Reduplication in Lusoga

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This paper provides an in-depth description of reduplication of verbs, nouns, and other word categories in Lusoga, drawing on introspected and elicited data, along with data from dictionaries and corpus texts, as well as material presented in the literature in research by Larry Hyman. Our description focuses on phonological details like vowel length, as both shortening and lengthening processes are found, as well as similarities and differences across the categories. Reduplication is generally total in that the entire stem is copied. CVCV verb stems show lengthening of the final vowel of the first half of the reduplicated stem, though this lengthening is generally not found with nominal reduplication. Across categories, V-initial stems appear with an initial *y*, except before an *i*-initial stem. Verb reduplication does not copy prefixes, but nominal reduplication finds cases of nasal overcopy, the overcopying of CV prefixes with V-initial stems. In addition, nominal reduplication includes some examples of tripling of CV stems, which is not found with verbs. The reduplication of quantifiers, numerals, and adverbs differ from verbs and nouns in generally involving whole-word doubling which copies prefixes in addition to the stem.

Keywords: reduplication, Bantu, Lusoga, phonology, morphology, corpus linguistics

Introduction

In this paper we provide a description of reduplication in Lusoga. We consider primarily productive patterns of reduplication in verbs and nouns, based on self-generated data and elicited data. We also draw on existing Lusoga dictionaries and a large Lusoga corpus for additional examples, which complicates the overall picture but also adds to our understanding of reduplication of other parts of speech. In addition, we incorporate relevant data described in Hyman's (2017, 2018, 2019a, 2022a) publications on Lusoga.

Methodologically, we therefore combine several approaches: (i) introspection and elicitation, followed by grammaticality judgement tests, (ii) the perusal of existing dictionaries, and (iii) corpus linguistics. The first approach is based on data elicited from the second author, for whom Lusoga is a native language – more specifically, her father-tongue. The consulted dictionaries are the print monolingual Lusoga dictionary by Nabirye (2009b), as well as its digital counterpart which is freely available online (Nabirye 2012).[1] The electronic corpus used contains 3.5 million running words (tokens) and is an extension of the one described in de Schryver & Nabirye (2018a).[2] Regular expressions were written to query the dictionary and corpus.

Our paper is structured as follows. In §1, we discuss verbal reduplication, including the reduplicative patterns of V-initial stems (§1.1), the non-copying of prefixes (§1.2) and enclitics (§1.3), patterns of total reduplication (§1.4), partial reduplication (§1.5), and multiple reduplication (§1.6). The next four sections treat other parts of speech: §2 discusses nominal reduplication, §3 covers patterns of doubling in adjectives and quantifiers, §4 concerns doubling of numerals, quantifiers and adverbs, and §5 deals with doubling in other syntactic categories including pronouns, *wh*-expressions, and ideophones. §6 identifies additional words in the Lusoga lexicon in which syllables are repeated and which could be evaluated as possible cases of (partial) lexical reduplication. §7 discusses data first identified in the Lusoga corpus which we call 'syntactic doubling' that involves repetition of roots in phrases and which appears to be involved in signaling contrasts in information structure. Lastly, §8 summarizes the functions and meanings of Lusoga reduplication.

1. Verbal reduplication

The most common form of verbal reduplication in Lusoga is total reduplication, which carries the general meaning 'to V repeatedly'. The two copies of the stem are virtually identical segmentally. In general, the entire reduplicated stem, beginning at the left edge of the first stem and ending at the right edge of the second stem, serves as the domain for tone assignment.

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1. For some background on the compilation of those dictionaries, see Nabirye (2009a), Nabirye & de Schryver (2010, 2013).
2. While de Schryver & Nabirye (2018a) present an exhaustive description of the corpus building efforts for Lusoga, de Schryver & Nabirye (2018b) describe how the Lusoga corpus was lemmatized, and de Schryver & Nabirye (2018c) illustrate how the actual analysis of meanings in Lusoga proceeds within a corpus-linguistics framework.

There are segmental divergences between the two halves of the reduplicated stem with certain stem shapes. In the case of CV-shaped verb roots, the first half of the reduplicated stem ends in a long vowel, while the second ends in a short vowel.[3]

(1) Reduplication of CV verb stems

RED+INF		INF	
okú [lwáá] [lwá]		**okú [lwá]**	'delay'
okú [mwáá] [mwá]		**okú [mwá]**	'shave'
okú [nyáá] [nyá]		**okú [nyá]**	'defecate'
okú [sáá] [sá]		**okú [sá]**	'grind'

There are two possible explanations for the vowel length alternation with CV roots in reduplication. Because CV roots plus the final vowel /**a**/ have two vowels underlyingly, the first half of the reduplicated stem may reflect the underlying length of the stem, and the vowel in final position undergoes a regular shortening process – known as Final Vowel Shortening (FVS) from the literature on closely related Luganda (Hyman & Katamba 1990).

   The need to posit a rule of final vowel shortening in Lusoga is shown by other length alternations involving the final vowel of the second half of the reduplicated verb – or the only vowel of an unreduplicated stem – when an enclitic follows. As shown by the forms in (2) below, the underlying length is retained when the final vowel of the stem is followed by an enclitic. Notice that the enclitic is outside the domain of reduplication; it is not repeated and follows the reduplicated verb stem.

(2) Reduplication of CV verb stems with an enclitic

RED+INF+LOC	INF+LOC	
okú [taa] [táá] mu	**okúꜜ [táá] mu**	'put in (cl. 18)'
okú [lwáá] [lwáá] ꜜwóó=ku	**okú [lwáá] ꜜwóó=ku**	'delay a bit there (cl. 16)'

As shown by the forms in (3) below, the imperative form of CV verbs involves no augmentation and no preservation of the underlying length of the input /CV-V/.

(3) Imperative form of CV verb stems

IMP	INF		IMP	INF	
[lwá]	**okú [lwá]**	'delay'	**[ɣá]**	**okú [ɣa]**	'give'
[mwá]	**okú [mwá]**	'shave'	**[tá]**	**okú [ta]**	'put'
[nyá]	**okú [nyá]**	'defecate'	**[tyá]**	**okú [tya]**	'fear'

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3. We indicate stem boundaries with brackets [ ]. A single enclitic following the stem is not set off from the stem, but if there are multiple enclitics, we separate the enclitics with an equals sign =. High tone is indicated with an acute accent. Low tone is unmarked. Downstep of a following H tone is indicated with the downward-pointing arrow ꜜ. Also note that about half of all the example blocks are accompanied by supplementary material online, where additional examples may be found. Furthermore, all data in Lusoga, from the running text as well as all the example blocks, here and in the supplementary material, have been audio-recorded and may also be found as supplementary material online.

Before an enclitic, the underlying length of input /CV-V/ is preserved, as is shown in (4).

(4)   Imperative form of CV verb stems with an enclitic
      IMP   INF
      [fáá] ku   **okúꜜ [fáá] ku**   'care for'
      [βáá] ku   **okúꜜ [βáá] ku**   'have'
      [nyáá] ku   **okúꜜ [nyáá] ku**   'defecate'

As shown in (5) below, CVCV verb stems in Lusoga undergo lengthening in reduplication, as the first half of the reduplicated verb ends in an obligatory long vowel. Parallel examples from the Lusoga dictionary in (6) show the same vowel length facts, and the forms in (7) show that in imperatives, the first stem of reduplicated CVCV stems undergoes final lengthening.[4]

(5)   Productive reduplication of CVCV verb stems
      RED+INF   INF
      okú [βáláá] [βálá]   **okú [βálá]**   'count'
      okú [límáá] [límá]   **okú [límá]**   'farm'
      okú [sómáá] [sómá]   **okú [sómá]**   'read'
      okú [kuβaa] [kúβá]   **okú [kuβa]**   'hit'

(6)   Lexicalized reduplication of CVCV verb stems (Nabirye 2009b)
      INF   INF
      (o)kú [βonaa] [βóná]   **(o)kú [wadaa] [wádá]**
      'see repeatedly; suffer'   'imitate'
      (o)kú [βuzaa] [βúzá]   **(o)kú [nékáá] [néká]**
      'confuse'   'be supreme'
      (o)kú [βudaa] [βúdá]
      'care for tenderly'

(7)   Productive reduplication of CVCV verb stems in the Imperative
      RED.IMP   INF
      [pálaa] [palá]   **okú [palá]**   'command'
      [pimaa] [pímá]   **okú [pímá]**   'measure'
      [pikaa] [piká]   **okú [píká]**   'put pressure'
      [wélaa] [welá]   **okú [wélá]**   'patch'
      [wuņaa] [wuņá]   **okú [wuņa]**   'stink'
      [gemaa] [gemá]   **okú [gémá]**   'catch'

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4. Hyman informs us that his Lusoga consultant did not lengthen in this environment. For the present paper, we rely on the judgments and pronunciations of the second author and the material from the Lusoga corpus. The second author rejects forms with a short vowel in this context. We have not interviewed other Lusoga speakers on the topics addressed here and cannot comment on different patterns that may be found in the speech of other Lusoga speakers.

Unlike the case of CV roots, there is no reason to think that there is an underlying long vowel to preserve in the reduplication of CVCV stems, which have a CVC-root and the final vowel *a*. As shown in (8) and (9) below, the final vowel is short before an enclitic in reduplicated and unreduplicated forms, and CVCV stems show no segmental alternations in the imperative. We assume that a lengthening process is at work in the CVCV stems. We return to this issue below when we consider the reduplicative form of vowel-initial stems.

(8)   Reduplication of CVCV verb stems with an enclitic
      RED+INF+LOC   INF+LOC
      okú [sómáá] [sómá] ku   **okú [sómá] ku**   'read a bit (cl. 17)'
      okú [kuβaa] [kúβá] wo   **okú [kuβá] wo**   'hit there (cl. 16)'

(9)   Imperative form of CVCV verb stems
      IMP   INF
      [gemá]   **okú [gémá]**   'catch'
      [βoná]   **okú [βona]**   'see'
      [βalá]   **okú [βálá]**   'count'
      [kuβá]   **okú [kuβa]**   'hit'
      [limá]   **okú [límá]**   'farm'
      [kamá]   **okú [kama]**   'milk'

When CVVCV and larger stems reduplicate, there is total reduplication with no vowel length alternations. As shown in the productively reduplicated verbs in (10) and the examples from the Lusoga dictionary in (11), one finds two identical copies of the verb stem, however long it may be.

(10) Productive reduplication of CVVCV and longer verb stems
      RED+INF   INF
      okú [βííngá] [βííngá]   **okú [βííngá]**
                                        'chase'
      okú [nááβá] [nááβá]   **okú [nááβá]**
                                        'bathe'
      okú [gótámá] [gótámá]   **okú [gótámá]**
                                        'bend'
      okú [saaβálá] [sááβálá]   **okú [saaβálá]**
                                        'travel on water; go over'
      okú [gáyáálá] [gáyáálá]   **okú [gáyáálá]**
                                        'delay'
      okú [síímúúlá] [síímúúlá]   **okú [síímúúlá]**
                                        'wipe'
      okú [síβúlúlá] [síβúlúlá]   **okú [síβúlúlá]**
                                        'untie'
      okú [lwáánágáná] [lwáánágáná] **okú [lwáánágáná]**
                                        'fight one another'
      okú [wowoigáná] [wówóígáná]   **okú [wowoigáná]**
                                        'shout'

okú [kaluuβílízá] [kálúúβílízá]   okú [kaluuβílízá]
                                       'inconvenience'

(11) Lexicalized reduplication of CVVCV and longer verb stems (Nabirye 2009b)
     INF
     (o)kú [teeká] [tééká]   'prepare'
     (o)kú [βúúsá] [βúúsá]   'doubt'

Hyman (1992: 256) and Hyman & Katamba (1999: 364) show that CVCV stems
also undergo lengthening in Luganda verbal reduplication, while CVVCV and
CVNCV stems do not.

1.1. V-initial stems

When vowel-initial stems reduplicate, the normal processes of vowel hiatus
resolution apply at the boundary between CV-shaped prefixes and the first half
of the reduplicated stem. (See Hyman (2003, 2019b) and Odden (2015) on vowel
hiatus resolution and compensatory lengthening in Bantu.) Thus, we find glide
formation, with the infinitive prefix */okú-/* realized as ***okw-***, and the following
vowel undergoing compensatory lengthening and surfacing long. In the second half
of the reduplicated stem, the V-initial stem surfaces with its underlying short vowel
and is preceded by the glide ***y-*** in most stems. In the case of */i/*-initial stems, there
is no ***y-***, and a diphthong ***ai*** is formed across the base + reduplicant boundary. Note
in examples like ***okw[ééndá][yééndá]*** 'to want repeatedly' that the initial vowel
of a V-initial stem at the reduplicant+base juncture follows the regular pattern of
pre-NC lengthening.

(12) Productive reduplication of VCV verb stems
     RED+INF   INF
     okw [áágá] [yágá]   **okw [áágá]**   'scratch'
     okw [íídá] [ídá]   **okw [íídá]**   'come'
     okw [óócá] [yócá]   **okw [óócá]**   'burn'
     okw [ééyá] [yéyá]   **okw [ééyá]**   'sweep'
     okw [íila] [ílá] mu   **okw [íílá] mu**   'respond; re-do'
     okw [éélúlá] [yélúlá]   **okw [éélúlá]**   'clear'
     okw [óóngézá] [yóóngézá]   **okw [óóngézá]**   'add; increase'
     okw [áálúlá] [yálúlá]   **okw [áálúlá]**   'hatch'
     okw [áayuuyá] [yáyúúyá]   **okw [áayuuyá]**   'yawn'
     okw [áásííkáná] [yásííkáná] **okw [áásííkáná]**   'shout'
     okw [íídaandáβá] [ídáándáβá] **okw [íídaandáβá]**   'treat'
     okw [óógélézá] [yógélézá]   **okw [óógélézá]**   'woo'
     okw [éemelélá] [yémélélá]   **okw [éemelélá]**   'stand up'
     okw [éegelésá] [yégélésá]   **okw [éegelésá]**   'teach'

Another noteworthy feature of reduplicated VCV verb stems is that, unlike CVCV
stems, there is no lengthening of the final vowel of the first half of the reduplicated
verb after the infinitive prefix. For instance, the second author's intuition is that the

verb *okw[áagá]* 'to have a given height' cannot have a long vowel at the end of the first half of the reduplicated stem: *okw[áaga][yágá]* 'to have the same size', **okw[áagaa][yágá]*. This is noteworthy in part because it is different from what is found in Luganda; Hyman & Katamba (1999: 364) show that VCV stems like *kw[aala]* 'to spread' reduplicate as *kw[aalaa][yala]* 'to spread here and there.'[5]

The presence of *y-* in the second half of the reduplicated verb has a parallel in imperatives, where V-initial stems acquire initial *y-*. The examples in (13) show that *y-* does not appear before /**i**/-initial stems in the imperative, just as it does not appear in reduplicative contexts.

(13) Imperative forms of V-initial verb stems

IMP	INF	
[yagá]	**okw [áágá]**	'scratch'
[yocá]	**okw [óócá]**	'burn'
[yeyá]	**okw [ééyá]**	'sweep'
[iḍá]	**okw [ííḍá]**	'come'
[ilá] mu	**okw [íílá] mu**	'respond; re-do'
[yéendá]	**okw [ééndá]**	'want'
[yélulá]	**okw [éélúlá]**	'clear'
[yóongezá]	**okw [óóngézá]**	'add; increase'
[yánulá]	**okw [áanulá]**	'remove from drying'
[íṇiká]	**okw [ííṇiká]**	'soak'
[yáyuuyá]	**okw [áayuuyá]**	'yawn'

The examples in (14) show that when the reduplicated V-initial stem is word-initial in imperative forms, we find that both copies of the stem begin with *y*, and there is lengthening of the final vowel of the first copy of the stem. In the imperative context, the final vowel of the first half of the reduplicated verb must be long. This suggests that the long vowel found after the infinitive prefix in *okw[áana][yáná]* 'to make a distress call repeatedly' blocks lengthening of the stem-final vowel.

(14) Reduplicated imperative forms of V-initial verb stems

RED.IMP	RED+INF	INF
[yágaa] [yagá]	**okw [áaga] [yágá]**	**okw [áagá]**
'have the same size; scratch repeatedly'		
[yánaa] [yaná]	**okw [áana] [yáná]**	**okw [ááná]**
'make a distress call'		

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5. We have identified a pair of forms that appear to contrast in whether there is reduplicant-final lengthening: *okw[áágá][yágá]* 'scratch repeatedly' vs. *okw[áagaa][yágá]* 'have the same size'. As shown in (14) and (21) below, this contrast is lost in reduplicated imperatives *[yagaa][yagá]* 'have the same size; scratch repeatedly' but maintained after the 1SG subject prefix: *ń[ḍágá][yágá]* 'I have the same size' vs. *ń[ḍágáá][yágá]* 'I scratch repeatedly'. The optional form *(o)kú[yágáá][yágá]* 'to scratch repeatedly' is also possible, suggesting that forms with final lengthening behave as though the root is underlyingly *y*-initial, in which case it has the expected vowel length facts of a CVCV root, ending in a long vowel in the first half of the reduplicated verb. We take up the issue of reduplicant-final lengthening further below when we discuss V-initial stems combined with object prefixes.

[yetaa] [yetá]	**okw [éeta] [yétá]**	**okw [éetá]**	
'call'			
[yeyaa] [yeyá]	**okw [ééyá] [yéyá]**	**okw [ééyá]**	
'sweep'			
[yolaa] [yolá]	**okw [óola] [yólá]**	**okw [óolá]**	
'trim'			
[yozaa] [yozá]	**okw [óoza] [yózá]**	**okw [óozá]**	
'wash'			

i-initial stems are again different from other V-initial stems in resisting initial *y*. The fact that the *ai* sequence across the base+reduplicant juncture surfaces as a level L tone instead of a LH sequence suggests that *ai* is a diphthong, and the potential rising tone within a syllable is avoided. The forms in (15) also show that there is no lengthening of the final vowel of the initial *i*CV stem in reduplicated imperatives.

(15) Reduplicated imperative forms of *i*-initial verb stems

RED.IMP	RED+INF	INF	
[iβa] [iβá]	**okw [íiβa] [iβá]**	**okw [íiβá]**	'steal'
[iḍa] [iḍá]	**okw [ííḍá] [íḍá]**	**okw [ííḍá]**	'come'
[ika] [iká]	**okw [ííká] [íká]**	**okw [ííká]**	'come down'

The facts regarding *y* ~ Ø alternations in Lusoga are nearly identical to what is found in Luganda. Following Meeussen & Tucker (1955), Hyman & Katamba (1999), and Hyman (2015), we refer to the *y* that participates in *y* ~ Ø alternations in Luganda as "unstable *y*". The V-initial form of the verb appears when there is a preceding CV- prefix (followed by hiatus-resolving processes like glide formation), and the *y*-initial form of the verb appears in other contexts (after V-, VV-, and N- shaped prefixes, in word-initial position, and at the beginning of the second verb stem in reduplication). The main difference between Luganda and Lusoga is that Lusoga has *i*-initial stems before which unstable *y* does not appear.

We have seen above that unstable *y* appears in word-initial position in imperatives in Lusoga, and at the beginning of the second copy of the stem in reduplication. We have also seen that unstable *y* does not appear after the infinitive VCV-. In §1.2 below, we show that the parallels with Luganda hold for the N-shaped 1SG subject prefix, and we find *y* in this context. In the examples in (16) below, we see that *y* is also found after a V-shaped prefix, in this case the 2SG subject marker *o-*. The forms in (17) show that, as in reduplication and imperatives, *i*-initial stems do not have *y* after a V- prefix. Here too we find tonal evidence for an *oi* diphthong as a rising tone is avoided in forms like *o[iḍá]* 'you come'.

(16) Unstable *y* after a V- prefix in V-initial verb stems

2SG.SU	INF		
ó [yaná]	**okw [áaná]**	'make a distress call'	
ó [yayá]	**okw [áayá]**	'herd'	
ó [yetá]	**okw [éetá]**	'call'	
o [yéyá]	**okw [ééyá]**	'sweep'	

ó [yolá]	**okw [óolá]**	'trim'
ó [yozá]	**okw [óozá]**	'wash'

(17) Unstable **y** is not present before **i**-initial verb stems

2SG.SU	INF	
ó [iβá]	**okw [íiβá]**	'steal'
o [iḍá]	**okw [íiḍá]**	'come'
o [iká]	**okw [íiká]**	'come down'

1.2. No overcopying of prefixes

Unlike some Bantu languages like Hehe and Zulu (see Odden & Odden 1985, Downing 1998, Marlo 2014, Cook 2018 and references therein), prefixes remain outside the domain of productive verb reduplication in Lusoga and appear before the entire reduplicated verb stem; prefixes immediately preceding the stem do not overcopy. This is shown in the data in (15) above involving reduplicated infinitival forms of V-initial stems by the lack of overcopying of the infinitive prefix **okw-**.

The examples in (18) below show that the 1SG subject prefix **ń-** also does not overcopy in reduplication. Following Hyman (2017: 109, 2022a: 200), we assume that the nasal prefix is underlyingly **/ń-/** because **ń-** is the form of the prefix before the TAM prefix **a-**, as in **n-á[limá]** 'I cultivated (general past)'. The nasal assimilates in place of articulation with the following consonant and triggers common consonant alternations such as post-nasal hardening (**/β/** → **[b]**, **/l/** → **[d]**); Meinhof's Law produces a geminate nasal **[nn]** from /n-lVN/ inputs: /n-lVN/ → n-nVN (Meinhof's Law), and the same effect is seen with /n-gVN/ inputs, which yield surface [ŋ-ŋVN]. (See Hyman (2003, 2019b) and Odden (2015) on Bantu NC phonology.) As with other prefixes, the first half of the reduplicated stem ends in a long vowel with CV stems and CVCV stems.

(18) Reduplication of C-initial verb stems with the 1SG subject prefix **ń-**

RED+1SG.SU	INF	
n [dwáá] [lwá]	**okú [lwá]**	'delay'
ɲ [ɟáá] [ɟá]	**okú [ɟá]**	'go'
m [báláá] [βálá]	**okú [βálá]**	'count'
ḿ [bonaa] [βóná]	**okú [βona]**	'see'
n [nímáá] [límá]	**okú [límá]**	'farm'
ń [deetá] [léétá]	**okú [leetá]**	'bring'
ŋ [gáβáá] [gáβá]	**okú [gáβá]**	'give away'
ŋ [ŋémáá] [gémá]	**okú [gémá]**	'catch'

The forms in (19) show further that there is no back-copying of the consonantal alternations triggered by the nasal 1SG subject prefix before stems that begin with /p, w/. /p, w/ are neutralized to **[p]** after **[m]**, and we do not find Meinhof's Law when the second stem consonant is a nasal.

(19) Reduplication of **p**- and **w**-initial verb stems with the 1SG subject prefix **ń**-

	RED+1SG.SU		INF	
m	**[páláá] [pálá]**		**okú**	**[pálá]**	'command'
m	**[pímáá] [pímá]**		**okú**	**[pímá]**	'measure'
m	**[píkáá] [píká]**		**okú**	**[píká]**	'put pressure'
m	**[péláá] [wélá]**		**okú**	**[wélá]**	'patch'
ḿ	**[puṇaa] [wúṇá]**		**okú**	**[wuṇa]**	'stink'

When the 1SG subject prefix **ń**- precedes a V-initial stem, the result is dental **ńḍ**- followed by a short vowel at the prefix + stem boundary; Meinhof's Law applies when the consonant following the stem-initial vowel is a nasal, yielding **ńṇ**-. Thanks to Larry Hyman (p.c.) for pointing out that **ḍ** is from ***j** and reflects the unstable **y** found in stem-initial position before V-initial stems after a prefix with the shape N-.

(20) V-initial verb stems with the 1SG subject prefix **ń**-

	1SG.SU			INF	
ṇ	**[ḍágá]**	'I scratch'		**okw**	**[áágá]**	'scratch'
ṇ	**[ḍíḍá]**	'I come'		**okw**	**[ííḍá]**	'come'
ṇ	**[ḍéyá]**	'I sweep'		**okw**	**[ééyá]**	'sweep'
ṇ	**[ṇééndá]**	'I want'		**okw**	**[ééndá]**	'want'
ń	**[ṇanulá]**	'I remove ...'		**okw**	**[áanulá]**	'remove from drying'
ń	**[ṇiṇiká]**	'I soak'		**okw**	**[ííṇiká]**	'soak'

When such forms reduplicate, the **ńḍ**- is not overcopied, and the second half of the reduplicated verb appears just as in reduplicated forms with the infinitival prefix above. One surprising feature of these examples is that there is optional reduplicant-final lengthening with VCV stems that immediately follow the 1SG subject prefix, with the exception that for **i**-initial stems, the vowel before onsetless stem-initial **i** must be short. For the VCV stems in (21), it is the second author's intuition that forms of the same verb with a short vowel and with a long vowel are both possible following the 1SG subject prefix, and for the **i**CV stems in (22), it is her intuition that there is not a long final vowel form of these stems; the **ai** sequence generated across the RED+base boundary surfaces as a diphthong.

(21) Reduplication of V-initial verb stems with the 1SG subject prefix **ń**-

	RED+1SG.SU		INF	
ṇ	**[ḍágá(á)] [yágá]** [6]	**okw**	**[áágá]**	'scratch'
ń	**[ḍana(a)] [yáná]**	**okw**	**[ááná]**	'make a distress call'
ń	**[ḍeta(a)] [yétá]**	**okw**	**[éetá]**	'call'
ṇ	**[ḍéyá(á)] [yéyá]**	**okw**	**[ééyá]**	'sweep'
ṇ	**[ḍócá(á)] [yócá]**	**okw**	**[óócá]**	'burn'
ń	**[ḍoza(a)] [yózá]**	**okw**	**[óozá]**	'wash'
ṇ	**[ṇééndá] [yééndá]**	**okw**	**[ééndá]**	'want'
ń	**[ṇanulá] [yánúlá]**	**okw**	**[áanulá]**	'remove from drying'

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6. Despite the contrast between **okw[áágá][yágá]** and **okw[áagaa][yágá]** noted in fn. 5 above, only one pronunciation is possible after the 1SG prefix: **ń[ḍágáá][yágá]**.

(22) Reduplication of ***i***-initial verb stems with the 1SG subject prefix ***ń-***

RED+1SG.SU	INF	
n̩ [ɖíɖá] [íɖá]	**okw [ííɖá]**	'come'
ń [ɖiβa] [iβá]	**okw [íiβá]**	'steal'
ń [ɖita] [itá]	**okw [íitá]**	'kill'
ń [n̩iŋiká] [íŋíká]	**okw [íiŋiká]**	'soak'

In Lusoga, object prefixes also remain outside the scope of reduplication and do not overcopy with CV stems, as in (23), or with V-initial stems, as in (24). After an object prefix, there is no lengthening of the final vowel of the first half of reduplicated VCV stems.

(23) Reduplication of C-initial verb stems with an object prefix

RED+INF+OP	INF+OP	
okú-ci [saa] [sá]	**okú-ci [sa]**	'grind it (cl. 7)'
okú-mu [mwaa] [mwá]	**okú-mu [mwa]**	'shave him/her'
okú-βa [βaláá] [βálá]	**okú-βa [βalá]**	'count them'
okú-βi [somáá] [sómá]	**okú-βi [somá]**	'read them (cl. 8)'
okú-mu [siinzá] [síínzá]	**okú-mu [siinzá]**	'praise him/her'
okú-mu [leetá] [léétá]	**okú-mu [leetá]**	'bring him/her'

(24) Reduplication of V-initial verb stems with an object prefix

RED+INF+OP	INF+OP	
okú-mw [aagá] [yágá]	**okú-mw [aagá]**	'scratch him/her'
okú-mw [eendá] [yééndá]	**okú-mw [eendá]**	'want him/her'
okú-mw [eetá] [yétá]	**okú-mw [eetá]**	'call him/her'
okú-lw [aanúlá] [yánúlá]	**okú-lw [aanúlá]**	'remove it (cl. 11) from drying'
okú-lw [iiŋiká] [íŋíká]	**okú-lw [iiŋiká]**	'soak it (cl. 11)'

Like other object prefixes, the reflexive remains outside the reduplicated stem in the examples of productive reduplication in (25) and the lexically reduplicated form in (26).

(25) Reduplication of reflexive-initial verb stems

RED+INF+REFL	INF+REFL	
okw-ée [ligáá] [lígá]	**okw-ée [ligá]**	'fight'
okw-ée [neŋyáá] [néŋyá]	**okw-ée [neŋyá]**	'repent'
okw-ée [seláá] [sélá]	**okw-ée [selá]**	'boil'
okw-é [iɖúsá] [íɖúsá]	**okw-é [iɖúsá]**	'regret'
okw-é [igámá] [ígámá]	**okw-é [igámá]**	'seek shelter'
okw-é [iŋámílá] [íŋámílá]	**okw-é [iŋámílá]**	'become sad'

(26) Lexicalized reduplication of reflexive-initial verb stems (Nabirye 2009b)

RED+INF+REFL	
(o)kw-ée [βwaalá] [βwáálá]	'act shyly'

In some Bantu languages like Saamia (see Marlo 2014), the 1SG object prefix overcopies in reduplication even when other CV- shaped object markers do not. This is not the case in Lusoga, however, as the nasal prefix triggers and undergoes segmental alternations in combination with the initial segment of the following reduplicated stem but remains outside the reduplicated verb structure.

(27) Reduplication of C-initial verb stems with the 1SG object prefix **ń-**

RED+INF+1SG.OBJ	INF+1SG.OBJ	
okúu-m [mwaa] [mwá]	**okúu-m [mwá]**	'shave me'
okúu-n [tyaa] [tyá]	**okúu-n [tyá]**	'fear me'
okúu-m [baláá] [βálá]	**okúu-m [balá]**	'count me'
okúu-m [bonáá] [βóná]	**okúu-m [boná]**	'see me'
okúu-m [miingá] [βííngá]	**okúu-m [miingá]**	'chase me'
okúu-m [bwiiká] [βwííká]	**okúu-m [bwiiká]**	'cover me'
okúu-n [siinzá] [síínzá]	**okúu-n [siinzá]**	'praise me'
okúu-n [deetá] [léétá]	**okúu-n [deetá]**	'bring me'

When the 1SG object prefix **ṇḍ-** combines with a V-initial stem, the 1SG marker is realized as **ṇd-** and the initial vowel of the stem surfaces short (unless it is before an NC sequence, in which case it is long). As when the 1SG subject prefix is present, VCV stems other than **i**CV stems optionally undergo reduplicant-final lengthening immediately following the 1SG object marker.

(28) Reduplication of V-initial verb stems with the 1SG object prefix **ń-**

RED+INF+1SG.OBJ	INF+1SG.OBJ	
okúu-ṇ [ḍagá(á)] [yágá]	**okúu-ṇ [ḍagá]**	'scratch me'
okúu-ṇ [ḍetá(á)] [yétá]	**okúu-ṇ [ḍetá]**	'call me'
okúu-ṇ [ḍocá(á)] [yócá]	**okúu-ṇ [ḍocá]**	'burn me'
okúu-ṇ [ḍilá] [ílá] mu	**okúu-ṇ [ḍilá] mu**	'respond to me'
okúu-ṇ [ṇeendá] [yééndá]	**okúu-ṇ [ṇeendá]**	'want me'
okúu-ṇ [ḍey-él-á] [yéy-él-á]	**okúu-ṇ [ḍéy-él-á]**	'sweep for me'

The fact that there is no lengthening of the final vowel when there is compensatory lengthening of the stem-initial vowel, as with the infinitive prefix in (12) or an object prefix in (24), and there is obligatory lengthening in imperative forms with no prefix in (14) suggests that a prosodic condition is imposed on the reduplicant and that the mora contributed by the prefix vowel counts toward this requirement. This condition is satisfied by stems with a heavy syllable (CVVCV and VCV stems preceded by a CV- prefix) or three or more light syllables, but not by a stem with two light syllables, which is the case with CVCV stems or VCV stems in word-initial position, and optionally when a VCV stem is preceded by the 1SG subject prefix **ń-** in (21) or the 1SG object prefix **ń-** in (28).

1.3. No overcopying of enclitics

As noted above, enclitics do not participate in reduplication. Several additional examples with the cl. 16, cl. 17, cl. 18, and cl. 23 enclitics that confirm this

generalization are given in (29) below. Basic forms of the verbs in (29) are shown in (30). For the present purposes, we have focused on collecting forms of a particular type but have not conducted a systematic study of the semantic properties of reduplicated or non-reduplicated forms with cl. 16, cl. 17, cl. 18, and cl. 23 enclitics, which may have non-locative meanings.

(29) Reduplication of verbs with locative enclitics

RED+INF+LOC	RED+INF
okú [váá] [váá] wo	**okú [váá] [vá]**
	'go through'
okú [βitaa] [βítá] wo	**okú [βitaa] [βítá]**
	'pass'
okú [fúúmbá] [fúúmbá] ku	**okú [fúúmbá] [fúúmbá]**
	'cook a bit, pretend to cook'
okú [βoneká] [βónéká] wo	**okú [βoneká] [βónéká]**
	'appear there, i.e. be present'
okú [teekélá] [téékélá] mu	**okú [teekélá] [téékélá]**
	'include'
okú [teleelá] [téléélá] mu	**okú [teleelá] [téléélá]**
	'become better'
okú [taambúlá] [táámbúlá] mu	**okú [taambúlá] [táámbúlá]**
	'stroll'

(30) Basic forms of verbs in (29)

INF+LOC resp. INF

okú [váá] wo	'disappear'
okú [vá]	'come from'
okú [βitá] wo	'go through'
okú [βitá]	'pass'
okú [fúúmbá] ku	'cook a bit, pretend to cook'
okú [fúúmbá]	'cook'
okú [βoneká] wo	'appear there, i.e. be present'
okú [βoneká]	'appear'
okú [teekélá] mu	'include'
okú [teekélá]	'prepare for'
okú [teleelá] mu	'become better'
okú [teleelá]	'attain the right position'
okú [taambúlá] mu	'stroll'
okú [taambúlá]	'walk'

One analytical issue that arises in forms involving reduplication and enclitics concerns vowel length alternations. In (18), (21), (27), and (28) above, we saw vowel length alternations including the reduplicant-final lengthening of CVCV stems and VCV stems preceded by the 1SG subject and object markers, and the phrase-final shortening of the vowel of CV stems. In the latter case, data with enclitics show that the underlying length of a CV root followed by a final vowel is preserved when the enclitic is present. Imperative forms of reduplicated CVCV verb stems in (7) and of

VCV verb stems in (14) show obligatory length of the final vowel of the first half of the reduplicated verb, though the final vowel is always short before an *i*CV stem, as in the imperatives in (15) and the 1SG forms in (22) and (28).

Another context with an underlying sequence of vowels are forms with the short causative /**-i**/, which triggers various mutation effects and itself may not always surface. The causative contributes a mora to underlying representations, and this length is preserved when an enclitic follows the verb, as shown in (31). Enclitics therefore shield a long final vowel from being shortened. Stem-final length can come about in the combination of a CV root and the final vowel, or in the combination of the causative and the final vowel. In reduplicated forms like *okú[sómésá] [sómésáá]wo* 'to teach repeatedly there' (from underlying /**som-es-i-a**/), the first and the second halves of the reduplicated stem do not match in the length of the final vowel, as the first half shortens the underlying vocalic sequence, while the second half maintains the underlying length on the surface.

(31) Verb stems with the causative and an enclitic

INF+LOC	INF	
okú [senyáá] wo	**okú [senyá]**	'brush teeth'
okú [kyuusáá] wo	**okú [kyuusá]**	'change'
okú [sómésáá] wo	**okú [sómésá]**	'teach'

The examples in (32) have two enclitics and are based on the intransitive verb *okú[kyuuká]* 'to change' and its transitive counterpart with the causative *okú[kyuusá]* 'to change', respectively. Note that there is a short vowel at the end of the reduplicated intransitive verb lacking the causative, but there is a long vowel at the end of the reduplicated transitive verb with the causative. A second characteristic of these examples that we turn to momentarily is that the first of the two locative enclitics surfaces with a long vowel.

(32) Verb stems with the causative and two enclitics

RED+INF+LOC+LOC	RED+INF
okú [kyuuká] [kyúúkáꜜ] múú = ku	**okú [kyuuká] [kyúúká]**
	'change (intr.)'
okú [kyuusá] [kyúúsááꜜ] múú = ku	**okú [kyuusá] [kyúúsá]**
	'change (tr.)'

Facts from vowel length with an enclitic lead us to interpret the verb *okú[gaayá]* 'to chew' as having a causative suffix. Simple reduplication of the stem is unremarkable: *okú[gaayá][gááyá]* 'to chew repeatedly'. However, there is a long vowel in final position when an enclitic follows: *okú[gaayá][gááyáá]mu* 'to think about repeatedly', *okú[gaayá][gááyáá]ku* 'to chew a bit repeatedly'. The claim that a causative is present in *okú[gaayá]* 'to chew' is supported by the fact that the perfective form of the verb is *a[gááy-ííy-a]* 's/he has chewed', where final *-iiy-a* is the result of the causative+perfective input combination (see Hyman *et al.* 2017).

Note that *okú[sómésá][sómésá]* 'to teach repeatedly' ends in a short vowel. Since there are two vowels at an underlying or intermediate level of representation (causative *-i* plus final *-a*), there must be a shortening process at work on the final

vowel of both halves of the reduplicated verb. Hyman (p.c.) notes that this parallels the pattern of Final Vowel Shortening found in Luganda.

When verb stems are followed by the habitual enclitic =***ngá***, the stem-final vowel is always lengthened via the regular process of pre-NC lengthening. As shown in (33), this length is not generally transferred to the first half of the reduplicated stem, but CV and CVCV stems have a long vowel in both halves of the reduplicated.

(33) Reduplication of verb stems with the =***ngá*** enclitic ('to V habitually')

RED+INF+HAB	INF+HAB	
okú [ɣaa] [ɣáá] ngá	**okú [ɣaa] ngá**	'give'
okú [sáá] [sáá] ngá	**okú [sáá] ngá**	'grind'
okú [gémáá] [gémáá] ngá	**okú [gémáá] ngá**	'catch'
okú [βonaa] [βónáá] ngá	**okú [βonaa] ngá**	'see'
okú [nááβá] [nááβáá] ngá	**okú [nááβáá] ngá**	'bathe'
okú [síβúlá] [síβúláá] ngá	**okú [síβúláá] ngá**	'open'
okú [ɣeelézá] [ɣéélézáá] ngá	**okú [ɣeelézáá] ngá**	'send'
okú [gáɣáálá] [gáɣááláá] ngá	**okú [gáɣááláá] ngá**	'delay'
okú [tegeelá] [tégééláá] ngá	**okú [tegeeláá] ngá**	'understand'
okú [síímúúlá] [síímúúláá] ngá	**okú [síímúúláá] ngá**	'wipe'
okú [síβúlúlá] [síβúlúláá] ngá	**okú [síβúlúláá] ngá**	'untie'
okú [lwáánágáná] [lwáánágánáá] ngá	**okú [lwáánágánáá] ngá**	'fight one another'

When there is a sequence of locative enclitics (i.e. the cl. 16, cl. 17, cl. 18, and cl. 23 enclitics), the enclitic vowels are long, except for the last one. We assume that the locative enclitics have an underlying long vowel that is shortened in phrase-final position.

(34) Reduplicated verbs with multiple locative enclitics

RED+INF+LOC+LOC	INF	
okú [lwáá] ꜜwóó = ku	**okú [lwá]**	'delay'
okú [lwáá] [lwáá] ꜜwóó = ku	**okú [lwá]**	'delay'
okú [kyuuká] [kyúúká꜔] múú = ku	**okú [kyuuká]**	'change (intr.)'
okú [kyuusá] [kyúúsáá꜔] múú = ku	**okú [kyúúsá]**	'change (tr.)'

By contrast, non-locative enclitics seem to have underlying short vowels. This is shown for the habitual =**ngá** in (35); =**ngá** itself remains short when another enclitic follows it.[7]

(35) Reduplicated verbs with multiple enclitics involving habitual =**nga**
      RED+INF+HAB+LOC(s)   INF
      okú [gémáá] [gémáá] ngá = wo   **okú [gémá]**   'catch'
      okú [gémáá] [gémáá] ngá = ⁺wóó = ku   **okú [gémá]**   'catch'

The examples in (36) with two enclitics and in (37) with three enclitics show that locative enclitics followed by an interrogative enclitic (=**ki** 'what', =**wa** 'where', =**li** 'when') have a long vowel.[8] Although the data below do not involve reduplication, we include them because they relate to questions about vowel length and enclitics and because multiple enclitic data is understudied in Bantu languages, and Lusoga potentially provides a rich database on this topic.

(36) Verb forms with two enclitics ending with an interrogative enclitic[9]
      a. **b-ee [waandíís-íz-áá⁺] wóó = wa?**
          2.SU-RFL[write-CAUS-FV]16=Q
          'Where did they register themselves from?'

      b. **okw [óóngél-éz-áá⁺] kúú = ki?**
          15[add-CAUS-FV]17=Q
          'To add on what?'

      c. **ki [w-áá⁺] kúú = li?**
          7.SU[end-FV]17=Q
          'When does it end/expire?'

      d. **o [gy-áá⁺] yóó = li?**
          2SG.SU[go-FV]23=Q
          'When do you ever go there?'

(37) Verb forms with three enclitics ending with an interrogative enclitic
      a. **ó-lí [wúúmúl-á⁺] kúú = ⁺kúú = li?**
          2SG.SU-FUT[rest-FV]17=17=Q
          'When will you ever rest a bit at least?'

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7. Hyman (p.c.) suggests that the length difference could be because =**nga** is bimoraic or perhaps because of tone: "The locative enclitics were *H and are realized HL in Luganda, requiring them to become bimoraic. Lusoga has gone one step further, where *H is realized L with a pre-H (see Hyman 2018)."

8. We do not have extensive data where the interrogative enclitic is not in final position, but in the form **omúkíí wo** 'who of yours' [File ID: Pl101215 | O • Radio talk shows • Health • 2010] where the interrogative is followed by the 2SG possessive marker, it appears with a long vowel, which would follow if it were underlyingly /**kii**/.

9. Transcriptions of these forms should be considered tentative, due to a need to further study question intonation.

b. **[líind-áꜜ] múú = ꜜkúú = ki?**
[wait-FV]18=17=Q
'Wait a bit at least for what?'

The cl. 17 enclitic = *kuu* has multiple functions including a partitive use in addition to a locative use, and our corpus includes examples with one, two, and even three instances of this enclitic. An example of three instances of = *kuu* is in (38). We do not assume that these examples involve morphological or syntactic doubling of the cl. 17 marker but rather that each instance independently contributes to the meaning of the verb.

(38) Verbs with multiple instances of the cl. 17 enclitic
N'ekindi waaziyizakukuku ku sente dhe wandibaile ng'okozesa ki?[10]
n'   ékíí-ndi   w-aa [zííz-ááꜜ] kúú = ꜜkúú = ku   ku = séente
COP   7-other   2SG.SU-PROG[stop-FV]17=17=17   17=10.money
ḍé   w-áándí [βá-íle]   ŋg'   ó [kóz-és-áá] kí
10.REL   2SG.SU-MOD[be-PFV]   C   2SG.SU[use-CAUS-FV]Q
'Additionally, you at least somewhat limit some of the money you would otherwise use to do what?'
[File ID: Pl101215 | O • Radio talk shows • Health • 2010]

1.4. Total reduplication

For most morphologically complex verbs, the default form of reduplication seems to be total reduplication of all stem material. This is shown for the perfective suffix *-ile* (and some of its allomorphic variants) in (39), and for several constructions with the final vowel *-e* in (40) – (42).

(39) Total reduplication of verbs with perfective *-ile*

RED+PFV	PFV	INF	
a [mwéile] [mweilé]	**a [mwéílé]**	**okú [mwá]**	'shave'
a [gémyee] [gemyé]	**a [gémye]**	**okú [gémá]**	'catch'
á [leese] [leesé]	**á [leesé]**	**okú [leetá]**	'bring'
a [náaβye] [naaβyé]	**a [náaβyé]**	**okú [nááβá]**	'bathe'
á [siindiike] [siindiiké]	**á [siindiiké]**	**okú [siindíká]**	'push'

(40) Total reduplication of verbs in the subjunctive with final *-e*

RED+SBJV	SBJV	INF	
?a [ɟée] [ɟé]	**a [ɟé]**	**okú [ɟá]**	'go'
?a [ɣée] [ɣé]	**a [ɣé]**	**okú [ɣa]**	'give'
a [somée] [somé]	**a [sóme]**	**okú [sómá]**	'read'
a [gááye] [gaayé]	**a [gááye]**	**okú [gaayá]**	'chew'
a [tukúle] [tukulé]	**a [tukúle]**	**okú [túkúlá]**	'be clean'

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10. We have fully transcribed a pronunciation by the second author of each corpus example. The recordings of these pronunciations, as well as recordings of all other examples, here and those in Addendum 1, are available as supplementary material in Addendum 2.

(41) Total reduplication of verbs in imperative + OP constructions with final *-e*

RED+IMP+OP	IMP+OP	
mú [ɣee] [ɣé]	**mú [ɣe]**	'give him'
mú [βonee] [βoné]	**mú [βoné]**	'see him'
mú [leete] [leeté]	**mú [leeté]**	'bring him'
mú [soni̠ɣe] [soni̠ɣé]	**mú [soni̠ɣé]**	'forgive him'
mú [leetele] [leetelé]	**mú [leetelé]**	'bring for him'
mu [gáyaaze] [gayaazé]	**mu [gáyaazé]**	'delay him'
mu [síimuule] [siimuulé]	**mu [síimuulé]**	'wipe him'
mu [síβulule] [siβululé]	**mu [síβululé]**	'untie him'
mu [kuungúβage] [kuunguβagé]	**mu [kuungúβagé]**	'mourn him'
mu [n̠yón̠yoogele] [n̠yon̠yoogelé]	**mu [n̠yón̠yoogelé]**	'tickle him'

(42) Total reduplication of verbs in future negative forms with final *-e*

RED+FUT.NEG	FUT.NEG
tí-túú [sée] [sé]	**tí-túú [sée]**
	'we will not grind'
tí-túú [βonee] [βoné]	**tí-túú [βoné]**
	'we will not see'
tí-túú [leete] [leeté]	**tí-túú [leeté]**
	'we will not bring'
tí-túú [gótame] [gotamé]	**tí-túú [gótamé]**
	'we will not bend'
tí-túú [siini̠le] [siini̠lé]	**tí-túú [siini̠lé]**
	'we will not press down'
tí-túú [síimuule] [siimuulé]	**tí-túú [síimuulé]**
	'we will not wipe'
tí-túú [síβulule] [siβululé]	**tí-túú [síβululé]**
	'we will not untie'
tí-túú [n̠yón̠yoogele] [n̠yon̠yoogelé]	**tí-túú [n̠yón̠yoogelé]**
	'we will not tickle'
tí-túú [kuunguβage] [kuunguβagé]	**tí-túú [kuunguβagé]**
	'we will not mourn'

Total reduplication is also the default pattern for verbs with various extensions. Examples involving the applicative are shown in (43), and forms with the causative are in (44).

(43) Total reduplication of verbs with applicative *-il/-el*

RED+INF+APPL	INF+APPL	INF
okú [ɣeelá] [ɣéélá]	**okú [ɣeelá]**	**okú [ɣa]**
		'give'
okú [βálílá] [βálílá]	**okú [βálílá]**	**okú [βálá]**
		'count'
okú [leetélá] [léétélá]	**okú [leetélá]**	**okú [leetá]**
		'bring'

okú [kuyugílá] [kúyúgílá]	okú [kuyugílá]	okú [kuyugá] 'stir'
okú [súúβúlílá] [súúβúlílá]	okú [súúβúlílá]	okú [súúβúlá] 'trade'
okú [síímúúlílá] [síímúúlílá]	okú [síímúúlílá]	okú [síímúúlá] 'wipe'
okú [síβúlúlílá] [síβúlúlílá]	okú [síβúlúlílá]	okú [síβúlúlá] 'untie'

(44) Total reduplication of verbs with causative **-is**/**-es**/**-iz**

RED+INF+CAUS	INF+CAUS	INF
okú [ɣeesá] [ɣeesá]	okú [ɣeesá]	okú [ɣa] 'give'
okú [βálísá] [βálísá]	okú [βálísá]	okú [βálá] 'count'
okú [leetésá] [léétésá]	okú [leetésá]	okú [leetá] 'bring'
okú [kuyugísá] [kúyúgísá]	okú [kuyugísá]	okú [kuyugá] 'stir'
okú [súúβúlízá] [súúβúlízá]	okú [súúβúlízá]	okú [súúβúlá] 'trade'
okú [síímúúlísá] [síímúúlísá]	okú [síímúúlísá]	okú [síímúúlá] 'wipe'
okú [síβúlúlísá] [síβúlúlísá]	okú [síβúlúlísá]	okú [síβúlúlá] 'untie'

As shown by the examples in (45) and (46), there is a short form of the passive **-w** and long forms of the passive **-iβ-w**/**-eβ-w**, which are both possible for many verb roots. (See Schadeberg (2003) and Schadeberg & Bostoen (2019) for handbook chapters that describe cross-Bantu patterns in the form and function of the passive.) In general, the long form of the passive is required with unextended CV roots and with causative stems. For other stems, the verb may take either the short or the long form of the passive. Thus, the short form of the causative is not possible with CV roots like *okú[ɣa]* 'to give' or verbs with the causative like *okú[tiisá]* 'to frighten' and *okú[ɣeelézá]* 'to send'. Some unknown additional requirement prohibits the short form of the causative with *okú[leetá]* 'to bring'. It is unclear why the long form of the passive seems to be prohibited with *okú[wulilá]* 'to hear'.

(45) Verbs with the short form of the passive **-w**

INF+PASS (short)	INF	
*okú [mowá]	okú [mwá]	'shave'
*okú [ɣawa]	okú [ɣa]	'give'
okú [gémwá]	okú [gémá]	'catch'
okú [βálwá]	okú [βálá]	'count'
okú [βííngwá]	okú [βííngá]	'chase'
*okú [tiiswá]	okú [tiisá]	'frighten'

*okú [leetwá]   **okú [leetá]**   'bring'
okú [wulilwá]   **okú [wulilá]**   'hear'
*okú [ɣeelézwá]   **okú [ɣeelézá]**   'send'
okú [tegeelwá]   **okú [tegeelá]**   'understand'
okú [síímúúlwá]   **okú [síímúúlá]**   'wipe'
okú [síβúlúlwá]   **okú [síβúlúlá]**   'untie'
okú [liingílílwá]   **okú [liingílílá]**   'look at'

(46) Verbs with the long form of the passive **-iβ-w/-eβ-w**
       INF+PASS (long)   INF
       okú [mwééβwá]   **okú [mwá]**   'shave'
       okú [ɣeeβwá]   **okú [ɣa]**   'give'
       okú [géméβwá]   **okú [gémá]**   'catch'
       okú [βálíβwá]   **okú [βálá]**   'count'
       okú [βííngíβwá]   **okú [βííngá]**   'chase'
       okú [tiisíβwá]   **okú [tiisá]**   'frighten'
       okú [leetéβwá]   **okú [leetá]**   'bring'
       *okú [wulilíβwá]   **okú [wulilá]**   'hear'
       okú [ɣeelézéβwá]   **okú [ɣeelézá]**   'send'
       okú [tegeeléβwá]   **okú [tegeelá]**   'understand'
       okú [síímúúlíβwá]   **okú [síímúúlá]**   'wipe'
       okú [síβúlúlíβwá]   **okú [síβúlúlá]**   'untie'
       okú [liingílílíβwá]   **okú [liingílílá]**   'look at'

Total reduplication is also the norm with the short and long forms of the passive.
Several infinitival examples involving different shapes of stems are shown below
in (47). Our corpus also includes the finite verb forms **bá a[daaziiβwa][daaziiβwá]**
'they used to be disturbed repeatedly' and **tu[daazíβwe][daaziβwee]ngá** 'we
should always be disturbed repeatedly', which both have total reduplication. The
latter example has predictable vowel lengthening before the habitual enclitic **=ngá**.

(47) Total reduplication of verbs with the passive
       RED+INF+PASS   INF
       okú [mwééβwá] [mwééβwá]   **okú [mwá]**   'shave'
       okú [gémwáá] [gémwá]   **okú [gémá]**   'catch'
       okú [βííngwá] [βííngwá]   **okú [βííngá]**   'chase'
       okú [leetéβwá] [léétéβwá]   **okú [leetá]**   'bring'
       okú [sóméséβwá] [sóméséβwá]   **okú [sómésá]**   'teach'
       okú [ɣeelézéβwá] [ɣéélézéβwá]   **okú [ɣeelézá]**   'send'
       okú [tegeelwá] [tégéélwá]   **okú [tegeelá]**   'understand'
       okú [síímúúlwá] [síímúúlwá]   **okú [síímúúlá]**   'wipe'
       okú [síβúlúlwá] [síβúlúlwá]   **okú [síβúlúlá]**   'untie'
       okú [liingílílwá] [lííngílílwá]   **okú [liingílílá]**   'look at'

Lusoga has an unusual form of the reciprocal: **-ang-an** with CV roots and **-ag-an**
with longer roots (see Hyman *et al.* 2017). Several examples are shown in (48).

Reduplication of stems with reciprocal *-ag-an* appears to not be possible. There are no examples of reduplication of verbs with the reciprocal in our corpus, and the second author was hesitant to generate examples of reduplicated stems that have *-ag-an*.

(48) Verbs with the reciprocal *-a(n)g-an*

INF+RCP	INF	
okú [ɣaangáná]	okú [ɣa]	'give'
okú [βálágáná]	okú [βálá]	'count'
okú [βííngágáná]	okú [βííngá]	'chase'
okú [sóméságáná]	okú [sómésá]	'teach'
okú [ɣeelézágáná]	okú [ɣeelézá]	'send'
okú [tegeelágáná]	okú [tegeelá]	'understand'
okú [síímúúlágáná]	okú [síímúúlá]	'wipe'
okú [síβúlúlágáná]	okú [síβúlúlá]	'untie'

1.5. Partial reduplication

Although total reduplication appears to be the norm in Lusoga verb reduplication, partial reduplication is also found. The examples in (49) show stems with one or more derivational suffixes in the second half of the reduplicated stem which are unexpressed in the first half of the reduplicated stem, suggesting that the first half of the reduplicated stem is the reduplicant and the second half is the base. In each case, the first half of the reduplicated stem is disyllabic and ends in the final vowel *-a*. In *okú[leetá][léétélá]* 'to bring for repeatedly', which is taken from the Lusoga dictionary, the applicative *-el* is not pronounced in the first half of the stem. Similarly, the form *okú[temaa][témésá]* 'to cause to cut down repeatedly' has the causative suffix *-es* in the second half of the reduplicated verb, but the causative is not present in the first half; the resulting CVCV reduplicant undergoes final lengthening, surfacing CVCVV. In *okú[lwááná][lwáánágáná]* 'to fight one another repeatedly' (cf. *okú[lwááná][lwááná]* 'to fight repeatedly'), the first half of the reduplicated stem does not express the reciprocal suffix *-agan*, though it does have the frozen reciprocal marker *-aan*. The forms *okú[leembá][léémbélézá]* 'to handle with care repeatedly' and *okú[βuuzá][βuulílízá]* 'to investigate repeatedly' both omit the applicative + causative combination *-il-iz*/*-el-ez* in the first half of the reduplicated stem. In the case of *okú[βuuzá][βuulílízá]*, the first half of the reduplicated stem undergoes the *l* → *z* mutation triggered by the causative, so the first half of the stem still shows a mark of the derivational suffix.

(49) Partial verb stem-based prefixing reduplication of verbs involving extensions

     RED+INF+DERIV   INF

APPL

okú [leetá] [léétélá]   **okú [leetélá]**   'bring for'

CAUS

okú [temaa] [témésá]   **okú [temesá]**   'cause to cut down'

RCP

okú [lwááná] [lwáánágáná]   **okú [lwáánágáná]**   'fight one another'

APPL+CAUS

okú [leembá] [léémbélézá]   **okú [leembélézá]**   'handle with care'

okú [βuuzá] [βuulílízá]   **okú [βuulílízá]**   'investigate'

The Lusoga dictionary lists other forms derivationally related to the example ***okú[leembá][léémbélézá]*** 'to handle with care repeatedly', including the simple form ***okú[leembá][léémbá]*** without any derivational suffixes and ***okú[leembyá]*** [***léémbyá***] with the short form of the causative repeated in both halves of the reduplicated verb. These two forms, in which both halves of the reduplicated stem are identical, both mean 'to handle with care' (without signifying repetitive action). The form ***okú[leembá][léémbélá]***, where the first half of the reduplicated verb omits the applicative, means 'to handle with care repeatedly at (some place)'.

    The Lusoga dictionary also provides the derivationally related examples in (50), which are based on the verb ***(o)kú[kulá]*** 'to grow up'. In the reduplicated forms, the first half of the reduplicated verb lacks derivational suffixes, including the frozen short reciprocal extension ***-an***, applicative ***-il***, and short causative ***-y***. The CVCV reduplicant undergoes lengthening, surfacing as CVCVV.

(50) Partial verb stem-based prefixing reduplication of verbs involving extensions (Nabirye 2009b)

    a. **(o)kú [kul-an-á]**   **(o)kú [kulaa] [kúl-án-á]**

        15[grow-RCP-FV]   15[RED][grow-RCP-FV]

        'to grow in tandem'   'to develop'

    b. **(o)kú [kul-an-íl-á]**   **(o)kú [kulaa] [kúl-án-íl-á]**

        15[grow-RCP-APPL-FV]   15[RED][grow-RCP-APPL-FV]

        'to grow in tandem from'   'to develop from'

    c. **(o)kú [kul-an-y-á]**   **(o)kú [kulaa] [kúl-án-y-á]**

        15[grow-RCP-CAUS-FV]   15[RED][grow-RCP-CAUS-FV]

        'to cause to grow in tandem'   'to cause to develop'

Another verbal form where the frozen reciprocal suffix ***-an*** is not present in the first half of the reduplicated verb is shown in (51). Compare with the basic verb form ***okw***[***iiká***] 'to descend', which may be reduplicated as ***okw[iík-á][ík-á]*** 'to descend repeatedly'.

(51) Partial verb stem-based prefixing reduplication of verbs involving the frozen
reciprocal suffix -*an* (Nabirye 2009b)
(o)kw [iík-á] [ík-án-á]
15[RED][descend-RCP-FV]
'to calm down'

The examples in (52) show partial reduplication involving allomorphs of the
perfective suffix -*ile*. In each of these forms, the first half of the reduplicated verb
ends in the final vowel -*a*, while final perfective -*e* is found in the second half of
the reduplicated stem. The form *á[siindika][siindiiké]* 's/he has pushed repeatedly'
appears to be the only partially reduplicated form in our data in which the reduplicant
is not disyllabic. The Lusoga dictionary includes the reduplicated stem *[leemba]*
[leembyé] (without prefixes) 'stroll' where the perfective is found in the second half
of the reduplicated stem; as in the examples below, the first half of the reduplicated
stem has the final vowel -*a*.

(52) Partial verb stem-based prefixing reduplication of verbs involving perfective
-*ile*

RED+PFV	PFV	INF	
a [gémaa] [gemyé]	**a [gémye]**	**okú [gémá]**	'catch'
a [náaβa] [naaβyé]	**a [náaβyé]**	**okú [nááβá]**	'bathe'
a [wáana] [waanyé]	**a [wáanyé]**	**okú [wááná]**	'praise'
á [siindika] [siindiiké]	**á [siindiiké]**	**okú [siindíká]**	'push'

While some instances of morphologically partial reduplication involving derivational
and inflectional suffixes are indeed attested in Lusoga, partial reduplication seems
much more limited than it is in some other languages of the region, such as Saamia
(Marlo 2002, 2004) and Runyankore (Poletto 1998, Hyman 2022b). (See Hyman
(2009) for a survey of different forms of verb stem reduplication in Bantu.) The
forms in (53), which have a bare stem ending in -*a*, followed by a copy of the stem
ending in the perfective, were judged impossible by the second author. At present,
it is unclear to us how to predict when partial reduplication is possible in Lusoga.

(53) Partial stem-based prefixing reduplication of verbs involving perfective -*ile* is
not possible

RED+PFV	PFV	INF	
***a [lwáa] [lwiilé]**	**a [lwíilé]**	**okú [lwá]**	'delay'
***a [mwáa] [mweilé]**	**a [mwéilé]**	**okú [mwá]**	'shave'
***á [leeta] [leesé]**	**á [leesé]**	**okú [leetá]**	'bring'
***a [wáana] [wainé]**	**a [wáiné]**	**okú [wááná]**	'praise'

An additional complication we have encountered involves the verb *okú[vuganyá]*
'to compete', which has the perfective form *a[vúgáínya]* 's/he has competed'.
For reasons that remain poorly understood, the second author prefers the
form *a[vúgányá][gáínya]* to *?a[vúgányá][vúgáínya]*, while noting that fully
reduplicated *a[vúgáínyá][vúgáínya]* 's/he has competed repeatedly' is also
possible. The preferred partially reduplicated form appears to have the basic bare

form of the verb stem followed by just the final two syllables of the perfective stem. This anomaly is presumably related to the imbricated perfective form of the verb, in which a diphthong is created, and the verb ends in the final vowel -*a*, but we have not investigated the matter closely, beyond noting that the verb *á[siindiiké]* 's/he pushed' reduplicates with total reduplication of the imbricated verb stem as in *á[siindiike][siindiiké]*, or with partial prefixing reduplication as in *á[siindika] [siindiiké]*, but not with a partial suffixed copy of the stem **á[siindiikee][ndiiké]*.

1.6. Multiple reduplication

In light of recent research identifying verb stem tripling (**ba-ka[gura][gura][gura]** 'they bought a lot') and multiple reduplication (**ba-ka[gura][gura][gura][gura]** 'they bought a lot') in Runyakore reduplication (Hyman 2022b), Larry Hyman has asked us whether multiple reduplication is possible in Lusoga. This is not a topic that we have studied in nearly as much depth as other aspects of Lusoga reduplication, so the results we report here are necessarily preliminary. As we show below, we find tripling of some CV noun stems and CV adjective stems in the Lusoga corpus (see (70) and (74)).

Our search of the corpus did not uncover multiple reduplication of verb stems, but introspection by the second author during the review process generated the forms below in (54), with tripled CV stems and a VCV stem, which triples CV after the initial V. In our recorded examples, the final vowels of the first two instances of the reduplicated stem are long, while the phrase-final vowel is short. (Tripled VCV stems, which show variation in the length of the vowel of the second instance of the stem in our limited data, merit further research.) The tripled verbs imply that the manner of the action is unregulated or haphazard. The second author judged longer tripled verbs to not be possible, e.g. **oku[limaa][lima][lima]* 'to dig haphazardly'.

(54) Multiple reduplication of Lusoga verb stems
      RED+RED+INF
      okú [mwáá] [mwáá] [mwá]   'shave haphazardly'
      okú [sáá] [sáá] [sa]   'grind haphazardly'
      okú [taa] [táá] [tá]   'put haphazardly'
      okw [áayaa] [yá] [yá] ~ okw [áayaa] [yáá] [yá] 'graze haphazardly'

2. Nominal reduplication

Hyman (2019a) provides the examples of productive noun reduplication in Lusoga shown in (55); the reduplicated noun has the meaning 'a lousy N'. We have checked all the nouns listed by Hyman, and our transcriptions of the second author's pronunciations of these examples are identical to Hyman's.

(55) Reduplication in C-initial noun stems (Hyman 2019a)
      o-mú [zíí] [zí]   'a lousy root'   **o-mú [zí]**   'root'
      o-mú [tíí] [ti]   'a lousy tree'   **o-mú [ti]**   'tree'
      o-mú [gén̩í] [gén̩í] 'a lousy guest'   **o-mú [gén̩í]** 'guest'
      e-m [pálá] [pálá]   'a lousy leopard' **e-m [pálá]**   'leopard'

a-ká [lóβó] [lóβo]	'a lousy bucket'	**a-ká [lóβo]**	'bucket'
o-lú [lágálá] [lágálá]	'a lousy banana leaf'	**o-lú [lágálá]**	'banana leaf'
e-n [sóɣélá] [sóɣélá]	'a lousy housefly'	**e-n [sóɣélá]**	'housefly'

To Hyman's (2019a) data in (55), we add the examples in (56) from the Lusoga dictionary, which have somewhat different meanings, related to small or partial quantities and size. See Gibson *et al.* (2017) for further discussion of diminutives in Bantu where they find pejorative uses, forms that indicate parts of a whole or mass quantity, and the use of reduplication to express diminutives. The Lusoga forms in (56) all have disyllabic stems that are fully reduplicated. In each of these cases, we have identified the non-reduplicated stem in an independent word in the Lusoga dictionary.

(56) Lexicalized reduplication of C-initial noun stems (Nabirye 2009b)

(o)lú [kúβá] [kuba]	'relatively minimal rain'
(o)lú [kubá]	'rain'
(o)lú [sáná] [sana]	'place with some bit of sun'
(o)mú [saná]	'sun'
(e)kí [wúdú] [wúdu]	'a stump, amputated part of the body'
(e)kí [wúdu]	'half'
(é)n [kyuuká] [kyúúká]	'change'
(o)kú [kyuuká]	'change'
(o)βú [báásá] [baasá]	'numerous small envelopes'
(e) [báásâ]	'envelope'
(o)βú [báásâ]	'small envelopes'

We also find reduplicated nouns in the Lusoga dictionary with no corresponding unreduplicated form. Examples of this type are given in (57), and numerous additional forms are provided in Addendum 1.

(57) Other lexicalized reduplicated noun stems (Nabirye 2009b)

CVCV

ekí [βówá] [βówa]	'sp. of grass: *Chasmanthera dependens*'
[búgú] [búgú]	'hurriedness'
ekí [páyó] [páyó]	'shyness'
ekí [ɲomoo] [ɲómó]	'sugar-eating black ant'
ekí [ʈapoo] [ʈápó]	'weightless thing; fluid thing'

CVVCV

ekí [βééndó] [βééndó]	'uninteresting occasion'
oβú [kóówé] [kóowé]	'eyelashes'
(o)mú [lúúndí] [luundi]	'shin bone'
aká [mwééɲú] [mwééɲu]	'smiley or happy state'
aká [wúúndó] [wúúndó]	'bat'

CVCVCV

| **oβú [tólóβó] [toloβó]** | 'dots' |

From the forms in (55) – (57), we can note several generalizations. First, there is total reduplication of noun stems, as in verbs, and thus long stems reduplicate completely. Second, the first half of reduplicated CV noun stems ends in a long vowel, just as in verbs. Another parallel with verbs is that nasal prefixes do not overcopy, as shown by several cl. 9 nouns in (55). However, unlike verbs and with the apparent exceptions of *ekí[ṇomoo][ṇómó]* 'sugar-eating black ant' and *ekí[ṭapoo][ṭápó]* 'weightless; fluid thing', the first half of reduplicated CVCV noun stems do not have a long vowel.[11]

Larry Hyman (p.c.) asked how nouns of the shape *e-m-p*VCV reduplicate. In Hyman's lexicon of 3,694 entries, he finds only 78 words with **[p]** not preceded by **[m]** . Among the 34 nouns beginning *e-m-p*…, only three reduplicate with **[p]** : *e-m[pálá]* 'leopard' → *e-m[pálá][pálá]*, *é-m[pití]* 'hyena' → *é-m[pítí][pití]*, and *é-m[pasá]* 'axe' → *é-m[pásá][pasá]*. Others are like *é-m[paɣá]* 'feathers' → *é-m[páɣá][ɣaɣá]*.

In our data, we have several forms parallel to Hyman's 'feathers' example where the first half of the reduplicated noun has *e-m[p*… and the second half of the reduplicated noun stem begins with *ɣ* or *w*, which are in free variation. These are shown in (58).

(58) *w~p* alternations in reduplicated noun stems

é-m [páɣá] [ɣaɣá]	**é-m [paɣá]**	'wings (pl)'	
é-m [pálé] [wále]	**é-m [pále]**	'pants'	
e-m [pétá] [wétá]	**e-m [pétá]**	'ring'	
é-m [púkú] [wukú]	**é-m [pukú]**	'cave'	
e-m [póómpó] [wóómpó]	**aká [wóómpó]**	'soft skull in babies'	
é-m [púúngú] [wuungú]	**olú [wuungú]**	'loud cry, yell'	

Another frequent pattern found in our data is for the second half of a reduplicated *w*-initial stems to be realized with *β*, as shown in (59).

(59) *w~p~β* alternations in reduplicated noun stems (/w/ → **[β]**)

e-m [páámbó] [βáámbó]	**aká [wáámbó]**	'seed'
é-m [pééndá] [βeendá]	**olú [weendá]**	'obligation'
e-m [pííngú] [βííngú]	**aká [wííngú]**	'calving chain'
é-m [póómbó] [βóómbo]	**olú [wóómbo]**	'young banana leaf'
é-m [púúmbú] [βuumbú]	**olú [wuumbú]**	'lump of powder or pollen'

We have a few additional examples given in (60) that freely vary between *w* and *β* in the initial position of the second half of the reduplicated noun.

(60) *w~p~β* alternations in reduplicated noun stems (/w/ → **[w] ~ [β]**)

e-m [páló] [wáló] ~ **e-m [páló] [βáló]**	**olú [wáló]**	'turn'
e-m [páṇá] [wáṇá] ~ **e-m [páṇá] [βáṇá]**	**aká [wáṇá]**	'gap in teeth'
e-m [púβí] [wúβí] ~ **e-m [púβí] [βúβí]**	**olú [wúβí]**	'cream'

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11. Additional reduplicated forms like *amáá[ngúḍúu][nguḍú]* 'restlessness' and others in (68) below with an NC-initial stem predictably have a long vowel before NC.

We found only a few nouns where the second half of the reduplicated noun stem begins with **p**. As shown in (61), all such forms have an alternative pronunciation with **β**, and in some cases a third alternative pronunciation with **w**.

(61) **w~p~β** alternations in reduplicated noun stems (/w/ → [w] ~ [β] ~ [p])
    é-m[písá] [pisa] ~ é-m[písá] [βisa]
    é-m[pisá] , aká[wisá] ~ aká[pisa]   'manner'
    é-m[péwó] [pewo] ~ é-m[péwó] [βewo] ~ ém[péwó] [wewo]
    é-m[pewó] , aká[wewó]   'breeze'
    é-m[péké] [peke] ~ é-m-péké [βeke] ~ ém[péké] [weke]
    aká[weké]   'grain'

Hyman's (2019a) published data set does not include reduplicated forms of V-initial nouns. Our examples in (62) and the example from the Lusoga dictionary in (63) show that, like verbs, there is no overcopying of prefixes, **[y]** is epenthesized at the beginning of the second half of the reduplicated V-initial noun stem, and there is lengthening of the stem-initial vowel before the stem-internal NC sequence in examples like **oβw[éénzí][yéénzí]** 'a lousy desire'. As with most CVCV nouns and all VCV verbs, we do not find lengthening of the final vowel in VCV noun stems.

(62) Reduplication in V-initial noun stems
    olw[ééyó] [yéyó]   'a lousy broom'
    olw[ééyó]   'broom'
    oβw[éénzí] [yéénzí]   'a lousy desire'
    oβw[éénzí]   'desire'
    omw[óókí] [yókí]   'someone who easily burns things'
    omw[óókí]   'one who burns'

(63) Lexicalized reduplication of V-initial noun stems (Nabirye 2009b)
    olw[íídó] [idó]   'sp. of plant: *Cassia laevigata*'   **elí[idó]** 'groundnut'

Hyman (p.c.) indicates that he elicited a few additional possibilities concerning V-initial nouns. He reports that **omw[óógézí]** 'speaker' → **omw[óógézí][yógézí]** 'a lousy speaker' follows the reported **y**-insertion process (with a marginal note that "the **y** is hardly audible"). The second author accepts this example. In addition, he found the examples in (64) below without **y**-insertion and instead with assimilation of the second vowel to the first vowel. The second author accepts the examples elicited by Hyman as well as the "expected" forms.

(64) Vowel assimilation in reduplicated V-initial noun stems

RED	expected	N
omw[áámí] [imí]	**omw[áámí] [yamí]**	**omw[áámí]**
		'chief'
olú[úmbé] [embé]	**olú[úmbé] [yuumbé]**	**olú[umbé]**
		'long illness; funeral'
olw[ééyó] [óyó]	**olw[ééyó] [yéyó]**	**olw[ééyó]**
		'broom'

Hyman also observed the deletion of the second vowel of the longer stem in examples like **obw[íinogovú]** 'coldness' → **obw[íínógóvú][nogovú]**. The second author also accepted this example.

The examples in (65) show that overcopying of prefixes with a V-initial stem is not allowed in productive patterns of noun reduplication in Lusoga.

(65) No overcopying in the reduplication of V-initial noun stems
    *olw[ééyó] [lw-ééyó]   'a lousy broom'   **olw[ééyó]**   'broom'
    *oβw[éénzí] [βw-eénzí] 'lousy desire'   **oβw[éénzí]** 'desire'

Despite the lack of prefix overcopying in productive reduplication, the Lusoga dictionary and our Lusoga corpus include some reduplicated nouns that appear to involve overcopying. In the two examples of (66) and (67), a cl. 9 nasal prefix appears to be repeated in both halves of the reduplicated noun stem. The form **múú-n[kyóó] n[kyo]** 'in the morning' (**én[kyóó]n[kyo]** 'morning period' without the locative prefix) more clearly demonstrates a repeated nasal prefix, as the reduplicated form is derived from **én[kyo]** 'morning, tomorrow'. The stem in **ensaansá** 'palm leaves' may be monomorphemic or unrelated to the verb **okú[sá]** 'to grind' or the noun **ekí[sá]** 'kindness'.

(66) Overcopying of a nasal prefix with lexicalized reduplication of monosyllabic noun stems (Nabirye 2009b)
    é-n[saa] n[sá] 'palm leaves'   **okú[sá]** 'grind'
                                 ekí[sá] 'kindness'

(67) Corpus example of the overcopying of a nasal prefix with lexicalized reduplication of monosyllabic noun stems
    Olunaku olwaililila yawuuna mu nkyonkyo yailayo mw'isinzizo.
    olú-nak   **oo-lw-áá[ililil-á]**   **y-áá[wuun-a]**
    11-day   REL-11.SU-PST[follow-FV]   1.SU-PROG[rise_early-FV]
    múú=n[kyóó] n[kyo]   **y-áá[íl-á] yo**   **mw=íí[siinzízó]**
    18=9[RED]9[morning]   1.SU-PST[return-FV]23   18=5[praise]
    'The following day he rose relatively early in the morning and went back in the prayer place.'
    [File ID: NNp_Yoa | W • Biblical books • Religion • 2014] (John 8:2)

The examples in (68) also have NC sequences at the beginning of each half of the reduplicated stem, though their analysis is somewhat uncertain. Both **emíí-n[twée] n[twé]** 'part of the bed where you put the head' and **akáá-n[zímyéé]n[zímye]** 'dusk' derive from C-initial stems, and each form has an augment and noun class prefix; it is unclear where the repeated nasal comes from.[12] The noun **omw-éé[nkánóó] [nkánó]** 'gender equality' derives from the verb **okw[éénkáná]** 'to have a given

_____

12. As shown in (82) below, there are some other examples where adverbs are created from nouns and have a resulting structure with an augment and noun class prefix before the inner noun's class prefix. Perhaps these examples have a similar structure, and the nasal can be attributed to a noun class prefix.

size'. It may be that **[ee]** is the reflexive, which precedes an NC-initial root, or it is an unusual example in which the initial vowel of a V-initial stem is excluded from reduplication, as Hyman points out in his unpublished elicited forms like *oβw[íinogovú]* 'coldness' → *obw[íínógóvú][nogovú]*.

(68) NC sequence at the beginning of each half of a reduplicated noun stem (Nabirye 2009b)

emíí-n[twée]n[twé]	'part of the bed where you put the head'
omú[twe]	'head'
akáá-n[zímyéé]n[zímye]	'dusk'
okú[zimá]	'dim'
amáá-n[gúḍúu]n[guḍú]	'restlessness'
omw-éé[nkánóó][nkánó]	'gender equality'
okw[éénkáná]	'have a given size'

In the two examples of (69), the noun class prefix is overcopied in combination with a VCV stem. Both forms, which are from our corpus, involve an initial cl. 12 relativizer followed by the reduplicated noun class prefix + V-initial stem complex.

(69) Overcopying of noun class prefixes with reduplicated V-initial noun stems

    a. **kaliisoliiso w'ebyokwelinda**

        ka-l[íísó]l[íiso]   **w**   **ééβy-óókw-ée[liind-á]**

        12.REL-5[RED]5[eye]   1.ASSOC   8.REL-15-RFL[wait-FV]

        'inspector of defense'

        [File ID: SunPanel | O • Radio talk shows • Politics • 2011]

    b. **kabwidhibwidhi n'amaina g'omulogo**

        ka-βw[ííḍí]bw[íiḍi]   **n'**   **aamá-ina**   **g**   **óomu-lógó**

        12.REL-14[RED]14[know]   COP   6-name   6.ASSOC 1-witch

        '*Kabwidhibwidhi* are the names of a witch.'

        [File ID: ATirTiil | O • Songs - Traditional • Money • 1990s]

An additional surprise from the corpus is the existence of the tripling of monosyllabic stems in the three nouns in (70).

(70) Tripling in CV noun stems

    a. **Obutono bwa dyadyadya tibumulobela kusavughala**.

        oβú-tónó   **βw-a**   **dyadyadya**

        14-small   14-ASSOC   1a.bird

        tí-βú-mú[lóβ-el-a]   **ku[savuwál-á]**

        NEG-14.SU-1.OBJ[deter-APPL-FV]   15[be_fat-FV]

        'The smallness of *dyadyadya* does not prohibit it from possessing fat.'

        [File ID: EnsambDh | W • Literature • Proverbs • 1999]

b. **Baaba ni maama, muwuune pwipwipwi, musaawule ekigada.**

báába	ní	mááma	mu-wúún-e	pwiipwiipwíí
1a.father	CONJ	1a.mother	2PL.SU[rise_early-SBJV]	early_morning

mu [saawúl-e]	ekí-gadá
2PL.SU[cut_down-SBJV]	7-bamboo

'Father and mother, rise early in the early morning and go to cut down the bush.'
[File ID: TeacherR | W • Policy documents - Government • Language • 2006]

c. **Kabontongo ayinza okukuleetaku obubwabwabwa.**

kaβóóntóóngó	á [yiinz-á]	kú-ku [leet-á] kw
1a.syphilis	1.SU[can-FV]	15-2SG.OBJ[bring-FV]17

oβú [βwáá] [βwáá] [βwá]
14-RED-RED-wound

'Syphilis can bring numerous wounds on your body.'
[File ID: StarEC2 | O • Radio talk shows • Health • 2010]

3. Reduplication of adjectives and quantifiers

Adjectives and quantifiers have a reduplicative form with the meaning 'relatively Adj/Quant, fairly Adj/Quant' that resembles the patterns of reduplication found in verbs and nouns. The corpus contains a number of examples shown in (71) below that have expected phonological and morphological characteristics. In these forms, the whole stem is copied, and prefixes and enclitics are not overcopied. The CV stem in (71a) has the expected realization where the first half of the reduplicated verb has a long vowel. The forms in (71b-c) show typical patterns of pre-NC vowel lengthening. As in nouns, the final vowel of reduplicated CVCV stems in (71c-d) is not lengthened.

(71) Reduplication of adjective and quantifier stems

a. **Bw'oleeta engege edhikaali ntooto, ogwo musango.**

βw	oó [léé⸵t]	één-gége	eḍikaalíí	n [tóó] [to]
if	2SG.SU[bring-FV]	10-fish	still	10[RED][young]

ogwo	mu-sáángó
3.DEM2	3-crime

'If you bring fish which are still relatively young, then that is a crime.'
[File ID: AbabalaE | O • Songs - Traditional • Sensitization • 2000s]

b. **Bitela kuba biba bimpimpi ng'ela byetooloovu.**

βi-télá	kú [β-a]	βi-βa	βíí [mpíí] [mpí]	ng	eelá
8-usually	15[be-FV]	8-big	8[RED][short]	C	CONN

βy-ee [tooloovú]
8-RFL[round]

'They usually are big and relatively short when they are also round.'
[File ID: OwayanMN | W • Academic documents • Language • 2019]

c. **Tuyina ebintu bingingi bye tugemagana ng'abavubuka.**
tw [íín]	éeβíí-ntú	bíí [ngíi] ngí	βye
1PL.SU[have-FV]	8-thing	8[RED]many	8.REL

tú [gém-agan-aa]	ngá	aβa-vuβuka
1PL.SU[catch-RCP-FV]	C	2-youth

   'We have a couple of things which we do as youths.'
   [File ID: Kibbaaly | O • Radio talk shows • Politics • 2009]

d. **Omukalukalu akunhyaga inhyazaala wo.**
omú [kálú] [kalú]	a-kú [n̦yág-á]	íŋyázáálá	wo
1[RED][dry]	1.SU-2SG.OBJ[rob-FV]	1a.mother_in_law	1.your

   'A straight-faced person can grab your mother-in-law from you.'
   [File ID: KiyiniKi | W • Literature • Language • 1969]

e. **Empeke edho ndhoghooza abadhiidhi batonotono.**
ém-peké	ed̦oo	n [d̦óyóóz-á]	á-bá-d̦í [id̦i]
10-seed	10.DEM2	1SG.SU[think-FV]	2.REL-2.SU-10.OBJ[know]

ba [tónó] [tóno]
2[RED]few

   'Those seeds, I think the people who know them are very few.'
   [File ID: CohenD86 | W • Academic documents • History • 1966-67]

f. **We natyama mu mmotoka enkailekailemu [...]**
we	n-á [tyaam-a]	mu	m-mótoka	e-n [káílé] [káílé] mu
when	1SG.SU-PST[sit-FV]	18	9-car	9-9[RED][old]18

   'When I sat in a relatively old car [...]'
   [File ID: SenteN'e | O • Songs - Traditional • Money • 2000s]

g. **Tobona nze mmukobye ghanaabaagho ogukiiko ogulungilungi guti**
   ogunene.
t-ó [βon-áa]	nze	m-mu [kóβ-ye]
NEG-2SG.SU[see-FV]	1SG	1SG.SU-1.OBJ[tell-PFV]

ɣa-náá [b-áá] ɣo	ogú-kiiko	ogú [lúúngí] [lúúngi]
16.SU-FUT[be-FV]16	20-meeting	20[RED][good]

gu-ti	ogú-nené
20-FOC	20-big

   'Don't you see that I have told him that there will be a big meeting which
   is relatively good.'
   [File ID: KadokInt | O • Interviews • History • 2012]

h. **Ensowela edho edhisinga engimu edho n'edhilimu obwilugavuilugavu.**
en-sówél	ée-d̦í [síng]	een-gimú
10-fly	10.REL-10.SU[supersede]	10-healthy

eed̦ó	n	ee-d̦i [lí] mw	oβw [íílúgáv] [íilugavú]
10.DEM2	COP	10.REL-10.SU[COP]18	14[RED]black

   'Those houseflies which are most healthy are the ones which have blackish
   parts.'
   [File ID: Pl101215 | O • Radio talk shows • Health • 2010]

The corpus also includes several forms that show additional reduplicative outcomes. Most of these additional possibilities concern short (CV) stems, but some additional variants involve nasals and CVCV stems. The forms in (72) show the overcopying of the noun class agreement prefix with CV stems.

(72) Overcopying of agreement prefix in the reduplication of CV adjective and quantifier stems

    a. **Akaana akatokato akaali kali kulela omwana omughele** [...]
        aká-ana   **a-ká [tó] ká [to]**   **a-ká-a [li]**   **ka [li]**
        12-child   12[RED]12-young 12.REL-12.SU-PST[COP] 12.SU[COP]
        kú [lél-á]   **ómw-áana**   **omú-ɣelé**
        15[babysit-FV]   1-child   1-infant
        'A youngish child who was babysitting an infant [...]'
        [File ID: TwireKuB | W • Literature • Fables • 1999]

    b. **Kasaadha kampikampi kankumila amaka.**
        ká-saaɖa   **káá [mpí] káa [mpí]** **kaa-n [kúúm-íl-á]**
        12-man   12[RED]12[short]   12.SU-1SG.OBJ[guard-APPL-FV]
        ámá-ka
        6-home
        'A relatively short man keeps my home for me.'
        [File ID: Ebikoiko | W • Literature • Riddles • 2008]

    c. **Baafa mu miwendo mingimingi inho.**
        βá-a [f-a]   **mu-mí-weendo**   **míi [ngí] míi [ngí]** **íno**
        2.SU-PST[die-FV]   18-4-quantity   4[RED]4[many]   INTENS
        'They died in very big numbers.'
        [File ID: PFExtAud | O • Interviews • Language • 2012]

Overcopying is also found in one longer stem, shown in (73), where the nasal agreement prefix is overcopied.

(73) Overcopying of nasal agreement prefix in adjective reduplication
    Endhogela ye ebaile nnhunginnhungi inho.
    en-ɖógélá **ye**   **é [ba-ilé]**   **ŋ [ŋúúngí] ŋ [ŋúúngi]** **inó**
    9-speak   9.his   9.SU[be-PFV]   9[RED]9[good]   INTENS
    'His manner of speaking has been exceptional.'
    [File ID: SunPanel | O • Radio talk shows • Politics • 2011]

A few examples with tripling of CV stems are also found in the corpus. Two such forms are shown in (74). In the written form, only the first instance of the CV stem has a long vowel, but in our transcriptions the first and second instance of the CV stem is long.

(74) Tripling in the reduplication of CV adjective stems

    a. **Buti kye nva tyayenze kufuna batoototo.**

βutí	kyee	n [v-á]	ty-áa [yeenz-é]
now	7.REL	1SG.SU[leave-FV]	NEG.1SG.SU-PST[want-PFV]

kúu [fun-a]	βa [tóó] [tóó] [to]
15[get-FV]	2[RED][RED][young]

       'Now that is why I did not want to get youngish ones.'

       [File ID: PFExtAud | O • Interviews • Language • 2012]

    b. **Yaayagaanana omusaadha mu kifananie ekya ogusolo ogubiibibi.**

y-áá [yagaanan-a]	omú-saadha	mu-ki-fánanie	eky
1.SU-PROG[find-FV]	1-man	18-7-picture	7.ASSOC

óogu-sóló	ógú [βíí] [βíí] [βi]
20-animal	20[RED][RED]bad

       'He found a man in the image of an animal which is relatively bad.'

       [File ID: OgusoloN | W • Literature • Fables • 2011]

Several examples involving cl. 9/10 forms and the NCV stem **mpi** 'short' (cf. **oβuu[mpi]** 'shortness') have an epenthetic vowel **[i]** before the stem, which appears in both halves of the reduplicated adjective. One such example is given in (75); two other examples are in Addendum 1.

(75) Epenthesis and overcopy of **[i]** in the reduplication of an NCV adjective stem

    Embaluwa eno nnhimpiyimpi [...]

ém-bálúw	ee-nó	n̯n̯-íí [mpí] yii [mpí]
9-letter	9-DEM1	9-YI[RED]YI[short]

    'This letter is relatively short [...]'

    [File ID: NNp_Yud | W • Biblical books • Religion • 2014] (Jude introduction)

A final pair of reduplicated examples involving the stem **tono** 'small' is given in (76). These forms are unusual in that the final vowel of the first half of the reduplicated stem does not surface, resulting in a surface NC sequence at the reduplicant+base juncture. We have not observed this type of reduplicative variant in other stems in the corpus.

(76) Final vowel deletion at the RED+Base juncture in the reduplication of a CVCV adjective stem

    a. **Ebitontono ku byafaayo by'ekika ekyo** [...]

eβí-tóón-tóno	ku-βyááfááyo	βy	ééki-k	eekyó
8[RED]small	17-8.history	8.ASSOC	7-clan	7.DEM2

       'A brief summary of the history of that clan [...]'

       [File ID: BuYa12 | W • E-mails • Networking • 2012]

b.   **Twesanga amagila agandi nga ebikonko bingi ago amatontono agagya
     eyo ye tugemela ate abantu baife**.
     tw-éé [sáang-a]   **amá-gílá   ágáá-ndii   ng   eeβí-kóónkó   βíi-ngi**
     1PL.SU-RFL[find-FV] 6-way   6-other   C   8-pothole   8-many
     ag   amá-tóón-tón   a-gá [gy-á]   eyo   ye
     6.DEM2   6[RED][few]   6.REL-6.SU[go-FV]   23.DEM2   23.REL
     tú [gém-el-a]   **ate   aβáá-ntú   βa-ifé**
     1PL.SU[immunize-APPL-FV]   CONN   2-person   2-our
     'We found ourselves on roads with many potholes, those very few ones
     going to our people who we needed to immunize.'
     [File ID: Immuniza | O • Radio talk shows • Health • 2009]

Other examples from the corpus with an adjectival function and which may
show reduplication are given in (77a-b). (Due to the preceding locative marker,
(77a) may formally be a noun, and given its role modifying the preceding noun,
(77b) is probably an adjective.) The stem *keke* may be a reduplicated form of the
monosyllabic stem *ke* 'young', found in (77c), though the initial syllable of *keke* has
a short vowel, unlike what we normally find in the reduplicative of CV stems. We
are therefore left with the possibility that the examples in (77a-b) are not examples
of reduplication but are monomorphemic with the non-meaningful repetition of a
syllable. Many additional examples of stems with repeated syllables are identified
and discussed in §6 below.

(77) More corpus examples with an adjectival function which may show
      reduplication
      a.   **Mugokye mugakeke.**
           mu-g [óóky-e]   **mu-gá-keke**
           2PL.SU-6.OBJ[burn-SBJV]   18-6-small
           'You should burn them into small pieces.'
           [File ID: CohenDfw | O • Academic documents • History • 1966–67]

      b.   **okulya mwogo omukeke**
           o-kú [ly-a]   **mw-óógo**   **o-mú-keké**
           15-15[eat-FV]   3-cassava   3-3-small
           'to eat cassava which is cut in small pieces'
           [File ID: CohenDfw | O • Academic documents • History • 1966–67]

      c.   **Nkuleetele muke wange.**
           n-kú [leet-el-e]   **mú-ke**   **w-aangé**
           1SG.SU-2SG.OBJ[bring-APPL-SBVJ]   1-young   1-my
           'I bring for you my younger sibling.'
           [File ID: BuYa12 | W • E-mails • Networking • 2012]

4. Doubling of numerals, quantifiers and adverbs

We have observed some patterns of doubling involving other word classes – numerals, quantifiers, and adverbs – that have some distinct properties from other patterns of reduplication found in verbs, nouns, and adjectives, in particular the existence of whole word doubling. As shown in the examples in (78) and (79), prefixes are copied in doubled numerals and quantifiers, which have the meaning 'NUM/QUANT-by-NUM/QUANT'. Note further that these examples have only a single prefix before the stem and do not include the augment + noun class prefix structure found typically in nouns and adjectives.

(78) Whole word doubling in numerals
	RED+NUM		NUM	
kí [kúmí] kí [kumí]	'100-by-100'	**kí [kumí]**	'100'
kí [lálá] kí [lála]	'one-by-one'	**kí [lálá]**	'one'
kú [lálá] kú [lála]	'together'	**kú [lálá]**	'on one'

(79) Whole word doubling in quantifiers
	RED+QUANT		QUANT/N	
lú [nákú] lú [nakú]	'day-by-day, daily'	**olú [nakú]**	'day'
ká [tónó] ká [tóno]	'little-by-little'	**ká [tónó]**	'small'

Three corpus examples of the doubled numerals/quantifiers are found in (80).

(80) Corpus examples of reduplicated numerals/quantifiers

a. **Aidha kugyanga lulalalulala mu buli mwaka.**
á [íḍ-a]   **ku [gy-aa] ngá   lú [lálá] lú [lála] mú βúlí   mw-áaka**
1.SU[come-FV]   15[go-FV]HAB 11[RED]11[one] 18   every 3-year
'He will go once in every year.'
[File ID: Amagelo2 | W • Literature • Fables • 2011]

b. **Muvunaanhizibwa ku nsansaania y'eisomelo y'olunakulunaku.**
mu [vúnáán-íz-íβw-á]   **kuu   n-saansáányá   y'**
2PL.SU[answer-CAUS-PASS-FV]   17   9-expenditure   9.ASSOC
éi-sóméló   y'   ó-lú [nákú] lú [náku]
5-school   9.ASSOC   11-11[RED]11[day]
'You are responsible for the daily expenditure of the school.'
[File ID: EbikolOn | W • Policy documents - Government • Politics • 2008]

c. **Ali kugya bw'aisuukaku katonokatono.**
a- [lí]   kú [gy-á]   'βw   á [ísuuk-a]   ká [tónó] ká [tóno]
1.SU[be]   15[go-FV]   as   1.SU[heal-FV]   12[RED]12[small]
'He is recovering slowly.'
[File ID: SunPanel | O • Radio talk shows • Politics • 2011]

Two examples showing the copying of prefixes in the doubling of manner adverbs are given in (81). Both examples could plausibly be the result of whole word doubling as in the examples in (78) – (80) above. Alternatively, it could be the case in the first of these forms that the prefix is overcopied because it is part of an NC sequence, and in the second form, the prefix could be overcopied because it combines with a V-initial stem.

(81) Copying of prefixes in adverbs
    m[póláá] m[polá]   'slowly'   **ḿ[polá]**   'slow'
    m[áángú] m[áángú]   'quickly'   **m[áángú]**   'quick'

The example in (82) shows the copying of a noun class prefix inside of a morphosyntactically complex word which also has an adverbial function, indicating the direction. This example is built from the cl. 23 noun (*e*)*íṇúmá* 'back', which is repeated after the augment. The adverbial form takes the cl. 7 augment and noun class prefix before the reduplicated cl. 23 noun.

(82) Whole word reduplication in adverbs
    eky-éí[ṇúmá] í[ṇúma]   'backwards'

In (83), the cl. 5 prefix is repeated in both halves of the reduplicated word. The reduplicated form differs from unreduplicated *ei[gúló]* 'evening (the period between 2 pm and 6 pm)' in referring to a longer duration of time, viz. between 2 pm to sunrise.

(83) Corpus example of a reduplicated adverb
    Omusuudha gumuluma eiguloigulo.
    o-mú[súúḍá]   **gu-mu[lum-a]**   **é-í[gúló] í[gúlo]**
    3-3[fever]   3.SU-1.OBJ[pain-FV]   5-5[RED]5[evening]
    'She suffers from fever in the evening hours.'
    [File ID: EndhesoD | W • Literature • Proverbs • 1967]

5. Doubling of other categories

In this section, we consider cases of reduplication in other form classes, which are generally characterized by the copying of prefixes, and which therefore can be treated as cases of whole word doubling. Pronoun reduplication is addressed first, with four pronominal forms provided in (84) and an example of reflexive pronoun reduplication from our corpus in (85). Because these pronouns all have V-initial stems, it is unclear if the copying of prefixes is because of phonological considerations or because the domain of reduplication is the whole word.

(84) Prefix doubling in pronoun reduplication
    AGR-**enka** 'alone, only'   **nz-eenkáá-nz-éénkâ** 'only me'

                            y-eenká-y-éénkâ   'only him/her'
    AGR-**ena**   'all'   **y-ééná-y-ééna**   'fully, entirely
                                        (cl. 9), all him/her,
                                        all over'

AGR-**ona**	'all'	**β-óóná-β-óóna**	'all (cl. 2)'
		y-óóná-y-óóna	'all of him/her, all over'
AGR-**ene**	'oneself, the very one'	**y-éene-y-eené**	'the exact one (cl. 9)'

(85) Reduplication of the pronoun AGR-**ene** 'oneself, the very one'
Oyo mwana wange mwenemwene.
oyo   **mw-áana**   **w-aange**   **mw [éene] mw [eené]**
1.DEM2   1-child   1-POSS.1SG   1[RED]1[RFL]
'That one is my real child.'
[File ID: BuwaabeS | O • Celebrations • Religion • 2009]

An agreeing form of the interrogative **ki** 'what' is also doubled along with its agreement prefix to yield a meaning 'and so on', which Larry Hyman (p.c.) suggested translating 'and whatnot'. A corpus example is given in (86), which shows that this construction is not strictly doubling, as three copies of the whole word are found in this example, which could be parallel to English 'and on and on (and on)'.

(86) AGR-**ki**-AGR-**ki** 'and so on'
Abo abaswika Busoga abo Bagwere bakibakibaki.
a-β   **ááβá [swíik-a]**   **βú-sogá**   **a-β-o**   **βá-gwéére**
2-2.DEM2   2.REL[go_beyond-FV]   14-Soga   2-2-DEM2   2-Gwere
βá [kí] βá [kí] βá [ki]
2[RED]2[RED]2[what]
'Those who go beyond Busoga are Bagwere and so on and so on.'
[File ID: WangoInt | O • Interviews • History • 2012]

We have also identified a few other corpus examples of whole word doubling in which prefixes are copied in the doubling process. These are shown below in (87). The first three examples involve monosyllabic stems. Examples (87a) and (87c) have a doubled infinitive prefix; (87b) has a doubled cl. 12 prefix. None of the examples have an augment. (87d) has an initial locative prefix before a reduplicated deverbalized noun stem (from **kis-** 'hide'). In this example, the cl. 9 nasal prefix is overcopied, which is surprising given that nasal prefixes are generally not overcopied in the productive patterns of reduplication in nouns and verbs.

(87) Other cases of whole word doubling
   a. **Oidhi kabbiya kambisa bubi**, **kale nkataile kumpikumpi agho.**
      o [íḍi]   **ka-bíya**   **káá-m [bis-a]**   **βú-βi**   **kálee**
      2SG.SU[know]   12-beer   12.SU-1SG.OBJ[treat-FV]   14-bad   CONN
      n-ka [tá-ilé]   **kúú [mpí] kúu [mpy]**   **áa-ɣ-ó**
      1SG.SU-12.OBJ[put-PFV]   15[RED]15[short]   16-16-DEM2
      'You know that beer treats me badly so I put it nearby there.'
      [File ID: Mail13.2| W • E-mails • Networking • 2013]

b. **Ow'akasukasu taiba mugaabe**.
o-w-'   **áá-ká [sú] ká [su]   ti-á [iβ-a]**   **mú-gáaβé**
REL-1-ASSOC   12-12[RED]12[hot] NEG-1.SU[steal-FV]   3-long_drum
'An excitable person cannot steal a long drum [because he will not be able
to keep from drumming it and will be caught].'
[File ID: OmusogaA | W • Literature • Fables • 2012]

c. **[...] eli kumwakumwa amateeka agali [...]**
e-lí   **kú [mw-áá] kú [mw-á]   á-má-tééka   a-gá [lí]**
9.SU-be   15[RED]15[shave-FV]   6-6-law   REL-6.SU[COP]
'[...] it is shaving away the (protections of the) laws which are [...]'
[File ID: EbikolOn | W • Policy documents - Government • Politics • 2008]

d. **Yaakoona ku liina ly'omwana buteleevu oba mu ngisongiso mu
kilaamo**.
y-áá [koon-á]   **kú lí-ína   ly   óó-mw-áaná**
1.SU-PROG[knock-FV]   17   5-name 5.ASSOC   1-1-child
βú-teleevú oβá   muu-n [gís-óó] n [gís-ó]   mu-kí-láámó
14-direct   or   18-9[RED]9[hide-FV]   18-7-will
'He alludes to the mention of the child's name a bit either directly or
indirectly in the will.'
[File ID: EbindKuI | W • Policy documents - Human rights • Law • 2005]

6. Repeated syllables; possible cases of (partial) reduplication in the lexicon

The dictionary has examples with repeated syllables that one could evaluate as
possible examples of reduplication; nominal examples are given in (88) – (89),
two verbal examples are given in (90); and one adjectival example is given in (91).
When possible, we provide an example with a CV stem shape that the CV(V)CV
stem might be related to, though this is often only meant as a tentative suggestion,
and in a few cases like **aká[lu]** 'sp. of insect' and **ekí[la]** 'yam', it seems very
unlikely that the CV stems listed are related to the CVCV stems.

(88) CVCV noun stems with repeated syllables (Nabirye 2009b)

$C_iV_jC_iV_j$ nouns		Possibly related to	
omú [gugú]	'luggage'	**éí [gu]**	'animal trap'
okú [káká]	'force'	**áká [ká] ; oβú [ká]**	'spleen'; 'strong taste'
en [káká]	'very dark yellow urine'	**áká [ká] ; oβú [ká]**	'spleen'; 'strong taste'
(o)βú [keké]	'small cuttings of cassava, fries'	**oβú [ke]**	'few, small; greatness'
ma [kéké]	'great'	**oβú [ke]**	'few, small; greatness'
omú [kokó]	'sp. of tree'	**éí [ko]**	'dirt'
én [kokó] [13]	'chicken'	**éí [ko]**	'dirt'

---
13. Given that ***kókó** 'chicken' is reconstructed to Proto-Bantu, it would have to be an ancient
reduplication, if it is indeed reduplicative.

olú [kúkú]	'skin disease, i.e. ringworm'	**olú [ku]** ; **ekí [ku]**	'firewood'; 'bedbug'
oβú [kúkú]	'stinginess'	**olú [ku]** ; **ekí [ku]**	'firewood'; 'bedbug'
(a)ká [lúlú]	'vote'	**aká [lu]**	'sp. of insect'
(a)má [lalá]	'boasting character'	**ekí [la]**	'yam'
(o)βú [niní] ,	'sleep (i.e. crusty matter present in the corner		
(a)ká [niní]	of an eye upon awakening)'		
éí [sisí]	'cricket'		
en [sísí]	'tremor'		
mu [sisî]	'earthquake'		
ekí [súsú]	'seed, vegetable peel'	**ekí [sú]**	'nest'
olú [súsú]	'skin'	**ekí [sú]**	'nest'
éí [wawá]	'feather'	**éí [wa]**	'thorn'
olú [wíwí]	'hard top of boiled, cooling liquid'		

(89) CVVCV noun stems with repeated syllables (Nabirye 2009b)

$C_i VV_j C_j V_j$ nouns   Possibly related to

[mááma]	'mother'		
[báába]	'father'		
[ḍáaḍá]	'grandparent'		
éí [dééde]	'big, short grasshopper'		
[doodô]	'amaranthus'		
omú [gyáágya]	'herb for tea: *Ocimum gratismum'*	**okú [gyá]**	'go, go and bring'[14]
aká [lóólo]	'mite'	**aká [lo]**	'millet'
én [dúúlu] (/en-luulu/)	'alarm'		
e [ṇáaṇá]	'tomato'		
omú [ṇooṇó]	'enjoyable state'		
[siisí]	'type of bird'		

(90) Verb stems with repeated syllables (Nabirye 2009b)

$C_i V(V)_j C_i V_j$ verbs   Possibly related to

okú [sásá]	'rub'	**okú [sá]**	'grind'
okú [sáásá]	'feel pain'	**ekí [sá]**	'labor pain'

(91) Adjective stems with repeated syllables (Nabirye 2009b)

$C_i V_j C_i V_j$ adjectives

omú [wawá]	'aimless'

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14. As noted above, the reduplicated verb **okú[gyáá][gyá]** 'to go repeatedly' is also attested. The semantic connection between the herb used as a condiment in tea and the verb 'go' is unclear.

In general, we would not expect examples with a CVCV shape to show reduplication, even if the two syllables are identical, because of the fact that monosyllabic reduplicants have a CVV shape in productive reduplication. This criterion alone could rule out most of the examples in (88) – (91) as being examples of reduplication.

Moreover, in many cases, it is difficult to assess the semantic relatedness between forms with a repeated syllable and parallel examples that have the same unrepeated syllable. We expect that many of these examples are monomorphemic, but we provide our findings here for completeness.

At least some nominal examples with a $C_iVV_jC_iV_j$ shape likely do reflect reduplication at some point in the history of the form. Many of the other examples in this set are kinship terms or species names. Kinship terms with reduplication like **mááma** 'mother', **báába** 'father', and **ɖáaɖá** 'grandparent' are cross-linguistically common. Flora and fauna species names are also plausible candidates as examples of lexical reduplication, though it is often difficult to trace the etymologies of such terms, besides the fact that **e[ɳáaɳá]** 'tomato' is a borrowing.

Longer stems with a single doubled syllable have also been identified in order to search for possible cases of partial reduplication. Examples where the doubled syllable is at the beginning of the stem are provided in (92) – (94) for nouns, verbs, and adverbs.

(92) Repetition of syllables at the beginning of a noun stem

[dédemé]	'thickness'
[gíginá]	'teeth irritation'
aká **[kokolá]**	'elbow'
[kookolô]	'cancer'
aká **[kóókólô]**	'sly animal'
en **[kóókóómá]**	'sp. of bird'
(é)í **[páápáalí]**	'papaya'
em **[póómpógómá]**	'indentation in tree surface'

(93) Repetition of syllables at the beginning of a verb stem[15]
INF

(o)kú **[gugumá]**	'stammer'
(o)kú **[kakasá]**	'confirm, assure'
(o)kú **[kakatá]**	'be obligated'
(o)kú **[kekelá]**	'emit pain sound repeatedly'
(o)kú **[kekemá]**	'emit coocoo sound repeatedly'
(o)kú **[keketá]**	'cut very thinly, emit scraping sound repeatedly'
(o)kú **[kokotá]**	'scrape'
(o)kú **[kúkúlá]**	'become moldy'
(o)ku **[sesemá]**	'vomit'
(o)ku **[sosolá]**	'segregate'
(o)kú **[wáwáβá]**	'report'

_____

15. Our search of the lexicon revealed one example where a CVVC sequence is repeated: **(o)kú[saansááná]** 'to spread'. There is also a verb **(o)kú[sááná]** 'to deserve', but these two verbs do not appear to be related to one another.

(o)kú [n̪uun̪úúntá]	'suck'
(o)kú [súúsúúβyá]	'idolize, praise too much'
(o)kú [súúβá]	'swing'
(o)kú [túútúúβá]	'have a throbbing heart beat'
(o)kú [túútúúβyá]	'praise'
(o)kú [wááwáálá]	'vibrate'
(o)kú [woowóólá]	'cry; plea'
(o)kú [yooyóótá]	'care for tenderly'
(o)kú [giginálá]	'unwanted laughter'
(o)kú [sisinálá]	'expose teeth'
(o)kú [tútúmúlá]	'make prominent'
(o)kú [wowoigáná]	'shout'

(94) Repetition of syllables at the beginning of an adverb stem
   bú [kúúkúβila]   'fully'

We have not found many examples with the structure $C_iV_jC_iV_jC_kV_l$... that are plausibly related to a stem with the shape $C_iV_jC_kV_l$... such that the longer example could be derived by doubling the initial syllable of the shorter stem. However, some of the examples have meanings that inherently involve repeated action such as 'stammer', 'vibrate', 'throb', and the stems whose meanings refer to emitting sounds repeatedly; some other examples such as 'separate' and 'expose teeth' may reflect pluractional meanings. These are plausible candidates for being derived by partial reduplication.

   The example ***empóómpógómá*** 'indentation in tree surface' is somewhat puzzling analytically. Following the cl. 9 augment ***e-***, it has two instances of the syllable ***mpo***. The nasal [m] likely reflects the cl. 9 noun class prefix, which, on one analysis, is overcopied with the CV stem ***po***, which we assume is underlyingly **/wo/**. Under this analysis, the following element, ***goma***, would be a stem following the reduplicated stem, forming a compound. Although ***goma*** is not recognized by the second author as an independent stem, the verb ***okú[wologómá]*** 'get stuck deep down, indentation' shares initial ***wo***, final ***goma***, and the meaning 'indentation', though questions about the internal structure of these words remain.

   The second author has the intuition that at least some of the $C_iV_jC_iV_jC_kV_l$-type examples may be derived by doubling an ideophonic or onomatopoetic CV-shaped element. This intuition is supported by the fact that many of the examples have a connection with sound. However, our search of the dictionary and corpus has failed to yield results that clearly link ideophonic or onomatopoetic elements with the examples above. Some ideophonic and/or onomatopoetic words involving reduplication that we have found in the corpus – and which are almost uniformly realized with all H tone – are given in (95).

(95) Other ideophonic or onomatopoetic words with repeated syllables

Corpus form	Corpus File ID	Single form
búútúútúútú 'drinking sound'	[TeacherR | W • Policy documents - Government • Language • 2006]	
dyóódyóódyóódyó 'very dark (of black)'	[Ebikoiko | W • Literature • Riddles • 2008]	
bólúbólú 'very wet'	[AgakbOmu | W • Literature - Novels • Life • 2012]	**bibólú** 'wet (cl. 8)'
dúdú ~ dúdúdú 'completely naked'	[Kodh'eyo | W • Journalism • Networking • 1997-98]	**kídu** 'naked (cl. 7)'
dííngídííngídíííngí 'sound of bell'	[OmunafuO | W • Literature - Booklets • Gratitude • 2019]	
kóónkóónkóónkó 'sound of knocking on door'	[NtebyaNB | W • Literature • Proverbs • 2018]	
kookolyóó'kó 'sound of rooster crow'	[Lusonhe | W • Literature - Booklets • Language • 2011]	**énkokó** 'chicken'
kókó 'sound of hopping'	[NiBw'onv | O • Songs - Modern • Relationships • 2010]	
kóokó modifies **ba[mooḏagana]** 'they bite each other'	[EndhesoD | W • Literature • Proverbs • 1967]	
wááwuuwá 'sound of gunshot'	[CohenD86 | W • Academic documents • History • 1966-67]	
ngúúgú 'thudding sound'	[EibaaleL | W • Literature - Booklets • Inspirational • 2019]	
gékéké 'sound of drum'	[CohenD86 | W • Academic documents • History • 1966-67]	
kééntékéénté 'sound of drum'	[CohenD86 | W • Academic documents • History • 1966-67]	
zígízígí 'very dark'	[EnkweMuK | W • Literature - Plays • Relationships • 2011]	
wúúlúúlú 'alarm sound'		**én-dúúlu** /en-luulu/ 'alarm'

The examples in (96) – (99) have repeated syllables at the end of the stem. Occasionally one finds an example of a tripled CV sequence as in **[fúlúlúlú]** 'drunkard, drunken state'. Many such examples presumably involve frozen reduplicated VC suffixes, such as the repetitive extension **-ilil**, as in **óku[liing-ílíl-á]** 'to observe', cf. **óku[liing-á]** 'to see', the extensive markers **-alal** and **-ulul/-olol**.

(96) Repetition of syllables at the end of a noun stem

			Possibly related to
olú [kálálá]	'list'		
ekí [kólólo]	'cough'		
omú [ṇólólo]	'door knob'		
mu [súlúlu]	'length'		
olú [vúlúlu]	'prolonged smell; a lot of grey hair'	**olú [vu]**	'grey hair'
omú [vúlúlu]	'greed'		
olú [móóloló]	'crowd'		
[sékóokó]	'turkey'		**én [kokó]** 'chicken'
én [súúlúulú]	'type of hoe with two sides'		
[fúlúlúlu]	'drunkard, drunken state'		
olú [góómbóló]	'spinal cord, spine'		
olú [kóónkóló]	'long song to beckon ants'		
aká [túúnkúlúlú]	'tadpole'		
én [tólóómololó]	'mob'		

(97) Repetition of syllables at the end of a verb stem

Possibly related to

	INF		INF	
a.	**(o)kú [magalálá]**	'gaze'	**(o)kú [magaa] [mágá]**	'look around'
	(o)kú [saaṇálálá]	'become numb'	**(o)kú [sááṇá]**	'swim'
	(o)kú [ṇálálá]	'pass diarrhea'	***nè**[16]	'defecate'
b.	**(o)kw [íiṇogógá]**	'be(come) cold'		
	~ **(o)kú [yiṇogógá]**			
c.	**óku [liing-ílíl-á]**	'observe'	**óku [liingá]**	'see'
d.	**okú [βuulílílá]**	'give advice'	**okú [βuulílá]** [17]	'preach'
e.	**okw [íililílá]**	'return	**ókw [iilá]**	'return'
	~ **okú [yililílá]**	continuously'		

(98) Repetition of syllables at the end of an adjective stem
   ka [píníní]   'tiny'

(99) Repetition of syllables at the end of an adverb stem
   (o)lú [móólóoló]   'endlessly'

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16. Lusoga does not have a verb ***(o)kú [ṇa]**, but ***nè** 'defecate' is reconstructed to Proto-Bantu (Bastin *et al.* 2002).

17. There is no known verb ***(o)kú [βuulá]** to connect to **okú[βuulílílá]** or **okú[βuulílá]**.

7. Syntactic doubling

In this final substantive section, we point out a type of example for future research that we refer to as 'syntactic doubling' and which semantically appears to involve focus. These examples involve the repetition of roots/stems at the phrasal or sentential level. In syntactically doubled nouns, the first instance of the noun has its typical noun class prefix, and the second instance of the noun takes the cl. 14 prefix *(o)bu-*, as in *mw-aana bw-aana* 'just a child' from the corpus example in (100).

(100) Corpus example of syntactic doubling with nouns
  Tiidhi ngeli ya kwogelamu kuba ndi mwana bwana.
  tí [íɖíi]   n-gélí   y-á   kw [óógél-á] mu   kuβáa
  NEG.1SG.SU[know] 9-way   9-ASSOC   15[speak-FV]18   because
  n [di]   mw [áana]   βw [áana]
  1SG.SU[be]   1[child]   14[child]
  'I do not know the proper way in which I should speak because I am just a child.'
  [File ID: Lusterm6 | W • Literature - Booklets • Religion • 2011]

The verbal examples in (101) have a similar structure; the first verb is an infinitive, and the second verb has a nominalized form with the cl. 14 prefix *bu-* and the final vowel *-e*. In the nominal and verbal examples in (100) and (101), the two copies of the repeated stem occur in adjacent words, and there also appears to be a parallel meaning between the 'just a N'/'just Ving' meanings.

(101) Corpus examples of syntactic doubling with verbs
  a. **N'ole nga aliikuwa buwe** […]
    n'   óo-léé   nga   a [líí]   ku [w-a]   βú [w-e]
    and   1-DEM3   C   1.SU[COP]   15[give-FV] 14[give-FV]
    'And another who is just giving you (freely) [...]'
    [File ID: StarEC1 | O • Radio talk shows • Health • 2010]

  b. **N'okukyenda obwende, kikutwalila ekiseela nga tokiboine.**
    n'   óókú-ky [eend-']   óóβw [éend-e]
    FOC   15-7.OBJ[want-FV]   14[want-FV]
    ki-kú [twaal-íl-']   ééki-seeláá   nga
    7.SU-2SG.OBJ[take-APPL-FV]   7-time   C
    t-o-ki [βóín-e]
    NEG-2SG.SU-7.OBJ[see-PFV]
    'Even just wanting it, it takes you a while before you are able to see it.'
    [File ID: Culinary | O • Conversations • Health • 2015]

There is also an adjectival example in the corpus shown in (102) where the initial copy of the adjective takes its expected noun class agreement marker, but the second copy of the adjective has the cl. 14 prefix *bu-*.

(102) Corpus example of syntactic doubling with adjectives

    [...] kuba nzeena akaile kake buke.

ku-βáa	n-zééna	a-ká-ile	ká-ꞌké	βú-ke
because	1SG-even	12-12-time	12-small	14-small

    '[...] because even for me my time is just very limited.'

    [File ID: Mail1619 | W • E-mails • Networking • 2019]

Research is currently underway to better understand the meanings, functions, and morphosyntactic properties of syntactic doubling in Lusoga.

8. Summary

Setting aside the ambiguous cases of repeated syllables in the lexicon discussed in §6 and the understudied cases of syntactic doubling noted for future research in §7, we can summarize our main findings below.

1. **Verbs:** Productive verb reduplication signals a meaning 'to V repeatedly'. CV stems surface with a long vowel in the first half of the reduplicated verb (*okú[sáá][sá]* 'to grind repeatedly'); tripling of CV stems and VCV stems is also possible (*oku[saa][sa][sa]* 'to grind haphazardly'). CVCV stems show lengthening of the RED-final vowel (*okú[límáá][límá]* 'to farm repeatedly'). Except for *i*-initial stems, V-initial stems undergo *y*-insertion in the second half of the reduplicated stem (*okw[áaya][yáyá]* 'to graze repeatedly'). In reduplicated VCV stems, the RED-final vowel does not lengthen after a CV-prefix like the infinitive; it lengthens obligatorily in imperatives where there is no prefix; and it lengthens optionally after the 1SG N-shaped prefix. Verb reduplication involves no overcopying of prefixes, including nasal prefixes or prefixes combined with V-initial stems. Reduplication copies the entire stem, and since enclitics are outside the stem, they do not participate in reduplication. Partial prefixing reduplication is sometimes found with a truncated RED lacking extensions and with default final *-a*.

2. **Nouns:** Productive noun reduplication has the pejorative meaning 'a lousy N'. Like verb reduplication, noun reduplication typically involves the entire stem, the first half of a reduplicated CV stems ends in a long vowel (*o-mú[tíí][ti]* 'a lousy tree'), and the second half of a reduplicated V-initial stem begins with a glide (*olw[ééyó][yéyó]* 'a lousy broom'). Unlike verb reduplication, there is no lengthening of the RED-final vowel in CVCV stems (*o-mú[géṇí][géṇí]* 'a lousy guest'), though a couple of cases of RED-final lengthening do appear in examples of lexical reduplication (*ekí[ṇomoo][ṇómó]* 'sugar-eating black ant'). There is also no overcopying of prefixes in productive reduplication, but there are instances of nasal overcopying (*e-n[saa]n[sa]* 'palm leaves') and overcopying of CV- prefixes with V-initial stems in lexical patterns of reduplication (*ka-li[isó] lí[isó]* 'spy'). There are also some attested examples of tripling of CV stems ((*o*) *bu[bwa][bwa][bwa]* 'numerous small wounds').

3. **Adjectives and quantifiers:** Reduplicated adjectives and quantifiers have a productive meaning: 'relatively, fairly Adj/Quant'. Forms with this meaning have total reduplication of the stem. Like nouns, we do not find lengthening of the RED-final vowel (*o-mu[kalu][kalu]* 'fairly dry (cl. 1, 3)'). Reduplicative examples with CV stems show the possibility of prefix overcopy (*a-βa[too]* *βa[to]* 'relatively young (cl. 2)') and tripling (*ba[too][to][to]* 'relatively young (cl. 2)'), and we have also found the overcopying of nasal prefixes in *n[nhungi]* *n[nhungi]* 'relatively good (cl. 9)'. We also find an example where an epenthetic vowel is realized in both halves of a reduplicated NCV adjective stem (*e-ŋii[mpi]* *yii[mpi]* 'relatively short (cl. 9)') and an unusual example where the RED-final vowel of a reduplicated CVCV stem is deleted (*ebi[ton][tono]* 'relatively small (cl. 8)').

4. **Other:** Quantifiers, numerals, and adverbs all employ whole word reduplication in which the prefix and the stem are doubled. Whole-word quantifier and number doubling has the meaning 'Quant/Num-by-Quant/Num'. We find whole word doubling of manner adverbs, location/direction adverbs, and time adverbs. Two additional categories with whole word doubling are pronouns and interrogatives. Pronoun reduplication is found with quantifiers meaning 'alone, only' and 'all' and the reflexive 'oneself, the very one'. The **wh-**marker *ki* also doubles (or triples) with its agreement prefix yielding a meaning 'and so on'.

Acknowledgements

Abbreviations

For corpus examples: [File ID: Filename | W(ritten) *or* O(ral) • Genre • Topic • Year *or* Period]

#	class number
*	ungrammatical; Proto-Bantu
´	high tone
(no diacritic)	low tone
ꜜ	downstep
_	part of multiword unit
.	merged function
...	omission of words
=	enclitic boundary
-	morpheme boundary

[	left stem boundary
]	right stem boundary
APPL	applicative
ASSOC	associative
C	consonant; complementizer
CAUS	causative
cl.	noun class
CONN	connective
COP	copula
DEM1	proximal demonstrative
DEM2	intermediate demonstrative
DEM3	distal demonstrative
FOC	focus
FV	final vowel
HAB	habitual
intr.	intransitive
NC	nasal-consonant
NEG	negative
OBJ	object (prefix)
OP	object prefix
PL	(person) plural
PASS	passive
PFV	perfective
POSS	possessive
PROG	progressive
PST	past
Q	interrogative, question
REL	relative
RFL	reflexive
RPT	repetitive
SBJV	subjunctive
SG	(person) singular
SU	subject (prefix)
tr.	transitive
V	vowel

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Supplementary material online

Addendum 1: Additional examples for about half of all the example blocks.
Addendum 2: Audio recordings of all the data in Lusoga, as pronounced by the second author, recorded by the third, and transcribed by the first.

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Résumé

Cet article fournit une description approfondie de la réduplication des verbes, noms et autres catégories de mots en lusoga, en s'appuyant sur des données personnelles et sollicitées, sur des données de dictionnaires et de textes de corpus, ainsi que sur du matériel présenté dans les recherches de Larry Hyman. Notre description se concentre sur des détails phonologiques tels que la longueur des voyelles, car des processus d'abrégement et d'allongement sont attestés, ainsi que des similitudes et des différences entre les catégories. La réduplication est généralement totale dans la mesure où tout le thème est copié. Les thèmes verbaux CVCV montrent un allongement de la voyelle finale de la première moitié du thème redoublé, bien que cet allongement ne soit généralement pas attesté dans la réduplication nominale. Dans toutes les catégories, les thèmes à initiale vocalique apparaissent avec un *y* initial, sauf devant les thèmes commençant par *i*. La réduplication verbale ne copie pas les préfixes, mais dans la réduplication nominale on rencontre des cas

de copie nasale, de redoublement des préfixes CV à initiale vocalique. De plus, la réduplication nominale comprend quelques exemples de triplement des thèmes CV, ce qui n'est pas le cas avec les verbes. La réduplication des quantificateurs, des numéraux et des adverbes diffère des verbes et des noms en impliquant généralement le doublement de mots entiers qui copie les préfixes en plus du thème.