the Kambaata population is not religious.’ [Elic.]

To express ‘1/2’ Kambaata uses the noun *bakkani* ‘half’.

Fractions with a numerator greater than ‘one’ take a cardinal numeral as the numerator and a singulative noun derived from an ordinal numeral as the denominator. The numerator and the denominator agree in gender and case (57).

¹⁸ Note that the Kambaata causative derivation with *-(i)s* has not only verbal stems but also nominal stems as inputs; see, for instance, *koh-á* ‘guests’ > *koh-is-* CAUS ‘invite as a guest’ (**koh-* ‘be(come) a guest’).

(57)

sas-ú shool-k-ichch-ú
three-mACC four-ORD-SG-mACC
'three quarters'

[Elic.]

The counted entity is expressed in an ablative phrase, see *uull-áachch* (58).

(58)

ann-i-nné uull-áachch lam-ú
father-mGEN-1pPOSS land-fABL two-mACC
sak-k-ichch-únka-s bahír-u
three-ORD-SG-mACC<N>-DEF older-mNOM
hiz-óo-nne aaqq-í kámm-ee'u
brother-mNOM-1pPOSS take-3mPCO do_completely-3mPVE

'Our eldest brother took two thirds of (lit. from) our father's land.' [Elic.]

As for percentages, a schoolbook example (59) shows the use of *xibb-éechch* NUM *ang-áta* lit. 'NUM hands from hundred'. In a text for religious instruction (Brook/Yonathan 2013), 21 examples expressing percentages are found, all of which are expressed as *xibb-éechch* NUM *af-óo* lit. 'NUM mouths from hundred' (60). Note that both *af-óo* 'mouth' and *ang-áta* 'hand' also have the meaning 'part'.

(59)

agg-íi kaa'll-anó wó'-u
drink-mDAT help-3mIPV.REL water-mNOM
xibb-éechch mé'-e áng-a?
hundred-fABL how_much-fOBL hand-fPRED

'What percentage of the water is drinkable (lit. serves as a drink)?' [K89: 7.117]

(60)

xibb-éechch hons-áa-na mat-ú af-óo
hundred-fABL nine-TY-CRD one-mACC mouth-mACC
'91 %'

[B/Y: 18]

9. Approximation

Kambaata does not have an approximate number derivation; instead approximation is expressed by means of three periphrastic strategies. Both in the written (61) and oral text corpora (62), the use of the cardinal numeral *mat-ú* /-ita 'one' is attested as a marker of approximation.

(61)

mat-ú lám-e xibb-é birr-á daqq-anó
one-mACC two-fOBL hundred-fGEN birr-mACC find.MID-3mIPV.REL
mín-u [...]
house-mNOM

‘A house(hold) which earns about two hundred birr (lit. one birr of two hundred) [...].’ [K89: 6.108]

(62)

antabée’-u-s hoolám-a-ta,
chicken-mACC-DEF many-fPRED-fCOP2
mat-íta ont-é leh-é qax-áta ik-káa’
one-fACC five-fGEN six-fGEN number-fACC be-3fIPV

‘The chicken were many, they were about five (or) six in number (lit. in one number of five, six).’ [TD2016-02-11_001]

If the exact number is not known or not meant to be expressed, the speaker can also resort to a second strategy, the use of the nomino-adjective *qax-á(-ta)* ‘(having the) number, amount (of)’.¹⁹ It precedes and agrees in gender and case with the noun whose number is estimated, e.g. *mann-á* ‘people’ and *mínn-at* ‘houses’ (63). *Qax-á(-ta)* itself is modified by a genitive marked numeral or by a relative clause containing the numeral (64). The phrase ‘people having the number of hundred’ is interpreted as an approximation, ‘about one hundred people’.

(63)

xibb-é qax-á mann-á
hundred-fGEN having_number-mACC people-mACC
‘about one hundred people’

[Elic.]

lamoodum-é qáx-at mín-n-at
twenty-fGEN having_number-fNOM house-PL-fNOM
‘about twenty houses’

[Elic.]

(64)

ont-íta kum-íta ih-anó qáx-u
five-fACC thousand-fACC be-3mIPV.REL having_number-mNOM

¹⁹ The word class membership of *qax-á(-ta)* is not entirely clear. Sometimes it can be used as a case and gender-agreeing modifier, in many other contexts it rather behaves like a noun.

góon-u hikkáanne afuu'll-ée'
 men-mNOM IDEM2.mOBL sit-3mPVE

'About 5,000 men (lit. men having a number that is 5,000) sat there.'

[John 6, 10]

Approximate time is marked by the noun *qunx-á* 'around' (65). In an NP expressing approximate time, *qunx-á* serves as the head, which is modified by the genitive noun 'hour', which in turn is modified by a cardinal numeral.

(65)

min-í iill-eemmíi-hu ónt-o
 house-mACC arrive-1sPVE.REL.NMZ.VV-mNOM five-mOBL
 sáat-i-a qúnx-a
 hour-mGEN-mCOP2 around-mPRED

'I came home at about 5 o'clock.'

[Elic.]

10. Calculation

Kambaata is used as a means of instruction in grades 1-4 of primary schools, in various subjects including mathematics (*shallagúta*). The mathematics textbooks have been translated from Amharic, and the language used, especially for mathematical operations, differs considerably from every-day speech.²⁰ Addition, subtraction, multiplication and division are all written as sequences of unconnected citation (accusative) forms and the finite verb occurs not sentence-finally as expected, but rather sentence-medially.

(66) Addition in schoolbooks

lam-ú barg-ú sas-ú ih-áno ont-ú
 two-mACC add-mACC three-mACC be-3mIPV five-mACC

'Two plus three is five (lit. Two adding three it-is five).' [DW2014-07-16]

(67) Addition in natural Kambaata

lám-uhu-u sás-uhu-u ónt-oo-t
 two-mNOM-ADD three-mNOM-ADD five-mPRED.VV-COP3

'Two plus three is five (lit. Two and three is five).' [DW2014-07-16]

20 The Amharic textbooks themselves are probably translations of English books.

- (68) Subtraction in schoolbooks
 ont-ú kot-is-ú mat-ú ih-áno shool-ú
 five-mACC decrease-CAUS-mACC one-mACC be-3mIPV four-mACC
 ‘Five minus one is four (lit. Five decreasing one it-is four).’ [DW2014-07-16]
- (69) Subtraction in natural Kambaata
 ont-íichch mat-ú kot-is-eemá=da
 five-mABL one-mACC decrease-CAUS-3honPVE.REL=COND
 shool-ú ih-áno
 four-mACC be-3mIPV
 ‘Five minus one is four (lit. If one decreases one from five it is four).’
 [DW2014-07-16]
- (70) Multiplication in schoolbooks
 lam-ú bat-is-ú sas-ú ih-áno leh-ú
 two-mACC increase-CAUS-mACC three-mACC be-3mIPV six-mACC
 ‘Two times three is six (lit. Two increasing three it-is six).’ [DW2014-07-16]
- (71) Multiplication in natural Kambaata
 lam-íta kod-áta sás-u leh-ú ih-áno
 two-fACC time-fACC three-mNOM six-mACC be-3mIPV
 ‘Two times three is six.’ [DW2014-07-16]
- (72) Division in schoolbooks
 leh-ú beeh-ú lam-ú ih-áno sas-ú
 six-mACC divide-mACC two-mACC be-3mIPV three-mACC
 ‘Six divided by two is three (lit. Six dividing two it-is three).’ [DW2014-07-16]
- (73) Division in natural Kambaata
 leh-ú lam-íi beeh-eemá=da sas-ú ih-áno
 six-mACC two-mDAT divide-3honPVE.REL=COND three-mACC be-3mIPV
 ‘Six divided by two is three (lit. If one divides six for two, it is three).’
 [DW2014-07-16]

The marking patterns of the natural Kambaata examples correspond to the patterns observed in the expression of calculation in K’abeena (Crass 2005: 215ff).

11. Postscript

Although the morphology and morphosyntax of Kambaata numerals and denumerals can become fairly complex, the translation of simple cardinal numerals seemed for a long time to be a fairly straightforward task. It is when collecting more conversational data during my last fieldtrip that I also came across contexts where certain numerals could clearly not be interpreted as indicating number (numerosity). In section 9 we saw, for instance, that *mat-ú / -íta* ‘one’ is used as a marker of approximation. Furthermore, the numerals *lam-ú / -íta* ‘two’ and *sas-ú / -íta* ‘three’ turned out to have common idiomatic uses that cannot be translated literally and that can even be considered synonyms.

(74)

kabár lam-éechch [~sas-éechch] full hoshsh-óomm
today two-fABL three-fABL get_out.1sPCO spend_the_day-1sPVO
[Speaker coming home in the evening:] ‘I have achieved nothing today (lit. I have spent the day today getting out of two/three).’ [DW2016-02-23_NB]

(75)

ti mesel-éet lam-éechch [~sas-éechch] fushsh-ítee-’e
DDEM1.fNOM girl-fNOM two-fABL three-fABL take_out-3fPVE-1sO
[Speaker exhausted:] ‘This girl has just wasted my time today (lit. This girl has taken me out of two/three).’ [DW2016-02-23_NB]

So while the morphology and morphosyntax of Kambaata numerals and denumerals has been disentangled in this contribution, further challenges, such as the study of idiomatic expressions containing numerals, still lie ahead.

Abbreviations

ABL	ablative	DDEM	demonstrative adjective
ACC	accusative	DEF	definite
ADD	additive	DISJ	disjunctive
AMH	Amharic	DS	different subject
CAUS	causative	f	feminine
COND	conditional	GEN	genitive
COP1	<i>yoo</i> -copula	hon	honorific, impersonal
COP2	<i>ha-/ta</i> -copula	ICO	imperfective converb
COP3	VV- <i>t</i> -copula	ICP	instrumental-perlative-comitative
CRD	coordinative	IDEM	demonstrative pronoun
DAT	dative		

IMP	imperative	O	object
INACT	inactual	OBL	oblique
IPV	imperfective	ORD	ordinal
JUS	jussive	p	plural
L	linker	PASS	passive
LOC	locative	PCO	perfective converb
m	masculine	PL	plurative
MID	middle	POSS	possessive
MULT	multiplicative	PRED	predicative
n	noun	PROG	progressive
N	pragmatically determined morpheme (function as yet unclear)	PROP	propriative
NEG	negation	PVE	<i>e</i> -perfective
neo.	neologism	PVO	<i>o</i> -perfective
NMZ.VV	nominalization marked by a long vowel	Q	question
NMZ1	nominalization with = <i>bii</i> (- <i>ta</i> / - <i>ha</i>)	RED	reduplication
NMZ2	nominalization with = <i>hann</i> / = <i>tann</i>	REL	relative
NMZp	nominalization with = <i>r</i>	s	singular
NOM	nominative	SG	singulative
NUM	numeral	SIM	similative
		TY	marker of tens
		VV	vowel lengthening

Bibliographic references

- Brook Kebede/Yonathan Zeamanuel 2013. *Mannu Ichchaan Xalliin Heanoba'a* [Man Does not Live on Bread Alone]. Translated to Kambaata by Tarekegn Sadore, Getahun Jorge and Berhanu Erango. [n.p.]: Catholic, Evangelical, Orthodox Churches and Mekane Yesus.
- Crass, Joachim. 2005. *Das K'abeena. Deskriptive Grammatik einer hochlandostkuschitischen Sprache*. Cologne: Köppe. (= Kuschitische Sprachstudien; 23)
- Central Statistical Agency. 2007. Ethiopia: Population and Housing Census of 2007. http://www.csa.gov.et/newcsaweb/images/documents/surveys/Population%20and%20Housing%20census/ETH-pop-2007/survey0/data/Doc/Reports/National_Statistical.pdf (Last access: 25-03-2016)

- DIC = Kambaata-Xambaaro Zone Information and Culture Main Department. 1997 E.C. *Kāmbatəñña-Amarəñña Māzgāb Qalat* [Kambaata-Amharic Dictionary]. Kambaata-Xambaaro Zone, Southern Nations, Nationalities, and Peoples Regional State, Ethiopia.
- Fradin, Bernard. 2015. '87. Denumeral categories,' in Müller, Peter O./Ohnheiser, Ingeborg/Olsen, Susan/Rainer, Franz (eds.): *Word-Formation. An International Handbook of the Languages of Europe*. Berlin/New York: Mouton de Gruyter. Vol. 2, pp. 1424-37.
- GH = Geetaahun Heellebo Baachchoore 2002 E.C. *Kambaatissa Afgale Maxaafa* [Collection of Kambaata Oral Literature]. Tungu: Kambaatina Xambaaro Zoonaan Dooyyoganni Woradaan Maare-Ammachcho Waato.
- John = Kambaata and Hadiyya Translation Project-Hosaina. 2005. *Latin Version of the Gospel of John in Kambaata Language*. Addis Ababa: The Bible Society of Ethiopia.
- K89 = *Kambaatissata. Rosaanchi Maxaafa*. [Kambaata Language. Schoolbook.] 1989. E.C. Grade 1-8. Southern Nations, Nationalities, and Peoples Regional State: Education Bureau.
- Kawachi, Kazuhiro. 2007. *A Grammar of Sidaama (Sidamo), a Cushitic Language of Ethiopia*. PhD dissertation, University at Buffalo, State University of New York.
- KXS = Maatewoos Shagana. 1992 E.C. *Kambaatissa Xifati Seerrata* [Kambaata Writing Rules]. Ed. by Liiranso Wotango/Tiitoos Heegana. Duuraame: Educational Department of the Kambaata-Alaaba-Xambaaro Zone.
- Schneider-Blum, Gertrud. 2007. *A Grammar of Alaaba. A Highland East Cushitic Language of Ethiopia*. Cologne: Köppe. (= Kuschitische Sprachstudien; 25)
- Tadesse Sibamo Garkebo. 2015. *Documentation and Description of Hadiyya (a Highland East Cushitic Language of Ethiopia)*. PhD dissertation, University of Addis Ababa.
- Treis, Yvonne. 2007. 'Cardinal numerals in Kambaata', in Machalík, Tomáš/Jan Záhorský (eds.): *VIVA Africa 2007. Proceedings of the IInd International Conference on African Studies, Pilsen, 27-28 April*. Pilsen: Dryada. Pp. 55-70.
- Treis, Yvonne. 2008. *A Grammar of Kambaata. Part 1: Phonology, Morphology, and Non-verbal Predication*. Cologne: Köppe. (= Kuschitische Sprachstudien; 26)