**Segmental Phonology**

The segmental phonology of Logoori is rather complex, compared to other Bantu languages, owing in part to a number of vowel deletions and their interactions with processes affecting consonant sequence. As is typical of Bantu languages, there are many modifications to nasal plus consonant sequences. The general pattern of hardening, voicing and nasal-deletion is further complicated in Logoori by phonetic-phonological asymmetries, for example hardening of labials has to be further distinguished for outcomes for /v/, /f/, /h/, versus /sh/ (where /h/ and /sh/ behave phonologically like labials). Ganda Law (postnasal deletion of voiced consonants when the next syllable has a nasal) behaves differently for /r/ versus other targets. Rather than having a single (progressive) height-harmony process, there are at least two.

## 1. Post-nasal consonant modifications

Consonants preceded by a nasal are subject to three rules: hardening, voicing and deletion (Ganda Law). The interaction between these processes and pre-labial vowel reduction (/mʊvʊ́ˈgʊ́sʊ́/ → [m̀bʊ́ˈgʊ́sʊ́] ‘Bukusu’ is discussed in 5.5; apart from those contexts, hardening and voicing only apply to underlyingly-present NC sequences.

Two classes of prefixes yield underlying NC sequences: the nominal prefixes for cl. 9-10 (used in nouns and adjectives), and the verbal 1st singular prefix (subject and object). This results in 8 morphological constructions yielding direct N+C combinations. Discovering the underlying consonant is usually trivial, e.g. in verbal forms the root-initial C is revealed in virtually every other morphemic concatenation.

Nouns in cl 9-10 pose a greater challenge, since the only way to reveal the underlying consonant is via diminutive and augmentative derivation (discussed in ch. X). Diminutive and augmentative formation of cl. 9-10 nouns does not provide compelling evidence for abstract lexical distinctions, since the derived form can be described in terms of a reasonably consistent surface strategy. There being no particularly strong evidence that the alternation between consonants in diminutives and augmentatives reveals anything about underlying consonants, nouns in cl. 9-10 play little role in the discussion.

The main interactions between N+C are as follows:

| *Post-nasal* | | |
|---|---|---|
| /b, d, j, g, z/ | mb, nd, nj, ng, nz | |
| /v, h/ | mb | |
| /f, sh/ | f, sh; mb | |
| /s/ | s | |
| /r/ | nd | |
| /p, t, ch, k/ | mb, nd, nj, ng | |
| /r, y, g/ | Ø | [before nasal in next syllable] |
| /m n ɲ ng'/ | Ø | |

## 1.1. Hardening

When an adjective stem begins with /v, h, f, sh/ or with /r/, and is underlyingly preceded by the nasal of a prefix, the first set of consonants harden to [b], and /r/ becomes [d]. In the case of /f, sh/, an alternative treatment is that the nasal is deleted and the fricative does not change. The specific outcome is partially lexical, and partially optional.

### 1.1.1. Hardening of labials

**a. /v/**

When /v/ is preceded by /N/, it becomes [b].

Lexical A

One example of hardening of /v/ is seen in the cl. 9, 10 forms of the adjective stem /-ví/.

| | |
|---|---|
| kíhárάátó kíví | 'bad famine' |
| má¦várú máví | 'bad ants' |
| rókó ¦róví | 'bad firewood' |
| avάá¦ná váví | 'bad children' |
| énzógú ímbí | 'bad elephant' |
| mbóó¦zá ímbí | 'bad strong wind' |
| zibáá¦kóórá zímbí | 'bad walking stick' |
| zíngó ¦zímbí | 'bad firewoods' |
| ɪmbítí ¦ímbí | 'bad hyena' |
| enzóká ¦ímbí | 'bad snake' |
| í¦ngάánó ¦ímbí | 'bad wheat' |

| | |
|---|---|
| ɪ́ˈmbárá ˈɪ́mbɪ́ | ‘bad scar’ |
| ɪsíɪˈmbá ɪ́mbɪ́ | ‘bad lion’ |

Other adjectives with initial /v/ are seen below.

| | |
|---|---|
| avɑ́ándɔ́ váˈvívíívɪ | ‘bad people’ |
| máˈbwóóní máˈvívíívɪ | ‘bad potatoes’ |
| kígɔ́ kívɪɪvíívɪ | ‘bad wasp’ |
| mágéémbé mávɪɪvíívɪ | ‘bad hoes’ |
| éˈngókó ɪ́ˈmbívíívɪ | ‘bad chicken’ |
| eng’óómbé ɪ́ˈmbívíívɪ | ‘bad cow’ |
| zing’óómbé zíˈmbívíívɪ | ‘bad cows’ |
| éngóómbé mbíɪˈvíívi | ‘bad cow’ |
| zimbúˈrí zímbɪɪvíívɪ | ‘bad goats’ |

| | |
|---|---|
| vavɔ́gʊsʊ vaveereeri | ‘sad Bukusus’ |
| kɪbága keveereri | ‘sad cat’ |
| zing’oombe zimbeereri | ‘sad cows’ |
| ɪmbítí embeereri | ‘sad hyena’ |

| | |
|---|---|
| chááˈmégéré kívísi | ‘raw mushroom’ |
| máˈgómyá ˈmávísi | ‘raw banana’ |
| ɪ́ɲám-ɪ́ímbísi | ‘raw meat’ |
| éndéréˈm-ímbísi | ‘raw vegetable’ |
| ɪnjʊ́gʊ́ ˈɪ́mbísɪ | ‘raw peanut’ |
| íngɔ́rɔ́vé ˈɪ́mbísɪ | ‘raw pig’ |
| zíˈmbárʊ́ ˈzímbísɪ | ‘raw ribs’ |
| zíngɔ́rɔ́vé ˈzímbísɪ | ‘raw pigs’ |

Deverbal A

There are numerous examples of v-hardening with deverbal adjectives, in cl. 9-10.

| | |
|---|---|
| kɪbágá kevóˈhóóllé | ‘untied cat’ |
| eng’óómbé embóˈhóóllé | ‘untied cow’ |
| kʊvʊ́nɪka | ‘to break’ |
| endéˈvé ímbʊ́ˈníchí | ‘broken chair’ |
| kʊvagara | ‘to put something out for all to see’ |
| ɪbíích-ɪmbáˈgárʊ́ | ‘publically exposed picture’ |
| mábwóóˈní máváˈrízé | ‘counted potatos’ |
| éng’óómbé ímbáˈrízé | ‘counted cow’ |

N-to-A

N-to-A derivation also gives rise to /N-v/ sequences which undergo hardening.

| | |
|---|---|
| vavógʊsʊ | ‘Bukusus’ |
| zingú!zá zímbógósu | ‘Bukusu vegetables’ |
| eng’óómbe mbʊgʊsʊ | ‘Bukusu cow’ |
| íngánó ímbó!gósó | ‘Bukusu story’ |

N Cl 11-10

Noun stems beginning with /v/ in cl. 11 which have their plurals in cl. 10 provide further examples of /v/-hardening.

| | | |
|---|---|---|
| róváha | zímbáha | ‘wing’ |
| rʊvaru | zimbarʊ | ‘rib’ |
| rʊvʊvi | zimbʊvi | ‘spider’ |
| róvéere | zímbéere | ‘nipple’ |
| rʊvaamba | zimbaamba | ‘clan’ |
| orovega | izimbega | ‘direction’ |
| ʊró!váángó | izí!mbáángó | ‘big spear’ |
| ʊrʊvúúsi | izimbúúsi | ‘thread’ |

Diminutive and Augmentative 9-10

Based on the evidence of diminutives and augmentatives, nouns in cl. 9-10 which begin with [mb] would appear to underlyingly have /v/, which hardens to [b] after a nasal.

| | |
|---|---|
| ɪmbʊkʊ | ‘mole’ |
| kavuku | ‘mole-dim’ |
| ʊgʊvʊkʊ | ‘mole-aug’ |
| ógóvúku | ‘mole-aug’ |
| ímbwá | ‘dog’ |
| kávwá | ‘dog-dim’ |
| ɪmbúri | ‘goat’ |
| kavúri | ‘goat-dim’ |
| gʊvúri | ‘goat-aug’ |
| émbódóka | ‘jealousy’ |
| kávódóka | ‘jealousy-dim’ |
| ímbúrú | ‘monitor’ |
| kávúrú | ‘monitor-dim’ |
| ákáváda | ‘hawk-dim’ |
| akavíti | ‘hyena-dim’ |
| akavíízi | ‘warthog-dim’ |
| gʊvíízi | ‘warthog-aug’ |
| góvítí | ‘hyena-aug’ |
| góvóra | ‘rain-aug’ |

Roots can generally begin with any consonant of the language, suggesting that there could be lexical cl. 9-10 nouns beginning with /b, f, h, p/. Because of post-nasal

consonant changes, identification of such a consonant could only be made on the basis of the augmentative or diminutive form of a noun. Hypothetical */ɪN-bera/ or */ɪN-hako/ would surface as **ɪmbera, *ɪmbako*, which are certainly potential nouns of the language, and the underlying form could only be ascertained on the basis of diminutive **akabera*, **akahako*. There appear to be no lexical cl. 9-10 nouns in the language which have [mb] and either [h] or [b] in the diminutive.[1] Apart from the above *mb:v* relationship, the initial consonant of 9-10 nouns transformed into cl. 12-13, 20 is identical to that of the cl. 9 form, with or without the cl. 9 nasal prefix, and thus diminutives and augmentatives will not be further considered. See the discussion of this diminutive and augmentative formation in the noun class chapter.

In the realm of verb inflection, the 1s subject prefix which immediately precedes the stem in the hodiernal perfective, subjunctive and progressive regularly trigger hardening of /v/ to [b].

<u>1s SP perfective</u>

| | | | |
|---|---|---|---|
| ndava níímbeji | 'if I had shaved' | kovéga | 'to shave' |
| mbááyi | 'I visited' | kʊvaaya | 'to visit' |
| mbɪni | 'I danced' | kʊvína | 'to dance' |
| mbógɪɪlɪɪ | 'I accept' | kʊvógɪɪlla | 'to accept' |
| mbarorí | 'I saw them$_{-2}$' | kʊvarorí | 'we saw them$_{-2}$' |
| mbákaraangɪɪ | 'I fried for them$_{-2}$' | | |
| mbirórí | 'I saw them$_{-8}$' | avirórí | 'he saw them$_{-8}$' |

<u>1s SP subjunct</u>

| | |
|---|---|
| naambégé | 'I will shave' |
| réká ǃmbógórí | 'let me take' |
| reka mbivógʊrɪ | 'let me take them$_{-8}$' |
| reka mbavógʊrɪ | 'let me take them$_{-2}$' |
| naa mbégé | 'I will shave' |

<u>1s SP progressive</u>

| | |
|---|---|
| mbórókaa | 'I am flying' |
| mbegáa | 'I am shaving' |
| mbááyaa | 'I am visiting' |
| mbáámbaa | 'I am stretching out' |
| mbohóólàa | 'I am untying' |
| | |
| mbavégaa | 'I'm shaving it$_{-2}$' |
| avavégaa | 'he's shaving it$_{-2}$' |
| mbihéénzaa | 'I'm looking at 8' |

[1] In our data, there have been a very small number of instances where a speaker has performed such an abstract analysis but then rescinded the form, e.g. *katéve* alongside *kandéve* from *endéve* 'chair'

mbarorá¦á vára ‘I see those ones’

Hardening to *b* also takes place after the 1s object prefix

1s OP

vaambááyırı ‘they visited me’
variimbáríza ‘they will count me’
mbógólla ‘take for me!’
aambéji ‘he shaved me’

**b. /h/**

The consonant /h/ likewise becomes [b], when it is underlyingly preceded by a nasal, as in the following adjectival examples.

Lexical A

kí¦móónná ké¦hóóma ‘gentle squirrel’
móóndó mó¦hóóma ‘gentle person’
vakó¦róóndó váhóóma ‘gentle elder’
íɲámá é¦mbóómá ‘gentle animal’
zíɲámá zí¦mbóómá ‘gentle animals’
éng’óómbé é¦mbóóma ‘gentle cow’
ıdáá¦ywá mbóóma ‘gentle rooster’

Deverbal A

zí¦ngókó ¦zímbííndıra ‘aged chickens’
ḿgéní móhííndıra ‘aged guest’
ng’óómbé mbííndıro ‘aged cow’
engóómbé ímbííndıra ‘grown-up cow’
ımbúrí ¦ímbííndıra ‘grown-up goat’

eng’óómbé ímbáámbıkó ‘drunk cow’
váándó váháá¦míkó ‘drunk people’
zingórove zimbáámbıkó ‘drunk pigs’
íɲámá ímbáko ‘scorched meat’
zingúzá zímbáko ‘scorched vegetables’
koháka ‘to be scorched’
zíní¦mbó zímbáá¦ndíké ‘written songs’
rwíí¦mbó róháá¦ndíké ‘written song’
ıríí¦ng-íí¦mbááné ‘given sickle’
koháana ‘to give’
ımbwá ¦ímbíí¦rííto ‘snoring dog’
áváándó váhíí¦rííto ‘snoring persons’

| | |
|---|---|
| vaandɔ vahɔɔndɔllɔ | ‘staring persons’ |
| mndɔ mɔhɔɔndɔllɔ | ‘staring person’ |

| | |
|---|---|
| ng’óómbé ímbɔ́ɔ́ndɔraró | ‘staring cow’ |
| eng’óómbé embóó!réézú | ‘a calm cow’ |
| mɔ́!zɔ́ní mɔ́hóóreezɔ́ | ‘gentle sunbird’ |
| zí!ngókó zímbóó!réézɔ́ | ‘gentle chickens’ |

There are few cl. 1 nouns with roots beginning in *h* which can form the base for N-to-A derivation, nevertheless the cl. 9-10 form of such derived adjectives also undergo hardening of /h/ to [b].[2]

| | |
|---|---|
| ɪchɔ́ɔ́!kɔ́ryá !kíhííndɪ | ‘Indian food’ |
| ɪnyɔ́ɔ́!mb-íímbíínd | ‘Indian house’ |
| ɔ́mbán-ɔ́mɔ́!hááyá | ‘Haya knife’ |
| eng’óómb-íí!mbááyá | ‘Haya cows’ |

Nouns with root-initial /h/ in cl. 11-10 exhibit hardening in the cl. 10 plural.

N Cl 11-10

| | | |
|---|---|---|
| rɔháá!ngáywá | zímbáángaywá | ‘cave’ |
| oroheni | zimbeni | ‘lightening’ |
| ɔrɔ́!fɔ́nɔ́ | izí!mbɔ́nɔ́ | ‘tether’ |
| rɔhaambo | zimbaambo | ‘banana leaf bedding’ |
| rɔhágayɔ | zimbágayɔ | ‘hoof’ |
| rɔ́!hímá | zí!mbímá | ‘spleen’ |

The 1s subject and object prefixes also trigger hardening of /h/.

1s SP perfective

| | |
|---|---|
| ndava níímbɔrɪɪ | ‘if I had heard’ |
| mbaani | ‘I gave’ |
| mbɪɪrɪɪti | ‘I snored’ |
| mbarórí | ‘I saw there$_{-16}$’ |

1s SP subjunct

| | |
|---|---|
| reka mbááné | ‘let me give’ |
| reka mbééngé | ‘let me look’ |
| naa mbéére | ‘I will inhale’ |
| reka mbahéenze | ‘let me look by there$_{-16}$’ |

[2] ‘Haya’ was not known to EM prior to elicitation, which indicates that this alternation is productive.

1s SP progressive

| | |
|---|---|
| mbeenzáa | ‘I am looking for’ |
| aheenzáa | ‘he is looking for’ |
| ahaanáa | ‘he is giving’ |
| mbaanáa | ‘I am giving’ |
| mbáándiikaa | ‘I’m reading’ |
| mbaanáa | ‘I’m giving’ |
| mbakízáa | ‘I am scorching’ |
| mbeenzáa | ‘I’m looking for’ |
| mbáángaaraa | ‘I am arguing’ |
| mbaangáa | ‘I am arranging’ |
| mbahéénzaa | ‘I’m looking at there-$_{16}$’ |

1s OP

| | |
|---|---|
| vaambée | ‘they gave me’ |
| vaambéénzi | ‘they looked at me’ |
| aambóllıı | ‘he heard me’ |
| kóómbonya | ‘to heal me’ |
| aambáánzɔkırıı | ‘he shouted at me’ |
| kɔ́ɔ́mbiizıra | ‘to hunt for me’ |

**c. /f/**

The labial fricative *f* exhibits two patterns of behavior, one where it hardens to [bw] and the other where (like other voiceless fricatives) it causes deletion of the preceding nasal. The hardening pattern predominates in apparently native vocabulary, and deletion arises in loanwords – however, a single stem can have both behaviors. /f/ is uncommon in Logoori, and no lexical adjectives beginning with /f/. There are also no native cl. 1-2 lexical nouns with initial /f/ which could provide a N→V derivational source of initial /f/. The borrowed word *ɔmfá*ˈ*ráánza* ‘Frenchman’ can be subjected to N→A conversion (*ambéér-amafá*ˈ*ráánza* ‘French milk’), and in cl. 9-10 we find deletion of the nasal – *ŋám-íífá*ˈ*ráánza* ‘French meat’. Since there are somewhat more verbs beginning with /f/, opportunities for labial hardening are greater with deverbal adjectives, and we do find both the hardening pattern and the deletion pattern, correlated with the native / borrowed distinction.

deverbal adj

| | |
|---|---|
| ɔmwááˈn-ɔ́ˈmfáávé | ‘exposed child’ |
| ímbwá íˈmbwáávé | ‘exposed dog’ |
| ɔmɔ́ɔ́nd-ɔ́mfɔ́ɔ́ŋagırı | ‘snorted person’ |
| eng’ɔ́ɔmb-éĕ́mbɔ́ɔ́ŋagırı | ‘snorted cow’ |
| esɔ́ɔˈgɔ́ɔˈn-íífáiˈdíké | ‘profitable market’ |

N Cl 11-10

There are nouns in cl. 11-10 which exhibit an alternation between /f/ and [b] post-nasally.

| Nouns | | |
|---|---|---|
| rófʊʊngó | zímbʊʊngó | ‘key’ |
| ró!fúnú | zí!mbúnú | ‘tethering rope’ |
| rʊfórʊ | zimbórʊ | ‘foam’ |

These are all of the known nouns in this class with initial /f/.

The disposition of *f* under verbal inflection is more variable: nasal deletion or fricative hardening are both found (similar variation arises with *sh*). When *f* becomes a stop, it becomes *bw*, not *b*. There is a tendency to prefer nasal deletion when the verb is a loanword, but hardening is also attested (e.f. in *-fáidɪka* ‘profit’). Some speakers freely use both strategies. There seem to be no roots which absolutely require the hardening strategy, so deletion is always an option, and there are some cases where hardening is rejected (at least some of the time, by some speakers).

<u>1s SP perfective</u>

| (deletion pattern) | | | |
|---|---|---|---|
| afóógoyi | ‘he got crippled’ | fóógoyi | ‘I got crippled’ |
| afóótwɪɪ | ‘he got fired’ | fóótwɪɪ | ‘I got fired’ |
| afaani | ‘he fanned’ | faani | ‘I fanned’ |
| afaanani | ‘he resembled’ | faanani | ‘I resembled’ |
| | | fɪɪ | ‘I came to an end’ |
| | | fóói | ‘I was exhausted’ |
| | | faani | ‘I fanned’ |
| | | fóóchi | ‘I boiled over’ |
| | | fʊrʊvanyɪɪ | ‘I ate gluttonously’ |
| | | faanani | ‘I resembled’ |
| | | fuduchi | ‘I burst intr.’ |
| | | fugumi | ‘I hummed’ |
| | | faavi | ‘I sat exposed’ |

| (hardening pattern) | | | |
|---|---|---|---|
| afʊʊngʊri | ‘he opened’ | mbʊʊngʊri | ‘I opened’ |
| afʊnyi | ‘he stank’ | mbʊnyi | ‘I stank’ |

| (both patterns) | | | |
|---|---|---|---|
| faidɪchi | ‘I profited’ | mbwaidiki | ‘I profited’ |
| fótí | ‘I fired’ | mbótí | ‘I fired’ |
| fʊgʊmi | ‘I hummed’ | mbʊgʊmi | ‘I hummed’ |
| fáávi | ‘I exposed’ | mbwáávi | ‘I exposed’ |

<u>1s SP subjunct</u>

| | |
|---|---|
| naambɔ́nyí | ‘I will stink’ |
| reka mbɔ́ɔ́ngɔ́rí | ‘let me open’ |
| reka mbútí | ‘let me fire’ |
| naa mbɔ́nyíírizɪ | ‘I will smell tr.’ |

1s SP progressive

(deletion pattern)

| | |
|---|---|
| faanáa | ‘I am fanning a fire’ |
| fóóraa | ‘I am beating’ |
| fóókaa | ‘I am boiling over’ |
| fɔrɔ́vanyaa | ‘I am eating gluttonously’ |
| fɔ́táa | ‘I am firing’ |
| fɔɔngɔ́ráa | ‘I am unlocking’ |
| faanánáa | ‘I resemble’ |
| faan-ɔmɔllɔ | ‘I am fanning a fire’ |
| fóógoyaa | ‘I am deteriorating’ |
| faídíkáa | ‘I am profiting’ |
| fóóraa | ‘I am beating’ |

(hardening pattern)

| | |
|---|---|
| mbɔɔngɔ́ráa | ‘I am opening’ |
| mbɔŋáa | ‘I am smelling’ |
| mbwaanánáa | ‘I resemble’ |
| mbɔ́táa | ‘I am firing’ |
| mbwaan-ɔmɔllɔ | ‘I am fanning a fire’ |
| mbwóógoyaa | ‘I am deteriorating’ |
| mbwaanáa | ‘I am fanning’ |
| mbwaanánáa | ‘I resemble’ |
| mbɔ́nyíírízáa | ‘I smell’ |
| mbɔŋáa | ‘I stink’ |
| mbɔ́táa | ‘I am firing’ |
| mbɔnyíírízáa | ‘I am smelling’ |
| *mb(w)óókaa | |
| *mbwoora | |
| *mbwaídíkáa | |

1s OP

(deletion pattern)

| | |
|---|---|
| aafáánɪrɪɪ | ‘he fanned for me’ |
| aafútí | ‘he fired me’ |
| aafáidɪkɪrɪɪ | ‘he profited for me’ |
| aafáánɪrɪɪ | ‘he fanned for me’ |
| aafóóri | ‘he beat me’ |

(hardening pattern)

| | |
|---|---|
| aambwáánani | ‘he resembled me’ |
| kʊ́ʊ́mbʊta | ‘to fire me’ |
| kʊ́ʊ́mbwaanɪra | ‘to fan a fire for me’ |
| kʊ́ʊ́mbwaanana | ‘to resemble me’ |
| aambwáánani | ‘he resembled me’ |
| kʊ́ʊ́mbwaana | ‘to resemble me’ |
| kʊ́ʊ́mbwoora | ‘to beat me’ |

**d. /sh/**

It was earlier noted that *sh* has multiple sources, coming from earlier *hy*, borrowed *sh*, also for some speakers it comes from *sy*. There are correspondingly two patterns of post-nasal behavior, although only in verb stems.

Lexical A

Some stems which begin with *sh* exhibit hardening to [by]. This pattern characterizes nominal stems beginning with *sh*.[3]

adjective:

| | |
|---|---|
| máá!zí máshʊ́ | ‘hot water’ |
| mʊgá!dí mʊ́shʊ́ | ‘hot bread’ |
| ng’óómbé ímbyʊ́ | ‘hot cow’ |
| ɪrííngá !ímbyʊ́ | ‘hot sickle’ |
| cháí !ímbyʊ́ | ‘hot tea’ |
| zíngʊ́ !zímbyʊ́ | ‘hot firewood pl’ |
| | |
| mwáá!mí mʊ́shá | ‘new chief’ |
| myéé!rí míshá | ‘new months’ |
| mágáá!ndá máshá | ‘new beans’ |
| ɪnávʊ́!dʊ́ ímbyá | ‘new basket’ |
| ɪmbwá !íshá | ‘new dog’ |
| ínyúúndʊ́ ímbyá | ‘new hammer’ |
| síí!ndáání mbyá | ‘new needle’ |
| ísyʊ́ ímbyá | ‘new shaper’ |
| zinávʊ́!dʊ́ zímbyá | ‘new baskets’ |
| zíngá!gá zímbyá | ‘new fences’ |
| é!ngókó !ímbyá | ‘new chicken’ |
| zí!ngókó !zímbyá | ‘new chickens’ |

noun:

| | | |
|---|---|---|
| rʊshá | zímbyá | ‘gathering of elders’ |

[3] The behavior of /f/ is variable as noted above. The fricative /s/ always conditions deletion of the preceding nasal, see 2.2.

The behavior of *sh* in nominal stems seems to be uniform, though there are few such stems – *sh* hardens to *by*, and does not cause deletion of the nasal.

deverbal adjective

The behavior of verbal stems is more variable. Data on deverbal adjectives indicates that *sh* generally undergoes hardening, but in at least one case only causes deletion of the nasal.

| | |
|---|---|
| amáází má!shóóhé | 'warm water' |
| íɲámá í!mbyóóhé | 'warm meat' |
| íɲám-íímbyó | 'warm meat' |
| éng'óómb-ímbíre | 'driven cow' |
| ómbán-ómʃsháá!gáré | 'sharpened knife' |
| ɪnyóónd-ímbyáá!gáré | 'sharpened hammer' |
| but: | |
| íɲám-ííshée | 'ground meat' |

The situation is even less clear in inflected verbs. One pattern is that the fricative hardens, as in the following examples:

1s SP

| | |
|---|---|
| mbiri | 'I drove' |
| mbiráa | 'I am driving' |
| mbyóóhízáa | 'I am warming' |

1s OP

| | |
|---|---|
| ʊʊmbírɪɪ | 'you drove for me' |
| ʊʊmbíri | 'you drove me' |
| ʊʊmbyééveree | 'you danced for me' |
| ʊʊmbyóóhizi | 'you warmed me' |
| kóómbyaagalla | 'to sharpen for you' |
| kóómbilla | 'to drive for me' |

On the other hand, initial *sh* may also condition deletion of the nasal.

1s SP perfective

| | |
|---|---|
| shíɪ, shée | 'I ground' |
| shaagari | 'I sharpened' |
| shʊʊhi | 'I got warm' |
| shoori | 'I sinned' |
| shɪri | 'I drove' |
| shéévi | 'I danced' |
| shaaji | 'I beat millet' |

1s SP subjunct

| | |
|---|---|
| reka shí | ‘let me grind’ |
| réká shéévé | ‘let me dance’ |

1s SP progressive

| | |
|---|---|
| shʊʊháa | ‘I am getting warm’ |
| shʊ́ʊ́hízáa | ‘I am making warm’ |
| shɪráa | ‘I am driving’ |
| | |
| shéézaa | ‘I am grinding’ |
| shéévaa | ‘I am dancing’ |
| shoováa | ‘I am wailing’ |
| shaagáráa | ‘I am sharpening’ |
| shéévaa | ‘I am dancing’ |
| shéézaa | ‘I am grinding’ |
| shaagáráa | ‘I am sharpening’ |

1s OP

| | |
|---|---|
| ʊʊshʊ́ʊ́hizi | ‘you warmed me’ |

A single speaker may offer both [em]*ʊʊshʊ́ʊ́hizi* and [em]*ʊʊmbyʊ́ʊ́hizi* ‘you warmed me’, [em]*mbiri* and [em]*shiri* ‘I drove’. The somewhat surprising hardening pattern where *sh* becomes *by* is due to one of the sources of *sh* in Logoori, namely *hi, hy* derived from proto-Bantu *pi, py*. The alternation *kʊshíra ~ mbiri* thus reflects proto-Bantu **mpidi*, and the coexisting variant *shiri* reflects reanalysis of **pi* to /shi/. Such a reanalysis may be helped along by the development of *sy* into *sh*, as in the case of *kʊsha* (*kʊsya* for some speakers, as well as the more general case in Lacustrine Bantu for this root). The stem ‘grind’ has not ever observed undergoing post-nasal hardening. This work will not attempt to resolve the complex problem of post-nasal *sh*.

### 1.1.2. Hardening of /r/

The consonant /r/ becomes [d] after a nasal.

Lexical A

| | |
|---|---|
| ḿbánó mʊ́rávʊ | ‘white knife’ |
| imisáá!rá ímírávʊ | ‘white trees’ |
| ovosera vʊ́rávʊ | ‘white porridge’ |
| nyúú!mbá índávʊ | ‘white house’ |
| zinyúú!mbá zíndávʊ | ‘white house’ |
| íngʊ́v-ʊ̌ɪndavʊ | ‘white cloth’ |
| índá !índávʊ́ | ‘white louse’ |
| zííndá !zíndávʊ́ | ‘white lice’ |

| | |
|---|---|
| ɪbáákóó'rí índávʊ | 'white bowl' |
| ígíríkí índávʊ | 'white bull' |
| | |
| ómóóndó móráru | 'insane person' |
| váándó váráru | 'insane people' |
| íngógí 'índárʊ | 'insane baboon' |
| zímbúrí 'zíndárʊ | 'insane goats' |
| | |
| máká maritu | 'heavy charcoals' |
| séé'ngé mórítu | 'heavy aunt' |
| ʊmwáá'n-ómó'rítu | 'heavy child' |
| ídárája ɪnditu | 'heavy bridge' |
| íngógí ɪnditu | 'heavy baboon' |
| ɪmbórá ɪnditu | 'heavy rain' |
| zindéve zinditu | 'heavy chairs' |
| zisúgudi zinditu | 'heavy conga drums' |
| zínzógú zinditu | 'heavy elephants' |
| zííngó zinditu | 'heavy firewood' |
| izíníní izinditu | 'heavy tongues' |
| eɲeengero ɪnditʊ | 'heavy beer pot' |
| í'ngókó ɪnditʊ | 'heavy chicken' |
| ɪzí'ngókó ɪzinditʊ | 'heavy chickens' |
| | |
| avageni varuru | 'fierce guests' |
| kítoombééro kɪruru | 'bitter sweet-potato sprout' |
| é'mbóóngó ɪnduru | 'fierce buffalo' |
| ɪmbítí ɪndʊrʊ | 'fierce hyena' |
| káháwa ɪnduru | 'bitter coffee' |
| ɪngavi nduru | 'bitter luck' |
| ímbáda ɪndʊrʊ | 'fierce hawk' |
| ɪnyáámbaró ɪndʊrʊ | 'fierce ant' |
| | |
| ʊmwáá'ná móráhi | 'good child' |
| má'dúú'má máráhi | 'good maize' |
| vítóó'mí víráhi | 'good mound' |
| éɲéngéró índáhi | 'good beer pot' |
| fárá'sí ndáhi | 'good horse' |
| í'ngóró'vé índáhi | 'good pig' |
| zíng'óómbé zíndáhi | 'good cows' |
| zímbá'dá zíndáhi | 'good hawks' |
| zínóó'ní zíndáhi | 'good sesame' |
| ɪngógí ɪndáhi | 'good baboon' |
| ɪzíngózá 'nízíndáhi | 'the vegetables are good' |
| íngokó 'índáhi | 'good chicken' |
| íngóvó índáhi | 'good cloth' |

The adjective/numeral ‘one, some’ is complicated. The stem is /rara/, but when preceded by a (surface) V-final prefix, it reduces to *-rra* hence phonetic [-lla].

| | | |
|---|---|---|
| índɔgɔ́nyi ndara | ‘1 bug’ | /n-rara/ |
| ɪkɪrɔ́ɔ́ngɔ kɪlla | ‘1 porcupine’ | /kɪ-rara/ |

Deverbal forms likewise systematically exhibit post-nasal hardening, as do N-to-A derivations.

Deverbal A

| | |
|---|---|
| ɪnyíi!ngú índásu | ‘thrown cooking pot’ |
| zíɲám-ízí!ndógé | ‘bewitched animals’ |
| eng’óómbé índwaa(y)e | ‘a sick cow’ |

N-to-A

| | |
|---|---|
| éng’óómbé éndógoori | ‘Logoori cow’ |
| é!ngók-éendoji | ‘witch chicken’ |
| é!ngók-íí!ndááyá | ‘european chicken’ |

There is only one noun in cl. 11-10 with initial *r* which exemplifies the pattern.[4]

N Cl 11-10

| | | |
|---|---|---|
| ɔ́lléra | ízíndéra | ‘umbilical cord’ |

Hardening broadly applies in verbal inflections after the 1s subject and object prefixes.

1s SP perfective

| | |
|---|---|
| ndaji | ‘I have promised’ |
| vaaraji | ‘they have promised’ |
| ndéévi | ‘I got drunk’ |
| mɔréévi | ‘2p got drunk’ |
| ndaagɪri | ‘I ate ugali’ |
| ndákɔ́ɔ́ri | ‘I released’ |
| ndɔhi | ‘I’m tired’ |

1s SP subjunctive

| | |
|---|---|
| réká ndééke | ‘let me cook’ |
| reka ndágé | ‘let me promise’ |
| reka ndéké | ‘let me stop’ |

[4] Most r-initial stems in this class happen to have a nasal in the second root syllabe so undergo GL, see 1.3.1.

| | |
|---|---|
| reka ndigóɾí | ‘let me buy it$_{-5}$’ |
| reka ndoréete | ‘let me bring it$_{-11}$’ |
| naa ndéété | ‘I will bring’ |

1s SP progressive

| | |
|---|---|
| ndakóóɾaa | ‘I am releasing’ |
| ndasáa | ‘I am throwing’ |
| ndíɾáa | ‘I am crying’ |
| | |
| ndihéénzaa | ‘I’m looking at 5’ |
| ndohéénzaa | ‘I’m looking at 11’ |
| ndiizáa | ‘I am eating’ |

1s OP

| | |
|---|---|
| vaandájí | ‘they promised me’ |
| aandákóóɾi | ‘he released me’ |
| vaandóɾí | ‘they saw me’ |
| vaandééti | ‘they brought me’ |
| ndeetéɾa | ‘bring for me!’ |
| ndyá | ‘eat me!’ |

### 1.1.3. Hardening in y- and ø-initial roots

There is a distinction between roots which begin with a vowel, versus those beginning with /y/, a distinction which is neutralized in certain contexts (after *-aa-*, 1s SP or OP, and in the imperative). The analysis of the *y* / Ø opposition is taken up in 4.1, and we will discuss *y*- and V-intial roots under the assumption that *y* is first inserted after a nasal in V-initial roots, and that *y* may then be subject to hardening (or deletion by GL). Identification of *y*-initial versus V-initial roots is facilitated here by separating examples, listing *y*-initial roots first, plus an accompanying postvocalic form, where overt presence of *y* directly attests underlying *y*, but hiatus-resolution indicates that the root is V-initial. In the discussion below, vowel-initial stems will be referred to as beginning with Ø (which is not a consonant, it is the lack of any consonant).

There are no lexical adjectives beginning with /y/, only one noun (*mó!yááyɪ* ‘boy’) in cl. 1 (relevant to N-to-A derivation), and only a handful of cl. 11 nouns (none attested in the corpus), thus most examples of /y/ involve Ø-initial roots.

Lexical A

| | |
|---|---|
| ǒḿbír-ǒmwéére | ‘empty body’ |
| ɪnávó!dó énzéré | ‘empty basket’ |
| égéengér-éénzéré | ‘empty bell’ |
| zígéengéré zínzéré | ‘empty bells’ |
| ííndá énzéré | ‘empty stomach’ |

| | |
|---|---|
| íróó́ˈmó́ ínzéré | ‘empty room’ |
| | |
| rɔdááˈmbí rwááˈkányó́ | ‘red wick’ |
| íngóvó́ ínzáˈkányó́ | ‘red cloth’ |
| zing’óómbé zinzáˈkányó́ | ‘red cows’ |
| ɪmbára ɪnzákanyó́ | ‘red scar’ |
| zíˈgóófyá ˈzyááˈkányó́ | ‘red hats’ |

N Cl 11-10

| | | |
|---|---|---|
| | rwaanda (iziŋanda) | ‘granite rock outcropping’ |
| | rweena | ‘abdomen’ |
| izínzáchi | rwááchi | ‘enclosure’ |
| izinzaro | rwaaro | ‘raised floor of a granary’ |
| izinzevo | rweevo | ‘fence’ |
| zínzáˈsáyá | rwááˈsáyá | ‘slap’ |
| zinzíga | rwíiga | ‘horn’ |
| rwíimbɔ | zinyíímbɔ | ‘song’ |

N-to-A

The one example of a class 1 noun serving as a source of /y/ for nominal-prefix hardening is that of *mó́ˈyááyɪ* ‘boy’, and the behavior of this root is unusual.[5]

| | | |
|---|---|---|
| éng’óómbé íˈndááyɪ | éng’óómbé íˈyááyɪ | ‘boy cow’ |
| ɪzíngúz-ízíˈndááyɪ | ɪzíngúz-ízíˈyááyɪ | ‘boy vegetables’ |

Verbs freely contrast *y*-initial and Ø-initial stems, so deverbal adjectives clearly attest the neutralization of y- and Ø-initial roots.

Deverbal A

/y/

| | |
|---|---|
| íˈngáán-ééˈnzóóyé | ‘scooped wheat’ |
| ɪnyó́ˈmb-ééˈnzéére | ‘saggy house’ |
| ɪzíing-ízíˈnzávé | ‘buried firewood’ |

/Ø/

| | |
|---|---|
| ɪnyíˈng-ínzáˈdíkí | ‘broken pot’ |
| ɪŋááˈɲ-ínzáˈgórí | ‘plucked tomato’ |
| ɪnyóóˈmb-énzéyé | ‘swept house’ |

Inflected verbs likewise merge the two root types post-nasally.

[5] There are otherwise no instances of hardening *y* to *d* in the language, except one token [em]*ndááyi* ‘I sued’ for *nzáári*, from /n-yaar-i/.

1s SP perfective

/y/

| | | | |
|---|---|---|---|
| nzéé́chi | 'I bent' | koyeeka | 'to bend' |
| nzavɪri | 'I buried' | kɒyavɪra | 'to bury' |
| nzágáyaji | 'I glistened' | kɒyagayaga | 'to glisten' |
| nzójí | 'I talked' | koyoga | 'to talk' |
| nzóói | 'I scooped by hand' | koyooya | 'to scoop' |

/Ø/

| | | | |
|---|---|---|---|
| nzerémí | 'I floated' | kwéérema | 'to float' |
| nzigóri | 'I opened' | kwiigɒra | 'to open' |
| nzíshí | 'I uprooted' | kwíiha | 'to uproot' |
| nzéí | 'I swept' | kweeya | 'to sweep' |
| nzashi | 'I plucked' | kwáaha | 'to pluck' |
| nzati | 'I did surgery' | kwáata | 'to do surgery' |
| nzágaani | 'I have met' | kwáágaana | 'to meet' |
| ndava niínzavɒkanyɪɪ | 'if I had sorted' | kwaáávɒkanya | 'to sort' |
| ndava níínzasyaaji | 'if I had split' | kwáásyaaga | 'to split' |

1s SP subjunctive

/y/

| | |
|---|---|
| maa ɲéengé | 'I will brew' |
| maa nzóóyé | 'I will scoop' |
| geeɲékáná'á nzávé | 'I have to bury' |

/Ø/

| | | | |
|---|---|---|---|
| náánzígórí | 'I will open' | kwíígɒra | 'to open' |
| naanzerémé | 'I will float indef' | | |
| maa nzéyé | 'I will sweep' | | |
| naanzígízí | 'I will teach' | | |
| naanzísyáámɒrɪ | 'I will sneeze' | | |
| naanzásyáámɒrɪ | 'I will sneeze' | | |
| naanzítóllɪ | 'I will pour' | | |
| naanzisyááge | 'I will split wood' | | |

1s SP progressive

/y/

| | |
|---|---|
| nzávíraa | 'I am burying' |
| nzáváa | 'I am digging' |
| ɲéengaa | 'I am brewing' |
| ɲóómboraa | 'I am pouring' |
| níínzɪraa | 'I am working' |
| nzogáa | 'I am talking' |

| | |
|---|---|
| nzóóyaa | ‘I am scooping’ |
| nzéékaa | ‘I am sagging’ |

/Ø/

| | |
|---|---|
| nzerémáa | ‘I am floating’ |
| nzitáa | ‘I am killing’ |
| nzigóraa | ‘I am opening’ |
| nzaháa | ‘I am plucking’ |
| nzaraa | ‘I am spreading’ |
| nzigótáa | ‘I am getting full’ |
| nzatáa | ‘I am performing surgery’ |
| nzʊmbákáa | ‘I am building’ |
| nzonóónyáa | ‘I am damaging’ |
| nzʊmíɲáa | ‘I am drying’ |
| nzíngíráa | ‘I am entering’ |
| nziɲámiɲaa | ‘I am inverting’ |
| nzímílaa | ‘I am leading’ |
| nzínókaa | ‘I am leaving work’ |

<u>1s OP</u>

/y/

| | |
|---|---|
| vaanzéékɪzi | ‘they made me bend’ |
| vaanzáári | ‘they sued me’ |
| nzavíra | ‘bury me!’ |
| ɲeengéra | ‘brew for me!’ |
| vaaɲáánzizi | ‘they made me happy’ |

/Ø/

| | |
|---|---|
| kóónzigʊlla | ‘to open for me’ |
| vaanzé!réméráa | ‘they are floating for me’ |
| nzatányɪrá | ‘smash for me’ |
| nzigórizá | ‘satisfy me’ |
| nzizólizá | ‘remember me’ |
| nzaví!llá | ‘bury for me’ |
| navaanzíti | ‘they will kill me’ |
| vaanzávírɪɪ | ‘they buried me’ |

Another outcome for /y/ is that it optionally becomes [b] after a nasal in at least two verbs which begin with /ye/, and one that begins with /yɪ/

| | | |
|---|---|---|
| mbééchi | ‘I bent’ | nzééchi |
| mbéénji | ‘I brewed’ | ɲéénji |
| mbííngʊchi | ‘I melted’ | ɲííngʊchi |
| *mbavɪri | ‘I buried’ | nzavɪri |
| *mbééri | ‘I was allergic’ | nzééri |
| *mbíínzɪri | ‘I worked’ | ɲíínzɪri |

## 1.2. Voicing

After /N/, voiceless stops become voiced.[6]

**a. /k,t,ch/**

Lexical A

/k/

| | |
|---|---|
| avááguugá ꜜvákóɾʊ | ‘old grandfathers’ |
| kɪbúúꜜsí kíkóɾʊ | ‘old cat’ |
| iddóshí irikóɾʊ | ‘old house-mud’ |
| endéve ɪngóɾʊ | ‘old chair’ |
| eng’óombé ngóɾó | ‘old cow’ |
| éꜜngókó íngóɾʊ | ‘old chicken’ |
| zíɲámá zíngóɾʊ | ‘old animals’ |
| zindéve zingóɾʊ | ‘old chairs’ |
| ɪɾíínga íngóɾʊ | ‘old sickle’ |
| | |
| vasyaará ꜜváké | ‘small2(few) cousins’ |
| voséɾá vóké | ‘a little porridge’ |
| íngógí ꜜíngé | ‘small2 baboon’ |
| zíímbwá ꜜzíngé | ‘few dogs’ |
| | |
| móɾímí móꜜkózúúzú | ‘small3 farmer’ |
| zimbwá ꜜzíngúꜜzúúzu | ‘small3 dogs’ |
| eng’oombe íngóꜜzóózó | ‘small cow’ |
| ímbúɾú íngóꜜzóózó | ‘small monitor’ |
| zímbúɾú zíngóꜜzóózó | ‘small monitors’ |
| | |
| kémóórí kékóméru | ‘fat calf’ |
| énzógwíngóméɾʊ | ‘fat elephant’ |
| enzóki engóméɾʊ | ‘fat bee’ |
| eng’ééꜜndé éngóméru | ‘fat jigger’ |
| ímbúkú engoméru | ‘fat mole’ |
| zingő zingómeɾʊ | ‘fat leopards’ |
| éꜜngókó ꜜéngóméɾʊ | ‘fat chicken’ |

/t/

| | |
|---|---|
| chééyó kítáámbi | ‘long broom’ |
| vágéní vatáámbɪ | ‘long (tall) guests’ |
| íkígóɾó íkítáámbɪ | ‘long (tall) hill’ |
| ɪbááꜜkúúꜜlí ndáámbɪ | ‘long bowl’ |
| ɪbááꜜkóóɾá ɪndáámbɪ | ‘long swagger stick’ |

[6] The rare phoneme /p/ is lacking in applicable contexts.

| | |
|---|---|
| íngóv-ŏɪndáámbi | ‘long cloth’ |
| índógó¦tá ¦índáámbɪ | ‘tall letter’ |
| zííngó zindáámbɪ | ‘long firewood’ |
| zíngá¦gá zíndáámbi | ‘long fences’ |
| engó¦f-índáámbɪ | ‘long umbilical cord’ |
| ítíí¦ró índáámbɪ | ‘long centerpole’ |
| | |
| kéróó¦rí kítíindi | ‘pugnacious heifer’ |
| ḿḿndó ḿtííndi | ‘pugnacious person’ |
| ɪngiri ndíindi | ‘pugnacious warthog’ |
| eng’óómbé índíindi | ‘pugnacious cow’ |
| | |
| /ch/ | |
| ʊmbírí ḿ¦chááfó | ‘dirty body’ |
| ʊmgádí ¦ómó¦chááfu | ‘dirty bread’ |
| é¦ngókó í¦njááfʊ | ‘dirty chicken’ |
| éng’óómbé í¦njááfó | ‘dirty cow’ |
| é¦nzógú í¦njááfó | ‘dirty elephant’ |
| ɪmbó¦rí ínjáafu | ‘dirty goat’ |
| zíngúvó zí¦njááfó | ‘dirty cloth’ |
| zíng’óómbé zín¦jááfó | ‘dirty cows’ |
| | |
| mwáá¦ná ḿ¦cháafu | ‘dirty child’ |
| ḿgéní móchaafu | ‘dirty guest’ |
| váándó vá¦chááfú | ‘dirty people’ |
| mifé¦réjí míchaafu | ‘dirty water taps’ |
| ryéé¦ngú rí¦cháafu | ‘dirty banana’ |
| kímiiɲú ¦kícháafu | ‘dirty chicken’ |
| íngógíí njaafʊ | ‘dirty baboon’ |
| endé¦vé í¦njáafu | ‘dirty chair’ |
| zíngógí zí¦njáafʊ | ‘dirty baboons’ |
| zindé¦vé zí¦njáafu | ‘dirty chairs’ |
| zínjí zí¦njááfú | ‘dirty flies’ |

<u>Deverbal Adj</u>

| | |
|---|---|
| /k/ | |
| mbóyʊ makáraaɲé | ‘chopped eggs’ |
| endévé ¦íngá¦rágé | ‘chopped chair’ |
| zíngó ¦zíngá¦rágé | ‘chopped firewood’ |
| íɲámá íngá¦ráájné | ‘chopped meat’ |
| é¦ngókó ¦ngárágé | ‘a carved-up chicken’ |
| | |
| íɲámá íngá¦ráángé | ‘fried meat’ |
| íɲámá íngá¦ráángé | ‘fried meat’ |
| zingúrúvé zingá¦ráángé | ‘fried pigs’ |

/t/

| | |
|---|---|
| ligama litáándɔrí | ‘torn roof’ |
| ɪkáratáási ndáándɔrí | ‘torn paper’ |
| | |
| ɔmwáá¦ná mtéllechi | ‘slippery child’ |
| msáára mtéllechi | ‘slippery tree’ |
| ɪsáá¦vúúní endéllechi | ‘slippery soap’ |

/ch/

| | |
|---|---|
| é¦ngók-í¦ínjí¦ríng’áné | ‘quiet chicken’ |
| é¦ngók-í¦ínjí¦ríng’ánɔ́ | ‘quiet chicken’ |
| | |
| ɪcháá¦í í¦njɔ́ɔ́ngí | ‘strained tea’ |

N-to-A

/k/

| | |
|---|---|
| é¦ngókó íngári | ‘female chicken’ |
| ɪmbítí ɪngari | ‘female hyena’ |
| eng’óómb-éé¦ngóózá | ‘uncle cow’ |
| | |
| kɪbágá kekeere | ‘old (f) cat’ |
| ɪngɔ́rɔ́vé engeere | ‘old (f) pig’ |

/t/

| | |
|---|---|
| kí¦fóó¦y-íkítíga | ‘widow rabbit’ |
| éng’óómbéé ndíga | ‘widow cow’ |
| | |
| ríngɔ́¦rɔ́ rítéénde | ‘neighbor snail’ |
| ɪmbɔkú¦ éndéénde | ‘neighbor mole’ |

N Cl 11-10

| | | |
|---|---|---|
| rɔkaayɪrɔ | ‘sickle’ | zingaayɪrɔ |
| ɔrɔ́kɔ́ | ‘firewood’ | zííngɔ́ |
| ró¦kééyó | ‘banana plantation’ | zí¦ngééyó |
| rɔ́kána | ‘bundle of firewood’ | zíngána |
| rɔká¦rááye | ‘wash basin’ | zí¦ngárááye |
| | | |
| rɔtávati | ‘thorny plant’ | zindávati |

The verbal inflectional prefix /N/ regularly conditions voicing of stops.

1s SP perfective

| | | | |
|---|---|---|---|
| akaavi | ‘he searched’ | ngaavi | ‘I searched’ |
| akoonyi | ‘he helped’ | ngoonyi | ‘I helped’ |

| | | | |
|---|---|---|---|
| atáándɒri | ‘he tore’ | ndáándɒri | ‘I tore’ |
| acheerizi | ‘he greeted’ | njeerizi | ‘I greeted’ |
| ndodéékeree | ‘I cooked for them$_{-13}$’ | | |
| ngedééchi | ‘I cooked it$_{-7}$’ | | |
| ngwée | ‘I have paid dowry’ | | |
| ngɪri kɒrɪma | ‘I haven’t yet plowed’ | | |

1s SP subjunct

| | |
|---|---|
| reka njéérízí | ‘let me greet’ |
| reka ngáávé | ‘let me search’ |
| reka ndɒgɒ́rí | ‘let me buy them$_{-13}$’ |
| reka njíítɪ | ‘let me kill it$_{-7}$’ |
| reka ngɪgɒ́rízɪ | ‘let me sell it$_{-7}$’ |
| reka ngakóoŋe | ‘let me help him$_{-12}$’ |
| naa ngáráange | ‘I will fry’ |
| niinjóóré | ‘I will draw’ |

1s SP progressive

| | |
|---|---|
| ngubáa | ‘I am calling’ |
| ngooŋáa | ‘I am helping’ |
| ndáándɒraa | ‘I am tearing’ |
| ngohéénzaa | ‘I’m looking at you’ |
| ngaráángáa | ‘I am frying’ |
| ngɪnáa | ‘I’m playing’ |
| njóóraa | ‘I am drawing’ |
| ngaráángáa | ‘I am frying’ |
| ngaaváa | ‘I am searching’ |
| ndígíŋaa | ‘I am tickling’ |
| ngehéénzaa | ‘I’m looking at it$_{-7}$’ |
| ngahéénzaa | ‘I’m looking at it$_{-12}$’ |
| ndohéénzaa | ‘I’m looking at them$_{-13}$’ |

1s OP

| | |
|---|---|
| vaandéévi | ‘they asked me’ |
| vaangáí | ‘they forbade me’ |
| vaanjáái | ‘they disparaged me’ |
| aangárí | ‘he cut me’ |
| aandúmi | ‘he sent me’ |
| aandɒ́maa | ‘he is sending me’ |
| aandíízaa | ‘he’s fearing me’ |
| aangáraangɪraa | ‘he’s frying for me’ |
| aangóóŋaa | ‘he’s helping me’ |
| reka vaanjóolle | ‘let them draw for me’ |

reka vaandé ‘let them bury me’
ngaráángɪrá ‘fry for me!’
ndɔmá ‘send me!’
ondéeve ‘ask me!’
kóóngooŋa ‘to help me’
kóónjoolla ‘to draw for me’
yaakɔ́ɔ́ngɔba ‘he just hit me.’
aanjéreveree ‘he was late on me’
aráándaandɔlla ‘he will tear up on me’
naangáraangɪrɪ ‘he will fry for me’

## 1.3. Ganda Law

When the root-initial consonants /r, g, y, v/ are immediately preceded by /N/ and are followed in the onset of the next syllable by a nasal, the oral consonant deletes, resulting in [n, ng’, ɲ, m] respectively. The same result is observed with vowel-initial verbs, and as discussed in 4.1, it is assumed that vowel-initial verbs undergo insertion of *y* which then becomes *z* or deletes, following Ganda Law.

The conditions on GL are not uniform, and vary according to root-initial consonant. GL in fact almost never applies to /v/. There is the single noun *emóni* ‘eye’ from /e-N-voni/, cf. *akávóni* ‘eye dim’, which exemplifies GL applied to /v/. Contrast that with *ɪmbáá¦mbállɔ́* ‘wide-$_9$’, *kɪváá¦mbállɔ́* ‘wide-$_7$’.

### 1.3.1. Ganda Law targeting /r/

GL applied to /r/ is obligatory in all contexts.

Lexical A

| | | |
|---|---|---|
| gɔtɔ́ ¦gɔ́rɔ́ɔ́ngi | ‘right ear’ | |
| ryéengú ¦llɔ́ɔ́ngi | ‘straight banana’ | |
| méengú ¦márɔ́ɔ́ngi | ‘straight bananas’ | |
| ɪbáákɔ́ɔ́rá ɪnɔ́ɔ́ngi | ‘straight walking stick’ | |
| zibáákɔ́ɔ́rá zinɔ́ɔ́ngi | ‘straight walking stick’ | |
| ɪbáá¦kɔ́ɔ¦rá nɔ́ɔ́ngí | ‘straight cane’ | |
| | | |
| váándɔ́ váraambá | ‘whole people’ | |
| ng’ɔ́ɔmbé náámba | ‘whole cow’ | |
| zíng’ɔ́ɔmbé zí¦náámbá | ‘whole cows’ | |
| | | |
| eng’ɔ́ɔmbé ínámʊ | ‘healthy cow’ | |
| ḿmndɔ́ mɔ́rámʊ | ‘healthy person’ | |
| zíngokó ¦zínámʊ | ‘healthy chickens’ | |
| kɪbúú¦sí kírámʊ | ‘healthy cat’ | |
| zí¦ngókó ¦zínám̀ | ‘healthy chickens’ | |
| eng’ɔ́ɔmbé ínámʊ | ‘healthy cow’ | *eng’ɔ́ɔmbé índámʊ |

Deverbal A

| | |
|---|---|
| rɔgága rɔraambɪrɔ́ | ‘collapsed fence’ |
| zingága zindaambɪrɔ́ | ‘collapsed fences’ |
| ɪɲám-íí!nɔ́ɔ́ngí | ‘seasoned meat’ |
| eng’óómb-éé!nóóndé | ‘followed cow’ |
| zíngɔ́v-ízí!nííngɔ́ | ‘folded clothes’ |

N-to-A

| | |
|---|---|
| kɪbúú!sí kírína | ‘friendly cat’ |
| vibúú!sí vírína | ‘friendly cats’ |
| embwá !índína | ‘friendly dog’ |
| zíng’óómbé zíndína | ‘friendly cows’ |
| ímbwí ɪndɪna | ‘friendly dog’ |
| | |
| é!ngók-íí!námwá | ‘in-law chicken’ |

N Cl 11-10

| | | | |
|---|---|---|---|
| Íllími | ‘tongue’ | zíními | ‘tongues’ |
| ɔ́!llóóngo | ‘white clay’ | ɪzí!nóóngo | ‘white clay batches’ |

1s SP perfective

| | |
|---|---|
| nííndi | ‘I waited’ |
| náámbɪrizi | ‘I stretched s.t. out’ |
| náánji | ‘I called’ |
| nééng’aani | ‘I was equal’ |
| némí | ‘I was crippled’ |
| nɔmi | ‘I bit’ |
| nwááni[7] | ‘I fought’ |
| nɔ́mí | ‘I bit’ |
| neeng’aani | ‘I was equal’ |

1s SP subjunct

| | |
|---|---|
| reka nóónde | ‘let me follow’ |
| reka nɔ́ɔ́mbí | ‘let me push’ |
| geeɲékáá !nííndí | ‘I should wait’ |
| geeɲéká!á náángé | ‘I should call’ |

1s SP progressive

| | |
|---|---|
| nóóndaa | ‘I am following’ |
| nɔmáa | ‘I am biting’ |

[7] The token $_{fa}$[ndwaani] is attested once, alonside regular [nwaani].

| | |
|---|---|
| ndwáánaa | ‘I am fighting’ |
| nímáa | ‘I am plowing’ |
| nóómbaa | ‘I am pushing’ |
| nwáána | ‘I am fighting’ |
| niingáa | ‘I am folding’ |

1s OP

| | |
|---|---|
| vaanáánji | ‘they called me’ |
| vaanómi | ‘they bit me’ |
| vaanímírıı | ‘they plowed for me’ |
| nıındá | ‘wait for me’ |
| nʊmá | ‘bite me!’ |
| yáánʊma | ‘he bit me’ |

*ndímáa
*ndáángaa

Ganda Law does not apply to NC arising from combination of the SP /N/ plus an OP before a nasal-initial root.

| | | |
|---|---|---|
| n-di-ɲááɲaa | ‘I am eating it$_{-5}$’ | *niɲááɲaa |
| n-di-ng’óódaa | ‘I am writing it$_{-5}$’ | *ning’óódaa |
| n-di-ɲóóraa | ‘I am getting it$_{-5}$’ | *niɲóóraa |
| n-do-ɲóóraa | ‘I am getting it$_{-11}$’ | *noɲóóraa |
| n-di-ɲóóri | ‘I found it$_{-5}$’ | *niɲóóri |
| n-do-ɲóóri | ‘I found it$_{-11}$’ | *noɲóóri |
| geeɲéká!á ndong’óode | ‘I should write it$_{-11}$’ | *geeɲéká!á nong’óode |

Neither does it apply to a 1s SP before the tense prefixes *ri* and *ra*.

| | | |
|---|---|---|
| ndamoroma | *namoroma | ‘I will speak’ |
| ndáméɲa | *náméɲa | ‘I will reside’ |
| nding’óóda | *ning’óóda | ‘I will write’ |
| ndinwa | *ninwa | ‘I will drink’ |
| ndimeɲa | *nimeɲa | ‘I will reside’ |
| ndimmórómera | *nimmórómera | ‘I will speak to him’ |

### 1.3.2. Ganda Law targeting /g, y, Ø/

GL as applied to *g* and *y* (including *y* inserted post-nasally in underlyingly Ø-initial stems) is optional, thus one finds both *ng* and *ng’*, *nz* and *ɲ*. As discussed in 4, the underlying distinction between y-initial and V-initial roots is neutralized in most contexts, and with respect to GL such roots are treated the same. Speakers differ significantly in the likelihood that GL applies in this context, and a speaker may strongly resist applying, or not applying, GL in some context, while other speakers freely apply /

don't apply the rule in that context. Hence, all observed tendencies will be reduced to the simple generalization that GL is optional.[8]

The examples below predominantly merge the two outcomes of GL (applies / does not apply), in that order, and keeps separate the constructions where the rule is relevant as well as the underlying initial consonant. There is also variation between [ɲ] and [ny] before [ɪ], governed by a rule discussed in 12 – ɲ becomes [ny] in certain contexts.

Lexical A

/g/

| | |
|---|---|
| é!ngókó eng'eni | 'strange chicken' |
| ɪmbw-éeng'eni | 'strange dog' |
| ɪmbw-éengeni | 'strange dog' |
| | |
| endé!vé í!ng'úúndú | 'rotten chair' |
| zíɲámá zí!ng'úúndú | 'rotten meats' |
| íɲámá í!ngúúndú | 'rotten animal' |
| ɪɲam-íí!ngóóndó | 'rotten meat' |

/Ø/

| | |
|---|---|
| ɪnzár-ɪɲangɔ | 'light gravel' |
| ɪnzár-ɪɲzangɔ | 'light gravel' |
| | |
| ɪɲáá!ɲ-éɲéngó | 'light tomato' |
| ɪɲáá!ɲ-énzéngó | 'light tomato' |
| | |
| endé!v-ínyímbí | 'short chair' |
| endé!v-ínzíímbɪ | 'short chair' |
| | |
| ɪmbw-í!íɲómó | 'dry dog' |
| ɪmbw-í!ínzómó | 'dry dog' |

Deverbal A

/g/

| | |
|---|---|
| éngó éng'óne | 'sleeping leopard' |
| éng'óómb-éé!ng'ééndé | 'walking cow' |
| í!ngáá!nó íng'úú!námé | 'fermented wheat' |
| éngó éngóne | 'sleeping leopard' |
| éng'óómb-éé!ngééndé | 'walking cow' |
| í!ngáá!nó íngúú!námé | 'fermented wheat' |

[8] This is in contrast with GL applied to /r/, which is virtually obligatory for all speakers, though occasionally fails to apply in some token. Likewise, the optionality of vowel harmony (see 6.1) is more systematic: some speakers always apply harmony; all speakers have a tendency to not harmonize in multiple-prefix contexts in verbs.

/Ø/

| | |
|---|---|
| ɪmbá¦rábá¦r-íɲá¦mbʊ́kí | ‘crossed road’ |
| ɪmbárábárá ínzá¦mbʊ́kʊ́ | ‘crossed road’ |
| | |
| ɪnyʊ́ʊ́mb-ɪɲʊ́¦mbáké | ‘built house’ |
| ɪnyʊ́ʊ́mb-ɪɪnzʊ́¦mbáké | ‘built house’ |
| | |
| ɪɲáá¦ɲ-éé¦ɲéɲé | ‘desired tomato’ |
| ɪɲáá¦ɲ-éé¦nzéɲé | ‘desired tomato’ |
| | |
| endé¦v-íɲáá¦mbákáné | ‘refused chair’ |

/y/

| | |
|---|---|
| ɪbú¦s-éé¦ɲéengé | ‘brewed busa’ |
| ɪmbw-í¦í¦nyíingí | ‘foolish dog’ |
| ɪmbw-í¦í¦nzíí¦ngírí | ‘working dog’ |
| ɪbú¦s-éé¦nzéengé | ‘brewed busa’ |
| ɪmbw-í¦í¦nzíingí | ‘foolish dog’ |
| ɪmbw-í¦í¦ɲíí¦ngírí | ‘working dog’ |

N-to-A

/Ø/

| | |
|---|---|
| ɪmbw-í¦íɲána | ‘young dog’ |
| í¦ndʊ́gʊ́¦nyí ínzána | ‘young ant’ |
| ɪmbwá ɪnzana | ‘young dog’ |
| ímbwá ¦ínzána | ‘young dog’ |
| ɪmbú¦rí ínzána | ‘young goat’ |
| íngʊ́gí ɪnzána | ‘young baboon’ |

N Cl 11-10

/g/

| | | |
|---|---|---|
| urugano | | ‘story’ |
| ɪzingano | zing’ano | ‘stories’ |
| ɪzíngóma | ɪzíng’óma | ‘head wounds’ |
| ʊrʊgɪna | | ‘grinding stone’ |
| ɪzingɪna | ɪzing’ɪna | ‘grinding stones’ |
| | | |
| ɪzingéémbe | ɪzing’éémbe | ‘razors’ |
| izingeendo | izing’eendo | ‘journeys’ |

/Ø/

| | | |
|---|---|---|
| ɪzínzána | *ɪzínyána | ‘childishness (types)’ |
| iziɲanda | | ‘wide rocks’ |

| | | |
|---|---|---|
| urwaanda | | ‘wide rock’ |
| ʊrwíɪmbʊ | | ‘song’ |
| ɪziɲímbʊ | ɪzínzímbʊ | ‘songs’ |

There is likewise optionality of GL in the context of verbal inflections.

<u>1s SP perfective</u>

/g/

| | |
|---|---|
| ng’ééndi | ‘I walked’ |
| ng’óóngomi | ‘I rolled’ |
| ng’énɣí | ‘I wondered’ |
| ng’úúnami | ‘I fermented’ |
| | |
| ngóóngomi | ‘I rolled’ |
| ngénɣí | ‘I wondered’ |
| ngúúnami | ‘I fermented’ |

/y/

| | |
|---|---|
| nyíínji | ‘I was stupid’ |
| ɲíínzɪri | ‘I worked’ |
| ɲʊʊmbi | ‘I was overgrown’ |
| ɲáánzi | ‘I loved’ |
| ɲóómboori | ‘I over-poured’ |
| | |
| nzʊ́ʊ́mbi | ‘I was overgrown’ |
| nzéénji | ‘I brewed’ |
| nzíínji | ‘I was foolish’ |

/Ø/

| | |
|---|---|
| ɲámbʊchi | ‘I forded’ |
| ɲénɣí | ‘I wanted’ |
| ɲaani | ‘I mooed’ |
| nɪɪmbi | ‘I sang’ |
| ɲɪmíllɪɪ | ‘I led’ |
| nyingɪrii | ‘I entered’ |
| | |
| nzaambʊchi | ‘I forded’ |
| nzɪmíllɪɪ | ‘I led’ |
| nzɪnámi | ‘I bent’ |
| nzɪmbɪhi | ‘I was short’ |
| nzímani | ‘I was selfish’ |
| nzingɪrii | ‘I entered’ |

<u>1s SP subjunct</u>

/g/

| | |
|---|---|
| geeŋékáá ˈng'ééndé | 'I should walk' |
| réká ng'ánágáne | 'let me think' |
| réká ng'óné | 'let me sleep' |
| | |
| réká ngóné | 'let me sleep' |
| geeŋékáá ˈngómírí | 'I should catch' |
| geeŋékáá ngánágányı | 'I should think' |
| geeŋékáá ngóóngómáne | 'I should roll' |
| réká ngóné | 'let me sleep' |

/y/

| | |
|---|---|
| reka ŋééngé | 'let me brew' |
| reka ŋíínzírí | 'let me work' |
| geeŋéká ˈŋóómbí ˈdáave | 'I should not be overgrown' |
| | |
| reka nzéémbéere | 'let me sag' |
| reka nzééké | 'let me sag' |
| geeŋéká ˈnzóóyé | 'let me scoop' |
| geeŋéká ˈnzóómbí ˈdáave | 'I should not be overgrown' |

/Ø/

| | |
|---|---|
| geeŋékáá ˈŋíínzírí | 'I should work' |
| réká ŋámbókí | 'let me ford' |
| réká nyíngírí | 'let me enter' |
| | |
| geeŋékáá ˈnzínámé | 'I should bend' |
| leka nzámbókí | 'let me ford' |
| reka nzímbí | 'let me sing' |
| réká nzíngírí | 'let me enter' |

<u>1s SP progressive</u>

/g/

| | |
|---|---|
| ng'úúndaa | 'I am rotting' |
| ng'ééndaa | 'I am walking' |
| ng'ónáa | 'I am sleeping' |
| ng'ánáganaa | 'I am thinking' |
| | |
| ngeŋáa | 'I am uncertain' |
| ngóóngomanaa | 'I am rolling' |
| ngónáa | 'I am sleeping' |
| ngánáganaa | 'I am thinking' |
| ngúúndaa | 'I am rotting' |

/y/

| | |
|---|---|
| ɲééngaa | ‘I am brewing’ |
| ɲɔ́ɔ́mbaa | ‘I am being overgrown’ |
| | |
| nyííngaa | ‘I am being foolish’ |
| nzóóyaa | ‘I am scooping’ |
| nzééngaa | ‘I am brewing’ |
| nzáváa | ‘I am digging’ |

/Ø/

| | |
|---|---|
| ɲánigɪraa | ‘I am going ahead’ |
| ɲéɲáa | ‘I am wanting’ |
| ɲʊmáa | ‘I am being dry’ |
| | |
| nzéɲáa | ‘I am wanting’ |
| nzʊmáa | ‘I am being dry’ |
| nzánigɪraa | ‘I am going ahead’ |

<u>1s OP</u>

/g/

| | |
|---|---|
| arɪkááng’onizɪ | ‘he will make me sleep’ |
| arɪkááng’uundizɪ | ‘he will make me rot’ |
| arɪkááng’ʊmɪrɪ | ‘he will catch me’ |
| arɪkááng’unamizɪrɪ | ‘he will ferment for me’ |
| | |
| arɪkáánguundizɪ | ‘he will make me rot’ |
| arɪkáángʊmɪrɪ | ‘he will catch me’ |
| arɪkáángunamizɪrɪ | ‘he will ferment for me’ |
| arɪkáángonizɪ | ‘he will make me sleep’ |

/y/

| | |
|---|---|
| vaaɲáánzi | ‘they loved me’ |
| varaáɲɪɪnzɪlla | ‘they will work for me’ |
| ɲeengéra | ‘brew for me!’ |
| | |
| nzeengéra | ‘brew for me!’ |
| nzavíra | ‘dig for me!’ |

/Ø/

| | |
|---|---|
| arɪkááɲʊmizɪ | ‘he will dry me’ |
| arɪkáányɪmɪllɪ | ‘he will lead me’ |
| | |
| arɪkáánzɪmɪllɪ | ‘he will lead me’ |
| mayaanzámbɔ́kɪrɪ | ‘he will ford for me’ |

When the reflexive prefix /ɪ/ comes between the 1s SP and a nasal-initial verb root, we observe only *y*-insertion and hardening, and not GL

| | | |
|---|---|---|
| geeŋéká꜒á nz-ɪ-nywéeke | 'I should whip self' | *geeŋéká꜒á nyinywéeke |
| nz-ɪ-mínágɪraa | 'I am stirring for self' | *ŋimínágɪraa |
| nz-e-mórómeraa | 'I am speaking to self' | *ŋemórómeraa |
| nz-ɪ-ŋágʊllɪɪ | 'I ran for self' | *ŋɪŋágʊllɪɪ |
| nz-e-ŋégí | 'I insulted self' | *ŋeŋégí |
| leka nz-e-ng'óódere | 'let me write to self' | *leka ŋeng'óódere |
| nz-ɪ-manyi | 'I knew self' | *nyɪmanyi |
| nz-ɪ-mɔ́ríkɪrɪɪ | 'I lit up for self' | *ŋɪmɔ́ríkɪrɪɪ |

This indicates that a root-initial nasal does not trigger GL, indeed all examples of GL apply to root-initial consonants followed by nasal in the next syllable.

### 1.4. Unchanged consonants

There is no change in the consonants /b d g j/ after /N/ (except for deletion of /g/ by GL if the following syllable contains a nasal). No lexical adjectives begin with /b/, but there are adjectives with /d, g, j/.

Lexical A

| | |
|---|---|
| eng'oomb-ɪɪnjima | 'whole cow' |
| | |
| é꜒ngókó ꜒índáá꜒máánɔ́ | 'bad chicken' |
| í꜒ngɔ́rɔ́꜒ví índáá꜒máánɔ́ | 'bad pig' |
| zí꜒ngókó ꜒zíndáá꜒mánɔ́ | 'bad chickens' |
| ɪmbára ɪndáá꜒máá꜒nɔ́ | 'bad scar' |
| | |
| ɪmbá꜒dá íngéri | 'smart hawk' |
| é꜒ngókó ꜒íngéri | 'smart chicken' |
| éngóómbé éngéri | 'smart cow' |
| zimbúrí ꜒zíngéri | 'smart goats' |
| | |
| ǹgɔ́rɔ́꜒vé ꜒í꜒ndí | 'small pig' |
| zíngɔ́rɔ́꜒vé zíndí | 'small pigs' |
| éng'óómbé índí | 'small cow' |
| zindévé꜒ zíndí | 'small chair' |
| ímbá꜒rá índí | 'small scar' |
| é꜒ng'édú ꜒n-ííndí | 'the joint is small' |
| | |
| mɔ́꜒yáá꜒yí mɔ́géri | 'smart boy' |
| váá꜒ná vágéri | 'smart children' |
| é꜒ngókó ꜒íngéri | 'smart chicken' |
| zí꜒ngókó ꜒zíngéri | 'smart chickens' |

| | |
|---|---|
| éngóómbé éngéri | ‘smart cow’ |
| zimbúrí ꜜzíngéri | ‘smart goats’ |
| | |
| váándɔ́ vágúru | ‘hard-working people’ |
| rishaamgoma riguru | ‘hard-working gecko’ |
| amagútú maguru | ‘hard-working elders’ |
| enzogu ɪngʊrʊ | ‘hard-working elephant’ |
| zinzogu zingʊrʊ | ‘hard-working elephants’ |
| eng’oombe ɪnguru | ‘hard-working cow’ |
| zing’oombe zinguru | ‘hard-working cows’ |
| | |
| mʊ́ʊ́ndɔ́ mɔ́ꜜgáásɔ́ | ‘very-good person’ |
| ímbwá íꜜngáásɔ́ | ‘very-good dog’ |
| aváándɔ́ váꜜgáásɔ́ | ‘very-good persons’ |
| | |
| mwááꜜná mdáꜜmáánɔ́ | ‘bad child’ |
| aváándɔ́ vádááꜜmáánɔ́ | ‘bad people’ |
| vííꜜhá vádááꜜmáánɔ́ | ‘bad brides’ |
| ng’óómbééndááꜜmáánɔ́ | ‘bad cow’ |
| zíng’óómbé zíndááꜜmáánɔ́ | ‘bad cows’ |
| éꜜngókó ꜜíndááꜜmáánɔ́ | ‘bad chicken’ |
| zíꜜngókó ꜜzíndááꜜmáánɔ́ | ‘bad chickens’ |
| éng’óómbé índááꜜmáánɔ́ | ‘bad cow’ |
| | |
| ǹgʊ́rʊ́ꜜvé ꜜíꜜndí | ‘small pig’ |
| zíngʊ́rʊ́ꜜvé zíndí | ‘small pig’ |
| rogéémbé rʊ́dí | ‘small razor’ |
| endéꜜvé índí | ‘small chair’ |
| zindévéꜜ zíndí | ‘small chair’ |
| | |
| rógééndɔ́ rʊ́dɪ́nu | ‘hard journey’ |
| kítuungúꜜrú kíꜜdínyu | ‘hard onion’ |
| ḿbánó mʊ́dínyu | ‘hard knife’ |
| íḿbánó mídínyu | ‘hard knives’ |
| aváándɔ́ vádínyu | ‘hard people’ |
| mábwóóní madínyu | ‘hard potatoes’ |
| ɪbáákúúrí ɪndínyu | ‘hard bowl’ |
| zibáákúúrí zindínyu | ‘hard bowls’ |
| vóséá vʊ́dínyu | ‘hard porridge’ |
| | |
| kígúútí kídiidíídi | ‘small field’ |
| zíngʊ́rʊ́ꜜvé zíndiidíídi | ‘small pig’ |
| ɪngʊgí ꜜíꜜndíídíídi | ‘small baboon’ |
| kɪbáꜜgá kíꜜdíídíídi | ‘small cat’ |
| vibáꜜgá víꜜdíídíídi | ‘small cats’ |
| eng’óómbé índiidíídi | ‘small cow’ |

Deverbal A

| | |
|---|---|
| zindéve zí!mbááng'é | 'arranged chairs' |
| ɪnyóómb-ɪɪmbó!móré | 'demolished house' |
| ŋáá!ŋ-éé!ndóóŋé | 'tomato made into small pieces' |
| ɪmbw-é!éngóné | 'sleeping dog' |

| | |
|---|---|
| zingóza zíndeeké | 'cooked vegetables' |
| má!gónyá má!dééké | 'cooked bananas' |
| íŋáméé!ndééké | 'cooked meat' |
| íŋámá í!ndééké | 'cooked meat' |
| éngókó endeeke | 'cooked chicken' |
| zíngókó zindeeke | 'cooked chickens' |
| mitó mí!dééké | 'cooked mito' |
| ŋáméé!ndééké | 'cooked meat' |

N-to-A

| | |
|---|---|
| ɪbɔ́s-í!índáka | 'poor beer' |
| eng'óómb-ííndíríjɪ | 'Tiriki cow' |
| eng'óómb-íí!ngóógá | 'grandfather cow' |
| ɪmbɔ́!r-íí!mbáábá | 'father goat' |
| ɔnyóó!mb-íí!njóómbe | 'MP house' |

| | |
|---|---|
| ŋama endoto | 'infant animal' |
| mwááraabu mdoto | 'infant Arab' |
| kísíí!mbííkírá kedoto | 'infant whydah' |
| endévé endoto | 'soft chair' |
| zindévé zindoto | 'soft chairs' |

N Cl 11-10

| | | |
|---|---|---|
| rɔbááho | zimbááho | 'lumber' |
| rɔdáambi | zindáambi | 'wick' |
| ɔró!dááng'á | zí!ndááng'á | 'cattle-herding stick' |
| rɔgáda | zingáda | 'pipe' |
| rɔjɔ | zinjɔ | 'clay bowl' |

1s SP perfective

| | |
|---|---|
| mbomori | 'I destroyed' |
| kobomori | 'we destroyed' |
| ndeechi | 'I cooked' |
| odeechi | '2s cooked' |
| ngáí | 'I forbade' |

| | |
|---|---|
| kʊgáí | ‘we forbade’ |
| ajíbí | ‘he answered’ |
| njíbí | ‘I answered’ |
| ngagórízi | ‘I sold them$_{-6}$’ |
| ngʊgórízi | ‘I sold it$_{-3}$’ |
| njigórízi | ‘I sold them$_{-4}$’ |
| ngítung’amiɲi | ‘I inverted it$_{-9}$’ |

1s SP subjunct

| | |
|---|---|
| reka ngórí | ‘let me buy’ |
| reka ngagórízi | ‘let me sell it-6’ |
| reka ngʊgórízi | ‘let me sell it-3’ |
| geɲékáá ˈnzáázááme | ‘I should taste’ |

1s SP progressive

| | |
|---|---|
| ngagómíraa | ‘I am touching it$_{-6}$’ |
| ngʊgʊmíraa | ‘I am touching it$_{-3}$’ |
| nzáázaamaa | ‘I am tasting’ |
| nzíírıllaa | ‘I am continuing’ |
| nzéengeellaa | ‘I am staring at’ |
| vazéengeellaa | ‘they are staring at’ |
| nzókáa | ‘I am pouring’ |
| ngómíraa | ‘I am catching’ |
| ngávóranyaa | ‘I am doling out’ |
| njíibaa | ‘I am answering’ |
| ndeekáa | ‘I am cooking’ |
| ndooráa | ‘I am picking up’ |
| mbórókaa | ‘I am flying’ |

1s OP

| | |
|---|---|
| vaambáángırıı | ‘they arranged for me’ |
| vaandéékere | ‘they cooked for me’ |
| vaanjíbí | ‘they answered me’ |
| vaanzʊkírıı | ‘they poured for me’ |
| aanzʊkíraa | ‘he’s pouring for me’ |
| vaanzéé ˈngéélláa | ‘they are staring at me’ |
| vaanzáá ˈzáámíráa | ‘they are tasting for me’ |
| nduyá | ‘hit me’ |
| ngavólla | ‘divide for me’ |

## 2. Nasal deletion

Nasals delete in two contexts, immediately before a nasal, and before a fricative. Nouns in lexical cl. 9-10 whose root begin with a nasal or a fricative are consistent with the

general rule that a nasal deletes before a nasal or a fricative, but such nouns do not proving compelling evidence for the rule, since not all 9-10 nouns select the class prefix /N/ (e.g. *ɪ-góó!fyá* 'hat', *e-béde* 'ring', *ɪ-tííga* 'giraffe'). One might reasonably expect one of the nouns *ɪ-máári* 'wealth', *e-mééri* 'ship', *e-mééza* 'table', *e-ng'édu* 'joint', *ɪ-sá* 'time', *ɪ-sííndu* 'quail', *í-súgúdi* 'drum (conga)' to have the class prefix /N/ underlyingly, but in light of the existence of a lexically determined Ø class allomorph in cl. 9-10, there is no obvious reason for claiming that some specific noun in this set has the prefix /N/.

However, there is an independent diagnostic that suggests that only a few nouns whose stem begins with a nasal or *s* lack a nasal prefix, and others (the majority) do underlyingly have that prefix, which is phonologically deleted. The evidence, discussed in 10, especially 10.8, pertains to vowel lengthening related to NC sequences. The stems /swééta/, /mééri/ and /méésa/ do not undergo the vowel lengthening process attested in /sóóka/, /nyóómba/ and /ng'oombe/.

| | |
|---|---|
| n-íí!sóóka | 'with a sheet' |
| n-í!swééta | 'with a sweater' |
| kí!r-émééri | 'each ship' |
| kí!r-íínyóómba | 'each house' |
| koméésa | 'on a table' |
| koong'oombe | 'on a cow' |

In cases without the segmental ambiguity, i.e. in the case of surface stop-initial nouns, lengthening occurs provided the noun takes an overt nasal prefix (subject to additional conditions, related to the selection of the augment). It is therefore assumed that the cl. 9-10 nasal prefix does delete before noun-stems beginning with nasals or /s/. Data from nouns in cl. 11-10, verbs and adjectives (including denominal derivatives), which do not have such Ø allomorphy, provide strong evidence for nasal deletion.

### 2.1. Pre-nasal deletion

When /N/ precedes a stem-initial nasal, /N/ deletes. Surface nasal + nasal, including geminates, do arise from reduction of other prefixes such as /mʊ, rʊ, ri/. Lexical nouns illustrating this pattern are hard to come by. Only two nouns in cl. 11-10 are known whose stem begins with a nasal.

N Cl 11-10

| | | |
|---|---|---|
| rómémo | 'flame' | zimémo |
| rʊmɪllo | 'gullet' | |

Lexical A

| | |
|---|---|
| lígéémbé línéne | 'big hoe' |
| mórímí mónéne | 'big farmer' |
| rʊháá!ngáywá !rónéne | 'big cave' |

| | |
|---|---|
| éng’óómbé éénéne | ‘big cow’ |
| ebé¦dé éénéne | ‘big ring’ |
| ɪɲóómbá ¦éénéne | ‘big house’ |
| ímbúkú ¦éénéne | ‘big mole’ |
| ɪnavó¦dó éénéne | ‘big basket’ |
| ɪngógí¦ éénéne | ‘big baboon’ |
| zííngó zinéne | ‘big firewood’ |
| zinavó¦dó zínéne | ‘big baskets’ |
| zí¦ngókó ¦zínéne | ‘big chickens’ |
| índá éénéne | ‘big stomach’ |
| í¦ngókó ¦ínéne | ‘big chicken’ |
| zímbágayó ¦zíneéne | ‘big hooves’ |
| índóvátíró éénéne | ‘big sole’ |
| í¦mbóógó ɪnéne | ‘big buffalo’ |
| | |
| mágóké mámwaaḿ | ‘black ashes’ |
| kígó kí¦mwáám | ‘black wasp’ |
| zíngúbó zí¦mwáámó | ‘black cloth’ |
| kahá¦wá í¦mwáámó | ‘black coffee’ |
| ɪbárási í¦mwááḿ | ‘black horse’ |
| í¦njúúgíí ¦mwáámó | ‘black peanut’ |
| mórímí ḿ¦mwáámó | ‘black farmer’ |
| mwóó¦gó ḿ¦mwááḿ | ‘black cassava’ |
| emó¦ní mwaaḿ | ‘black eye’ |
| ɪbáá¦kúúlí mwaaḿ | ‘black bowl’ |
| ɪdárá¦já ímwaaḿ | ‘black bridge’ |
| ńgó í¦mwáámó | ‘black leopard’ |
| zibáákóórá zímwaaḿ | ‘black walking stick’ |
| zíngó zí¦mwáámó | ‘black leopard’ |
| ɪgéé¦ngéére ɪmwaamʊ | ‘black bell’ |
| ɪzí¦ngókó ¦ízí¦mwááḿ | ‘black chickens’ |
| ɪbáá¦kúúrí ¦ímwáámó | ‘black bowl’ |
| | |
| emóní ¦émósi | ‘left eye’ |
| éng’óómb-éémósɪ | ‘left cow’ |
| ɪnyóó¦mb-éémósɪ | ‘left house’ |
| ʊgʊtó ¦gómósɪ | ‘left ear’ |
| mkó¦nó ḿmósi | ‘left hand’ |
| gʊtó ¦gómósi | ‘left ear’ |
| kérééngé kémósi | ‘left foot’ |
| índóvgíró émósi | ‘left heel’ |
| vírééngé vímósi | ‘left feet’ |
| | |
| ísúgúdí ínífu | ‘nice sugudi’ |
| nyúúmbá ínífu | ‘nice house’ |
| zinyúúmbá ¦zínífu | ‘nice houses’ |

| | |
|---|---|
| zíˈngóróˈví zínífu | ‘nice pigs’ |
| | |
| eng’óómb-ééng’élle | ‘slim cow’ |
| zimbúˈrí zíng’élle | ‘slim goats’ |
| íˈmbítí ˈéng’élle | ‘slim hyena’ |
| zíng’óómbé zíng’élle | ‘slim cows’ |
| | |
| íɲámá ínúru | ‘sweet meat’ |
| íˈnjúúg éénórʊ | ‘sweet peanut’ |
| ichái ınóru | ‘sweet tea’ |
| ríˈgómyá rinuru | ‘sweet banana’ |
| vwóóˈkí vónórʊ | ‘sweet honey’ |
| ríchúúˈngá nnúru | ‘sweet orange’ |
| mkááˈdó mnórʊ | ‘sweet avocado’ |
| ichái ınóru | ‘sweet tea’ |
| íbóˈsá ínórʊ | ‘sweet busa’ |
| | |
| ínzóní íˈnyááró | ‘wilted clotting plant’ |
| zínzóní ziˈnyááró | ‘wilted clotting plants’ |
| ılyáˈówá riˈnyááró | ‘wilted flower’ |
| lyáˈówá líˈnyááró | ‘wilted flower’ |
| ḿndó móˈnyááró | ‘wilted person’ |
| váándó váˈnyááró | ‘wilted persons’ |
| zíɲááˈɲá ziˈnyááró | ‘wilted tomatos’ |
| zíngúzá ziˈnyááró | ‘wilted vegetable’ |
| | |
| chááˈmégéré kínyííngı | ‘much mushroom’ |
| mavúrúrí mányííngı | ‘much husk trash’ |
| vihóóˈtíllá vínyííngi | ‘many ants’ |
| ifwééˈzá nyííngı | ‘much silver’ |
| ziˈndógóˈnyí zínyííngı | ‘many ants’ |
| zínávóˈdó zínyííngı | ‘many baskets’ |
| zíng’óómbé zínyííngı | ‘many cows’ |
| zisúˈrí zínyííngı | ‘many bedbugs’ |
| | |
| vakááˈná váng’áfu | ‘thin girls’ |
| ḿndó móng’áfu | ‘thin person’ |
| kísóóˈngórá kíng’áfu | ‘thin rabbit’ |
| éng’óómbé éng’áfu | ‘thin cow’ |

<u>Deverbal A</u>

| | |
|---|---|
| íɲámá éɲóru | ‘seasoned meat’ |
| éˈndéékéˈ | ‘cooked$_{-9}$’ |
| íɲááɲé | ‘chewed$_{-9}$’ |
| éˈɲóóré | ‘found$_{-9}$’ |
| ímáɲe | ‘known$_{-9}$’ |

| | |
|---|---|
| enóge | ‘plucked$_{-9}$’ |
| ɪnáve | ‘sewn$_{-9}$’ |
| emére | ‘malted$_{-9}$’ |

N-to-A

| | |
|---|---|
| eng’óómb-íí!náándí | ‘Nandi cow’ |
| zing’óómb-ízíí!náándí | ‘Nandi cows’ |
| ɪnyóó!mb-éé!ndéréva | ‘driver house’ |
| ɪnyóómb-ɪɪmáá!sáí | ‘Maasai house’ |
| zinyóómb-ízimáá!sáí | ‘Maasai houses’ |
| zingóómb-ízímáá!sáí | ‘Maasai cow’ |
| engóómb-ímáá!sáí | ‘Maasai cows’ |

1s SP perfective

| | |
|---|---|
| nwíɪ | ‘I drank’ |
| ng’óódi | ‘I wrote’ |
| móónyi | ‘I gossiped’ |

1s SP subjunct

| | |
|---|---|
| reka méɲé | ‘let me reside’ |
| reka mórómé | ‘let me speak’ |
| reka nyí | ‘let me defecate’ |
| reka ɲágórí | ‘let me run’ |
| reka ɲóré | ‘let me strip’ |

1s SP progressive

| | |
|---|---|
| malízaa | ‘I am finishing’ |
| minígaa | ‘I am stirring’ |
| ɲaaɲáa | ‘I am eating’ |
| ɲaráa | ‘I am able’ |
| ng’úsáa | ‘I am pulling’ |
| ɲóóraa | ‘I am finding’ |
| nweezáa | ‘I am drinking’ |
| mórómaa | ‘I am speaking’ |
| mínágaa | ‘I am stirring’ |
| nweezáa | ‘I am drinking’ |
| ɲagóráa | ‘I am running’ |
| ng’ósáa | ‘I am pulling’ |

1s OP

| | |
|---|---|
| variimáɲá | ‘they will know me’ |

| | |
|---|---|
| vaamányí | ‘they knew me’ |
| vaaɲóóri | ‘they have found me’ |
| naamórómere | ‘he will speak to me’ |
| aráámoromera | ‘he will speak to me’ |
| oomórómere | ‘speak to me!’ |
| kóóng’oodera | ‘to write to me’ |

## 2.2. Deletion before fricatives

Deletion of /N/ before a fricative is exceptionless, factoring in the previous complication discussed in 1.1.1 that sometimes the fricatives /sh, f/ harden to [by, bw] – such hardening is never found with /s/.[9] This section focuses on deletion before /s/, including a few previous examples of deletion before /f/ and /sh/.

Lexical A

| | |
|---|---|
| ɪmbwá ɪsáákʊra | ‘old dog’ |
| ɪngóróvé ɪsáákʊrʊ | ‘old pig’ |
| ɪbáákóó'rí ɪsáákʊrʊ | ‘old bowl’ |
| írííngá ísáá'kóró | ‘old sickle’ |
| | |
| zíngógí zísíro | ‘stupid baboons’ |
| í'ngóróvé ísíro | ‘stupid pig’ |
| ímbwá ɪsírʊ | ‘stupid dog’ |
| ímbá'dá ísírʊ | ‘stupid hawk’ |

Deverbal A

| | |
|---|---|
| esóó'góó'n-íífái'díké | ‘profitable market’ |
| íɲám-ííshée | ‘ground meat’ |

N-to-A

| | |
|---|---|
| ambéér-amafá'ráánza | ‘French milk’ |
| eng’óómb-íífá'ráánza | ‘French cow’ |

N Cl 11-10

| | |
|---|---|
| ros’eéng’eenge | ‘barbed wire’ |

1s SP perfective

| | |
|---|---|
| fóógoyi | ‘I got crippled’ |
| faani | ‘I fanned’ |
| shíɪ, shée | ‘I ground’ |

[9] Hardening may be the only option, in the case of lexical noun and adjective stems.

| | |
|---|---|
| shɪri | ‘I drove’ |
| séchi | ‘I laughed’ |
| séégeri | ‘I limped’ |

1s SP subjunct

| | |
|---|---|
| reka shí | ‘let me grind’ |
| réká shéévé | ‘let me dance’ |

1s SP progressive

| | |
|---|---|
| faanáa | ‘I am fanning a fire’ |
| shʊʊháa | ‘I am getting warm’ |
| shéézaa | ‘I am grinding’ |
| sʊʊráa | ‘I am refusing’ |
| sigámáa | ‘I am kneeling’ |
| sékáa | ‘I am laughing’ |
| sáámbaa | ‘I am roasting’ |
| suuváa | ‘I am throwing out’ |

1s OP

| | |
|---|---|
| aafútí | ‘he fired me’ |
| ʊʊshʊ́ʊ́hizi | ‘you warmed me’ |
| seembélla | ‘weed for me!’ |
| | |
| aashíírɪɪ | ‘he ground for me’ |
| ʊʊfáidɪkɪrɪɪ | ‘you profited for me’ |
| kʊ́ʊ́suuvɪra | ‘to throw out for me’ |
| kʊ́ʊ́sʊgaanyɪra | ‘to mix for me’ |

## 3. Nasal Place Assimilation

Underlyingly-present nasal plus consonant sequences are always homorganic (assuming that the nasal is not deleted). This fact has been exemplified repeated in previous data.[10]

| | |
|---|---|
| énzógú ímbí | ‘bad elephant’ |
| é!ngókó í!mbívíívɪ | ‘bad chicken’ |
| zing’oombe zimbeereri | ‘sad cows’ |
| ɪnávó!dó ímbyá | ‘new basket’ |
| zííndá !zíndávʊ́ | ‘white lice’ |
| eneengero ɪnditʊ | ‘heavy beer pot’ |
| í!ngóró!vé índáhi | ‘good pig’ |
| kéróó!rí kítíindi | ‘pugnacious heifer’ |
| é!ngókó í!njááfʊ | ‘dirty chicken’ |

[10] Recall that orthographic *n* before *k, g* is phonetic [ŋ].

engó!f-índáámbɪ ‘long umbilical cord’

zígéengéré zínzéré ‘empty bells’
ɪmbára ɪnzákanyɔ́ ‘red scar’
endéve ɪngɔ́rɔ ‘old chair’
íngɔ́gí !íngé ‘small baboon’
zingó zingómerɔ ‘fat leopards’

Deverbal A

endé!vé ímbɔ́!níchí ‘broken chair’
zingúzá zímbákɔ ‘scorched vegetables’
ɪríí!ng-íí!mbááné ‘given sickle’
ɪnyíí!ngú índásu ‘thrown cooking pot’
zíɲám-ízí!ndógé ‘bewitched animals’
ɪnyɔ́ɔ́!mb-énzéyé ‘swept house’
endévé !íngá!rágé ‘chopped chair’
ɪsáá!vúúní endéllechi ‘slippery soap’

N-to-A

éng’óómbé éndógoori ‘Logoori cow’
eng’óómb-íí!mbááyá ‘Haya cows’
ɪmbítí ɪngari ‘female hyena’
éng’óómbéé ndíga ‘widow cow’

N Cl 11-10

ɔ́lléra ízíndéra ‘umbilical cord’
orovega izimbega ‘direction’
ɔrɔ́!fɔ́ɔ́ngɔ́ ɪzí!mbɔ́ɔ́ngɔ́ ‘key’
rɔ́!hímá zí!mbímá ‘spleen’
ɔrɔ́kwí ɪzíngwí ‘firewood’
ɔrɔtávati ɪzindávati ‘thorny plant’
rɔbáánga zimbáánga ‘panga’

1s SP perfective

mbɔ́gɪɪlɪɪ ‘I accept’
mbákaraangɪɪ ‘I fried for them$_{-2}$’
mbarórí ‘I saw there$_{-16}$’
ndéévi ‘I got drunk’
nzavɪri ‘I buried’
akaavi ‘he searched’ ngaavi ‘I searched’

1s SP subjunct

naambégé ‘I will shave’
reka mbéengé ‘let me look’
reka ndoréete ‘let me bring it$_{-11}$’
naa ndéété ‘I will bring’
naanzerémé ‘I will float indef’
naanzisyááge ‘I will split wood’
reka njéérízí ‘let me greet’
reka ngáávé ‘let me search’

1s SP progressive

mbohóólàa ‘I am untying’
mbaangáa ‘I am arranging’
mbyóóhízáa ‘I am warming’
ndíráa ‘I am crying’
ndohéénzaa ‘I’m looking at it$_{-11}$’
nzaháa ‘I am plucking’
nzaraa ‘I am spreading’
ngaráángáa ‘I am frying’
ngaaváa ‘I am searching’

1s OP

mbógólla ‘take for me!’
vaambéénzi ‘they looked at me’
vaandájí ‘they promised me’
kóónzigɒlla ‘to open for me’
navaanzítɪ ‘they will kill me’
vaandéévi ‘they asked me’
reka vaanjóolle ‘let them draw for me’
vaambáángɪrɪɪ ‘they arranged for me’
vaandéékere ‘they cooked for me’
vaanjíbí ‘they answered me’

It is impossible to determing what underlying place of articulation (if any) the relevant prefixes have, since whenever such a prefix is followed by a vowel, some consonant is inserted (usually *y*, sometimes *d* in the base of the subject prefix N- before the tense prefix -a-).

## 4. Initial y

There is an alternation between *y* and Ø in verb inflections. Apart from the previously discussed combined effects of place assimilation and Ganda Law where /N+y/ become [ɲ], creating the appearance of y-deletion, the alternation comes from direct *y*-insertion in appropriate environments. Such insertion affects all vowel-initial roots, and certain

prefixes. The generalization is that *y* is always inserted before a root-initial vowel when it comes after a nasal, or when it is word-initial, and is optionally or obligatorily inserted after certain long vowels. We first consider the distinction between y-initial versus Ø-initial roots (where *y* can be inserted in certain contexts), then in 4.2 look at y-insertion. No prefixes underlyingly contain /y/, but the cl. 1 subject, reflexive, and 1s OP prefix exhibit y~Ø alternations, discussed in 4.3.

## 4.1. The root-initial contrast

The first issue in analysing y/Ø-initial roots is diagnosing the underlying form of the root, which is rather easy to do.

### 4.1.1. y-initial roots

The infinitive is the most obvious context for detecting the distinction between Ø-initial and *y*-initial roots, e.g. *kw-ááta* 'to perform surgery' vs. *kʊ-yava* 'to bury' (cf. *yata* 'perform surgery!', *yava* 'bury!').[11]. Underlying /y/ is always present, subject to hardening or the deletion effect of GL discussed above.

**a. Infinitive**

| | |
|---|---|
| kʊyaanza | 'love' |
| kʊyaara | 'sue' |
| kʊyava | 'dig' |
| koyeeka | 'sag' |
| kʊyiinga | 'be foolish' |
| kʊyɪɪngʊka | 'melt' |
| kʊyɪɪnzɪra | 'work' |
| koyoboya | 'speak indistinctly' |
| koyoga | 'talk' |
| koyoombooka | 'be all over the place' |
| koyooya | 'scoop' |
| kʊyʊʊmba | 'be overgrown' |
| kʊyʊ́ʊ́yʊʊma | 'run slowly' |

Underlying /y/ is similarly preserved after vowel-final object prefixes

**b. OP**

| | |
|---|---|
| mʊyeengére | 'brew for him!' |
| koyeengére | 'brew for us!' |
| vayeengére | 'brew for them!' |

[11] The contrast is not very robust lexically: y-initial roots generally are followed by a long vowel, but there is a decent contrast before NC, e.g. *kʊyʊʊmba* "to be overgrown" vs. *kwʊ́ʊ́mbaka* "to build", *kʊyɪɪnzɪra* "to work" vs. *kwɪɪmba* "to sing", *koyeenga* "to brew" vs. *kweenga* "to ripen". Virtually all examples are L verbs.

| | |
|---|---|
| gayooyé | ‘scoop it-6!’ |
| myavíꜜrí | ‘bury him!’ |
| kʊkóyeengera | ‘to brew for us’ |
| kʊváyoomboolla | ‘to pour on them’ |

All tense prefixes are V-final, and /y/ is preserved after all tense prefixes.

**c. Tense prefix**

/kʊ/

| | |
|---|---|
| vaakʊyɪɪnzɪra | ‘we have worked’ |
| kwaakʊyava | ‘we have dug’ |
| kwaakoyeenga | ‘we have brewed’ |
| chaakʊyɪɪngʊka | ‘it has melted’ |
| kwaakoyoomboora | ‘we have over-poured’ |
| chaakʊyʊʊmba | ‘it has overgrown’ |

/ra/

| | |
|---|---|
| varayɪɪnzɪra | ‘they will work’ |
| arayaanza | ‘he will love’ |
| kʊrayaara | ‘we will sue’ |
| ɪrayeeka | ‘it will sag’ |
| varayava | ‘they will dig’ |
| ʊrayoga | ‘you will talk’ |
| *ʊrooga | |

/aaka/

| | |
|---|---|
| ndáakayavɪra | ‘I buried’ |
| ndáákayéénga | ‘I’ve done the brewing part’ |
| ndáákayooya | ‘I’ve done the scooping part’ |
| ndáákayóóyʊʊma | ‘I’ve done the slow running part’ |

/ri/

| | |
|---|---|
| áríyógá | ‘he may talk’ |
| kʊ́ríyává | ‘we may dig’ |
| kʊ́ríyéénga | ‘we may brew’ |
| kʊriyóómboora | ‘we may overpour’ |
| kʊriyʊʊyʊʊma | ‘we may run slowly’ |
| varíyíínzɪra | ‘they will work’ |

/ka/

| | |
|---|---|
| kayavé | ‘now dig!’ |
| kayeengé | ‘now brew!’ |
| kayɪɪnzírɪ | ‘now work!’ |
| kayiingí | ‘now be foolish!’ |
| kayʊʊyóꜜʊ́mí | ‘now run slowly!’ |

/ta/

| | |
|---|---|
| tayáá¦nzá mbá | ‘don’t love!’ |
| tayavá ¦mbá | ‘don’t dig!’ |
| tayógá ¦mbá | ‘don’t talk!’ |
| tayóó¦yá mbá | ‘don’t scoop!’ |

/kɪ/

| | |
|---|---|
| akeyéénga | ‘he is still brewing’ |
| vakɪyáára | ‘they are still suing’ |
| kokeyóboya | ‘we are still mumbling’ |
| kókíyává | ‘we are still digging’ |
| okɪyíínzɪra | ‘you are still working’ |
| ḿkéyógá | ‘2p are still talking’ |
| vákíyóyóómá | ‘they are still running slowly’ |

Likewise, initial /y/ is retained after a vowel-final subject prefix

**d. SP**

| | |
|---|---|
| ayééchi | ‘he bent (to side)’ |
| ayóómbooree | ‘he over-poured’ |
| ayágáyagi | ‘he glistened’ |
| oyójí | ‘2s talked’ |
| | |
| na vayíínzírɪ | ‘they will work’ |
| maa kɒyááré | ‘we will sue’ |
| maa kɒyííngí | ‘we will be foolish’ |
| | |
| kóyíínzírí | ‘let’s work’ |
| reka koyééngé | ‘let’s brew’ |
| reka kɒyávé | ‘let’s dig’ |
| reka koyóóyé | ‘let’s scoop’ |
| | |
| oyógáa | ‘you are talking’ |
| ayáváa | ‘he is digging’ |
| mɒyáára | ‘2p are suing’ |
| kɒyóómbaa | ‘we are overgrown’ |
| vayééngaa | ‘they are brewing’ |
| ayávíraa | ‘he is burying’ |
| mɒyíínzɪraa | ‘you plural are working’ |
| mɒyííngaa | ‘2p are foolish’ |
| mɒyooyóómáa | ‘2p are running slowly’ |
| | |
| maní vá¦yáára | ‘then they sued’ |
| mani kó¦yéénga | ‘then we brewed’ |
| man-óó¦yíínzɪra | ‘then you worked’ |
| man-óó¦yóbóya | ‘then you mumbled’ |

| | |
|---|---|
| man-óó¦yógá | ‘they you talked’ |
| mani vá¦yógá | ‘then they talked’ |
| mani váyʊʊyóʊ́ma | ‘then they ran slowly’ |
| | |
| maní kó¦yógá | ‘then we talked’ |
| manı vá¦yáára | ‘then they sued’ |
| man-áá¦yávíra | ‘then he dug’ |
| man-éé¦yééka | ‘then it sagged’ |
| manı vá¦yíínzıra | ‘then they worked’ |
| manéé ¦nzóóya | ‘then I scooped’ |
| man-óó¦yóóya | ‘they you scooped’ |
| man-óó¦yéénga | ‘they you brewed’ |

### 4.1.2. Ø-initial roots

In contrast, in comparable contexts, vowel-initial roots merge their initial vowel with a preceding vowel, via glide formation or vowel deletion (section 8).

**a. Infinitive**

| | |
|---|---|
| kwáádıka | ‘burst’ |
| kwaambʊka | ‘cross’ |
| kweeŋa | ‘want’ |
| kwéérema | ‘float’ |
| kwíígiza | ‘teach’ |
| kwıımba | ‘sing’ |
| kwóónoonya | ‘mess up’ |
| kwʊ́ʊ́gıha | ‘be sharp’ |
| kwʊ́ʊmbaka | ‘build’ |
| kwʊʊnga | ‘join’ |

**b. OP**

| | |
|---|---|
| kʊkwíígʊlla | ‘to open for us’ |
| kʊvíígʊlla | ‘to open for them-2’ |
| akwééŋaa | ‘he is wanting you’ |
| chaatánye | ‘smash it-7!’ |
| arichiíta | ‘kill 7!’ |
| navaríitı | ‘they will kill 5’ |
| ngıcheeyá | ‘I am still sweeping it-7’ |

**c. Tense prefix**

/kʊ/

| | |
|---|---|
| kwaakweeya | ‘we have swept’ |
| vaakʊyıınzıra | ‘we have worked’ |
| yaakwíita | ‘he has killed’ |
| yaakwʊ́ʊma | ‘he has gotten dry’ |

| | |
|---|---|
| yaakwááta | ‘he has performed surgery’ |
| yaakwíígiza | ‘he has taught’ |

/ra/

| | |
|---|---|
| mʊrʊ́ʊ́mbaka | ‘2p will build’ |
| arʊ́ʊma | ‘he will be dry’ |
| ndííta | ‘I will kill’ |
| ndeenya | ‘I will look for’ |
| ndiigʊra | ‘I will open’ |
| ndáaha | ‘I will pluck’ |
| ndiizuliza | ‘I will remember’ |
| ʊríɪmba | ‘you will sing’ |
| kerʊ́ʊneka | ‘it will be spoiled’ |
| ndeeya | ‘I will sweep’ |
| aríígiza | ‘he will teach’ |

/aaka/

| | |
|---|---|
| váakeeya | ‘they swept’ |
| váakíírʊka | ‘they fled’ |
| váá'kíita | ‘they killed’ |
| váá'kíígiza | ‘they taught’ |
| yaakeeya | ‘he swept’ |
| ndáachiíguta | ‘I am now satisfied’ |
| ndáachíita | ‘I killed’ |
| ndáakaáta | ‘I did surgery’ |
| ndáakaátanya | ‘I smashed’ |
| ndáakíígiza | ‘I taught’ |
| ndáachííguta | ‘I satisfied’ |
| ndáakeenya | ‘I looked for’ |

/ri/

| | |
|---|---|
| aryʊʊmbáká | ‘he may build’ |
| aryeerémá | ‘he may float’ |
| variita | ‘they may kill’ |
| aryíímɪlla | ‘he may lead’ |
| ʊriigʊra | ‘you may open’ |
| varyaatá | ‘they may perform surgery’ |
| varieyá | ‘they may sweep’ |
| varieŋá | ‘they may want’ |

/ka/

| | |
|---|---|
| kaahé | ‘now pluck!’ |
| kaané | ‘now moo!’ |
| keeŋé | ‘now want!’ |
| keerémé | ‘now float!’ |
| kiigí'zí | ‘now teach!’ |

| | |
|---|---|
| kiigó¦rí | ‘now open!’ |
| kʊʊngá¦ányí | ‘now join!’ |
| kʊʊmbá¦ké | ‘now build!’ |

/ta/

| | |
|---|---|
| taata dáave | ‘don’t surgery’ |
| taara dáave | ‘don’t spread’ |
| teeyá ¦dáave | ‘don’t sweep’ |
| tiita dáave | ‘don’t kill’ |
| teeréma dáave | ‘don’t float’ |
| taambóka dáave | ‘don’t cross’ |
| tiigiza dáave | ‘don’t teach’ |
| tiirʊka dáave | ‘don’t flee’ |
| taavʊra dáave | ‘don’t take off line’ |
| tiigóra dáave | ‘don’t open’ |
| tiizóriza dáave | ‘don’t remember’ |

/ke/

| | |
|---|---|
| achiigóra | ‘he is still opening’ |
| vachiita | ‘they are still killing’ |
| vachaata | ‘they are still doing surgery’ |

**d. SP**

Subjunctive

| | |
|---|---|
| ná wíígórí | ‘you will open’ |
| ná víígórí | ‘they will open’ |
| ná mwíígórí | ‘2p will open’ |
| na veerémé | ‘they will float’ |
| nɪ vaambókí | ‘they will ford’ |
| na chaadíkɪ | ‘it will be smashed’ |
| na viikáré | ‘they will sit’ |
| na viigízí | ‘they will teach’ |
| na viigízáne | ‘they will teach e.o’ |
| na viigízí | ‘they will teach’ |
| na vaavókánye | ‘they will branch off’ |

| | |
|---|---|
| leka kwaambókɪ | ‘let’s cross’ |
| leka kwʊʊngáanye | ‘let’s join’ |
| geeneká¦á kwééyé | ‘we need to sweep’ |
| geeneká¦á víígízí | ‘they need to teach’ |
| geeneká¦á mwáámbókí | ‘2p need to build’ |

Progressive

| | |
|---|---|
| kwaaháa | ‘we are plucking’ |

| | |
|---|---|
| kweerémáa | ‘we are floating’ |
| mwaarámáa | ‘2p are spread open’ |
| mwiigóraa | ‘2p are opening’ |
| vaambókaa | ‘they’re fording’ |
| veeɲáa | ‘they want’ |
| vɪɪgízáa | ‘they are teaching’ |
| viigóraa | ‘they are opening’ |
| vʊʊmbákáa | ‘they are building’ |
| weeɲáa | ‘you are wanting’ |
| wiigóraa | ‘you are opening’ |
| wɪɪmbáa | ‘you are singing’ |

Consecutive

| | |
|---|---|
| maní ví!ígóra | ‘then they opened’ |
| maní kwí!ígóra | ‘then we opened’ |
| maní vá!ávórá | ‘then they took off the line’ |
| mání wé!éyá | ‘then you swept’ |
| mání mwé!éyá | ‘then 2p swept’ |
| mani vaáta | ‘then they did surgery’ |
| mani kwííta | ‘then we killed’ |

Recent perfective verbs also exemplify these patterns of vowel fusion between a pronominal prefix and a Ø-initial verbs. As noted in Q, there are two variants of this tense, one with a short subject prefix vowel and a special tone patterns (H verbs become toneless, L verbs have H on the first two moras of the stem), and the other, glossed with ‘have’,[12] with a lengthened subject prefix vowel and the basic lexical tone pattern of the verb root: e.g. *adeechi* ‘he cooked’, *aadéechi* ‘he has cooked’. Both variants exist for V-initial stems, though because of vowel fusion eliminating the vowel of the subject prefix, the distinctive lengthening of the subject prefix is lacking. For independent tonal reasons, the melodic tone pattern of L verbs, which is normally on the first two moras of the stem, only appears on the second stem mora.[13]

| | | |
|---|---|---|
| kwaambóchi | ‘we crossed’ | /kʊámbóchi/ |
| kweenyí | ‘we wanted’ | /koényí/ |
| kwiigállɪɪ | ‘we prohibited’ | /kʊígállɪɪ/ |
| kwiirúúri | ‘we winnowed’ | /kʊírúúri/ |
| mwiigállɪɪ | ‘2p prohibited hod’ | /mɪ-ígállɪɪ/ |
| mwiirúúrɪ | ‘2p winnowed’ | /mʊ-írúúrɪ/ |
| viigállɪɪ | ‘they prohibited hod’ | /va-ígállɪɪ/ |
| viigóri | ‘they opened’ | /va-ígóri/ |
| wiigóri | ‘you opened’ | /ʊígóri/ |

[12] As discussed in chapter Q, this form focuses on the fact that the task is now complete.

[13] The righthand column gives the form which is predicted to surface, were there no merger of V+V.

| | | |
|---|---|---|
| kwaagaani | ‘we met’ | /kʊ-agaani/ |
| kwaai | ‘we grazed’ | /kʊ-ayi/ |
| kwaavʊri | ‘we took down’ | /kʊ-avʊri/ |
| kwɪɪmbi | ‘we sang’ | /kʊ-ɪmbi/ |
| kwiirʊchi | ‘we fled’ | /kʊ-irʊchi/ |
| kwiiti | ‘we killed’ | /kʊ-iti/ |
| mwaagaani | ‘2p met’ | /mʊ-agaani/ |
| mwaayi | ‘2p grazed’ | /mʊ-aayi/ |
| vaagaani | ‘they met’ | /va-agaani/ |
| vaayi | ‘they grazed’ | /va-ayi/ |
| viingɪri | ‘they entered’ | /va-ingɪri/ |
| wiirʊchi | ‘you fled’ | /ʊ-irʊchi/ |

The general pattern for hodiernal ‘have’ perfectives, with C-initial roots, is that the subject prefix is lengthened (and the stem exhibits the lexical tone pattern). However, there is no lengthening of the subject prefix before a Ø-initial root. Instead, H tone is assigned to the merged syllable, neutralizing the distinction between H and L roots. See chapter X for further analysis.

/H/

| | |
|---|---|
| yáádɪchi | ‘it has burst’ |
| vááti | ‘they have done surgery’ |
| vááraminyi | ‘they have exposed’ |
| víírʊchi | ‘they have fled’ |
| víígizi | ‘they have taught’ |
| kwóómbachi | ‘we have built’ |
| kwíivi | ‘we have stolen’ |
| wíiti | ‘you have killed’ |

/L/

| | |
|---|---|
| váámbʊchi | ‘they have crossed’ |
| víívɪllɪ | ‘they have forgotten’ |
| vóóngaanyɪɪ | ‘they have joined’ |
| víígallɪɪ | ‘they have obstructed’ |
| váámbakani | ‘they have refused’ |
| kwáámbʊchi | ‘we have crossed’ |
| kwíɪmbi | ‘we have sung’ |
| kwéeyi | ‘we have swept’ |

### 4.1.3. The y/Ø contrast in nominal inflection

There are relatively few noun roots and no lexical adjective roots which begin with *y*, but there many vowel-initial roots. y-initial noun roots are as follows.

| | |
|---|---|
| ʊmó!yááyɪ | ‘boy’ |

| | |
|---|---|
| ʊmʊyaga | ‘sickness sp.’ |
| ɪkɪyái | ‘grass torch’ |
| ʊmʊ́yéke | ‘sand’ |
| ɪkɪyuundi | ‘Little Ruddy Waxbill’ |
| ʊvʊ́yúúsi | ‘corn silk’ |

Such noun stems are invariant in shape, since they never take the nasal-final prefixes for cl. 9-10. There are no cl. 11 nouns with initial [y].[14]

Examples of V-initial nouns can generally be easily detected from the shape of the class prefix, for example *ch* versus *kɪ*, *mw* versus *mʊ* (e.g. *ʊmw-áámi* ‘chief’, *ɪry-úuva* ‘sun’, *ɪch-eeyo* ‘broom’). Again, because of the nature of noun morphology, such stems are always invariant: the root cannot be root-initial not can it be preceded by a cl. 9-10 prefix.[15]

Alternations do arise in denominal and deverbal adjective inflection. One such context is via the N-to-A derivation process, whereby a V-initial noun root can be preceded by both nasal-final cl. 9-10 and other V-final class prefixes:

| | |
|---|---|
| íngáví ínzí!vʊ́rí | ‘parental luck’ |
| ɪmbw-í!ínzí!dákó | ‘Idako dog’ |
| ɪnyʊ́ʊ́mb-ɪɪnzí!súká | ‘Isukha house’ |
| ɪnyʊ́ʊ́mb-ɪɪnzʊ́!mbáchí | ‘a builder house’ |
| ɪnyʊ́ʊ́mb-ɪɪŋʊ́!mbáchí | ‘a builder house’ |
| ɪmbwá ɪnzana | ‘child (young) dog’ |

Lexical adjectives likewise illustrate interaction between prefix nasal or vowel and a Ø-initial root, but as with lexical nouns, no lexical adjective roots begin with /y/.

| | |
|---|---|
| orogeendó ʊrwéére | ‘empty journey’ |
| ɪnávʊ́!dó énzéré | ‘empty basket’ |
| | |
| ʊvwoova vwííngɪ | ‘many mushroom’ |
| ɪzigʊ́!góóng-í!zínyíngí | ‘many backbones’ |
| | |
| rʊdáá!mbí rwáá!kányʊ́ | ‘red wick’ |
| émbóóngó ínzá!kányʊ́ | ‘red buffalo’ |
| | |
| kɪráátó chʊ́!ʊ́mʊ́ | ‘dry shoe’ |
| zimbw-í!zíŋʊ́mʊ́ | ‘dry dogs’ |
| zinyííng-ɪziŋangʊ | ‘light pots’ |
| | |
| oroséé!ng’éé!ng-ʊ́rwʊ́ʊ́gɪ | ‘sharp barbed wire’ |
| zínzígá !zínzʊ́gí | ‘sharp horns’ |

[14] Ndanyi reports *uluyaali* “sling wire or rope made of steel, barbed wire etc.”, *uluyali* “good reputation, fame, well known for good deeds etc.”, which I have been unable to replicate.

[15] There are some vowel-initial nouns in cl. 1a such as *éditon* ‘Editon’, discussed later in this section

| | |
|---|---|
| ʊmwáá¦n ʊ́mwíímbi | ‘short child’ |
| ɪmbádá ¦íníbí | ‘short hawk’ |

In deverbal adjectives, both Ø-initial and y-initial roots are posible (since there is a contrast in verbs).

/y/

| | |
|---|---|
| amarwá ¦máyéengé | ‘brewed alcohol’ |
| eŋéé¦ngé | ‘brewed’ |
| | |
| kɪfóó¦y-íkíyá¦víví | ‘buried rabbit’ |
| engóómb-íínzá¦víví | ‘buried cow’ |
| | |
| enzéére | ‘sagging (house)’ |
| | |
| eng’oomb-ɪnzó¦gé | ‘talking cow’ |

/Ø/

| | |
|---|---|
| ɪnyʊ́ʊ́mb-ɪɪnyí¦ngíví | ‘entered house’ |
| zinyʊ́ʊ́mb-ɪzinyí¦ngíví | ‘entered houses’ |
| zíng’óómbé zínzí¦víllí | ‘forgotten cows’ |
| aváánd-ávíí¦víllí | ‘forgotten people’ |
| ɪjáá¦g-ínzí¦zʊ́ví | ‘full jug’ |
| kekóómb-ɪchíí¦zʊ́ví | ‘full cop’ |
| | |
| é¦ngʊ́¦k-íínzítɪ | ‘killed chicken’ |
| kɪfóó¦y-íchíí¦tí | ‘killed rabbit’ |
| ɪnyʊ́ʊ́mb-ɪnzé¦yé | ‘swept house’ |
| ɪchííkóóní ché¦éyé | ‘swept kitchen’ |
| mʊgér-ʊ́mwáá¦mbʊ́kí | ‘crossed river’ |
| ɪnzír-íŋá¦mbʊ́kí | ‘crossed path’ |

### 4.1.4. Pre-NC vowel length and the y/Ø contrast

Another diagnostic of initial /y/ versus /Ø/ involves the prefix N- before a root of the initial shape (y)V(V)NC. There is no vowel length contrast in vowel-initial roots, but there is one in consonant-initial roots (*kokeera* ‘to age (of female)’, *kokera* ‘to milk’). Vowels are long within a root before NC.[16] When a vocalic prefix precedes a V-initial root, vowel fusion always results in a surface long vowel, so underlying length is not diagnosed in that context. Since the 1sg SP and OP /N/ do not have vowels, they do not

[16] There may be exceptions, for some speakers, in relatively long stems: [ro]*kʊgángayayiza* ‘to guess at something’, [ro]*kʊhɪngɪkana* ‘to be almost full’. As noted in X, vowel length is not particularly salient, the further one goes to the left of a word.

cause such lengthening of a following root vowel. This gives rise to a surface contrast between long and short vowels before NC, since /N+VNC/ surfaces as [ɲVNC] with a short vowel, but /N+yVNC/ surfaces as [ɲVVNC].[17] This indicates that underlying /y/ is present when pre-NC vowel lengthening applies (section 10) in a y-initial root, but *y* has not yet been inserted before a vowel-initial root, and the general limit on root-initial vowels (which must be short) limits the application of pre-NC lengthening in that context. In short: [NC-VNC] diagnoses /VNC/ and [NC-VVNC] diagnoses /yVVNC/.

**a. Progressive: 1s SP**

| | | |
|---|---|---|
| ámbaaya | nzámbááyaa | 'I am swinging' |
| ɪmba | ɲɪmbáa | 'I am singing' |
| ɔ́mbaka | ɲɔ́mbákáa | 'I am building' |
| ɔnga | nzɔ́ngáa | 'I am joining' |
| | | |
| yeenga | ɲééngaa | 'I am brewing' |
| yɪɪngɔka | ɲííngɔkaa | 'I am melting' |
| yóómboora | ɲóómbooraa | 'I am over-pouring' |

Subjunctive: 1s SP

| | | |
|---|---|---|
| ambagɪlla | leka ɲámbágíllɪ | 'let me stretch' |
| ɪmba | leka ɲímbí | 'let me sing' |
| íngɪra | leka nyíngírí | 'let me enter' |
| ɔnga | reka ɲɔ́ngí | 'let me join' |
| | | |
| yɪɪnzɪra | leka ɲíínzírí | 'let me work' |
| yóómboora | reka nóómbóore | 'let me over-pour' |

Perfective: 1s SP

| | |
|---|---|
| nɪmbɪhi | 'I was short' |
| nyingɪrii | 'I entered' |
| nzɔmbachi | 'I built' |
| | |
| ɲáánzi | 'I loved' |
| ɲíínzɪri | 'I worked' |
| nóómboori | 'I over-poured' |
| ɲɔ́ɔ́mbi | 'I was overgrown' |

Perfective: 1s SP

| | | |
|---|---|---|
| ambɔkɪra | vaanzámbɔ́kɪrɪɪ | 'they crossed for me' |
| ɪmbɪra | vaaɲímbɪrɪɪ | 'they sang for me' |

[17] Or, with *nz* instead of *ɲ*, given optional application of GL.

| | | |
|---|---|---|
| yeengera | vaaɲééngeree | ‘they brewed for me’ |
| yóómbolla | vaaɲóómbollee | ‘they over-poured for me’ |

## 4.2. Insertion of y before roots

Vowel-initial morphemes are subject to insertion of *y* in a number of contexts, which in roots neutralizes the distinction between y-initial and V-initial roots. Insertion takes place root-initially, as well as before certain prefixes (cl. 1 SP, and reflexive and 1s OP).

### 4.2.1. Word-initially

There are two contexts where root-initial vowels receive epenthetic *y* at the beginning of a word: in the imperative, and in certain demonstratives.

#### a. Imperatives

First, y-insertion takes place when the root is word-initial, in the imperative.[18]

| | | |
|---|---|---|
| yanigɪra | | ‘go up!’ |
| yizʊriza | | ‘remember!’ |
| yigʊra | | ‘open!’ |
| yaya | kwaaya | ‘graze!’ |
| yeɲa | kweeɲa | ‘want!’ |
| yita | kwíita | ‘kill!’ |
| | | |
| yerémá | kwéérema | ‘float!’ |
| yádɪka | kwáádɪka | ‘burst!’ |
| | | |
| yígiza | kwíígiza | ‘teach!’ |
| yónoonya | kwóónoonya | ‘mess up!’ |
| yógɪha | kwóógɪha | ‘be sharp!’ |
| yʊma | kwóʊma | ‘be dry!’ |
| yɪmba | kwíɪmba | ‘sing!’ |
| yingírá | | ‘enter’ |
| yʊmbáká | | ‘build’ |
| yaramíɲá | | ‘open!’ |
| | | |
| yambagɪlla | | ‘stretch!’ |
| yambakana | | ‘refuse!’ |
| yambʊka | kwaambʊka | ‘ford!’ |
| yʊmbaka | kwóómbaka | ‘build!’ |
| yʊnga | kwʊʊnga | ‘join!’ |
| yɪmba | kwɪɪmba | ‘sing!’ |

[18] Additionally, a root-initial vowel is short before NC, even when *y* is inserted.

Although syllable-merger generally precludes y-insertion within a word (**kɔyáta* 'to do surgery', **kwaakɔyáta* 'we did surgery') except after a long vowel as discussed above, certain imperative forms are a potential exception. In the immediate and negative imperatives, where an apparent proclitic (*ka-*, *ta-*) precedes the root, vowel merger is possible but *y*-insertion is as well.[19]

| | | |
|---|---|---|
| kiigízɪ | ʔkayigízɪ | 'now teach!' |
| keeyé | kayeyé | 'sweep now!' |
| kaahé | kayahé | 'now pluck!' |
| keevé | kayevé | 'now put up a fence!' |
| kiigí | kayigí | 'now learn!' |
| kayʊmbáke | kʊʊmbáke | 'now build!' |
| | | |
| teeyá daave | *tayeya daave | 'don't sweep!' |
| taambɔ́ka dáave | ʔtayámbɔ́ka dáave | 'don't cross!' |
| toonoonya dáave | tayonoonya dáave | 'don't mess up!' |
| tʊʊmbaka mbá | tayʊmbaka mbá | 'don't build!' |
| tɪɪmba mbá | tayɪmba mbá | 'don't sing!' |
| taavʊra mbá | tayavʊra mbá | 'don't take!' |
| teeyá ǃmbá | tayéyá ǃmbá | 'don't sweep!' |
| tiita mbá | taita mbá | 'don't kill!' |

**b. Demonstratives**

Demonstratives based on the pattern yV-AGR and yV-AGR-o exhibit an alternation between [yV] and [V]. In citation forms, the demonstrative has initial [y], and when preceded by the noun it may have *y*, or *y* may be lacking.

<u>y present</u>

| | |
|---|---|
| yava | 'these$_{-2}$' |
| váándʊ yava | 'these people' |
| yɪgʊ | 'this$_{-3}$' |
| m̀báno yɪgʊ | 'this knife' |
| yavo | 'those$_{-2}$' |
| váándʊ yavo | 'those people' |
| yago | 'those$_{-6}$' |
| amaté yago | 'that saliva' |
| yɪrwo | 'that$_{-11}$' |
| ʊrwáánda yɪrwo | 'that rock' |
| yɪgwo | 'that$_{-3}$' |
| mʊrí'tú yígwo | 'that forest' |

[19] There are also data where epenthesis is rejected, and still other cases where epenthesis is judged to be marginal. This suggests possible directions of current language change, but we will not attempt to resolve this matter here.

| | |
|---|---|
| yaho | ‘that$_{-16}$’ |
| haméésa yaho | ‘at that table’ |

When *y* is lacking, syllable fusion usually takes place.[20]

y lacking

| | |
|---|---|
| mʊrʊ́j-ɪɪmwo | ‘in that clay bowl’ |
| avávʊ́ˈgʊ́s-áava | ‘these Bukusus’ |
| embʊ́ʊ́ng-eeyo | ‘that buffalo’ |
| gʊtw-íɪgʊ | ‘this ear’ |
| ɪkígw-íɪkɪ | ‘this wasp’ |
| ʊrwáánd-ɪɪrwo | ‘that rock’ |
| msáár-ɪɪgʊ | ‘this tree’ |
| vadót-aavo | ‘those infants’ |
| amat-áago | ‘this saliva’ |
| koséémbéll-ɪɪkwo | ‘that weeding’ |

The optional alternation between V#yV and merged VV arises in various other syntactic concatenations of word plus demonstrative.

| | | |
|---|---|---|
| kʊ́rí yɪcho | kʊr-íícho | ‘like that$_{-7}$’ |
| kʊ́rí yava | kʊr-áava | ‘like these$_{-2}$’ |
| sá yáva | s-ááva | ‘like these$_{-2}$’ |
| sa yícho | s-ɪɪcho | ‘like that$_{-7}$’ |
| sá yírʊ | síírʊ | ‘like this$_{-11}$’ |
| sa yírwo | síírwo | ‘like that$_{-11}$’ |
| ná ˈyágó | náˈágó | ‘with that$_{-6}$’ |
| ná yívʊ | níˈívʊ́ | ‘with this$_{-14}$’ |
| amárwá manúˈrú yágo | amárwá manúˈrw-áago | ‘that sweet beer’ |
| aváána vatááˈmbí yáva | aváána vatááˈmb-áava | ‘these tall children’ |
| ɪmisáár-ɪmitááˈmbí yíji | ɪmisáár-ɪmitááˈmb-íɪji | ‘these tall trees’ |
| nɪ yavo | n-aavo | ‘it’s those$_{-2}$’ |
| nɪ yɪyɪ | n-ɪɪyɪ | ‘it’s these’ |
| nɪ yago | n-aago | ‘it’s that$_{-6}$’ |
| yaakʊ́nwá yago | yaakʊ́nw-áago | ‘he has drunk that$_{-6}$’ |
| yááˈyáánzá yágó | yááˈyáánz-áágó | ‘he likes those$_{-6}$’ |
| maakʊ́kʊ́ʊ́ŋé yavo | maakʊ́kʊ́ʊ́ŋ-áavo | ‘we will help those$_{-2}$’ |
| yaakʊgʊr-ɪɪzyo | | ‘he has bought those$_{-10}$’ |
| áríkákáraangɪ yɪyɪ | | ‘he will fry this$_{-9}$’ |

Initial *y* is obligatory in the citation form of these demonstratives

[20] There are some tokens like *amakʊ́dʊ̌aga* ‘these tortoises’ where V1 is retained rather than deleted, but generally such vowel sequences are reduced by elimination of the first vowel.

| | | |
|---|---|---|
| yɪgʊ | ‘this$_{-3}$’ | *ɪgʊ |
| yava | ‘these$_{-2}$’ | *ava |
| yago | ‘that$_{-6}$’ | *ago |
| yɪkɪ | ‘this$_{-7}$’ | *ɪkɪ |

Demonstratives formed from the stems *-ra* ‘far distal’ and *-no* ‘proximal’ place the agreement morpheme before the stem: the agreement morpheme for cl. 9 is /ɪ/. This gives rise to another context for *y*-insertion, which is obligatory in citation forms, and optional (otherwise exhibiting vowel-merger), phrasally.

| | | |
|---|---|---|
| yɪra | *ɪra | ‘that$_{-9}$’ |
| eng’óómbe yɪra | eng’óómbɪɪra | ‘that cow’ |
| yɪnʊ | *ɪnʊ | ‘this$_{-9}$’ |
| eng’óómbe yɪnʊ | eng’óómb-ɪɪnʊ | ‘this cow’ |

Both sets of y~Ø alternation can be explained under the assumption that the pre-agreement morpheme in the case of *yɪgʊ, yɪgwo* is /ɪ/, and the cl. 9 agreement is likewise /ɪ/ (which it generally is, see ch. X), thus illustrating y-insertion. *y* in cl. 9 forms does not always alternate with Ø, in particular, there is no alternation if *y* is the result of applying Glide Formation to /i/ before another vowel, hence *eng’óómbe ya Marova* from /eng’oombe i-a Marova/.

Epenthetic *y* is obligatory before *ii* which results from lengthening the agreement prefix /i/ before the stem *ndi*, i.e. *eng’óó$^{!}$mbé yííndí* ‘another cow’ ← /eng’óó$^{!}$mbé í-ndí/; **eng’óó$^{!}$mb-ííndí*. This is a kind of arbitrary fact, since there is fusion with *ʊʊndɪ*, cf. *ʊmwáá$^{!}$n-á ʊ́ʊ́ndí, ʊmwáá$^{!}$n-ʊ́ʊ́ndí* ‘another child’.[21]

**c. Non-insertion**

There are nevertheless contexts where vowels can stand at the beginning of a word. The most notable is when the initial vowel is in a prefix.

| | |
|---|---|
| akoonyi | ‘he helped’ |
| ʊkaraanji | ‘you fried’ |
| aadéechi | ‘he has cooked’ |
| oong’oodi | ‘you have written’ |
| ɪkɪgʊʊnda | ‘it$_{-9}$ is still rotting’ |
| ʊmwáana | ‘child’ |
| amárwá | ‘alcohol’ |
| é$^{!}$ngókó | ‘chicken’ |

[21] Since imperative verbs are generally utterance initial, the interaction between vowel merger and y-insertion cannot easily be determined for imperatives. A preposed object can come before an imperative, e.g. *ŋʊ́ʊ́mba yeya* ‘sweep the house’, but such constructions are not common. A latent pause cannot be ruled out: such few examples are consistent with non-application of vowel merger in the case of imperatives, but do admit to an alternative explanation as well.

There are also vowel-initial nouns which take no class prefix and do not have an inserted glide.

| | |
|---|---|
| íídi | ‘eid’ |
| ááfya | ‘health’ |
| óófiisi | ‘office’[22] |
| amíítu | ‘brother’ |
| ofisá | ‘officer’ |
| abáchi | ‘abachi’ |
| ísé | ‘father’ |
| amwáávo | ‘brother’ |
| oonzére | (PN) |
| ambání | (PN) |
| afáándí | (PN) |
| éditon | (PN) |

Another exception is that the class 1 form of the /ɪ-AGR/ demonstrative, as well as the AGR-no and AGR-ra demonstratives of that class, do not undergo y-insertion even though they are vowel initial.

| | | |
|---|---|---|
| ʊyu | *yʊyu | ‘this$_{-1}$’ |
| oyo | *yoyo | ‘that$_{-1}$’ |
| ʊra | *yʊra | ‘that$_{-1}$’ |
| ʊno | *yʊno | ‘this$_{-1}$’ |

| | |
|---|---|
| mʊ́ʊ́ndʊ ʊyʊ | ‘this person’ |
| mkéé$^{!}$-rʊ́ʊ́yʊ | ‘this woman’ |
| mshaarʊ́ʊ́yo | ‘that cousin’ |
| mgéni oyo | ‘that guest’ |
| mkáá$^{!}$ná ʊ́no | ‘this girl’ |
| mʊdʊ́t-ʊʊra | ‘that infant’ |
| ʊ́ʊ́ndɪ | ‘another’ |

### 4.2.2. Post-nasal insertion

We also surmise that *y* is inserted after a nasal, since V-initial and *y*-initial roots behave the same post-nasally, as discussed in 4.1.

/y/

Perf SP

| | |
|---|---|
| ɲáánzi | ‘I loved’ |
| nzáví | ‘I dug’ |

[22] This noun is attested in some tokens with an augment, viz. *eófisi*.

Prog SP

| | |
|---|---|
| ɲíínzɪraa | ‘I am working’ |
| nzógáa | ‘I am talking’ |
| nzóóyaa | ‘I am scooping’ |

OP

| | |
|---|---|
| vaanzáári | ‘they sued me’ |
| arɪkáánzɪmɪllɪ | ‘he will lead me’ |
| kʊ́ʊ́ŋaanza | ‘to love me’ |
| ʊtaanyíínzɪlla | ‘don’t work for me!’ |
| kʊ́ʊ́nzavɪlla | ‘to dig for me’ |

/Ø/

Perf SP

| | |
|---|---|
| nzigizi | ‘I taught’ |
| nzeremi | ‘I floated’ |
| nzíti | ‘I killed’ |
| nzati | ‘I did surgery’ |
| nzaambɒchi | ‘I forded’ |
| nzínɒchi | ‘I left work’ |

Prog SP

| | |
|---|---|
| nzeréémaa | ‘I am floating’ |
| nzámbʊ́kaa | ‘I am crossing’ |
| nzɪgízáa | ‘I am teaching’ |

OP

| | |
|---|---|
| yáánzigiza | ‘he taught me’ |
| aaɲényí | ‘he wanted me’ |
| yáánzeremera | ‘he floated for me’ |

### 4.2.3. Insertion after certain prefix vowels

The glide *y* is also inserted after the tense prefix *-aa-* when the prefix comes before a vowel-initial root. This insertion is obligatory when the verb is hesternal perfective, and optional in the past habitual and remote (if *y* is not inserted, syllable merger processes take place).[23]

[23] Insertion before [i] can be hard to detect since [yi] generally is realized as [i].

| | |
|---|---|
| yaayámbóchí | ‘he crossed’ |
| yaayóngáányí | ‘he joined’ |
| vááígórí | ‘they opened’ |
| kwaayigórí | ‘we opened’ |
| ndáá!yáti | ‘I have done surgery’ |
| ndááye(y)i | ‘I have swept’ |
| ndáá!yónoonyi | ‘I have messed up’ |
| ndaayerémí | ‘I floated’ |
| ndaayatányíı | ‘I broke’ |
| kwaayasyáájí | ‘we split wood’ |
| vaayenyí | ‘they wanted’ |
| ndaayatányíı | ‘I broke’ |
| vaayitání | ‘they killed e.o.’ |
| vaayenyí | ‘they wanted’ |
| kwaayoómbóo | ‘we spilled’ |
| kwaayíínzíi | ‘we worked’ |
| kwaayaambóchi | ‘we forded’ |
| ndaayitórii | ‘I poured’ |
| kwaayitóríi | ‘I poured’ |
| ndaayízúlizi | ‘I remembered’ |
| ndaayinámi | ‘I bent (tr.)’ |
| kwaayinyáminyirani | ‘we bent for each other’ |
| vaayeeyí | ‘they swept’ |
| vaayíhí | ‘they uprooted’ |
| *ndeeyí | |
| *?kwaaramínyí | |
| kwááyáámbóchí | ‘we crossed’ |
| *kwaambóchí | |
| wayómbáchí | ‘you built’ |
| *wóómbáchí | (for hesternal perfective) |
| wɔɔmbachi | ‘you built (hodiernal perfective)’ |
| vaayónóónyí | ‘they messed up’ |
| *voonóónyí | *(for hesternal perfective) |
| voononyi | ‘they messed up (hodiernal perfective)’ |

Likewise there is insertion of *y* after the remote past prefix -aa-, but such insertion is optional (may be disprefered), and if there is no insertion, vowel fusion deletes the prefix vowel.

| | | | |
|---|---|---|---|
| véérema | ‘they floated’ | vááyérema | ‘they floated’ |
| ndéérema | ‘I floated’ | ndááyérema | ‘I floated’ |
| kwaaígɔra | ‘we opened’ | kwíígɔra | ‘we opened’ |
| ndááyáta | ‘I did surgery’ | ndááta | ‘I did surgery’ |
| vééya | ‘they swept’ | vááyéya | ‘they swept’ |
| wíímba | ‘you sang’ | waayímba | ‘you sang’ |

| | | | |
|---|---|---|---|
| yóóma | ‘he was dry’ | yaayóma | ‘he was dry’ |
| vóónoonya | ‘they messed up’ | vaayónoonya | ‘they messed up’ |
| yóóngaanya | ‘he joined’ | yááyóngaanya | ‘he joined’ |
| yííngıra | ‘he entered’ | yááyíngıra | ‘he entered’ |
| kwíímba | ‘we sang’ | kwááyímba | ‘we sang’ |
| vááyámbakana | ‘they refused’ | váámbakana | ‘they refused’ |

Past Hab:

| | | | |
|---|---|---|---|
| kwééyaa | ‘we used to sweep’ | kwaayéyaa | ‘we used to sweep’ |
| vóónoonyaa | ‘they used to mess up’ | vaayónoonyaa | ‘they used to mess up’ |
| yáámbɒkaa | ‘he used to cross’ | yaayámbɒkaa | ‘he used to cross’ |
| yííngıraa | ‘he used to enter’ | yááyíngıraa | ‘he used to enter’ |
| kwóómbakaa | ‘we used to build’ | kwááyómbakaa | ‘we used to build’ |
| gééngaa | ‘they$_{-6}$ used to ripen’ | gááyéngaa | ‘they$_{-6}$ used to ripen’ |
| vááyámbɒkaa | ‘they used to cross’ | váámbɒkaa | ‘they used to cross’ |
| vyááyámbɒkaa | ‘they$_{-8}$ used to cross’ | vyáámbɒkaa | ‘they$_{-8}$ used to cross’ |
| yóómbakaa | ‘he used to build’ | yááyómbakaa | ‘he used to build’ |

There is also root-initial y-insertion after the reflexive prefix /ɪ/. This is illustrated below in various contexts when a V-final prefix precedes the reflexive, where the two syllables merge into one with a long vowel.

| | |
|---|---|
| manı yíí!yáta | ‘and then he did surgery on himself’ |
| maní víí!yámbɒ́kıra | ‘and then they crossed for themselves’ |
| maní vé!éyéŋá | ‘and then they wanted themselves’ |
| na yııyáte | ‘he will do surgery on himself’ |
| aryııyáta | ‘he will do surgery on himself’ |
| aryııyálla | ‘he will spread a bed for himself’ |
| yííyati | ‘he did surgery on himself’ |
| yiiyímbırı | ‘he sang for himself’ |
| yííyallıı | ‘he spread a bed for himself’ |
| yııyáti | ‘he surgeried himself’ |
| yííyigizi | ‘he taught himself’ |
| yéé!yéŋá | ‘he wanted himself’ |
| yííyırɒllıı | ‘he winnowed for himself’ |
| **vııyámbɒ́kıı** | **‘they crossed for themselves’** |
| **vııyómiinii** | **‘they dried themselves’** |
| wııyáti | ‘you surgeried yourself’ |
| arííyɒmiza | ‘he will dry himself’ |
| arííyıımbıra | ‘he will sing for himself’ |
| arééyeŋa | ‘he will want himself’ |
| **arakííyivıllı** | **‘he will forget himself’** |
| **arakííyigizı** | **‘he will teach himself’** |
| **varákííyambɒkırı** | **‘they may cross for themselves’** |
| **varákééyenye** | **‘they may want themselves’** |

achɪɪyáta ‘he is still surgerying himself’
ɔchɪɪyɔ́ˈmízá ‘you are still drying yourself’
ɔcheeyɔ́ˈnóónyá ‘you are still messing up on yourself’
ɔchɪɪyígiza ‘you are still teaching yourself’
**kayíívíˈllí ‘now forget yourself!’**
keeyɔ́ˈnóónyírí ‘now mess up for yourself!’
kɪɪyíˈmbírí ‘now sing for yourself!’
kɪɪyáˈté ‘now do surgery on yourself!’
kɪɪyáˈté ‘now do surgery on yourself!’

Additional examples clarify that y-insertion after the reflexive is not tied to the length of the merged syllable, since there is insertion when the reflexive is word-initial (in the imperative) and when the preceding subject prefix is 1s.

1s
nzíyigizi ‘I have taught self’
nzɪyáti ‘I surgeried self’
nzeyeyéraa ‘I am sweeping for self’
maa nzeyeyére ‘I will sweep for self’
maa nzɪyítɪ ‘I will kill self’

Imperative

yɪyírílɪ ‘forget yourself!’
**yɪyitíˈ ‘kill yourself!’**
yɪyivírɪ ‘steal from yourself!’
yɪyíˈgízí ‘teach yourself!’
yɪyírɔllɪ ‘winnow for yourself!’

### 4.3. Insertion of y before prefixes

Within the domain of prefixes, there is a similar appearance of *y* before a prefix vowel, found before the cl. 1 subject prefix /a-/, the 1s OP /N/, and reflexive /ɪ/. These are treated separately since the triggering conditions are distinct.

#### 4.3.1. Subject prefix /a/

The SP /a/ is entirely replaced with [y] whenever it stands before a vowel, which could be the vowel of an immediately following reflexive prefix, the tense prefix *-a-*, or the vowel of a verb root. Surface *y* from /a/ always causes lengthening of the following vowel, although in the case of the tense prefix(es) with initial *aa*, it is impossible to determine the underlying length of that vowel. The evidence discussed in this section only involves /a/ as the trigger, however facts regarding the cl. 9 prefix /ɪ-/ before the root ‘come’, covered in 12.3, indicates that pre-SP *y* is not limited to the cl. 1 SP /a/. In light of those further data, the proposed analysis is simply that *y* is inserted before the SP, whereupon regular vowel hiatus resolving rules eliminate the first vowel and lengthen the second vowel.

**a. Reflexive**

| | |
|---|---|
| mani yí'ídɔ́ya | 'then he hit himself' |
| mani yé'édéékeraa | 'then he cooked for himself' |
| genéká'á yíívárízɪ | 'he should cook for himself' |
| geeneká'á yɪɪsííngɪ | 'he should wash himself' |
| geeneká'á yɪɪsáave | 'he should wash himself' |
| yeedéé'kéráá | 'he is cooking for himself' |
| yɪɪká'ráá | 'he is cutting himself' |
| yɪɪchóó'ráá | 'he is drawing himself' |
| yɪɪyɔ́'mbákíráá | 'he is building for himself' |
| yeeyéyéra | 'he is sweeping for himself' |
| yeedéékeree | 'he cooked for himself' |
| yɪɪnwíɪ | 'he drank himself' |
| yɪɪrási | 'he threw himself' |
| yíísaalizi | 'he has injured himself' |
| yíírɪmɪrɪɪ | 'he has plowed for himself' |
| yíí'yíígízí ɔ́mwééne | 'he has taught himself' |

Tense Prefix

<u>aakʊ</u>

| | |
|---|---|
| yaakwíita | 'he has killed' |
| yaakwɔ́ʊma | 'he has gotten dry' |
| yaakwááta | 'he has performed surgery' |
| yaakwíígiza | 'he has taught' |
| yaakɔ́ɔ́sinikiza | 'he has annoyed me' |
| yaakɔ́háána | 'he has given' |
| yaakókóoŋa | 'he has helped' |
| yaakɔ́káava | 'he has searched' |
| yaakódéeka | 'he has cooked' |
| yaakwááta | 'he has performed surgery' |
| yaakomoroma | 'he has spoken' |

<u>aaka</u>

| | |
|---|---|
| yaakeeya | 'he swept' |
| yaakagʊra | 'he just bought' |
| yaakayɪɪnzɪra | 'he worked' |
| yaakamoroma | 'he spoke' |
| yaakagwa | 'he fell' |
| yáákákwééyera | 'he swept for us' |
| yaakávávarizɪra | 'he counted for them' |

<u>Hest Perfective -aa-</u>

| | |
|---|---|
| yáá!kɔ́sinikizi | ‘he has annoyed us’ |
| yáádééki | ‘he cooked’ |
| yáárímí | ‘he farmed’ |
| yaayárí | ‘he spread a bed hest’ |
| yaayámbɔ́chí | ‘he crossed’ |
| yaayɔ́ngáányí | ‘he joined’ |
| yaayɔmí | ‘he was dry’ |

Remote -aa-

| | |
|---|---|
| yáámóroma | ‘he spoke’ |
| yáágwa | ‘he fell’ |
| yáákáraanga | ‘he fried’ |
| yáaŋágɔra | ‘he ran’ |
| yáámóroma | ‘he spoke’ |
| yáahándiika | ‘he wrote’ |
| yáánwa | ‘he drank’ |
| yáákɔ́nagɔlla | ‘he ran for us’ |

Past Habitual -aa-

| | |
|---|---|
| yáádééka(a) | ‘he used to cook’ |
| yáánwéézaa | ‘he used to drink’ |
| yáávéga(a) | ‘he used to shave’ |
| yáashéézaa | ‘he used to grind’ |
| yáátáágaa | ‘he used to plant’ |
| yáátáágaa | ‘he used to plant’ |

Root

Consecutive

| | |
|---|---|
| man-áá!rímá | ‘then he plowed’ |
| man-áá!káráángá | ‘then he fried’ |
| mani yá!áhá | ‘then he plucked’ |
| mani yá!átá | ‘then he surgery’ |
| maní yé!éyá | ‘then he swept’ |
| mani yí!ítá | ‘then he killed’ |
| maní yíita | ‘then he killed’ |
| mani yɔ́ɔ́!ngáánya | ‘then he joined’ |
| niyiíta | ‘he killed’ |
| niyaáta | ‘he did surgery’ |

Hod. perf

| | |
|---|---|
| yiigɔ́ri | ‘he opened’ |

| | |
|---|---|
| yeerémí | ‘he floated’ |
| yeenyí | ‘he wanted’ |
| yíígizi | ‘he has taught’ |
| yáádɪchi | ‘it has burst’ |
| yɪɪnámi | ‘he bent’ |
| yeerémí | ‘he floated’ |
| yeeí | ‘he swept’ |
| yeenyí | ‘he wanted’ |
| yaagaani | ‘he met’ |
| yaahí | ‘he wanted’ |
| yɪɪmbi | ‘he sang’ |
| yiiti | ‘he killed’ |
| yiihí | ‘he extracted’ |
| yiishí | ‘he extracted’ |
| yʊʊmbachi | ‘he built’ |
| yoonoonyi | ‘he messed up’ |
| yʊʊmi | ‘he was dry’ |
| yóóshi | ‘he has scattered’ |
| yííyaambi | ‘he has farted’ |
| yíímɪllɪɪ | ‘he has led’ |
| yíítyaamʊri | ‘he has sneezed’ |
| yóʊshi | ‘he has scattered’ |
| yóógɪshi | ‘he has gotten sharp’ |

Crastinal

| | |
|---|---|
| na yeerémé | ‘he will float’ |
| na yɪɪzúlizi | ‘he will pour’ |
| na yeerémé | ‘he will float’ |

Progressive

| | |
|---|---|
| yiigóraa | ‘he is opening’ |
| yaambóka | ‘he is fording’ |
| yeeɲáa | ‘he wants’ |
| yiitáa | ‘he’s killing’ |
| yaatáa | ‘he’s performing surgery’ |
| yeerémáa | ‘he’s floating’ |
| yiitóllaa | ‘he’s pouring’ |
| yeeyá | ‘he’s sweeping’ |
| yeenyá | ‘he’s searching’ |
| yeerémaa | ‘he’s floating’ |
| yʊʊháa | ‘he is scattering’ |
| yʊʊmáa | ‘he is becoming dry’ |
| yiiyáámbáa | ‘he is farting’ |
| yɪɪmílaa | ‘he is leading’ |

| | |
|---|---|
| yɪɪtyá!móráa | ‘he is sneezing’ |

As is the case with all other vowel-final prefixes followed by vowel-initial morpheme, the following vowel is lengthened, unlike the cases of y-insertion covered below, so it may be best to analyze this as a change of /a/ to [y] rather than as insertion of [y] or direct allomorphy.

### 4.3.2. Reflexive

The reflexive prefix is also preceded by epenthetic *y*, either after the prefix -aa-, or word-initially. As noted previously, the tense prefix *-aa-* also conditions *y*-insertion immediately before the root, subject to tense-specific optionality versus obligatoriness. There are three contexts where the prefix *-aa-* precedes the reflexive: in the remote past, past habitual, and hesternal perfective. Y-insertion is optional in the former two contexts but obligatory in the latter. This same pattern of optional vs. obligatory application will also be seen before the 1s OP, and was observed previous in terms of the interaction between vowel-initial roots and fusion versus y-epenthesis involving the prefix *-aa-*. In other words, there is a unified process of *y*-insertion after *-aa-*, with tense-specific conditions on obligatoriness.

#### a. After -aa-

Non-insertion is possible in the remote past and past habitual: the surface result is that the prefix -aa- merges syllabically with the reflexive prefix, yielding [ɪɪ] or [ee].

<u>Remote Past</u>

| | |
|---|---|
| kwéérora | ‘we saw ourselves’ |
| víí!chéériza | ‘they greeted themselves’ |
| víí!jíbá | ‘they answered themselves’ |
| víí!síínga | ‘they bathed themselves’ |
| víírɒma | ‘they bit themselves’ |
| wéé!kóóna | ‘you helped yourself’ |
| yéé!végá | ‘he shaved himself’ |
| yíí!chóóra | ‘he drew himself’ |
| yíí!háándiikɪra | ‘he wrote to himself’ |
| yíí!mígá | ‘he strangled himself’ |
| yíí!sánɒra | ‘he combed himself’ |

<u>Past Habitual</u>

| | |
|---|---|
| yííyɪɪmbɪraa | ‘he used to sing for himself’ |
| yéévegaa | ‘he used to shave himself’ |
| véé!mórómeraa | ‘they used to speak to themselves’ |
| kwéé!déékeraa | ‘we used to cook for ourselves’ |
| kwéé!kóóŋaa | ‘we used to help ourselves’ |
| kwíírɒmaa | ‘we used to bite ourselves’ |

| | |
|---|---|
| mwéévegaa | ‘2p used to shave yourselves’ |
| mwíí!rúúmbaa | ‘we used to push ourselves’ |
| mwíívakaa | ‘2p used to smear yourselves’ |

In these same tenses, it is also possible to insert *y* between *aa* and the reflexive /ɪ/.

Remote Past

| | |
|---|---|
| kwááyérora | ‘we saw selves’ |
| wááyé!kóóŋa | ‘you helped self’ |
| yaayéhonya | ‘he healed self’ |
| yááyí!síísa | ‘he rubbed self’ |
| yaayímiga | ‘he strangled self’ |
| yaayé!végá | ‘he shaved self’ |

Past Habitual

| | |
|---|---|
| kwaayé!déékeraa | ‘we used to cook for selves’ |
| kwaayé!kóóŋaa | ‘we used to help selves’ |
| kwaayírɒmaa | ‘we used to bite selves’ |
| yaayévegaa | ‘he used to shave self’ |
| vááyé!mórómeraa | ‘they used to speak to self’ |
| yaayíyɪɪmbɪraa | ‘he used to sing for self’ |
| mwaayévegaa | ‘2p used to shave selves’ |
| mwaayí!rúúmbaa | ‘we used to push selves’ |
| mwaayívakaa | ‘2p used to smear selves’ |

The only optional available for the hesternal perfective is y-insertion.

Hest perf

| | |
|---|---|
| yaayɪsínyí | ‘he annoyed self’ |
| yaayetéévi | ‘he asked self’ |
| yaayɪsánɒri | ‘he combed self’ |
| yaayeŋóó!rí | ‘he found self’ |
| yaayehéé!nzí | ‘he looked for self’ |
| yaayɪtómi | ‘he sent self’ |
| yaayeséchí | ‘he laughed at self’ |
| *yeeteevi | (as hodiernal perfective) |
| waayɪbádɒ́ri | ‘you whipped self’ |

**b. Word-initially**

The following data exemplify insertion in word-initial insertion, which arises in the imperative. As noted in 4.2.1, word-initial epenthesis is obligatory.

| | |
|---|---|
| yedeekére | ‘cook for yourself!’ |

| | | |
|---|---|---|
| yısáángaalle | | ‘be happy for yourself!’ |
| yevegé | | ‘shave yourself!’ |
| yekoọné | *ekoọné | ‘help self!’ |
| yıkárá˥ángí˥rí | *ıkárá˥ángí˥rí | ‘fry for yourself!’ |

Y-epenthesis in consecutive syllables arises in the reflexive imperative of a vowel initial stem.

| | | |
|---|---|---|
| yıyá˥té | /ı-á˥té/ | ‘surgery self!’ |
| yıyʊgí˥hízí | /ı-ʊgí˥hízí/ | ‘sharpen self!’ |
| yıyambʊ́˥kírí | /ı-ambʊ́˥kírí/ | ‘cross for self!’ |
| yıyití | /ı-ití/ | ‘kill yourself!’ |
| yıyí˥rányírí | /ı-í˥rányírí/ | ‘return for yourself!’ |
| yıyí˥gízí | /ı-í˥gízí/ | ‘teach yourself!’ |
| yıyíríllı | /ı-íríllı/ | ‘forget yourself!’ |
| yıyʊ́ngáá˥nyírí | /ı-ʊ́ngáá˥nyírí/ | ‘join for yourself!’ |

**c. Before lexical reflexives**

Some verbs which lexically contain a reflexive prefix, as diagnosed from tonal evidence and imperative-allomorphy, which can be preceded by a productive reflexive. In that case, *y* is generally inserted between the two reflexives.

| | |
|---|---|
| kwíízʊʊmiŋa | ‘to praise’ |
| yızʊʊmíŋı | ‘praise!’ |
| mayıızʊ́ʊ́miŋı | ‘he will praise’ |
| yaakwííyızʊʊmiŋa | ‘he has praised himself’ |
| nzıyízʊʊmiŋıı | ‘I praised myself’ |
| nzíí˥zʊ́ʊ́míŋáa | ‘I am praising self’ |

### 4.3.3. 1s OP

The 1s OP receives an epenthetic syllable *yi*, which can be understood as the combined effect of inserting *i* plus insertion of *y* between vowels. Insertion of *i* occurs if and only if *y* insertion takes place. *y*-insertion and *i*-insertion before the 1s OP takes place exclusively after -aa-, and is subject to the same obligatory / optional distinction found before roots and the reflexive. We find an alternation between VV-yiN versus VV-N, where aa-yiN is optionally available after -aa-, but in the hesternal perfective, aa-yiN is obligatory. The nasal deletes before fricatives and nasals, so N is not always realized.

<u>Remote past: insertion</u>

| | |
|---|---|
| vááyíndora | ‘they saw me rem’ |
| vááyíngaraangıra | ‘they fried for me’ |
| wááyí˥ngíínga | ‘you protected me’ |
| wááyí˥ngóóna | ‘you helped me’ |
| yáí˥síísa | ‘he rubbed me’ |

| | |
|---|---|
| yaímiga | ‘he strangled me’ |
| yáyí¦ndákʊ́ʊ́ra | ‘he released me’ |
| yayí¦síníkiza | ‘he annoyed me’ |

Remote past: non-insertion

| | |
|---|---|
| mwáángɪrʊng’anya | ‘2p inverted me’ |
| váá¦nʊ́má | ‘they bit me’ |
| váándora | ‘they saw me rem’ |
| wáá¦ngíínga | ‘you protected me’ |
| wáá¦ngóóna | ‘you helped me’ |
| yáá¦mbégá | ‘he shaved me’ |
| yáá¦síísa | ‘he rubbed me’ |

Past habitual: insertion

| | |
|---|---|
| mwáí¦ngóóŋaa | ‘2p used to help me’ |
| vááyí¦mórómeraa | ‘they used to speak to me’ |
| vayí¦mbáándɪkɪraa | ‘they used to write for me’ |
| yaaí¦ɲéɲáa | ‘he used to want me’ |
| yaayíɲʊmizaa | ‘he used to dry me’ |
| yaí¦ndéékeraa | ‘he used to cook for me’ |
| yáímbegaa | ‘he used to shave me’ |

Past habitual: non-insertion

| | |
|---|---|
| mwáá¦ngóóŋaa | ‘2p used to help me’ |
| váá¦mbáándɪkɪraa | ‘they used to write for me’ |
| váá¦mórómeraa | ‘they used to speak to me’ |
| yáá¦ndéékeraa | ‘he used to cook for me’ |
| yáá¦ɲéɲáa | ‘he used to want me’ |
| yáámbegaa | ‘he used to shave me’ |
| yááŋɪɪmbɪraa | ‘he used to sing for me’ |
| yááŋʊmizaa | ‘he used to dry me’ |

Hesternal Perfective: obligatory insertion

| | |
|---|---|
| vaayindéé¦kéréé | ‘they cooked for me’ |
| waayindéé¦kéréé | ‘you cooked for me’ |
| vaaisá¦nʊ́rí | ‘they combed me’ |
| yaaiɲóó¦rí | ‘he found me’ |
| yaaindʊ́mi | ‘he sent me’ |
| waayindéé¦kérée | ‘you cooked for me’ |
| vaainzé¦réméréé | ‘they floated for me’ |
| *waandéé¦kéréé | ‘you cooked for me’ |
| *yaambeenzi | |

(cf: oondéé!kéréé you cooked for me (hodiernal), vaandéé!kéréé they cooked for me (hodiernal))

In contrast to the behavior of the reflexive prefix, the 1s OP does not allow y(i) insertion initially, in the imperative.

| | |
|---|---|
| ngʊrí!zírá | 'sell to me!' |
| nzigólla | 'open for me!' |
| nzitá | 'kill me!' |
| ngoonyá | 'help me!' |
| ndɪvólla | 'answer me!' |
| nzɪgíza | 'teach me!' |
| nguumbé!élá | 'hug me!' |
| nzambá!káné | 'refuse me!' |
| ngaráá!ngírá | 'fry for me!' |
| nzʊʊngóka | 'go around me!' |
| ndakó!órá | 'join up with me!' |

## 5. Inter-consonantal Vowel Deletions

There are a number of processes deleting a vowel between consonants, most of which apply between homorganic consonants, and one of which applies to /mʊ+C/ without reference to the place of articulation of the following consonant.

### 5.1. rV-reduction

The noun prefix for cl. 5 is /ri-/, and that for cl. 11 is /rʊ-/: these prefixes often merge with following /r/ into [ll]. Additionally, some speakers generalize this reduction to applying before /t,d,n/. The reduction of /rVr/ to [ll] is widespread, but speakers differ as to the likelihood that they will also produce unreduced [rVr]. Reduction of /rVr/ is usual but not uniformly mandatory. There is an apparent difference between such sequences involving a prefix (which reduce most frequently), versus within a stem (where reduction is less regular). All speakers which we have worked with have some form of rVr-reduction.

Reduction before /t,d,n/, on the other hand, is less wide spread: it has not been found, for certain speakers.[24] This may reflect elicitation circumstances, as noted in X. BK appears to maximally apply reduction in this context, EM and RK do so less frequently, and RL does infrequently.

#### 5.1.1. rV-reduction before /r/

[24] For example we have not found such examples from SY, PM or EK, but interactions with those speakers were limited and conducted remotely.

The most frequently attested case of rVr reduction is when applied to a prefix before root-initial /r/.[25]

**a. Reduction of a prefix**

Prefixal contexts exhibiting rVr-reduction include:

| | |
|---|---|
| Noun cl 5, 11 prefix before | noun or adjective root with initial /r/ |
| | wh-mod stems -ri, riha |
| | distal demonstrative -ra |
| OP cl. 5, 11 before r-initial root | |
| SP cl. 5, 11 before r-intial root, OP or tense prefix | |
| remote fut ri before r-initial root or OP | |

Noun

Reduction of the noun class prefixes /ri, rʊ/ is virtually obligatory before roots beginning with /r/. A few tokens lacking reduction have been encountered:

| | |
|---|---|
| rireesi | 'cloud' |
| ʊrʊriga | 'jug mouth' |
| ʊrʊrɪmʊ | 'grass sp.' |
| rórími | 'tongue' |
| rʊró!góóngó | 'backbone' |
| rirago | 'law' |

Generally, the noun prefixes /ri, rʊ/ reduce before r-initial stems.

| | | |
|---|---|---|
| ɪlláánde | maráánde | 'climbing plant' |
| ɪlleesi | mareesi | 'cloud' |
| ɪllíína | maríína | 'hole' |
| ɪl!lóótó | má!lóótó | 'dream' |
| ɪllova | marova | 'earth' |
| ɪllóómbɪ | | 'fog' |
| ʊlléra | | 'umbilical cord' |
| ʊllɪga | | 'jug mouth' |
| ʊllími | karími | 'tongue' |
| ʊlló | ovoró | 'finger millet' |
| ʊllóóngo | | 'white clay' |

There is one monosyllabic noun stem in cl. 5 with initial /r/, *rii-re* 'cloud' (cf. *ama-re* 'clouds'), and this noun does not undergo reduction. The reason for this is that the vowel

[25] Irregular reduction in the numeral -*rara* '1' is even more widespread – almost universal – but this alternation exists in just one stem.

of the cl. 5 prefix lengthens before a monosyllabic root (and not the fact of the root being monosylllabic, cf. *ʊĺló*).

Adjective

A number of adjective stems begin with /r/, and likewise trigger reduction of /ri, rʊ/.

| | | |
|---|---|---|
| ríbwóó¦ní lláhi | mábwóó¦ní márához | ‘good potato’ |
| rínyónyí lláhi | | ‘good bird’ |
| rʊ́ʊ́kʊ́ ¦lláhi | | ‘good firewood’ |
| llímí ¦lláhi | | ‘good tongue’ |
| | | |
| rinonyi llʊrʊ | manonyi marʊrʊ | ‘fierce bird’ |
| líívá lluru | | ‘fierce behavior’ |
| nnaagaani lluru | | ‘fierce f.s’ |
| roheni lluru | | ‘fierce lightening’ |
| | | |
| rídó¦fáári ririʊ | | ‘heavy brick’ |
| rwá¦ásyá llitu | rwá¦ásyá llitu | ‘heavy kindling’ |
| llova llitu | | ‘heavy soil’ |
| | | |
| kɪdété ¦kírʊ́ʊ́ngɪ | | ‘straight finger’ |
| ddú¦rééré llʊ́ʊ́ngi | | ‘straight megaphone’ |
| rógéémbé llʊ́ʊ́ngi | | ‘straight razor’ |
| | | |
| lyá¦ʊ́wá ¦llávʊ | má¦ʊ́wá ¦márávʊ | ‘white flower’ |
| rosé¦ng’éengé ¦llávʊ | | ‘white wire’ |
| lifwéé¦déré ¦llávʊ | | ‘white termite’ |
| | | |
| mró¦góórí mʊ́¦ráámbá | | ‘whole Logoori’ |
| ddáá¦njí llaambá | | ‘whole drum’ |
| rʊfʊ́ʊ́ngʊ́ Í¦láámbá | | ‘whole key’ |

Such reduction also affects deverbal and denominal adjectives.

| | | | |
|---|---|---|---|
| líívé llína | ‘friendly kite’ | mʊrɪna | ‘friend’ |
| rʊfʊ́¦nʊ́ llá¦kʊ́ʊ́ré | ‘released tether’ | kʊrakʊʊra | ‘to release’ |

Modifiers with secondary agreement

One likewise encounters reduction in the cl. 5 and 11 forms of the r-initial wh-modifiers and the far distal demonstrative *-ra*.

-ri ‘how much’

| | |
|---|---|
| márwá gari | ‘how much beer’ |

| | |
|---|---|
| vwóóngo vʊri | ‘how much brain’ |
| kemé!réméénde kɪri | ‘how much candy’ |
| rí!gómyá lli | ‘how much banana’ |
| rógúúchí lli | ‘how much dust’ |
| rívóyʊ lli | ‘how much egg’ |
| rohéní lli | ‘how much lightening’ |
| rʊbááho lli | ‘how much lumber’ |
| rígóké llí | ‘how much ash’ |
| lló!góórí !llí | ‘how much Logoori (language)’ |

<u>-riha ‘which’</u>

| | |
|---|---|
| séé!ngé óríhá | ‘which aunt’ |
| magá!rábá gariha | ‘which bean leaves’ |
| ridá!ráá!mó llíhá | ‘which drum’ |
| rivóyʊ lliha | ‘which egg’ |
| ligéémbe lliha | ‘which hoe’ |
| rófʊʊngó lliha | ‘which key’ |
| rwóóva lliha | ‘which mushroom’ |
| rogéémbe lliha | ‘which razor’ |

<u>-ra distal demonstratives</u>

| | |
|---|---|
| ryáá!ndá ríryá | ‘that rem ember’ |
| rinyó!nyí ríryá | ‘that rem. bird’ |
| rógá!gá róryá | ‘that rem. fence’ |
| rógéé!mbé róryá | ‘that rem. razor’ |
| | |
| lléé!sí llyá | ‘that rem. cloud’ |
| ríké!ré llyá | ‘that rem. frog’ |
| irívó!yó llyá | ‘that rem. egg’ |
| oróhé!ní llyá | ‘that rem. lightening’ |

<u>Verbs</u>

In verbs, the cl. 5, 11 OPs reduce before root-initial /r/; the tense prefix /ri/ reduces before the cl. 5, 11 OPs and root-initial /r/; the cl. 5, 11 SPs reduce before the cl. 5, 11 OPs, root-initial /r/, and the tense prefixes /ri/ and /ra/. There appears to be a lesser tendency to spontaneously reduce within the prefixal donain of verbs.[26]

<u>OP+Root</u>

[26] This may be due to the infrequency of relevant combinations, such as object prefixes referring to non-humans combining with relevant verb roots, whereas in nouns, the rule applies to the most basic form of words in the relevant classes whose root begins with /r/.

| | | |
|---|---|---|
| kɔ́llʊʊngɪriza | | ‘to straighten it$_{-5}$’ |
| kɔ́lleeta | | ‘to bring it$_{-5,11}$’ |
| allééti | | ‘he brought it$_{-5}$’ |
| kɔllééti | | ‘we brought it$_{-11}$’ |
| kɔllɪında | kɔrɔ́rɪında | ‘to guard it$_{-11}$’ |
| allííndi | arɔrííndi | ‘he watched it$_{-11}$’ |
| valláji | | ‘they promised it$_{-11}$’ |
| vallori | | ‘they saw it$_{-5}$’ |
| kɔ́llóóndi | | ‘we followed it$_{-11,5}$’ |
| kɔlláánji | | ‘we called it$_{-5}$’ |
| allíɪ | | ‘he ate it$_{-5}$’ |

TENSE + ROOT

| | | |
|---|---|---|
| ariríínda | allíínda | ‘he will guard’ |
| allímá | | ‘he will plow’ |
| arirega | allega | ‘he will defeat’ |
| varirakʊ́ʊ́ra | vallakʊ́ʊ́ra | ‘they will release’ |

TENSE + OP

| | | |
|---|---|---|
| allidééka | | ‘he will cook it$_{-5}$’ |
| kɔrirʊgʊ́ríza | kɔllʊgʊ́ríza | ‘we will sell it$_{-11}$’ |

<u>SP+Root</u>

| | | |
|---|---|---|
| llíɪndi | rɔríɪndi | ‘it$_{-11}$ watched’ |
| lláánji | riráánji | ‘it$_{-5}$ called’ |
| llɪɪ | | ‘it$_{-11}$ ate’ |

SP + OP

| | | |
|---|---|---|
| rirʊgwíírɪɪ | llʊgwíírɪɪ | ‘it$_{-5}$ fell on it$_{-11}$’ |
| lligwíírɪɪ | | ‘it$_{-11}$ fell on it$_{-5}$’ |

SP + Tense

| | | |
|---|---|---|
| ririrórá | llirora | ‘it$_{-5}$ may see’ |
| lláágɔrɔka | | ‘it$_{-5}$ will fall’ |

SP + OP + Root

| | | |
|---|---|---|
| rirɔróóndi | rillóóndi | ‘it$_{-5}$ followed it$_{-11}$’ |

**b. Stem-internal**

Application of reduction strictly within a root is difficult to motivate, and should be separated into cases involving the first syllable, versus those involving later syllables. There is a single candidate for root-initial reduction: *mʊ-llʊ* 'fire' (*mi-llʊ*) 'fires'. This root might be assumed to be /llʊ/, or it might be /rVrʊ/. Some evidence for the latter, specifically the analysis /rɪrʊ/, is the fact that a few speakers accept *mʊrɪrʊ*. There are, however, a number of roots beginning with /rVr/ e.g. *ʊmʊ́-rʊ́ri* 'whistle', *ama-rore* 'chicken respiratory disease', *ɪkɪ-rɪri* 'violin', *amá!-ríró* 'eye-corner crust', *kʊ-rara* 'to sour (of milk)', *kʊ-rʊra* 'to be bitter', *kʊ-rɪra* 'to cry', *ko-rora* 'to see', which in my experience never reduce. In the case of *ama-rore, kʊ-rara, ko-rora*, the lack of reduction could be explained by reference to the vowel of the first syllable, since the vowel to be deleted is always underlyingly /i/ or /ʊ/.[27]

There are also a few roots which appear to have non-initial /ll/.[28] Noun and adjective examples are seen below.

| | |
|---|---|
| ridelle | 'ant sp' |
| ɪkɪsílli | 'cricket' |
| risʊ́lluuni | 'velum' |
| ívóllɪ | 'bedroom' |
| líkóllo | 'phlegm' |
| óró!míllʊ́ | 'gullet' |
| amaandekella | 'inconsistency' |
| mʊ́ng'élle | 'slim (cl. 1)' |

I have not encountered any tokens of these words with [rVr], although Ndanyi reports *ikidelere, ikisilili, ilisululuuni, uvulili* as possible forms. Likewise, some verbs always have *ll* in spontaneous offerings.

| | |
|---|---|
| kʊhʊ́lla | 'to hear' |
| kʊsaalla | 'to be ill' |
| kwiitʊlla | 'to pour' |
| kʊhʊʊndʊʊlla | 'to stare' |

Nevertheless, speakers may accept variants with a vowel when prompted.

| | |
|---|---|
| kʊhʊ́rɪra | 'to hear' |
| kʊsaarɪra | 'to be ill' |
| kwiitʊrɪra | 'to pour' |

[27] There are no prefixes of the shape /ru, rɪ/, so a simple description of the class of deletable vowels could be that only the high vowels can delete. Reduction of /rara/ '1' to [lla] is a separate exception, dealt with below.

[28] Insofar as most roots are of the form CV(N)C and the applied extension /ɪr/ can be added broadly, sometimes with no obvious contribution to meaning, combined with the existence of verb-to-noun derivation, it is also possible that these are underlyingly e.g. /ɪkɪsír-ɪr-ɪ/.

There are not many such examples in the corpus, all of which attest the vowel [ɪ], though in principle an alternation [ʊ]~Ø would be consistent with stem-internal [ll] deriving from /rVr/. There appears to be no roots *-hʊr-, -saar-* from which these verbs might be plausibly derived, using an affix *-ʊr-* or *-ɪr-*.[29]

There are clear cases of reduction applying to r+Vr, especially involving the applied suffix /ɪr/.

| | | | |
|---|---|---|---|
| koseembera | 'to weed' | koseembella | 'to weed for' |
| kʊchóora | 'to draw' | kʊváchoolla | 'to draw for them' |
| kʊɲágʊra | 'to run' | kʊváɲagʊlla | 'to run for him' |
| kʊsháágara | 'to sharpen' | kʊ́ʊ́mbyaagalla | 'to sharpen for me' |
| kʊbómora | 'to destroy' | áámbomollee | 'he has demolished for me' |

In lieu of an extensive survey of stem-internal position involving many speakers, we will leave it at the conclusion that reduction us subject to some lexicalization within the stem.

**c. The stem /rara/**

The stem of *rara* '1; some' can undergo reduction to *lla*, as long as it is preceded by a surface vowel. This means reduction is possible in classes other than 9, 10, 5 and 11.

| | | |
|---|---|---|
| mwáána mʊlla | '1 child' | 1 |
| váámi valla | 'some chiefs' | 2 |
| mwóógo mʊlla | '1 cassava' | 3 |
| m̀bɪrɪ milla | 'some bodies' | 4 |
| magéémbe malla | 'some hoes' | 6 |
| kedéte kɪlla | '1 finger' | 7 |
| viguuti villa | 'some fields' | 8 |
| vwʊ́ʊ́ma vʊlla | '1 fork-hoe' | 14 |
| | | |
| rígómyá llara | '1 banana' | 5 |
| ttígɪnyu llara | '1 heel' | 5 |
| ɪngʊgí ndara | '1 baboon' | 9 |
| ɪnyuundu ndara | '1 hammer' | 9 |
| zimbéde zindara | 'some rings' | 10 |
| zing'oombe zindara | 'some cows' | 10 |
| rʊ́kʊ́ llara | '1 firewood' | 11 |
| rogeembe llara | '1 razor' | 11 |
| rʊfʊʊngʊ́ llara | '1 key' | 11 |

Non-reduction is attested after a surface V-final prefix, though rarely for many speakers

| | | |
|---|---|---|
| vosera vʊrara | '1 porridge' | (uncommon) |
| mʊrítu mʊrara | '1 forest' | |

[29] There is an unrelated root *saar* 'pray to God'.

ʊmʊʊndʊ mʊrara ‘1 person’ (common)
kísíma kɪrara ‘1 well’

**ómbánó mʊrara ‘1 knife’ (common)**
**rʊháángaywá rʊrara ‘1 cave’**

The alternation *ll ~ rar* is otherwise not found in the language.

### 5.1.2. rV-reduction before other consonants

Reduction of /r{i,u}r/ to [ll] is nearly obligatory and found with all speakers. A number of speakers also exhibit reduction of /ri/ and /rʊ/, frequently before /t,d,n/, and sometimes before the palatals /j, ch, ɲ/,[30] which creates geminate consonants. We have observed this with EM, BK, ML, RL, RK. Such reduction is not systematic and does not approach obligatoriness, as in the case of /r{i,u}r/. Such reduction is widely observed in adjectives and nouns (for those speakers with reduction).

Nouns

| | | |
|---|---|---|
| ttígɪnyu | litígɪnyu | ‘heel’ |
| ittímu | ritímu | ‘spear’ |
| ttávati | rʊtávati | ‘thorny plant’ |
| ddáanji | ridáanji | ‘drum (storage)’ |
| ɪddíiji | ridíiji | ‘wall’ |
| iddíkʊ | ridíkʊ | ‘day’ |
| iddirísha | ridirísha | ‘window’ |
| ɪddá!fáárí | ridá!fáári | ‘brick’ |
| ʊddʊʊmi | ʊrʊdʊʊmi | ‘uncircumcized person’ |
| ddáámbi | rʊdáámbi | ‘wick’ |
| ʊddoto | rodoto | ‘infantness’ |
| ddá!váryá | rʊdá!váryá | ‘clay paste’ |
| ddéru | rodéru | ‘grain tray’ |
| dduuri | rʊduuri | ‘protruding stomach’ |
| ɪnnéke | rinéke | ‘herbal plant type’ |
| ɪjjaambi | rijaambi | ‘mat’ |
| jjuungu | rijuungu | ‘rat’ |
| jjíí!kóró | rijíí!kóró | ‘crow’ |
| ɪjjííko | rijííko | ‘(charcoal) stove’ |
| ɪɲɲonyi | riɲonyi | ‘bird’ |

Adjectives

| | |
|---|---|
| lifwéé!déré !ttáámbɪ | ‘long termite’ |
| rófʊʊngó !ttáámbi | ‘long key’ |

[30] Stem-initial palatals are not frequent, so the impression of difference in frequency of attestation may be a by-product of the limited number of examples where the rule could apply. However, the noun ‘rat’ is reasonably well attested, but only 4 instances of [jjúungu] are attested compared to 80 examples of [rijúungu].

| | |
|---|---|
| rʊmílló ꜜttáámbi | ‘long gullet’ |
| líísú ꜜttáámbɪ | ‘long hair’ |
| líísú litáámbɪ | ‘long hair’ |

| | |
|---|---|
| rigóꜜmyá ddeeké | ‘cooked banana’ |
| lisáánda ddoto | ‘infant(soft) nail’ |
| Ílootó ꜜddáámaanú | ‘bad dream’ |
| róvárú ddáámaanú | ‘bad rib’ |

Reduction in verbs is less common. One tense prefix, remote *ri*, is subject to reduction.

Verbs: remote future -ri

| | | |
|---|---|---|
| acchaba | arichaba | ‘he will hit’ |
| addóyá | aridóyá | ‘he will hit’ |
| annává | arinává | ‘he will sew’ |
| attaagá | aritaagá | ‘he will plant’ |
| attema | aritema | ‘he will chop’ |
| attúúma | aritúúma | ‘he will jump’ |

Object prefixes for cl. 5 and 11 also undergo reduction before roots with the relevant initial consonant.[31]

Infinitive

| | | |
|---|---|---|
| kʊ-rí-duya | kʊ-d́-duya | ‘to hit it$_{-5}$’ |
| kʊ-ró-duya | kʊ-d́-duya | ‘to hit it$_{-11}$’ |
| kʊ-rí-taaga | kʊ̌-t-taaga | ‘to plant it$_{-5}$’ |
| kʊ-ró-chaba | kʊ̌-c-chaba | ‘to beat it$_{-11}$’ |
| kʊ-ró-nava | kʊ-ń-nava | ‘to sew it$_{-11}$’ |
| kʊ-ró-ɲaga | kʊ-ɲ́-ɲaga | ‘to snatch it$_{-11}$’ |

perfective

| | |
|---|---|
| aaríduyi | ‘he has hit it$_{-5}$’ |
| aádduyi | ‘he has hit it$_{-5}$’ |
| korodééchi | ‘we cooked it$_{-11}$’ |
| kʊddéechi | ‘we cooked it$_{-11}$’ |
| kʊʊrídduyi | ‘we have hit it$_{-5}$’ |
| kʊʊ́dduyi | ‘we have hit it$_{-5}$’ |
| kʊridúí | ‘we hit it$_{-5}$’ |
| kʊddúí | ‘we hit it$_{-5}$’ |

[31] In these examples, the noun class indicated in the gloss is that associated with the particular token, thus *aáddʊyi* was elicited as a variant of *aaríduyi* ‘he has hit it$_{-5}$’, although it would also be correct for *aaróduyi* ‘he has hit it$_{-11}$’. Note that tone in reduced forms is marked on the first consonant, which is phonetically justified in the case of voiced consonants but a bit of an abstraction in thecase of geminate *t, ch*.

aka-past

| | | |
|---|---|---|
| kwáákadduya | kwáákaríduya | 'we hit it$_{-5}$' |
| kwáá¦kádduuhiza | kwáá¦káródʊʊhiza | 'we blunted it$_{-11}$' |
| kwáákaṅnava | kwáákarínava | 'we sewed it$_{-5}$' |
| kwáá¦kájjaaga | kwáá¦kárójaaga | 'we started it$_{-11}$' |
| kwáá¦kácchoora | kwáá¦káróchoora | 'we drew it$_{-11}$' |
| yáá¦káttweeka | yáá¦kárítweeka | 'he danced it$_{-5}$' |

remote

| | | |
|---|---|---|
| yáá¦ddééka | yaaró¦dééka | 'he cooked it$_{-11}$' |
| yáá¦ddúyá | yáárí¦dúyá | 'he hit it$_{-5}$' |

Reduction and gemination does not happen with any other consonants.[32]

| | | |
|---|---|---|
| *yaaggura | yáárí¦górá | 'he bought it$_{-5}$' |
| *kwáá¦kássooma | kwáákarísooma | 'we read it$_{-5}$' |
| *assavi | arʊsavi | 'he borrowed it$_{-11}$' |
| *kwáákábbɪɪma | kwáákaríbɪɪma | 'we measured it$_{-5}$' |

## 5.2. vV-reduction

The high vowels /i ʊ/ delete between instances of /v/. Unlike reduction before labials, this process only applies before /v/, and not labials in general.

Adjectives

| | |
|---|---|
| ví¦fóryá ¦vváá¦mbálló | 'wide pan' |
| víráá¦tó vváá¦mbáálo | 'wide shoe' |
| vwéé¦réfú vváá¦mbálló | 'wide sky' |
| vijá¦máɲó ¦vví | 'bad squirrels' |
| vífúryá ¦vví | 'bad pan' |
| víráá¦tó vví | 'bad shoe' |
| vímʊʊná v(i)¦ví | 'bad squirrel' |
| vígó vví | 'bad wasp' |
| vwóó¦yá vví | 'bad fur' |
| vóséá vví | 'bad porridge' |
| vʊchí¦má vví | 'bad ugali' |
| vóchí¦má vví | 'bad ugali' |
| ví¦tʊʊngórʊ ¦vvísi | 'raw onion' |
| vísʊʊngórá ¦vvísi | 'raw rabbit' |
| ví¦fwóóyó vvísɪ | 'uncooked rabbits' |

[32] There is, however, a reduction that affects /zi{s,z}/, discussed in 5.3.

| | |
|---|---|
| vítʊʊngʊ́ʊ́rʊ́ ˈvvísɪ | ‘raw onion’ |
| ovosera vvísɪ | ‘uncooked porridge’ |
| ivíbáˈgá ívví | ‘bad cats’ |
| víbáˈgá ívví | ‘bad cats’ |
| víbáˈgá vví | ‘bad cats’ |
| vwʊ́ʊ́ma vvááˈmbálʊ́ | ‘wide fork-hoe’ |
| vikábó ˈvvááˈmbálú | ‘wide baskets’ |
| visírí ˈvví | ‘bad hoes’ |
| ʊvwʊ́ʊ́ˈkí vví | ‘bad honey’ |
| vibága vveereri | ‘sad cats’ |
| visúsu vveereri | ‘sad butterfly’ |

Numerals

| | |
|---|---|
| ʊvwóóˈngó vvírí | ‘2 brains’ |
| vígʊ́rʊ́ ˈvvírí | ‘2 hills’ |
| vííndʊ́ ˈvvírí | ‘2 things’ |
| víbúrúbúrú ˈvvágá | ‘3 butterflies’ |
| vóséra vvágá | ‘3 porridge’ |

Nouns

| | |
|---|---|
| vvára | ‘countries’ |
| vvéere | ‘udders’ |
| vváángo, viváángo | ‘ugali spoons’ |
| ívvwí, ívvwí | ‘foxes’ |
| ɪvvʊ́ni | ‘reasons’ |
| ʊ́vʊ́ví, ʊ́vví | ‘badness’ |
| ʊvváˈrízí | ‘act of counting’ |
| ʊvvééˈzégéré | ‘act of belching’ |
| ʊvvísɪ | ‘act of hiding (tr.)’ |

Verbs

| | |
|---|---|
| ʊvwéérefʊ́ vvee hára | ‘the sky is there’ |
| kʊvvéˈdékízáa | ‘we are bending them$_{-8}$’ |
| kʊ́vvʊgʊra | ‘to take it$_{-14}$’ |
| kʊ́vvaaza | ‘to carve them$_{-8}$’ |
| kʊ́vvoora | ‘to tell it$_{-14}$’ |

### 5.3. Reduction of zi-

The cl. 10 prefix /zi-/ is subject to reduction before *s, z, sh*, resulting in a long fricative. This reduction is optional and generally infrequent, except that it applies frequently in the word *ɪsséendi*, ‘money’, alternatively *ɪzíséendi*.

| | | |
|---|---|---|
| ɪzisééndi | ɪsséendi | ‘money’ |

| | | |
|---|---|---|
| ɪzí!sʹóná | í!ssʹóná | ‘mosquitoes’ |
| ɪzisííndaano | ɪssííndaano | ‘needles’ |
| ɪzísóni | ɪssóni | ‘shame’ |
| ɪzisooti | ɪssooti | ‘vultures’ |
| ɪzisugudi | ɪssugudi | ‘congas’ |
| ɪzísúzɪ | ɪssúzɪ | ‘fishes’ |
| ɪzizooroori | ɪzizooroori | ‘taps’ |

| | | |
|---|---|---|
| akɪziséká | akɪsséká | ‘he is still laughing at them’ |
| akɪzisóróra | akɪssóróra | ‘he is still collecting them’ |
| akɪzisháá!gárá | akɪsháá!gárá | ‘he is still sharpening it’ |
| akɪzishééva | akɪsshééva | ‘he is still dancing them’ |
| akɪzishíra | akɪsshíra | ‘he is still driving them’ |
| akɪzizéé!ngéállá | akɪzzéé!ngéállá | ‘he is still staring at them’ |

## 5.4. Reduction of mV-

The high vowels /i, ʊ/ in prefixes are also subject to deletion, in two broad contexts: before labials both vowels delete, and elsewhere only /ʊ/ deletes. In the resulting NC cluster, the nasal is syllabic and bears tone.

### 5.4.1. Reduction before labials

The syllables /mʊ, mi/ usually reduce to *m̩* before /v, b, m, p, f/. When this happens, /v/ hardens to [b], but other consonants are not affected. Because of that difference in consonant interactions, /v/ will be treated separately. When such a prefix reduces before /v/, *v* becomes *b*.[33]

#### a. Reduction before /v/

The hallmark of reduction before /v/ is that derived *m̩v* becomes [m̩b];[34] otherwise there is no difference between reduction before /v/ versus before /p,b,f,m/. Reduction is nearly obligatory in the case of /mʊ/, but in the case of /mi/, reduced and unreduced forms are in free variation.

Lexical Adj

| | |
|---|---|
| mwáá!ná m̩bí | ‘bad child’ |
| máá!má m̩bí | ‘bad mother’ |

[33] Nouns in cl. 3-4 would not have an alternation in the initial consonant, outside of diminutives and augmentatives where it is possible to posit a non-neutralizing “historical consonant reversion” strategy. However, mV reduction is not obligatory even though it is most often applied, especially in cl. 4, so tokens do exist without the effect of reduction and post-nasal hardening.

[34] There are a few tokens where hardening does not apply to the output of reduction, but none at all involving /N-v/, indicating that ordering of reductions and hardening may be variable.

| | |
|---|---|
| ḿgóóngó ḿbí | ‘bad back’ |
| ḿbírí mbí | ‘bad body’ |
| ḿbírí ʸmbí ~ ḿbírí mívií | ‘bad bodies’ |
| mgá¦dí ḿbí | ‘bad bread’ |
| migá¦dí ʸḿbí ~ migá¦dí míví | ‘bad breads’ |
| ʊmʊrímí ¦ómbí | ‘bad farm’ |
| | |
| ḿndó ḿbɪɪvíívɪ | ‘bad person’ |
| ʊmʊrímí ómbɪɪvíívɪ | ‘bad farm’ |
| | |
| guugá ḿ¦báá¦mbálló | ‘wide grandfather’ |
| mwóó¦gó ḿbáá¦mbállú | ‘wide cassava’ |
| mígóóndá ʸmbáá¦mbállú | ‘wide farms’ |
| ḿgízí ḿbáá¦mbállú | ‘wide homestead’ |
| mígízí ʸḿbáá¦mbállú | ‘wide homesteads’ |
| ʊmbano m̀báá¦mbáló | ‘wide knife’ |
| ɪmbano miváá¦mbáló | ‘wide knives’ |
| | |
| mgádí ¦ḿbísɪ | ‘raw bread’ |
| migádí ¦ḿbísɪ | ‘raw breads’ |
| migádi m̀bísi | ‘raw breads’ |
| ʊmwóógó ¦ḿbísɪ | ‘raw cassava’ |
| imyóógó ¦ímbísɪ | ‘raw cassavas’ |
| | |
| vageni vaveereri | ‘sad guests’ |
| mgeni mbeereri | ‘sad guest’ |

<u>Agent nominalization</u>

| | |
|---|---|
| ʊm̀bógɪɪlli | ‘one who agrees’ |
| ʊm̀barizi | ‘one who counts’ |
| ʊm̀béeri | ‘one who forgives’ |
| ʊm̀béji | ‘one who shaves’ |
| ʊm̀bóshi | ‘one who ties’ |

<u>Deverbal A</u>

| | |
|---|---|
| mkáána mbó¦hóóllé | ‘untied girl’ |
| vakáána vavó¦hóóllé | ‘untied girls’ |
| aváána vavá¦rízé | ‘counted children’ |
| ʊmwáána ʊmbá¦rízé | ‘counted child’ |

<u>N Cl 1, 3-4</u>

| | | | |
|---|---|---|---|
| m̀boku | ‘blind person’ | vavoku | ‘blind people’ |
| ḿbó¦gósó | ‘Bukusu’ | vavó¦gósó | ‘Bukusus’ |

| | | | |
|---|---|---|---|
| ʊm̀béji | ‘shaver’ | avávéji | ‘shavers’ |
| ʊm̀bíni | ‘dancer’ | avavíni | ‘dancers’ |
| ʊmbóshi | ‘tier’ | avávóshi | ‘tiers’ |
| ʊm̀bɪri | ‘body’ | ɪm̀bɪri ~ ɪmivɪrɪ | ‘bodies’ |
| ʊm̀bano | ‘knife’ | ɪm̀bano ~ ɪmivano | ‘knives’ |
| ʊm̀baango | ‘ugali stick’ | ɪm̀baango ~ ɪmivaango | ‘ugali sticks’ |
| ʊm̀baayo | ‘contest’ | kʊvaaya | ‘to play’ |

| | |
|---|---|
| ʊm̀bano | ‘knife’ |
| ʊm̀vano | ‘knife’ |
| ɪm̀vano | ‘knives’ |
| ɪm̀bano | ‘knives’ |
| ʊmʊvano | ‘knife’ |

| | | | |
|---|---|---|---|
| mʊvaga | m̀vaga | | ‘in a python’ |
| m̀víbíí¹ráʊ́nɪ | m̀bíbíí¹ráʊ́nɪ | | ‘in plates’ |
| m̀vóshɪ | m̀bóshɪ | | ‘in flour’ |
| m̀véémbe | m̀béémbe | | ‘in grass’ |
| m̀viváánda | m̀biváánda | mʊvváánda | ‘in valleys’ |
| ḿbíkóbo | | | ‘in tins’ |
| m̀byááyɪrʊ | | | ‘in pastures’ |
| m̀vʊlli | m̀bʊlli | | ‘in a bedroom’ |

Verbs:

OP + v-initial root

| | | |
|---|---|---|
| vam̀bógɪɪrizi | | ‘they made him agree’ |
| vaambáá¹zíráa | | ‘they are carving for him’ |
| vaam̀váá¹zíráa | | ‘they are carving for him’ |
| vam̀béé¹zégéráa | vam̀véé¹zégéráa | ‘they are belching for him’ |
| varaḿbariza | varaḿvariza | ‘they will count 2p’ |
| vááḿbohoolla | | ‘they untied 2p’ |

<u>SP + v-initial root</u>

| | | |
|---|---|---|
| mmbéji[35] | | ‘2p have shaved’ |
| m̀m̀varizi | m̀m̀barizi | ‘2p have counted’ |
| m̀m̀bógʊri | m̀m̀vógʊri | ‘2p have received’ |
| mmbádeekeree | | ‘2p have cooked for them’ |

| | | |
|---|---|---|
| m̀bógɪllɪɪ | | ‘2p agreed’ |
| m̀bárízi | m̀várízi | ‘2p counted’ |

[35] Lengthening of the (reduced) subject prefix is governed by the particular tense construction: a syllabic SP have a long vowel in the completion-focused perfective.

| | | |
|---|---|---|
| m̀báángaa | | ‘2p are arranging’ |
| m̀bʊgʊri | | ‘2p received’ |
| m̀vegáa | m̀begáa | ‘2p are shaving’ |

SP + cl 2, 8, 14 OP

| | | |
|---|---|---|
| m̀vírórí | m̀bírórí | ‘2p saw them$_{-8}$’ |
| mvodéechi | mbodéechi | ‘2p cooked it$_{-14}$’ |
| m̀vigʊ́rí | m̀bigʊ́rí | ‘2p bought them$_{-8}$’ |
| m̀vorórí | m̀borórí | ‘2p saw it$_{-14}$’ |

**b. Reduction before /p,b,f,m/**

Before other labials, reduction of /mʊ/ and /mi/ takes place optionally (and most often, there is reduction), with no effect on the following consonant.

Nouns

| | |
|---|---|
| ʊmfá!ráánza | ‘Frenchman’ |
| mfʊ́ʊ́ndi | ‘craftsman’ |
| ʊmʊfʊʊyi | ‘laundry guy’ |
| ʊḿféneesi | ‘jackfruit’ |
| ɪḿféneesi ~ ɪḿféneesi | ‘jackfruits’ |
| ʊmmósi | ‘left hand’ |
| ɪmmósi ~ ɪmmósi | ‘left hands’ |
| ʊmféréji | ‘water tap’ |
| ɪmféréji ~ ɪmiféréji | ‘water taps’ |
| ʊ́mpííra | ‘ball’ |
| ímpííra ~ íḿpííra | ‘balls’ |

| | | | |
|---|---|---|---|
| ʊm̀badʊri | ‘whipper’ | avabadʊri | ‘whippers’[36] |
| ʊmburuchi | ‘flier’ | avaburuchi | ‘fliers’ |
| ʊmbómori | ‘destroyer’ | avabómori | ‘destroyers’ |
| ʊmmanyi | ‘one who knows’ | | |
| ʊmfʊ́ʊ́nyi | ‘one who smells’ | | |

Locative /mʊ/

| | |
|---|---|
| mmásáándʊ́gʊ | ‘in boxes’ |
| mmʊ́kóno | ‘in a hand’ |
| ḿmééri | ‘in a ship’ |
| ḿmóni | ‘in an eye’ |
| ḿmárwá | ‘in beer’ |
| ḿmárwá | ‘in beer’ |

[36] There are apparently no nouns lexically in cl. 1 or 3 which have underlying /b/, so examples have to come from deverbal nominalizations.

| | |
|---|---|
| mmareesi | ‘in clouds’ |
| ḿmísáára | ‘among trees’ |

Note that reduction also takes place before [mb] in class 9 (the initial cluster does not inhibit reduction), and can apply to two consecutive prefixes of the form /mʊ/ (in the second case, reduction may be via the rule specific to /ʊ/)

| | |
|---|---|
| ḿmbʊ́ra | ‘in rain’ |
| ḿḿpíira | ‘in a ball’ |
| m̀m̀bırı | ‘in a body’ |
| m̀m̀lyaango | ‘in a door’ |
| ḿḿsáára | ‘in a tree’ |

Verbs

| | |
|---|---|
| vaakʊḿfuta | ‘they fired him’ |
| vam̀mórómeree | ‘they spoke to him’ |
| kʊḿfoora | ‘to beat him’ |
| yaakaḿbadʊra | ‘he whipped him’ |
| yáám̀maŋa | ‘he knows him’ |
| m-ʊʊm̀mígı | ‘you will strangle him’ |
| kʊm̀páátaana | ‘to hire him’ |

**c. Lexical reduction**

There is also a possibly lexically governed reduction of cl. 6 /ma-/ to [m̀] before /v/ in cl. 6. This is widely attested in /amavéere/ ‘milk’, /amavére/ ‘millet’ where reduction is widely attested alongside non-reduction.

| | | |
|---|---|---|
| am̀béere | am̀béere | ‘milk’ |
| am̀bére | am̀bére | ‘millet’ |

Similar (optional) reduction is attested in the corpus in *amaváha ~ am̀báha* ‘feathers’, *amavóyʊ ~ am̀bóyʊ* ‘eggs’, but not as frequently. Finally, the forms *am̀bega* ‘shoulders’, *am̀bururi* ‘dry branches’ have been accepted but never offered (alongside normal *amavega, amavururi*).

### 5.4.2. General mu-reduction

The vowel /ʊ/ deletes optionally in prefixes of the form /mʊ/. Whether or not a prefix undergoes reduction depends primarily on the phonological context. A more controlled sociolinguistic investigation would be necessary to give the full details of the trends regarding deletion vs. retention of the vowel in /mʊ/ prefixes. The broadest generalization regarding deletion is that /ʊ/ in any prefix /mʊ/ optionally deletes. Thus /mʊgádi/ ‘bread’ may be realized as [mgádi] or [mʊgádi]; ‘boss’ can appears as [mkoongo] or [mʊkoongo].

There are some apparent categorial restrictions on mu-reduction. One is that the rule never applies before /y/, thus /mʊ́ˡyááyɪ/ ‘boy’ is only attested as [mʊ́ˡyááyɪ].[37] Although roots beginning with /y/ are not common, the database contains 196 tokens of /mʊ+y/, which is enough that some token of deletion before /y/ should be attested, if deletion were allowed in that context. The rule also does not apply before geminate *ll* contained within the stem. This in fact identifies two lexical: [mʊllo] ‘fire’ and [mʊlla] ‘one (cl 1; 3)’ are attested. Reduction is well attested before geminate *ll* which includes a prefix plus stem (see below). In contrast, deletion is possible before stem-initial clusters /sk/ in [mˈskáári] ‘officer’ and /nd/ in [mˈndéréva] ‘driver’, [m̀ndʊ] ‘person’. In the case of the latter cluster, there is a difference between speakers BK and EM, that EM does not delete the prefix vowel but does lengthen it before NC – [mʊ́ʊ́ˡndéréva] and [mʊʊndʊ]. This can be explained on the grounds that mʊ-reduction only affects short /ʊ/, and the speakers differ in whether pre-NC lengthening applies before or after mʊ-reduction

Mu-reduction applies to the nominal prefixes for cl. 1, 3, 18, the verbal 2pl SP and the verbal cl. 1 OP which all have the shape /mʊ/. To determine what factors might affect applicability of deletion, over 2,300 relevant examples were examined, gathered from EM and BK in the course of the initial 16 months of elicitation.[38] Such examples are nouns and adjectives in cl. 1 or cl. 3. Since before a vowel, hiatus-reduction processes apply, we look only at these prefixes before a consonant-initial stem. We exclude /y/ and /ll/ which never allow deletion, as well as initial /nd/ where there is a speaker difference in whether the prefix vowel is deleted – additionally, there are only two stems which begin with /nd/, and none that begin with /ng, nj/. Since there already exists rules specifically reducing /mʊ/ and /i/ before labials, examples of labial as following consonant are also excluded.

The two speakers do not differ in their overall rate of deletion, which is about 50% of the time. We divide stem-initial consonants into three phonological groups – voiced obstruents, voiceless obstruents, and sonorants (including *h*), and observe the following asymmetry in deletion trends

| Following C | Frequency of deletion |
|---|---|
| d, j, g, z | 53% |
| t, c, k, s, ʃ | 86% |
| n, ɲ, ŋ, r, h | 28%[39] |

In other words, *ʊ* usually deletes before voiceless obstruents and usually does not delete before sonorants, with no preference for deletion or retantion before voiced obstruents.

With the cl. 16 locative prefix /mʊ/, it is difficult to obtain a large set of examples covering all of the possible following consonants, since the locative prefix precedes the lexical class prefix, which limits the possible following syllables to /ri/, /kɪ/, /ka/, /tʊ/ and

[37] It is (presently) unknown whether reduction is possible before /w/, since initial /w/ is almost entirely non-existent.

[38] That subset was assembled at of the end of 2015.

[39] Deletion before /h/ occurs 18% of the time, which is not significantly different from the rate of deletion before liquids and nasals.

/gʊ/, plus a few others from cl. 9 nouns which do not take the class prefix /N/ (e.g. [ɪkáháwa] ‘coffee’). The examples below show that deletion is possible with the locative prefix.

| | |
|---|---|
| ḿkíráato | ‘in a shoe’ |
| m̀ryaango | ‘in a door’ |
| m̀káháwa | ‘in coffee’ |
| mgeengere | ‘in a bell’ |
| mʊrʊjʊ | ‘in a clay bowl’ |
| mkekóómbe | ‘in a cup’ |
| mʊgeengere | ‘in a bell’ |
| mójʊ́ʊmbɪ | ‘in salt’ |

Since the possibilities for following consonant after the locative prefix are quite restricted, conjectures about different rates of deletion depending on the type of following consonant will be avoided. It is noteworthy that geminate [ll] is relatively easy to derive in the singulars of nouns in cl. 5, 11 before r-initial stems, and mu-reduction before such cases of derived *ll* is attested, unlike the situation with the numeral ‘one’ and the stem *-llo* ‘fire’

| | |
|---|---|
| mʊ́llʊ́ʊ́mbɪ | ‘in fog’ |
| ḿ!llóótó | ‘in a dream’ |
| mllova | ‘in earth’ |

This suggests that overall word-size may be relevant in determing applicability of mu-reduction before *ll*.[40]

### 5.5. Interaction between vowel deletion and consonantal rules

The examples above indicate that when vowels delete in the context r__r, *rr* is then changed to *ll*, e.g. *kʊrórɪɪnda ~ kʊrórɪɪnda* ‘to watch it-11’: ideed, the only context where *rr* → *ll* arguably applies is to the output of a vowel reduction.

In the case of deletion of /ʊ/ after *m* (or lexical deletion of /a/) the resulting CC sequence is only subject to a single further modification, that /mVv/ becomes [m̀b], and otherwise, rules affecting NC do not apply, either in the case of the general optional u-deletion rule (*mʊ-koongo ~ m-koongo* ‘boss’, **m-goongo*; *ʊmʊrítʊ ~ ʊmrítʊ*, **ʊmdítʊ*), nor in the case of pre-labial reduction /mV-C/ → [mC] (/mʊ-féneesi/ → [m̀féneesi] ‘jackfruit’ (**m̀bwéneesi*), /ʊmʊmósɪ/ → *ʊmmósi* ‘left hand’ (**ʊmósi*), /ʊmʊpáángo/ → [ʊm̀páángo] ‘plan’ (**ʊm̀báángo*).

Hardening of /v/ usually but does not always apply to the output of mu-reduction.

| | |
|---|---|
| mʊ́!yááyi m̀veereri ~ mʊ́!yááyi m̀beereri | ‘sad boy’ |
| ʊ́mvírí mógári | ‘big body’ |

[40] Specifically, reduction before geminates cannot create a monosyllable. However, rediction *can* create a monosyllable, see *ḿdí* ‘small(1,3)’, *ḿké* ‘small, few (1,3)’, *ḿtí* ‘scared (1)’, *mtwí* ‘head’.

ḿvírí ~ ḿbírí ‘in 2’

This suggests that ordering between mu-reduction and hardening is not entirely fixed. Ordernig of reduction relative to vowel harmony is discussed in section 6.1.7.

## 6. Vowel Harmony

There are three phonological vowel harmony rules in Logoori, one regressively lowering /ɪ, ʊ/ to [e,o] if the next syllable contains [e,o]; one progressively lowering /ɪ/ to [e] if the preceding syllable contains [e,o]; one progressively raising final /e/ to [ɪ] after [i u ɪ ʊ] or alternatively lowering /ɪ/ after [e o a].[41]

### 6.1. Regressive Lowering

Certain prefixes with the vowels /ɪ ʊ/ change that vowel to [e o] when the following syllable contains [e o]. Prefixes with /i/ do not change, and no prefix contains /u/. Not all prefixes with /ɪ ʊ/ change: if the preceding consonant is nasal, there is no lowering. Certain consonants block harmony – *ch, j, f, sh, f* block – as do post-consonantal glides in [Cy, Cw] sequences. Finally, lowering harmony is optional. Speakers differ in the extent to which they actually apply lowering, and that optionality may depend on the context. For example, EM typically applies harmony, but occasionally does not apply the rule, and the frequency of non-application is greatest when the triggering vowel is a prefix vowel rather than the root vowel (e.g. *agɪdéechi* ‘he cooked it’).[42] There is also some variation in whether *f* blocks harmony.

#### 6.1.1. Prefixes which harmonize

Harmonizing prefixes fall into 5 morphological categories: nominal agreement, proclitics, secondary nominal agreement, verbal pronoun prefixes and tense prefixes.

##### a. Nouns and adjectives

The nominal prefixes for classes 7 (/kɪ/), 11 (/rʊ/), 13 (/tʊ/), 14 (/vʊ/), 15, 17 (/kʊ/) and 20 (/gʊ/) are all subject to lowering. Since most examples of cl. 17 precede another class prefix, cl. 17 is predominantly documented in prefix combinations, in 6.1.6. Though these subsections give simple examples of harmony from stem to prefix, examples here will also include ones with the augment, which harmonizes, since for many speakers the augment is usually present before a noun class prefix. This subsection includes locative noun class prefixes, which harmonize but which in certain ways might be treated as a proclitic preceding the noun. There is, in fact, some evidence suggesting that locative proclitics on class-marked nouns do not harmonize, and that apparent lowering in examples like *kó'njéénέ* reflect lowering of the augment, in /kʊ-ɪ́'njéénέ/ – see 6.1.4.

---

[41] The allophonic process tensing the mid vowels *e,o* to [e̱ o̱] before [i,u] is discussed in chapter X.

[42] No prefix contains underlying /e o/, so an equivalent generalization can be expressed in terms of whether the trigger is underlyingly a mid vowel/.

Nouns

Cl. 7

| | | | |
|---|---|---|---|
| ɪkɪduuri | ‘bird enclosure’ | ekedeende | ‘swamp’ |
| ɪkí!dííndí | ‘drum’ | éké!mérwá | ‘plant’ |
| ɪkí!sáásɔ́ | ‘splinter’ | éké!róókà | ‘toilet paper plant’ |
| ɪkí!tɔ́ɔ́nda | ‘planting mound’ | ekebóóko | ‘whip’ |
| ɪkɪbága | ‘cat’ | ekedéte | ‘finger’ |

Cl. 11

| | | | |
|---|---|---|---|
| ɔrɔ́váha | ‘wing’ | orodéru | ‘grain tray’ |
| ɔrɔ́tɔ | ‘frog’ | orodoto | ‘childishness’ |
| ɔrɔtávati | ‘thorny plant’ | orogeembe | ‘razor’ |
| ɔrɔguza | ‘vegetable’ | orovóni | ‘jealousy’ |
| ɔrɔ́!hímá | ‘spleen’ | oró!góóngó | ‘depression in earth’ |

Cl. 13

| | | | |
|---|---|---|---|
| ɔtɔ́!mbɔ́rɔ́ | ‘monitors$_{-dim}$’ | otóbéde | ‘rings$_{-dim}$’ |
| ɔtɔbáánga | ‘pangas$_{-dim}$’ | otó!dógá | ‘cars$_{-dim}$’ |
| ɔ́tɔ́gága | ‘fences$_{-dim}$’ | otogoye | ‘ropes$_{-dim}$’ |
| ɔtɔ́hí | ‘slaps$_{-dim}$’ | otómbégo | ‘seeds for planting$_{-dim}$’ |
| ɔtɔjɔ | ‘clay bowls$_{-dim}$’ | otómémo | ‘flames$_{-dim}$’ |

Cl. 14

| | | | |
|---|---|---|---|
| ɔvɔhɪɪnda | ‘riches’ | ovógére | ‘leoprosy’ |
| ɔvɔ́kɔ́rɔ | ‘old age’ | ovógó!yáánɔ́ | ‘confusion’ |
| ɔvɔ́ráhi | ‘goodness’ | ovosera | ‘porridge’ |
| ɔvɔsɔ́ɔ́ngɔ | ‘poison, venom’ | ovodóshi | ‘mud’ |
| ɔvɔ́tá!jíiri | ‘riches’ | ovogono | ‘bedroom’ |

Cl. 17 locative (‘on’)

| | | | |
|---|---|---|---|
| kɔ́!ngɔ́rɔ́ve | ‘pig’ | kɔ́!njéénè | ‘tapeworm’ |
| kɔbárwa | ‘letter’ | komboongo | ‘buffalo’ |
| kɔndáma | ‘cheek’ | konderema | ‘veg’ |
| kɔngiri | ‘warthog’ | kopééji | ‘page’ |
| kɔnzɪra | ‘path’ | kosooti | ‘vulture’ |

Infinitive cl. 15

| | | | |
|---|---|---|---|
| kɔkína | ‘to play’ | kotéma | ‘to chop’ |
| kɔsínyaara | ‘to sneer’ | koreka | ‘to leave’ |
| kɔduya | ‘to hit’ | kodéeka | ‘to cook’ |
| kɔkáraanga | ‘to fry’ | komoroma | ‘to talk’ |

Cl. 20

| | | | |
|---|---|---|---|
| ʊgʊ́ꜜdʊ́gʊ́nyi | ‘ant$_{-aug}$’ | ogódéve | ‘chair$_{-aug}$’ |
| ʊgʊ́ꜜnjʊ́ʊgʊ | ‘peanut$_{-aug}$’ | ogokoongo | ‘boss$_{-aug}$’ |
| ógʊ́bága | ‘cat$_{-aug}$’ | ogombeva | ‘mouse$_{-aug}$’ |
| ʊgʊ́gáta | ‘headpad$_{-aug}$’ | ogóꜜngókó | ‘chicken$_{-aug}$’ |

Adjectives

| | |
|---|---|
| ekenéne | ‘big$_{-7}$’ |
| ekedoto | ‘soft$_{-7}$’ |
| ɪkɪguru | ‘hard-working$_{-7}$’ |
| ɪkɪhííndɪra | ‘aged$_{-7}$’ |
| ɪkɪnífu | ‘nice$_{-7}$’ |
| | |
| oronéne | ‘big$_{-11}$’ |
| orodoto | ‘soft$_{-11}$’ |
| ʊrʊguru | ‘hard-working$_{-11}$’ |
| ʊrʊhííndɪra | ‘aged$_{-11}$’ |
| ʊrʊnífu | ‘nice$_{-11}$’ |
| | |
| otonéne | ‘big$_{-13}$’ |
| otodoto | ‘soft$_{-13}$’ |
| ʊtʊguru | ‘hard-working$_{-13}$’ |
| ʊtʊhííndɪra | ‘aged$_{-13}$’ |
| ʊtʊnífu | ‘nice$_{-13}$’ |
| | |
| ovonéne | ‘big$_{-14}$’ |
| ovodoto | ‘soft$_{-14}$’ |
| ʊvʊguru | ‘hard-working$_{-14}$’ |
| ʊvʊhííndɪra | ‘aged$_{-14}$’ |
| ʊvʊnífu | ‘nice$_{-14}$’ |
| | |
| okonéne | ‘big$_{-17}$’ |
| ʊkʊ́ꜜdí | ‘small$_{-17}$’ |
| | |
| ogonéne | ‘big$_{-20}$’ |
| ogoveereeri | ‘sad$_{-20}$’ |
| ʊgʊdíɲu | ‘hard$_{-20}$’ |
| ʊgʊhííndɪra | ‘aged$_{-20}$’ |
| ʊgʊtííndi | ‘pugnacious$_{-20}$’ |

**b. Secondary nominal agreement**

Secondary class-agreement prefixes mostly attach to vowel-initial stems. The only consonant-initial root selecting such prefixes which has a mid vowel in the initial syllable is *-ne*, which cannot appear in most of the classes that exempify prefix harmony, since they are singular classes. However, we find harmony in *tóné* ‘four$_{-13}$’, *vóné* ‘four$_{-14}$’ and

*kóné* ‘four$_{-17}$’. Before other stems, these prefixes have the vowel [ʊ]: [tʊvírí] ‘two$_{-13}$’, *vʊrihá* ‘which$_{-14}$’, *kʊtáánó* ‘five$_{-17}$’.

The augment morpheme is also subject to lowering harmony, as the previously examples have demonstrated, where the augment is [ɪ ʊ] in case the class prefix has [ɪ ʊ] and [e o] with the class prefix has [e o]. Additionally, the augment in cl. 9 harmonizes with the first vowel of the noun root, since there is no noun class prefix vowel.

| | |
|---|---|
| é$^{!}$ngókó | ‘chicken’ |
| ebéde | ‘ring’ |
| ebóósta | ‘post office’ |
| egeengere | ‘bell’ |

| | |
|---|---|
| í$^{!}$ŋáámbʊ́ | ‘chameleon’ |
| í$^{!}$ngʊ́gí | ‘baboon’ |
| í$^{!}$nzúune | ‘clotting plant’ |
| ɪbáá$^{!}$kúúri | ‘bowl’ |
| ɪbúsa | ‘beer (maize)’ |

**c. OP, SP**

The 2s and relative 3s subject prefixes /ʊ/, 1p subject /kʊ/, as well as those for cl. 3, 20 (/gʊ/), 7 (/kɪ/), 9 (/ɪ/), 11 (/rʊ/), 13 (/tʊ/), 14 (/vʊ/), 15, 17 (/kʊ/)

| | |
|---|---|
| orórwí | ‘2s were seen’ |
| orórwí | ‘cl.1 who was seen’ |
| korórwí | ‘we were seen’ |
| gorórwí | ‘cl.3 was seen’ |
| gorórwí | ‘cl.20 was seen’ |
| kerórwí | ‘cl.7 was seen’ |
| erórwí | ‘cl.9 was seen’ |
| rorórwí | ‘cl.11 was seen’ |
| torórwí | ‘cl.13 were seen’ |
| vorórwí | ‘cl.14 was seen’ |
| korórwí | ‘cl.15, 17 was seen’ |

| | |
|---|---|
| ʊkarwi | ‘2s were cut’ |
| kʊkʊbwi | ‘1p were beaten’ |
| gʊkʊbwi | ‘cl. 3 was beaten’ |
| gʊkʊbwi | ‘cl. 20 was beaten’ |
| kɪkʊbwi | ‘cl. 7 was beaten’ |
| ɪkʊbwi | ‘cl. 9 was beaten’ |
| rʊkʊbwi | ‘cl. 11 was beaten’ |
| tʊkʊbwi | ‘cl. 13 were beaten’ |
| vʊkʊbwi | ‘cl. 14 was beaten’ |
| kʊkʊbwi | ‘cl. 17 was beaten’ |

Within the object prefixes, the same prefixes as object prefixes undergo lowering, with the exception that the cl. 1 OP is always /mʊ/ which does not harmonize, and with the inclusion of the reflexive prefix /ɪ/ which does harmonize.

| | |
|---|---|
| arakórora | ‘he will see 1p’ |
| arakórora | ‘he will see 2s’ |
| aréérora | ‘he will see himself’ |
| aragórora | ‘he will see cl.3’ |
| arakérora | ‘he will see cl.7’ |
| aragérora | ‘he will see cl.9’ |
| ararórora | ‘he will see cl.11’ |
| aratórora | ‘he will see cl. 13’ |
| aravórora | ‘he will see cl. 14’ |
| arakórora | ‘he will see cl. 15’ |
| arakórora | ‘he will see cl. 17’ |
| aragórora | ‘he will see cl. 20’ |

| | |
|---|---|
| arakóhʊlla | ‘he will hear 1p’ |
| arakóhʊlla | ‘he will hear 2s’ |
| arííhʊlla | ‘he will hear himself’ |
| aragóhʊlla | ‘he will hear cl.3’ |
| arakíhʊlla | ‘he will hear cl.7’ |
| aragíhʊlla | ‘he will hear cl.9’ |
| araróhʊlla | ‘he will hear cl.11’ |
| aratóhʊlla | ‘he will hear cl. 13’ |
| aravóhʊlla | ‘he will hear cl. 14’ |
| arakóhʊlla | ‘he will hear cl. 15’ |
| arakóhʊlla | ‘he will hear cl. 17’ |
| aragóhʊlla | ‘he will hear cl. 20’ |

Tense prefixes

Two tense prefixes have the required phonological structure to undergo lowering harmony: the past *-aakʊ-* and perstitive *-kɪ-*.

| | |
|---|---|
| yaakʊrɪma | ‘he plowed’ |
| yaakʊvariza | ‘he counted’ |
| kwaakʊríinga | ‘we folded’ |
| kwaakodéeka | ‘we cooked’ |
| vaakovéga | ‘they shaved’ |
| vaakomooŋa | ‘ they gossiped’ |

| | |
|---|---|
| ngɪbííma | ‘I am still measuring’ |
| akɪkɪna | ‘he is still playing’ |
| kʊkɪvaka | ‘we are still smearing’ |
| ngɪkúúta | ‘I am still scraping’ |
| ngehoomá | ‘I am still massaging’ |

akeng'óóda ‘he is still writing’
vakegéénda ‘they are still walking’
mɒkegéɲá ‘2p are still wondering’

**d. Demonstratives**

Demonstratives do not generally present the requisite phonological structure to exemplify lowering harmony. However, two forms of the distal demonstrative with the suffix -o to exemplify lowering. The cl. 1 form *oyo* has the prefix /ʊ/ plus the demonstrative /AGR-o/, realized as [yo] in cl. 1; similarly the cl. 9 form *yeyo* has the prefix /yɪ/ plus /AGR-o/ [yo]. Compare *oyo, yeyo* with the proximal demonstrative without /-o/ *ʊyʊ, yɪyɪ*.

### 6.1.2. Prefixes which do not harmonize

The prefixes of the shape /mɒ/ (cl. 1 and 3, nominal; cl. 17) and those with the vowel /i/ (nominal cl. 4 /mi/, non-nominal cl. 4 /ji/, cl. 10 /zi/ and cl. 5 /ri/) do not undergo lowering.[43]

**a. Nouns and adjectives**

ʊmɔ́háamba ‘prisoner’
ʊmɒko ‘brother in law’
ʊmɒdéérwa ‘child without siblings’
ʊmɒkoongo ‘boss’
ʊmɒdáka ‘pauper’

ʊmɒtere ‘jute mallow’
ʊmɒkóɔ́ɲe ‘sugar cane’
ʊmɒreembe ‘peace’
ʊmɒgera ‘river’
ʊmɒgizi ‘homestead’
ʊmɒgoye ‘rope’
ʊmɒjoombo ‘earthworm’

ʊmí'tééndé ‘plant (sp.)’
ɪmikóno ‘hands’
ɪmirítu ‘forests’
ɪmító ‘Crotalaria’

ɪríkóvi ‘pea’
ɪríísé ‘thatching grass’
rídɔ́ɲe ‘ball of ugali’
rigego ‘molar’

[43] The copula /nɪ/ does not undergo lowering, e.g. /nɪ-rodéeji/ does not become *[nerodéeji]. This may be because all preceding nasals block lowering, and not just *m*, or it may be because the copula is not a prefix, it is a proclitic, and is outside the domain of vowel harmony.

| | |
|---|---|
| rííkó | ‘body dirt’ |
| ɪridoongoro | ‘necklace’ |
| ɪrivógoyi | ‘sp. vegetable’ |
| | |
| ɪvihírɪmɪtɪ | ‘hawks’ |
| ɪvigóhe | ‘eyelashes’ |
| ɪviségese | ‘roof peaks’ |
| ɪvidéte | ‘finger’ |
| ɪví!kóókó | ‘evil spell’ |
| | |
| ɪzí!mbáárέ | ‘beer starter’ |
| ɪzindege | ‘airplane’ |
| ɪzipéέji | ‘page’ |
| ɪzí!njéénέ | ‘tapeworm’ |
| ɪzimboongo | ‘buffalo’ |
| ɪzimbúrú | ‘monitor’ |
| ɪzisooti | ‘vulture’ |
| ɪzing’édu | ‘joint’ |
| ɪzí!mbógá | ‘amaranthus’ |
| ɪzí!ndóóró | ‘sleep’ |
| | |
| ʊmʊnéne | ‘big$_{-1,3}$’ |
| ʊmʊdoto | ‘soft$_{-1,3}$’ |
| ʊmʊguru | ‘hard-working$_{-1}$’ |
| ʊmʊkóro | ‘old$_{-3}$’ |
| ʊmʊhííndɪra | ‘aged$_{-1,3}$’ |
| | |
| ɪminéne | ‘big$_{-4}$’ |
| ɪmidoto | ‘soft$_{-4}$’ |
| ɪmiífu | ‘nice$_{-4}$’ |
| ɪmikóro | ‘old$_{-4}$’ |
| | |
| ɪrinéne | ‘big$_{-5}$’ |
| ɪridoto | ‘soft$_{-5}$’ |
| ɪriífu | ‘nice$_{-5}$’ |
| ɪrikóro | ‘old$_{-5}$’ |
| | |
| ɪvinéne | ‘big$_{-8}$’ |
| ɪvidoto | ‘soft$_{-8}$’ |
| ɪviífu | ‘nice$_{-8}$’ |
| ɪvikóro | ‘old$_{-8}$’ |
| | |
| ɪzinéne | ‘big$_{-10}$’ |
| ɪzindoto | ‘soft$_{-10}$’ |
| ɪziífu | ‘nice$_{-10}$’ |
| ɪzingóro | ‘old$_{-10}$’ |

mʊbéde ‘in a ring’
mʊkereenge ‘in a leg’

**b. Secondary nominal agreement**

The one stem selecting secondary nominal agreement that has a mid vowel, /-né/ ‘four’, does not condition harmony in the case of *jíné* ‘four$_{-4}$’, *zíné* ‘four$_{-11}$’, *mʊ́né* ‘four$_{-18}$’.

**c. OP, SP**

The cl. 1 OP and subject and object prefixes for 2p /mʊ/, cl. 4 /ji/, cl. 5 /ri/, cl. 8 /vi/, cl. 10 /zi/ and cl. 16 /mʊ/ do not lower.

mʊrórwí ‘2p were seen’
jirórwí ‘cl. 4 were seen’
rirórwí ‘cl. 5 was seen’
virórwí ‘cl. 8 were seen’
zirórwí ‘cl. 10 were seen’
mʊrórwí ‘cl. 16 was seen’

yaakʊmʊ́rora ‘he saw 2p, cl. 1, cl. 16’
yaakʊjírora ‘he saw cl. 4’
yaakʊrírora ‘he saw cl. 5’
yaakʊvírora ‘he saw cl. 8’
yaakʊzírora ‘he saw cl. 10’

**d. Tense prefixes**

One tense prefix, the indefinite future /ri/, has a non-harmonizing high vowel.

ndirímá ‘I may plow’
kʊriváríza ‘we may count’
arideeká ‘he may cook’
arivega ‘he may shave’
vaakomooŋa ‘they gossiped’
ndigéénda ‘I may walk’
kʊring’óóda ‘we may write’

### 6.1.3. Blocking consonants

Certain consonants coming between target and trigger vowels block regressive lowering: *ch, j, f, sh*. The most common historical source of these consonants are historically earlier **ky, *gy, *fw* and **sy,*hy*. There is also blockage in the case of loanwords.[44]

[44] In the case of *sh*, some speakers retain a *Cy* source

| | |
|---|---|
| kɔchéére̱va | ‘to late’ |
| kɔchéériza | ‘to greet’ |
| kɔchére̱va | ‘to be late’ |
| kɔchéka | ‘to search for’[45] |
| kɔchoora | ‘to draw’ |
| kɔfoogoya | ‘to be crippled’ |
| kɔfooka | ‘to boil over’ |
| kɔfoora | ‘to win’ |
| kɔsheeva | ‘to dance’ |
| kɔshoora | ‘to pull hard’ |
| kɔshoora | ‘to make serious error’ |
| kɔshóova | ‘to wail’ |

| | |
|---|---|
| ɔgɔchóórooni | ‘toilet$_{\text{-aug}}$’ |
| ɔtɔféréji | ‘water taps$_{\text{-dim}}$’ |
| ɔtɔféneesi | ‘jackfruits$_{\text{-dim}}$’ |
| ɔgɔfwéé!déré | ‘termite$_{\text{-aug}}$’ |
| ɪkɪjéého | ‘mirror’ |
| ɪ́!njééné | ‘tapeworm’ |
| ɪjéére̱a | ‘jail’ |
| ɔgɔjééshi | ‘military person$_{\text{-aug}}$’ |
| ɔtɔ́!jérédi | ‘leather strap$_{\text{-dim}}$’ |
| ɪkísheegéri | ‘sty’ |
| ɪsho | ‘shaper’ |
| ɪshóongo | ‘water pot’ |

Additionally, the glides *y, w* after a consonant always blocks lowering (including *sy* and *hy* from speakers who retain those sequences.

| | |
|---|---|
| kɔdyeeŋa | ‘to dance on the toes’ |
| kɔkweesa | ‘to pull’ |
| kɔnywééka | ‘to beat with a thin stick’ |
| kɔsyéégera | ‘to limp’ |
| kɔsyééngeka | ‘to be partially open’ |
| kɔhyoola, kɔsyoola | ‘to make serious error’ |
| ɪsweenene | ‘insect sp.’ |
| ɪswééta | ‘sweater’ |

The verb *kɔsyeena ~ kɔsheena ~ koseena* ‘to step’ exhibits considerable variation, and some speakers (FA, RL) attest all three variants: harmony applies across *s*, but not *sy* or *sh*. Cases of glides derived by glide formation will be discussed in 8.2.1 in the context of interaction between processes.

[45] This stem derives from English ‘check’.

### 6.1.4. Proclitics

Vowel harmony is fundamentally a word-internal rule, which raises the question of how clitics behave in relevant contexts. As seen in forms such as *kó!njéénέ* 'on a tapeworm', *kosooti* 'on a vulture' the locative prefix~clitic *kʊ* does appear to harmonize.

| | |
|---|---|
| kó!njéénέ | 'on a tapeworm' |
| komboongo | 'on a buffalo' |
| kóvódóshi | 'on mud' |
| kokemoori | 'on a calf' |
| korodéru | 'on a tray' |
| kokeségese | 'on a roof peak' |

Harmony applied to *kʊ-* is not obligatory and is frequently not applied, even for speakers who regularly harmonize (especially RL and EM).

| | |
|---|---|
| kʊkekóómbe | 'on a cup' |
| kʊ́vódóshi | 'on mud' |
| kʊkego | 'on the pen' |

Harmony is especially infrequent in the case of proper names and class 1a nouns. The only relevant forms volunteered by EM do not apply harmony

| | |
|---|---|
| kʊ́!kóózá | 'on uncle' |
| kʊséénge | 'on aunt' |
| kʊndoori | 'on Ndoori' |
| kʊséréenge | 'on Serenge' |
| kʊdemeesi | 'on Demeesi' |

Forms with harmony applying to the proclitic are accepted but not volunteered, and are judged to be peculiar.[46]

| | |
|---|---|
| kóséénge | 'on aunt' |
| kó!kóózá | 'on uncle' |
| kondoori | 'on Ndoori' |
| kodemeesi | 'on Demeesi' |

The verbal enclitic *kʊ* 'ever; experience'[47] can accidentally stand before a noun, but it never undergoes harmony with the following word.

| | |
|---|---|
| yáá!rórá kʊ́ ndoori | 'he has ever seen Ndoori' |
| váá!kóónná kʊ́ seréenge | 'they have ever helped Serenge' |
| kwáárora kʊ́ !kóózá | 'we have ever seen uncle' |

[46] EM notes that this usage tends to suggest that the noun is a thing and not a person.

[47] The semantic properties of this enclitic are not well understood.

*kwáárora kó ꜜkóózá
kwáárora kó booge ‘we have ever seen Booge’
*kwáárora kó booge
ndori kó ꜜséénge ‘I had the privilege of seeing aunt’

We may thus conclude that if a clitic harmonizes with the following word, it does so only when the phonological conditions for harmony are satisfied in a clitic-host pair, and does not apply in a random word collection where the first word is a clitic unrelated to the nominal phrase. This leaves us with the matter of preferences in the case of the locative proclitic, where *kóꜜkóózá* ‘on uncle’ is dispreferred but *kokeségese* ‘on a roof peak’ is preferred. Since this is not a matter of strict grammaticality, it may be concluded that the relationship between a locative class prefix and the following noun is somewhat ambiguous, being either treated as a word-internal sequence (thus harmony applies) or as a phrasal sequence (harmony does not apply).

Another clitic which has the potential to harmonize is the copula *nɪ* (*nɪ ajentína* ‘it’s Argentina’, *nɪ baabá* ‘it’s father’), but this proclitic does not ever harmonize.

| | |
|---|---|
| nɪ éditon | ‘it’s Editon’ |
| nɪ mboozó | ‘it’s sibling’ |
| nɪ ndeve kí | ‘it’s what chair’ |
| ní ródéeji | ‘it’s Rodeji’ |
| nɪ séénge | ‘it’s aunts’ |
| ní vóserá mbá | ‘it’s not porridge’ |
| nɪ mombáása | ‘it’s Mombasa’ |
| nɪ ndoori | ‘it’s ndoori’ |
| nɪ yéꜜéyé | ‘it’s his’ |
| nɪyóꜜóyó | ‘it’s yours’ |

There are two verbal proclitics which might harmonize. The first instance is found in the crastinal future, where we find *nɪ*. However, this prefix is underlyingly /na/, and [nɪ] only arises from optional dissimilation when the following SP vowel is [a] (see 12.6), so harmony cannot apply here (**ne koɲóóré* ‘we will find’, instead *na koɲóóré*).

The other verbal clitic, where the conditions for harmony are satisfied, is the subordinating clitic /nɪ/, which is found in conditional and consecutive constructions inter alia. This clitic has two realizations, one as an independent CV syllable and the other in reduced form as /ɪ/, reduction being discussed in 12.7. We will start with the form attested in the consecutive construction with no reduction. Generally, the clitic vowel does not lower before the mid vowel of a verb.

| | |
|---|---|
| ma ní kóꜜyógá | ‘then we talked’ |
| má ní kóꜜgéénda | ‘then we walked’ |
| ma nɪ kéꜜng’óódwa | ‘then it was written’ |
| ma níí ꜜnzéyá | ‘then I swept’ |
| ma níí ꜜng’éénda | ‘then I walked’ |
| ma ní kógota | ‘then we got lost’ |
| ma nííꜜ nóg-ízinguza | ‘then I plucked leaves’ |

| | |
|---|---|
| ma níí ngorórá | ‘then I coughed’ |
| ma níí ngedóóra | ‘then I picked it’ |

Some (confirmed) tokens do exhibit harmony between the clitic and the verb, thus harmony may be dispreferred but is possible.

| | |
|---|---|
| ma néé! ndéékà | ‘and then I cooked’ |
| ma néé !nzóóya | ‘then I scooped’ |
| ma néé mbega | ‘then I shaved’ |
| ma né kógota | ‘then we got lost’ |

When *nɪ* is reduced to *ɪ* and merges syllabically with the preceding word, harmony generally applies.

| | |
|---|---|
| m-éé kóvega | ‘then we shaved’ |
| m-éé kó!déékà | ‘then we cooked’ |
| kʊrav-ee kó!gééndi | ‘if we walked’ |
| kʊrikav-éé kó!gééndi | ‘we will have walked’ |

When the following SP is a surface V (as in 2s /ʊ/, Cl. 1 /a/), the proclitic vowel deletes so there is no vowel to harmonize (e.g. *ma n-óóvega* ‘then you shaved’). However, if the Mstem following the SP is vowel initial, that SP is realized as a glide: as the following examples indicate, there is no lowering of the full or reduced form of the clitic *nɪ*.[48]

| | |
|---|---|
| m-íí yé!éyá | ‘then he swept’ |
| m-íí wé!éyá | ‘then you swept’ |
| má ní wé!éɲá | ‘then you wanted’ |

### 6.1.5. Optionality

Vowel harmony exhibits a degree of optionality, both according to speaker and according to morphological context. There may be some normative pressure to apply regressive lowering. In written sources, the dominant pattern is that the rule applies. It applies regularly in the Ndanyi dictionary, appears to apply in Bible translations,[49] and also in Imbuga. On the other hand in Godia, there is harmony in the cl. 9 augment *e* but not in other prefixes (*eng’ombe* ‘cow’ versus *kimooli* ‘calf’, *vuveehi* ‘lie’, *kulola* ‘to see’, *vakuhera* ‘they ended’).

Every speaker that I have worked with attests regressive lowering in some number of tokens. Speakers RO, PM, and EM apply lowering over 95% of the time; BK, FA, RL

[48] Examples of harmony in this context are unattested, but this is a low-frequency construction, and direct elicitation of forms like ?m-éé wé!éyá has not proven to clearly indicate whether such forms are accepted.

[49] This conclusion is based on non-systematic manual inspection and analysis of one New Testament and one full Bible translations. The problem is that there is orthographic variation in how [ʊ ɪ] are rendered: usually as <u, i> but sometimes as <o, e>.

and SY do so between 85% and 95% of the time, NM and ML lower about half of the time, and EK does only 18% of the time. There is also a speaker-dependent asymmetrical treatment of the cl. 9 augment, where some speakers harmonize /ɪ-/ more frequently and some do so less frequently. In the data, we find that SY and BK apply lowering somewhat less frequently in cl. 9 than elsewhere (around 30% and 14% less often, respectively), whereas RL applies lowering more often in cl. 9 compared to other contexts by about 25%, and NM, EK and ML apply lower around 70% more often.

**Probability of Harmony, by speaker**

| | all types | cl. 9 | non-9 |
|---|---|---|---|
| SY | 0.60 | 0.48 | 0.68 |
| BK | 0.93 | 0.84 | 0.97 |
| RO | 0.96 | 0.96 | 1 |
| PM | 0.97 | 0.97 | 0.97 |
| EM | 0.98 | 1 | 0.97 |
| FA | 0.92 | 0.98 | 0.90 |
| RL | 0.86 | 0.99 | 0.80 |
| NM | 0.68 | 0.93 | 0.59 |
| EK | 0.18 | 0.23 | 0.14 |
| ML | 0.57 | 0.82 | 0.45 |

Some tokens exemplifying non-lowering are as follows

| | |
|---|---|
| kʊheera | ‘to inhale’ |
| kʊroonda | ‘to follow’ |
| kʊkóóŋa | ‘to help’ |
| kʊ́véga | ‘to shave’ |
| kʊ́héénza | ‘to search’ |
| kʊ́vóha | ‘to tie’ |
| kʊtóómboka | ‘to protrude’ |
| kʊ́géeha | ‘to be scarce’ |
| kʊvoroora | ‘to return dowry’ |

Another way in which application of lowering is not uniform across morphological contexts is that, given the available evidence, harmony always applies, for all speakers, in the demonstratives *eyo, oyo* ‘that (9,1)’, never **ɪyo, *ʊyo*.

### 6.1.6. Sequences of harmonizing prefixes

Lowering can apply in a sequence of prefixes in the requisite context, but we have observed a non-trivial tendency at least in verbs for lowering to apply only to the first prefix before the root. Patterns such as the following are not uncommon with multiple prefixes.

| | |
|---|---|
| kóvódóshi | ‘on mud’ |
| kokemoori | ‘on a calf’ |
| korodéru | ‘on a tray’ |
| kokeségese | ‘on a roof peak’ |

| | |
|---|---|
| kokemóróma | ‘we are still talking’ |
| okezéengella | ‘you are still staring’ |
| ókórójí | ‘you bewitched us’ |
| okekorórá | ‘you are still seeing us’ |

| | | |
|---|---|---|
| kokedeekáa | kʊkedeekáa | ‘we are still cooking’ |
| kokegodéékaa | kʊkɪgodéékaa | ‘we are still cooking it$_{-20}$’ |
| yaakʊké$^{!}$dééká | yaakʊkí$^{!}$dééká | ‘he just cooked it$_{-7}$’ |

Any form with harmony skipping over a syllable is categorially rejected.

*yaakokí$^{!}$dééká
*kokɪgʊdéékaa

### 6.1.7. Harmony and derived geminates

The pattern of sequences of harmonizable prefixes further reveals that harmony is blocked by a geminate consonant, which can be created by reduction of vVv and rVC sequences, as well as rV{t,d,n}. One simple demonstration of this is examples like *ɪlleesi* ‘cloud’, never **elleesi*; likewise *ɪvveereri* ‘sad-8’, not **evveereri*. Insofar as the underlying forms of these words are /ɪrireesi/ and /ɪviveereri/, and *i* does not undergo harmony, we might assume that harmony simply applies before the prefix vowel is deleted. This blockage is also found when the deleted prefix vowel is /ɪ, ʊ/, where the deleted vowel does harmonize.

Geminate ll, nn, tt, dd

| | | |
|---|---|---|
| ʊlleera | | ‘umbilical cord’ |
| ʊ́$^{!}$llóóngo | | ‘white clay’ |
| ʊlló | | ‘finger millet’ |
| kʊ́$^{!}$llóóngó | | ‘on white clay’ |
| kʊĺleeta | | ‘to bring it$_{-5}$’ |
| kʊĺlora | | ‘to see it$_{-11}$’ |
| kʊllééti | | ‘we brought it$_{-11}$’ |
| ʊ́$^{!}$llóóndé | | ‘followed$_{-11}$’ |
| ʊnnéne | oronéne | ‘big$_{-11}$’ |
| ʊddéé$^{!}$ngéllú | orodéé$^{!}$ngéllú | ‘loose$_{-11}$’ |
| ʊddoto | orodoto | ‘childishness’ |
| ʊ́d$^{!}$dééké | oró$^{!}$dééké | ‘cooked$_{-11}$’ |
| kʊ́ddeeka | kóródeeka | ‘to cook it$_{-11}$’ |
| kʊ́ddoora | koródoora | ‘to pick it$_{-11}$ up’ |
| ʊ́ttérechi | orotérechi | ‘slippery$_{-11}$’ |
| kʊ́ttega | korótega | ‘to trap it$_{-11}$’ |
| kʊ́ttema | korótema | ‘to chop it$_{-11}$’ |
| kʊ́nnoga | korónoga | ‘to pluck it$_{-11}$’ |
| kʊ́ŋŋoora | koróŋoora | ‘to find it$_{-11}$’ |

Geminate vv

| | | |
|---|---|---|
| ɔ́vvóhe | óvóvóhe | ‘tied$_{-14}$’ |
| ɔvveereri | ovoveereri | ‘sad$_{-14}$’ |
| ɔ́vvége | óvóvége | ‘shaved$_{-14}$’ |
| ɔvvé!dékú | ovóvé!dékú | ‘bent$_{-14}$’ |
| | | |
| kɔ́vvega | kɔvívega | ‘to shave them$_{-8}$’ |
| kɔ́vvoha | kovóvoha | ‘to tie it$_{-14}$’ |
| kɔvvódong’ane | kovovódong’ane | ‘let us go around it$_{-14}$’ |

Harmony also does not apply across a geminate formed from the cl. 10 prefix /zi/, but there is no prefix */zɪ, zɔ/ whose vowel can undergo harmony, thus we cannot establish that lack of harmony in these examples is due to the geminate rather than the height of the deleted vowel.

| | |
|---|---|
| ɪsséendi | ‘money’ |
| ɪzzooroori | ‘springs’ |
| akɪsséká | ‘he is still laughing at them$_{-10}$’ |
| akɪzzéé!ngééllá | ‘he is still staring at them$_{-10}$’ |

## 6.2. Progressive Stem Lowering

Within the stem, and excluding the final vowel suffix, there is a progressive lowering rule where /ɪ / become [e] after [e o]. This rule appears to be obligatory for all speakers. Its application is most obvious in the form of the applied suffix /ɪr/ which becomes [er] when the preceding vowel is mid.

| | | | |
|---|---|---|---|
| kɔgaya | ‘to prohibit’ | kɔgayɪra | ‘to prohibit for’ |
| kɔchába | ‘to beat’ | kɔchábɪra | ‘to beat for’ |
| aragɪnga | ‘he will lift’ | aragɪngɪra | ‘he will lift for’ |
| váakaríinga | ‘they folded ‘ | váakaríingɪra | ‘they folded for’ |
| váábɔ́rɔka | ‘they flew’ | váábɔ́rɔkɪra | ‘they flew for’ |
| kɔdéeka | ‘to cook’ | kɔdéékera | ‘to cook for’ |
| vááchéreva | ‘they were late’ | vááchérevera | ‘they were late on’ |
| aramoroma | ‘they will speak’ | aramoromera | ‘they will speak for’ |
| yaakokóoŋa | ‘he helped’ | yaakokóoŋera | ‘he helped for’ |

The causative suffix *-iz-* and the post-nasal variant *-iɲ-* do not alternate harmonically.

| | |
|---|---|
| arigáyíza | ‘he will make prohibit’ |
| arakááviza | ‘he will make search’ |
| váábɔ́rɔkiza | ‘they made fly’ |
| kɔdéékiza | ‘to make cook’ |
| vacherevizi | ‘they made late’ |
| aramoromiŋa | ‘they will make speak’ |

Clear alternating contexts for other stem-internal applications of harmony are harder to establish. As discussed in chapter X, the number of uncontroversial extensions in Logoori is small, and only the applied has the relevant phonological structure that clearly shows harmonic alternations. A question of interest is, in particular, whether /ʊ/ in an extension lowers to [o] when preceded by *e*, since in many Bantu language *e* does not condition lowering of /ʊ/. One potential context for testing applicability of lowering to /ʊ/ in this context would be the reversive suffix /ʊr/. This suffix is not productive in Logoori, but there are a number of stems exhibiting that form and meaning relationship.

| | |
|---|---|
| kʊyavʊgʊra | ‘to dig’ |
| kʊyavʊgʊlla | ‘to unbury’ |
| kʊkúúnɪka | ‘to cover’ |
| kʊkúúnʊra | ‘to uncover’ |
| kʊríinga | ‘to fold’ |
| kʊrííngʊlla | ‘to unfold’ |
| kʊsúunga | ‘to hook’ |
| kʊsúúngʊra | ‘to unhook’ |
| kʊbáang’a | ‘to pack’ |
| kʊbáang’ʊra | ‘to unpack’ |
| kʊviimba | ‘to roof’ |
| kʊviimbʊra | ‘to unroof’ |
| kʊsiita | ‘to twist’ |
| kʊsiitʊra | ‘to untwist’ |

Of interest are two roots with mid vowels that have reversive pairs. One is seen in *kovóha* ‘to tie’, *kovóhoolla* ‘to untie’, with the apparent extension [ooll]. The second is *kotéga* ‘to set a trap’, *kʊtígʊra* ‘to unset a trap’. The former suggests that /ʊ/ may lower after /o/, and the latter suggests that there is no lowering after /e/, indeed /e/ raises to [ɪ].

Some Logoori verbs with the vowel pattern [ɪ…ʊ] seem to relate to [e…u] in other Luyia languages, for instance Logoori *gɪdʊrʊka* ‘leak’ (Bukusu *ket*(*urul*)*a* ‘pour out’); Logoori *hínʊka* ‘push up off a seat’; (Wanga *oxw-i-hena* ‘draw self up, stand on tip-toe’, Tiriki *henula* ‘lift up on high, lift oneself up’); Logoori *sívʊka* ‘germinate’, Bukusu *seβuxa* ‘shoot, send forth shoots’, Tiriki *sevuxa* ‘shoot, send forth shoots’.

Progressive lowering harmony seems to be a valid generalization about vowel coocurrence within potentially polysyllabic stems: [ɪ, ʊ] never follow [e,o]. [o] does appear after [o], but is not found after [e]

| | |
|---|---|
| kʊbabɪra | ‘to get stained’ |
| kʊrakʊʊra | ‘to release’ |
| kʊhaavɪɪna | ‘to support a person having a problem’ |
| kʊgáámʊʊra | ‘to to chew the cud’ |
| kodegera | ‘to shiver’ |
| kovedeka | ‘to bend’ |
| kong’éreng’ana | ‘to be shiny’ |
| kosérengeta | ‘to roll (as hills do)’ |

| | |
|---|---|
| kwííŋura | ‘to serve food’ |
| kwííruura | ‘to winnow’ |
| kwíímbɪha | ‘to be short physically’ |
| kwíínɔka | ‘to leave work’ |
| kɔdiigɪra | ‘to limp with a crutch’ |
| koyoboya | ‘to speak indistinctly’ |
| komoromeŋa | ‘to speak senselessly’ |
| konógera | ‘to bite small bits of food’ |
| kobómora | ‘to demolish’ |
| kohónonoka | ‘to escape danger’ |
| kogoongoma | ‘to roll’ |
| koyoombooka | ‘to be too big’ |
| kɔsung’usa | ‘to shake tr.’ |
| kɔrúguuta | ‘to write’ |
| kɔkɔrʊʊra | ‘to drag forcibly’ |
| kɔvógɔra | ‘to take’ |
| kɔkúúnɪka | ‘to cover’ |
| kɔhʊʊrʊʊra | ‘to extract’ |
| kɔhʊʊrʊɔka | ‘to take a break’ |

There are some verbs which appear to have the structure eCo, but which are likely lexicalized reflexives, thus /ɪ-CVC/.[50]

| | |
|---|---|
| kw-éégoda | ‘to be bent’ |
| kw-éérora | ‘to be a braggart’ |
| kw-éékoreka | ‘to happen’ |

Compare *ko-goda* ‘to turn’, *ko-rora* ‘to see’, *ko-kóra* to do’.

Not every instance of [e,o] after the first root syllable can be explained by applying lowering harmony to /ɪ, ʊ/: some instances of these vowels are lexical.

| | |
|---|---|
| kɔdaangooya | ‘to stagger’ |
| kɔsiingooya | ‘to be slow to act’ |
| kɔgɔnyeera | ‘to look sad’ |
| kɔkóómbeera | ‘to hug’ |
| kɔfúúumbeella | ‘to make a fire burn’ |

There are a limited number of stems whose final consonants inhibit progressive lowering: *-chékech-* ‘sieve’, *-chóoch-* ‘incite’, *-téreḿk-* ‘descend’. These are words borrowed from Swahili. The applied suffix following these stems is not subject to lowering.

| | |
|---|---|
| kokóteremkɪra | ‘to descend for us’ |
| n-aakóchóóchɪrɪ | ‘he will incite for us’ |

[50] Such roots are discussed in the chapter on verb tone: the evidence is that these roots behave tonally like OP+stem combinations, not as unprefixed roots.

váákʊ́ˈchékéchɪra ‘they will sieve for us’

In the case of *-chékech-, -chóoch-* this is explained by the general fact that *ch* blocks harmony. In the case of *teremk̀*, the explanation is not entirely obvious. Because of the cluster *mk* (non-homorganic NC, no voicing, pre-consonantal tone-bearing nasal), we might reasonably explain the stem as coming from /teremʊka/, undergoing mu-reduction. There is little evidence of mu-reduction applying within the stem. There are verbs which might in principle undergo reduction but never do.

| | |
|---|---|
| kʊsimʊgʊka | ‘to be revived’ |
| kʊgámʊra | ‘to catch in the nick of time’ |
| kʊtímuka | ‘to get untied (of an animal)’ |
| kʊsamʊra | ‘to go to work’ |
| kʊsiimʊka | ‘to start a journey’ |

However, the stem ‘sneeze’, which has many variant realizations, is attested with reduction in the tokens [em]*kʊtyámka* ‘to sneeze’, [nm]*kwíichaamra*, as well as *kwíisyaamʊra, kʊtyámʊka, kʊsyaamʊra*, so it is possible that /teremʊk/ becomes [teremk̀]. In light of the possibility that /ʊ/ does not lower after [e], the assumed underlying vowel /ʊ/ could explain lack of harmony across *mk* in this verb.

## 6.3. Progressive FV lowering

There is also progressive harmony between the prefinal vowel and the final suffix /e~ɪ/.[51] Three morphemes exhibit this alternation: the subjunctive suffix, the deverbal adjective suffix, and the imbricated variant of the perfective suffix. The basic harmonic patterns of these suffixes is the same, but there are differences in terms of optional patterns. The main challenge in analyzing the data is determining whether the suffix is /ɪ/ implying one set of conditions for lowering, or /e/ implying a complementary set of conditions for raising.

### 6.3.1. Subjunctive -e/ɪ

When the preceding vowel is [e o], the subjunctive vowel is realized as [e].

| | |
|---|---|
| m-aadééké | ‘he will cook’ |
| m-áándéékéré | ‘I will cook for’ |
| ma varóré | ‘they will see’ |
| na kʊchérévé | ‘we will be late’ |
| n-aagóné | ‘he will sleep’ |
| ma kovéézégére | ‘we will belch’ |
| nɪ vavóhóolle | ‘they will untie’ |
| n-aamórómere | ‘he will speak for me’ |

[51] It is very difficult to determine whether the process is raising or lowering, in light of the various conditions and options pertaining to this alternation. It will be conventionally referred to here as lowering.

| | |
|---|---|
| kɒmaa kokóóɲé | ‘we will help’ |
| n-aachóóré | ‘he will draw’ |
| naa nzéengéelle | ‘I will belch’ |
| na kɒfóómbéelle | ‘we will make a fire burn’ |
| vaangúúmeelle | ‘let them hug me’ |

After *ɪ ʊ i u*, the suffix appears as [ɪ].

| | |
|---|---|
| ma vabábírí | ‘they will get dirty’ |
| ma varííndí | ‘they will watch’ |
| ma víímíllí | ‘they will lead’ |
| nɪ varímí | ‘they will dig’ |
| kɒmaa kɒtóóngámínyɪ | ‘we will invert’ |
| ma kɪgórízwí | ‘it will be sold’ |
| na vavítí | ‘they will pass’ |
| ma voonízí | ‘they will make sin’ |
| ma vadóóɲí | ‘they will look sad’ |
| maa kɒyóóyómɪ | ‘we will run slowly’ |
| na vaambókí | ‘they will cross’ |
| vamaa vasúgúmí | ‘they will push’ |
| vamaa viigútí | ‘they will be satisfied’ |
| na kɒtúúmí | ‘we will jump’ |

The next question to raise is whether [e] can appear directly after [i u ɪ ʊ]. There are only 3 out of about 1250 tokens with final [e] which have a high vowel in the preceding stem syllable: *arakiike* ‘he will descend’, *kɒrakáchééliize* ‘you will greet’ and *arakaraandiize* ‘he will announce’, all coming from the same speaker and all uttered within a one minute period. Such examples will be disregarded as errors. There are likewise only 5 examples out of about 1500 tokens of [ɪ] after mid vowels, 4 in a sequence from one speaker giving a paradigm *nɪ mdéékí* ‘2p will cook’, thus these too will be disregarded as errors. Forms with disharmony between the final and penult non-low vowels are consistently rejected by EM.

*maadeekɪº
*ma varorɪº
*ma vadʊʊɲé
*ma varííndé

Thus the pattern of harmony involving non-low vowels in the subjunctive is simple.[52]

The situation after [a] is less consistent, since both final vowels occur. One indication of the overall pattern for preceding [a] is the fact that 3/4 of the 500+ instances with penultimate [a] have final [e]. Examples are as follows.

kwaambá!káné ‘refuse us!’

[52] There are additional examples, discussed at the end of this subsection, involving blocking consonants.

| | |
|---|---|
| nɪ vaarámé | ‘they will be open’ |
| nɪ vakwáate | ‘they will do surgery on us’ |
| na vɪɪyáte | ‘they will do surgery on themselves’ |
| kʊmaa kʊdéékáange | ‘we will be cooking’ |
| n-aagárángatane | ‘he will fall and rolled over’ |
| na kʊgárókáne | ‘we will part ways’ |
| n-ʊʊháámbáane | ‘you will join up’ |
| kʊmaa kʊháángáare | ‘we will argue’ |
| kiiká'ré | ‘now sit!’ |
| variká'ráángé | ‘they will fry’ |
| arakákáraange | ‘he will fry’ |
| ʊrakákáraange | ‘we will fry’ |
| kʊrakaminage | ‘we will stir’ |
| kaɲaaɲé | ‘now eat!’ |
| rwá'ndíkánáve | ‘when I will sew’ |
| reka ndágé | ‘let me promise’ |
| varakaráse | ‘they will throw’ |
| ma varóráné | ‘they will see e.o’ |
| aráásaangaalle | ‘he will be happy for me’ |
| ma vasávé | ‘they will beg’ |
| varikatáángaaze | ‘they will announce’ |
| kavagá'ré | ‘now spread out’ |
| arákávódong’ane | ‘he will go around’ |
| varóji vaaza vazáázáame | ‘the witches who will taste’ |

Examples of [ɪ] after [a] are as follows:

| | |
|---|---|
| vamaa gagáállí | ‘they will stare’ |
| kagɪganá'gání | ‘now think about it’ |
| kajuukányɪ | ‘now stir!’ |
| kasʊʊndó'rányí | ‘now overpour!’ |
| ma vaminagɪº | ‘they will stir’ |
| aráváallɪ | ‘he will spread a bed for them’ |
| arɪkísaambʊranyɪ | ‘he will dismantle it’ |
| n-aasáángaallɪ | ‘he will be happy for me’ |
| vamaa vasáámbóránɪ | ‘they will dismantle’ |
| kakáráángí | ‘now fry’ |
| arikáráangɪ | ‘he will fry’ |
| vamaa vakʊyáanzɪ | ‘they will love you’ |
| na kʊjóókányí | ‘we will mix’ |
| kaatányɪ | ‘now break!’ |

Across speakers, final [e] after [a] is the dominant pattern (it is the only pattern attested in 50 tokens from RL), and (except for RL) [e] occurs with roughly the same frequency across speakers.

Instances with final [ɪ] predominantly occur when the consonants intervening between the penult and final vowels are *ll, ny* or *ɲ*.

| | |
|---|---|
| reka ngánágánɪ | 'let me think' |
| kɒmaa kwɒɒmbákɪ́ | 'we will build' |
| kakáráángɪ́ | 'now fry' |
| arikáráangɪ | 'he will fry' |
| kaambá'kání | 'now refuse!' |
| vamaa gagáállɪ́ | 'they will stare' |
| maa vatávállɪ́ | 'they will put on airs' |
| aráváallɪ | 'he will spread a bed for them' |
| vamaa víígállɪ | 'they will obstruct' |
| kɒrakágɪ́rɒng'anyɪ | 'we will turn upside down' |
| geeɲékáá ngánágányɪ | 'I should think' |
| kasɒgá'ányɪ́ | 'now mix!' |
| nɪvacháátanyɪ | 'they will split it' |
| arɪkɪ́saambɒranyɪ | 'he will dismantle' |
| kɒmaa kwiigórɒng'anyɪ | 'we will turn around' |
| reka kɒɲááɲɪ́ | 'let's eat' |
| kɒrikatémaanyɪ | 'we will chop up' |
| kɒrakagoyaanyɪ | 'we will dismantle' |
| kɒrakagavɒranyɪ | 'we will dole out' |

Examples such as *reka ngánágánɪ, kɒmaa kwɒɒmbákɪ́* help to clarify (but do not entirely decide) the analysis of this alternation. If the underlying suffix is /ɪ/, a regular rule lowers /ɪ/ to [e] after a mid vowel; then an optional rule likewise lowers /ɪ/ after [a]. Forms like *kɒmaa kwɒɒmbákɪ́* reflect the option without lowering, and *reka nzómbáké* 'let me build' reflects the option of lowering. Alternatively, if the suffix is /e/, then a regular rule raises /e/ to [ɪ] after a high vowel, and an optional rule dissimilatorily raises /e/ after [a], where the rule applies in *kɒmaa kwɒɒmbákɪ́* and does not apply in *reka nzómbáké*.

The stronger tendency for a high vowel suffix after /ll/ probably relates to the source of that consonant, from /rɪr/ and /rɒr/. In the case of *vamaa viigállɪ* 'they will block', we could assume underlying /vaigárɪrɪ/ or /vaigárɪre/, perhaps /vaigárɒrɪ/ or /vaigárɒre/ since the nature of the deleted vowel cannot be determined – the point being that whatever the final vowel is underlyingly, it would regularly raise after penult *ɪ* or *ɒ*. Given an ordering where progressive harmony precedes rVr-reduction (within the stem), we predict *vamaa viigállɪ*. The opposite order where reduction precedes progressive harmony predicts the also-attested variant *vamaa viigállé*.[53] The general pattern for EM is that, except for the token *vamaa gagáállɪ́* 'they will stare', penult [a] induces the final mid vowel [e] across *ll*, whereas for ML, that consonant sequence usually induces [ɪ].

[53] It is possible that the tone difference is related, but note that *vamaa viigállɪ* comes from ML and *vamaa viigállé* comes from EM. In the former, the penult behaves as a bimoraic syllable and in the latter, it behaves like a monomoraic syllable.

In the case of final *ny* (covering both [ny] and [ɲ]), there seems to be a regular generalization for speakers who have a clear phonetic difference that the final V is [e] when the nasal is [ɲ].[54] It may, however, also be [e] after [ny].

| | |
|---|---|
| arákáɲááɲe | 'he will eat' |
| ma vamaɲeº | 'they will know' |
| kʊrikávʊ́rʊ́ganye | 'we will take' |
| ma vagávʊ́ránye | 'they will divide' |
| kasʊʊndʊ́ˈrányé | 'now overpour!' |
| varikagávʊranye | 'they will dole' |

After [ny], [ɪ] may also be found.

| | |
|---|---|
| kajuukányɪ | 'now stir!' |
| kavʊrʊgányɪ | 'now stir!' |
| kasʊgáˈányí | 'now mix!' |
| kʊʊngáˈányí | 'now join!' |

Another factor making final [ɪ] more likely is when the final vowel is preceded by [VCan] within the stem. This includes both cases of the reciprocal extension, and other examples of [n], but interestingly never *n* as $C_2$ of the root.

| | |
|---|---|
| kaambáˈkání | 'now refuse!' |
| kagɪganáˈgání | 'now think about it' |
| kahaambaní | 'now join' |
| kakovodóˈng'áni | 'now go around us' |
| kazeengéˈllání | 'now stare at e.o!' |
| kʊmaa kwíírání | 'we will return' |
| kʊrakang'ereng'anɪ | 'we will be shiny' |
| kʊrákííyʊʊnganɪ | 'we will join up' |
| vamaa vazíllízánɪ | 'they will make e.o. cold' |

Compare analogous cases where the final vowel is [e].

| | |
|---|---|
| kavodong'áne | 'now go around!' |
| kavaganáˈgáné | 'now think of them!' |
| várákáávʊkane | 'they will part ways' |
| reka mbááné | 'let me give' |
| geeɲékáá ngóóngómáne | 'I should roll' |
| kaané | 'now moo!' |
| ma varorané | 'they will see e.o' |
| ma viirané | 'they will return' |

[54] This identifies two verbs: *ɲaaɲ-* 'eat' and *maɲ-* 'know'.

In summary, there are three exceptional factors allowing [ɪ] after penult [a]: intervening *ll*, *ny*, or *n* when not $C_2$ of the stem.

There are cases which do not fall into one of these three categories, but there are relatively few such examples.

| | |
|---|---|
| ma vaminagí | 'they will stir' |
| kʊmaa kwʊʊmbákí | 'we will build' |
| kakaraangí | 'now fry' |
| vamaa vakʊyáanzɪ | 'they will love you' |
| maa vanávɪ́ | 'they will sew' |

Another consonantal context governing non-harmony involves the reduced form of the causative when the stem ends in *n* or *ɲ*: harmony does not apply across [ny].[55]

| | |
|---|---|
| mavóóné | 'they will sin' |
| mavoonyí marova | 'they will make Marova sin' |
| ma vamóóɲé | 'they will gossip' |
| ma vamóónyí | 'they will make gossip' |
| ma kʊhóné | 'we will get well' |
| ma kʊvahónyɪ | 'we will heal them' |
| ma koɲááɲé | 'we will eat' |
| ma konyáányí | 'we will feed' |
| ma varwááné | 'they will fight' |
| ma varwaanyí marova | 'they will make Marova fight' |

The vowel is also [ɪ] when the passive /w/ intervenes between the final vowel and the penult.

| | |
|---|---|
| maa varógwí | 'they will be bewitched' |
| m-aaróóndwí | 'he will be followed' |
| m-eehoombwí | 'it will be calmed' |
| nakeyóóywí | 'it will be scooped' |
| n-ooɲóórwí | 'you will be found' |
| ní váchóórwí | 'they will be drawn' |
| na kedoorwɪº | 'it will be picked up' |
| n-aahónywí | 'he will be healed' |
| na ketémwí | 'it will be chopped' |
| maa vasémwí | 'they will be insulted' |
| naa mbégwí | 'I will be shaved' |
| na kedéékwí | 'it will be cooked' |
| na váréétwí | 'they will be brought' |
| na vatéévwí | 'they will be asked' |

[55] Recall that [ɲ] and [ny] are not distinct for some speakers, which gives rise to surface cses of harmony across [ny].

| | |
|---|---|
| maa varágwí | ‘they will be promised’ |
| n-aayáárwí | ‘he will be sued’ |
| na kɪbááng’wí | ‘it will be arranged’ |

There is also no lowering of the final vowel after the roots *teremk, chooch, chekech* just as the applied suffix /ɪr/ does not lower after these roots, as discussed in 6.2 (palatals and moraic [m̀] block harmony)

To summarize the pattern of final-vowel harmony for the subjunctive suffix,[56] there is a general pattern where preceding [e o a] condition [e] and [i u ɪ ʊ] condition [ɪ]. There is a variable tendency for the final vowel to be [ɪ] after [a]; certain consonantal factors cause the final vowel to be [ɪ] even after [e o], which otherwise do not allow final [ɪ].

### 6.3.2. Adjective suffix

The deverbal adjective suffix /ɪ/ also participate in progressive harmony, where *a e o* condition [e] and *i u ɪ ʊ* condition [ɪ]. Examples of [e] after [e,o] are as follows.

| | |
|---|---|
| avɑ́ɑ́nd-ávárέme | ‘crippled people’ |
| é!ndéέke | ‘cooked_9’ |
| é!ɲóóré | ‘found’ |
| ekebó!móré | ‘demolished’ |
| ekegóte | ‘lost’ |
| ekerége | ‘defeated’ |
| eméésa endele | ‘a smoothe table’ |
| eméésa eséé!réézé | ‘a smoothe table’ |
| emére | ‘malted’ |
| éng’óómbé é!ngééndé | ‘walking cow’ |
| ɪkí!chóóré | ‘drawn’ |
| ɪnyɔ́!mb-éé!nzéére | ‘saggy house’ |
| ʊmʊrím-ʊmséé!mbéllé | ‘weeded field’ |
| zing’óómbé zífóó!góyé | ‘crippled cows’ |
| zing’óómbé zínóó!nóóɲé | ‘calmed cows’ |

If the preceding vowel is [a], the suffix is also [e].

| | |
|---|---|
| amávé!r-ámíí!sháágé | ‘beated millet’ |
| é!ngókó !ngárágé | ‘a carved-up chicken’ |
| í!ngáá!nó íngúú!námé | ‘fermented wheat’ |
| ɪkí!ráángé | ‘called’ |
| ɪkí!sáámbé | ‘burnt’ |
| ɪkí!táágé | ‘planted’ |
| ɪmbɔ́!r-íímá!ɲíkáné | ‘famous goat’ |

[56] This excludes the complication of the choice of vowels after monosyllabic roots like *-ry-* ‘eat’, discussed in 6.3.4.

| | |
|---|---|
| ɪmító ˈmíkáˈrágé | ‘chopped mito’ |
| ɪnáve | ‘sewn’ |
| kɪfóóˈy-íkíkáˈmáté | ‘caught rabbit’ |
| msááˈrá mwááté | ‘split tree’ |
| ovóserá vóvóˈrógányé | ‘stirred porridge’ |
| ʊmkíˈn-ómógáˈyé | ‘forbidden game’ |
| vitábu vibaangé | ‘sorted books’ |
| zíngúz-ízíháke | ‘scorched vegetable’ |

Examples of [ɪ] after a penult high vowel are as follows.

| | |
|---|---|
| kɪvónɪkɪ | ‘broken$_{-7}$’ |
| ɪkíˈmíízí | ‘cast’ |
| kɪfóóˈy-íkígóˈmírí | ‘caught rabbit’ |
| ízíngóv-ízíˈnííngí | ‘folded clothes’ |
| ɪkɪvísɪ | ‘hidden’ |
| ɪkɪhááˈníkí | ‘hung up’ |
| ɪchíˈítí | ‘killed’ |
| íkígúútí kírímɪ | ‘plowed field’ |
| ɪzíng’óómbé zíˈnííndí | ‘protected cows’ |
| ɪchóóˈgíhízí | ‘sharpened’ |
| ɪchííˈgízí | ‘taught’ |
| ɪndíˈgíɲí | ‘tickled$_{-9}$’ |
| ɪkíˈgúútí | ‘defeated’ |
| ɪríˈsúúngí | ‘hung$_{-5}$’ |
| ɪkɪsííˈsórí | ‘chopped-off’ |
| ɪnjáˈnórí | ‘combed$_{-9}$’ |
| eng’óómb-ísááˈnórí | ‘combed cow’ |
| amádúúma masááˈsógórí | ‘scattered maize’ |
| amagáánda amagáˈvórí | ‘divided beans’ |
| ɪkɪsááˈmbórí | ‘demolished’ |
| ɪkɪvóˈrógí | ‘mixed’ |
| ɪmbáˈrábáˈr-íɲáˈmbókí | ‘crossed road’ |
| ɪzíímbw-ízíndákʊʊrí | ‘released dogs’ |
| ímbónyɪ | ‘stinking’ |
| avááˈn-ávávóˈókí | ‘woken children’ |

There are relatively few tokens (a total of 8) which do not conform to this pattern. Some cases of [e] after high vowel are as follows.

| | |
|---|---|
| ámáɲónyí gábóroke | ‘flying birds’ |
| ɪzíng’óómbé zíshíre | ‘driven cows’ |
| aváándó váváˈrízé | ‘counted people’ |
| amáˈgómyá magúúˈɲámíɲé | ‘fermented bananas’ |

There are even fewer (5) cases of [ɪ] after [a].

| | |
|---|---|
| avɑ́ɑ́nd-ávámá!ɲíkání | ‘famous people’ |
| amadírísha máng’é!réng’ání | ‘shiny windows’ |
| amɑ́ɑ́!zí másʊ́ʊ́!ndʊ́rányí | ‘overpoured water’ |
| ɪnyʊ́ʊ́mb-ɪɪnzʊ́!mbákí | ‘a built house’ |
| ɪkɪvá!gárí | ‘hung up’ |

No cases of [ɪ] are found after a penult mid vowel. The set of available -ɪ-adjectives is relatively small compared to the subjunctive inflectional vowel, so it is not assumed that there is a systematic difference in the treatment of these suffixes.

There are, however, consonantally related cases where mid vowels appear in the penult before a final syllable [ɪ]. This occurs in the previously-discussed roots *-chooch-*, *-teremk-* and *-chekech-*.

| | |
|---|---|
| ʊmʊ́ʊ́ndʊ́ m̀!chóóchí | incited person |
| avɑ́ɑ́nd-ává!chóóchí | incited people |
| ʊmwɑ́ɑ́n-ʊmté!rémkí | descended child |
| ʊm̀yék-ʊmʊ́!chʊ́ʊ́ngí | sifted sand |
| ʊm̀yék-ʊmché!kéchí | screened sand |

### 6.3.3. Imbricated perfectives

The final vowel of imbricated perfectives has essentially the same distribution as the subjunctive and adjective suffixes. Complications and variation in the formation of that allomorph obscure the significance of imbrication for harmony patterns.

As discussed in chapter Z, ‘imbrication’ is a set of stem-shape variants selected in perfective tenses, where certain stem shapes determine the choice of imbrication as opposed to suffixation of *-i* (e.g. *kʊtaanji* ‘we began’, *vaavóori* ‘they said’, *aahaanzʊʊchi* ‘he has yelled’). The two main variants of imbrication are with a final (front) long vowel, and replacement of /r/ with [y] plus a front vowel affix.[57] With respect to the long vowel variant, when the preceding vowel is mid [e,o], the final vowel is mid [ee].

| | |
|---|---|
| ɑ́ɑ́mboheree | ‘he has tied for me’ |
| akodóóllee | ‘he picked up for us’ |
| ndɑ́avɑ́seembellee | ‘I weeded for them’ |
| ookóvegeree | ‘you have shaved for us’ |
| rwá vakomórómee vwaangʊ | ‘when they spoke for us quickly’ |
| rwándaakoyóó!mbóólléé | ‘when I overpoured on you’ |
| vaam̀bó!mólléé | ‘they destroyed for him’ |
| yaakóché!révéé | ‘he was late on us’ |
| vakuumbeellee | ‘they hugged’ |

When the preceding vowel is any other vowel, the final vowel is [ɪɪ].

[57] Also recall that there is high speaker-determined variability. The discussion starts with the facts found for all speakers, then expands to contexts typifying certain speakers.

| | |
|---|---|
| aafáánɪrɪɪ | ‘he fanned for me’ |
| aagaallɪɪ | ‘he has stared’ |
| aangóllɪɪ | ‘he bought for me’ |
| aagaallɪɪ | ‘he has stared’ |
| aatavallɪɪ | ‘he has taken up all the space’ |
| ɪɪzɪlɪɪ | ‘it became cold’ |
| kʊhaambaanyɪɪ | ‘we combined’ |
| kwaafóróvánɪɪ | ‘we ate a lot’ |
| kwaayímíllɪɪ | ‘we led’ |
| ɲɪmíllɪɪ | ‘I led’ |
| rwá kʊtakʊná'gíllɪɪ | ‘when we didn’t catch for you’ |
| rwóókʊrakóóllɪɪ | ‘when you released us’ |
| váánzigallɪɪ | ‘they have obstructed me’ |
| yɪɪgóllɪɪ | ‘he bought for self’ |

Notice from [kwaafóróvánɪɪ] that the vowel [a] does not apparently cause lowering. There a few tokens where the vowel preceding [ee] is [a].

| | |
|---|---|
| avá'vóhóólánéé | ‘the ones who untied e.o’ |
| vahohoolanee | ‘they untied for e.o’ |
| ʊmsáá'rá gwáámbódóng’ánéé | ‘the tree that I went around for’ |

The majority of instances of penultimate *a* are followed by [ɪɪ] and [ee] only occurs in cases where [o] precedes within the stem. Since imbrication only arises under special circumstances, in particular with the kinds of preceding consonants that block harmony in the subjunctive, it is difficult to test how robust these examples are.

There is no lowering to mid in case of a post-consonantal glide, as arises in the case of passives and reduced causatives.

| | |
|---|---|
| kwaadeekérwíɪ | ‘we were cooked for’ |
| kwaanwéérwíɪ | ‘we were drunk for’ |
| vageeherwɪɪ | ‘they are in short supply’ |
| kwaadóóllwíɪ | ‘we were picked up for’ |
| ayéengerwɪɪ | ‘he was brewed for’ |
| avohoollwɪɪ | ‘he was untied’ |
| kedeekellwɪɪ | ‘it was repeatedly cooked’ |
| vavegerwɪɪ | ‘they were shaved for’ |
| kɪfaanwɪɪ | ‘it was fanned’ |
| gahénywíɪ | ‘they were exposed’ |
| chaatanywɪɪ | ‘it was smashed’ |

| | |
|---|---|
| kwaahonyíɪ | ‘we healed tr.’ |
| mʊhónyɪi | ‘I healed him’ |
| vaakohónyɪɪ | ‘they healed us’ |
| ahonyɪɪ | ‘he healed tr.’ |

| | |
|---|---|
| mhányíɪ | ‘I made him close’ |
| mgávóranyɪɪ | ‘I made him dole out’ |
| mgenyíɪ | ‘I made him wonder’ |
| mbahényíɪ | ‘I made them expose teeth’ |
| akoséényɪɪ | ‘he made us step’ |
| vakokóónyɪɪ | ‘they made us help’ |
| vakohóóŋoonyɪɪ | ‘they made us calm a cow’ |
| msónyíɪ | ‘I made him point at’ |

The other pattern of imbrication is the replacement of final *r* with -(*y*)*ɪ*~-(*y*)*e*, with *e* appearing after non-high vowels, and *ɪ* coming after high vowels. Because of the phonological conditions on perfective allomorphy, this variant is available after /o, ʊ, a/. In that context, the final vowel is [e].

| | |
|---|---|
| kʊvágáye | ‘we hung up’ |
| ságáe | ‘I dug up’ |
| kwaasaangaaé | ‘we were excited’ |
| rwáyaavágáye | ‘when they spread out tr.’ |
| kwaaháángáé | ‘we argued’ |
| akoroye | ‘he coughed’ |
| avachóóye | ‘he drew them’ |
| kobomóe | ‘we destroyed’ |
| koŋóóye | ‘we found’ |
| kovooye | ‘we said’ |
| ndaahómóe | ‘I massaged’ |
| ndooye | ‘I picked up’ |
| oyóómbooyé | ‘the witch who over-poured’ |
| rwá'yááyóvóe | ‘when he babbled’ |
| rwáánzovooye | ‘when I babbled’ |

When preceded by [ʊ], the final vowel is [ɪ].

| | |
|---|---|
| kʊsʊʊyɪ | ‘we refused’ |
| kʊvʊʊyɪ | ‘we revealed’ |
| kʊdʊ́vʊ́ʊ́yɪ | ‘we crushed’ |
| kʊgávʊ́yɪ | ‘we divided’ |
| kʊŋagʊ́ɪ | ‘we ran’ |
| kʊsʊʊndʊɪ | ‘we poured’ |
| kʊsiisʊɪ | ‘we chopped weeds’ |
| kʊhínʊ́ɪ | ‘we lifted up’ |
| kʊʊsʊ́ʊyɪ | ‘we have refused’ |
| aŋagʊyɪ | ‘he ran’ |
| arákʊ́ʊ́yɪ | ‘he released’ |
| kwaaváámbʊ́í | ‘we were open’ |
| kwaayisámʊ́í | ‘we sneezed’ |
| kwaakɪtáándʊ́yí | ‘we tore it’ |

### 6.3.4. Monosyllabic roots

The so-called monosyllabic roots such as *-ry-* ‘eat’, *-gw-* ‘fall’ which have no overt vowel present a challenge, in that alternating suffixes may select the variant with [ɪ] or the one with [e], depending on the suffix and the root. The pattern is sufficiently complicated and variable that it does not suffice to say that certain roots ‘act as if’ they have a mid vowel and others have a high vowel.[58]

The first context to consider is when the applied suffix is added. We observe that some roots take the suffix variant *-er-* and some take *-ɪr-* (with lengthening, which could be attributed to a covert root final vowel).

| | | |
|---|---|---|
| ch | ma rikɔchéere | ‘it will rise for us’ |
| f | ma vakɔfíɪrɪ | ‘they will end on us’ |
| ny | m-aakɔnyéere | ‘he will defecate on us’ |
| sy | maa ngɔshéere | ‘I will grind for you’ |
| t | ma vakotéere | ‘they will bury for us’ |
| | | |
| gw | ma vamgwíɪllɪ | ‘they will fall for him’ |
| hi | maa kɪkɔshíɪrɪ | ‘it will be cooked for you’ |
| kw | maa ngɔkwíɪrɪ | ‘I will pay dowry for you’ |
| ry | vaandíírɪɪ | ‘they ate for me’ |
| ty | ma vakɔtíɪrɪ | ‘they will fear for us’ |
| Vz | maa mbazíɪrɪ | ‘I will go for them’ |

Some roots behave variably, thus [ɪ] and [e] are both attested with the root *nw* ‘drink’.

| | | |
|---|---|---|
| nw | akɔnwéére | ‘he drank for us’ |
| nw | ma vavanwíɪrɪ | ‘they will drink for them’ |

The passive extension *-w-* requires an extension *-ɪɪy-* in the perfective (*-eev-* for the verb ‘give’), which likewise varies between *-ɪɪy-* and *-eey-*.

| | | |
|---|---|---|
| nw | ɪnweeywee | ‘it was drunk’ |
| t | ateeywe | ‘he was buried’ |
| sh | gashééywe | ‘they were ground’ |
| h | aheevwe | ‘he was given’ |
| kw | zikwííywíí | ‘they were paid as dowry’ |
| ty | atɪɪywɪɪ | ‘he was feared’ |
| ry | ɪrɪɪywɪɪ | ‘it was eaten’ |

[58] In the earlier stages of elicitation, it was not appreciated how complex this problem was, so I simply have no relevant data from most speakers. In later versions of this chapter, I hope to have gathered sufficient data from EM that it is possible to at least state how his grammatical system operates.

The causative extension likewise requires insertion of an extension immediately between it and the root: this suffix varies between *-ɪɪh-* and *-eeh-* (*r* may be required or allowed instead of *h*, with certain roots). Variation between *-ɪɪh-* and *-ɪɪr-* is seen in the following examples.

| | | |
|---|---|---|
| aanzíihizi | aanzíirizi | 'he made me go' |
| aandíihizi | aandíirizi | 'he made me eat' |

Certain roots vary freely in the height of the extension's vowel

| | | |
|---|---|---|
| aanwíihizi | aanwéehizi | 'he made me drink' |
| aashéehizi | aashíihizi | 'he made me grind' |

Otherwise, roots tends to divide lexically into those with a high vowel versus those with a mid vowel.

| | |
|---|---|
| aanzíihizi | 'he made me go' |
| aandíihizi | 'he made me eat' |
| aashíihizi | 'he made me be cooked' |
| aangwíihizi | 'he made me fall' |
| aandíihizi | 'he made me fear' |
| aangwíihizi | 'he made me pay dowry' |
| arakókweehiza | 'he will make us pay dowry' |
| agɔchéehizi | 'he made it rise' |
| aandéehizi | 'he made me bury' |
| aaféehizi | 'he made me come to an end' |
| aanyéehizi | 'he made me defecate' |

The progressive extension *-ɪz-* which is added (exclusively) to the progressive forms of monosyllabic roots likewise varies in vowel quality, and again the vowel associated with 'drink' notably varies.[59]

| | | |
|---|---|---|
| ch | vɔcheezáa | 'it is rising' |
| f | vafeezáa | 'they are coming to an end' |
| kw | vakweezáa | 'they are paying dowry' |
| ny | vaníézaa | 'they are defecating' |
| sy | ashéézaa | 'he is grinding' |
| t | ateezáa | 'he is burying' |
| | | |
| gw | ɔgwíízaa | 'you are falling' |
| hi | kɪhɪɪzáa | 'it is getting cooked' |
| ry | arɪɪzáa | 'he is eating' |
| ty | vatɪɪzáa, vatyɪɪzáa | 'they are fearing' |

[59] In this case, progressive forms of 'eat' are sufficiently attested that it is possible to say that *nweeza* is the more frequent variant.

| | | |
|---|---|---|
| Vz | kɒzíízaa | ‘we are going’ |
| | | |
| nw | anweezáa | ‘he is drinking’ |
| | nweezáa | ‘I am drinking’ |
| | yáánwíízaa | ‘he was drinking’ |
| | akɪnywɪɪzá | ‘he is still drinking’ |

The subjunctive final vowel /ɪ/ also varies according to the root that it is attached to. The lexical patterns are not the same as with the previous extensions, the difference being that more roots are attested with a variable final vowel.

| | | |
|---|---|---|
| t | ma vaté | ‘they will bury’ |
| t | varikáá¦ndé | ‘they will bury me’ |
| h | ma vamhée | ‘they will give him’ |
| v | maa mbé ¦níkítábu | ‘I will have a book’ |
| | | |
| zy | na kɒzyí | ‘we will go’ |
| ty | kɒmaa kɒtyí | ‘we will fear’ |
| sh | naa shí | ‘I will grind’ |
| | ma kɪshí | it will be cooked |
| gw | ma vagwí | ‘they will fall’ |
| | | |
| ch | ma vɒché | ‘it will dawn’ |
| ch | na vɒchɪº | ‘it will dawn’ |
| f | na kɪfí | ‘it will be finished’ |
| f | nɪvafé | ‘they will come to an end’ |
| kw | ma vakwí | ‘they will pay dowry’ |
| kw | maa ngwí | ‘I will pay dowry’ |
| kw | maa ngwé | ‘I will pay dowry’ |
| nw | arákánwí | ‘he will drink’ |
| nw | kɒrákánwé | ‘we will drink’ |
| nw | arikanywí | ‘he will drink’ |
| nw | kɒrákánwé | ‘we will drink’ |
| ry | maa ndyí | ‘I will eat’ |
| ry | n-ɒɒryé | ‘you will eat’ |
| Vz | na kɒɒzí | ‘we will come’ |
| Vz | ma vaazé | ‘they will come’ |

One final root will be added, though its analysis is not certain, namely the root ‘come’, which seems to have the abstract structure /Vz/. The root has no overt lexical vowel (see 12.3), and regardless of the preceding vowel, the final vowel in the subjunctive for this root is [ɪ], see *na kɒɒzí* ‘we will come’.

The adjectival final vowel suffix *-ɪ* also varies according to the preceding monosyllabic root. Because the *-ɪ* adjective form of monosyllabic roots is not highly natural, the corpus of examples is small, so I cannot at this point say that significance should be attributed to the apparent wider range of attestation for the *e* variant.

| | | |
|---|---|---|
| h | ʊmóónd**ó** m**ó**hé | ‘a given person’ |
| t | ʊmbír-**ó**ˈmté | ‘buried body’ |
| gw | ʊmsááˈr-**ó**m**ó**gw**í** | ‘fallen tree’ |
| ty | ʊmóónd-**ó**mˈtí | ‘feared person’ |
| ty | ʊmóóndó m**ó**ty**í** | ‘feared person’ |
| ty | ?ʊmóóndó m**ó**tyé | |
| nw | amarwá manw**í** | ‘drunk alcohol’ |
| nw | amarwá manwé | ‘drunk alcohol’ |
| ry | ɪɲám-íiˈndyé | ‘eaten meat’ |
| ry | ɪɲám-íiˈndyí | |
| sh | íɲám-íishée | ‘ground meat’ |
| sh | amáˈdóóˈmá másyé | ‘ground maize’ |
| sh | ?amaduuma mashɪ | |

Finally, the final vowel of the perfective varies with monosyllabic roots. The most common and consistent final vowel choice for monosyllabic roots is [ɪɪ].[60]

| | |
|---|---|
| aaf**í**ɪ | ‘he has come to an end’ |
| vafɪɪ, vafee | ‘they ended’ |
| aagwɪɪ | ‘he has fallen’ |
| vagw**í**ɪ, *vagwée | ‘they fell’ |
| aakw**í**ɪ | ‘he has paid dowry’ |
| akwee, akwɪɪ | ‘he paid dowry’ |
| an**í**ɪ (*anée) | ‘he defecated’[61] |
| any**í**ɪ, anyée | ‘he defecated’ |
| k**í**gw**í**ɪ | ‘it fell’ |
| vazy**í**ɪ, vaz**í**ɪ, *vazyée | ‘they went’ |
| rwá kʊtarɪɪ | ‘when we didn’t eat’ |
| vʊshɪɪ | ‘it$_{-14}$ got warm’ |
| kɪhɪɪ | ‘it$_{-7}$ got warm’ |

Four roots seem to consistently select [ee] as the final vowel.

| | | |
|---|---|---|
| aatée | ‘he has buried’ | |
| aakohée | ‘he gave to us’ | |
| vʊʊchée | ‘it has risen’ | |
| kovee n**í**ˈímbwá | ‘we have a dog’ | (/-v-/ ‘be’, na- ‘with’) |

There is significant speaker variation in the choice of final vowels for the roots ‘drink’ and ‘grind’. EM overwhelmingly uses [ɪɪ] in the perfective of ‘grind’, and ML uses [ee]; FA uses [ee] in ‘drink’, EM overwhelmingly prefers [ɪɪ], and ML uses [ee] 2/3 of the time.

[60] Only the roots ‘drink; fall, grind’ are reasonably well-documented in the perfective.

[61] The glide *y* optionally deletes before the perfective ending [ɪɪ], though not [ee].

| | |
|---|---|
| anwee | ‘he drank’ |
| kʊsyee | ‘we ground’ |
| kʊnwɪɪ | ‘we drank’ |
| ndaashíɪ | ‘I ground’ |

The upshot of this is that the choice of following vowel after monosyllabic roots is variable. There are relatively few such roots, significant asymmetries in frequency of occurrence of the various roots, and unbalanced distribution of tokens across speakers, so it would be premature to make strong claims. The roots ‘give’ and ‘bury’ seem to be most strongly connected to [e] (there are no tokens of these roots selecting [ɪ]), and ‘eat’ and ‘fall’ are most strongly connected to [ɪ]. Further long-term investigations with multiple speakers may reveal subtle statistical patterns, but the present conclusion cannot be any stronger than that the height of an affixal vowel after monosyllabic roots is indeterminate. It is also important you note that for some verbs (‘grind; be cooked’; ‘fear; bury’) there is the potential that vowel choice may segmentally distinguish distinct verbs. For speaker EM, *kʊ́shá* ‘to be cooked’ and *kʊsha* ‘to grind’ differ only on tone, but for other speakers (e.g. RL) they can be distinguished segmentally (*kʊhyá* ‘to be cooked’, *kʊsya* ‘to grind’, though optionally *kʊ́shá* and *kʊsha*). The tendency of ‘grind’ to select [e] may be the result of speakers preferring less ambiguous forms over more ambiguous forms. This tendency may, however, be overcome by whatever factor dictates that the perfective suffix preferably has [ɪ]. Since the matter seems to come down to preferences rather than grammaticality, resolving this issue is beyond the scope of this work.[62]

### 6.3.5. Degree-1 final vowels

The vowels [i, u] can appear as final vowel suffixes: *-i* is the plural imperative, non-imbricated perfective, and agent-nominalization suffix, and *-u* is a deverbal adjective suffix. These vowels do not harmonize with the preceding vowel.

| | |
|---|---|
| kaazí | ‘now come$_{-pl}$!’ |
| kareetí | ‘now bring$_{-pl}$!’ |
| kadeechí | ‘now cook$_{-pl}$!’ |
| kasoomí | ‘now read$_{-pl}$!’ |
| kabomorí | ‘now destroy$_{-pl}$!’ |
| reetí | ‘bring$_{-pl}$!’ |
| koonyí | ‘help$_{-pl}$!’ |
| rɪɪndi | ‘wait$_{-pl}$!’ |
| choori | ‘draw$_{-pl}$!’ |
| ng’oodi | ‘write$_{-pl}$!’ |
| yeyi | ‘sweep$_{-pl}$!’ |

[62] Much of the data on the vowel associated with monosyllabic roots has come from EM: further work with speaker is needed to firm up the range of options for him, and much more work is necessary with other speakers to understand the range of variation attested in the language at large.

| | |
|---|---|
| aabaambi | ‘he dressed up’ |
| aabómori | ‘he has demolished’ |
| akwéényi | ‘he looked for us’ |
| kookéri | ‘we have milked’ |
| kwaakevéji | ‘we shaved it’ |
| kwaang’óódi | ‘we wrote’ |
| m̀m̀bóshi | ‘2p have tied’ |
| m̀m̀bógɒri | ‘2p have received’ |
| rwá ndaakechóóri | ‘when I drew it’ |
| séchi | ‘I laughed’ |
| ɒkweesi | ‘you pulled’ |
| yaaróóndi | ‘he followed’ |
| yéeyi | ‘he has swept’ |
| | |
| ɒmɒdééchi | ‘one who cooks’ |
| ɒm̀barizi | ‘one who counts’ |
| ɒmwíívɪlli | ‘one who forgets’ |
| ɒm̀béji | ‘one who shaves’ |
| ɒm̀bóshi | ‘one who ties’ |
| | |
| ɪrítéév-ɪrí'téévú | ‘asked question’ |
| am̀béér-amá'fóókú | ‘boiled over milk’ |
| eng’óómb-éé'mbóómú | ‘calm cow’ |
| ɒmgóy-ɒ́mbó'hú | ‘tied rope’ |
| ɒmɒ́ɒ́ndɒ́ mɒ́'róóndú | ‘followed person’ |
| ɒ́mdog-ɒ́mɒ́'háándú | ‘stuck car’ |
| ɪbá'rw-íí'ndɒ́mú | ‘sent letter’ |
| ɪnyɒ́ɒ́mb-eeŋénu | ‘wanted house’ |
| ɪnyɒ́ɒ́'mb-éé'njóórú | ‘drawn house’ |
| íkítáánd-ícha'árú | ‘spread bed’ |

## 7. Palatalization

There are three palatalization processes in the language. The most general and uniform throughout the language changes derived *ky, gy* to *ch, j*: *ky* and *gy* will derive from /kɪ, gɪ/ before a vowel. A second is triggered by specific morphemes and applies variably according to individual, and this process changes *k, g, h* to *ch, j, sh* before *i*. The final process changes *hy* and *sy* to *sh*: this process seems consistent within speakers, but is speaker-dependent. Since there are no alternations motivating underlying /hy, sy/ for such speakers, this process is not covered here and instead is discussed in the phonetics chapter.

### 7.1. ky, gy

Contexts where *ky, gy* can be created by morpheme concatenation are as follows. First, the class 7 morpheme /kɪ/ when placed before a any vowel within the word always

undergoes glide formation and thus palatalization. Likewise, the perstitive prefix /kɪ/ undregoes glide formation before vowel-initial roots and the reflexive OP. Finally, the cl. 9 OP /gɪ/ undergoes glide formation before vowel-initial morphemes.

### 7.1.1. Cl. 7

#### a. Nouns

| | |
|---|---|
| ɪcheeyo | ‘broom’ |
| ɪchó!kóryá | ‘food’ |
| ɪcháage | ‘grain store’ |
| ɪchiitʊ | ‘market’ |
| ɪchááyɪrʊ | ‘pasture for animals’ |
| ɪchííriiri | ‘shadow’ |

Adjectives

| | |
|---|---|
| ɪchéére | ‘empty$_{-7}$’ |
| ɪchóʊmʊ | ‘dry$_{-7}$’ |
| ɪcháá!kánó | ‘red$_{-7}$’ |
| ɪchaangʊ | ‘quick$_{-7}$’ |

Secondary nominal agreement

| | |
|---|---|
| chóosi | ‘whole$_{-7}$’ |
| chíítʊ | ‘ours$_{-7}$’ |
| cháángé | ‘mine$_{-7}$’ |
| cha Marova | ‘cl. 7 of Marova’ |
| yɪcho | ‘that$_{-7}$’ |
| cheené | ‘specific$_{-7}$’ |
| chééne | ‘on its$_{-7}$ own’ |
| chéé!ng’íné | ‘alone$_{-7}$’ |

OP-V

| | |
|---|---|
| kʊcháaha | ‘to pluck it$_{-7}$’ |
| kʊcháara | ‘to spread it$_{-7}$’ |
| kʊcháávʊra | ‘to take down it$_{-7}$’ |
| kʊchéeŋa | ‘to want it$_{-7}$’ |
| kʊchíígʊra | ‘to open it$_{-7}$’ |
| kʊchíoha | ‘to extract it$_{-7}$’ |
| kʊchímba | ‘to sing it$_{-7}$’ |
| kʊchíízʊriza | ‘to fill it$_{-7}$’ |
| kʊchóómbaka | ‘to build it$_{-7}$’ |
| kʊchóʊnga | ‘to join it$_{-7}$’ |

SP

| | |
|---|---|
| chaaní | ‘it$_{-7}$ mooed’ |
| chaayí | ‘it$_{-7}$ grazed’ |
| cheenywí | ‘it$_{-7}$ was wanted’ |
| chʊʊgɪshi | ‘it$_{-7}$ became sharp’ |
| chʊʊmi | ‘it$_{-7}$ became dry’ |
| chaakízaa | ‘it$_{-7}$ is flashing’ |
| chaambʊ́kaa | ‘it is crossing’ |
| cheeywáa | ‘it$_{-7}$ is being swept’ |
| kɪmaa cháásyáamʊrɪ | ‘it$_{-7}$ will sneeze’ |
| reka chíírʊ́kí | ‘let it$_{-7}$ flee’ |
| nɪ chíívʊ́rí | ‘it$_{-7}$ will give birth’ |
| kɪmaa chʊ́ʊ́mbákwí | ‘it$_{-7}$ will be built’ |
| chééroondi | ‘it$_{-7}$ followed itself’ |
| chííduyi | ‘it$_{-7}$ hit itself’ |
| chíítɪɪhizaa | ‘it$_{-7}$ is scaring itself’ |
| mani chéérora | ‘then it$_{-7}$ hit inself’ |
| mani chíírʊma | ‘then it$_{-7}$ bit itself’ |
| chaakadeekwa | ‘it$_{-7}$ was cooked’ |
| cháágaywa | ‘it$_{-7}$ is prohibited’ |
| cháágota | ‘it$_{-7}$ is lost’ |
| chaakʊyɪɪngʊka | ‘it$_{-7}$ has melted’ |

Perstitive

| | |
|---|---|
| ʊchɪɪyígiza | ‘you are still teaching self’ |
| achiitá | ‘he is still killing’ |
| njiisyáágáa | ‘I am still splitting wood’ |
| ʊchaasámʊ́raa | ‘you are still sneezing’ |
| achɪɪgáa | ‘he is still learning’ |
| kʊchaagʊ́rʊ́káa | ‘we are still coming down’ |
| vachiinámi | ‘they are still bending over’ |
| acheedéé¦kérá | ‘he is still cooking for self’ |
| ʊcheeréé¦térá | ‘you are still bringing for self’ |

### 7.1.2. Cl. 9

Only the cl. 9 verbal OP /gɪ/ has the required structure that can undergo glide formation and then palatalization.

| | |
|---|---|
| ajééi | ‘he swept it$_{-9}$’ |
| kʊjííti | ‘we killed it$_{-9}$’ |
| gɪgʊrí | ‘buy-pl it$_{-9}$’ |
| kʊmaa kʊjéeye | ‘we will sweep it$_{-9}$’ |
| mání vá¦jé¦éyá | ‘then they swept it$_{-9}$’ |
| mánií ¦njé¦éyá | ‘then I swept it$_{-9}$’ |

## 7.2. Perfective, plural and nominalization

The final-vowel suffixes of the form /i/ cause palatalization of /k,g/ to [ch,j], and of /h/ to [sh]. It should be noted that the causative suffix /iz/ does not cause palatalization (*kodéeka* 'to cook', *kodéékiza* 'to make cook'; *konoga* 'to pick fruit', *konogiza* 'to make pick fruit'). Among speakers, there is a minor tendency to not apply palatalization to /k,g/ before final /i/, but the rule applies so often that it probably should be treated as obligatory for these speakers. It is widely reported that some speakers do not apply palatalization, but all of my speakers fall into the set of palatalizers. However, the treatment of /h/ is more variable, and that palatalization should be treated as optional.

### 7.2.1. Perfective

Examples of palatalization of /k,g/ in the perfective are seen here.

| | |
|---|---|
| aahaandiichi | 'he has written' |
| aafáidɪchi | 'he has profited' |
| zyoonechi | 'it$_{-10}$ was messed up' |
| abʊ́rʊ́chi | 'he flew' |
| aadéechi | 'he has just cooked' |
| aahaanzʊʊchi | 'he has talked loudly' |

| | |
|---|---|
| aakáraanji | 'he has fried' |
| ashaaji | 'he ground' |
| aanáánji | 'he called me' |
| áándójí | 'he bewitched me' |
| atʊʊnji vwahá | 'who did he pay' |
| aambéji | 'he shaved me' |
| kʊkooŋaanji | 'we were helping' |

Rarely, forms such as the following are attested.

| | |
|---|---|
| aafáidɪki | 'he has profited' |
| ashaagi | 'he ground' |

When the final consonant is /h/, 2/3 of the time it palatalizes to *sh* and 1/3 of the time it remains [h].

| | |
|---|---|
| koovóshi | 'we have tied' |
| yiishí | 'he extracted' |
| nzíshí | 'I extracted' |
| aarʊshi | 'he has become tired' |
| yʊʊshí | 'he scattered' |
| vaashí | 'they plucked' |
| vasáméeshi | 'they forgave' |
| aatáámbɪshi | 'he has grown tall' |

| | |
|---|---|
| nzahi | ‘I plucked’ |
| áámbohi | ‘he has tied me’ |
| nzʊgɪhi | ‘I became sharp’ |
| nzíhí | ‘I extracted’ |
| rwá vasamɪɪhi | ‘when they forgave’ |

### 7.2.2. Nominalization

Likewise, /k,g/ regularly palatalize before the nominalization suffix /-i/.

| | |
|---|---|
| ʊmʊhaandiichi | ‘one who writes’ |
| ʊmwóómbachi | ‘builder’ |
| ʊmʊdééchi | ‘one who cooks’ |
| ʊmweellechi | ‘one who goes downhill’ |
| ʊmbʊrʊchi | ‘one who flies’ |

| | |
|---|---|
| ʊmʊroji | ‘one who bewitches’ |
| ʊmwíiji | ‘one who learns’ |
| ʊmbaanji | ‘one who arranges’ |
| ʊmbéji | ‘one who shaves’ |
| ʊmwíishaaji | ‘one who chops wood’ |
| ʊmwíisuunji | ‘one who hangs himself’ |
| ʊmkáraanji | ‘one who fries’ |
| ómónóji | ‘one who picks fruit’ |

Palatalization of /h/ is optional (but most frequent).

| | |
|---|---|
| ʊmbóshi | ‘one who ties’ |
| ómbééshi | ‘one who lies’ |
| ʊmʊrʊshi | ‘one who is tired’ |
| ʊmwáashi | ‘one who plucks’ |
| mbóhi | ‘one who ties’ |
| mwáahi | ‘one who picks leaves’ |
| ʊmwáahi | ‘one who plucks’ |

## 8. Vowel Hiatus

Vowel sequences are generally eliminated, either by the deletion of the first vowel, or by changing it to a glide. The processes of hiatus-elimination differ somewhat, depending on whether the sequence is within a word, or is between words. Moreover, monosyllabic grammatical particles, the “proclitics”, exhibit somewhat mixed behavior depending on what thing they attach to. The possible underlying vowel sequences also differ, depending on whether the sequence is created word-internally versus across words, for example /e,o/ as first vowels in a sequence can only arise between words.

## 8.1. Word-internal vowel sequences

Nearly all cases of /V-V/ sequences within words involve inflectional prefixes before a vowel. It is possible but not certain that there are vowel-final roots in the language – for example the root underlying *kʊgwa* might be /gʊ/. Insofar as ostensive V-final roots are limited to the so-called monosyllabic verbs whose behavior is more complex than just vowel-hiatus reduction, such roots are treated separately. The status of certain *ny* sequences likewise might be analyses as being underlying /ni/, but again such an analysis is merely one possibility, and will be treated separately.

Prefixes may have underlying /i, ɪ, ʊ, a/ – mid vowels are lacking, as is /u/. Roots may begin with /i ɪ ʊ e o a/, but not /u/. Few prefixes are composed of just a vowel: reflexive /ɪ/, 2s SP /ʊ/, 1s SP /a/, cl. 9 SP /ɪ/, nominal secondary agreements /ʊ/ for cl. 1 and /ɪ/ for cl. 9, and the past tense prefix -a(a)-.[63] As discussed in 4.3.1, the cl. 1 subject prefix /a/ is subject to replacement by *y* when a vowel follows.

The behavior of /ʊ, ɪ/ in prevocalic prefixes does not differ significantly depending on whether a consonant precedes or not (glide formation applies irrespective of there being a preceding consonant – the output may be subject to optional glide deletion), whereas conversion of /a/ to [y] in the cl. 1 SP is restricted to that one prefix. The relevant facts are given in 4.3.1, and the cl 1. SP will not be considered as V1 in an underlying vowel sequence.

Within the word, the general strategy is that the high vowels /i ɪ, ʊ/ become the corresponding glides [y, w], and /a/ as the first vowel in a V+V sequence is deleted. In all cases, the resulting syllable has a long vowel. In case the preceding consonant is /k, g/, expected *ky, gy* become *ch, j*, see W. When *y* arises before *i*, *y* is usually deleted.[64] Basic examples of Glide Formation are as follows, using the indefinite future prefix /ri/ and the 1p SP /kʊ/. Cyi always surfaces as Ci, and since no morpheme begins with /u/ it is impossible to determine whether Cwu would undergo a similar simplification.

| | |
|---|---|
| varyaatá | ‘they may perform surgery’ |
| aryeerémá | ‘he may float’ |
| váríítá | ‘they may kill’ |
| aryɪɪmbá | ‘he may sing’ |
| aryʊʊmbáká | ‘he may build’ |
| | |
| kwaagaani | ‘we met’ |
| kweenyí | ‘we wanted’ |
| kwiigálli | ‘we prohibited’ |
| kwɪɪmbi | ‘we sang’ |
| kwoonyoonyi | ‘we messed up’ |

[63] The reflexive prefix can also appears as [e] according to the vowel harmony rule. Word-internal vowel merger must apply before vowel harmony, to explain patterns of harmony-blocking: see section 8.2. Thus *e* does not occur in this prefix at the relevant stage.

[64] As noted in chapter Q, some speakers may also delete *w* before *ʊ* when the preceding consonant is labial, but this is most likely a phonetic process, on which grounds possible outcomes /mwʊ/ → [mʊ] will be disregarded.

kwʊʊmi ‘we were dry’

Analogous examples of Vowel Deletion are below, using the future prefix /ra/.

| | |
|---|---|
| kʊráata | ‘we will do surgery’ |
| kʊreenya | ‘we will want’ |
| aríígiza | ‘he will teach’ |
| ʊríɪmba | ‘you will sing’ |
| arééfoora | ‘he will beat self’ |
| keróóneka | ‘it will be spoiled’ |
| aróʊma | ‘he will be dry’ |

### 8.1.1. Glide Formation

Glide formation is the most widely-applicable word-internal process that eliminates vowel sequences. It applies to all prefixes except those which end with /a/, which undergo vowel deletion.

#### a. Primary nominal prefixes

Nouns

| | | |
|---|---|---|
| ʊmwíífa | ‘nephew’ | 1 |
| ʊmwáana | ‘child’ | 1 |
| ʊmwááyʊ | ‘aroma’ | 3 |
| ʊmwéémbe | ‘mango’ | 3 |
| ʊmwooyo | ‘voice’ | 3 |
| imyóógo | ‘cassavas’ | 4 |
| ɪmyéeri | ‘months’ | 4 |
| ɪríinʊ | ‘tooth’ | 5 |
| ɪryaanda | ‘ember’ | 5 |
| ɪryíɪta | ‘name’ | 5 |
| ɪryóʊrʊ | ‘nose’ | 5 |
| ɪcháá!ndáángʊ | ‘back door’ | 7 |
| ɪcháage | ‘grain store’ | 7 |
| ɪcháayo | ‘herd’ | 7 |
| ɪcheelleko | ‘downhill’ | 7 |
| ɪcheeyo | ‘broom ‘ | 7 |
| ɪchiitʊ | ‘market’ | 7 |
| ɪvííriiri | ‘shadows’ | 8 |
| ɪvyáá!mégéré | ‘mushrooms’ | 8 |
| ʊrwá!ásyá | ‘kindling’ | 11 |
| ʊrweena | ‘abdomen’ | 11 |
| ʊrwéevo | ‘fence’ | 11 |
| ʊrwíɪga | ‘horn’ | 11 |
| ʊvwaari | ‘altar’ | 14 |
| ʊvwóóngo | ‘brain’ | 14 |

| | | |
|---|---|---|
| ʊvwóʊ́ma | ‘fork’ | 14 |
| twáámi | ‘chiefs$_{\text{-dim}}$’ | 13 |
| twéeve | ‘hawks$_{\text{-dim}}$’ | 13 |
| utwóóngo | ‘brains$_{\text{-dim}}$’ | 13 |
| ʊtwóʊrʊ | ‘noses$_{\text{-dim}}$’ | 13 |
| gwáámi | ‘chief$_{\text{-aug}}$’ | 20 |
| gweeyo | ‘broom$_{\text{-aug}}$’ | 20 |
| ugwóóngo | ‘brain$_{\text{-aug}}$’ | 20 |
| ʊgwíísʊka | ‘Isukha$_{\text{-aug}}$’ | 20 |
| gwíita | ‘name$_{\text{-aug}}$’ | 20 |
| gwéevo | ‘fence$_{\text{-aug}}$’ | 20 |
| gwóʊrʊ | ‘nose$_{\text{-aug}}$’ | 20 |
| gwíiko | ‘relative$_{\text{-aug}}$’ | 20 |

Infinitive

| | |
|---|---|
| kw-áádɪka | ‘to burst’ |
| kw-aayʊʊra | ‘to shout’ |
| kw-aaha | ‘to pick small leaves’ |
| kw-áata | ‘to do surgery’ |
| kw-eelleka | ‘to go down’ |
| kw-eeŋa | ‘to want’ |
| kw-éérema | ‘to float’ |
| kw-íígalla | ‘to obstruct’ |
| kw-iigʊra | ‘to open’ |
| kw-íiha | ‘to extract’ |
| kw-ɪɪmba | ‘to sing’ |
| kw-íínʊka | ‘to leave work’ |
| kw-íita | ‘to kill’ |
| kw-óóneka | ‘to be spoiled’ |
| kw-ʊ́ʊ́gɪha | ‘to be sharp’ |
| kw-ʊ́ʊma | ‘to be dry’ |
| kw-ʊʊnga | ‘to chase away’ |

Adjectives

| | | |
|---|---|---|
| ʊmwaangʊ | ‘fast’ | 1 |
| ʊmwʊ́ʊm | ‘dry’ | 1 |
| ʊmwíímbɪ | ‘short’ | 3 |
| ʊmwʊ́ʊ́gɪ | ‘sharp’ | 2 |
| ɪmyaangʊ | ‘quick’ | 4 |
| ɪmííngɪ | ‘many’ | 4 |
| ɪryáá'káŋʊ́ | ‘red’ | 5 |
| ɪryeengʊ | ‘ripe’ | 5 |
| ɪchʊ́ʊ́mʊ | ‘dry’ | 7 |
| ɪchéére | ‘empty’ | 7 |

| | | |
|---|---|---|
| ɪvyáána | ‘young’ | 8 |
| ɪvyéére | ‘empty’ | 8 |
| ʊrwóómʊ | ‘dry’ | 11 |
| ʊvwííngɪ | ‘many’ | 14 |
| ʊkwííngɪ | ‘many’ | 17 |
| ʊkwéére | ‘empty’ | 17 |
| ʊmwóʊm | ‘dry’ | 18 |
| ʊmwóógɪ | ‘sharp’ | 18 |

**b. Secondary nominal agreement prefixes**

Examples of the various vowel-initial secondary nominal agreement prefixes are seen below.

| | | |
|---|---|---|
| wóosi | ‘whole ‘ | 1 |
| wá!ángé | ‘mine’ | 1 |
| wáávo | ‘theirs’ | 1 |
| wa mʊng’oma | ‘of Mung’oma’ | 1 |
| gwóosi | ‘whole’ | 3 |
| gwá!ángé | ‘mine’ | 3 |
| gwíítʊ | ‘oura’ | 3 |
| gwá míhádya | ‘of Mihadya’ | 3 |
| já!ángá | ‘how many ‘ | 4 |
| jíítʊ́ | ‘ours’ | 4 |
| ryá!ángé | ‘mine’ | 5 |
| ryáávo | ‘theirs’ | 5 |
| rya rodéeji | ‘of Rodeji’ | 5 |
| chíítʊ | ‘ours’ | 7 |
| cha rodéeji | ‘of Rodeji ‘ | 7 |
| vyóombi | ‘both ‘ | 8 |
| vyáángá | ‘how many ‘ | 8 |
| vyá!ángé | ‘mine’ | 8 |
| yóosi | ‘whole’ | 9 |
| yáávo | ‘theirs’ | 9 |
| zyóombi | ‘both’ | 10 |
| ya rodéeji | ‘of Rodeji ‘ | 10 |
| rwíítʊ | ‘ours’ | 11 |
| rwáávo | ‘theirs’ | 11 |
| twóósi | ‘all’ | 13 |
| twa marova | ‘of Marova’ | 13 |
| vóombi | ‘both’ | 14 |
| vwá!ángá | ‘how many ‘ | 14 |
| vwáávo | ‘theirs’ | 14 |
| kwóosi | ‘all ‘ | 15 |
| kwá!ángé | ‘mine’ | 15 |
| kwóombi | ‘both’ | 17 |
| kwíítʊ | ‘ours’ | 17 |

| | | |
|---|---|---|
| mwáángá | ‘how many ‘ | 18 |
| gwóosi | ‘whole ‘ | 20 |
| gwíítɒ | ‘ours’ | 20 |

In addition, these prefixes can appear in the near-distal demonstrative (yV-AGR-o) ‘that’ and will undergo glide formation.

| | |
|---|---|
| yɪgwo | 3 |
| yɪryo | 5 |
| yivyo | 8 |
| yɪvwo | 14 |
| yɪkwo | 17 |
| yɪmwo | 18 |

**c. Verbal subject and object prefixes**

Glide formation also applies to various pronominal subject and object prefixes, either before vowel-initial roots, vowel-initial tense prefixes (always past tense -a(a)-), or the reflexive prefix -ɪ-.

V-root:SP

| | |
|---|---|
| wɒɒmbachi | ‘you built’ |
| weeŋáa | ‘you are wanting’ |
| kwaatáa | ‘we are doing surgery’ |
| mwaarámáa | ‘2p are spread open’ |
| mwééyi | ‘2p swept’ |
| joonechi | ‘it$_{-4}$ was messed up’ |
| ryaadɪchi | ‘it$_{-5}$ broke’ |
| chiirɒchi | ‘it$_{-7}$ ran away’ |
| vyeerémí | ‘it$_{-8}$ floated’ |
| yáádɪchi | ‘it$_{-9}$ has burst’ |
| rwoonechi | ‘it$_{-11}$ was messed up’ |
| tweerémí | ‘it$_{-13}$ floated’ |
| vwaadɪchi | ‘it$_{-14}$ broke’ |
| twiirani | ‘it$_{-14}$ came back’ |
| gweerémí | ‘it$_{-20}$ floated’ |
| kwééywi | ‘on it$_{-17}$ was sweept’ |
| mweerémí | ‘in it$_{-18}$ floated’ |

OP+V-root

| | |
|---|---|
| kɒkwíígɒlla | ‘to open for us’ |
| akwéé!réméráa | ‘he is floating for us’ |
| kwiizúlizí | ‘remember us!’ |
| amwééŋaa | ‘he is wanting you-pl’ |
| akwééŋaa | ‘he is wanting you’ |

| | |
|---|---|
| kɔ́mwéeŋe | ‘let’s look for him’ |
| na varíitɪ | ‘they will kill it$_{-5}$’ |
| chaatánye | ‘smash it$_{-7}$!’ |
| cheenyé | ‘look for it$_{-7}$!’ |
| vachíiha | ‘they are uprooting it$_{-7}$’ |
| kɔvíígɔra | ‘to open them$_{-8}$’ |
| kɔvyéeya | ‘to sweep them$_{-8}$’ |
| ngɪjeeyá | ‘I am still sweeping it$_{-9}$’ |
| ajíítɔllaa | ‘he’s pouring it$_{-9}$’ |
| akwééyaa | ‘he is sweeping by it-$_{17}$’ |
| amwííkari | ‘he is sitting in it$_{-18}$’ |

SP+-aa-

| | |
|---|---|
| wááyóga | ‘you talked’ |
| kwaakódéeka | ‘we have cooked’ |
| mwaakwíínɪka | ‘2p have fermented’ |
| gwááfaa | ‘it$_{-3}$ ended’ |
| chaakɔyɔɔmba | ‘it$_{-7}$ has overgrown’ |
| vyááyámbɔkaa | ‘they$_{-8}$ used to cross’ |
| vwáásha | ‘it$_{-14}$ got cooked ‘ |
| mwaakadéekwa | ‘in it$_{-18}$ was cooked’ |

SP+reflexive: SP

| | |
|---|---|
| wɪɪdóyí | ‘you should hit yourself’ |
| kwííyízɔrizi | ‘we have remembered ourselves’ |
| yɪɪkɔ́ɔ́ngaa | ‘it$_{-9}$ is chasing itself’ |
| ma jeeyó!nóónyé | ‘they$_{-4}$ will break selves’ |
| gweeyó!nóónyáa | ‘it$_{-3}$ is destroying itself’ |
| chíígwɪɪrɪɪ | ‘it$_{-7}$ has fallen on self’ |

**d. Tense prefixes**

The tense prefixes *-ri*, *-aakɔ, -kɪ-* also undergo glide formation, before vowel-initial roots or the reflexive prefix.

ri

| | |
|---|---|
| ɔriigɔra | ‘you will open’ |
| varyaatá | ‘they will perform surgery’ |
| aryɪɪmbá | ‘he may sing’ |
| aryeerémá | ‘he may float’ |
| aryeetééva | ‘he will ask himself’ |
| kɔryɪɪdúyá | ‘we may hit selves’ |
| gɔryeeyó!nóónyá | ‘it$_{-3}$ may destroy itself’ |

-aakʊ-

| | |
|---|---|
| kwaakweeya | ‘we have swept’ |
| yaakwááta | ‘he has performed surgery’ |
| gwaakwééyonoonya | ‘it$_{-3}$ has destroyed itself’ |
| chaakwéérora | ‘it$_{-7}$ has seen itself’ |
| chaakwíígwɪɪra | ‘it$_{-7}$ has fallen on itself’ |

kɪ

| | |
|---|---|
| achiigóra | ‘he is still opening’ |
| acheerémá | ‘he is still floating’ |
| acheedéé$^{!}$kérá | ‘he is still cooking for self’ |
| achɪɪsá$^{!}$nórá | ‘he is still combing self’ |
| achɪɪkóba | ‘he is still beating himself’ |
| vacheevéga | ‘they are still shaving themselves’ |
| ɪcheehéénzaa | ‘it$_{-9}$ is still looking at itself’ |

### 8.1.2. Vowel Deletion

The other process which reduces vowel sequences is vowel-deletion, which within the word deletes /a/ before any other vowel.

#### a. Primary nominal prefixes

The class prefixes for classes 2 (*va*-), 6 (*ma*-) and 12 (ka-) have the vowel /a/ which undergoes vowel deletion. Examples with lexical nouns are given below.

| | |
|---|---|
| aváana | ‘child’ |
| avíiha | ‘bride’ |
| avʊ́ʊ́mbachi | ‘builder’ |
| amééngʊ | ‘ripe banana’ |
| amíinʊ | ‘tooth’ |
| amúuva | ‘sun’ |
| amʊ́ʊrʊ | ‘nose’ |
| akʊ́ʊ́va | ‘mushroom$_{-dim}$’ |
| akʊ́ʊrʊ | ‘nose$_{-dim}$’ |
| akííko | ‘relative$_{-dim}$’ |
| akáámi | ‘chief$_{-dim}$’ |
| akíímɪlli | ‘leader$_{-dim}$’ |

Examples with vowel-initial adjectives are here. The cl. 16 locative prefix /ha-/ can be added to the set of morphemes participating in vowel deletion, since locative prefixes can directly precede vowel initial adjective roots.

| | | |
|---|---|---|
| avaangʊ | ‘quick’ | 2 |
| aviingɪ | ‘many’ | 2 |

| | | |
|---|---|---|
| akiimbɪ | ‘short’ | 2 |
| amáá¦kányʊ́ | ‘red’ | 6 |
| amʊ́ʊ́mʊ | ‘dry’ | 6 |
| aváá¦kányʊ́ | ‘red’ | 6 |
| akéére | ‘empty’ | 12 |
| akʊ́ʊ́gɪ | ‘sharp’ | 12 |
| ahéére | ‘empty’ | 16 |
| ahiingɪ | ‘many’ | 16 |

**b. Secondary nominal agreement prefixes**

The secondary agreement prefixes with /a/ are likewise those of classes 2 (*va*-), 6 (*ga*-) and 12 (ka-), where /a/ undergoes vowel deletion

| | | |
|---|---|---|
| vóosi | ‘all’ | 2 |
| vá¦ángé | ‘mine’ | 2 |
| víítʊ | ‘ours’ | 2 |
| va marova | ‘of Marova’ | 2 |
| gá míhádya | ‘of Mihadya’ | 6 |
| gá¦ángá | ‘how many ‘ | 6 |
| gáángá | ‘how many ‘ | 6 |
| gáávo | ‘theirs’ | 6 |
| góombi | ‘both’ | 6 |
| kíítʊ | ‘ours’ | 12 |
| kóósi | ‘all’ | 12 |
| háángá | ‘how many ‘ | 16 |
| héé¦hé | ‘his ‘ | 16 |
| hééné | ‘specific’ | 16 |
| hóómbi | ‘both ‘ | 16 |
| hʊ́mʊgeni | ‘of a guest’ | 16 |

The near-distal demonstrative suffix -o also triggers vowel deletion.

| | |
|---|---|
| yavo | 2 |
| yago | 6 |
| yako | 12 |
| yaho | 16 |

**c. Verbal subject and object prefixes**

<u>V root: SP</u>

| | | |
|---|---|---|
| maní víita | ‘then they killed’ | 2 |
| maní vá¦ávʊ́rá | ‘then they took off the line’ | 2 |
| viigʊ́ri | ‘they opened’ | 2 |
| veenyí | ‘they wanted’ | 2 |
| nɪ vaambʊ́kí | ‘they will ford’ | 2 |

| | | |
|---|---|---|
| reka vʊʊhí | ‘let them scatter!’ | 2 |
| viigóraa | ‘they are opening’ | 2 |
| veerémáa | ‘they are floating’ | 2 |
| vʊʊmbákáa | ‘they are building’ | 2 |
| hʊʊmbákwáa | ‘at it$_{-16}$ is being built’ | 16 |

V root: OP

| | |
|---|---|
| kʊvíígʊlla | ‘to open for them’ |
| mbíígizaa | ‘I am teaching them’ |
| ndavééyera | ‘I will sweep for them’ |
| yáágííva | ‘he stole them$_{-6}$’ |
| ahííkari | ‘he sat at it$_{-16}$’ |

**d. Tense prefixes**

-aaka-

| | |
|---|---|
| yáakáátanya | ‘he just broke’ |
| váakeeya | ‘they swept’ |
| kwaakʊʊmbaka | ‘they built’ |
| váakíírʊka | ‘they fled’ |
| yaakóona | ‘he sinned’ |
| ndáachiíguta | ‘I am now satisfied’ |
| ndáakaáta | ‘I did surgery’ |
| ndáakeenya | ‘I looked for’ |

-raka-

| | |
|---|---|
| várákáásaye | ‘they will slap’ |
| várákáávʊrɪ | ‘they will split’ |
| kʊrákóónogonye | ‘we will mess up’ |
| kʊrákóʊmɪ | ‘we will be dry’ |
| kʊrakeeye | ‘we will want’ |
| ndákáate | ‘I will do surgery’ |
| ndáchíitɪ | ‘I will kill’ |
| varachíírane | ‘they will come back’ |

-rika-

| | |
|---|---|
| arikeeŋe | ‘he will search’ |
| arikeeye | ‘he will sweep’ |
| aríkíítɪ | ‘he will kill’ |

-ra-

| | |
|---|---|
| keróóneka | ‘it will be spoiled’ |
| ʊríɪmba | ‘you will sing’ |
| mʊrʊ́ʊ́mbaka | ‘2p will build’ |
| ndiizuliza | ‘I will remember’ |
| ndeenya | ‘I will look for’ |
| ndáaha | ‘I will pluck’ |

ka-

| | |
|---|---|
| kaahé | ‘now pluck!’ |
| keerémé | ‘now float!’ |
| kɪɪmbí | ‘now sing!’ |
| keeŋé | ‘now want!’ |
| kiiví | ‘now steal!’ |
| kʊʊmínyɪ | ‘now dry!’ |
| kaayʊ́rɪ | ‘now shout!’ |
| koonó!ínyí | ‘now mess up!’ |

ta- negative imperative

| | |
|---|---|
| taaná !dáave | ‘don’t moo!’ |
| teeŋá !dáave | ‘don’t want!’ |
| tiihá !dáave | ‘don’t extract!’ |
| tʊʊmiŋa dáave | ‘don’t dry!’ |

-ta- negative subjunctive

| | |
|---|---|
| ʊtaagʊra | ‘don’t pluck!’ |
| ʊteeŋyá | ‘don’t want!’ |
| ʊtiigʊ́ra | ‘don’t open!’ |
| ʊtoonoonya | ‘don’t mess up!’ |

-ta- other negative relative tenses

| | |
|---|---|
| ɪŋʊ́ʊ́mba yoteeyá | ‘the house that you won’t sweep’ |
| ɪnyʊ́ʊ́mba yoteeyiº | ‘the house that you didn’t sweep’ |
| ḿndʊ ateeiº | ‘the man who didn’t sweep’ |
| ḿndʊ yaatiimbiº | ‘the man who didn’t sing’ |
| mweene áteeyá | ‘the one who is not sweeping’ |
| mweene átɪɪgá | ‘the one who is not learning’ |
| váána vátɪɪmbáa | ‘the children who are not singing’ |
| ɪnyʊ́ʊ́mba yotééya | ‘the house that you didn’t sweep’ |
| veene vá!táámbaya | ‘the ones who didn’t hang’ |
| veene vá!táávʊ́rá | ‘the ones who didn’t take down’ |
| veene vá!tíímba | ‘the ones who didn’t sing’ |

veene vá!tóóma ‘the ones who weren’t dry’
veene vá!tóómbaka ‘the ones who didn’t build’

-aa-

yóónoonya ‘he messed up’
ndéérema ‘I floated rem’
yéérema ‘he floated’
yóóma ‘he was dry rem.’
kwíímba ‘we sang’
kwáára ‘we spread a bed’
yíiruura ‘he winnowed’

## 8.2. Interaction between hiatus reduction and harmony

Both hiatus-reduction processes must be applied before regressive vowel harmony applies. This ordering has two consequences. First, when a prefix has a high vowel /ɪ, ʊ/ which could harmonize and the immediately following macrostem has initial *e,o* (either underlying when the prefix precedes a root, or derived in the case of the reflexive prefix /ɪ/), glide formation created a glide which blocks harmony from applying past that prefix: /ʊ-kʊ-éyéree/ → *ʊkweeyéree, *okweeyéree* ‘you swept for us’. This pattern includes harmony applied to the augment in vowel-initial nouns, cf. *ɪcheeyo* ‘broom’, *ʊvwóóngo* ‘brain’, *ʊvwoova* ‘mushroom’, *ʊrweena* ‘abdomen’, *ʊtwéémbe* ‘mangos$_{\text{-dim}}$’, *ʊgwóógo* ‘cassava$_{\text{-aug}}$’. Second, when a prefix with /a/ precedes a mid vowel, the result is a mid vowel, and harmony *does* apply across deleted *a*, cf. /ʊ-ra-eya/ → *oreeya* ‘you will sweep’. Harmony does not apply across surface-realized *a*, cf. /ʊ-ra-véga/ → *ʊravéga*, **oravéga* ‘you will shave.[65]

### 8.2.1. Glide formation and harmony

Glide formation (section 8.1.1) changes /ɪ, ʊ/ into [w,y], which always blocks application of regressive lowering, where a preceding prefix would normally be lowered when [e,o] follow.

#### a. Nouns

The augments /ɪ-,ʊ-/ normally lower to [e-,o-] when the following class prefix vowel is *e,o* harmoninzing with root *e,o*. In case vowel is in root initial position, the vowel of the noun class prefix undergoes glide formation, blocking harmony in the augment.

ɪcheeyo ‘broom’
ʊrweena ‘abdomen’
ʊrwéevo ‘fence’

[65] The form *ʊreeya* ‘you will sweep’ is attested, but this is because regressive harmony is optional, see also *ʊkɪdeekáa* ‘you are still cooking’ alongside *okedeekáa*.

| | |
|---|---|
| ʊtwéémbe | ‘mangos$_{-dim}$’ |
| ʊtwéeri | ‘months$_{-dim}$’ |
| ʊtwóógo | ‘cassavas’ |
| ʊvwéé˥réfʊ́ | ‘heaven’ |
| ʊvwóóngo | ‘brain’ |
| ʊvwoova | ‘mushroom’ |
| ʊvwóóya | ‘fur’ |

**b. Secondary nominal agreement**

Most examples of the near-distal demontrative, with the suffix *-o*, exemplify derived blockage by glides, since the first-syllable vowel *ɪ*, *ʊ* does not lower.

| | |
|---|---|
| ʊgwo | ‘that$_{-3}$’ |
| ɪjo | ‘that$_{-4}$’ |
| ɪryo | ‘that$_{-8}$’ |
| ɪcho | ‘that$_{-7}$’ |
| ɪzyo | ‘that$_{-10}$’ |
| ɪrwo | ‘that$_{-11}$’ |
| ɪtwo | ‘that$_{-13}$’ |
| ɪvwo | ‘that$_{-14}$’ |
| ɪmwo | ‘that$_{-17}$’ |

However, there is lowering in *eyo* ‘that$_{-9}$’, since no post-consonantal glide arises: only post-consonantal glides block harmony.

**c. OP**

The glide deriving from applying glide formation to an object prefixes before an vowel-initial verbs likewise prevents lowering from applying to a preceding prefix.

| | |
|---|---|
| kʊgwéeŋa | ‘to want it$_{-3}$’ |
| ʊkɪvweeŋá | ‘you are still wanting it$_{-14}$’ |
| vaakʊkwéeŋa | ‘they wanted us’ |
| vaakajéeŋa | ‘they wanted it$_{-9}$’ |
| ʊrwééremizaa | ‘you are making it$_{-11}$ float’ |
| kʊjéeya | ‘to sweep it$_{-9}$’ |
| mani kʊ́kweeyéra | ‘then we swept for you’ |
| akɪvwoonógónyá | ‘he is still messing it$_{-14}$ up’ |
| kʊkwóóniza | ‘to make us sin’ |

**d. Tense prefixes**

The perstitive prefix /ke/ similarly undergoes glide formation before a vowel-initial root or the reflexive prefix /ɪ/, and this blocks application of lowering to the subject prefix. (Subsequently, *ky* becomes *ch*).

| | |
|---|---|
| ɪcheehéénzaa | ‘it is still looking at itself’ |
| ɪcheeŋéka | ‘it is still necessary’ |
| ɪcheeywá | ‘it$_{-9}$ is still being sweeped’ |
| kɪcheerémá | ‘it$_{-7}$ is still floating’ |
| kʊcheedéé'kérá | ‘we are still cooking for self’ |
| kʊcheeŋá | ‘we are still looking for’ |
| kʊcheeréé'térá | ‘we are still bringing for self’ |
| kʊcheerémaa | ‘we are still floating’ |
| kʊchiigízáa | ‘we are still teaching’ |
| rʊcheehéénzaa | ‘it$_{-11}$ is still looking at itself’ |
| ʊcheegééndera | ‘you are still walking for self’ |
| ʊcheelléka | ‘you are still going downhill’ |
| ʊcheeyé'yérá | ‘you are still sweeping for self’ |
| ʊcheeyé'yérá | ‘you is still sweeping for self’ |

### 8.2.2. Deletion and harmony

When a prefix with the vowel /a/ precedes *e,o*, /a/ deletes, and vowel harmony can apply to a resulting /{ɪ,ʊ}C{e,o}/ sequence.

| | | |
|---|---|---|
| kovééyeree | ‘we swept for them’ | OP -va- |
| orooya | ‘you will cry in pain’ | future -ra- |
| koreeya | ‘we will sweep’ | |
| oreeya | ‘you will sweep’ | |
| keróóneka | ‘it will be spoiled’ | |
| oreeŋa | ‘you will want’ | |
| ɪnyóómba y-otééya | ‘the house that you didn’t sweep’ | neg. -ta- |
| ɪŋóómba y-oteeyá | ‘the house that you won’t sweep’ | |

Non-application of vowel harmony is also possible.

| | |
|---|---|
| ʊreeŋa | ‘you will want’ |
| ʊróona | ‘you will sin’ |
| gʊréenga | ‘it$_{-3}$ will ripen’ |
| kɪreelleka | ‘it$_{-7}$ will go downhill’ |
| ɪreeywa | ‘it$_{-9}$ will be swept’ |
| kʊvééyeree | ‘we swept for them’ |

Since harmony is optional, non-harmony is not necessarily related to the fact that *a* was deleted in /ʊraeŋa/. It should be noted though that non-application of harmony across deleted *a* seems to be more frequant than it is in the case of underlyingly adjacent syllables, but a more detailed and long-term investigation of harmony in{ɪ/ʊ}Ca+{e/o} is needed before concluding that there is a special pattern of non-harmony associated with vowel deletion.

## 8.3. Proclitics

A number of CV grammatical elements precede well-formed words, which may involve resolution of vowel sequences. This section looks at the segmental processes, and the issue of vowel length is discussed in 9.2. The proclitics are as follows.

locative: *ha-, kʊ-, mʊ-*
pre-nominal *sa-* 'like', *na-* 'with', *nɪ-* copula
Associative *AGR-a* (nominal and verbal)
Tense *nɪ-*

In terms of segmental changes, the vowel of the proclitic is deleted if it is /a/ or /ɪ/. In all contexts from prefixes up to phrases, /a/ deletes before another vowel. Within the word, /ɪ/ undergoes glide formation, though in all such cases, the preceding consonant is a velar /k, g/. At the phrasal level, /ɪ/ always deletes before a vowel, regardless of the preceding consonant. As the examples below show, /ɪ/ in a proclitic deletes and does not become a glide. The behavior of /ʊ/ in proclitics is not entirely clear, since it only occurs in the locative markers attached to nouns, and vowel-initial nouns are both rare and behaviorally unclear, as discussed below.[66]

### 8.3.1. Locatives

The locative prefixes are on the surface mutually exclusive with the augment, thus a combination of locative plus expected augment does not present a vowel sequence.[67] There are some unprefixed nouns that begin with a vowel, such as proper names (*éditon*, *andíisi*) and common nouns (*ofisá* 'officer', *amwáávo* 'brother'). Glide formation has been found to apply in some instances:

| | |
|---|---|
| kwáá!míítʊ | 'on brother' |
| kwéédítɔn | 'on Editon' |
| kwóó!fisá | 'on the officer' |
| kwóónzere | 'on Onzere' |
| kwáá!ndíisi | 'on Andiisi' |
| kwíí!sábéla | 'on Isabella' |
| mwaalʊʊlʊ | 'in Alulu' |
| mwíídwɪn | 'in Edwin' |

Glide Formation can also be suspended.

| | |
|---|---|
| kʊ́ í!sí | 'on father' |
| mʊ ófis(i̥) | 'in an office' |
| kʊ ónzere | 'on Onzere' |
| kʊ́ á!ndíisi | 'on Andiisi' |
| kʊ áan | 'on Anne' |

[66] /ʊ/ does not delete: the irregularity is that hiatus frequently remains unresolved.

[67] Evidence is discussed in 9.3 showing that the augment is underlyingly present, but is obligatorily deleted, contrary to the general pattern that the second vowel in a sequence is retained.

Since the set of vowel-initial nouns is highly limited, the most we can say at this point is that the rule is optional in the combination of locative plus unprefixed noun root (moreover, this only arises in cl. 1). By contrast, other instances of glide formation are obligatory: *kwóóneka* 'to be spoiled', *ɪcháayo* 'herd', *ʊmwíífa* 'nephew', *ʊkwéére* 'empty' are the only forms found, and **kʊóneka*, **ɪkɪáyo, *ʊmʊífa* and **ʊkʊére* are systematically rejected.

One other context where (apparent) locatives clitics can appear before a vowel is with the post-verbal particles *kʊ* and *mʊ*.

| | |
|---|---|
| ndáárora kw-ámagɪna | 'I have ever seen stones' |
| ndááɲaaɲa kwóvosera | 'I have ever eaten porridge' |
| ndáágʊra kwí'zíbárási | 'I have ever bought horses' |
| maambííkí mwámagɪna | 'I usually put put stones in there' |
| máásóó'má mw-í'vítábʊ | 'I usually read books in' |
| sʊʊndʊri mw-á'máazi | 'I poured water in' |
| (sʊʊndʊri amáá'zí mʊ́ | 'I poured water in)' |

The situation with vowel truncation before unprefixed noun roots preceded by the cl. 16 prefix *ha-* is somewhat variable, as was the situation with glide formation noted above, but the data suggests that vowel truncation is more likely to be blocked in such constructions

| | |
|---|---|
| ha éditon | 'by Editon' |
| há ó'físá | 'by the officer' |
| ha ófis(i̯) | 'by an office' |
| há é'mbédéédó | 'at Embedeedo' |
| há óska | 'by Oscar' |
| | |
| h-íímari | 'at Imali' |
| h-íídwɪn | 'at Edwin' |

It is difficult to judge whether /a+a/ sequences undergo the process, since long *aa* and two-vowel *a.a* are not clearly distinguished.

| | |
|---|---|
| háá'mwáávo ~ há á'mwáávo | 'by sibling' |
| háá'ndíísi ~ há á'ndíísi | 'at Andiisi' |
| háá'lí ~ há á'lí | 'at Ali' |

### 8.3.2. Nominal proclitic

Proclitics which can appear before nouns include the copula /nɪ/, /na/ 'with', /sa/ 'like' and the associative (possessive) agreement markers /AGR-a/. A vowel sequence involving these proclitics arises via the combination of the prefix plus the augment: the vowel of the proclitic deletes.

| | |
|---|---|
| n-ámagɪna | 'with stones' |

| | |
|---|---|
| n-írigɪna | ‘with a stone’ |
| n-ó!róbááng’a | ‘with a panga’ |
| s-ámá!rwá | ‘like alcohol’ |
| s-ékékóómbe | ‘like a cup’ |
| s-ovosera | ‘like porridge’ |
| s-ʊmó!jóómbo | ‘like an earthworm’ |
| | |
| n-aváana | ‘it’s children’ |
| n-avarɪmi | ‘it’s farmers’ |
| n-ʊmʊgoye | ‘it’s a rope’ |
| n-ovosera | ‘it’s porridge’ |
| n-ʊvóchíma | ‘it is ugali’ |
| n-ʊvʊráhi | ‘it$_{-14}$ is good’ |
| n-ekédéte | ‘it is a finger’ |
| n-ékégó | ‘it’s an animal enclosure’ |
| avíí!ví n-ávádáá!máánó | ‘the thieves are bad’ |
| ʊvóhíínda vó!vwó n-óvénéne | ‘your riches are many’ |

<u>associative</u>

| | |
|---|---|
| kíhíínda chá!mádóóma | ‘basket of maize’ |
| msííbi gwá!váana | ‘belt of children’ |
| migóóngo jávaandʊ | ‘backs of a people’ |
| kesééro chéeng’oombe | ‘skin of a cow’ |
| keréénge chí!kíbága | ‘leg of a cat’ |
| ḿkíra gwéé!ngókó | ‘tail of chicken’ |
| kwíígú!rú kwé!kéréé!rémó | ‘on the top of the flat land’ |
| mang’ána gí!kítábu | ‘words of a book’ |
| keréé!ngé chó!móyááyɪ | ‘leg of boy’ |
| amáóa gómsáára | ‘flowers of tree’ |
| mgá!dí gwó!mórína | ‘bread of a friend’ |
| hányóó!mbá hómʊgeni | ‘at the house of a guest’ |

### 8.3.3. Verbal proclitics

Proclitics which can appear before the verb include the relative associative (including the cl. 11 r*wa*- for “when”) and *nɪ*- used in certain tenses such as the consecutive, crastinal and conditionals. In such examples, the vowel of the subject prefix is retained and the proclitic vowel is deleted

| | |
|---|---|
| n-oohéénzé | ‘you will look’ |
| n-ʊʊrímí | ‘you will plow’ |
| n-aagwí | ‘he will fall’ |
| n-ɪŋágórí | ‘it$_{-9}$ will run’ |
| n-eedéékwé | ‘it$_{-9}$ will be eaten’ |
| | |
| rw-óóŋaaŋáa | ‘when you are eating’ |

| | |
|---|---|
| rw-óóvegáa | ‘when you are shaving’ |
| rw-óóveji | ‘when you shaved’ |
| rw-órideeká | ‘when you will cook’ |
| rw-á!ríkádééke | ‘when he will cook’ |
| | |
| ch-áá!vógóráa | ‘what he is taking’ |
| ch-óó!vógóráa | ‘what you are taking’ |

## 8.4. Phrasal sequences

At the phrasal level, there is no glide formation, though when the vowels /i u/ precede a vowel, the resulting sequence may resemble a glide-vowel sequence. The vowels /ɪ ʊ e o a/ delete before another vowel, although deletion seems to be optional.[68] All words end with a vowel, and the main difficulty in constructing phrasal V#V sequences lies in the limited potential for a word to begin with a vowel. Initial vowels which I have identified are as follows:

1: the augment; as discussed in 11, this morpheme is independently subject to deletion. For speakers who favor augment-deletion, the main source of initial vowels is limited.
2: Subject prefixes for cl 1, 9 in certain tenses (when not followed by a vowel-initial morpheme.
3: class agreement vowels in demonstratives and other secondary-agreement patterns for cl. 1, 9 (*oyo, ɪyɪ*)
4: the proper-name pseudo-prefix /a/ (*a-ríviza, a-gooí; amwáávo*)
5: root-initial vowels in (borrowed) nominal stems: *éditon, amsíini, arubaini, erefu*
6: pronouns
7: *aa-* ‘here is’
8: reduced of cl. 1 associative wa→a

There are no clear restrictions on syntactic structure governing phrasal hiatus resolution. Non-deletion of /i,u/ is laid out in 8.4.1. The general pattern of deletion in phrases is covered in 8.4.2. The issue of compensatory lengthening is covered in 9.3.

### 8.4.1. Non-deletion of i, u

The following data illustrate the point that /i,u/ are retained before a vowel.[69]

/i/

[68] Pauses are possible between words, where deletion would not apply. Such pauses are usually obvious because phonation stops for some fraction of a second, or longer. There are very few tokens with no break in phonation and with both vowels present, but there are enough that it is plausible that the rule is option, albeit almost almost applied. Given the varying circumstances of elicitation, I go no further than to say that the process is optional but usually applied.

[69] In constructions with 3 words, the vowel sequence of interest is bolded, in order to identify which sequence is relevant. Note that final *u* has a more restricted distribution compared to *i*).

| | |
|---|---|
| ɔmɔ́lí ɔmbísɪ | ‘raw root’ |
| avíívi **a**vaangɔ vá!vírí | ‘2 quick thieves’ |
| ɔmɔrímí **ɔ**mógé!rí **ɔ**!ríhá | ‘which wise farmer’ |
| íídi ɪra | ‘that eid’ |
| ɪbáá!kúúri ŋangɔ | ‘light bowl’ |
| ɔmɔrími **ɔ**rih ɔ́!mógéri | ‘which wise farmer’ |
| mɔróóndi andíisi | ‘follower of Andisi’ |
| mkárají! ávó | ‘their judge’ |
| mɔró!jí óvó | ‘your witch’ |
| msóóréé!rí énɣú | ‘2p boy’ |
| vɔri ɔmɔtwí | ‘each head’ |
| andíisi aatɔ́ri | ‘Andisi has left’ |
| aŋóó!rí **é**ng’óómbé mɔ́ra | ‘he found a cow in there’ |
| vakoonyi ɔmwáana | ‘they helped the child’ |
| yaagɔrí ɔ́mɔ́!dógá | ‘he bought the car’ |
| tí éngoombe | ‘fear-pl the cow!’ |
| chábí áváana | ‘beat-pl the children!’ |

/u/

| | |
|---|---|
| ɪkɪtábu ɪkijima | ‘whole book’ |
| kɪtábu ekerógoori | ‘Logoori book’ |
| amá!várú! ámííngɪ | ‘many lines of ants’ |
| ɪríkúrú énéne | ‘large pigeon’ |
| avarámu avííngɪ | ‘many healthy people’ |
| makú!dú ámánéne | ‘big tortoises’ |
| ɔmwáá!ráábú ágwíɪ | ‘the Arab fell’ |

It should be emphasized that in normal speech, the two vowels “run together”, with the duration of the first vowel being reduced, and in many tokens the high vowel, especially /u/, is sufficiently shortened that it resembles [w], thus either *avávókŭ á!msííni or avávókwáá!msííni* “50 blind people”. This impression that the vowel has become a glide is especially strong when the following vowel is long. A controlled phonetic study will be necessary to determine whether there is ever complete neutralization with /CGV/, and it is not clear that there there are relevant forms that could establish neutralization. For example, *madáá!ndárwá* ‘canvas tents’ and *ɪswá* ‘termite sp.’ have underlying glides, and their final vowels elide before another vowel: *madáá!ndárw-áá!msííni* ‘50 canvas tents’ ← /madáá!ndárwá amsííni/, *ɪsw-é!éné* ‘big termite’ ← /ɪswá eéne/. There is no word ending with /u/ that is sufficiently similar to *madáá!ndárwá* that one could test confusion between ‘canvas’ and that word in a given set of tokens. The potential is closer to being realized in the case of *ɪswá*, given the noun *ɪsu* ‘female chicken’: we can observe a near minimal pair *ɪsw-é!éné* ‘big termite’ versus *ísw-éé* ‘big female chicken’ – but the difference in tone suffices to distinguish these two utterances, hence there is no neutralization.

Examples of /i,u#V/ are transcribed impressionistically and without commitment to a particular phonological analysis. The three most likely analyses are:

1: Glide formation does not apply, but /i,u/ may be phonetically shortened before a vowel to the point that they resemble a glide.

2: Actual diphthongs are created, that is, sequences of vowels within a single syllable, which may be contrastively long or short.

3: There is phonological Glide Formation applying between words, but only to the vowels /i,u/, and that rule is optional.

Theory 3 yields the potential of neutralization between underlying glide plus V versus /i,u/ plus vowel, whereas theories 1,2 posit that /i,u/ remain distinct from glides. The difference between 1 and 2 hinges on whether there is evidence for prosodic rearrangment of segments, giving a single syllable rather than a sequence of two syllables. There is in fact some tonal evidence supporting account at least partial resyllabification over stark hiatus: see discussion in Q.

### 8.4.2. Deletion

The remaining vowels /ɪ ʊ e o a/ delete before a vowel. This is illustrated below with combinations of vowels within the noun phrase.

<u>N-mod</u>

| | | |
|---|---|---|
| ilíváh-ɪrínéne | 'big feather' | |
| maroot-amarahi | 'good dream' | |
| rʊbáá'ng-ɔ́rɔ́táámbɪ | 'long panga' | |
| ŋáánz-ɪmbáá'mbállɔ́ | 'wide lake' | |
| kʊgʊriz-ʊkwííngɪ | 'many ways of selling' | |
| íŋá'm-ííndɔ́rʊ | 'bitter meat' | |
| máhéengér-ámárahi | 'good mahengere' | |
| éndé'v-ímbáá'mbállɔ́ | 'wide chair' | |
| ɔ́mbír-ɔ́mɔ́méne | 'big body' | |
| ʊrɔ́báá'h-ɔ́llahi | 'good lumber' | |
| ʊmwóó'g-ɔ́mbísɪ | 'raw cassava' | |
| kɪjéé'h-íkírahi | 'good mirror' | |
| ɪvíínd-ívíváá'mbállɔ́ | 'wide things' | |
| ízíngɔ́v-ízí'níingí | 'folded clothes' | |
| ávásíg-ávávɪ́ | 'bad elders' | |
| mwáá'n-ɔ́líhá | 'which child' | |
| ʊtwáá'n-ɔ́twéene | 'children$_{-dim}$ on its own' | |
| vitábʊ vinen-í'ívyó | 'those big books' | |
| aváánd-ávéene | 'people alone' | |
| séé'ng-áá rígáare | 'aunt of Rigaare' | /séénge a rigáare/ |
| ʊmʊdót-aa vʊgʊza | 'infant of Vuguza' | /ʊmʊdoto a vʊgʊza/ |
| aváánd-áárʊbaínɪ | '40 people' | |
| eng'óómb-áína gáani | 'what kind of cow' | |
| enzók-aatáari | 'dangerous snake' | |

Additional examples from other contexts are seen below

Pre-head + N

| | |
|---|---|
| kɪr-ɪridííji | ‘every wall’ |
| kɪr-ʊmwíivi | ‘every thief’ |

Verb-Object

| | |
|---|---|
| árákáchéé¦ríz-áváána | ‘he will greet the children’ |
| váá¦ry-ámávóyʊ | ‘they ate the eggs’ |
| kaah-ámatʊ | ‘pluck the leaves’ |
| aríígʊll-eeng’oombe | ‘he will buy a cow for self’ |
| vaavón-ekereenge | ‘they broke the leg’ |
| ndáá¦kávágʊrizɪr-ɪzing’oombe | ‘I just sold cows to them’ |
| yaakákóvarizɪr-ɪmbano | ‘he counted the knives for us’ |
| nw-oovosera | ‘drink vosera!’ |
| ndáá¦kákó¦rógír-óvóchíma | ‘I just cooked ugali for you’ |
| áráá¦ngóll-ómó¦dógá | ‘he will buy a car for me’ |
| kooɲ-ʊmwáana | ‘help the child!’ |
| mbé¦gér-ómwáána | ‘I have shaved for the child’ |
| váá¦ngáráángír-ámávóyʊ | ‘they have fried eggs for me’ |
| maa ngór-ómʊdoga | ‘I will buy a car’ |

Subject-Verb

| | |
|---|---|
| rw-íímbw-í¦ɲágóráa | ‘when the dog is running’ |
| rw-é¦éng-íriizáa | ‘when the leopard is eating’ |
| rwá ís-adeechi | ‘when father cooked’ |
| onzér-avʊʊchi | ‘Onzere woke’ |
| endeg-íduukáa | ‘the airplane is arriving’ |
| ɪmbw-éroka dáave | ‘the cow won’t bark’ |
| ʊmɲóór-avina dáave | ‘the Nyore won’t sing’ |
| góó¦k-ágwíɪ | ‘grandmother fell’ |

N-V (Subject relative)

| | |
|---|---|
| ʊmʊsááz-odéechi | ‘the man who cooked’ |
| ʊmóónd-avéé¦zégérí | ‘the man who belched’ |
| engóómb-ɪrʊmáa | ‘the cow which is biting’ |
| ʊmʊsááz-adéechi | ‘the man who cooked’ |
| ʊmóónd-arákádéeke | ‘the man who will cook’ |
| ʊmóónd-am-á¦ávégé | ‘the person who will shave’ |
| ʊmóónd-adééká | ‘the person who will cook’ |
| ʊmóónd-atá¦máádééké | ‘the person who will not cook’ |
| ʊmóónd-aséémbelláa | ‘the person who is weeding’ |
| eng’óómb-ɪtagórízwa | ‘the cow that will not be sold’ |

Presentative aa

| | |
|---|---|
| áá ʊyʊ | ‘here (it) is’ |
| ʊmsáákʊr-áá ʊyʊ | ‘here is the old man’ |
| séé¦ng-áá óyu | ‘here is aunt’ |

| | |
|---|---|
| ʊmʊ́ʊ́nd-áá ʊyʊ | ‘here is the person’ |
| gʊ́ʊ́ˈk-áá ʊyʊ | ‘here is grandmother’ |
| ʊmyéˈk-áá ˈyígʊ | ‘here is the sand’ |
| amíiˈn-ááˈyága | ‘here are the teeth’ |
| eng’óómb-áá ˈyíyɪ | ‘here is the cow’ |
| ʊmwóógo áˈá yígʊ<br>~ʊmwóóˈg-áˈá yígʊ | ‘here is the cassava’ |

Other concatenations

| | |
|---|---|
| árákáháándííkír-áváánd-íbárwá | ‘he will write the letter for the people’ |
| ambáán-eng’oombe | ‘come, cow!’ (ambááno) |
| yɪsʊʊnd-íˈmbwá yɪyɪ | ‘move yourself, you dog!’ |
| íɲám-ádeechi | ‘meat, he ate’ |

## 9. Vowel Lengthening under Fusion

Previous examples have shown that in some contexts, V+V results in a long vowel, but sometimes it gives a short vowel. We encounter related conditions on pre-NC lengthening in section 10. This section sorts out the basic conditions for lengthening. The basic pattern is that if one of the component vowels is long, the resulting vowel is always long. Merger of two short vowels can still result in a long vowel. It always does so within words. The pattern of lengthening in proclitic plus vowel is very complex; ordinary phrasal V#V sequences result in lengthening only when the second vowel is a root vowel, if it is a single vowel (this arises in one context), or in the case of VCV demonstratives.

### 9.1. Within words

Merger of vowel sequences within words always results in a long vowel, unless the sequence is word-final.

Glide Formation

| | |
|---|---|
| ɪry-íɪta | ‘name’ |
| tw-éeve | ‘hawks$_{-dim}$’ |
| kw-eeɲa | ‘to want’ |
| w-áávo | ‘theirs’ |
| kw-óosi | ‘all’ |
| w-eeɲáa | ‘you are wanting’ |
| ngɪj-eeyá | ‘I am still sweeping it$_{-9}$’ |
| w-ɪɪdʊ́yí | ‘you should hit yourself’ |
| vary-aatá | ‘they will perform surgery’ |
| ach-iigʊ́ra | ‘he is still opening’ |

Vowel Deletion

| | |
|---|---|
| av-íiha | ‘brides’ |
| ah-éére | ‘empty’ |
| g-áávo | ‘theirs’ |

| | |
|---|---|
| k-íítʊ | ‘ours’ |
| maní v-íita | ‘then they killed’ |
| v-eerémáa | ‘they are floating’ |
| ndav-ééyera | ‘I will sweep for them’ |
| várák-áávʊrɪ | ‘they will split’ |
| kʊrák-ʊ́ʊmɪ | ‘we will be dry’ |
| k-iiví | ‘now steal!’ |
| t-iihá ǃdáave | ‘don’t extract!’ |

When the V-V sequence is word-final, there is no lengthening. Note that word-final long vowels are limited to the progressive final suffix, imbricated perfectives, and truncated 1s possessive pronouns. One context where final V+V can arise is in the formation of near-distal demonstratives of the form yV-AGR-o.

| | |
|---|---|
| yɪvyo | 8 |
| yɪmwo | 18 |
| yago | 6 |

Compare the corresponding proximal demonstratives *yɪvi, ɪmʊ, yaga*.

A second context where final V+V arises is in the form of the associative prefix, following the pattern AGR-a.

| | | |
|---|---|---|
| cha gʊ́ʊ́kʊ | ‘of_7 grandfather’ | /kɪ-a/ |
| rwa gʊ́ʊ́kʊ | ‘of_11 grandfather’ | /rʊ-a/ |
| ga gʊ́ʊ́kʊ | ‘of_6 grandfather’ | /ga-a/ |
| rya gʊ́ʊ́kʊ | ‘of_5 grandfather’ | /ri-a/ |

Within the word, the vowel which is demonstrably lengthened is either a root-initial vowel, or the vowel of the reflexive prefix.[70]

## 9.2. Proclitics

Examples of proclitics are separated into two groups, those before verbs and those before nominals. The reason for separate treatment is that verbal proclitics contribute to lengthening, whereas nominal proclitics do not. The underlying generalization may be unified across morphological contexts. The specific question is whether there is lengthening when a proclitic vowel is deleted before the initial vowel of a a following word. In all relevant cases of lengthening, the following word (the verb) is the host of the proclitic. As discussed in 9.3.1, there are cases where a clitic is just a V, and can be preceded by a (non-host) word. Such cases fall under the penumbra of phrasal vowel sequences.

[70] All verb roots and the reflexive have a short vowel when *not* merged syllabically with a prefix vowel. The third word-internal context where syllable merger arises is before the past prefix *-aa-*, which is always preceded by the subject prefix. That prefix is long, including in the 1s combination *ndaa-* where there is vowel in the subject prefix.

### 9.2.1. Verbal Proclitics

There are three verbal proclitics, *ma-, na-/nɪ-*, and the object relative associatives *rwa-, cha-* etc. the latter group being in turn the result of syllable fusion: [rwa] = /rʊ-a/. These markers have a short vowel, which can be seen when the following subject prefix (or other morpheme begins with a consonant).

| | |
|---|---|
| na yaambókí | ‘he will cross a river’ |
| nɪ várímí | ‘they will plow’ |
| na vagánágáne | ‘they will think’ |
| ma yaanzáámbóкɪrɪ | ‘he will ford for me’ |
| rwá vakʊrá!kóʊ́ráá | ‘when they are releasing us’ |
| rwá! kósyéévaa | ‘when we are dancing’ |
| chá kodeechi | ‘what we cooked’ |

The combination of a verbal proclitic plus V-initial SP yields a long vowel if and only if the SP stands immediately before the macrostem. This means that there is lengthening when the clitic+SP combination comes right before a root or an OP, but not when it is before a tense prefix. The following examples from the hodiernal perfective, present progressive or bare future illustrate this point with the relative proclitic.

Relative proclitic

| | |
|---|---|
| ʊmwáána w-aarórí | ‘the child which he saw’ |
| ɪbía y-aayéénji | ‘the beer that he brewed’ |
| ʊmó!dógá !gw-ʊ́ʊ́górí | ‘the car which you bought’ |
| aváándʊ v-aakoonyi | ‘the people who he helped’ |
| enzóka y-aaróóndi | ‘the snake which he followed’ |
| ʊvʊ́ŋáási vw-eeŋóóri | ‘the grass which it found’ |
| rw-áádeechi | ‘when he cooked’ |
| rw-áá!rírí | ‘when he cried’ |
| ʊmwáána w-aasáávizaa | ‘the child which I am cleaning’ |
| umʊ́dogá gw-ʊʊrʊ́ʊ́mbaa | ‘the car that you are pushing’ |
| ribóksi ry-ooreetáa | ‘the box that you are bringing’ |
| ʊmwáána w-ɪɪkʊʊngáa | ‘the child which it is chasing’ |
| amarwá g-ʊʊnweezáa | ‘the alcohol that you are drinking’ |
| amarwá g-ooyéengaa | ‘the alcohol that you are brewing’ |
| ɪkɪtábʊ ch-aasóómaa | ‘the book which he is reading’ |
| rw-áárɪɪzáa | ‘when he is eating’ |
| rw-áá!gwíízaanji | ‘when he was falling’ |
| kɪndɪkí !ch-á!áséémbera | ‘what will he weed?’ |
| mʊ́dogá gw-aaguráa | ‘the car which he is buying’ |
| ɪnyáma y-aadeechi | ‘the meat which he cooked’ |
| ɪnyʊ́ʊ́ndo y-aatʊʊngámínyáa | ‘the hammer which he is inverting’ |
| rw-ʊ́ʊ́!rógáa | ‘when you are bewitching’ |
| rw-ʊ́ʊ́ŋaaŋáa | ‘when you are eating’ |
| rw-ʊ́ʊ́!rírí | ‘when you cried’ |
| ɪŋá!má y-ʊ́ʊ́déékáa | ‘meat which you will cook’ |

| | |
|---|---|
| ɪzisééndi zy-aanyóóra | ‘the money that he will get’ |
| aváándɔ v-oosémá | ‘the people who you will insult’ |
| ovoséra vw-aanwa | ‘the alcohol that I will drink’ |
| ch-ɔ́ɔ́ꜜvɔ́gɔ́ráa | ‘what you are taking’ |
| mkáána w-eerórá | ‘the girl which it will see’ |
| ɪɲáma y-ookodééꜜkérá | ‘the meat that you will cook for us’ |

The crastinal proclitic, which precedes the subjunctive verb form, likewise exhibits vowel lengthening under fusion.

nɪ-~na-

| | |
|---|---|
| n-aachóóré | ‘he will draw’ |
| n-aabómóré | ‘he will demolish’ |
| n-aagávɔ́ranye | ‘he will dole out’ |
| n-aagwí | ‘he will fall’ |
| n-ɔɔdíɲí | ‘you will be hard’ |
| n-ɔɔchóóré | ‘you will draw’ |
| n-ootégé | ‘you will trap’ |
| n-ɔɔháánzɔ́ɔkɪ | ‘you will talk loudly’ |
| n-ɪɪkúzí | ‘it$_{-9}$ will die’ |

There is also lengthening when an OP comes between the SP and the root

| | |
|---|---|
| rw-óókokóónyi | ‘when you helped us’ |
| rw-ɔ́ɔ́vakóóɲaa | ‘when you are helping them’ |
| rw-óókoróráa | ‘when you are seeing us’ |
| rw-áákoróráa | ‘when he is seeing us’ |
| rw-áávavégaa | ‘when he is shaving them’ |
| ɪnyɔ́ɔ́ndo y-áávatɔ́ɔ́ngaminyɪraa | ‘the hammer which he is inverting for them’ |
| ɪɲáꜜmá y-óókódééérá | ‘meat which you will cook for us’ |
| n-aavaháándiikɪrɪ | ‘he will write to them’ |
| n-aaganywí | ‘he will drink it$_{-6}$’ |
| n-aajíírɔri | ‘he will winnow it$_{-9}$’ |
| n-ɔɔvasáálliizɪ | ‘you will injure them’ |
| n-ɔɔkɔchérevizɪ | ‘you will be late on us’ |
| n-ookodéékere | ‘you will cook for us’ |

However, if there is a tense-prefix syllable between the SP and the macrostem, the resulting vowel is short.

-rɪ- future

| | |
|---|---|
| ch-arigɔ́rá | ‘what he will cook’ |
| gw-aritema | ‘which he will chop’ |
| rw-ɔ́rideeká | ‘when you will cook’ |
| msáára gw-aritema | ‘the tree which he will chop’ |
| ɪkɪtábɔ ch-ɔrirora$^{o}$ | ‘the book which you will see’ |

amárwá g-ɒrinwa ‘the beer that you will drink’
ɒvɒŋ́ásí vw-ɪryaayá ‘the grass that it will graze’
ɒvó¦shí vw-áríshá ‘the flour which he will grind’
ɒvóshɪ vw-arikɒshééra ‘the flour which he will grind for us’
ɒvóshɪ v-ɒriishééra ‘the flour which you will grind for me’

negative future
kɪtábɒ ch-ɒtarórá ¦dáave ‘the book which you will not see’
kɪtábɒ ch-ɒtarórá ‘the book which you will not see’
ɒmwáána w-ɪtarórá ‘the child which it won’t see’
ɪŋɔ́ɔ́mba y-oteeyá ‘the house that you won’t sweep’
ɪkɪ́índɒ ch-atadeeká ‘the thing that he will not cook’
rw-á¦tágóná ‘when he will not sleep’

perstitive
aváána v-akɪsíníkiza ‘the children who he is still annoying’
rw-áchɒɒmbáka ‘when he is still building’
ɪkɪ́índɒ ch-okekorogaº ‘the thing that you are still stirring’
aváándɒ v-ɔ́kɪgɔ́míra ‘the people who you are still holding’
amáázi g-ɪkɪnwa ‘the water that it$_{-9}$ is still drinking’

-rika- future
ɒmwáána w-arikabɪɪmɪ ‘the child that he will measure’
ɪvítábɒ vy-arikagɔ́rízɪ ‘the books that he will sell’
aváándɒ v-ɒrikavége ‘the people who you will shave’
rw-ɔ́rikachɪ́¦ríng’áné ‘when you will be silent’
rw-ɔ́¦ríkádééke ‘when you will cook’
rw-á¦ríkádééke ‘when he will cook’
rw-á¦ríkávége ‘when he will shave’
rw-á¦váríkádééke ‘when they will cook’

The future proclitic /maa/ always merges with a following vowel, resulting in a long vowel, but because that marker has a long vowel and syllable merger involving an underlyingly long syllable always results in a long vowel, the following examples do not definitively exemplify clitic lengthening.

Future proclitic maa-
m-áádéké ‘he will cook’
m-aavadéké ‘they will cook’
am-aakáráange ‘he will fry’
ɒm-ɒɒkáráange ‘you will fry’
ɪm-ɪɪkáráangwɪ ‘it$_{-9}$ will be fried’
ɪŋám-ím-ɪɪkáráangwɪ ‘the meat will be fried’

### 9.2.2. Nominal proclitics

Nominal proclitics do not show lengthening of a following augment (9.3.1 considers nominal clitics before vowels which are not augments). The relevant nominal proclitics are AGR-a 'associative linker', *sa-* 'like', *na-* 'with' and *nɪ-* 'copula'. It should be noted though that in these examples, the second vowel in the sequence is the augment morpheme, which does not lengthen except when the syllable is bimoraic.[71] There is an abstract paralellism between the macrostem-adjacency condition on lengthening discussed immediately above. In the case of /na#e-ke-méreméende/, the noun class prefix /ke/ intervenes between the vowel sequence and the root.

| | |
|---|---|
| n-á!máazi | 'with water' |
| n-á!mávéere | 'with milk' |
| n-á!váana | 'with children' |
| n-ávageni | 'with guests' |
| n-é!gékóóndo | 'with a monkey' |
| n-é!kémé!réméende | 'with candy' |
| n-í!kítábɔ | 'with a book' |
| n-írijɔɔngɔ | 'with a rat' |
| n-ívireenge | 'with legs' |
| n-órogeembe | 'with a razor' |
| n-ó!mwóógo | 'with cassava' |
| n-ó!vóchíma | 'with ugali' |
| n-ómɔgoye | 'with rope' |
| | |
| s-amagɪna | 'like stones' |
| s-amareesi | 'like a cloud' |
| s-ámárwá | 'like alcohol' |
| s-ekereenge | 'like a leg' |
| s-ɪkí!mííɲó | 'like a chick' |
| s-ímísáára | 'like trees' |
| s-írídéeka | 'like cooking' |
| s-ókódéeka | 'like cooking' |
| s-ómógí!kóyó | 'like Kikuyus' |
| s-ɔmɔgoye | 'like a rope' |
| s-órójó | 'like a saucer' |
| | |
| n-amá!bwóoni | 'it's potatos' |
| n-ámárwá | 'it's beer' |
| n-aváana | 'it's children' |
| n-avadoto | 'it's infants' |
| n-ekereenge | 'it's a leg' |
| n-ɪrí!ng'ááng'á | 'it's a hadada' |
| n-ɪrijɔɔngɔ | 'it's a rat' |

[71] A major set of apparent counterexamples to the generalization that clitic plus augment do not merge into a long syllable are when the following noun or adjective is underlyingly /V-NC…/, that is the initial syllable is bimoraic.

| | |
|---|---|
| n-ɪvikóóndo | ‘it’s monkeys’ |
| n-ovosera | ‘it’s porridge’ |
| n-ʊĺ¦lóóngó | ‘it’s finishing mud’ |
| n-ʊmsáára | ‘it’s a tree’ |
| n-ʊmtáámbɪ | ‘it’s tall’ |
| n-ʊmʊtéénde | ‘it’s a neighbor’ |
| n-ʊrʊguuchi | ‘it’s dust’ |

| | |
|---|---|
| msííbi gw-á¦váana | ‘belt of children’ |
| migóóngo j-ávaandʊ | ‘backs of a people’ |
| keréénge ch-í¦kíbága | ‘leg of a cat’ |
| kwíígú¦rú kw-é¦kéréé¦rémó | ‘on the top of the flat land’ |
| mang’ána g-í¦kítábu | ‘words of a book’ |
| keréé¦ngé ch-ʊ́¦móyááyɪ | ‘leg of bot’ |
| amáʊ́a g-ʊ́msáára | ‘flowers of tree’ |
| hányʊ́ʊ́¦mbá h-ʊ́mʊgeni | ‘at the house of a guest’ |
| ɪríítʊ ry-ʊ́msáára | ‘leaf of tree’ |
| amágína g-ʊ́¦ḿkíkʊ́yʊ́ | ‘stones of a Kikuyu’ |
| ʊkíra gw-í¦kíbága | ‘tail of a cat’ |
| ɪkítʊ́ʊ́mbɪ ch-írige | ‘hill of termites’ |
| keréénge ch-ívifóóyo | ‘leg of rabbits’ |
| ɪbáákʊ́ʊ́ri y-óvosera | ‘bowl of porridge’ |

The case of the cl. 1 reduced proclitic [a] is considered below, since that vowel merges with the preceding vowel.

## 9.3. Phrases

Systematic lengthening at the phrasal level depends on there being a long vowel in the input sequence: if either vowel in a V#V sequence is long, the resulting vowel is always long. Input sequences of short vowels result in both long and short vowels, depending on the nature of the second word. I consider first those cases where a long vowel results, ending the section with cases where a short vowel results. The latter set involves subject prefixes and the augment, and the former cases with lengthening covers everything else.

### 9.3.1. Phrasal V+V with lengthening

In most phrasal structures, merger of two vowels results in a long vowel. However, those structures occur much less frequently compared to the structures where a short vowel results (subject prefixes and augments). A long vowel arises when the second word is:

a demonstrative prefix (y)V
a vowel-initial secondary agreement prefix
reduced version of cl. 1 associative clitic (wa→a) or verbal clitic (nɪ→ɪ)
an unprefixed vowel-initial root (noun or adjective)
*ínzí* ‘I, me’; (*y*)*ɪvɪ*

Examples with a demonstrative are seen below.

| | |
|---|---|
| eng'óómb-ɪɪnʊ | 'this cow' |
| koséémbéll-ɪɪkʊ | 'this weeding' |
| mwáán-ʊʊra | 'that child' |
| mwáán-ʊʊyʊ | 'this child' |
| ʊmwáá'n-ʊ́ʊ́ra | 'that child' |
| mtéé'nd-óóyo | 'that neighbor' |
| embóóng-eeyo | 'that buffalo' |
| váánd-aava | 'these people' |
| kóng'óód-ɪɪkʊ | 'this writing' |
| avávʊ́'gʊ́s-áava | 'these Bukusus' |
| rigín-iiryo | 'that stone' |
| mavʊ́y-aago | 'those eggs' |
| misáára jɪvág-íɪjɪ | 'these 3 trees' |
| kɪbága cheen-íɪkɪ | 'this very cat' |
| kóvé'g-ʊ́ʊ́yʊ́ | 'to shave this' |
| aváánd-avatáá'mb-áava | 'these tall people' |
| éng'óómb-ɪ́ɪ́sáá'kʊ́r-ɪ́ɪ́yɪ | 'this old cow' |
| é'ngókó 'yáá'ng-íɪyɪ | 'this chicken of mine' |
| kʊrákóóɲ-ʊʊyʊ | 'we will help this one' |

Lengthening with a secondary agreement morpheme (cl. 1 or 9, which are V-initial) are seen in these examples:

| | |
|---|---|
| íɲám-ɪ́ɪ́ri | 'how much meat' |
| ɪsíí'nd-ɪ́ɪ́rí | 'how much quail' |
| ɪsíímb-ɪɪrihá | 'which lion' |
| ebéd-ɪɪrihaº | 'which ring' |
| ɪcháá'ndóór-ɪɪrɪhá | 'which Chandoro' |
| ʊmwáán-ʊʊrihá | 'which child' |

A related example of V#V yielding a long vowel involves the merger of the reduced form of the cl. 1 associative proclitic to /a/. These examples employ proper names to eliminate the confounding effect of an augment on a common noun.

| | |
|---|---|
| séé'ng-áá rígááre | 'aunt of Rigaare' |
| ʊmʊdót-aa vʊgʊza | 'infant of Vuguza' |
| ʊmgóóg-aa mndanyi | 'wife of Mndanyi' |
| ʊm̀bí'sáánd-áá mdavadi | 'orphan of Mdavadi' |
| ʊmwíísʊkʊr-aa ndoori | 'grandchild of Ndoori' |

There is a similar reduction of the verbal clitic /nɪ/ to [ɪ], which gives rise to a long vowel when /ɪ/ merges with the preceding vowel.

| | |
|---|---|
| varav-íɪvádeechi | 'they will have cooked' |

| | |
|---|---|
| kwaar-éékódeechi | ‘we had cooked (rem.)’ |
| m-éékó!dééká | ‘then we cooked’ |
| m-íívá!dééká | ‘then they cooked’ |
| m-avíísʊkʊr-ɪɪvá!dééká | ‘then the grandchildren cooked’ |
| m-ízíngok-íɪzírya | ‘then the chickens ate’ |
| m-ʊmwáán-eekó!rórá | ‘then we saw the child’ (fronted object) |

Vowel-initial unaugmented words exist in two contexts. First, there are a few nouns and adjectives (loan words) which have no class prefix and which are vowel initial, for example *érefʊ* ‘1000’, *atáari* ‘dangerous’. Second, there are proper names which begin with a vowel, for example *adébɪ* ‘Adebe’, *éditoni* ‘Editon’.[72] Vowel merger results in a long vowel in such a context. Some nominal modifiers do not take noun class modifiers and are vowel initial – *atáari* ‘dangerous’, *érefʊ, élfʊ* ‘1000’, *arubáínɪ* ‘40’, *amsíini* ‘50’. When preceded by an elidable vowel, the initial vowel of these modifiers lengthens.

| | |
|---|---|
| aváánd-éérefʊ | ‘1000 people’ |
| ɪvívááng-éérefʊ | ‘1000 stirring sticks’ |
| várágór-éérefu | ‘they will buy 1000’ |
| n-éélfu | ‘with 1000’ |
| ɪzí!ngók-!áátáari | ‘dangerous chickens’ |
| eng’óómb-áá!táari | ‘dangerous cow’ |
| ɪzíing-áá!táari | ‘dangerous leopards’ |
| ʊmóónd-áá!táari | ‘dangerous person’ |
| aváánd-áárʊbaínɪ | ‘40 people’ |
| avádót-áárʊbaínɪ | ‘40 infants’ |
| n-á!ámsíini | ‘with 50’ |
| ma vágór-á!ámsíini | ‘they will buy 50’ |
| avaɲór-aamsíini | ‘50 Nyores’ |

The proper names *ambúúndu*, *adébi, agooí, éditoni, egóóɲa, oreeshá, ɪvayo, evayo, ogaada, ubuuru, obuura, onzere* and the place name *iríítríya* ‘Eritrea’ are all vowel initial. The nouns *ofisá* ‘officer’, *amíítu* ‘brother’ and *ísí* ‘father’ are also vowel initial: fusion of the initial vowels of these words results in a long vowel.

| | |
|---|---|
| n-aambúúndu | ‘it’s Ambundu’ |
| n-aamíítu | ‘it’s brother’ |
| yáá!yáánz-íiríítríya | ‘he likes Eritrea’ |
| arákóó!ɲ-áádébi | ‘he will help Adebi’ |
| arárór-óónzere | ‘he will see Onzere’ |
| varátúú!ng-éédítoni | ‘they will pay Editon’ |
| aráhóll-oobuura | ‘he will hear Obuura’ |
| varádééker-óó!gáádá | ‘they will cook for Ogada’ |

[72] This excludes names like *orodeeji*, a variant of *rodeeji*: such names, which resemble cl. 11 nouns, bear the augment optionally, and the *o* of *orodeeji* behaves like any other augment, not resulting in lengthening – *maa ngóóɲ-órodeeji* ‘I will help Rodeji’.

| | |
|---|---|
| arachaay-uubuura | ‘he will despise Ubuuru’ |
| kwaaró!r-óófísá | ‘we saw the officer’ |
| kwaarór-ɪɪvayo | ‘we saw Ivayo’ |
| varákóó!ŋ-óó!físá | ‘they will help the officer’ |
| varákóó!ŋ-íí!sí | ‘they will help father’ |
| kí!r-íísí | ‘every father’ |

As noted above, when a clitic such as *kʊ-* appears before a noun, there is no lengthening of the augment under syllable fusion. In the case of the noun *isí*, glide formation does result in a long vowel – *kwíísí* ‘on father’ – since this vowel is not the augment.

To this list we can add the pronouns *ínzí* ‘I, me’ and (*y*)*ɪvɪ* ‘you’.

| | |
|---|---|
| váárór-ɪɪvɪ | ‘they saw you’ |
| vaarór-iinzɪ | ‘they saw me’ |

### 9.3.2. Long before short

In case the first vowel in a phrasal sequence is long, the resulting merged syllable has a long vowel. Verbs can have distinctive final vowel length, hence certain verbs (present progressive, past habitual, perfective applied long-V allomorph) result in uniformly long vowels under vowel fusion

<u>progressive</u>

| | |
|---|---|
| arór-óóródééji | ‘he is seeing Rodeji’ |
| aror-ɪɪm̀bano | ‘he is seeing knives’ |
| areet-ɪɪsa | ‘he is bringing a watch’ |
| yiit-ɪɪkɪgu | ‘he is killing a wasp’ |
| vatém-íímísáára | ‘they are chopping trees’ |
| soom-ɪɪkítábu | ‘I am reading a book’ |
| shaagar-ʊʊm̀bano | ‘I am sharpening a knife’ |
| vakooŋ-aavageni | ‘they are helping the guests’ |
| ʊhaan-ʊʊmʊlyaango | ‘you closing the door’ |
| vadoor-ʊʊvwoova | ‘they are picking mushroom’ |
| aheenz-óórómémo | ‘he is watching a flame’ |
| ŋeŋ-ʊ́!ʊ́!rímí | ‘I want that you plow’ |

<u>past habitual</u>

| | |
|---|---|
| yááyáánz-ʊʊnzére | ‘he used to like onzere’ |
| yááyáánz-ɪɪmári | ‘he used to like Imari’ |
| yááyáánz-ɪɪryʊ́ʊ́ngʊ | ‘he used to like pumpkin’ |
| yaarór-ɪɪkí!fóóyo | ‘he used to see the rabbit’ |
| vaasíír-ʊʊmʊgera | ‘they used to cross the river’ |
| váámbʊk-ʊʊmʊgera | ‘they used to cross the river’ |
| ndaaséév-ɪɪmigoye | ‘I used to save ropes’ |
| kwaadéék-aamʊ́ʊ́ngʊ | ‘we used to cook pumpkins’ |
| yaayééng-aamárwá | ‘he used to brew alcohol’ |
| kwaakʊ́ʊ́ng-ɪɪvibága | ‘we used to chase cats’ |

| | |
|---|---|
| ndééɲ-ʊʊrɪmɪº | ‘I wanted that you plow’ |
| ndééɲ-ʊʊshɪº | ‘I wanted that you grind’ |

perfectives

| | |
|---|---|
| anwɪɪ | ‘he drank’ |
| anw-aamárwá | ‘he drank alcohol’ |
| ah-ʊʊmwáana | ‘he gave the child’ |
| adeeker-aaváana | ‘he cooked for the children’ |
| asiganɪr-aandíísi | ‘he knelt for Andisi’ |
| aɲagʊll-ʊʊmʊɲóre | ‘he ran for/to the Nyore’ |
| aminágɪrw-oovosera | ‘he was cooked porridge’ |
| varííndɪll-eekekóóndo | ‘they waited on the monkey’ |
| ayóómbooree | ‘he over-poured’ |
| ayóómboor-oovosera | ‘he over-poured porridge’ |
| kʊrákúúr-aavíígiza | ‘we released the teachers’ |
| avee há!ḿbárí | ‘he is at Mbale’ |
| av-ɪɪvʊllɪ | ‘he is in the bedroom’ |
| av-ɪɪmajeengo | ‘he is in Majengo’ |

### 9.3.3. Short before long

Phrasal examples involving initial long vowels are also hard to come by since initial long vowels are rather limited.

have-perf

| | |
|---|---|
| sééng-aadʊ́ʊchi | ‘aunt has arrived’ |
| ʊmwíísʊkʊr-aagoni | ‘grandchild has slept’ |
| amwááv-aadéechi | ‘sister has cooked’ |
| is-áá!yíínzɪri | ‘father has worked’ |
| ɪɲam-íɪguundi | ‘the meat has rotted’ |
| ɪnyʊ́ʊ́nd-í!ívʊ́nɪchi | ‘the hammer has broken’ |
| ɪɲááɲ-eegoti | ‘the tomato has disappeared’ |
| ɪmbw-éegoni | ‘the dog has slept’ |
| ɪsw-íɪbʊrʊchi | ‘the termite has flown’ |

SP lengthened before 1s OP

| | |
|---|---|
| baab-áanáángaa | ‘father is calling me’ |
| is-áanáángaa | ‘father is calling me’ |
| ḿkóóng-aandʊ́ʊ́ngaa | ‘the boss is paying me’ |
| rodééɲ-á!ángóóɲaa | ‘Rodenyo is helping me’ |
| rodééɲ-á!ándéékeree | ‘Rodenyo cooked for me’ |
| rodééɲó yaakóóndeekera | ‘Rodenyo has cooked for me’ |
| ʊmbʊ́gʊs-áandʊ́ʊ́ngaa | ‘the Bukusu is paying me’ |
| ʊmbʊ́gʊs-áandʊ́ʊ́nji | ‘the Bukusu paid me’ |
| sééng-aandéé!kéráa | ‘Aunt is cooking for me’ |
| eng’óómb-é!énóóndaa | ‘the cow is following me’ |
| eng’óómb-í!íngúúngaa | ‘the cow is chasing me’ |

aa presentative

| | |
|---|---|
| éng'óómb-áá ɪyɪ | 'here is a cow' |
| gʊ́ʊ́ˈk-áá ʊyʊ | 'here is grandmother' |
| ʊmryaang-áá yɪgʊ | 'here is the door' |
| ʊmɣíígizí a ʊyʊ | 'here is the teacher' |
| ekedéˈt-áá yɪkɪ | 'here is the finger' |
| amarw-áˈá yaga | 'here is the alcohol' |
| amééy-áá ˈyága | 'here is the broom' |
| (kɪbúúˈsí áá yíkɪ | 'here is the cat' |
| ʊmgádi áá yígʊ | 'here is bread') |

### 9.3.4. Phrasal V+V without lengthening

When the second word in the construction is a verbal subject prefix or nominal augment, there is no lengthening (setting aside cases involving opaque bimoraic syllables in cl. 9, taken up in section 10).[73] The following are examples of the augment as V2.

| | | |
|---|---|---|
| kondákt-ʊmwaangʊ | 'fast conductor' | kondákta ʊmwaangʊ |
| wáˈch-ʊ́mʊ́ráhi | 'good buddy' | wáˈché ʊ́mʊ́ráhi |
| kákóóng-ákárahi | 'good boss$_{-dim}$' | kákóóngó ákárahi |
| ɪvímʊ́g-ɪvíingɪ | 'many gourds' | ɪvímʊ́ga ɪvíingɪ |
| ɪzíngʊ́ˈv-ɪzyááˈnʊ́kí | 'clothes off the line' | ɪzíngʊ́ˈvʊ́ ízyááˈnʊ́kí |
| mween-ʊmʊ́gádi | 'owner of a bread' | mwééné ʊ́mʊ́gádi |
| aváánd-íríkʊ́mi | '10 people' | aváándʊ́ íríkʊ́mi |
| ʊmban-ɪnʊ́ʊ́sʊ | 'half a knife' | ʊ́mbánó ínʊ́ʊ́sʊ |
| ʊ́ḿbán-éróbo | 'quarter knife' | ʊ́ḿbánó éróbo |
| ríˈchúúˈngw-éróbo | 'quarter orange' | ríˈchúúˈngwá éróbo |
| vʊ́jír-ʊ́mwáána | 'without a child' | vʊ́jírá ʊ́mwáána |
| kɪr-ekekóómbe | 'every cup' | kíˈrá ékékóómbe |
| kariv-ʊmwaáana | 'even a child' | kárívá ʊ́mwáana |
| vʊjɪr-orodeeɲo | 'without rodenyo' | vʊjira orodeeɲo |
| ɪsííˈmb-íyééne | 'lion by itself' | ɪsíímba ɪyééne |
| kʊzaazaam-ovosera | 'to taste porridge' | kʊzaazaama ovosera |
| manááveg-ʊmwáana | 'then he shaped a child' | manáávega ʊmwáana |
| yaagʊ́r-ʊmʊ́ˈdógá | 'he bought a car' | yáágʊ́ra ʊmʊ́ˈdógá |
| arádéék-ovosera | 'he will cook porridge' | arádééka ovosera |
| deeker-ʊmʊgeni | 'cook for the guest!' | deekera ʊmʊgeni |
| varaminag-ovosera | 'they will cook porridge' | varaminaga ovosera |
| varádóóˈr-íkíkábo | 'they will pick up a bag' | varádóóra ɪkíkábo |
| mavárúg-ʊ́vʊ́chíma | 'they will cook ugali' | máavárúga ʊvʊ́chíma |
| váákííˈt-ékékóóndo | 'they killed the monkey' | váákííˈtá ékékóóndo |
| yaakóhééˈvw-íséendi | 'he has been given money' | yaakóhééˈvwá íséendi |

[73] The uncontracted forms on the right diverge on minor ways from the corresponding contracted forms especially in tonal realization, where leftward spreading may be applied in one token but not the other.

ʊtadeek-ovosera ‘you should not cook porridge’ ʊtadeeka ovosera

Likewise, when the SP is V2, this does not result in a long vowel (except after a clitic as discussed in 9.2.1).

| | | |
|---|---|---|
| ʊmʊ́ʊ́nd-á˥séémbellaa | ‘the person is weeding’ | ʊmʊ́ʊ́ndʊ́ aséémbellaa |
| ʊmʊ́ʊ́nd-arákánwí | ‘the person who will drink’ | ʊmʊ́ʊ́ndʊ́ arákánwí |
| ʊmʊ́ʊ́nd-odééchi | ‘person who cooked’ | ʊmʊ́ʊ́ndʊ́ odééchi |
| marov-ádeechi | ‘Marova cooked’ | máróvá adeechi |
| ʊmkʊ́ʊ́ng-á˥gwíɪ | ‘the elder fell’ | ʊmkʊ́ʊ́ngʊ agwíɪ |
| ɪngʊ́rʊ́v-ɪŋagʊráa | ‘the pig is running’ | ɪngʊ́rʊ́ve ɪŋagʊráa |
| geneká˥á yɪv-ʊ́˥rímí | ‘it is necessary that you plow’ | |
| kaand-adeechi | ‘also he cooked’ | |
| kaand-ʊgʊ́ríza | ‘also you are selling’ | |
| haʊ́nd-amáadéékaa | ‘possibly he cooks’ | |
| lek-arímí | ‘let him plow’ | |
| ɪnz-á˥ráá˥ngóóŋá | ‘me, he will help’ | |
| íŋám-ádeechi | ‘meat he ate’ | |
| ʊmʊ́˥dóg-ʊ́gʊrízi | ‘the car you sold’ | |
| haʊ́nd-agwíɪ | ‘perhaps he fell’ | |
| mwɪɪgánís-ʊgwíɪ | ‘in the church you fell’ | |
| ʊvʊ́ráh-ɪnwɪɪ | ‘fortunately it drank’ | |
| sáás-ɪriizáa | ‘now it is eating’ | |
| sa ndar-óvegáa | ‘sometimes you shave’ | |
| ndáávóór-odeekáa | ‘I said you are cooking’ | |
| chígírá k-aturi | ‘why did he leave’ | |
| mbooy-óveeshi | ‘I said you lied’ | |

Some examples of multi-word sequences with syllable merger and no lengthening, in a range of syntactic constructions, are as follows.

| | |
|---|---|
| mɪsáár-ɪmisáá˥kʊ́r-ímííngɪ | ‘many old trees’ |
| akagóy-áká˥kʊ́zʊ́ʊ́z-akashaº | ‘small new rope’ |
| ɪmídog-ímɪkʊ́˥r-ímyáá˥kányú | ‘old red cars’ |
| amarw-á˥márá˥h-ámánúru | ‘good sweet alcohol’ |
| amagín-ámáné˥n-ámádínyu | ‘big hard stones’ |
| amáá˥z-ámíí˥ng-ámázíllʊ | ‘a lot of cold water’ |
| ʊmbán-ʊ́mtáá˥mb-ʊ́mwʊ́ʊ́gɪ | ‘long sharp knife’ |
| ʊrʊwáá˥y-ʊ́rʊ́táá˥mb-ʊ́rwáá˥kányú | ‘long red wire’ |
| ŋeŋ-ʊ́msíí˥bí gwá˥áng-ʊ́˥mtáámbɪ<br>~ŋeŋa ʊ́msíí˥bí gwá˥ángé ʊ́˥mtáámbɪ | ‘I’m looking for my long belt’ |
| maróvá yáákarɪm-ɪriis-ɪrijima<br>maróvá yáákarɪma ɪriisa ɪrijima | ‘M plowed for a whole hour’ |
| ndáá˥kávágʊrizɪr-ɪzing’oombe<br>~ndáá˥kávágʊrizɪra ɪzing’oombe | ‘I just sold cows to them’ |
| kaand-ʊmwáán-adeechi | ‘also the child cooked’ |

vɪɪk-ǿmwáán!-ídíidi ‘put the child on the back!’
~vɪɪká ǿmwáána ɪdíidi
ndáá!kánw-óvósér-ávɒg-ɪɪbáá!kóɒri ‘after I ate the vosera he took the bowl’

The following examples show deletion of the vowel in the enclitic *kɪ* in the fronted wh-phrase *chí!gírá kí* ‘why’ – although *kí* is a clitic, it attaches to the preceding word, not the following, and thus the vowel combination is an example of general phrasal combination. As can be seen, the nominal augment and the subject prefix are not lengthened when fused with /kí/.

chí!gírá k-á!ríráa ‘why is he crying?’
chí!gírá k-ínweezáa ‘why is it drinking?’
chí!gírá !k-árímí ‘why did he plow?’
chí!gírá !k-ébé!d-ígwíɪ ‘why did the ring fall?’
chí!gírá !k-é!kéróóri kɪkuzi ‘why did the calf die?’

Domain-size is relevant to the matter of whether two short vowels merge into a long vowel. Nevertheless, the following examples show that when the first word in a two-word sequence has a monomoraic root, there is still no lengthening.

| | | |
|---|---|---|
| mb-ámagɪna | ‘give me stones’ | mbé amagɪna |
| nw-amárwá | ‘drink beer!’ | |
| ry-amágáánda | ‘eat beans’ | |
| sh-ovóró | ‘grind millet’ | |
| t-írídáanji | ‘bury the tank!’ | |
| t-íkíbága | ‘bury the cat!’ | |
| ty-íkíbága | ‘fear the cat!’ | |
| ty-ɒmwáámi | ‘fear the chief!’ | |

Dimoraic (C)VCV demonstratives also do not result in long vowels under contraction with a subject prefix.

oy-ádeechi ‘he cooked’
yɪy-íkuzi ‘this one died’
yɪy-í!gwíɪ ‘this one fell’
yɪy-ɪɲaanyi ‘that one ate’
yɪy-ɪryɪɪ ‘that one ate’
yɪrá ɪryɪɪ ‘that one ate’
yɪr-í!zyɪɪ ‘that one went’
yɪy-ítyɪɪ ‘this one feared’

Similarly, there is no lengthening under syllable merger whene the second word is a VCV verb.

marov-á!gwá dáave ‘Marova won’t fall’
lek-ashí ‘let him grind’

Examples of non-lengthening include combinations of a monosyllabic post-verbal enclitic which happens to stand before a vowel-initial noun.

| | |
|---|---|
| ndáárora kw-ámagına | 'I have ever seen stones' |
| ndáákooŋa k-ó!mwáana | 'I have ever helped a child'[74] |
| ndááŋaaŋa kw-í!mító | 'I have ever eaten mito' |
| máásóó!má mw-í!vítábʊ | 'I usually read books in' |

## 10. Pre-NC-lengthening

Bantu languages with distinctive vowel length frequently neutralize the contrast before sequences of nasal plus consonant, so that all vowels are long before NC. The correlation between vowel length and NC has decreased in Logoori. There are three main contexts where length before NC can be investigated:

1: within morphemes (e.g. *ko-roond-a* 'to follow')
2: across morphemes where N is the 1s object of object prefix in inflected verbs
3: In the context of the nominal class prefixes for cl. 9 and 10

The subsections below focus on contexts 2 and 3 since they illustrate productive phonological patterns. The main generalizations about pre-NC length are the following.

1: Vowels are redundantly long before NC within a morpheme, with no alternations or evidence that such vowels behave as short.
2: Vowels always lengthen within the word before the 1s OP: this is consistent with the pattern of length-preservation within words, on the assumption that the 1s OP coulds as a length unit
3: The 1s SP causes lengtheing of a preceding proclitic just in case the prefix immediately precedes the macrostem – this is the same generalization as governs lengthening of proclitic plus vowel-initial SP.
4: The cl. 9 nominal prefix /N/ and the augment /ɪ/ both contribute a unit of length in phrasal VNC sequences and cause lengthening: this is due to the general pattern of phrasal length only in case one of the two syllables is long.

As far as VNC morpheme-internal contexts are concerned, vowels are generally long before tautomorphemic NC. One context where they are not is in vowel-initial roots before NC. As observed in previous discussion of N+C effects, and vowel fusion, such vowels are systematically short, though usually they are long on the surface because of vowel-merger effects. Thus *kw-aambʊk-a* 'to cross' has a long vowel due to the vowel combination given underlying /kʊ-ambʊk-a/, and *nzámbʊ́kaa* 'I am crossing' from /n-ambʊk-aa/ has a short vowel because there is no vowel sequence which results in vowel

[74] This form is an example of optional reduction of Cwʊ to Cʊ, which may not be full phonetic neutralization.

length. All VNC-initial roots behave the same, and have a surface long syllable if a vowel prefix precedes, a short vowel otherwise.

Apart from vowel-initial roots, vowels before NC within a morpheme are generally long. There are rare unclear cases involving relatively long roots, for example *gara*(*a*)*ngatan* 'fall and roll over' which most often has a short vowel but may be freely long or short within a single speaker (e.g. [fa]*agáráángatani* 'he fell and roll over (perfective)', [fa]*yáágárangatana* 'he fell and rolled over (remote)'). Two nouns are known to have short vowels before NC within roots: *kondákta* 'conductor' and *mambáása* 'Mombasa'; the name *andíisi* and the bird species *ɪmbí'rámbírízi* also have such sequences, *a-* is a frequent pseudo-prefix in personal names, and the noun *ɪmbí'rámbírízi* looks like a reduplication, so its structure may be ɪ-N-REDUP-*vɪrɪzi*, where medial *a-m-b* actually copies the cl. 9 prefix N-.

### 10.1. 1s OP within verbs

Within the word, a vowel before an NC sequence created by combining the 1s OP with a following consonant is always long. The conditioning nasal or the following consonant may be deleted or modified, following NC rules discussed in sections 1-3 above (e.g. *kóóɲeengera* 'to brew for me', *aafóóri* 'he beat me' from /ko-N-yeengera, a-N-fóóri/).

| | |
|---|---|
| avaambégizi | 'he made them shave me' |
| aváángooɲeree | 'he helped me for them' |
| valiinzízólila | 'they may remember me' |
| valiimbéga | 'they may shave me' |
| kóóɲeengera | 'to brew for me' |
| kóómbega | 'to shave me' |
| kóósyʊʊvɪra | 'to throw out for me' |
| kóómbaayɪra | 'to visit me' |
| ʊtaanzáyʊlla | 'don't shout at me!' |
| ʊtaaníínda | 'don't watch me!' |
| arɪkáánganagane | 'he will think of me' |
| ʊrááng'oodera | 'you will write for me' |
| ʊʊmbéézegelle | 'belch on me!' |
| óóngaraangɪrɪɪ | 'you have fried for me' |
| aafóóri | 'he beat me' |
| aambée | 'he gave to me' |
| aandákóóllɪɪ | 'he released me' |
| aandémeraa | 'he's chopping for me' |
| manɪ vá'ángóóɲa | 'then they helped me' |
| máni vá'ásémáányá | 'then they insulted me' |
| mavaanzáámbókɪrɪ | 'they will ford for me' |
| na vaanzízólliɪrɪ | 'they will remember me' |
| vaaɲáánzaa | 'they are loving me' |
| vaambááyɪrɪ | 'they visited me / for me' |
| kaandí'vóllí | 'now answer me!' |

A systematic exception to this pattern of lengthening is that the epenthetic vowel associated with this prefix (see 4.3.3) is not lengthened.

| | |
|---|---|
| vááyíndora | ‘they saw me rem’ |
| yáyí!ndákóóra | ‘he released me’ |
| vááyí!mórómeraa | ‘they used to speak to me’ |
| yáímbegaa | ‘he used to shave me’ |
| yaaindómi | ‘he sent me’ |

When the preceding vowel is otherwise long – it derives from a V+V sequence – there is no visible effect on vowel length in VNC.

| | |
|---|---|
| yáámbegaa | ‘he used to shave me’ |
| mwáá!ngóónaa | ‘2p used to help me’ |
| áámbomollee | ‘he has demolished for me’ |
| váá!njéériza | ‘they greeted me’ |
| váá!nómá | ‘they bit me’ |
| wáá!ngíínga | ‘you protected me’ |
| yáá!nzíránıra | ‘he returned for me’ |

## 10.2. Proclitic before 1s SP

The subject prefix is not preceded by prefixes within the word, but it can be preceded by proclitics. In such a case, the proclitic vowel lengthens only when there is no tense-aspect prefix syllable – proclitic plus NC yields a long vowel in exactly the same conditions as proclitic plus V merger does.

| | |
|---|---|
| <u>na</u>- | |
| naa shí | ‘I will grind’ |
| naa nzítí | ‘I will kill’ |
| naa mbégé | ‘I will shave’ |
| naa ndákórı | ‘I will release’ |
| naa ɲómbákí | ‘I will build’ |
| naa ndééké | ‘I will cook’ |
| naa ɲááɲé | ‘I will eat’ |
| naa mbéénzé | ‘I will look’ |
| naa nóóndé | ‘I will follow’ |
| naa sóóndórí | ‘I will pour out’ |
| naa nyííngírí | ‘I will enter’ |

The relative agreement proclitic can appear before most verb forms,[75] making it easier to contrast forms with and without a tense prefix. The relative future, hodiernal perfective and progressive are tenses with no prefix after the SP, where pre-NC lengthening occurs.

[75] Certain tenses such as the immediate future with *-ra-* are not allowed in relative clauses.

relative future

| | |
|---|---|
| ɪzíng'óómbe zyaa ndya | 'the cows that I will fear' |
| ʊmʊgóye gwá!á mbóhá | 'the rop that I will tie' |
| ɪɲáma yáá! ndééká | 'the meat that I will cook' |
| mʊgóónda gwáá séémbella | 'the farm that I will weed' |
| rwá!á nzímbá | 'when I sing' |
| rwá!á móróma | 'when I speak' |
| rwá!á mbéénzegera | 'when I belch' |
| rwáá! ɲágórá | 'when I will run' |

hodiernal perfective

| | |
|---|---|
| ʊmsáá!rá gwáá mbódóng'ání | 'the tree that I went around' |
| zing'óó!mbé zyáá nzáí | 'the cows that I herded' |
| zing'óó!mbé zyáá nííndi | 'the cows that I watched' |
| ɪbía yaa nwɪɪ | 'the beer that I drank' |
| aváána vaa ndójí | 'the children who I bewitched' |
| ɪnyóó!mbá yáá ngórí | 'the house that I bought' |
| rwáá ndeechi | 'when I cooked' |
| rwáá ngwɪɪ | 'when I fell' |
| rwáá! nzéyí | 'when I swept' |
| rwáá ndʊri | 'when I left' |

progressive

| | |
|---|---|
| aváándʊ vaa ndóráa | 'the people who I am seeing' |
| rwáá ɲagʊráa | 'when I am running' |
| aváána vaa ngooɲáa | 'the children that I am helping' |
| ɪɲáma yaa ngaráángá | 'the meat that I am frying' |

There is also lengthening when the SP comes immediately before an OP

| | |
|---|---|
| rwáá ngokóónyi | 'when I helped you' |
| rwáá mbavá!rízíráá | 'when I am counting for them' |
| rwáá ngʊráámaa | 'when I am cursing you' |
| rwáá ngoróráa | 'when I am seeing you' |
| rwáá mbavégaa | 'when I am shaving them' |
| rijúúngu ryaa mbíí!tíráa | 'the rat that I am killing for them' |
| amarwá gaa ngoyéé!ngéráa | 'the alcohol that I am brewing for you' |
| rwáá mbarií!ngólláá | 'when I am unfolding for them' |
| rwáá mbasáá!mbʊrógányíráá | 'when I am destroying for they' |

In tenses selecting a prefix between the SP and the macrostem, there is no lengthening of the proclitic before NC

| | |
|---|---|
| ɪɲáma ya ndáádééka | 'the meat that I cooked' |
| ɪkɪtábʊ chá! ndááháándiika | 'the book that I wrote' |
| módogá gwá! ndáágúriza | 'the car that I sold' |

| | |
|---|---|
| rwá¦ ndááháándiika | ‘when I wrote’ |
| rwá¦ ndáámóroma | ‘when I spoke’ |
| rwá¦ ndáánwa | ‘when I drank’ |
| rwá¦ ndáávéga | ‘when I shaved’ |
| ŋnáma ya ndaakódéeka | ‘the meat that I have cooked’ |
| ɪzing’óómbe zyá¦ ndáávárizaa | ‘the cows that I used to count’ |
| rwá¦ ndáágwíízaa | ‘when I used to fall’ |
| rwá¦ ndáámórómaa | ‘when I used to speak’ |
| aváándɔ va ndikooŋá | ‘the people that I will help’ |
| ɪngáno ya ndisha | ‘the wheat which I will grind’ |
| ɔmóóndɔ wa ndivega | ‘the person that I will shave’ |
| gwa ndikateme | ‘the one which I will chop’ |
| rwá¦ ndíkávége | ‘when I will shave’ |
| aváándɔ va ngevegáa | ‘the people who I am still shaving’ |
| rwa ngɪrímáa | ‘when I am still plowing’ |

## 10.3. Phrasal vowel + NC in verbs

At the phrasal level, there is no lengthening before verbal NC, whether the nasal is the subject prefix or the object prefix.

| | |
|---|---|
| reka ndééké | ‘let me cook’ |
| reka nzyí | ‘let me go’ |
| leka nímí | ‘let me plow’ |
| tareká ¦ngwí ¦dáave | ‘let me not fall’ |
| engóómbé ¦ngórízi | ‘a cow, I sold’ |
| ɔvɔráhɪ ndeechi | ‘fortunately I cooked’ |
| ɔvɔráhɪ nwɪɪ | ‘fortunately I drank’ |
| ɔvɔrá¦hí sóóm-órósóóngɔ | ‘fortunately I study English’ |
| yáásóóvɪra ndáádééka | ‘he thought I cooked’ |
| mskó¦ró sóóm-órósóóngɔ | ‘in school I study English’ |
| amádóóma ndááyaanza | ‘maize I like’ |
| íŋámá ndeechi | ‘meat I ate’ |
| karónɔ ndeekáa | ‘now I am cooking’ |
| haóndɪ ndáádééka | ‘possibly I cooked’ |
| sáá ndárá ndáádééka | ‘sometimes I cooked’ |

| | |
|---|---|
| ŋnamá ndeekéra | ‘meat cook for me!’ |
| ɪmísáára ndeméra | ‘trees chop for me!’ |
| ɔm̀pííra ndasíra | ‘the ball throw to me!’ |
| ɪmbwá siingíra | ‘the dog wash for me!’ |
| ɪmbwá ¦ngóllá | ‘the dog buy for me!’ |

## 10.4. Cl 9-10 nominal prefix

Pre-NC vowel lengthening associated with classes 9 and 10 is complex, compared to 1sg SP and OP data. Most of the relevant instances involve the cl. 9 prefix N- in various context, but the cl. 10 prefix is also exhibits pre-NC lengthening in one context.

The vowel of *zi* in the cl. 10 prefix is not lengthened before NC when the following stem has multiple syllables.

| | |
|---|---|
| zí!mbímá | 'spleens' |
| zí!ngókó | 'chickens' |
| zimbarʊ | 'rib' |
| zíngáda | 'pipes' |
| zingano | 'stories' |
| zingáta | 'headpads' |
| zinguza | 'vegetable' |
| zínzóka | 'snakes' |
| zínzʊ́kɪ | 'bees' |
| zí!mbóóngó | 'buffalos' |
| zí!mbʊ́ʊ́ngʊ́ | 'keys' |
| zí!náámbʊ́ | 'chameleons' |
| zí!ndóóro | 'sleep' |
| zimbááho | 'boards' |
| zing'eendo | 'journies' |
| zínjuugu | 'peanuts' |
| zí!ndʊ́gʊ́!nyí | 'ant sp.' |
| zí!ngʊ́rʊ́ve | 'pigs' |
| zí!mbéréenge | 'water skippers' |
| zí!ngárááye | 'wash-basins' |

When the root is monosyllabic, the prefix vowel is optionally lengthened. A single speaker may use lengthened and non-lengthened forms, for instance BK *zímbwá* or *zíímbwá* 'dogs', *zííngʊ́* or *zíngʊ́* 'firewood', *zingo* or *ziingo* 'leopards'; EM: *zíímbwá* 'dogs', *ziimbwá*! *zínéne* 'big dogs' but *zímbwá* !*zínzána* 'young dogs'; *zííngʊ́* 'firewood', *zííngʊ́* !*zínyíngí* 'many pieces of firewood' but *zíngʊ́* !*zímbyʊ́* 'hot firefood'. Speaker tendencies are not uniform: BK predominantly attests non-shortening by a ratio of about 2 to 1, EM has a greater tendency to lengthen than not to, and RL and PM always length in the data.[76]

| | |
|---|---|
| [EM]zinjʊ | 'bowls' |
| [FA] zíínjʊ́ zyééng'íné | 'the bowls alone' |
| [BK]zinji [EM] ziinji | 'flies' |
| [BK]zímbyá | 'gatherings of elders' |
| [BK, EM]zíínda | 'lice' |
| zííswá | 'termite' |
| ziisa | 'times' |

[76] Some of the relevant nouns have very limited attestation.

Data on monosyllabic adjective roots is sufficiently limited that speaker trends cannot be discerned, but both lengthened and non-lengthened variants are attested.[77]

| | | |
|---|---|---|
| zííndí | zíndí | 'small$_{-10}$' |
| zííngé | zíngé | 'few$_{-10}$' |
| zíímbí | zímbí | 'small$_{-10}$' |

Otherwise, pre-NC lengthening only pertains to cl. 9 nouns, and is related to the presence of the augment. The augment [e~ɪ] appearing before NC in citation cl. 9 nouns is always short, excluding cases of V+V merger covered below. This is illustated below with monosyllabic roots.[78]

<u>Overt</u>

| | |
|---|---|
| engo | 'leopard' |
| ímbwá | 'dog' |
| ɪnda | 'stomach' |
| índá | 'louse' |
| ɪnji | 'fly' |
| ímbí | 'bad' |

<u>Ambiguous</u>

| | |
|---|---|
| ɪnyʊ | 'anus' |
| ísá | 'time' |
| ɪsʊ | 'female chicken' |
| íswá | 'termite' |
| ɪsyo | 'shaper' |

<u>Unprefixed</u>

| | |
|---|---|
| íchó | 'toilet' |

Before longer roots, the augment is likewise always short.

| | |
|---|---|
| é!ngókó | 'chicken' |
| é!ngóóndó | 'banana flower' |
| embégo | 'maize planting' |
| éndéve | 'chair' |
| í!ndámá | 'tobacco plant' |
| í!ngóvó | 'hippopotamus' |
| ɪmbáda | 'hawk' |
| ímbúrú | 'monitor' |
| índóómba | 'drum' |

[77] Monosyllabic adjective roots usually triplicate, viz. *zíngeengéénge*.

[78] Three classes of stems are inducated here: overt, ambiguous and unprefixed. This refers to whether there is a surface-evident prefix N, the prefix cannot be detected except indirectly, or the prefix N is demonstrably lacking.

| | |
|---|---|
| ɪngʊvʊ | ‘cloth’ |
| é!mbéréenge | ‘skipper’ |
| í!ndógónyi | ‘ant’ |
| índúrúme | ‘seizure’ |
| ɪmbá!rábára | ‘road’ |
| ɪnduvagɪrʊ | ‘sole of animal’ |

## 10.5. Locative before nominal NC

The different behavior of a preceding proclitic versus preceding word with verbs arises from the fact that tense inflections influence whether there is lengthening. This does not arise with noun morphology, consequently phrases and proclitics can be treated together. However, there is a behavioral difference between locative prefixes on nouns and other vowels before nominal NC.

The augment is always lacking from a nominal after a modifying locative prefix,[79] and the vowel of the locative prefix is lengthened in these constructions.

| | |
|---|---|
| háámbwá | ‘by the dog’ |
| haambogo | ‘at a buffalo’ |
| háándéve | ‘by a chair’ |
| haandege | ‘at an airplane’ |
| kóó!ngókó | ‘on a chicken’ |
| koombogo | ‘on a buffalo’ |
| kóóndéve | ‘on a chair’ |
| kʊ́ʊ́mbá!rábára | ‘on the road’ |
| kʊ́ʊ́mbwá | ‘on the dog’ |
| kʊʊnji | ‘on the fly’ |
| kʊ́ʊ́nzɪra | ‘on the road’ |
| mʊʊmbogo | ‘in a buffalo’ |
| mʊ́ʊ́ndéve | ‘in a chair’ |
| mʊʊnzóka | ‘in a snake’ |

The augment is generally omitted in nouns modified by *kí* ‘what’. Nouns in cl. 9 so modified do not have lengthening of the preceding vowel of a locative prefix.

| | |
|---|---|
| kʊmbarabara kí | ‘on what road’ |
| kʊngáá!sí kí | ‘on what ladder’ |
| ha mbʊ́!rí kí | ‘by what goat’ |

This indicates that lengthening in locative forms of cl. 9 nouns is in part due to the augment, and this in turn implies that the augment is underlyingly present in e.g.

[79] The augment is not deleted when the postverbal clitics *mʊ, kʊ* happens to precede a noun with an augment, e.g. *ndáá!végá kw-á!váána* ‘I have ever shaved the children’ – the postverbal clitic merely precedes the noun, but does not structurally attach to it.

[mʊ́ʊ́ndéve], i.e. /mʊ-endéve/, even though the locative prefix replaces the augment. The proposed analysis is that the augment deleted after a locative proclitic.

## 10.6. Other vowels before cl 9 NC

This subsection will focus on the presumed proclitics *na-, nɪ-, sa-,* AGR-*a*, and the next subsection will consider other V+NC combinations. Normally, the vowel of the proclitic is deleted and the vowel of the augment is retained, lengthened. For example, /nɪ endéve/ becomes *n-eendéve* 'it's a chair'. Lengthening in this case is an instance of preservation of syllable length, where a long vowel always results from the combination of a long syllable plus any syllable. The crucial factors causing vowel length in these examples is that there is an augment and the cl. 9 prefix /N/, which is assumed to be moraic. When there is no augment (10.6.2) or no moraic nasal (10.6.3), there is no lengthening.

### 10.6.1. Augment plus nasal prefix

The proclitics /nɪ-, s(y)a-, na-, AGR-a/ lose their vowel before the augment, and the augment is long in the following cl. 9 examples.

| | |
|---|---|
| n-ɪɪmbwá | 'it's a dog' |
| n-ɪɪmbʊ́ri | 'it's a goat' |
| n-ɪɪngáási | 'it's a ladder' |
| n-ɪɪmbíízɪ | 'it's a warthog' |
| n-ɪɪnzaga | 'it's marijuana' |
| n-eemboongo | 'it's a buffalo' |
| n-ííngókó | 'it's a chicken' |
| n-íí!ndʊ́gʊ́nyi | 'it's an ant' |
| s-íímbwá | 'like a dog' |
| s-eengo | 'like a leopard' |
| n-iimbítí | 'it's a hyena' |
| s-éé!ngókó | 'like a chicken' |
| sh-íɪmbiti | 'like a hyena' |
| s-ɪɪngʊvʊ | 'like cloth' |
| s-íí!ngʊ́rʊ́vɪ | 'like a pig' |
| sh-é!émbódóka | 'like jealousy' |
| n-í!ímbwá | 'with a dog' |
| n-íɪngʊgɪ | 'with a baboon' |
| n-í!íngʊ́ʊ́ngɪ | 'with a basket' |
| n-é!émbóóngó | 'with a buffalo' |
| n-é!é!ngókó | 'with a chicken' |
| n-íɪmbʊkʊ | 'with a mole' |
| n-íɪngavɪ | 'with luck' |
| n-íɪngʊrʊvɪ | 'with a pig' |
| n-í!índʊ́gʊ́nyi | 'with ant' |
| n-éé!mbódóka | 'with jealousy' |

<u>associative</u>

| | |
|---|---|
| ríváha ry-íɪmbáda | ‘feather of hawk’ |
| mkíra gw-í!ímbwá | ‘tail of a dog’ |
| mavóyɔ g-éé!ngókó | ‘eggs of a chicken’ |
| ɪrigódo g-í!ímbɔ́ri | ‘skin of a goat’ |

### 10.6.2. No augment

Common nouns with the modifier *kí* ‘what’ typically do not have the augment. When a vowel precedes a cl. 9 noun lacking an augment because of *kí*, the result is a short vowel.

| | |
|---|---|
| ha-mbɔ́!rí kí | ‘by what goat’ |
| kɔ-ngá!tá kí | ‘on what headpad’ |
| mɔ-ndóó!hó kí | ‘in what bucket’ |
| ha-ngó!kó kí | ‘at what chicken’ |
| sa-ngoko kí | ‘like what chicken’ |
| sa-ngɔrɔve kí | ‘like what pig’ |
| na-ndé!gé kí | ‘with what airplane’ |
| na-ngó!kó kí | ‘with what chicken’ |
| ná-ngá!tá kí | ‘with what headpad’ |
| nɪ-ndeve kí | ‘it’s what chair’ |

Another nominal context where there is no lengthening before cl. 9 NC is in the ‘X-wards’ construction, with *ɪma-*, which does not have the augment on the base noun.

| | |
|---|---|
| ɪnámburi | ‘goat-wards’ |
| ɪnángoko | ‘chicken-wards’ |
| ɪnándooho | ‘bucket-wards’ |
| ɪnámburu | ‘monitor-wards’ |
| ɪnánjene | ‘jigger-wards’ |
| ɪnámboongo | ‘buffalo-wards’ |
| ɪnángoko | ‘chicken-wards’ |
| ɪnámbwa | ‘dog-wards’ |
| ɪnángo | ‘leopard-wards’ |

There is also no lengthening before personal and place names which begin with NC. Only names are potential examples, since only names are obligatorily augment-free.[80]

| | |
|---|---|
| mboozó | ‘brother’ |
| nɪ mboozoº | ‘it’s brother’ |
| mbaaja | ‘PN’ |
| nɪ mbaaja | ‘it’s Mbaaja’ |
| ndaanyi | ‘PN’ |

[80] Even then, place names subdivide into those in Evologoori which do select the place-name augment *ɪ-*, versus personal names and other places. Also, some speakers employ the augment in personal names that resemble cl. 11 nouns, such as *rodééji ~ orodééji*.

| | |
|---|---|
| sa ndaanyi | ‘like Ndaanyi’ |
| mbaata | ‘Mbaate (Tanzania)’ |
| nɪ mbaate | ‘it’s Mbaate’ |
| mbábáne | ‘Mbabane (Swaziland)’ |
| hámbábáne | ‘in Mbabane’ |
| mbíízi | ‘Mbizi (Zimbabwe)’ |
| cha mbíízi | ‘of Mbizi’ |

On the other hand, the place name *Mbihi* does take the locative augment, and a long vowel arises when combined with a proclitic.

| | |
|---|---|
| ɪmbɪhɪ | ‘Mbihi (village west of Mbale)’ |
| n-ɪɪmbɪhɪ | ‘It’s Mbihi’ |
| haambɪhɪ | ‘in Mbihi’ |

### 10.6.3. No nasal

Not all nouns in cl. 9 employ the prefix N-, and those which do not also do not exhibit lengthening even when the augment is present. In one phonological class of nouns, it is obvious that the noun underlyingly lacks the prefix /N-/, but in another class the citation form of the noun is ambiguous, and vowel lengthening must be called on to distinguish nouns without /N/ versus those which phonologically delete the nasal.

When the noun in question lacks the prefix N- (e.g. *e-béde* ‘ring’), no vowel lengthening occurs from combination of V plus an (augmented) cl. 9 noun. The clearest examples are those beginning with a stop, *f, h*, or *r*, since there is no deletion of a nasal before those consonants. Examples with the locative prefix are seen below

| | |
|---|---|
| ha bóósta | ‘at the post office’ |
| há chó | ‘at a toilet’ |
| ha pé!téróori | ‘by petrol’ |
| ha bʊ́sa | ‘by maize beer’ |
| kó béde | ‘on a ring’ |

In the case of other CV proclitics, the vowel of the proclitic is deleted and the augment remains, unlengthened.

| | |
|---|---|
| n-é!béde | ‘with a ring’ |
| s-íkáháwa | ‘like coffee’ |
| s-ékóófi | ‘like coffee’ |
| n-í!dáákɪka | ‘with a minute’ |
| ebáái y-é!béde | ‘price of a ring’ |
| ʊmtwí !gw-ídwáási | ‘head of a heifer’ |
| kwiigʊ́rʊ kw-ɪkɪhabo | ‘top of a bag’ |
| kwiigʊ́rʊ kw-í!báaga | ‘top of a bag’ |
| rízáázá!má ry-í!bʊ́saa | ‘taste of busaa’ |

## 10.7. Phrasal nominal NC

Phrasal combinations of vowel plus NC likewise attest lengthening of the augment, just as was observed with proclitics.

| | |
|---|---|
| kɪr-éé!ngókó | ‘every chicken’ |
| kɪr-eengo | ‘every leopard’ |
| kɪr-eengo | ‘every leopard’ |
| kɪr-éé!ngókó | ‘every chicken’ |
| kɪr-ɪɪngóɾʊve | ‘each pig’ |
| mween-ɪɪnyóómba | ‘owner of house’ |
| mween-ɪɪmbóri | ‘owner of the goat’ |
| mween-ɪɪmbwá | ‘owner of dog’ |
| vʊjɪr-eengo | ‘without a leopard’ |
| vójír-íímbwá | ‘without a dog’ |
| vójír-éénzóka | ‘without a snake’ |
| vójír-íínzáro | ‘without gravel’ |
| vójír-éémbódóka | ‘without jealousy’ |
| vójír-íí!ndógónyi | ‘without ant’ |
| vójír-ííngóóngɪ | ‘without a basket’ |
| kariv-ɪɪndú!gútá | ‘even a letter’ |
| kariv-íí!mbúrú | ‘even a monitor’ |
| yaakógólízíl(w)-ééndéve | ‘he has been sold a chair’ |
| vaakwíí!t-íímbwá | ‘they have killed a dog’ |
| yáákórór-ééndéve | ‘he has seen a chair’ |
| vaaréét-eendéve | ‘they brought a chair’ |
| váá!kárór-éémbégo | ‘they saw a seed’ |
| maníyíí!t-éengókó | ‘then he killed a chicken’ |

It is crucial that the first vowel in the underlying sequence be deleted, in order for a long vowel to arise. Final *i* does not delete before a vowel at the phrasal level, in which case the augment of a cl. 9 noun has a short vowel.

| | |
|---|---|
| arorí !éndéve | ‘he saw a chair’ |
| vʊri engo | ‘each leopard’ |
| vóri í!njóʊgʊ | ‘each peanut’ |

When there is no augment (as in the case of *N+kí* constructions), there is no lengthening.

| | |
|---|---|
| vójírá ndé!gé kí | ‘without what airplane’ |
| mweene ndeve kí | ‘owner of what chair’ |
| yááróra nzoka kí | ‘he saw what snake’ |
| vííta mbʊri kí | ‘they killed what goat’ |
| vaakávó!náányá ndeve kɪº | ‘they broke what chair’ |
| mavareeté ndoho kí | ‘they will bring what bucket’ |

There is also no lengthening of a vowel before a proper name that begins with NC.

| | |
|---|---|
| ndaaróra mboozoº | 'I saw brother' |
| makororé ndaanyi | 'we will see Ndaanyi' |
| ndáávááya mbaate | 'I visited Mbaate' |
| ndáá!yáánzá mbábáne | 'I like Mbabane' |
| maambááyí !mbíízi | 'I will visit Mbizi' |
| ndáá!kárórá mbíízi | 'I saw Mbizi' |
| (cf. ɪmbɪhɪ, ndáávááy-ɪɪmbɪhɪ | 'I visited Mbihi') |

Finally, in certain NPs with a demonstrative, the augment is omitted from an immediately post-nominal adjective,[81] for example *avváándɔ varah-áava* 'these good people' cf. *avváánd(ó) ávárah-áava* 'these good people'. In this context, the final vowel of the head noun is not lengthened before adjectival NC, because there is no augment.

| | |
|---|---|
| eng'óómbe ndah-íɪyɪ | 'this good cow' |
| ɪŋáma ndeek-íɪra | 'that cooked meat' |

In cl. 9 nouns which have no nasal class prefix, fusion of a preceding vowel with an augment results in a short vowel.

| | |
|---|---|
| kí!r-íbíráóni | 'every plate' |
| mween-ɪdárája | 'owner of the bridge' |
| vójír-ébéde | 'without a ring' |
| vójír-épóósta | 'without a post office' |
| vɔjɪr-ɪpóónda | 'without a donkey' |
| vójír-ébéde | 'without a ring' |
| vójír-épóósta | 'without a post office' |
| yááró!r-íchó | 'he saw the toilet' |
| manyí!í máróv-íchó | 'I showed Marova the toilet' |
| yaavógɔr-ebé!dé mbá | 'he didn't take a ring' |
| vaagórizɪrw-ɪpóónda | 'they were sold a donkey' |
| varágór-íbárási | 'they will buy a horse' |
| varádóó!r-íbáaga | 'they will pick up a bag' |

## 10.8. Ambiguous stems

Stems beginning with *s* or a nasal are potentially ambiguous as to underlying form, since /Ns, Nn, Nɲ, Nm, Nng'/ [become s, n, ɲ, m, ng'], and there is no independent way to determine if a noun in question has the prefix N or the alternative Ø: *emére* 'mashed cooked bananas' could be /e-N-mere/ or /e-mere/, and *emééri* could be /e-N-mééri/ or /e-mééri/. Most ambiguous stems in cl. 9 exhibit the vowel-lengthening effect associated with augment+NC, which I take to diagnose the presence of the nasal class prefix.

[81] There are also substantial tonal differences associated with this construction.

| | |
|---|---|
| aríít-eesereº | ‘he will kill the weevil’ |
| gʊr-ɪɪmu | ‘buy seed!’ |
| h-aanyʊʊndo | ‘at a hammer’ |
| kariv-ɪɪng’wɪɪna | ‘even a crocodile’ |
| kí!r-íísʊ́ʊ́ka | ‘each sheet’ |
| kír-ɪɪng’ɪɪnga | ‘each moment’ |
| kɪr-ɪɪsʊna | ‘every mosquito’ |
| k-ooŋeengero | ‘on a beer pot’ |
| mavágʊ́ríz-íɪsu | ‘they will sell a chicken’ |
| mavátáág-í!íŋááŋa | ‘they will plant a tomato’ |
| mween-íí!ŋáámbʊ́ | ‘owner of chameleon’ |
| mween-ɪɪsúzɪ | ‘owner of fish’ |
| na viit-íínaambárʊ | ‘they will kill an ant’ |
| ndáágʊ́!r-íísʊ́ʊ́ka | ‘I bought a sheet’ |
| n-eemoondo | ‘it’s a gizzard’ |
| n-eeng’ombe | ‘it’s a cow’ |
| n-íɪŋama | ‘with meat’ |
| n-íɪsa | ‘with a watch’ |
| s-ɪɪŋʊ | ‘like an anus’ |
| varárór-íísʊ́ri | ‘they will see a bedbug’ |
| várávír-éémére | ‘they will boil emere’ |
| varíí!t-íí!swá | ‘they will kill a termite’ |
| vʊ́ʊ́mbak-ɪɪnyʊ́ʊ́mba | ‘they built a house’ |
| yaakʊ́tʊ́!mírw-íínyííngʊ | ‘he has been sent a cooking pot’ |
| yaamórom-ɪɪnáámba | ‘he spoke a number’ |
| yaaríínd-ɪɪng’ɪɪnga | ‘he waited a moment’ |

Some nouns have short vowels, most of which are identifiable recent Swahili loan words (*ɪsugudi* is borrowed from Isukha).

| | |
|---|---|
| gʊr-ɪsíímu | ‘buy a telephone!’ |
| ha-sa | ‘at a clock’ |
| ha-súmú | ‘at poison’ |
| kír-ɪshíída | ‘each problem’ |
| mween-eméésa | ‘owner of the table’ |
| mween-ɪsííndʊ | ‘owner of the quail’ |
| mween-ɪsóó!góoni | ‘owner of the market’ |
| ní!máári | ‘with wealth’ |
| n-ɪsí!ríínjí | ‘it’s a shilling’ |
| váá!kágʊ́r-íswééta | ‘they bought a sweater’ |
| vʊ́jír-ísáá!vʊ́ʊni | ‘without soap’ |
| vʊjɪr-ɪsugudi | ‘without a sugudi’ |
| yíít-ɪsíímba | ‘he killed a lion rem’ |
| yɪyí nɪná!fáási | ‘this is an opportunity’ |

## 11. Augment Deletion

The augment morpheme is present in many contexts, and lacking in many others. There are two main factors governing whether there is an augment. The first is morphosyntactic context. The details of the morphosyntactic distribution of the augment are presented in more detail in X, but an example already considered is that the augment may be lacking when a noun is modified by *kí*, cf. *ndeve kí* 'what chair?'. The main generalization is that the augment is generally present on nouns and adjectives, and may be added to certain other word classes (in which case, it may matter whether the host word is NP-initial). Even when underlyingly present, the augment may be phonologically deleted. It is always missing in the *iná-* 'X-wards' construction. Cl. 1a nouns do not have the augment. It is unclear whether adjectives and nouns follow the same distribution patterns w.r.t. the augment, and it is possible that the augment on adjectives follows somewhat different rules. Lacking clear evidence for distinct rules for nouns and adjectives, I assume that the distribution of the augment is uniform on adjectives and nouns: when the augment is lacking, it is deleted phonologically, unless it falls within one of a few morphosyntactic omission contexts (presence of kí; cl. 1a; proper names). The concern of this section is the fact that the augment is phonologically deleted, and this section describes the conditions for deletion. In 11.2 I evaluate the possibility that some speakers have a more restricted underlying distribution of the augment.

### 11.1. Phonological deletion

The first relevant factor governing deletion is the individual speaker: some speakers tend to delete the augment, and some tend to retain it. For example, the word 'old woman' is attested in the data (in citation forms) as *mkeere* and ***ʊ***mkeere; 'trees' appears as *mísáára* and ***ɪ***mísáára. Speakers RL, RK, EM, RO, PM most often have the augment; speakers BK, ML, SY, EK, FA tend not to attest the augment. The phonological context of the noun matters: the augment is very strongly preferred in cl. 9, in certain kinds of cl. 5 and cl. 11 nouns. The likelihood of having an augment is also related to the length of the noun root. Deletion affects a word-initial augment, which effectively refers to any augment except one that is preceded by a CV proclitic (such as *na* 'with', *sa* 'like', *nɪ* 'it's').

Various subsets of the data have been sampled to determine speaker and phonological context tendencies. Since I have not conducted a systematic, controlled study across speakers with randomized elicitation, I make no claims about statistical significance, and simply report general tendencies with a very coarse granularity. For EM, I extracted around 1,000 noun tokens in cl. 7-8, finding the augment present (***e-****kereenge* 'leg') in around 40% of tokens, and lacking (*ke-reenge*) in about 60% of tokens. In a broader sample of about 7,000 nouns in all classes outside of cl. 9, I find the augment present in about 60% of tokens and lacking in about 40%. The reason for this apparent difference between cl. 7-8 vs. nouns in general is that in cl. 7-8 (also 14, 12, 13), independent phonological factors thwart the tendency to delete the augment, for example, reduction of /mʊ/ to *m̀* and reduction of /rVr/ to *ll* works against augment deletion. When /rVr/ reduces, augment-deletion is categorially blocked, at least for speaker EM. nouns in cl. 7-8 constitute a high-frequency minimal-complication context for assessing relative

liklihood of augment reduction. Looking forward to the broader conclusion across speakers, I conclude EM attests augment-deletion about half the time.

Speaker BK, on the other hand, very frequently deletes the augment: in cl. 7-8, I find only 4% of about 1,000 cl. 7-8 nouns with the augment, and 96% without. In a larger sample of about 7,500 non-9 nouns, 5% of tokens attest the augment. The frequency of augmentation in nouns outside of cl. 9 for various speakers is summarized below.[82]

| | Aug | N |
|---|---|---|
| BK | 4% | 7,500 |
| EK | 0% | 2,000 |
| EM | 60% | 7,000 |
| FA | 8% | 2,500 |
| ML | 5% | 2,000 |
| RK | 97% | 3,000 |
| RL | 50% | 2,000 |
| SY | 0% | 2000 |

These patterns can be subsumed under three variations in augment-deletion. Speakers BK, FA, SY, EK and ML have a virtually obligatory rule. There are various reasons why ML, FA and BK would have produced some tokens with the augment, and the frequency of augmented tokens is low enough that a few examples can reasonably be disregarded.[83] For EM and RL, deletion occurs about half the time, thus the rule is optional; and for RK, the rule almost never applies.

An obvious alternative to phonological deletion is to say that affixation of the augment is itself optional (obligatory, blocked). As we explore the phonological conditions on augment deletion we will see why that is unlikely. A cogent reason to reject the morpheme-optionality approach, discussed below, is that even speakers with near-zero attestation of the augment systematically have the augment when the noun is preceded by a monosyllabic proclitic.[84]

The augment-retention pattern of cl. 9 nouns is rather different from that of nouns in other classes: all speakers strongly prefer the augment in such nouns, and most speakers absolutely require it (FA and ML, speakers who prefer augment deletion, explicitly reject tokens with augment deletion in cl. 9, as does EM).

| | | |
|---|---|---|
| BK | 85% | 1500 |
| EK | 100% | 400 |

[82] Because of the comparative paucity of data from NM, I refrain from providing numeric data for that speaker. In the case of data from PM, elicitation circumstances are insufficiently controlled to justify making any claim for this speaker.

[83] For example, there may be normative pressure to retain the augment; the circumstances of elicitation can also encourage production of the augment; within this residue of augmented forms, there is a high frequency of reduction cases such as *á-ḿ-bére* 'sorghum', *ɪ-d-dáˈfááˈrí rɪ́ˈíryé* 'his brick' where augment retention is favored by the phonological context.

[84] However, ML's pattern of augmentation suggests that his system is different, since the augment is missing even after a proclitic, see below.

| | | |
|---|---|---|
| EM | 100% | 400 |
| FA | 100% | 600 |
| ML | 100% | 550 |
| RL | 100% | 400 |
| SY | 97% | 400 |

A relevant phonological fact distinguishing cl. 9 from other classes is that the prefix for other classes has the form CV, and cl. 9 is just C. For most speakers, one condition on augment deletion is that deletion only happens before an underlyingly CV prefix. In the case of BK, we may surmise that the conditions on deletion are relaxed so that it is allowed although disprefered when the noun class marker is just C.

Two other phonological factors favor retention of the augment. One is that the augment tends to be retained when the following noun root is monosyllabic. This pattern is attested for EM, where the augment is retained 90% of the time in about 100 tokens of non-9 monosyllabic roots (e.g. *ʊmʊko* 'brother in law', *ʊrósó* 'scent'). Second, when the noun class prefix undergoes vowel-deletion (mʊ → m; rVr → ll), out of about 300 tokens, the augment is retained around 85% of the time.

| | |
|---|---|
| /ʊ-rʊ-rɪmi/ → ʊ-l-lɪmi | 'tongue' |
| /ɪ-ri-reesi/ → ɪ-l-leesi | 'cloud' |
| /ʊ-rʊ-doto/ → ʊ-d-doto | 'childishness' |
| /ɪ-ri-tígɪɲʊ/ → ɪ-t-tígɪɲʊ | 'heel' |
| /ʊ-mʊ-vú!gúsú/ → ʊ-m̀-bú!gúsú | 'Bukusu' |
| /ɪ-mi-páángo/ → ɪ-m̀-páángo | 'plans' |
| /ʊ-mʊ-vaango/ → ʊ-m̀-baango | 'ugali stick' |

Prefix-reduction and root-size limits account for more than 50% of the tokens from FA where the augment is retained.

There is one context where the augment is required, namely when preceded by a CV proclitic – /na/ 'with', /sa, sya, sha/ 'like', AGR-a 'of' or nɪ- 'it's'.

| | | |
|---|---|---|
| n-ú-m!-sáára | 'with a tree' | *na Ø-m-sáára |
| n-í-rɪ-jʊʊngʊ | 'with a rat' | *na Ø-rɪ-jʊʊngʊ |
| n-á-ma-jʊʊngʊ | 'with rats' | *na Ø-ma-jʊʊngʊ |

## 11.2. ML distribution

Data from ML, who generally does not manifest the augment, indicates a change in the pattern for proclitic+N structures. The data also suggest competing analyses for the underlying vowel of the proclitic.

In the case of *na-* 'with', the proclitic has the shape /na-/ before cl. 1a nouns, including proper names.

| | |
|---|---|
| ná ísɪ | 'with father' |
| ná! gúúgá | 'with grandfather' |
| ná !kóózá | 'with uncle ' |

| | |
|---|---|
| ná ˈnnyá | ‘with mother’ |
| ná ˈródéeji | ‘with Rodeji’ |
| náˈándíísi | ‘with Andisi’ |
| na éditon | ‘with Editon’ |

The prefix is also [na] before a noun class prefix.

| | |
|---|---|
| ná magɪna | ‘with stones’ |
| náˈ mágómyá | ‘with bananas’ |
| náˈ márwá | ‘with alcohol’ |
| ná vageni | ‘with guests’ |
| náˈ víiˈgízí | ‘with teachers’ |
| náˈ mídógá | ‘with cars’ |
| náˈ mító | ‘with mito’ |
| náˈ lísʊˈgʊ́ma | ‘with kale’ |
| ná ríˈmóóɲó | ‘with ant’ |
| náˈ ríháˈráámbé | ‘with wasp’ |
| náˈ rípéera | ‘with guavas’ |
| ná ˈchááˈmégéré | ‘with mushroom’ |
| ná kíˈfóóyó | ‘with rabbit’ |
| ná kɪsʊ́ʊ́ngʊra | ‘with rabbit’ |
| náˈ víbága | ‘with cats’ |
| náˈ zíˈngwí | ‘with firewood’ |
| náˈ zííngú | ‘with firewood’ |
| ná zíˈngókó | ‘with chickens’ |
| náˈ zíinji | ‘with flies’ |
| náˈ mʊ́ˈnáándí | ‘with a Nandi’ |
| náˈ mʊ́rámwá | ‘with inlaw’ |
| ná mʊʊndʊ | ‘with person’ |
| náˈ mʊ́yéke | ‘with sand’ |
| ná m̀ˈdógá | ‘with car’ |
| ná m̀bano | ‘with knives’ |
| ná mʊgadi | ‘with bread’ |
| náˈ rʊ́dérʊ | ‘with a grain tray’ |
| ná ˈrwíɪga | ‘with a horn’ |
| ná ĺˈlóóngo | ‘with white clay’ |
| ná rʊguuchi | ‘with dust’ |
| ná vosera | ‘with porridge’ |
| náˈ vʊ́chíma | ‘with ugali’ |
| ná gʊ́ˈfwáávi | ‘with dirtiness’ |

But in case the noun is class 9, the clitic has the form [nɪɪ~nee].[85]

[85] In this case, there are a few unpredicted tokens of the form [nɪ], but it is likely that these are actually copular forms, *ní kéˈróóká* glossed ‘with TP plant’ but possibly ‘it’s TP plant’

| | |
|---|---|
| n-é!émére | ‘with mashed bananas’ |
| n-é!éndéve | ‘with chair’ |
| n-é!éngókó | ‘with a chicken’ |
| n-éeng’oombe | ‘with a cow’ |
| n-í!íjʊ́ʊmbɪ | ‘with salt’ |
| n-í!ímbʊ́ri | ‘with goat’ |
| n-í!ímbwá | ‘with dog’ |
| n-í!íná á!máárá | ‘with a tick’ |
| n-í!íná á!mbárú | ‘with ant’ |
| n-í!índʊ́gʊ́nyi | ‘with ant’ |
| n-í!íngʊ́ʊ́ngɪ | ‘with a basket’ |
| n-íɪmbiti | ‘with a hyena’ |
| n-íɪmbʊkʊ | ‘with a mole’ |
| n-íɪng’eende | ‘with a jigger’ |
| n-íɪngavɪ | ‘with luck’ |
| n-íɪngʊgɪ | ‘with baboon’ |
| n-é!éméeri | ‘with a boat’ |
| n-í!ímáári | ‘with wealth’ |
| n-í!ímíishoni | ‘with a mission’ |
| n-íí!báhátị | ‘with luck’ |

In these instances, the augment is clearly present; note too that the combination of proclitic plus augment results in a long vowel, even when no nasal prefix is present as in the last four examples. This indicates a difference between speakers EM and ML regarding lengthening in the outcome of proclitic plus noun. The point of relevance to the analysis of augment deletion here is that unlike the pattern previously noted, the augment does not show up when /na-/ appears before the noun. The exception is that it does show up in cl. 9: either the augment has been reanalyzed as being part of the cl. 9 prefix itself, or it is mandatory in cl. 9.

The associative clitic also has the final vowel /a/, appearing as such before proper names and class 1a nouns.

| | |
|---|---|
| ɪnyʊ́ʊ́!mbá yá !kísááto | ‘house of Kisato’ |
| ɪnyʊ́ʊ́!mbá yá éditon | ‘house of Editon’ |
| ɪnyʊ́ʊ́!mbá yá ródéeji | ‘house of Rodeji’ |
| mkóno gwá !gʊ́ʊ́kʊ | ‘hand of grandmother’ |
| mʊsígʊ wá marova | ‘enemy of Marova’ |
| mʊ́ʊ́ndʊ wá !árʊ́ʊ́rʊ | ‘person of Alulu’ |

The clitic likewise has the vowel [a] before noun class prefixes other than cl. 9.

| | |
|---|---|
| mí!sííbí já !mwáana | ‘belts of child’ |
| zimóni zyá kɪbága | ‘eyes of cat’ |
| am̀báha ga riŋonyi | ‘feathers of a bird’ |
| m̀báha ga riŋonyi | ‘feathers of a bird’ |

| | |
|---|---|
| mkóno gwá m̀ˈsyáárá | ‘hand of a cousin’ |
| mkóno gwá ˈmwáana | ‘hand of child’ |
| mkóno gwá m̀géni | ‘hand of guest’ |
| mkóno gwáˈ kíkóóndo | ‘hand of monkey’ |
| mikóno já mʊgeni | ‘hands of a guest’ |
| mikóno já ˈmʊ́ndʊ́ mʊ́kári | ‘hands of a woman’ |
| mkónó já mʊrɪmi | ‘hands of farmer’ |
| mitwí ˈjá ˈzíngókó | ‘heads of chickens’ |
| ɪnyʊ́ʊ́mba yáˈmʊ́ʊ́ndooyo | ‘house of that person’ |
| mʊkégódo chá ˈkéfóóyó | ‘in the skin of the rabbit’ |
| mkíˈrá gwá kíˈfóóyó | ‘tail of rabbit’ |

Again, before a class 9 noun, the associative has the form AGR-*ee*~AGR-*ɪɪ*, independent of whether there is a nasal prefix.

| | |
|---|---|
| ritwí ˈly-éembéva | ‘ear of a mouse’ |
| arʊ́fʊ y-íɪŋama | ‘smell of meat’ |
| mkíˈrá gw-íˈímbwá | ‘tail of dog’ |
| ɪgúru w-éebéénzeni | ‘top of a basin’ |
| mtwí ˈgw-íˈíbárási̩ | ‘head of a horse’ |

The clitic *sha-* ‘like’ is similar but may have two competing underlying forms. Before a cl. 1a noun, the clitic may be *sha-*.

| | |
|---|---|
| sha éditon | ‘like Editon’ |
| shá ˈbáábá | ‘like father’ |
| shá ˈséénge | ‘like aunt’ |
| shá ˈkóózá | ‘like uncle’ |
| shá marova | ‘like Marova’ |
| shá ˈmídééva | ‘like Mideva’ |

It also appeared as *she-* in a few examples from a single session

| | |
|---|---|
| shé ˈéditon | ‘like Editon’ |
| shé ˈkóózá | ‘like uncle’ |

Before a noun class outside of cl. 9, the clitic also has the form *sha*.

| | |
|---|---|
| shá mwííˈgízí | ‘like a teacher’ |
| shá mʊrɪmi | ‘like a farmer’ |
| shá m̀bano | ‘like a knife’ |
| shá migoye | ‘like ropes’ |
| shá ˈzímbʊ́nyá | ‘like ropes’ |
| shá ˈddíiji | ‘like a wall’ |
| shá ˈkégó | ‘like animal enclosure’ |
| shá vosera | ‘like porridge’ |

| | |
|---|---|
| shá cheeyo | ‘like a broom’ |
| shá ꜜmwóógo | ‘like cassava’ |
| shá mʊllʊ | ‘like a fire’ |
| shá vosera | ‘like porridge’ |
| shá mʊʊndʊ | ‘like a person’ |
| shá ꜜmávʊ́ta | ‘like petrol’ |
| shá meeyo | ‘like a broom’ |
| shá ꜜmátímʊ | ‘like spears’ |

In the last 3 examples, because the augment would be [a], one expects [sha] no matter what. There are also examples, from one session, of *she-* before a noun class prefix.

| | |
|---|---|
| shé ꜜkékóóndo | ‘like a monkey’ |
| shé ꜜkírááto | ‘like a shoe’ |
| shé ꜜríívé | ‘like a hawk’ |
| shé ꜜrʊ́jʊ́ | ‘like a saucer’ |
| shé ꜜvíkóómbe | ‘like cups’ |
| shé mʊllʊ | ‘like a fire’ |
| shé vosera | ‘like porridge’ |

This variation between she and sha suggests ongoing reanalysis of this prefix.[86]

When the clitic attaches to a cl. 9 noun, it has the form *shee~shɪɪ* (depending on vowel harmony) and, notably, has a long vowel.

| | |
|---|---|
| sh-éꜜémbódóka | ‘like jealousy’ |
| sh-éꜜéngókó | ‘like a chicken’ |
| sh-éeng’oombe | ‘like a cow’ |
| sh-íꜜímbwá | ‘like a dog’ |
| sh-íɪmbiti | ‘like hyena’ |
| sh-íɪngʊgɪ | ‘like baboon’ |
| sh-íínyʊʊndʊ | ‘like a hammer’ |
| sh-éégeengere | ‘like a bell’ |
| sh-íiꜜbáákúuri | ‘like a bowl’ |

The copula appears as nɪ nearly always, and is assumed to be /nɪ/ as it is across speakers.

| | |
|---|---|
| nɪ aríviza | ‘it’s Ariviza’ |
| nɪ éditon | ‘it’s Editon’ |
| nɪ guugá | ‘it’s grandfather’ |
| nɪ kasáandi | ‘it’s Kasandi’ |
| nɪ marova | ‘it’s Marova’ |
| nɪ midééva | ‘it’s Mideva’ |
| ní óꜜfísá | ‘it’s an officer’ |

[86] Such reanalysis may also exist for other proclitics: further work on this topic with speakers exhibit this pattern of proclitic vowels is required.

| | |
|---|---|
| nɪ séénge | ‘it’s aunt’ |
| nɪ kedéte | ‘it’s a finger’ |
| ní kínɔ́ | ‘it’s a mortar’ |
| nɪ kísáára | ‘it’s a stick’ |
| ní kítwí | ‘it’s an ear’ |
| nɪ ḿ!dógá | ‘it’s a car’ |
| ní márwá | ‘it’s alcohol’ |
| nɪ meeyo | ‘it’s a broom’ |
| nɪ mgeni | ‘it’s guest’ |
| nɪ mgoye | ‘it’s rope’ |
| nɪ misáára | ‘it’s a car’ |
| ní mító | ‘it’s mito’ |
| nɪ mɔllɔ | ‘it’s a fire’ |
| nɪ mɔroji | ‘it’s a witch’ |
| nɪ mɔɔndɔ | ‘it’s a person’ |
| nɪ mwáana | ‘it’s a child’ |
| nɪ mwóógo | ‘it’s a cassava’ |
| nɪ ríinɔ | ‘it’s a tooth’ |
| nɪ rɔjɔ | ‘it’s a saucer’ |
| nɪ rwíŋga | ‘it’s a horn’ |
| ní váana | ‘it’s children’ |
| nɪ varoji | ‘it’s witches’ |
| nɪ vidéte | ‘it’s fingers’ |
| nɪ vosera | ‘it’s porridge’ |
| nɪ vɔchíma | ‘it’s ugali’ |
| nɪ vwíɪnɔ | ‘it’s ink’ |
| ní vwɔ́ɔma | ‘it’s a fork’ |
| nɪ zing’oombe | ‘it’s cows’ |

Before a cl. 9 noun, the copula has a long vowel, because the cl. 9 augment is present.

| | |
|---|---|
| n-ɪí!ngókó | ‘it’s a chicken’ |
| n-eeng’oombe | ‘it’s a cow’ |
| n-ɪɪmbwá | ‘it’s a dog’ |
| n-ɪɪng’é!réng’ání | ‘it’s a star’ |
| n-ɪɪnáá!mbárú | ‘it’s an ant’ |
| n-ɪɪngɔgɪ | ‘it’s baboon’ |
| n-ɪɪmbiti | ‘it’s hyena’ |
| n-ɪíiméésa | ‘it’s a table’ |
| n-ɪɪswéé!tá dáave | ‘it’s not a sweater’ |
| n-ɪɪsóó!góoni | ‘it’s a market’ |
| n-ɪɪbéde | ‘it’s a ring’ |
| n-ɪɪkáháwa | ‘it’s coffee’ |

The exact nature of the reanalysis observed here cannot be determined at present. One analysis is that the domain of augment deletion has expanded, or that the analysis of the

nominal proclitics has changed, so that the proclitic does not deprive the augment of word-initial status. Another possibility is that augmentation itself is blocked (except in cl. 9 where it is part of the class prefix), only applying (optionally) to citation nouns. Available data are insufficient to resolving this question.

## 12. Other phonological processes

There are a handful of minor phonological processes which have not yet been covered, and which are presented here.

### 12.1. Cl. 5 lengthening

The cl. 5 prefix /ri/ lengthens before a monosyllabic lexical noun root. This lengthening is very widely attested, but there are enough examples of non-lengthening that the rule may be optional though it is usually applied, with non-application being attested often enough in *ɪrige* and *ɪrichi* that these forms cannot be considered errors.[87] Lengthening takes place regardless of whether the augment deletes.

| | | |
|---|---|---|
| ɪríí-chí | ríí-chí | 'heel' |
| ɪríí-fá | ríí-fá | 'thorn' |
| ɪrii-ge | rii-ge | 'termite' |
| ɪrii-gʊ | rii-gʊ | 'carpenter beetle' |
| ɪríí-ká | ríí-ká | 'charcoal piece' |
| ɪríí-kó | ríí-kó | 'body dirt' |
| ɪrii-re | rii-re | 'cloud' |
| ɪrii-sa | rii-sa | 'caterpillar' |
| ɪríí-sé | ríí-sé | 'grass type' |
| ɪríí-sú | ríí-sú | 'hair' |
| ɪrii-tʊ | rii-tʊ | 'leaf' |
| ɪríí-vá | ríí-vá | 'habit' |
| ɪrii-ve | rii-ve | 'kite' |

These roots can be distinguished from iCV-initial roots, such as *ɪríɪnʊ* 'tooth', pl. *amíɪnʊ*, by the fact that in a different class, the vowel before the final syllable is appropriate to that noun class, for example *amatʊ* 'leaves', *amáká* 'charcoal', *amave* 'kites'.

This lengthening is limited to monosyllabic lexical noun roots: the same prefix on monosyllabic adjectives does not lengthen.

| | | | | |
|---|---|---|---|---|
| ɪ́ríké | ríké | *ɪrííké | *rííké | 'small$_{-5}$' |
| ɪ́rídí | rídí | *ɪríídí | *ríídí | 'small$_{-5}$' |
| ɪ́ríví | ríví | *ɪríívi | *ríívi | 'bad$_{-5}$' |

[87] Non-lengthening has been explicitly rejected – EM **riive* 'hawk' – but the question of the unacceptability of such forms has not generally been pursued.

The rule also does not apply to the cl. 5 nominalization prefix attached to a monosyllabic verb root.

| | | |
|---|---|---|
| ɪrizya | ‘act of going’ | |
| ɪrigwa | ‘act of falling’ | |
| ɪrínwá | ‘act of drinking’ | *ɪríínwá |

### 12.2. Cl. 5 consonant deletion

The consonant /r/ of the cl. 5 prefix optionally deletes when precede by a locative prefix: glide formation and vowel deletion apply to the resulgint vowel sequence.

| | | |
|---|---|---|
| harigáánda | hiigáánda | ‘by a bean’ |
| hárígódo | híígódo | ‘at a skin’ |
| kʊrígúru | kwíígúˈrú | ‘on the top’ |
| kʊrijʊʊngʊ | kwiijʊʊngʊ | ‘on a rat’ |
| kʊrinyonyi | kwiinyonyi | ‘on a bird’ |
| mʊribóóksi | mwiibóóksi | ‘in a box’ |
| mʊrídáraam | mwíídáraam | ‘in a water tank’ |
| mʊrigoke | mwiigoke | ‘in ash’ |
| mʊ́rítímu | mwiitímu | ‘in a spear’ |

This rule can apply to initial /ri-r…/ nouns, where ordinarily /rVr/ → [ll]. Thus, /m-rí-ˈréési/ → mʊ-í-ˈréési → [mwíiˈréési].

| | | |
|---|---|---|
| ḿˈlléési | mwíiˈréési | ‘in a cloud’ |
| ḿˈllóótó | mwíiˈróótó | ‘in a dream’ |

### 12.3. Come

The verb ‘come’ has the special property that the preceding vowel is lengthened.

| | | |
|---|---|---|
| -ga- cl. 6 OP | n-aa**gáá**zɪrɪ | ‘he will come for it$_{-6}$’ |
| -kʊ- 2s OP | va**kóó**zɪri | ‘they came for you’ |
| -mʊ- 2p OP | a**móó**zɪri | ‘he came for 2p’ |
| -va- cl. 2 OP | a**váá**zɪri | ‘he came for them’ |
| -gɪ- cl. 9 OP | yaa**gíí**zɪra | ‘they came for it$_{-9}$’ |
| | | |
| ka- immediate imperative | **kaa**zí | ‘now come pl’ |
| -ka- near past | yáá**kaa**za | ‘he has come’ |
| -ri-ka- indefinite future | vari**kaa**ze | ‘they will come indef’ |
| -kɪ- perstitive | a**kɪɪ**záa | ‘he is still coming’ |
| -kʊ- past | yaa**kʊʊ**za | ‘he has come’ |
| kʊ- infinitive | **kʊʊ**za | ‘to come’ |
| -ra- future | a**raa**za | ‘he will come’ |
| -ri- indefinite future | va**rii**zá | ‘they will come indef’ |

| | | |
|---|---|---|
| ta- negative | **taa**zá ǃdáave | ‘don’t come’ |
| ta- negative | ʊ**táa**zaa | ‘the one who won’t come’ |
| ta- negative | ʊ**tá**ǃ**á**zí | ‘the one who hasn’t come’ |
| | | |
| kʊ- 1p SP | **kʊʊ**zí | ‘we came’ |
| kʊ- 1p SP | na **kʊʊ**zí | ‘we will come’ |
| kʊ- 1p SP | **kʊʊ**záa | ‘we are coming’ |
| ʊ- 2s SP | rwá **ʊʊ**zaaº | ‘when you will come’ |
| ʊ- 2s SP | **ʊʊ**zí | ‘you came’ |
| ʊ- cl. 1 relative SP | **ʊʊ**zaa | ‘the one who will come’ |
| va- cl. 2 SP | rwá **vaa**zaaº | ‘when they will come’ |
| va- cl. 2 SP | **vaa**záa | ‘they are coming’ |
| va- cl. 2 SP | **vaa**zí | ‘they came’ |
| gʊ- cl. 3 SP | **gʊʊ**zí | ‘it$_{-3}$ came’ |
| ji- cl. 4 SP | **jii**zí | ‘it$_{-4}$ came’ |
| ri- cl. 5 SP | **rii**zí | ‘it$_{-5}$ came’ |
| ga- cl. 6 SP | **gaa**zí | ‘it$_{-6}$ came’ |
| kɪ- cl. 7 SP | **kɪɪ**zí | ‘it$_{-7}$ came’ |
| vi- cl. 8 SP | **vii**zí | ‘it$_{-8}$ came’ |
| zi- cl. 10 SP | **zii**zí | ‘it$_{-10}$ came’ |
| rʊ- cl. 11 SP | **rʊʊ**zí | ‘it$_{-11}$ came’ |
| ka- cl. 12 SP | **kaa**zí | ‘it$_{-12}$ came’ |
| tʊ- cl. 13 SP | **tʊʊ**zí | ‘it$_{-13}$ came’ |
| vʊ- cl. 14 SP | **vʊʊ**zí | ‘it$_{-14}$ came’ |
| gʊ- cl. 20 SP | **gʊʊ**zí | ‘it$_{-20}$ came’ |
| | | |
| mʊ- cl. 1 noun prefix | ʊ**mʊʊ**zi | ‘one who comes’ |
| va- cl. 2 noun prefix | a**vaa**zi | ‘ones who come’ |
| ri- cl. 5 noun prefix | ɪ**rii**za | act of coming |

The cl. 1 SP /a/ receives epenthetic *y*, as it does when it immediately precedes any vowel-initial root or prefix: *a* is lengthened.

| | | |
|---|---|---|
| **yaa**zí | ‘he came’ (hodiernal perfective) | *aazí |
| **yaa**záa | ‘he is coming’ | |
| nɪ **yaa**zí | ‘he will come’ | |

In the hodiernal completive perfective, the SP is assigned a H tone, which is the regular form of this form before a vowel-initial root – cf. the C-initial L verb *oo-raanji* ‘you have called’ vs. the V-initial L verb *wéeyi* ‘you have swept’.

| | |
|---|---|
| **yáa**zi | ‘he has come’ |
| **óʊ**zi | ‘you have come’ |
| **váa**zi | ‘they have come’ |

The tense prefix -*a*- is also long before this root, though it would be long because of the subject prefix which guarantees that -*a*- is long. Epenthetic *i* is optionally inserted in the remote past, and obligatorily so in the hesternal perfective. This is no doubt related to the obligatory insertion of *y* after the prefix -a- in the hesternal perfective and optional insertion elsewhere, as discussed in 4.2.3.

| | | |
|---|---|---|
| wááza | 'you came' | |
| vááza | 'they came' | |
| wáá**í**za | 'you came' | |
| ndááza | 'I came' | |
| ndáá**í**za | 'I came' | |
| ʊtaa**í**za | 'the one who didn't come' | |
| ʊtááza | 'the one who didn't come' | |
| yaa**i**zí | 'he came hest' | *yaazí |
| ndaa**i**zí | 'I came hest' | *ndaazí |
| kwaa**i**zí | 'we came hest' | *kwaazí |

When the root is preceded by the 1s SP or OP, *i* is inserted (and that vowel is not lengthened).

| | |
|---|---|
| nz**í**zí | 'I came' |
| nz**í**záa | 'I am coming' |
| máá nz**í**zí | 'I will come' |
| nz**í**zi | 'I have come'[88] |
| naa nz**í**zí | 'I will come' |
| rwáá nz**i**za | 'when I will come' |
| aanz**í**zɪrɪɪ | 'he came for me' |
| n-aanz**í**zɪrɪ | 'he will come for me' |

The vowel *i* is also inserted in the imperative, when there is no prefix before the root.

| | |
|---|---|
| y**i**za | 'come!' |
| y**i**zi | 'come$_{-pl}$!' |

The cl. 9 verbal subject prefix has one challenging complicartion, which is that the prefix /ɪ/ does not just lengthen, and epenthetic *y* also appears.

| | |
|---|---|
| **yɪɪ**zí | 'it$_9$ came' |
| **yɪɪ**záa | 'it$_9$ is coming' |
| **yɪɪ**zí | 'it$_9$ came' |
| **yɪ́ɪ**zi | 'it$_9$ has come' |

[88] Appearance of H in this context is due to the allomorphic rule assigning H to the SP if a vowel-ionitial verb immediately follows: this H tone diagnoses the root 'come' as phonologically vwoel-initial.

Compare these forms to completive perfective *ɪgwɪɪ* 'it$_{-9}$ has fallen', with just lengthening. These data suggest a refinement to the rule inserting *y* in connection with the cl. 1 SP /a/. We have observed that when the SP /a/ appears before a vowel, *y* is inserted, and deletes by general phonological rule. The account that we have previously given of /ɪ-ényí/ → [yeenyí] 'it$_{-9}$ wanted' is that /ɪ/ becomes a glide before another vowel. However, a more general form of the rule /a/ → [y] / __V will likewise accomplish this same change. These data from the verb 'come' show the necessity of such a generalization, that is, appearance of *y* in connection with the cl. 9 SP is not always a consequence of Glide Formation. That rule does not apply to a high vowel before 'come', yet /ɪ/ becomes [yɪ]. Noting that *y* is not inserted before the 2s SP /ʊ/ (óʊzi 'you have come'), y-insertion must be framed in terms of the fact that the following vowel is non-rounded.

Overall, the verb 'come' behaves as though it is abstractly a vowel-initial stem, but one whuch does not undergo glide formation and vowel deletion as normal vowel-initial stems do. In those cases where the abstract vowel is syllabically separated from the preceding vowel (e.g. intermediate *Vzi, n-Vzi, waa-yVza*), the vowel is realized as *i*.

## 12.4. Nandi-lengthening

One noun stem, *-náándí* 'Nandi', has the lexical peculiar property that the vowel of the class prefix preceding it lengthens. This includes any possible class agreement prefix, since this stem can be used adjectivally.

| | |
|---|---|
| móónaandí | 'Nandi' |
| váánaandí | 'Nandis' |
| góó!náándí | 'Nandi-aug' |
| ɪnyóó!mb-íí!náándí | 'Nandi house' |
| rí!bwóó!ní ríí!náándí | 'Nandi potato' |
| míváno míí!náándí | 'Nandi knives' |
| ámágína máá!náándí | 'Nandi stones' |

A similar lengthening is found in the cl. 1a relational terms *baabá, daadá* 'father', *mááma* 'mother', *séénge* 'aunt', *koozá* 'uncle', *guugá* 'grandfather', *góóko* 'grandmother', where a noun class prefix before these stems is lengthened.

| | |
|---|---|
| váá!máámá | 'mothers' |
| váábaaba | 'fathers' |
| váádaada | 'fathers' |
| váágʊʊgá | 'grandfathers' |
| váágʊʊkʊ | 'grandmothers' |
| váákoozá | 'uncles' |
| káá!gúúgá | 'grandfather$_{-dim}$' |
| káá!góókó | 'grandmother$_{-dim}$' |
| káágʊʊkʊ | 'grandmother$_{-dim}$' |
| kááseenge | 'aunt$_{-dim}$' |
| tóóbaaba | 'fathers$_{-dim}$' |

| | |
|---|---|
| tóógʊʊkʊ | ‘grandmothers$_{\text{-dim}}$’ |
| tóóseenge | ‘aunts$_{\text{-dim}}$’ |

## 12.5. Glide deletion

The post-consonantal glide *w* on occasion deletes before *ʊ* as does *y* before *ɪ*, more often for some speakers than others

| | | |
|---|---|---|
| óvó!swá | | ‘body hair’ |
| óvó!s-óvʊtáámbɪ | óvó!sw-óvʊtáámbɪ | ‘long body hair’ |
| rʊháá!ngááywá | | ‘cave’ |
| rʊháá!ngááy-órʊtáámbɪ | rʊháá!ngááyw-órʊtáámbɪ | ‘deep cave’ |
| rí!gómyá | | ‘banana’ |
| rí!góm-í!rítáámbɪ | rí!gómy-í!rítáámbɪ | ‘long banana’ |

As discussed in X, there is a related deletion of postconsonantal *y* in the perfectives of monosyllabic verbs before [ɪ] (*kʊzíɪ, kʊzyíɪ* ‘we went’)

## 12.6. na-dissimilation

The vowel of the future proclitic *na* optionally dissimilates to [ɪ] before [a] in a subject prefix containing the vowel *a*. The clitic is [na] when the following subject prefix has a vowel other than [a], or by no vowel.

| | | |
|---|---|---|
| na kɪbááng’wí | ‘it will be arranged’ | |
| na kodééké | ‘we will cook’ | |
| na keyóóywí | ‘it will be scooped’ | |
| na gʊgwɪº | ‘it-3 will fall’ | *nɪ gʊgwɪº |
| na rigúúndí | ‘it will rot’ | *nɪ rigúúndí |
| na mdeekeº | ‘2p will cook’ | *nɪ mdeekeº |
| naa mbégé | ‘I will shave’ | *nɪɪ mbégé |
| naa nómí | ‘I will bite’ | |

When the subject prefix vowel is *a*, the clitic vowel optionally (though usually) becomes [ɪ].

| | | |
|---|---|---|
| nɪ vazyí | ‘they will go’ | |
| nɪ vadééké | ‘they will cook’ | na vadééké |
| nɪ vakíní | ‘they will play’ | na vakíní |
| nɪ vagééndé | ‘they will walk’ | na vagééndé |
| nɪ gagúúndí | ‘they will rot’ | na gagúúndí |
| nɪ havíswí | ‘by-it$_{\text{-16}}$ will be hidden’ | na havíswí |
| nɪ kafʊʊngíkí | ‘it$_{\text{-12}}$ will close intr.’ | na kafʊʊngíkí |

Dissimilation does not apply when /a/ of the SP is deleted before a vowel-initial root.

| | |
|---|---|
| na viitwí | ‘they will be killed’ |
| na veeyérwí | ‘they will be swept for’ |
| na veeɲé | ‘they will want’ |
| na yɪɪmbí | ‘he will sing’ |
| na vʊʊngí | ‘they will join’ |
| na vaambʊ́kí | ‘they will cross’ |

This dissimilation affects just the future proclitic *na*, and not the conditional / subordinate proclitic *nɪ* which has no allomorph *na*.

| | |
|---|---|
| níí ɲɪmba | ‘if I sing’ |
| nɪ kóˈvééhá | ‘if we lie’ |
| nɪ vádeechi | ‘if they cooked’ |
| nɪ vátʊma | ‘if they send’ |
| aváána nɪ vádeeká | ‘if the children cook’ |

## 12.7. Ni-reduction

When precede by another word, the subordinate proclitic *nɪ* optionally reduces to [ɪ] when the following verb (subject prefix) begins with a consonant. This means that intervocalic *n* in this clitic may delete as long as the clitic has not merged syllabically with the following verb.

| | | |
|---|---|---|
| ma nɪ kóˈdééká | ‘then we cooked’ | m-eekóˈdééká |
| aváána nɪvágwa | ‘if the children fall’ | aváán-ɪɪvágwa |
| m-aváán-ɪɪvíɪrʊká | ‘then the children ran away’ | |
| mʊráv-íímdeechi | ‘2p will have cooked’ | |
| m-ííkwéˈéyá | ‘then we swept’ | |

This reduction does not generally apply before vowel-initial subject prefixes (2s, 3s), instead the clitic and SP syllables merge. However, reduction does occur when such a prefix precedes a vowel-initial root (the SP fuses with the root, blocking merger of the clitic and SP vowels).

| | |
|---|---|
| ma nóóvega | ‘then you shaved’ |
| m-ííyéˈéyá | ‘then he swept’ |
| m-ííwéˈéyá | ‘then you swept’ |

A point of interest regarding interaction between rules is that while the unreduced clitic *nɪ* does not harmonize with a following vowel (see 6.1.4), there is regressive harmony when the clitic reduces to *ɪ* and merges syllabically with the preceding verb or complementizer.

| | |
|---|---|
| kʊrav-eekódeechi | ‘if we had cooked’ |
| kwaar-éékódeechi | ‘we had cooked’ |
| m-éékóvega | ‘then we shaved’ |

## 12.8. iz- nasalization and reduction

The causative suffix /iz/ appears as [iɲ] (or [iny] depending on the following segment) when the previous consonant is a nasal. The causative suffix *-iz-* is seen taking that form in the following examples.

| | |
|---|---|
| kódéékiza | 'to make cook' |
| konogiza | 'to make pick fruit' |
| kɒɲááɲiza | 'to make eat' |
| kɒrɒɒngɪkiza | 'to straighten' |
| kɒsékiza | 'to make laugh' |
| ma varɒmizí marova | 'they will make Marova bite' |
| ndáḿ!ɲágóriza | 'I will make him run' |
| reka kɒyóóyóómanizɪ | 'let's make e.o. run slowly' |
| tiihiza | 'make s.o. fear' |
| varahóómorizana | 'they will make e.o massage' |
| arikaráángizɪ | 'he will make fry' |

When the preceding consonant is a nasal, *z* becomes *ɲ*. The rule is optional at least for transparently derived causative forms, but usually applies.

| | | | |
|---|---|---|---|
| kɒtóóngamiɲa | 'to invert' | | |
| kwíízɒɒmiɲa | 'to praise' | | |
| kogoongomiɲa | 'to roll s.t.' | kogoongoma | 'to roll (intr.)' |
| kohóómiɲa | 'to make moo' | kohóóma | 'to moo' |
| kosoomiɲa | 'to make read' | kosooma | 'to read' |
| kosoomiza | 'to make read' | | |
| kɒraaminya | 'to make curse' | kɒraama | 'to curse' |
| kwiinaminya | 'to turn upside down (tr.)' | kwiinama | 'to stoop down' |
| kwɒɒmiɲa | 'to dry' | kwɒɒma | 'to be dry' |
| kɒhamiɲa | 'to make talk' | | |
| kɒhamiza | 'to make talk' | | |

In case the preceding nasal is *n, ɲ*, the causative almost always[89] involves changing the final nasal to [ny].

| | |
|---|---|
| arákóoɲa | 'he will help' |
| arákóonya | 'he will make help' |
| kogeɲa | 'to wonder' |
| kogenya | 'to make wonder' |
| kɒfóɲa | 'to smell' |
| kɒfónya | 'to make smell' |
| komooɲa | 'to gossip' |
| komoonya | 'to make gossip' |

[89] A few tokens with […iɲ…] have been accepted, but generally they are rejected.

| | |
|---|---|
| ma vasonizí marova | ‘they will make Marova point the direction’ |
| ma vasonyí marova | ‘they will make Marova point the direction’ |
| ma vavinizí marova | ‘they will make Marova dance’ |
| ma vavinyí marova | ‘they will make Marova dance’ |
| kogoniza | ‘to make sleep’ |
| kogonya | ‘to make sleep’ |
| mavoonizí marova | ‘they will make Marova sin’ |
| mavoonyí marova | ‘they will make Marova sin’ |
| ma varwaanizí marova | ‘they will make Marova fight’ |
| ma varwaanyí marova | ‘they will make Marova fight’ |
| kohóna | ‘to get better’ |
| kohónya | ‘to heal’ |

Finally, in case the preceding (root-initial) syllable contains *ɲ* or *n*, that consonant harmonizes to [ny].

| | |
|---|---|
| kʊnóʊna | ‘to suck the breast’ |
| kʊnyóʊnya | ‘to give the breast’ |
| kʊŋáaŋa | ‘to eat’ |
| kʊ́nyáanya | ‘to make eat’ |

### 12.9. ŋ → ny

There is a surface contrast between *ny* and *ɲ*, but there are also rules that derive *ny* from /ŋ/, which are the focus of this section. There is only a small amount of evidence for an underlying distinction between /ny/ and /ŋ/.

EK does not appear to employ [ŋ], and in my data always realizes both nasals as [ny]. Save for 4 tokens, SY also does not employ [ŋ], so data from that speaker will not be used in analyzing the distribution of [ny] and [ŋ]. Data from RO are also not included because there are too few tokens and very few repetitions of lexemes. Speakers are otherwise generally consistent in the pattern of where [ŋ] versus [ny] appear in lexical items, though there are numerous sporadic instances where [ny] is employed when [ŋ] is expected, for example tokens of *kʊnyágʊra* ‘to run’, *kukóonya* ‘to help’, *kweenya* ‘to want’, *ɪnyama* ‘meat’ from RL and ML in addition to *kʊŋágʊra*, *kukóoŋa*, *kweeŋa*, *ɪŋama*. Setting aside speaker variation for the moment, the distinction between [ny] and [ŋ] is generally predictable, with [ny] appearing before high vocoids and [ŋ] appearing before non-high vocoids.

| | |
|---|---|
| kʊŋáaŋa | ‘to eat’ |
| kʊŋaga | ‘to snatch’ |
| kʊŋágʊra | ‘to run’ |
| kʊŋára | ‘to be able’ |
| koŋéga | ‘to insult’ |
| koŋoora | ‘to find’ |
| koŋóra | ‘to strip leaves from the central vein’ |
| kʊnyɪllʊka | ‘to stretch’ |

| | |
|---|---|
| kʊnyɪɪra | ‘to stretch tr.’ |
| kʊnyʊ́ʊnya | ‘to suckle tr.’ |
| kʊnywééka | ‘to beat with a thin stick’ |
| ɪ́ˡɲáámbʊ́ | ‘chameleon’ |
| ɪɲááɲa | ‘tomato’ |
| ɪɲáánza | ‘lake’ |
| ɪɲama | ‘meat’ |
| ɲasáye | ‘God’ |
| ɪ́nyɪ́ɪ́ngʊ | ‘cooking pot’ |
| ɪnyima | ‘behind ‘ |
| ɪnyʊ | ‘anus’ |
| ɪnyʊ́ʊ́mba | ‘house’ |
| ɪnyuundo | ‘hammer’ |
| ɪrinyuuru | ‘guinea pig’ |

There are two well-attested nouns containing *ny* before *ʊ*, *ʊmʊ́ʊnyʊ* ‘potash’ and *ɪnyuʊ́ʊndʊ* ‘hammer’, which uniformly have *ny* and not *ɲ* before *ʊ*. There are four other well-attested nouns where the pattern is variable, depending on the speaker.

| | ritɪ́ˡgɪ́nyʊ́ ‘heel’ | | kɪjáˡmáɲʊ́ ‘squirrel’ | | ɪnyʊ́ʊmba ‘house’ | | kɪ́ˡmɪ́ɪɲʊ́ ‘chick’ | |
|---|---|---|---|---|---|---|---|---|
| | ɲ | ny | ɲ | ny | ɲ | ny | ɲ | ny |
| BK | 4 | 23 | 10 | 4 | 1 | 50 | 13 | 7 |
| EM | 13 | 1 | 20 | 0 | 9 | 137 | 12 | 0 |
| FA | 5 | 0 | 2 | 0 | 0 | 11 | 3 | 0 |
| ML | 0 | 9 | 2 | 4 | 0 | 54 | 1 | 6 |
| NM | 1 | 1 | 0 | 0 | 0 | 36 | 0 | 0 |
| PM | 0 | 15 | 0 | 1 | 0 | 8 | 0 | 4 |
| RL | 2 | 3 | 1 | 0 | 0 | 20 | 2 | 0 |

It is obvious that there are diverging individual tendencies for some lexical items, at least before [ʊ]. There is less divergence in well-attested lexemes with *ɲ* before *a*.

| | ɪɲama ‘meat’ | | ɪ́ˡɲáámbʊ́ ‘chameleon’ | | ɪɲáánza ‘lake’ | | ɪɲááɲa ‘tomato’ | |
|---|---|---|---|---|---|---|---|---|
| | ɲ | ny | ɲ | ny | ɲ | ny | ɲ | ny |
| BK | 14 | 0 | 15 | 0 | 7 | 0 | 14 | 0 |
| EM | 156 | 0 | 10 | 0 | 27 | 0 | 32 | 0 |
| FA | 14 | 0 | 6 | 0 | 4 | 0 | 3 | 0 |
| ML | 65 | 2 | 1 | 0 | 3 | 0 | 2 | 0 |
| NM | 2 | 1 | 2 | 1 | 4 | 0 | 0 | 0 |
| PM | 6 | 11 | 0 | 4 | 0 | 2 | 0 | 0 |
| RL | 10 | 6 | 2 | 0 | 4 | 3 | 4 | 0 |

The form of the root ‘bird’ also varies frequently between [-nyonyi] and [-ɲonyi], the former being explicable in terms of the *ɲ*-harmony process discussed in 12.8. The verbs [kɒnya] ‘to defecate’ and [kɒnyaara] ‘to get thin’, with [ny] before a non-high vowel.

One systematic source of [ny] before non-high vowels is the reduced form of the causative /iz/. As noted in 12.8, /iz/ may be (and usually is) realised as [iɲ] when the preceding consonant is a nasal (*kosoomiɲa* ‘to make read’), and if the nasal is /n, ɲ/, we find contrastive *ny* (*kɒrwáana* ‘to fight’, *kɒrwáanya* ‘to make fight’, *komooɲa* ‘to gossip’, *komoonya* ‘to make gossip’).

There is also a “distributive” verbal suffix *-a(a)ny-a* which has *ny* rather than *ɲ*.

| | |
|---|---|
| kɒgávɒranya | ‘to divide up’ |
| kɒvɒrɒganya | ‘to stir’ |
| kɔ́káraanya | ‘to slice up’ |
| kɒvɔ́naanya | ‘to snap’ |
| kɒfɔ́rɒvanya | ‘to eat gluttonously’ |
| kɒjɔ́ɔ́kanya | ‘to mix food’ |
| kɒɒngaanya | ‘to join’ |

In line with the lexical distributional generalization that [ɲ] does not appear before [i], when suffixal /i/ follows /ɲ/, /ɲ/ always becomes [ny].

| | | | |
|---|---|---|---|
| kokóoɲa | ‘to help’ | akoonyi | ‘he helped’ |
| ɒmkoonyi | ‘one who helps’ | | |
| vakooɲé | ‘help them!’ | vakoonyí | ‘pl. help them!’ |
| kooɲá | ‘help!’ | koonyí | ‘help-pl!’ |
| komooɲa | ‘to gossip’ | móónyi | ‘I gossiped’ |
| mooɲa | ‘gossip!’ | moonyi | ‘pl. gossip!’ |
| kɒdɪgɪɲa | ‘to tickle’ | | |
| ɒmdɪgɪnyi | ‘one who tickles’ | | |
| kweeɲa | ‘to want’ | kweenyí | ‘we wanted’ |

The passive *-w-* causes *ɲ* to become [ɲ] when it immediately follows /ɲ/.

| | |
|---|---|
| yareenywa | ‘it will be wanted’ |
| ɪm-ɪɲáánywí | ‘it will be eaten’ |
| ahonywee | ‘he was healed’ |
| gahénywíɪ | ‘they were exposed’ |
| kɒdiginywa | ‘to be tickled ‘ |
| kóónywá | ‘be helped!’ |
| vikɪtúúngámínywá | ‘they are still being inverted’ |

This neutralizes the difference between *ny* and *ɲ*

| | | | |
|---|---|---|---|
| kɒsɔ́ɔ́ndɒranya | ‘to spill’ | maa kɪsɔ́ɔ́ndɔ́ránywɪ | ‘it will be spilled’ |
| vááhónya | ‘they cured | vááhónywaa | ‘they were being cured’ |

Within roots, [ɲw] is never encountered. There are examples of [nyw] as in *ɪkɪnywéére* ‘mongoose’, *kɔnywéeka* ‘to beat’. The verb ‘drink’, expected based on related languages to be /-nyw-/ is in fact attested as [kɔnwá], although ML realizes the verb as [kɔnywá] possibly under the influence of Swahili.

When *ɲ* would be predicted as a possible output from GL (1.3.2), *ɲ* is always a possible output and *ny* almost never occurs.

| | |
|---|---|
| ɪnyóómb-ɪɲó!mbáchí | ‘a builder house’ |
| ɪnyóómb-ɪɲó!mbáké | ‘built house’ |
| naa ɲómbákí | ‘I will build’ |
| ɲɔmbákáa | ‘I am building’ |
| kóóɲɔmbakɪra | ‘to build for me’ |
| geeɲékáá !ɲámbókí | ‘I should ford’ |
| ɪmbá!rábá!r-íɲá!mbókí | ‘crossed road’ |
| ɲáámbɔchi | ‘I forded’ |
| réká ɲámbókí | ‘let me ford’ |
| kɔɔɲɪmbira | ‘to sing for me’ |
| ɲɪmbáa | ‘I am singing’ |
| emó!ní íɲómɔ | ‘dry eye’ |
| arɪkááɲɔmizɪ | ‘he will dry me’ |
| ɲɔmáa | ‘I am being dry’ |

In some tokens before [i] (from EM), *ɲ* arising from GL optionally becomes *ny*.

| | | |
|---|---|---|
| ɲimánáa | nyimánáa | ‘I am being selfish’ |
| ɲinɔri | nyinɔri | ‘I served food’ |
| ɲinɪchi | nyinɪchi | ‘I fermented’ |

Such examples with [ny] are never preferred over [ny], and speaker judgments as to acceptability are not enthusiastic, nevertheless they will be treated as a dispreferred option. The analysis of such forms is easily comprehended in terms of the general rule where *ɲ*→*ny*/_*i*.

One other context where *ny* does more clearly arise as the output of GL before *i* is in the adjective *-ingɪ* ‘many’. The stem itself varies between *nyíingɪ* and *-ingɪ*,

| | |
|---|---|
| madó!fáárí míingɪ | ‘many bricks’ |
| mavuruuri manyíingɪ | ‘much leaf trash’ |
| vágíkuyó !víingɪ | ‘many Kikuyus’ |
| víí!sókóró !ványíingɪ | ‘many grandchildren’ |

The cl. 10 form of the adjective varies accordingly between *zinyíingɪ* (/nyíingɪ/) and *zínyíngí* (/ingɪ/), so the same speaker may employ both *ízínd-í!zínyíingɪ* and *ɪzínd-í!zínyíngí* ‘many toads’. In tokens using the stem *-ingɪ*, the cl. 9-10 prefix consonant is always *ny*, not *ɲ*.

| | |
|---|---|
| ɪzí!mbún-úízínyíngí | ‘many tethers’ |

| | |
|---|---|
| zíngókó ˈzínyíngí | ‘many chickens’ |
| ɪnáˈkídárí ɪnyíngí | ‘many bedrooms’ |

One of the words for ‘mother’, not extensively attested across speakers, is [ńnyá], and it is always attested with *ny* rather than *ɲ*. This suggests the possibility that when geminate, *ɲ* becomes [ny]. If that is so, not all sources of geminate *ɲɲ* undergo that rule. The following examples illustrate [ɲɲ] arising from reduction of /rV/.

| | | |
|---|---|---|
| rʊɲáasi | ʊɲɲáasi | ‘medicine’ |
| ɪriɲóˈróró | ɪɲɲóˈróró | ‘veg sp.’ |
| ɪriɲonyi | ɪɲɲonyi | ‘bird’ |
| ríˈbwóón-íɲɲóre | | ‘Nyore potato’ |

The combination [ɲi] can arise at the phrasal level by combining /ɲV#i/: if the final vowel deletes, the sequence [ɲi] results, and this sequence does not becomes **nyi*.

| | |
|---|---|
| yééˈɲá ísí | ‘he wanted father’ |
| yééˈɲ-íísí | ‘he wanted father’ |
| yááɲááˈɲ-íísí | ‘he chewed father’ |
| yaakóóˈɲ-íísí | ‘he helped father’ |

In fact, *nyi* is possible, but it derives from the reduced causatives *kweenya* ‘to cause to want’, *kʊnyáanya* ‘to cause to eat’, *kokóonya* ‘to cause to help’.

| | |
|---|---|
| yééˈny-íísí | ‘he made father want’ |
| yáányááˈny-íísí | ‘he made father chew’ |
| yaakóóˈny-íísí | ‘he made father help ‘ |