
Cardinal Numerals in Kambaata

Yvonne Treis (University of Cologne)

Abstract: In the Cushitic language Kambaata (Ethiopia) most cardinal numerals belong to the same word class as adjectives. As modifiers they agree with their head nouns in case and gender. Only higher numerals such as ‘100’, ‘1000’ and ‘million’ are noun-like and invariantly encoded in the genitive case when modifying a head noun. The present study does not only aim at describing the characteristic morpho-syntactic features of Kambaata numerals with examples from texts and elicitation but it also points out an important aspect of the diachronic development of tens (‘10’, ‘20’, … ‘90’). A comparison of the Kambaata numerals with those of related languages reveals that Kambaata must have restructured its tens in recent times. In addition to the vocalic ten-marking morpheme that Kambaata shares with other Highland East Cushitic languages, a morpheme -duma is suffixed; i.e. all tens are double-marked. The old (simple) forms of the tens were retained only in the numerals made up of tens plus units (e.g. ‘21’).

1. Introduction

Kambaata belongs to the Cushitic branch of the Afro-Asiatic language phylum, more precisely to the Highland East Cushitic (HEC) language group. The language is spoken by more than 600,000 speakers in an area approximately 300 km south-west of the Ethiopian capital Addis Ababa.

Kambaata is a head-final and strictly suffixing language; it has a rich verbal and nominal morphology. There is a robust noun-verb distinction and a separate word class of attributes, which encompasses adjectives, cardinal numerals and demonstratives. Members of the word class ATTRIBUTE display a unique morphology, which serves to encode case and agreement with the head noun.

First data on Kambaata cardinal numerals have already been made available in previous publications, albeit often in a quite unreliable transcription. As early as 1925, Cerulli published a 550-word list of Kambaata, including cardinal numerals (1925: 648), which, however, seem to be rather of Hadiyya than Kambaata origin. Moreno (1939: 269) is the earliest source of numerals that are truly Kambaata. Hudson (1976) compares selected numerals of all HEC languages, which have also been included into his HEC dictionary (Hudson 1989). Treis (2006) gives a first overview of the case marking morphology of cardinal numerals. A list of Xambaaro¹ numerals (Xambaaro is a slightly divergent dialect of Kambaata) is provided by Borelli (1890: 475f).

This paper intends to examine the inflectional morphology of cardinal numerals and to demonstrate their use in sentential contexts. Furthermore, this paper is designed to supplement the comparative literature on numerals in Cushitic (Plazikowsky-Brauner 1963, Zaborski 1997), which mainly concentrates on the basic numerals (1-10). Here, special emphasis is placed on tens and tens plus units

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¹ Alternative spellings in the literature are T’imb aaro and T’ambaaro.
in Kambaata. The formation of numerals consisting of tens plus units has so far not been taken into account in the literature.

### 2. Numbers from 1 to 10

Kambaata has a decimal numeral system. Numerals from one to ten are presented in Table 1; they are given in their citation form, the oblique case form which speakers use in counting.

<table>
<thead>
<tr>
<th>Numeral</th>
<th>Oblique Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>máto</td>
<td>lého</td>
</tr>
<tr>
<td>lámo</td>
<td>lamála</td>
</tr>
<tr>
<td>sáso</td>
<td>hezzéetto</td>
</tr>
<tr>
<td>shóolo</td>
<td>hónso</td>
</tr>
<tr>
<td>ónto</td>
<td>tordúma</td>
</tr>
</tbody>
</table>

In counting, only the masculine form is used (see example (1)), whereas numerals in a sentential context are gender-sensitive and distinguish between masculine and feminine forms (see section 4).

(1) Ros-is-áan-ch-u-s "má-t-o, lá-m-o, sá-s-o" y-í ké’ learn-CAUS-AN-SG-M.NOM-3M.POSS one-M.OBL two-M.OBL three-M.OBL say-3M.PCO get-up.3M.PCO wollishsh-ó=hanníichch zakk-íin daguxxánch-u-s jammárr-o. count(.CAUS)-3M.PVO.REL=NOMIN.M.ABL after-M.ICP race-M.NOM-3M.POSS start-3M.PVO

The teacher counted "one, two, three", then the race started.

### 3. Numbers between 10 and 100

The numeral tor-dúma ‘10’ is morphologically complex. It consists of the stem tor- ‘10’ plus the building morpheme for tens, -duma, and could thus literally be translated as "ten-ty". As shown in the left half of Table 2, the subsequent tens (‘20’, ‘30’, … , ‘90’) are formed through multiplication. The numbers from 2 to 9 (Num

The Kambaata data is written in the official orthography (Maatewoos 1992): x = t’, q = k’, ch = t°, c = t°/1024, and ’ = t°/1041. Unaccented and devoiced final i is not written orthographically, despite its phonological status. In this article, accents are consistently indicated while the official orthography leaves them unmarked. The accentuation of a long vowel is only marked on the first grapheme, i.e. VV, although the long vowel as a whole is accented.
The building morpheme for tens, -duma, is not found in numbers made up of tens plus units; see hons-aa-dúma ‘90’ but hons-da-na máto ‘91’. The morpheme -duma is "subtracted" before the units are added. The morpheme -na, the conjunctive suffix of modifiers, links tens with units, as illustrated in the right half of Table 2. The numbers consisting of tens plus units are assumed to form two phonological and morphological words. The evidence for this assumption is presented in section 6 below.

Two aspects of the numbers consisting of tens and units have to be pointed out in particular:

(i) Whereas the numeral tor-dúma ‘10’ contains an element tor-, the numerals from 11 to 19 are based on another allomorph of ‘10’, namely too-; see Table 3.

(ii) Whereas the long vowel between the multiplier ‘two’ and the multiplicand ‘ten’ is -oo in lam-oo-dúma ‘20’, it is ee for the numbers between 21 and 29; see, for instance, lam-ée-na hezzéetto ‘28’. All other numbers consisting of tens plus units are generated in a regular way and the long vowel of the tens is retained in the tens plus units; see, for instance, sajj-aa-dúma ‘30’ and sajj-dá-na ónto ‘35’.

Table 3. Numerals from 11 to 19

<table>
<thead>
<tr>
<th>móto</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>lámo</td>
<td>12</td>
</tr>
<tr>
<td>sáso</td>
<td>13</td>
</tr>
<tr>
<td>shóolo</td>
<td>14</td>
</tr>
<tr>
<td>ónto</td>
<td>15</td>
</tr>
<tr>
<td>lého</td>
<td>16</td>
</tr>
<tr>
<td>lamála</td>
<td>17</td>
</tr>
<tr>
<td>hezzéetto</td>
<td>18</td>
</tr>
<tr>
<td>hónso</td>
<td>19</td>
</tr>
</tbody>
</table>

Having presented the essential data, it remains to be explored why the multiplier -duma occurs only in the tens but not in the tens plus units. A look at related languages provides an explanation (Table 4). The data on Sidaama, Hadiyya, Gedeo, Burji (all HEC), and Oromo (Lowland East Cushitic) is taken from Hudson (1989), the Qabeena (HEC) data from Crass (2005: 207-210). The orthographic conventions of the sources have not been changed but the segmentation is mine. In addition to the data from published sources, the Oromo numerals consisting of tens and units were provided by Dabala Goshu (p.c. 2005).

In HEC and in Oromo two strategies are attested for the formation of tens:

**Strategy I** is applied throughout the tens of Sidaama and Hadiyya and most tens of Qabeena. Suffixes containing (a) vowel(s) and, sometimes, a glide (Qabeena w and y, Hadiyya y) are attached to the stem of Num2…9; see, for instance, Qabeena 'ont-u '5' > 'ont-aawu '50', Sidaama ont-e '5' > ont-ao '50', and Hadiyya ont-o '5' > ont-ayya '50'. As a weak consonant, the glide is no obstacle for morpho-phonological processes such as merging and assimilation between stem and suffix phonemes. For the formation of tens, strategy I is probably older than strategy II, because it has given rise to irregular, fusional, and hardly predictable forms; see, for instance, Qabeena saasu ‘three’ – sajju ‘thirty’, šoolu ‘four’ – šaylu ‘forty’, and 'ontu ‘five’ – 'ontaawu ‘fifty’.

**Strategy II**, the ‘-ty’ strategy, is a simple multiplication process of basic numerals (Num2…9) and an element (‘-ty’), whereby ‘-ty’ is expressed by morphemes which seem to be cognate with Kambaata -duma, namely, -dama in Oromo, -tama in Gedeo, -(t)tan(na) in Burji. Qabeena has the morpheme -dima only in the numeral ‘20’; for higher tens strategy I is applied. Interestingly, only the Burji

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3 The Qabeena tens from ‘50’ to ‘90’ are derived regularly from the unit stems through the suffixation of -aawu.
‘-ty’, -(t)tan(na), does show a clear resemblance with the lexeme ‘10’, tanna, in the same language. The building morphemes for tens in the other languages bear only little or hardly any resemblance to their independent lexemes ‘10’; see Gedeo tommme ‘10’ and -tama ‘-ty’ (< Oromo), Oromo kud’a ‘10’ and -tama ‘-ty’, Qabeena tonnu ‘10’ and -dima ‘-ty’.4

4 The ‘-ty’ strategy is widespread not only in Cushitic languages but also among Omotic languages, as Zelealem’s data (2003) reveal; see -tam- in Bayso, tomón- in Rendille, t’ómón- in Elmolo and -tanna / -tom / -tama / -tabana in Afar as well as an element -tama (or similar) in seven out of eight Omotic languages Zelealem examined (Mao, Aari, Benchnon, Wolaitta, Zaye, Maale, and (partly in) Shinasha). Note that there is also a lexeme tama ‘10’ in some of these Omotic languages (e.g. Wolaitta).
Table 4.  Formation of tens in HEC languages and Oromo compared: selected examples

<table>
<thead>
<tr>
<th>KAMBAATA</th>
<th>QABEEENA</th>
<th>SIDAAMA</th>
<th>HADIYYA</th>
<th>GEDEO</th>
<th>BURJI</th>
<th>OROMO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10  tor-dúma</td>
<td>tonnu</td>
<td>tonne</td>
<td>tommo</td>
<td>tommé</td>
<td>tanna</td>
<td>kud’a</td>
</tr>
<tr>
<td>11  tóo-na máto</td>
<td>tonaa-matu</td>
<td>tonaa-mitto</td>
<td>tommó-mato</td>
<td>tommi-nna-mitte</td>
<td>tannaas-micc</td>
<td>kud’a-tokko</td>
</tr>
<tr>
<td>20  lam-oo-dúma</td>
<td>&lt; lám-o ‘2’</td>
<td>leem-oo</td>
<td>lam-iyye</td>
<td>did-damá / lame-tomme</td>
<td>lama-(t)tan(na)</td>
<td>dig-dama cf. lama ‘2’</td>
</tr>
<tr>
<td>21  lam-ée-na máto</td>
<td>lam-oo-dima-naa-matu</td>
<td>lam-iyye</td>
<td>did-damá / lame-tomme</td>
<td>lama-(t)tan(na)</td>
<td>dig-dama cf. lama ‘2’</td>
<td></td>
</tr>
<tr>
<td>30  sajj-aa-dúma</td>
<td>&lt; sás-o ‘3’</td>
<td>sajj-oo</td>
<td>sad-e</td>
<td>sod-domá / sase-tomme</td>
<td>fadi(i)(y)-ttan</td>
<td>sod-domá &lt; sadii ‘3’</td>
</tr>
<tr>
<td>40  shool-aa-dúma</td>
<td>&lt; shóol-o ‘4’</td>
<td>shoyill-oo</td>
<td>sor-e</td>
<td>afur-tama</td>
<td>foola-tanna</td>
<td>afur-tama &lt; afur ‘4’</td>
</tr>
<tr>
<td>41  shool-áa-na máto</td>
<td>shool-oo-namu</td>
<td>shoyill-oo</td>
<td>sor-e</td>
<td>afur-tama</td>
<td>foola-tanna</td>
<td>afur-tama &lt; afur ‘4’</td>
</tr>
<tr>
<td>50  ont-aa-dúma</td>
<td>&lt; ont-o ‘5’</td>
<td>ont-ao</td>
<td>ont-ayya</td>
<td>shan-tama</td>
<td>umutta-ttan(na)</td>
<td>shan-tama &lt; shan ‘5’</td>
</tr>
<tr>
<td>90  hons-aa-dúma</td>
<td>&lt; hóns-o ‘9’</td>
<td>hons-ao</td>
<td>hons-ayye</td>
<td>sagal-tama</td>
<td>womfa-(t)tan(na)</td>
<td>sagal-tama</td>
</tr>
<tr>
<td>91  hons-áa-na máto</td>
<td>hoons-aay-a-ay-namu</td>
<td>hons-ayye</td>
<td>sagal-tama</td>
<td>womfa-(t)tan(na)</td>
<td>sagal-tama</td>
<td></td>
</tr>
</tbody>
</table>

Note: The table lists examples of tens formation in HEC languages and Oromo, comparing specific numerals and their corresponding tens. The examples include various numeral forms and their transliterations into English and Oromo.
Kambaata is the only HEC language that consistently applies strategy I and II cumulatively. Consequently, the following diachronic scenario for the development of tens and tens plus units seems plausible:

**Stage I:** At first, Kambaata applied strategy I to create tens, similar to modern Sidaama, Hadiyya, and Qabeena: a vowel morpheme was added to the stem of a basic numeral; see the reconstructed form *hons-aa ‘90’. Numbers consisting of tens plus units, e.g. ‘91’, were created by joining tens plus units with the conjunctive morpheme -na (‘90-na 1’).

**Stage II:** The -duma strategy (‘-ty’ strategy) was later superimposed upon strategy I and reinforced and lengthened the old tens. The -duma strategy seems to be of younger age, because no allomorphic variation and no signs of reduction are observed. The -duma strategy did not replace strategy I, but -duma was applied in addition. Hons-aa+dúma ‘90’ is thus diachronically interpretable as "nine-ty+ty". The new strategy did not intrude into the domain of numbers consisting of tens plus units; i.e. the ancient form of ‘90’, *hons-aa, was retained in hons-áa-na máto ‘91’. The situation in Kambaata is in contrast to the situation in other languages that apply the ‘-ty’ strategy: in Oromo, the -tama (‘-ty’) morpheme is not dropped when units are added to tens; see, for example, sagal-tama ‘90’ and sagal-tami-tokko ‘91’ (Dabala Goshu, p.c. 2005); nor is -dimá, which is used to create ‘20’ in Qabeena, dropped when the numbers ‘21’ to ‘29’ are formed; see, for instance, lamoo-díma ‘20’ and lamoo-díma-naa-matu ‘21’ (Crass 2005: 209).5

Interestingly, Kambaata also created a new numeral ‘ten’, tor-dúma, with the help of -duma. Thus Kambaata is the only HEC language in which ‘10’ is morphologically complex and structured by analogy with ‘20’, ‘30’, ..., ‘90’ (Table 4).

It is unknown what the motivation was as to why Kambaata created new tens. One can, however, exclude an internal motivation, as no cognate of -duma is found in contemporary Kambaata. It seems more plausible that the morpheme was borrowed and the numeral system restructured in a language contact situation. The latter scenario is, however, speculative, because no donor language could be identified so far.

### 4. Case and Gender Inflection

#### 4.1. Case and Gender Inflection of Attributive Numerals

In the previous sections all numerals have been given in the masculine oblique form (ending in ‘-o’ or ‘-a’), which is the form used in counting. Parallel to canonical adjectives, however, attributive numerals differentiate three cases (accusative, nominative, and oblique) and two genders (masculine and feminine); see Table 5. The numerals lamal-á / lamal-í-ta ‘seven’ and tordum-á / tordum-í-ta ‘10’ inflect like adjectives of declension A4, all other numerals (with the exception of ‘100’ and ‘1000’) like adjectives of declension A3 (Treis 2006). Declension A3 is characterized by different vowels in the masculine and feminine forms (u vs. i). It is sufficient to present only the case forms of the numbers from 1 to 10 in Table 5, because all higher numbers either have one of these numbers as last digit or the formative -dum-á / -dum-í-ta ‘-ty’ as last element; i.e. leháa-na hons-ú / hons-í-ta ‘69’ is inflected like hons-ú / hons-í-ta ‘9’, lamalaa-dum-á / -dum-í-ta ‘70’ like tordum-á / -dum-í-ta ‘10’.

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5 Unfortunately, neither Hudson (1989) nor Zelealem (2003) contain data on numbers consisting of tens plus units from the languages applying strategy II in HEC, namely Gedeo and Burji.
### Table 5. Case and gender marking of the numerals from 1 to 10

<table>
<thead>
<tr>
<th></th>
<th>ACC</th>
<th>NOM</th>
<th>OBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>mat-ú</td>
<td>mat-í-ta</td>
<td>mát-u</td>
<td>mát-i-t</td>
</tr>
<tr>
<td>lam-ú</td>
<td>lam-í-ta</td>
<td>lám-u</td>
<td>lám-i-t</td>
</tr>
<tr>
<td>sas-ú</td>
<td>sas-í-ta</td>
<td>sás-u</td>
<td>sás-i-t</td>
</tr>
<tr>
<td>shool-ú</td>
<td>shool-í-ta</td>
<td>shóol-u</td>
<td>shóol-i-t</td>
</tr>
<tr>
<td>ont-ú</td>
<td>ont-í-ta</td>
<td>ónt-u</td>
<td>ónt-i-t</td>
</tr>
<tr>
<td>leh-ú</td>
<td>leh-í-ta</td>
<td>léh-u</td>
<td>léh-i-t</td>
</tr>
<tr>
<td>lamal-á</td>
<td>lamal-í-ta</td>
<td>lamál-u</td>
<td>lamál-i-t</td>
</tr>
<tr>
<td>hezzéett-ú</td>
<td>hezzéett-í-ta</td>
<td>hezzéett-u</td>
<td>hezzéett-i-t</td>
</tr>
<tr>
<td>hons-ú</td>
<td>hons-í-ta</td>
<td>hóns-u</td>
<td>hóns-i-t</td>
</tr>
<tr>
<td>tordum-á</td>
<td>tordum-í-ta</td>
<td>tordúm-u</td>
<td>tordúm-i-t</td>
</tr>
</tbody>
</table>

Numerals (the targets of agreement) agree in case and gender with their head nouns (the controllers of agreement). Nominative numerals precede nominative nouns (see example (2)), accusative numerals accusative nouns (see examples (3) and (4)). If a noun is encoded in a non-accusative / non-nominative case (i.e. genitive, dative, ablative, ICP or locative), the numeral is marked for the oblique case (see example (5)). The agreement potential of numerals and their use in context is exemplified by the following sentences.

(2) Mát-it Meekam-é y-eennó *meent-ichch-ut* hoolam-á dooll-á
one-F.NOM M.-F.ACC say-3SIP,REL women-SG-F,NOM much-M.ACC
min-i-sé ann-imí-n barg-án-t he’-aa’íi-t yóo íkke.
house-M.GEN-3F.POSS owner-M.LCP-N add-PASS-3F.PCO live-3F.IPV,REL,VT-F,NOM COP1.3 INACT
One woman called Meekame had been living with her husband for a long time.

(3) […] Labaq-ó wo’-í=g-a *lam-ú wud-ú* zaaz-áno-a.
L.-M.GEN water-M.GEN=GA-M.ACC two-M.ACC side-M.ACC flow-3M.IPV,REL-2.F.OBL
 […] it meanders [lit. "it flows to two sides"] like the water of the *Labaqo.*

(4) Wol-ú=bb-a *orooqq-íichchi-ssta bír-e fiish-u-s*
other-M.ACC=PLACE-M.ACC go-out-M.ABL-3PL.POSS front-F.OBL seeding-F,NOM-3M.POSS
leh-íta macca-a *fúshsh-u* has-is-áno-ssta.
six-F.ACC leaf-F.ACC take-out,CAUS-M.NOM want-CAUS-3M.IPV-3PL,OBL
Before they are transplanted, the seedlings should have [grown] six leaves. (K8: 9)

(5) Lám-e uull-áán *xaaf-á wícc-éemm.*
two-F.OBL land-F.LOC tef-M.ACC sow-1SG,PVE
I sowed tef (*eragrostis tef*) on two plots of land.

#### 4.2. Inflectional Morphology of Numerals as NP Heads

Numerals are not only used as modifiers but they can also serve as heads of NPs without undergoing further derivational processes. As phrasal heads, numerals distinguish as many case forms as nouns do (Table 6): accusative, nominative, genitive, dative, ablative, ICP, locative, and oblique. It is the final vowel of the accusative form which determines according to which nominal declension a numeral inflects. Numerals in -ú / -í-ta inflect like masculine nouns in -ú (e.g. *dum-ú* ‘back room’ of declension M1) and feminine nouns in -í-ta (e.g. *ang-á-ta* ‘hand’ of declension F1a), numerals in -ú / -í-ta like masculine nouns in -ú (e.g. *ulaam-ú* ‘dish of cheese and cabbage’ of...)

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6 The case form found in this column of the table is the form used in counting.
7 *Labaqó* is the name of a meandering river in the Kambaata lowlands.
declension M3) and feminine nouns in -í-ta (e.g. tam-í-ta ‘use’ of declension F2b), respectively (Treis 2006).

Table 6. Case forms of nouns (N) and numerals (Num) as NP heads compared: the examples of lam-ú (M) / lam-í-ta (F) ‘two’ and ulaam-ú (M) ‘dish of cheese and cabbage’ / tam-íta (F) ‘use’

<table>
<thead>
<tr>
<th></th>
<th>ACC</th>
<th>NOM</th>
<th>GEN</th>
<th>DAT</th>
<th>ABL</th>
<th>ICP</th>
<th>LOC</th>
<th>OBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (M)</td>
<td>ulaam-ú</td>
<td>uláam-u</td>
<td>ulaam-í</td>
<td>ulaam-íi(ha)</td>
<td>ulaam-íchch</td>
<td>ulaam-ín</td>
<td>ulaam-óon</td>
<td>uláam-o</td>
</tr>
<tr>
<td>Num (M)</td>
<td>lam-ú</td>
<td>lám-u</td>
<td>lam-í</td>
<td>lam-íi(ha)</td>
<td>lam-íchch</td>
<td>lam-ín</td>
<td>lam-óon</td>
<td>lám-o</td>
</tr>
<tr>
<td>N (F)</td>
<td>tam-íta</td>
<td>tám-it</td>
<td>tam-é</td>
<td>tam-é(ha)</td>
<td>tam-échch</td>
<td>tam-éen</td>
<td>tam-éen</td>
<td>tám-e</td>
</tr>
<tr>
<td>Num (F)</td>
<td>lam-íta</td>
<td>lám-it</td>
<td>lam-é</td>
<td>lam-é(ha)</td>
<td>lam-échch</td>
<td>lam-éen</td>
<td>lam-éen</td>
<td>lám-e</td>
</tr>
</tbody>
</table>

In example (6), an ablative-marked numeral, hezzeettaadumíichch ‘from 80’, occurs. It functions as the head of an NP, which expresses the point of departure.


The pit, which is dug, covered [with enset leaves] and prepared to ferment the enset pulp, is 80 to 100 centimetres deep. [lit. "The pit (…) reaches from 80 to 100 centimetres."] (K5: 28)

As heads of NPs, numerals are usually accompanied by genitive phrases or possessive suffixes. Genitives and possessives refer to the set from which a certain number of referents are taken. The possessive suffix -nne of example (7) points to a group of 1PL referents (‘of us’). The possessive suffix -se in example (8) refers to hujíta ‘work, job(s)’, the suffix -ssa in (9) to the two female protagonists of a story.

(7) Tordum-íchchi-nne-n án qoxára-ta.

I am the cleverest of the ten of us. [lit. "I am clever from the ten of us."]


Write down two of [lit. "from"] the jobs of women done for the preparation of the masaala festival. (K5: 9)

(9) [...] lam-e-ssá ciil-l-áanta gisán-at waal-tóo-ssa.

[...] sleep overcame the babies of the two [women].

4.2. Number Poem of Basic Numerals

The poem in (10) is taught to children in primary school in order to familiarize them with the numbers from one to ten. The poem does not only illustrate the morphological features of numerals (e.g. the use of numerals as the heads of subject NPs), but also reflects important aspects of Kambaata culture and environment. In the answer verses, each number is defined by the things or events of the Kambaata physical and social environment that typically occur in sets of that number.
Number Poem

Matu mahaan?
Mát-u m-á-haa-n?
one-M.NOM what-M.PRED.M.COP2-Q
What is one?

Matu mexxuarraanka.
Mát-u méxx-ua=rr-áanka]
one-M.NOM single-M.OBL=RA-M.PRED.NN
One is just a single thing.

Lamu mahaan?
Lám-u m-á-haa-n?
two-M.NOM what-M.PRED.M.COP2-Q
What are two?

Lamu harruuchoo hanxa.
Lám-u harrúuchch-o-a hánx-a.
two-M.NOM donkey.(SG)-F.GEN.M.COP2 teat-M.PRED
Two are the teats of a donkey.

Sasu mahaan?
Sás-u m-á-haa-n?
three-M.NOM what-M.PRED.M.COP2-Q
What are three?

Sasu mixaadia mexeqenna.
Sás-u mixáad-i-a mexe qénn-a.
three-M.NOM griddle-M.GEN.M.COP2 fire:stones-M.PRED
Three are the firestones of the griddle.8

Shoolu mahaan?
Shóol-u m-á-haa-n?
four-M.NOM what-M.PRED.M.COP2-Q
What are four?

Shoolu sa’ia hanxa.
Shóol-u sá’-i-a hánx-a.
four-M.NOM cow-M.Gen.M.COP2 teat-M.PRED
Four are the teats of a cow.

Ontu mahaan?
Ont-u m-á-haa-n?
five-M.NOM what-M.PRED.M.COP2-Q
What are five?

Ontu angata zuru’mma.
Ónt-u áng-a-ta zurú’mm-a.
five-M.NOM hand-F.GEN-F.COP2 finger-F.PRED
Five are the fingers of a hand.

Lehu mahaan?
Léh-u m-á-haa-n?
six-M.NOM what-M.PRED.M.COP2-Q
What are six?

Lehu meselaakkaa qaraxa.
Léh-u mesel-áakk-a-a qaráx-a.
six-M.NOM girl-PL2-F.GEN-M.COP2 qaraxa-M.PRED
Six are the girls’ qaraxa.9

Lamalu mahaan?
Lamál-u m-á-haa-n?
seven-M.NOM what-M.PRED.M.COP2-Q
What are seven?

Lamalu minia colba.
Lamál-u mín-i-a cólb-a.
seven-M.NOM house-M.GEN-M.COP2 beams:carrying:the:roof-M.PRED
Seven are the beams carrying the roof.

Hezzeettu mahaan?
Hezzéett-u m-á-haa-n?
eight-M.NOM what-M.PRED.M.COP2-Q
What are eight?

Hezzeettu heerota wiima.
Hezzéett-u héer-o-ta wím-a.
eight-M.NOM group:of:eight-F.GEN-F.COP2 full-F.PRED
Eight are a full heeruta.10

Honsu mahaan?
Hóns-u m-á-haa-n?
nine-M.NOM what-M.PRED-M.COP2-Q
What are nine?

Honsu utubita heezzu.
Hóns-u utúb-i-ta héezz-u.
nine-M.NOM centre:pole-M.GEN-M.COP2 support:beam-F.PRED
Nine are the support beams of the centre pole.

Tordumu mahaan?
Tordúm-u m-á-haa-n?
ten-M.NOM what-M.PRED.M.COP2-Q
What are ten?

Tordumu wollota wiima.
Tordúm-u wól-l-o-ta wím-a.
ten-M.NOM counting-F.GEN-F.COP2 full-F.PRED
Ten is the full [i.e. highest] number.

8 Three firestones support and provide balance to the cooking pot (quríta) or to the griddle (mixaadú).
9 The meaning of qaraxa is not known for sure. One informant assumed that it refers to the things given to the family of the bride by the family of the bridegroom; in this context, it was considered a synonym of qoottá “bride price”.
10 Whereas English dozen denotes a group of 12, Kambaata heerúta refers to a group of 8 entities.
5. Numbers above 100

The numbers xibbíta ‘100’ and kumíta ‘1000’ are not case and gender-agreeing numeral attributes but feminine nouns. With the younger generation, kumíta is being replaced by the Amharic loan shii ‘1000’. The numeral milooná ‘one million’, a masculine noun, is borrowed from European languages via Amharic.11 As modifiers of a head noun, the numeral nouns are always encoded in the genitive case. Unlike other cardinal numerals, they cannot agree with their head noun in gender or number; see the examples in (11).

(11) xibb-é santimeetir-á xibb-é kil-ú-ta
    (one) hundred centimetres (one) hundred kilo

(12) kum-é mann-á kum-é lokk-áta
    (one) thousand people (one) thousand feet

The occurrence of adjective-like lower numerals and noun-like higher numerals in one and the same language is frequently attested cross-linguistically. See, for example, Corbett (1978). The Kambaata data supports the universal stated by Corbett (1978 : 363): "If the simple cardinal numerals of a given language vary in their syntactic behaviour the numerals showing nounier behaviour will denote higher numerals than those with less nouny behaviour."

Hundreds and thousands are made up of a modifying numeral in its feminine form plus the head noun xibbíta or kumíta. The modifier agrees in gender and case with the NP head; see the agreement of ontíta ‘five’ with xibbíta and the agreement of lamaláta ‘seven’ with kumíta in example (13).

(13) ont-íta xibb-íta tóo-na ont-íta xibb-íta
    five-ACC hundred-ACC ten-CRD2 five-ACC hundred-ACC
    500

(14) lamal-áta kum-íta
    seven-ACC thousand-ACC
    7000

Example (15) illustrates the use of ‘1500’ in the context of a sentence. As modifier of the noun woggáan ‘in the year’, the number noun xibbíta ‘100’ must be encoded in the genitive case, xibbé. The genitive noun xibbé is itself modified by the case and gender-agreeing numeral ‘15’.12

(15) Tóo-na ónt-o xibb-é wogg-áan Ameerik-á iill-ée’u.
    ten-CRD1 five-F.OBL hundred-F.GEN year-M.LOC America-M.ACC reach-3M.PVE
    He reached America in the year 1500 [lit. "in the year of 1500"].

In example (16), the number ‘500’ is part of a complex NP. The noun ma’néen ‘at the place’ is modified, among others, by the genitive-marked number noun xibbé ‘100’. The oblique-marked numeral ónte ‘five’ signals gender and case agreement with xibbé.

(16) Bonqoq-fíchchi-s ónt-e xibb-é meetir-f qáx-ata ma’n-éen
    cave-M.ABL-3M.POSS five-F.OBL hundred-F.GEN metre-M.GEN as:much-as:F.OBL place-F.LOC
    móbch-ch-u fellaa’-ú-s bogg-éé mánn-u canc-áyyoo’u ikke.
    wild:animal-M.NOM goats-M.ACC-3M.POSS devour-3M.PVE.REL people-M.NOM shout-3M.PROG INACT
    Around 500 metres away from the cave, people, whose goats had been devoured by a beast, were shouting. (K8: 22)

11 The Kambaata word tunsú-ta is given by Moreno (1939: 267) as translation for ‘one million’. Moreno’s translation is probably the result of a misunderstanding; in fact, tunsú-ta means ‘darkness’.
12 Recall that attributive (/modifying) numerals are encoded in the oblique case if their head is neither in the nominative case nor in the accusative case.
If ‘100’ modifies ‘1000’, it occurs in the genitive case as well (17). If the genitive modifier ‘100’ is itself modified by a smaller (adjectival) numeral, the latter occurs in the oblique case (18), which is the regularly sign of agreement with a non-accusative / non-nominative head noun.

(17) xibb-é  kum-íta
    hundred-F.GEN thousand-F.ACC
    e.g. xibb-é  kum-é  mann-á
    hundred-F.GEN thousand-F.GEN people-M.ACC
    100,000

(18) lám-e xibb-é  kum-íta
    two-F.OBL hundred-F.GEN thousand-F.ACC
    e.g. lám-e xibb-é  kum-é  mann-á
    two-F.OBL hundred-F.GEN thousand-F.GEN people-M.ACC
    200,000

Tens and units are simply juxtaposed to hundreds and thousands; linker morphemes are not necessary (see the examples in (19)). In such complex numerals, only the last constituent, i.e. the tens and units (e.g. lám-o in (19) and ónto in (20)), are inflected according to their position in the sentence and according to the case and gender of their head noun. The preceding hundreds or thousands occur in the accusative case (the citation form).

(19) xibb-íta  lám-o
    hundred-F.ACC two-M.OBL
    e.g. xibb-íta  lám-o  mee tir-íichch
    hundred-F.ACC two-M.OBL metre-M.ABL
    102

(20) ont-íta  xibb-íta  ontáa-na  ónt-o
    five-F.ACC hundred-F.ACC fifty-CRD2 five-M.OBL
    e.g. ont-íta  xibb-íta  ontáa-na  ont-ú  meeter-á
    five-F.ACC hundred-F.ACC fifty-CRD2 five-M.ACC metre-M.ACC
    (to) 555 metres

The bold face NP in (21) has the following complex structure: the head noun mereerón ‘in the middle’ is modified by the genitive noun xoqqittí ‘of the height’, which is again modified by two coordinated (-na CRD2) numbers, 1600 and 3100. Each coordinand (in [square brackets]) contains a number, which is made up of thousands and hundreds.

(21) Abb-á-s qixx-ú  wees-é  le’in-íi  iitt-am-anóo
    big-M.ACC equal-M.ACC ensent-F.GEN growth-M.DAT like-PASS-3MPV.REL.VV.M.NOM
    [mat-íta  kum-íta  léh-e  xibb-é]-na  [sas-íta  kum-íta]
    one-F.ACC thousand-F.ACC six-F.OBL hundred-F.GEN-CRD2 three-F.ACC thousand-F.ACC
    one-F.OBL hundred-F.GEN height-M.GEN middle-M.LOC COP13.REL-M.COP2 area-M.PRED

The most suitable [area] for the growth of enset is the area between 1600 and 3100 meters above sea-level. (K5: 28)

The case and gender morphemes of the first coordinand, ‘1600’, can be explained as follows. The coordinand is headed by the number noun xibbé ‘100’, which is modified by the case and gender-agreeing attribute léhe ‘6’. As xibbé occurs in the genitive case (i.e. in a non-accusative / non-nominative case), léhe is encoded in the oblique. The number noun kumíta ‘1000’ is in apposition to léhe xibbé ‘600’; as non-final element of a complex numeral, it is invariantly marked for the accusative case (the citation form of nouns). Kumíta is modified by a gender and case-agreeing numeral matíta ‘one’. By analogy, the inflectional morphemes of the second coordinand, ‘3100’, can be explained.
6. Reduplicated Numerals

The reduplication of numerals is a frequent phenomenon in Kambaata. In order to express, for instance, ‘Molgude gave each child two oranges’, Kambaata speakers usually say literally "Molgude gave to the children two-two (lál-lamú burtukaaná) oranges".

The reduplication of numerals is only partial, i.e. it affects only part of the stem. The first consonant and vowel of the numeral is copied and prefixed; see hóns-o ‘9’ → hó-hóns-o ‘9 each’. In most cases, a second copy of the first stem consonant is inserted between the prefixed syllable and the stem; see mát-o ‘1’ → má-m-mát-o ‘1 each’. Double copying of the stem-initial C is possibly determined phonotactically. The rule seems to be as follows: If the second radical of the numeral stem is a cluster (as, for instance, in tordúma ‘10’), the stem-initial C is copied once (tó-tordúma, but *tó-t-tordúma ‘10 each’). If the second radical is a single consonant (as, for instance, in léh-o ‘6’), double copying is observed (lé-l-lého ‘6 each’).

The vowel of the prefixed syllable is always short, even if the first vowel of the stem is long; see shóol-o ‘4’ > shósh-shóol-o ‘4 each’. Table 7 gives an overview of the reduplicated forms.\(^\text{13}\)

<table>
<thead>
<tr>
<th></th>
<th>Reduplicated numerals</th>
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<tbody>
<tr>
<td>1</td>
<td>mát-o</td>
</tr>
<tr>
<td>2</td>
<td>lám-o</td>
</tr>
<tr>
<td>3</td>
<td>sás-o</td>
</tr>
<tr>
<td>4</td>
<td>shóol-o</td>
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<tr>
<td>5</td>
<td>ónt-o</td>
</tr>
<tr>
<td>6</td>
<td>léh-o</td>
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<tr>
<td>7</td>
<td>lamál-a</td>
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<td>8</td>
<td>hezzéét-o</td>
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<tr>
<td>9</td>
<td>hóns-o</td>
</tr>
<tr>
<td>10</td>
<td>tordúm-a</td>
</tr>
<tr>
<td>11</td>
<td>tóona mát-o</td>
</tr>
<tr>
<td>20</td>
<td>lamoodúm-a</td>
</tr>
<tr>
<td>21</td>
<td>laméena mát-o</td>
</tr>
<tr>
<td>30</td>
<td>sajjadúm-a</td>
</tr>
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<td>shoolaadúm-a</td>
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<td>lehaadúm-a</td>
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<td>honsaadúm-a</td>
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<td>xibb-íta</td>
</tr>
<tr>
<td>101</td>
<td>xibb-íta mát-o</td>
</tr>
<tr>
<td>200</td>
<td>lam-íta xibb-íta</td>
</tr>
<tr>
<td>1000</td>
<td>kum-íta</td>
</tr>
</tbody>
</table>

The data in Table 7 provides evidence for the solution of the problem as to whether there is a word boundary between the tens and the units of a complex numeral. When tens without units, e.g. lamoodúma ‘20’, are subjected to reduplication, the initial CV is doubled, lál-lamoodúma. When

\(^{13}\) The reduplicated forms higher than 100 can at best be considered tentative, because such forms are rarely used and the informants asked were not too sure. Besides this, the accentuation of the reduplicated forms is still provisional. Informants tend to accentuate the prefixed syllable in addition to the stem; whether they do this for emphasis or whether this is the natural pronunciation could not yet be verified.
tens plus units, e.g. *laméena máto ‘21’, are reduplicated, either the first CV of only the unit numeral or the initial syllable of the units as well as the tens is copied and prefixed, *laméena mám-máto ~ lál-laméena mám-máto. Reduplicating only the very first CV of the complex numeral, *lál-laméena máto, is ungrammatical. The different behaviour of ‘20’ and ‘21’ allows only one interpretation: lamoodúma is taken to be a single morphological word, but laméena máto consists of two morphological words.

The use of reduplicated numerals in attributive function is illustrated in (22)-(23). The reduplicated numeral ‘one’, mám-mat-ú / mám-mat-īta, does not only express ‘one each’, but often serves to express ‘some’; see (23) and (26).

(22) [...] ánn-aanka ánn-aanka sin-ch-f fagaar-áan lál-lam-īta siin-āta
      each-M.OBL.<N> each-M.OBL.<N> enset:seeding-5G-F.GEN bottom-M.LOC RED-two-F.ACC cup-F.ACC
      buchch-f harshisaanch-ū [...] wór-u weeshsh-ū-s gaan-s-ānō.
      soil-M.GEN compost-M.ACC insert-M.NOM enset:plant(SG)-M.ACC-3M.POSS become:fat-CAUS-3M.IPV

Adding two [lit. "two-two"] cups of compost to the roots of each enset seedling [when they are planted] makes the enset plant fat. (K8: 32f)

(23) Mám-máit kaashsh-āakkat kaas-ām-ū has-īs-ano-ssā
      RED-one-F.NOM plant-PL2-F.NOM plant-PASS-M.NOM want-CAUS-3M.IPV-3PL.OBJ.REL.VV.M.NOM
      max-ēe agan-āanée-t.
      rainy:season-M.GEN month-M.LOC.VV-COP3

Some plants [plant types] have to be planted in the months of the rainy season. (K3: 62)

(24) Hor-finkas-sa ō-őnt-e leeter-ō qég-u yōo-ssā.
    all-M.DAT<N>-3PL.POSS RED-five-F.OBL liter-F.GEN blood-M.NOM COPI.3-3PL.OBJ

Everybody has five litres of blood.

The examples (25) and (26), the reduplicated numerals function as NP heads.

(25) Masaal-ān shóssh-shool-ū té lél-leh-ū ih-ēen hag-ā qōocc-ū
      masaala-M.LOC RED-four-M.ACC or RED-six-M.ACC become-5HON.JCO group-M.ACC create-M.NOM
      sheemmnaatoom-āta y-ēenō.
      formation.of:a.type.of:group-F.ACC say-3HON.IPV

During the masaala festival, the formation of groups consisting of [lit. "being"] four or six [family heads] each is called sheemmnaatoomāta. (K8: 8)

(26) Mám-mat-é af-ōo hīfl-u fóosh-sh-ū he’-ano-sī m-fīhaa-t?
      RED-one-F.GEN mouth-M.NOM bad-M.NOM smell-M.NOM live-3M.IPV-3M.OBJ.REL.VV.M.NOM what-M.DAT.VV-COP3

Why does the mouth of some [people] smell bad? (K4: 118)

7. Conclusion

This paper intended to show, firstly, that Kambaata restructured the tens (‘10’, ‘20’, … ‘90’) in its recent history. The vowel morpheme *aa / *oo ‘-ty’, which had once served as the only marker of tens, was supplemented by a morpheme -duma ‘-ty’, so that today’s tens are actually marked double. The morpheme -duma ‘-ty’ is restricted to tens (e.g. ont-aa-dúma ‘50’) but did not intrude the domain of numbers consisting of tens and units (e.g. ont-aa-na ónto ‘55’); in the latter numbers only the old ‘-ty’ morpheme is applied.

Secondly, it has been argued in the preceding sections that two groups of cardinal numerals have to be distinguished with regard to morpho-syntactic features: (i) lower cardinal numerals, which belong to the word class NOUN and which agree with their head nouns in case and gender, and (ii) higher cardinal numerals (‘100’, ‘1000’, and ‘100,000’), which belong to the word class NOUN and which are invariantly encoded in the genitive case when they modify a head noun.
Abbreviations

1 / 2 / 3 first / second / third person
AAN agentive derivation
ABL ablative
ACC accusative
CAUS causative
COP1 locative copula
COP2 -ha / -ta copula
COP3 -t copula
CRD1 coordination with VV
CRD2 coordination with -na
DAT dative
F feminine
GA similitative morpheme
GEN genitive
ICO imperfective converb
ICP instrumental-comitative-perlative
IPV imperfective
IMP imperative
INACT past tense and irrealis
HON honorific; impersonal
L linker morpheme
LOC locative
M masculine
N pragmatically conditioned poly-functional morpheme
NOM nominative
NOMIN nominalizer
OBJ object marker
OBL oblique case
PL plural / plurative
PL1 pluralive 1 with -C-áta
PL2 pluralive 2 with -aakk-áta
POSS possessive
PRED predicative
PVE e-perfective
PVO o-perfective
Q question marker
RA 'thing' nominalizer
RED reduplication
REL relativization
SG singular / singulative
VV vowel lengthening

References


