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**Title:** A grammar of Hamar : a South Omotic language of Ethiopia
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2 **Phonology and morphophonology**

### 2.1 Consonants

Hamar has 26 well established consonant phonemes. The velar implosive in brackets is attested only in one lexeme and it is considered marginal, see below.

<table>
<thead>
<tr>
<th></th>
<th>Bilabial</th>
<th>Alveolar</th>
<th>Palato-alveolar</th>
<th>Velar</th>
<th>Uvular</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>p</td>
<td>b</td>
<td>t</td>
<td>d</td>
<td>c</td>
<td>j</td>
</tr>
<tr>
<td></td>
<td>k</td>
<td>g</td>
<td>q</td>
<td></td>
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<td></td>
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<tr>
<td>Implosives</td>
<td>ɓ</td>
<td>ɗ</td>
<td>(ɠ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ejectives</td>
<td>t’</td>
<td>c’</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Fricatives</td>
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<td>z</td>
<td>sh</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasals</td>
<td>m</td>
<td>n</td>
<td>ɲ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquids</td>
<td>l, r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glides</td>
<td>w</td>
<td>y</td>
<td></td>
<td></td>
<td></td>
<td>?, h</td>
</tr>
</tbody>
</table>

The transcriptions of Hamar data follow a surface-phonemic convention, except when they occur within phonetic brackets. The following modifications to the International Phonetic Alphabet will be adopted: /j/ for what is realized as voiced palato-alveolar affricate [ʤ]; /c/ for the voiceless palato-alveolar affricate [ʧ]; /c'/ for the palato-alveolar ejective affricate [tʃ']; /y/ for the palatal glide [j]; /h/ for the breathy-voiced glottal approximant [ɦ]; /sh/ for the palato-alveolar fricative [ʃ]. The alveolar fricative /s/ never clusters together with the glottal /h/, hence the orthographic convention /sh/ can only be interpreted as [ʃ]. The bilabial stop /p/ can be realized as [p] or [ɸ]. /p/ [p] and /f/ [ɸ] will be both used in surface-phonemic transcriptions, depending on the actual realization of the phoneme: a word like /payá/ ‘good’, can be written as payá or fayá. Similarly, the velar stop and the velar fricative will be written as k or x: /saká/ ‘tomorrow’ can be transcribed as either saká or saxá. Long vowels and geminated consonants are always indicated by doubling the vowel or the consonant symbol, respectively. In surface-phonemic transcriptions word initial glottal stop is not written, except for this chapter. The diacritic /ˈ/ indicates stress and high tone, and falling tone is written with the diacritic /̂/ (cf. 2.4). Monosyllabic CVC word types have no diacritics. Orthographic conventions represent phonemic changes after phonological rules have applied.
2.1.1 Description of consonant phonemes and distribution

A description of each consonant phoneme is given below, followed by examples showing distributional patterns (word-initial, intervocalic, post-consonantal and pre-consonantal, word-final) and occurrences of geminated counterparts. Of all phonemes, 16 can occur word-finally (/p/, /b/, /t/, /j/, /k/, /q/, /ɓ/, /c'/, /s/, /z/, /sh/, /x/, /m/, /n/, /l/, /r/). The phonemes /d, c, g, ŋ, t', n/ have not been attested in word-final position. The voiceless bilabial, alveolar and velar stops are aspirated in word-initial position, but aspiration is not phonemic. The burst of air comes after the release. The bilabials /p, b, ɓ/ are partially released in word-final position before pause; lenition of stops generally occurs before the vowel /a/. The palato-alveolar stops are phonetically affricates, but they have to be considered mono-segmental since, unlike consonant clusters, they can occur word-initially, word-finally and they can be geminated. The segments /w/, /y/, /ɭ/, /h/ pattern like approximant consonants and never function as the nucleus of a syllable; the glides are deleted under morpho-phonological rule MP2 and MP4 (see 2.5.1). Intervocalic non-pulmonic consonants can be weakened and realized as pulmonic in fast speech. Ejectives cannot be geminated. The nasals /n/ and /m/ are two independent phonemes but the opposition is neutralized in clusters, where they assimilate in place of articulation to the following consonant. The velar nasal [ŋ] is not phonemic: it is always adjacent to a velar and it is analysed as an assimilated /n/. [ŋ] is reported as phonemic in Dime (Mulugeta 2008:98-10), but not in Aari (Hayward 1990:429-431). Word-final sonorants can be partially devoiced.\footnote{Devoicing of word-final sonorants is attested in Somali (Armstrong 1934; Saeed 1999:10-11).}

The phoneme in parenthesis in table 2.1 are marginal. The status of the velar implosive /ɠ/ is doubtful since it has only one lexical occurrence: ɠiá ‘hit’, see discussion below.

The realization of consonant phonemes is discussed below. For each phoneme, all the possible realizations are given in a table: the underlying phoneme is in the first column, followed by the default realization in the first line of the second column. Allophonic realizations are listed below the default realization, and environments are given in formal notation in the last column. The order of presentation is based on manner of articulation.

<table>
<thead>
<tr>
<th>/p/</th>
<th>[p]</th>
<th>voiceless bilabial stop</th>
<th>/_____/word— any (see below)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[pʰ]</td>
<td>voiceless bilabial aspirated stop</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ɸ]</td>
<td>voiceless bilabial fricative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[pʼ]</td>
<td>partially released bilabial stop</td>
<td>/_____/word</td>
</tr>
</tbody>
</table>

/p/ is a voiceless bilabial stop

parsí ‘ale-gruel beer’

ʔaapó ‘mouth’
The bilabial plosive /p/ can be realized as [p] or [ɸ] in possibly all contexts, except when geminated and when it clusters together with the bilabial nasal /m/. The realization of the phoneme /p/ as [p] or [ɸ] may vary among speakers and within the same speaker’s speech.

<table>
<thead>
<tr>
<th>/b/</th>
<th>voiced bilabial stop</th>
<th>[b] voiced bilabial fricative</th>
<th>[b˺] partially released voiced bilabial stop</th>
<th>/V__Vword</th>
</tr>
</thead>
<tbody>
<tr>
<td>/b/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

/b/ is a voiced bilabial stop

bíiri 'three pronged stir-stick'
dabí ‘wild animal’
ʔimbá ‘father’
gálbe ‘leaf’
ʔab ‘another’
jibbá ‘dislike’

/b/ can be weakened to [β] in intervocalic position when followed by the low vowel /a/. This lenition can be observed particularly in fast speech:
kubá  ‘wall’  [kubá]~[kuβá]
gibáž  ‘malaria’  [gibáž]~[giβáž]
labalé  ‘ostrich’  [labalé]~[laβalé]

<table>
<thead>
<tr>
<th>/t/</th>
<th>[t]</th>
<th>voiceless dental-alveolar stop</th>
<th>/tʰ/</th>
<th>voiceless aspirated dental-alveolar stop</th>
</tr>
</thead>
</table>

/t/ is a laminal voiceless dental-alveolar stop. The tongue touches both the upper teeth and the upper alveolar ridge. /t/ is aspirated word-initially.

toré  ‘plain’
meté  ‘head’
ʔínta  ‘I’
gertámo  ‘clan’
ʔermát  ‘tears’
dettí  ‘cow dung’

<table>
<thead>
<tr>
<th>/d/</th>
<th>[d]</th>
<th>voiced dental-alveolar stop</th>
</tr>
</thead>
</table>

/d/ is a laminal voiced dental-alveolar stop. It is not attested in word-final position and it is not lenited before the low vowel /a/.

doobí  ‘rain’
ʔoidí  ‘four’
ʔindá  ‘mother’
qaldó  ‘thigh’
puddó  ‘thread’

<table>
<thead>
<tr>
<th>/cf/</th>
<th>[ʧ]</th>
<th>voiceless palato-alveolar affricate</th>
</tr>
</thead>
</table>

/cf/ is a voiceless palato-alveolar affricate with a defective distribution. /cf/ has been found only in one lexeme word-initially. It does not occur word-finally and it does not cluster with other consonants. It occurs geminated in intervocalic position in less than 20 lexemes, mainly in verb roots.\(^\text{12}\)

cóo  ‘down’
geccó  ‘old’
wócci  ‘difficult’

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\(^\text{12}\) In the neighbouring Cushitic language Ts’ämako, /cc/ occurs as the geminate counterpart of /ʃ/ as the trace of a historical phonological change: /ʃʃ/ > [cc]. Savà shows that Ts’ämako roots with /cc/ correspond to Dullay cognates containing /ʃ/ (Savà 2005:37-39). The historical link between /cc/ and /ʃ/ can be seen in two Ts’ämako stems: the adjectival root gecc – ‘old person’, and the verbal stem geeʃu – ‘to become old’. It is remarkable that in Hamar the stem geccó ‘old person’ is semantically related to geshó ‘respected person’, suggesting that a similar historical relation may exist in Hamar, but such relationship cannot be shown synchronically.
The voiceless palato-alveolar affricate is considered mono-segmental since it occurs geminated and word-initially. Its voiced counterpart is also considered mono-segmental since it can occur in any position and it can cluster with other consonants. Consonant clusters, on the contrary can only occur word-internally.

<table>
<thead>
<tr>
<th>/j/</th>
<th>[ʤ]</th>
<th>voiced palato-alveolar affricate</th>
</tr>
</thead>
</table>

/j/ is a voiced palato-alveolar affricate. It does not occur geminated:

| jálo | ‘bird sp.’ |
| ʔɛ́ɛmajo | ‘good spirit’ |
| barjó | ‘fate’ |
| c’agáj | ‘green’ |

<table>
<thead>
<tr>
<th>/k/</th>
<th>[k]</th>
<th>voiceless velar stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>[kʰ]</td>
<td>voiceless aspirated velar stop</td>
<td></td>
</tr>
<tr>
<td>[x]</td>
<td>voiceless velar fricative</td>
<td></td>
</tr>
</tbody>
</table>

/k/ is a voiceless velar stop.

| kéri | ‘door’ |
| důka | ‘mountain’ |
| bankár | ‘arrow’ |
| báski | ‘lover’ |
| banák | ‘type of timber tree’ |
| lůkka | ‘small’ |

Spirantization of /k/ to [x] occurs in the following two words, where /k/ is in intervocalic position, before the low vowel /a/:

| saká | ‘tomorrow’ | [saká]~[saxá] |
| ʔuká | ‘pierce’ | [ʔuká]~[ʔuxá] |

Spirantization does not occur in the word důka ‘mountain’. For further details see under the velar fricative /x/.

The instrumental case suffix /-ka/ is realized as [-xa] when the preceding segment is a vowel:

| ʔaaфáxa | ‘with the mouth (M)’ | [ʔaaфáxa] |
| ʔaaфón-ka | ‘with the mouth (F)’ | [ʔaaфónka] |
/g/ is a voiced velar stop.

<table>
<thead>
<tr>
<th>/g/</th>
<th>[g]</th>
<th>voiced velar stop</th>
</tr>
</thead>
</table>

gurdá  ‘village’
gugána  ‘lightning’
bargá  ‘millet’
moggó  ‘namesake’

Word-finally /g/ occurs only in the numeral dong ‘five’. However, this word shows an unusual syllabic structure since consonant clusters never occur word-finally. This is the only example of a CVCC word in Hamar (see 2.3).

/q/ is a voiceless uvular stop. It does not occur geminated.

<table>
<thead>
<tr>
<th>/q/</th>
<th>[q]</th>
<th>voiceless uvular stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>[q’]</td>
<td>uvular ejective</td>
<td>/sentence—a</td>
</tr>
<tr>
<td>[q”]</td>
<td>voiceless uvular aspirated stop</td>
<td>/sentence; /sentence;</td>
</tr>
<tr>
<td>[ʔ]</td>
<td>voiceless glottal stop</td>
<td>/sentence; ʔ</td>
</tr>
</tbody>
</table>

The uvular stop is realized in different ways depending on the environment, on the rate of speech, and on the speaker. Similar to the other voiceless stops, word initially it can be aspirated: the closure is made in the oral cavity between the back of the tongue and the uvula, and the release is accompanied by a light burst of air. Aspiration occurs also before a devoiced final vowel. /q/ is not realized as fricative before the low vowel /a/.

qáari  ‘python’
shááqa  ‘small’
banqí  ‘spear’
sílqa  ‘knuckle’
panáq  ‘frog’

Some Hamar speakers often glottalize /q/ in word initial position before the low vowel /a/. This tendency has been observed especially among speakers exposed to Amharic, such as educated Hamar, and in places where the influence of Amharic is particularly strong, like Dimeka and Turmi. When /q/ is glottalized however, the
The place of articulation is still uvular, and not velar. The glottalization of /q/ is marginal among monolingual Hamar speakers.

| qáski  | ‘dog’       | [qáski]~[q’áski]~[q’áski] |
| qáami  | ‘ear’       | [qáami]~[q'áami]~[q’áami] |

In word initial position and followed by back vowels /o/ and /u/, /q/ is optionally realized as glottal stop, a property which it has in common with the dental-alveolar implosive /ɗ/:

| qootí  | ‘beehive’   | [qootí]~[q’ootí]~[ʔootí] |
| quntíni | ‘rat’       | [quntíni]~[q’untíni]~[ʔuntíni] |

| /ɓ/ | | voiced bilabial implosive |
| [ɓ] | voiced bilabial stop | /V____V |
| [β] | voiced bilabial fricative | /V____V |
| [ɓ’] | partially released bilabial implosive | /___\word |

/ɓ/ is a voiced bilabial implosive realized with ingressive glottalic airstream.

| bentá | ‘seed’ |
| geβí  | ‘many’ |
| karámba | ‘calabash for coffee’ |
| ʔatáɓ | ‘tongue’ |
| toɓɓá | ‘seven’ |

In fast speech, the bilabial implosive occurring in intervocalic position is often realized as pulmonic [b] or fricativized to [β]:

| kut’úɓo | ‘housefly’ |
| [kuťúɓo]~[kuťúbo]~[kuťúβo] |

Similar to bilabial plosives, the bilabial implosive is partially released word-finally:

| ʔatáɓ | ‘tongue’ |
| gudúɓ | ‘tall’ |

| /ɗ/ | voiced dental-alveolar implosive |
| [ɗ] | voiced dental-alveolar stop | /V____V |
| [ʔ] | voiceless glottal stop | /V____V; /\word_u |

/ɗ/ is a voiced dental-alveolar implosive realized with ingressive glottalic airstream.

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13 Hayward (1990) reports a voiceless uvular non-ejective for Aari (to the north), whereas Savà (2005) reports the voiceless uvular ejective in T’samakko (to the east).
dángá  ‘throat’
žáade  ‘hippopotamus’
barďá  ‘drunk’
kéddá  ‘half’

Word-final /ɗ/ has only been attested in ideophones. Similar to the bilabial implosive /ɓ/, /ɗ/ can be realized as pulmonic in intervocalic position. When /ɗ/ occurs in the accusative marker /-ɗan/ and is preceded by a vowel, it can be reduced to glottal stop. Reduction to glottal stop has been attested word-initially in one example:

dúka  ‘mountain’  [dúka]~[ʔúka]

Only in one lexeme, /ɗ/ is optionally assimilated to the preceding consonant:
guldánti  ‘belly button’  [guldánti]~[gulʔánti]~[gullánti]

/g/ is a voiced velar implosive realized with ingressive glottalic airstream. It is attested only in one verb, and it is in opposition with the voiced velar stop /g/: cf. giá ʻtell, say’.

giá  ‘hit’

This verb has a pragmatically marked use: it occurs in a variety of light verb constructions such as waakí giá ‘herd the cattle’, literally ‘hit cow’; nuuí giá ‘churn the butter’, literally ‘hit the butter container’, and so on. The verb qaná which also means ‘hit’ is used in other light verb constructions such as doobí qaná ‘rain’, literally ‘rain hits’, núki qaná ‘sneeze’, góono qaná ‘stumble’, and it is used for modern concepts such as sǐki qaná ‘make a phone call’, kánki qaná ‘drive a car’. Both the verbs giá and qaná have cognates in Aari and Dime: Dime has the verbs gís’i ʻhit’ and k’ané ʻrain’ (Mulugeta 2008); Aari has the verb giʔ for ʻbeat, hit’ and k’ândə ʻrain’ (Bender 2003a).

/t’/  [t’]  dental-alveolar ejective
   [ts’]  alveolar ejective affricate

/t’/ is a dental-alveolar ejective produced with egressive glottalic airstream. It is not attested geminated and word-finally:

t’ánzi  ‘giraffe’
déet’a  ‘heavy’
mart’ó  ‘type of necklace’
When followed by the low vowel /a/ or by the high vowel /i/, it can be realized as affricate [ts']:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>t'aqalé</td>
<td>'rectum'</td>
</tr>
<tr>
<td>t'ía</td>
<td>'black'</td>
</tr>
<tr>
<td>kat'á</td>
<td>'shoot'</td>
</tr>
<tr>
<td>lant'í</td>
<td>'spleen'</td>
</tr>
</tbody>
</table>

/c'/ | /ʧ/ | voiceless palato-alveolar affricate  
/tʃ/ | voiceless palato-alveolar affricate  

/c'/ is a palato-alveolar ejective affricate. It does not occur geminated.

c'ílo | 'ant' |
dooc'á | 'milk container' |
qórc'o | 'throat' |
pac' | 'many' |

In fast speech /c'/ can be deglottalized when occurring in inter-vocalic position:

pec'é | 'beans' |

/s/ | /s/ | voiceless alveolar fricative  

/s/ is a voiceless alveolar fricative articulated with the blade of the tongue. The tip of the tongue rests against the lower teeth.

seení | 'stone' |
ʔási | 'tooth' |
zarsí | 'type of grass' |
meské | 'brain' |
qáis | 'forbidden' |
ʔossambará | 'after two days' |

/z/ | /z/ | voiced alveolar fricative  

/z/ is a voiced laminal alveolar fricative. It does not occur geminated.

zóbo | 'lion' |
ʔaizí | 'goat hide' |
dónza | 'elders' |
maz | 'initiated boy' |
/ʃ/ is a voiceless palato-alveolar fricative.

shaalá  ‘ceiling’
búushi  ‘chin’
bárshi  ‘young’
láshpa  ‘shoulder blade’
bish   ‘only’
mishshá ‘be full’

/x/ is a voiceless velar fricative with a defective distribution. It is found mainly inter-vocally, it never occurs word-initially, but it is attested word-finally where it contrasts with /k/:

lax  ‘six’

In the words saká~saxá and uká~uxá the velar stop can be fricativized to /x/. For the words listed below, the realization of /x/ as [k] is deemed incorrect by the speakers:

baxá  ‘cook’  [baxá] *[baká]
taxá  ‘cut’
paxá  ‘throw’
paxâla  ‘clever’
dáxá  ‘tie’
wáxá  ‘ox’
woxóno  ‘cattle’

Even if speakers reject the realization of the words listed above with the velar stop [k], the velar stop is the underlying phoneme: the words for ‘ox’ and ‘cattle’ for instance are lexicalized inflected forms related to the general form waakí ‘cow’, see chapter 3; the verb dáxá ‘tie’ is related to the noun dákí ‘rope’. The verbs illustrated above, moreover, are reported with the velar stop in Fleming’s wordlist (1986).

The postposition /róxa/ ‘through’ and the temporal subordinate marker /-xa/ are always realized with the velar fricative /x/.

/m/ is a voiced bilabial nasal.

/m/ is a voiced bilabial nasal.

<table>
<thead>
<tr>
<th>/ʃ/</th>
<th>[ʃ]</th>
<th>voiceless palatal fricative</th>
</tr>
</thead>
<tbody>
<tr>
<td>/x/</td>
<td>[x]</td>
<td>voiceless velar fricative</td>
</tr>
<tr>
<td></td>
<td>/_word; /V__V</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>/m/</th>
<th>[m]</th>
<th>voiced bilabial nasal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[m]</td>
<td>devoiced bilabial nasal</td>
</tr>
<tr>
<td></td>
<td>/_word</td>
<td></td>
</tr>
</tbody>
</table>
máa  ‘woman’
lamá  ‘two’
qámɓi  ‘poor’
sirmá  ‘pregnant’
ʔóom [ʔóom̥]  ‘bow’
dammá  ‘fall’

<table>
<thead>
<tr>
<th>/n/</th>
<th>[n]</th>
<th>voiced alveolar nasal</th>
<th>/word</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ŋ]</td>
<td>devoiced alveolar nasal</td>
<td>/k, g</td>
</tr>
<tr>
<td></td>
<td>[ŋ̥]</td>
<td>voiced velar nasal</td>
<td></td>
</tr>
</tbody>
</table>

/n/ is a voiced alveolar nasal.

naasí  ‘child’
guní  ‘snake’
rínso  ‘hornet’
káRNA  ‘belt’
makkán  ‘three’
kánno  ‘younger sister’

The nasal /n/ is devoiced word-finally:

isín [ʔisín̥]  ‘sorghum’

[ŋ̊] occurs only in consonant clusters before velar stops:

nángo  ‘soldier ant’
kánki  ‘car’

<table>
<thead>
<tr>
<th>/ɲ/</th>
<th>[ɲ]</th>
<th>voiced palato-alveolar nasal</th>
<th>/word; V---V</th>
</tr>
</thead>
</table>

/ɲ/ is a voiced palato-alveolar nasal. It is not attested word finally and geminated:

ɲámunä  ‘ostrich feather’
háña  ‘fat-tailed sheep’

According to some speakers, word-initial /ɲ/ is interchangeable with /n/ in the Banna variety:

ɲuurí  ‘butter container’ [ɲuurí]~[nuurí]
The loanword from Amharic ferénji ‘foreigner, white person’ is realized with the palato-alveolar nasal /ɲ/ in Hamar:

paráɲi ‘foreigner’

See the phonological rule P9 in 2.5 for further details.

<table>
<thead>
<tr>
<th>/l/</th>
<th>[I]</th>
<th>voiced alveolar lateral</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[i]</td>
<td>devoiced alveolar lateral</td>
</tr>
</tbody>
</table>

/l/ is a voiced alveolar lateral approximant articulated with the tip of the tongue touching the alveolar ridge.

láapa ‘bat’
c‘íilo ‘ant’
wárle ‘hare’
wálqanti ‘Aloe sp.’
 búl [búl] ‘waterhole’
qullá ‘goats’

<table>
<thead>
<tr>
<th>/ɾ/</th>
<th>[r]</th>
<th>voiced alveolar trill</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ɾ]</td>
<td>devoiced alveolar trill</td>
</tr>
<tr>
<td></td>
<td>[r̥]</td>
<td>voiced alveolar tap</td>
</tr>
</tbody>
</table>

/ɾ/ is a voiced alveolar trill realized with the tip of tongue at the alveolar ridge. Intervocally and in fast speech it can be realized as a tap.

róoto ‘mountain nyala’
qáara ‘vervet monkey’
gurdá ‘village’
déér [dééř̥] ‘red’
wúrro ‘cat’

| /w/ | [w]  | labio-velar approximant |

/w/ is a labio-velar glide produced with rounded lips and the back of the tongue raised towards the soft palate. Similar to the other glides /y/, /ʔ/ and /h/, it does not occur geminated nor word-finally.

waakí ‘cow’
weilám ‘heart’
wíi ‘type of vegetable’
wodímo ‘rich’
wúshki ‘bullet’
ʔáshawa ‘silver-like bracelet’
/y/ | [j] voiced palatal approximant

/y/ is a voiced palatal glide.

yááti ‘sheep’
yéela ‘roof’
yíti ‘owl’
dʒyáya ‘bone marrow’
qáyo ‘worm’

ʔ/ | [ʔ] glottal stop

ʔ/ is a glottal stop. It occurs in word initial position, where it contrasts with /h/, and intervocically. The glottal stop can only function as the onset of a syllable; it does not occur geminated nor word-finally:

ʔééɓe ‘cowhide’
daʔíni ‘snake poison’
gáʔásh ‘warthog’

The Amharic loanword [saʔat] ‘hour’ has been borrowed in Hamar as saʔáti, thus the glottal stop has been retained. Words that do not begin with a consonant are analysed as having a glottal stop onset. In fast speech, intervocalic glottal stop can be dropped:

yiʔá ‘go’  [jiʔá] ~ [jiá]

/h/ | [ɦ] breathy-voiced glottal transition /word__a

/h/ is a voiced glottal fricative with a highly defective distribution: it occurs in fact only word-initially before the low vowel /a/ and contrasts in the same environment with the glottal stop (cf. 2.1.2). In fast speech [ɦ] is produced with little air.

hámar ‘hamar’
hai ‘sun’
háada ‘rope’
harán ‘type of grass’

The glottal fricative is phonetically realized as breathy phonation on the following low vowel [a]. The phonological glottal fricative fills the otherwise unlicensed empty onset of syllables that do not begin with a glottal stop. Other phonemic breathy vowels in Hamar do not exist.

The question of whether setting up a parallel set of breathy vowels has been raised by Hayward for Aari (1990:431-433). In Aari, /h/ is found word-initially (where it contrasts with ?) and intervocically. According to Hayward ‘[…]every word in
which an intervocalic [ɦ] appears, can also be pronounced without such segment. [...] It would appear that h is on the verge of disappearing from the language, though not without leaving a trace of itself in the form of breathy phonation' (1990:431). At the same time, there are cases for which breathy vowels seem '[…]'to be independent (in so far as an alternative pronunciation with a distinct [ɦ] segment is not possible)[…]' (ibid.:433). Hayward thus contemplates the option of setting a parallel set of breathy vowels, supported by the fact that h can pair with almost any vowel (except for the back vowel u, ibid.:434, and for long vowels ibid:436). It is interesting to note that intervocalic h in Aari has disappeared in the Hamar cognate word, whereas word-initial h in Aari has some corresponding words in Hamar:

(Aari) wà̤ɦá̤ (Hamar) wáa 'meat'
(Aari) g:qe (Hamar) háqa 'tree'

2.1.2 Minimal pairs and near minimal pairs

Minimal and near minimal pairs supporting the phonemic status of the consonants are illustrated below. The data show opposition in place and manner of articulation. Pairs show contrast in word-initial, word-medial and word-final position whenever possible. Opposition in place of articulation:

- Voiceless stops /p t c k q/ word-initial
  paashá 'recover'
  taxá 'cut'
  cóo 'down'
  kashá 'pay'
  qaashá 'collect'

- /p t k q/ word-medial
  láapa 'bat'
  maatá ‘go back’
  ṭaaká ‘grandmother’
  máaqa ‘lizard’
  ṭálpa ‘knife’
  waltá ‘genet’
  ṭálko ‘type of agave plant’
  dálqá ‘talk’

- /p t k q/ word-final
  galáp ‘yellow’
  pandát ‘gap teeth’
  ṭaarák ‘uncle’
  zínáq ‘type of tree’
- Voiced stops /b d j g/ word-initial
  bagá  'tease'
dará  'lowland'
jagá  'sparrow'
gará  'stop'

- /b d j g/ word-medial
  náabí  'name'
wádin  'differently'
qájí  'cold'
gáagí  'mancala game'
shólba  'light'
qaldó  'thigh'
barjó  'fate'
bargá  'millet'

- Implosives /ɓ ɗ ɠ/ word-initial
  ɓágá  'fall'
dáqá  'avoid'
ğía  'hit'

- /ɓ ɗ/ word-medial
  geɓá  'grow up'
geɗá  'answer'
demɓí  'death'
ʔandí  'type of tree'

- Ejectives /t' c'/ word-initial
  t'íngo  'honey badger'
c'íilo  'ant'

- /t' c'/ word-medial
  kat'tá  'shoot'
gaac'á  'grind'
kúnc'a  'type of antelope'
qunt'tá  'break'

- Fricatives /s z sh h/ word-initial
  síiti  'hair'
zíiti  'hook'
shíiti  'soft'
hámi  'field'
- /s z sh x/ word-medial
maasá  'give back'
bazá  'debit'
mashá  'slaughter'
baxá  'cook'

- /s z sh x/ word-final
gas  'threshold'
baz  'lake'
gaʔásh  'warthog'
lax  'six'

- Nasals /m n ɲ/ word-initial
máati  'sorghum sprout'
naasí  'child'
ɲuurí  'butter container'

- /m n ɲ/ word-medial
kamá  'pick up'
qána  'stream'
qáɲa  'vagina'

- /m n/ word-final
háam  'jugular vein'
ʔáan  'arm'

- Liquids /l r/ word-initial
lant’í  'spleen'
ráat’i  'milk'

- /l r/ word-medial
túla  'small pond'
túra  'up'

- /l r/ word-final
gul  'corner of the house'
gur  'ring'

- Glides /w y/ word initial
wáa  'meat'
yáa  'you'
wiː  'vegetable'
ʔíi ‘stomach’
yedá ‘keep’
ʔedá ‘separate’

- /w yʔ/ word-medial
ʔáshawa ‘silver-like bracelet’
nagáya ‘peace’
gaʔásh ‘warthog’

Opposition in manner of articulation:

- Bilabials /p b ɓ m w/ word-initial
paashá ‘recover’
bashá ‘win’
ɓaashá ‘comb’
maashá ‘slaughter’
wushá ‘make drink’

- /p b ɓ m w/ word-medial
láapa ‘bat’
labalé ‘ostrich’
lafá ‘square shape’
lamá ‘two’
ʔɔ́rawal ‘backwards, towards the speaker’

- Alveolars /t d ɗ t’ s z n l r/ word-initial
tipá ‘honest’
diibá ‘steal’
dīta ‘type of tree’
t’ipá ‘darkness’
sirmá ‘pregnant’
zigá ‘shake’
niʔá ‘come’
líkka ‘little’
riggíma ‘chew stick’

- /t d ɗ t’ s z n l r/ word-medial
raatá ‘sleep’
ʔadá ‘shave’
ʔaadá ‘give birth’
dáat’a ‘sweet’
daasá ‘lift up’
gazá  'generous'
kána  'younger sibling'
galá  'food'
gará  'stop'

- Palato-alveolars /c j c’ sh n y/ word-initial
cóó  'down'
jaagá  'sew'
c'aaná  'load'
shaná  'buy'
ɲámúna  'ostrich feather'
yaaná  'sheep'

- /j c’ sh n y/ word-medial
barjó  'fate'
wánco  'milky way'
ʔásho  'slope'
yáayo  'wild hunting dog'
ɲáboqo  'type of anklet'

- /j c’ sh/ word-final
shamáj  'albino cattle coat colour'
pac’  'many'
tánqash  'antelope'

- Velars and uvular/k g ɠ q/ word-initial
kaá  'pour'
giá  'tell'
ɠiá  'hit'
qadá  'wear'
kansá  'fight'
gansá  'sniff'
qansá  'listen'

- /k g x q/ word-medial
púka  'caracal'
pugá  'blow'
ʔuká  'pierce'
duqá  'sow'
d̥nko  'speech'
ʔonqó  'type of bean'
- /k x q/ word-final
  gerāk  ‘beam’
lax  ‘six’
panāq  ‘frog’

- Glottals /ʔ h/ word-initial
  ṭáino  ‘goat hide’
háino  ‘sun’
ʔamɓá  ‘dream’
hamɓá  ‘be told’
ʔáka  ‘large intestine’
háqa  ‘tree’
ʔáade  ‘hippopotamus’
háade  ‘razor’
ʔáan  ‘arm’
háan  ‘you’ (2SG:ACC)
ʔátti  ‘bird’
hátti  ‘how’

- Glottals and uvular /ʔ q/ word-initial
  hámi  ‘field’
ʔamí  ‘breast’
qáami  ‘ear’

- Glottal and glide /ʔ w/ word-initial
  ñoisá  ‘ask’
woisá  ‘put down’
ʔúkumɓa  ‘thorn’
wúkumɓa  ‘bark’

- Glottal and glide /ʔ y/ word-initial
  ṭíir  ‘inside’
yíir  ‘upper arm’

- Glottal and long vowels word-medial
  kaá  ‘pour’
ɡaʔá  ‘bite’
baʔá  ‘bring’
ɓáa  ‘up’

14 ṭáka is in opposition with ṭaaká ‘grandmother’, thus long /a/ is not necessarily breathy.
2.1.3 Consonant gemination

Gemination is only found word-internally. It occurs in lexical roots but it mainly arises grammatically. Geminated consonants are phonetically longer than average, and they have to be considered as ambisyllabic segments filling the coda of a preceding syllable and the onset of the following syllable. Over 24 consonant phonemes, 14 have been attested geminated (/p/, /b/, /t/, /d/, /c/, /k/, /g/, /ɓ/, /ɗ/, /s/, /sh/, /n/, /m/, /l/); the gaps are partly accidental: word-final sonorant segments become geminates with feminine and plural inflections (see below), whereas other segments undergo metathesis and other phonological processes, see 2.5. Below I contrast some minimal pairs containing geminate and non-geminate consonants.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>kótte</td>
<td>'shirt'</td>
</tr>
<tr>
<td>kóte</td>
<td>'here'</td>
</tr>
<tr>
<td>ŋóito</td>
<td>'female name'</td>
</tr>
<tr>
<td>ŋóitto</td>
<td>'the fourth'</td>
</tr>
<tr>
<td>kumá</td>
<td>'eat'</td>
</tr>
<tr>
<td>kumá</td>
<td>'drink (milk)'</td>
</tr>
<tr>
<td>hammó</td>
<td>'which'</td>
</tr>
<tr>
<td>hamó</td>
<td>'where'</td>
</tr>
<tr>
<td>ŋonnó</td>
<td>'house'</td>
</tr>
<tr>
<td>ŋóono</td>
<td>'heifer'</td>
</tr>
<tr>
<td>happá</td>
<td>'make braids'</td>
</tr>
<tr>
<td>ŋapá</td>
<td>'unfold'</td>
</tr>
<tr>
<td>balé</td>
<td>'male name'</td>
</tr>
<tr>
<td>ballé</td>
<td>'female name'</td>
</tr>
<tr>
<td>ŋalá</td>
<td>'guard'</td>
</tr>
<tr>
<td>ŋálla</td>
<td>'traditional beer mixed with honey'</td>
</tr>
</tbody>
</table>

Grammatically, gemination arises after suffixation of the feminine and the plural inflections /-no/ and /-na/ to nominal roots ending in a sonorant segment. When the sonorant is a liquid or bilabial nasal, the nasal of the inflection assimilates to the preceding consonant (see 2.5 for further details).
Passive and causative derivations as well give rise to geminated consonant:

ʔadá  ‘give birth’
ʔaddá  ‘be born’

raatá  ‘sleep’
rattá  ‘put to sleep’

2.2 Vowels

Hamar has seven vowel qualities and five diphthongs. Vowel quantity is contrastive. Vowel length is indicated by doubling the vowel symbol.

Table 2.2: Vowel phonemes

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>i ii</td>
<td>u uu</td>
<td></td>
</tr>
<tr>
<td>Mid High</td>
<td>e ee</td>
<td>o oo</td>
<td></td>
</tr>
<tr>
<td>Mid Low</td>
<td>e ee</td>
<td>ë ë</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>a aa</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As will be discussed in 2.2.2, the mid-low vowels /ɛ/ and /ɔ/ are in complementary distribution with the mid-high vowels /e/ and /o/ in the lexicon: when mid-high vowels occur in stressed syllable and are followed by the low vowel /a/ they are realized as mid-low (with a few exceptions). Mid-low vowels however arise out of coalescence (phonological rule P5) and masculine mid-vowel lowering (morpho-phonological rule MP5), thus they have a high functional load. Changes in the quality of stem vowels are one aspect of morpheme realization: for this reason the mid-low vowels are considered phonemic. The morpho-phonological rule MP5 is described in detail in 2.5, and section 2.6 analyses the co-occurrence of MP5, P5 and prosody in masculine inflected nouns. Vowel realization is influenced by stress and it will be discussed in detail in 2.2.2. Vowel length is treated in 2.2.3.
2.2.1 Description of vowel phonemes and distribution

All vowel phonemes occur word-internally and word-finally after any consonant, except for the glottal fricative /h/ which can only pair with the low vowel /a/. The phonetic realization of vowels approximates cardinal vowels. The vowels /u o a/ are always audibly rounded. /a/ is a low central unrounded vowel. Quality oppositions are illustrated below:

/i i e/
wálí  ‘sickle’     wálé  ‘dove’
zúiga ‘spinal cord’ zéega ‘bird of prey sp.’
shidá ‘stay’   shédá ‘look’
píi  ‘human faeces’ pée  ‘land’

/e e a/
bénzo  ‘clapper of a bell’ bánzo ‘please’
leče ‘year’ lažá ‘lick’
déer ‘red’ dáar ‘cattle’s field’
bóte ‘pumpkin’ bóta ‘space, room’

/i i a/
kílanqi ‘snake eagle’ kalánqi ‘moringa tree’
máati ‘fermented grains’ maatá ‘come back’
mishá ‘older sister’ mashá ‘slaughter’

/u o/
ʔurró ‘war’ ʔórra ‘from over there’
brqā ‘be hot’ dorqá ‘sit’
gur ‘support for calabash’ gor ‘type of ritual’
kut’ó ‘vulture’ kot’ó ‘female name’

/o o a/
zíigo ‘sorghum crumble’ zíiga ‘spinal cord’
dottá ‘put down’ dattá ‘wild animal’ (M)
ʔogó ‘that’ (F) ʔagá ‘that’ (M)

/u a/
dumá ‘grab’ damá ‘be able’
gúuri ‘empty’ gaárí  ‘big’
núu ‘fire’ náa ‘yesterday’
The vowels /a e i o/ occur as terminal vowels in nouns. The infinitive of verbs, used as the citation form, ends in /-á/. The back vowel /u/ is found word-finally in monosyllabic nouns, as the second segment of the diphthong /au/: there are no words like *CVCu in Hamar. The back vowel /u/ has distributional restrictions: it can co-occur at the left of any vowel, but not in the syllable following the vowels /e i o/. The following table shows vowel co-occurrence in lexical items. The vowels in the first column on the left occur before the vowels in the top row.

Table 2.3: Vowel co-occurrence

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>e</th>
<th>i</th>
<th>o</th>
<th>u</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>galá</td>
<td>qálbe</td>
<td>qáski</td>
<td>nángo</td>
<td>gámuri</td>
</tr>
<tr>
<td>e</td>
<td>berá</td>
<td>meté</td>
<td>kerí</td>
<td>geccó</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>tíma</td>
<td>tígé</td>
<td>c’íshi</td>
<td>rínso</td>
<td></td>
</tr>
<tr>
<td>o</td>
<td>dongár</td>
<td>kóte</td>
<td>wotí</td>
<td>noqó</td>
<td></td>
</tr>
<tr>
<td>u</td>
<td>túla</td>
<td>búme</td>
<td>kurí</td>
<td>pusó</td>
<td>gutúm</td>
</tr>
</tbody>
</table>

The interrogative copula in Hamar is the morpheme /-u/, which can be suffixed to both nominal and verbal elements. In this context there are no restrictions and the vowel /u/ is found after any vowel:

<table>
<thead>
<tr>
<th></th>
<th>hámar</th>
<th>hámar-</th>
<th>(is he/she) Hamar?</th>
</tr>
</thead>
<tbody>
<tr>
<td>déer</td>
<td>‘red’</td>
<td>déer-u</td>
<td>(is it) red?</td>
</tr>
<tr>
<td>yéela</td>
<td>‘roof’</td>
<td>yéela-u</td>
<td>(is it a) roof?</td>
</tr>
</tbody>
</table>
Moreover, the interrogative copula /-u/ suffixed to verb stems contrasts with the future interrogative marker /-o/:

ʔashká-u  ‘shall I make?’  ?i = da ʔashkó  ‘do I make?’

2.2.2 Vowel realization

Word-final unstressed vowels can be devoiced or partially devoiced especially in utterance-final position.\textsuperscript{15}

háada  ‘rope’  [háádḁ]~[hááda]
róqo  ‘tamarind tree’  [róq̥o]~[róqo]
ʔéeɓe  ‘cowhide’  [ʔééɓe̥]~[ʔééɓe]

Word-final stressed vowels, when words are uttered in isolation or precede a pause, can be phonetically breathy:\textsuperscript{16}

meté  ‘head’  [meté]~[met̥é]
muná  ‘sorghum dumpling’  [muná]~[mun̥á]
demí  ‘side’  [demí]~[dem̥í]
indá  ‘mother’  [indá]~[ind̥á]

This applies also to phonetically long vowels in final position, see examples in 2.4.1.

In allegro speech, word-medial unstressed short vowels can be centralized:

kirá  ‘these’ (DEM1.PL)  [kirá]~[kirá]~[kərá]
beré  ‘later’  [beré]~[baré]
ʔékeri  ‘bed bug’  [ʔékəri]~[ʔékəri]
jagá  ‘sparrow’  [ʤagá]~[ʤəgá]

\textsuperscript{15} Devoicing of short final vowels is reported also in Oromo (Stroomer 1995:15); (Bender et al. 1976:132). Turkana has final devoiced vowels, but their occurrence is not predictable by the position of stress or tone (Dimmendaal 1983:31).

\textsuperscript{16} Similar to Hamar, Boraana final long vowels can be realized as a short vowel plus [h] plus voiceless vowel: [V̥V̥] (Stroomer 1995:16). In Turkana breathy phonation is an articulatory correlate of [+ATR] vowels (Dimmendaal 1983:27-29).
Stressed mid-high vowels are lowered to /ɛ/ and /ɔ/ when followed by the low vowel /a/. Unstressed mid-high vowels are not affected. The realization of stressed mid-high vowels is shown in the examples below:

\[
\begin{align*}
\text{ʔé́na} & \quad \text{‘past’} & \quad [\text{ʔé́na}] \\
\text{yé́la} & \quad \text{‘roof’} & \quad [\text{yé́la}] \\
\text{dé́ega} & \quad \text{‘dumb’} & \quad [\text{dé́ega}] \\
\text{ké́dá} & \quad \text{‘half’} & \quad [\text{ké́dá}] \\
\text{ʔé́emájo} & \quad \text{‘good spirit’} & \quad [\text{ʔé́emájo}] \\
\text{gé́daq} & \quad \text{‘tree sp.’} & \quad [\text{gé́daq}] \\
\text{gé́lab} & \quad \text{‘Dhaasanac’} & \quad [\text{gé́lab}] \\
\text{pélána pélo} & \quad \text{‘butterfly’} & \quad [\text{pélána pélo}] \\
\text{bé́nta} & \quad \text{‘seed’} & \quad [\text{bénta}] \\
\text{ʔé́ra} & \quad \text{‘towards the speaker’} & \quad [\text{ʔé́ra}] \\
\text{qé́loč’a} & \quad \text{‘nap’} & \quad [\text{qé́loč’a}] \\
\text{dá́nza} & \quad \text{‘elder’} & \quad [\text{dá́nza}] \\
\text{bá́na} & \quad \text{‘drought’} & \quad [\text{bá́na}] \\
\text{bé́ta} & \quad \text{‘room, space’ (Amh.)} & \quad [\text{bé́ta}] \\
\text{bé́lta} & \quad \text{‘fermented milk’} & \quad [\text{bé́lta}] \\
\text{dá́ya} & \quad \text{‘bone marrow’} & \quad [\text{dá́ya}] \\
\text{qé́lama} & \quad \text{‘without’} & \quad [\text{qé́lama}] \\
\text{shé́l}a & \quad \text{‘light’} & \quad [\text{shé́l}a] \\
\text{rá́xa} & \quad \text{‘through’} & \quad [\text{rá́xa}] \\
\end{align*}
\]

Pronouncing the words given above with the corresponding mid-high vowels is not considered incorrect by the speakers. Apart from few exceptions, unstressed mid-high vowels are not affected by the low vowel /a/:  

\[
\begin{align*}
\text{berá} & \quad \text{‘in front of’} & \quad [\text{berá}] \\
\text{booc’á} & \quad \text{‘milk container’} & \quad [\text{booc’á}] \\
\text{shodá́r} & \quad \text{‘bird sp.’} & \quad [\text{shodá́r}] \\
\text{dongá́r} & \quad \text{‘elephant’} & \quad [\text{dongá́r}] \\
\text{déeshá} & \quad \text{‘medicine’} & \quad [\text{déeshá}] \\
\text{desá} & \quad \text{‘know’} & \quad [\text{desá}] \\
\text{dójá} & \quad \text{‘show’} & \quad [\text{dójá}] \\
\text{doolá} & \quad \text{‘milk churn’} & \quad [\text{doolá}] \\
\text{woomá} & \quad \text{‘honey container’} & \quad [\text{woomá}] \\
\text{gerák} & \quad \text{‘beam’} & \quad [\text{gerák}] \\
\text{gobá} & \quad \text{‘run’} & \quad [\text{gobá}] \\
\text{qoc’á} & \quad \text{‘suck’} & \quad [\text{qoc’á}] \\
\text{keerá} & \quad \text{‘cactus’} & \quad [\text{keerá}] \\
\end{align*}
\]
In some lexical items, the mid-low vowels /ɛ/ and /ɔ/ are in free variation with the mid-high vowels /e/ and /o/ also when unstressed: the quality of the vowels in the following examples can vary within the same speaker’s utterances and none of the two pronunciations is preferred over the other.

- **deésá** ‘kill’  
  \[deésá\]—[deésá]
- **déé'ta** ‘heavy’  
  \[déé'ta\]—[déé'ta]
- **ʔeedá** ‘relative’  
  \[ʔeedá\]—[ʔeedá]
- **kéda** ‘then’  
  \[kéda\]—[kéda]
- **ʔóída** ‘hot’  
  \[ʔóída\]—[ʔóída]
- **qolɓá** ‘fetch water’  
  \[qolɓá\]—[qolɓá]
- **ʔoshála** ‘after two days’  
  \[ʔoshála\]—[ʔoshála]
- **wólsha** ‘sorghum sugar cane’  
  \[wólsha\]—[wólsha]

On the contrary, for the few words illustrated below, the pronunciation given in brackets is the only one that has been recorded.

- **ʔédá** ‘luck’  
  \[ʔédá\]
- **cóóbar** ‘down there’  
  \[tʃóóbar\]
- **córra** ‘from below’  
  \[tʃórра\]
- **ʔóobar** ‘up there’  
  \[ʔóobar\]
- **ʔórра** ‘from there’  
  \[ʔórра\]17
- **zééga** ‘bird of prey sp.’  
  \[zééga\]
- **sɛl** ‘nine’  
  \[sɛl\]—[sal]
- **mɛɛ́** ‘downwards’  
  \[mɛɛ́\]18

These exceptions can give rise to few minimal pairs such as *édá* ‘luck’ vs. *édá* ‘separate’. As will be illustrated later on, mid-low vowels can arise as the result of phonological and morpho-phonological processes in nouns inflected for masculine gender. Substituting a mid-high vowel for a mid-low vowel in a masculine inflected noun is considered ungrammatical. Lowering of mid vowels in the lexicon is pretty close to metaphony, a type of height vowel harmony which targets only stressed vowels. However, in this assimilatory process, change in the height of a stressed vowel is generally triggered by a suffix vowel. In the case of Hamar, the post-tonic low vowel /a/ occurring in suffix vowel cannot be considered, at least synchronically, a suffix. In most cases it is part of the nominal root to which gender and number inflections are suffixed:

17 The words *cóóbar, córra, ʔóobar and ʔórra* are composed of the deictics *cóo* and *óo* plus the case suffixes *-bar and -rra*, see chapter 5.
18 In Boraana the question word *mɛɛ* ‘where?’ borrowed from Somali is also realized with the mid-low vowel *ɛ*. In this respect Stroomer (1995:16) states that ‘[...] it is not clear whether [ɛɛ] is an allophone of ee [...]’.
Moreover, the low vowel /a/ may trigger lowering of mid-high vowels also when it occurs inside the root, as in pəlan pélo ‘butterfly’, and in words such as ŋra ‘towards the speaker’. In the case of verbs, mid-high stem vowels are usually not lowered since the citation form of verbs always ends in /-á/ (see 2.4.2), however some variation may occur among different speakers, see the examples for desá ‘kill’ and qolɓá ‘fetch water’ given above.

Lowering of stressed mid-high vowels (and unstressed mid-high vowels in the exceptional cases illustrated above) in nouns, verbs and connective words seems to emerge out of analogy with the nominal inflectional system, where the masculine mid-vowel lowering (morpho-phonological rule MP5) and vowel coalescence (phonological rule P5) occur systematically. MP5 and P5 however target both stressed and unstressed vowels causing various vowel mutations, see 2.5 and 2.6 for further details.

### 2.2.3 Vowel length

Vowel quantity is distinctive. Long vowels are restricted to the first syllable of a word. The examples below show the quantity oppositions:

- **/a/ /aa/**
  - c’ac’i ‘sky’
  - ?ashá ‘insult’
  - c’aac’í ‘root’
  - ?aashá ‘hide’

- **/e/ /ee/**
  - ?éna ‘past’
  - gedé ‘bed’
  - ?éna ‘people’
  - geedé ‘answer!’ (IMP.2PL)

- **/i/ /ii/**
  - shidá ‘stay’
  - zigá ‘shake’
  - shiidá ‘be washed’
  - zíiga ‘spinal cord’

- **/o/ /oo/**
  - gobá ‘run’
  - qot’í ‘shaved area’
  - goobá ‘decorate’
  - qootí ‘beehive’
Phonemically long vowels are phonetically long: they are longer than short vowels in stressed syllables. The examples below show vowel length (in seconds) in the first syllable (abbreviated VL1). The unstressed long vowel in goobá is longer than the stressed short vowel in góro.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>VL1</th>
</tr>
</thead>
<tbody>
<tr>
<td>góro</td>
<td>‘Colobus monkey’</td>
<td>0.091</td>
</tr>
<tr>
<td>gobá</td>
<td>‘run’</td>
<td>0.070</td>
</tr>
<tr>
<td>góodo</td>
<td>‘termite eater’</td>
<td>0.151</td>
</tr>
<tr>
<td>goobá</td>
<td>‘decorate’</td>
<td>0.130</td>
</tr>
</tbody>
</table>

Long vowels can be phonetically shortened when nominal or verbal stems are extended through inflection and/or derivation. CVVC syllables are allowed only in monosyllables (see 2.3). Vowel shortening occurs to avoid $C_1VVC_2C_3V$ and $C_1VVC_2C_3V$. The context for vowel shortening is found often after suffixation of the feminine and plural markers /-no/ and /-na/, after suffixation of the masculine suffix /-tâ/, with verbal derivations and in concomitance with the ablative case /-rra/. Even though vowels undergoing shortening are not phonetically short as short vowels in word-medial position, they are shorter than the related long vowels in the general form. Forms in brackets represent unattested stages, see 2.5 for the underlying phonological rules.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>(underlying)</th>
<th>&gt; Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>qáami</td>
<td>‘ear’</td>
<td>(qaam-no)</td>
<td>&gt; qámmo</td>
</tr>
<tr>
<td>ʔooní</td>
<td>‘house’</td>
<td>(ʔoon-no)</td>
<td>&gt; ʔonnó</td>
</tr>
<tr>
<td>ʔaan</td>
<td>‘arm’</td>
<td>(ʔaan-ta)</td>
<td>&gt; ʔantâ</td>
</tr>
<tr>
<td>yíir</td>
<td>‘upper arm’</td>
<td>(yíir-na)</td>
<td>&gt; yírra</td>
</tr>
<tr>
<td>káara</td>
<td>‘fish’</td>
<td>(kaar-ta)</td>
<td>&gt; kartâ</td>
</tr>
<tr>
<td>jaagá</td>
<td>‘sew’</td>
<td>(jaag-s-á)</td>
<td>&gt; jashká</td>
</tr>
<tr>
<td>shooshí</td>
<td>‘guest’</td>
<td>(shoosh-na)</td>
<td>&gt; shoná</td>
</tr>
<tr>
<td>ʔóo</td>
<td>‘over there’</td>
<td>(ʔoo-rra)</td>
<td>&gt; ʔórra</td>
</tr>
</tbody>
</table>

### 2.2.4 Diphthongs

Diphthongs occur in the lexicon in word-medial and word-final position, and arise grammatically. There are four closing diphthongs (/ai/, /au/, /ei/, /oi/), and one opening diphthong (/ia/).

/aï/ word-medial and word-final:

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Baití</th>
<th>‘river’</th>
</tr>
</thead>
<tbody>
<tr>
<td>ázáigi</td>
<td>‘fence’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lámkai</td>
<td>‘eight’</td>
<td>dúmai</td>
<td>‘thumb’</td>
</tr>
</tbody>
</table>
As shown in 2.2.1, diphthongs arise grammatically when the interrogative copula /\u028u/ is suffixed to vowel ending nominal or verbal stems:

\[\text{payá} 'good' \quad \text{payáu} 'Is it good?' \quad \text{wuc'á} 'drink' \quad \text{wuc'áu} 'Shall I drink?'\]

### 2.3 Word structure

Onsetless syllables, onsets with consonant clusters and codas with consonant clusters are not permitted in Hamar. Syllable boundaries are indicated by a full stop.

#### 2.3.1 Syllable

Hamar has four possible phonemic syllable types:

- **CV**  
  qu.lí ‘goat’

- **CVV**  
  káa.ra ‘fish’

- **CVC**  
  kár.c’a ‘cheek’

- **CVVC**  
  déer ‘red’

The minimal syllable type is CV. The nucleus of a syllable is either a short or a long vowel. CVVC syllables occur only in monosyllables. Derived nouns with a syllabic structure of the type CVVC.CV undergo vowel shortening and surface as CVC.CV as shown in 2.2.3. All consonants and glides can be the onset of a syllable. The onset and the coda of a syllable cannot contain more than one consonantal segment. For this reason consonant clusters only occur word-internally at syllable boundaries and geminate consonants are ambisyllabic segments filling the coda of a syllable and the onset of the following syllable:

\[\text{ʔát.tí} 'bird'\]
Hamar shows a striking preference for sonorants in coda position. Obstruent segments in codas are extremely rare and are found only in monosyllables and word-final syllables. If consonant clusters arise where an obstruent occurs as the first segment of the cluster, morpho-phonological rules apply in order to avoid the illicit sequence (see metathesis and assimilation rules in 2.5).

Although consonant clusters are not allowed in codas, there is one exception: the numeral word dong ‘five’. /n.g/ is a licensed sequence in word-medial position, however there are no other Hamar words ending with a consonant cluster.

### 2.3.2 Consonant clusters

Consonant clustering is constrained as follows:
The first segment of a cluster is preferably a sonorant (nasal or liquid), or a fricative (the alveolar and post-alveolar /s//sh/); consonant clusters starting with stops, implosives and ejectives are not licensed. Metathesis occur to avoid illicit sequences when they arise grammatically (see 2.5, phonological rule P2).

<table>
<thead>
<tr>
<th>Nasal + obstruent clusters:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>m.p</td>
<td>sómpo</td>
</tr>
<tr>
<td>m.b</td>
<td>dámbi</td>
</tr>
<tr>
<td>m.ɓ</td>
<td>demɓi</td>
</tr>
<tr>
<td>n.t</td>
<td>kánta</td>
</tr>
<tr>
<td>n.d</td>
<td>ʔindá</td>
</tr>
<tr>
<td>n.cf</td>
<td>tuqándá</td>
</tr>
<tr>
<td>n.t’</td>
<td>lant’í</td>
</tr>
<tr>
<td>n.s</td>
<td>qansá</td>
</tr>
<tr>
<td>n.z</td>
<td>ʔanzá</td>
</tr>
<tr>
<td>n.ɓ’</td>
<td>ganc’á</td>
</tr>
<tr>
<td>n.sh</td>
<td>ʔanshá</td>
</tr>
<tr>
<td>n.k</td>
<td>kínka</td>
</tr>
<tr>
<td>n.g</td>
<td>dângá</td>
</tr>
<tr>
<td>n.q</td>
<td>sunqá</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liquid + obstruent clusters:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>r.p</td>
<td>ʔárpi</td>
</tr>
<tr>
<td>r.m</td>
<td>sirmá</td>
</tr>
<tr>
<td>r.t</td>
<td>gertámo</td>
</tr>
<tr>
<td>r.d</td>
<td>ʔardá</td>
</tr>
<tr>
<td>r.ɓ’</td>
<td>bardá</td>
</tr>
<tr>
<td>r.t’</td>
<td>márt’o</td>
</tr>
<tr>
<td>r.s</td>
<td>parsí</td>
</tr>
<tr>
<td>r.l</td>
<td>ɓórle</td>
</tr>
<tr>
<td>r.j</td>
<td>mirjá</td>
</tr>
</tbody>
</table>
2.3.3 Syllable patterns in nouns and verbs

The preferred structure for nouns in Hamar is disyllabic. Trisyllabic and monosyllabic nouns occur but are rare. The canonical syllabic structure is CV.CV, CVC.CV, CVV.CV for disyllabic nouns and CV.CV.CV, CV.CVC.CV, CVC.CV.CV for trisyllabic nouns.

CV  wa  ‘another’
CVV dáa  ‘clay pot’
CVC bül  ‘waterhole’
CVVC däär  ‘cattle’s field’
CV.CV no.qó  ‘water’
CVV.CV qáa.mi  ‘ear’
CVC.CV gir.sho  ‘porcupine’
CVC.CVC don.gár  ‘elephant’
CV.CV.CVC sho.dár  ‘bird sp.’
CV.CV.CV se.ge.ré  ‘dik-dik’
CVC.CV.CV kor.qi.shá  ‘francolin, bird sp.’
Verbs are generally disyllabic; monosyllabic and trisyllabic stems are uncommon. Longer stems are extended through derivational suffixes. Verbs in the citation form carry a high tone on the last vowel (see 2.4.2):

- CVV kaá ‘pour’
- CV.CV bülá ‘jump’
- CVV.CV raatá ‘sleep’
- CVC.CV ɗalqá ‘speak’

### 2.4 Word prosody

There are no accentless words in Hamar, and there is only one prominent syllable per word, cued by high pitch, loudness and increased duration. In this section the acoustic features and the functions of prominence are described, showing that Hamar has two co-existing, yet independent systems which can be analysed in terms of stress and tone. Stress is indicated with the diacritic /V́/, and a circumflex accent /V̂/ indicates falling tone. CV and CVC word types have no diacritics.

#### 2.4.1 Stress

The phonetic cues of stress are increased duration (as shown in section 2.2.3, where the length of short unstressed vowels and short stressed vowels is compared), loudness and high pitch. In nouns, long vowels and diphthongs in word internal position and in monosyllabic words carry only one and the same pitch:

- zíini [ˈzííni] ‘mosquito’ *[zííni] *[zííni]
- déér [ˈdéér] ‘red’
- dáa [ˈdáá] ‘clay pot’
- qáu [ˈqáú] ‘bushy area’
- sía [ˈsíá] ‘bad’

In nouns there is only one stressed syllable and *σ.σ or *σ́.σ́ word types are not attested:

- ó.σ qá.sa ‘louse’
- o.ó me.té ‘head’

---

19 Plant’s names are usually trisyllabic. The following is a list of nouns referring to plants and trees, but not all of them have been classified yet, cf. the lexicon at the end of the book: pulánti, ruc’únti, kulmjài, gdrantì, shámbulò, zínzaqe, tubáqe, ñindòko, báràsà, gédàqa.
Stress in nouns is lexical and its position is not predictable. In disyllabic nouns, either the final or the penultimate syllable can be stressed. In disyllabic nouns composed of a heavy syllable, stress is attested in any position:

- **shaa.lá** ‘ceiling’
- **zíi.ga** ‘spinal cord’
- **síl.qa** ‘knuckle’
- **gur.dá** ‘village’

Stress in nouns can be lexically distinctive. A few ñó vs. oó minimal pairs occurring in the same grammatical domain have been attested:

- **hámmo** ‘field:F.S’
- **hámma** ‘field:PL’
- **átí** ‘bird’
- **ʔáshó** ‘slope’

Stress in nouns can be lexically distinctive. A few ñó vs. oó minimal pairs occurring in the same grammatical domain have been attested:

- **hammó** ‘which:F.S’
- **hammá** ‘which:PL’
- **attí** ‘fermented sorghum’
- **ʔashó** ‘type of tree’

The possessed form of the kinship terms (cf. chapter 8) for ‘mother’ and ‘father’ contrast with the general form in the position of pitch:

- **índá** ‘mother’
- **imbá** ‘father/owner’

Trisyllabic nouns can have a final, penultimate or antepenultimate stressed syllable as displayed in the CV.CV.CV minimal pairs below.

- **ánqasi** ‘bee’
- **shékini** ‘white quartz’
- **bagáde** ‘backbone’

Suffixation of feminine (-no) and plural (-na) inflections to nominal roots does not change the position of pitch:

- **shaalá** ‘ceiling’
- **meté** ‘head’
- **zikí** ‘goat faeces’
- **qólpo** ‘scorpion’

Stress plays an important role in the nominal morphology, especially as far as masculine nouns are concerned. Nouns inflected for masculine gender get a final stress which is realized as falling tone:
qása 'louse' qasâ 'louse:M'

The masculine suffixes /-â/ and /-tâ/ trigger various (morpho)phonological changes (see 2.5 and 2.6 for further details) on inflected nouns. For instance the masculine inflection /-â/ in the following example is realized with a final falling tone and with coalescence of the final vowel /o/ with the masculine inflection /-â/. Moreover, the masculine inflection lowers the root vowels:

róqo 'tamarind tree' roqDani 'tamarind tree:M'

In nouns where vowel mutation is not observable, the difference between the uninflected form and the masculine inflected form is only prosodic: prominence usually switches to the final syllable and it is realized as falling tone.

háña 'sheep' [ˈhaɲḁ]
hånâ 'sheep:M' [hàˈɲâ]

In the previous example the final vowel /a/ of the general form is devoiced because unstressed (cf. 2.2.2).

When nouns are uttered in isolation or before a pause, the final stressed syllable of the masculine form can be phonetically long. Length and falling tone however are hardly ever realized in connected speech, especially before case suffixes. When a noun like háña above is inflected for masculine gender, the final stress can be thus realized with a final high tone, rather than a falling tone: [haɲá]. Some uninflected nouns have stress on the final syllable:

zará 'body'

In such cases the difference between the uninflected form zará and the masculine form zará can be noticed only in isolation or before a pause: the final vowel is realized longer and/or carrying a falling tone. Below I compare stress final uninflected forms and their related masculine inflected form. The examples are all uttered in isolation. VL2 indicates the length (in seconds) of the final vowel:

<table>
<thead>
<tr>
<th>Word</th>
<th>'sparrow'</th>
<th>VL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>jágá</td>
<td>[dʒàˈgáà]</td>
<td>0.144</td>
</tr>
<tr>
<td>jágá (M)</td>
<td>[dʒàˈgáà]</td>
<td>0.144</td>
</tr>
<tr>
<td>muná</td>
<td>'dumplings'</td>
<td>0.141</td>
</tr>
<tr>
<td>muná (M)</td>
<td>[mùˈnáà]</td>
<td>0.141</td>
</tr>
</tbody>
</table>

20 These words are examples of nouns which are neutral to the vowel mutation triggered by coalescence (P5) and masculine mid-vowel lowering (MP5).

21 Note that final stressed vowels can be breathy, cf. 2.2.2. In all the examples the final vowel can be breathy or not.
shaalá  ‘ceiling’  VL2 = 0.067
shaalā (M)  [ʃààˈláà]  VL2 = 0.140
ganc’á  ‘thin’  VL2 = 0.090
ganc’â (M)  [gànˈtʃ'áà]  VL2 = 0.154

For such nouns, the difference between the uninflected form and the inflected masculine form cannot always be detected on the basis of phonological criteria because the distinction is lost in connected speech. The masculine form however can be distinguished from the uninflected form on the basis of syntactic, discourse-related and semantic properties. Uninflected forms are distributionally restricted and cannot occur in contexts where syntactic agreement is required; their meaning is general, undetermined and neutral about gender and number, see chapter 3 for further details.

The PRAAT diagrams below show the difference in length and pitch contour between masculine nouns uttered in isolation and in context.

The first diagram displays the noun ʔási ‘tooth’ inflected for masculine gender and uttered in isolation. The final vowel of ʔási merges with the masculine suffix /-â/ resulting in the mid-low /ɛ/ (phonological rule P5, cf. section 2.5). The final vowel of ʔasɛ̂ is quite long (0.190 seconds) and carries a falling pitch:

ʔasɛ̂  [ʔàˈsɛ́ɛ̀] ‘tooth:M’  VL2 = 0.190

The second diagram shows the same inflected masculine noun ʔasɛ̂ uttered in connected speech:

(1) ʔi = sa ʔasɛ̂ burqad-idî-ne
     1SG = GEN tooth:M hurt-PF-COP
     lit.: my tooth (M) hurts
The final vowel of $ʔasɛ$ is drastically shorter in connected speech, as it can be seen in the next diagram representing sentence (1):

$ʔasɛ$ [ʔàˈsɛ̂] 'tooth:M' VL.2 = 0.066

In the previous diagram, the falling pitch on the final short vowel of $ʔasɛ$ is still visible.

Next example shows the inflected masculine form of $ʔooni$ 'house' in isolation. As for the noun $ʔasɛ$, coalescence occurs between the final vowel /i/ of $ʔooni$ and the masculine inflection /-â/. In isolation, the final vowel is exceptionally long:

$ʔooni$ [ʔɔɔnɛ̂] 'house:M' VL.2 = 0.344
The following examples show the masculine inflected noun ʔɔɔnɛ̂ followed by the locative and allative suffix cases. In such cases, not only is the final long vowel shortened, but there is no clear fall on the final vowel.

(2) ʔɔɔnɛ̂-te ʔɛedi dáa-ne
    house:M-LOC person exist-COP
    somebody is in the house (M)

In sentence (2), which is represented in the next diagram, the final vowel is only 0.080 seconds long, against the 0.344 seconds of the same noun uttered in isolation:

In (3) below, the final vowel of the masculine noun ʔɔɔnɛ̂ is even shorter than that of the previous example (0.072 seconds). Most importantly, the final stress is not realized with a fall, but it is almost a level tone:

(3) ʔɪnta ʔɔɔnɛ̂-dar da-yiʔ-ɛ
    1SG house:M-ALL1 IPFV-go-PRES
    I will go to the house (M)
If the masculine inflected noun is followed by a pause, the final vowel can be lengthened and the final stress is realized as falling tone. The pause in the diagram is represented by #:

(4) káa ʔɔɔnɛ̂ intɛ̀-ne
DEM1.M house:M 1SG:M = COP
this house (M) is mine
Prominence in Hamar nouns is analysed as stress since it is obligatory, culminative and unpredictable (but see 2.4.2). Nouns in Hamar have lexical stress when they are uninflected, and get a final grammatical stress when they are inflected for masculine gender. This final stress is realized as falling tone and it is applied post-lexically.

Prominence has a high functional load in verbs. As for nouns, prominence in verbs is limited to one syllable per word, thus there are no ő.ő nor o.o verb types. Different from nouns, prominence in verbs is not lexically distinctive, but grammatical: verb roots are stress-less, and prominence is attested only on verbal suffixes. The simplest verb stem consists of the verb root plus /-á/. The /-á/ stem is used as the citation form of the verb, thus prominence is attested always on the right-most edge of the citation form:

- c’a-á [tʃ’àˈá] ‘clap’
- gi-á [gìˈá] ‘tell’
- bul-á [bùˈlá] ‘open’
- shan-á [ʃàˈná] ‘buy’
- dórq-á [dòrˈqá] ‘sit’
- ʔukuns-á [ʔùkùnˈsá] ‘rest’

In the citation form of monosyllabic verb stems, prominence is found on the right-most vowel ã. This means that in monosyllabic verb stems formed by two consecutive vowels, contour tones can arise. As it was illustrated above in 2.4.1, there are no contour tones on consecutive vowels in nouns, thus the following minimal pairs exist in the language:

- káa [káá] ‘this.M’
- kaá [kàá] ‘pour’
- sáa [sáá] ‘over there’
- saá [sàá] ‘sweep’
- t’ía [t’íá] ‘black’
- tíá [tíá] ‘take’

When the citation form of the verb is used in the imperative mood and it is pronounced with emphasis, the last vowel can be phonetically long:

yiʔ-á ‘go!’ [jìˈʔá]–[jìˈʔáá]

The citation form of the verb is used for the majority of verbal paradigms, that is, verbal suffixes can be suffixed to the verb stem ending in /-á/, see chapter 6 and chapter 9 for an overview of verb roots and verb stems. The suffix /-á/ however can be substituted for other suffixes depending on TAM and person marking. The plural addressee of the imperative for instance is marked by the suffix /-é/:
The position of stress may distinguish verb tenses, for instance stress placement distinguishes negative present and negative past inflections:

- **des-átine** ‘I don’t know’
- **des-átné** ‘you don’t know’
- **des-átné** ‘you did not know’

A few noun-verb pairs are segmentally identical, but prosodically different as the following examples show:

- **qána** ‘stream’, noun
- **qaná** ‘hit’, verb
- **búla** ‘egg’, noun
- **búlú** ‘jump’, verb

### 2.4.2 Tone

An analysis in terms of tone is supported by examples attested in both the verbal and the nominal domain. In the verbal domain, a final falling tone is found on the 3rd person of the negative present inflection /-ê/. This creates an opposition between the plural addressee of the imperative (illustrated in 2.4.1), and the 3rd person negative:

- **wuc’ê** ‘he/she doesn’t drink, they don’t drink’
- **wuc’é** ‘drink!’ (plural addressee)

The last vowel of the negative present inflection can be lengthened in emphatic speech:

- **wuc’ê** [wùˈtʃ’ê]–[wùˈtʃ’éê]

The same inflection is found in the negative existential predicator, which contrasts with the question word ‘where’:

- **qolê** ‘there is not’
- **qóle** ‘where is?’

Similarly, the negative equative copula carries a final falling tone and contrasts with the locative case suffix:

- **tê** ‘is not’
- **-te** ‘in’

Verb roots can be affixed with nominal inflections to form relativized verbs.
Relativized verbs which agree in gender with a masculine head noun take on the same masculine gender marker introduced in 2.4.1, i.e. the suffix /-â/:

\begin{align*}
\text{wuc’á} & \quad \text{‘drink’} & [wùˈtʃá] \\
\text{wuc’â} & \quad \text{‘the one (M) who drank’} & [wùˈtʃâ]
\end{align*}

For nouns and verbs which are segmentally identical but which differ prosodically, the following contrasts can arise:

\begin{align*}
\text{qána} & \quad \text{‘stream’} & \text{noun, uninflected form} \\
\text{qaná} & \quad \text{‘hit’} & \text{verb, citation form} \\
\text{qanâ} & \quad \text{‘stream:M’} & \text{noun, masculine form} \\
\text{qanâ} & \quad \text{‘the one who hit’} & \text{noun, relativized masculine verb} \\
\text{qané} & \quad \text{‘hit!’} & \text{imperative 2\textsuperscript{nd} plural addressee} \\
\text{qané} & \quad \text{‘he/she does not hit’} & \text{verb, negative present 3\textsuperscript{rd} person}
\end{align*}

The difference between the masculine form of \text{qána} ‘stream’ and the masculine of the relativized verb \text{qaná} ‘hit’, is purely prosodic. In nouns such as \text{qána} (that is, nouns which have lexical stress on the first syllable in the uninflected form), the high pitch on the first syllable is often realized in the masculine inflected form as well:

\begin{align*}
\text{qána} & \quad \text{‘stream’} & & [qána] \\
\text{qanâ} & \quad \text{‘stream:M’} & & [qánâ] \sim [qáná] \\
\text{háɲa} & \quad \text{‘fat-tailed sheep’} & & [háɲá] \\
\text{háɲâ} & \quad \text{‘fat-tailed sheep:M’} & & [háɲâ] \sim [háɲâ] \\
\end{align*}

There is variation in the realization of these masculine inflected nouns, and the realization of pitch on the syllable that carried lexical stress varies among speakers and in the same speaker’s speech. The fact that the lexical stress and the final grammatical stress (which is realized as falling tone) are both realized might be due to the fact that the final stress in masculine nouns is applied post-lexically.

For this reason, there is opposition between a masculine inflected noun such as \text{qanâ} ‘stream:M’, which can be realized as [qánâ], and the relativized masculine verb \text{qanâ} ‘the one (M) who hits’, which is realized always with low pitch on the first syllable: [qânâ]. These examples pose a challenge for a stress analysis: the option for a high vs. low opposition on the first syllable of disyllabic words with final falling tone is a violation of culminativity and suggests the existence of two independent systems.

The nature of prominence on nouns and verbs is moreover quite different: prominence in nouns is a lexical property and it shows the characteristics of stress in that it is a property of the word and it is culminative and obligatory. In verbs, not only prominence is grammatical and it is a property of the morpheme (i.e. verbal inflections), but it shows the existence of two separate tonemes: a high tone (qané
hit.IMP.2PL) which contrasts with a falling tone (qanê hit.PRES.NEG.3). The two falling tones which are found on the final syllable of masculine inflected nouns (qanê stream:M) and on the 3rd person negative inflection (qanê hit.PRES.NEG.3), are different in that the former is applied post-lexically but it is still a lexical property of masculine nouns, whereas the latter has a purely grammatical function.

For the sake of clarity, the PRAAT diagrams below show the shape of pitch in three words uttered in isolation: the uninflected form and the masculine form of búla ‘egg’ is contrasted with the verb ðulá ‘jump’.

** búla  ‘egg’**

The uninflected form for ‘egg’ has a level high pitch on the first syllable which is higher than the pitch on the last syllable. In the M form the pitch contour on the first syllable is slightly rising, and then it sharply falls on the last long vowel:
Since these words were recorded in isolation, the final vowel in the masculine noun above and in the imperative form below is exceptionally long. In the verb ɓulá 'jump' the pitch on the first syllable has a slight fall and then raises on the last long vowel, remaining constantly high until the end of the utterance.

The analysis of the prosodic system of Hamar is far from being complete and needs further investigation. Future acoustic analyses which take into account also phrasal intonation will give a better account of the prosodic facts. Moreover, the fact that stress and tone are competing produces a hybrid system which should be tested for
diachronic change, by studying for example the synchronous variation across different
generations and different dialects of Hamar.

2.5 Phonological and morphophonological processes

Morphophonological processes are described in this section. The realizations of
consonant phonemes have been already illustrated in the previous sections. Pho-
nological rules are numbered P1, P2, and morphophonemic rules are numbered
MP1, MP2 etc. This numbering will be used throughout this work whenever ref-
erence to a (morpho)-phonological process is needed. Numbering does not reflect
rule ordering. Forms in parenthesis are unattested intermediate stages.

P1 Sibilant harmony
P2 Consonant metathesis
P3 i prosthesis
P4 Assimilation of plural and feminine markers
P5 Vowel coalescence
P6 Vowel deletion
P7 Complete harmony
P8 Voicing assimilation
P9 Consonant elision after palato-alveolar nasal
MP1 Apocope
MP2 Clitic reduction
MP3 Deletion of final vowel of feminine relativizing suffix
MP4 Deletion of word-initial /h/ before subject clitics
MP5 Masculine mid-vowel lowering

2.5.1 Overview of (morpho)phonological processes

P1 Sibilant harmony

Sibilant harmony is a root-structure condition but it extends as well across
morpheme boundaries. Sibilant consonants occurring in the same word must agree
in place of articulation, but do not need to be identical. The sibilant consonants in
Hamar are: /c/ /ʃ/ /c'/ /s/ /ʒ/ /ʃh/.
shooshí  ‘guest’
c'áč'i  ‘sky’
sosó  ‘eagle’
c'arshá  ‘sharpen’
c'agáj  ‘green’
zarsí  ‘grass’
shiccá  ‘soften’
shamáj  ‘albino cattle coat colour’
c’íshi  ‘bile’

Sibilant harmony operates from left to right and across non-sibilant consonants. It can be observed across morpheme boundaries when the causative derivational suffix /-s/ is affixed to a verb root:

<table>
<thead>
<tr>
<th>verb</th>
<th>causative verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>giá</td>
<td>gisá</td>
</tr>
<tr>
<td>deesá</td>
<td>deesisá</td>
</tr>
<tr>
<td>gishá</td>
<td>gishishá</td>
</tr>
<tr>
<td>shaná</td>
<td>shanshá</td>
</tr>
</tbody>
</table>

**P2 Consonant metathesis**

Metathesis occurs as a structure preservation rule. The only permitted consonant clusters in Hamar are allowed at syllable boundaries and the first segment of the sequence can only be a sonorant (liquids or nasals). The fricatives /s/ and /sh/ have been attested so far only before a velar and a bilabial stop. Metathesis inverts the position of two segments in an illicit sequence, so that the first element of the cluster is a sonorant or a fricative segment. Metathesis is frequent when the feminine (-no) and plural (-na) inflections are suffixed directly to consonant-ending roots, in particular when the first segment of the cluster is a stop. This can happen with consonant ending nouns and when the terminal vowel of a noun is unstable (see chapter 3):

<table>
<thead>
<tr>
<th>noun</th>
<th>metathesis verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>tuɗí</td>
<td>tundó</td>
</tr>
<tr>
<td>tubáqe</td>
<td>tubáno &gt; tubánero</td>
</tr>
<tr>
<td>ʔatáɓ</td>
<td>ʔatámɓa</td>
</tr>
<tr>
<td>kut'úɓo</td>
<td>kut'úmɓo</td>
</tr>
</tbody>
</table>

After metathesis, nasal assimilation occurs if the nasal precedes a bilabial consonant:

<table>
<thead>
<tr>
<th>noun</th>
<th>nasal assimilation verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>ʔatáɓ</td>
<td>ʔatámɓa</td>
</tr>
<tr>
<td>kut'úɓo</td>
<td>kut'úmɓo</td>
</tr>
</tbody>
</table>

---

22 The direction of harmony correlates with the suffixal nature of Hamar.
In verbal derivation, suffixation of the causative /-s/ can produce illicit sequences when the causative /-s/ is affixed to verb roots. Metathesis inverts the illicit sequence, after sibilant harmony P2:

jaagá ‘sew’ (jaags, jaashg) > jashká

Different voicing is not allowed in the same cluster after metathesis, see P8. Metathesis is found also in the derivation of some ordinal numbers from cardinal numbers by means of the suffix /-so/.

lax ‘six’ (lax-so) > lásxo ~ lásko

The forms [láxso--láhso] have been attested as well. Two fricatives can cluster together but a sequence with a stop as second segment is always preferred, see also chapter 5, section 5.5.2 on ordinal numbers.

P3 i prosthesis
A prosthetic vowel -i can be inserted after consonant ending words:

baz ‘lake’ bàzi
ʔáan ‘arm’ ?áani

Some borrowings from Amharic get a prosthetic vowel -i:

sílki ‘phone’ (Amharic solk)
múzi ‘banana’ (Amharic muz)

The prosthetic vowel -i is inserted between consonant ending nouns and various morphemes such as the copula /-ne/, the oblique case /-n/, the inclusive marker /-l/, the genitive case /-sa/:

gudúɓ ‘tall’ gudúɓ-ine ‘is tall’
hámar ‘Hamar’ hámar-in ‘Hamar-F.OBL’
yer ‘thing’ yér-il ‘a thing as well’
dóng ‘five’ dóng-isa ‘of five’

P4 Assimilation of plural and feminine markers
When affixed directly to the root, the nasal consonant of the plural and feminine markers /-na/ and /-no/ takes on the manner of articulation of a preceding liquid or nasal segment.

segeré ‘dik-dik’ (seger-no) > segerró
qulf ‘goat’ > qullá
In a few instances, suffixation of nominal inflections creates illicit clusters such as /bn/, /pn/, /tn/, /zn/:

- **náabi** 'name' (nab8no) > námmo
- **galáp** 'yellow' > galámmo
- **qootí** 'beehive' > qonnó
- **maz** 'initiate boy' > mánnno

In these cases assimilation takes place bidirectionally: place assimilation occurs from left to right and nasal assimilation from right to left.

### P5 Vowel coalescence

Vowel coalescence occurs across morpheme boundaries and it can be observed especially in the nominal domain, between the masculine suffix /-â/ and nominal terminal vowels /e i o/ of vowel ending nouns. Nouns ending in the diphthong /au/ and /ia/ are inflected by the masculine suffix /-tâ/ and will be treated in more details in chapter 3.

Vowel coalescence gives rise to the mid-low vowels /ɛ/ and /ɔ/ according to the following pattern:

\[
i + a > \varepsilon \\
e + a > \varepsilon \\
o + a > \varnothing
\]

- **ʔaizí** 'goat hide' > **ʔaizɛ̂** 'goat hide:M'
- **bagadé** 'cooked blood' > **bagadɛ̂** 'cooked blood:M'
- **búqo** 'knee' > **buqɔ̂** 'knee:M'

On nouns in isolation, the masculine suffix /-â/ can be realized as a devoiced vowel, but it is hardly ever realized in connected speech:

- **qáski** 'dog'  
- **qaskɛ̂** 'dog:M'  
- **qaskɛ̂ káa** 'dog:M DEM1.M'

Vowel coalescence is applied also to loanwords. For instance, the Amharic loanword for phone [salk], is realized in Hamar with the epenthetic final vowel -i: sîkî, the general form, becomes sîlkê in the masculine.

The masculine suffix is not the only trigger for vowel coalescence. Vowel coalescence is found for instance in the shortened forms of third person object pronouns.
In fast speech, the implosive ɗ can be reduced to glottal stop, and glottal stop in intervocalic position is often deleted (cf. 2.1.1). The vowels /i o/ and /a/ thus merge, giving rise to the shortened forms illustrated above. Other persons, such as the first person plural (wóɗan) or the second person plural (yéɗan) have a shortened form but the quality of the vowel is not obligatory low, see chapter 4, section 4.1.2 for further details.

When the optative marker /-áňňa/ is suffixed to clitic pronouns, coalescence occurs between the vowel of the clitic and the initial vowel of the optative marker /a/. Whereas coalescence always takes place in the first person singular and third persons, in the first and second plural it is optional and the pronunciation varies among speakers and within the same utterance:

(ʔi-áňňa) > ɛ́nna (1SG:OPT)
(ha-áňňa) > hánna (2SG:OPT)
(ki-áňňa) > kénna (3:OPT)
(ko-áňňa) > kónna (3F:OPT)
(wo-áňňa) > wónna ~ wɔnna (1PL:OPT)
(ye-áňňa) > yénna ~ yénna (2PL:OPT)

Coalescence occurs also after MP4 deletes the word-initial glottal fricative of the reason clause marker hattáxa and other verbs with word-initial glottal fricative, see MP4 below. Vowel coalescence occurs word-internally only in the verb giá 'hit'. Vowel coalescence often occurs when the verb is suffixed with subordinative markers.

(5) waakí giá-isé niʔiɗí
      cattle hit-CNV1 come-PF
      (they) came herding the cattle

Vowel coalescence in this context is unusual since the vowel sequence /ia/ is allowed in monosyllabic noun roots and verb stems such as sá ‘bad’ and giá ‘tell’. When the verb giá ‘tell’ is suffixed with the same subordinative marker reported in example (5), coalescence does not take place, cf. (6) below with (5):

(6) budámo giá-isé gob-idí
      lie tell-CNV1 run-PF
      (he) lied and ran away
The final vowel of the question word *hamó* ‘where?’ is lowered to ɔ if the following word is the second person clitic pronoun *ha*. MP2 deletes the initial consonant of the clitic pronoun (indicated by < >):

\[
[\text{hamşa jiţé?}]
\]

(7) hamó  \(<h>\text{a} = \text{yiţ-é}\)?
where.NSP  2SG=go-PRES.INT
where are you going?

**P6 Vowel deletion**

Vowel deletion occurs only after clitic reduction (MP2). This is a peculiar case in which MP2 deletes the glides of clitic pronouns, and two vowels at word-boundaries becomes adjacent. The two consecutive vowels are reduced to one segment. In the examples below, the deleted vowel and the deleted glide of the clitic pronoun are written within arrow head symbols < >. P6 occurs especially in connected and allegro speech.

\[
[\text{waadímano ?a[ké]}]
\]

(8) waadíma-n  \(<o>\)  \(<w>\text{o} = \text{ashk-é}\)
work-F.S   1PL=do-PRES
Let’s work!

If the vowels have different qualities, the first vowel of the sequence is dropped so that the vowel belonging to the clitic pronoun remains in place:

\[
[\text{gáago jigé}]
\]

(9a) gáag  \(<i>\)  \(<w>\text{o} = \text{yig-é}\)
gaagi   1PL=play-PRES
Let’s play the gáagi game!

\[
[\text{kánki xóda jiţé}]
\]

(9b) kánki-x  \(<a>\)  \(<w>\text{o} = \text{da-yiţ-é}\)
car-INS   1PL=IPFV-go-PRES
We will go by car

\[
[\text{oonínti ?ardé}]
\]

(9c) ooní-n-t  \(<e>\)  \(<?>\text{i} = \text{?ard-é}\)
house-F.OBL-LOC   1SG=enter-PRES
Let me enter the house
P6 can be observed especially in complex verbal paradigms which combine verb stems, clitic pronouns, and auxiliaries, see chapter 4 and chapter 6 for further details. Future tense for instance is expressed by reduplication of the verb stems. The clitic pronoun and the aspect marker /da/ are slotted in between the two verb stems. After MP2 deletes the initial segment of the clitic pronoun, the first vowel of the sequence is dropped:

P6 does not occur when a verb stem ending in /-á/ is followed by the 1st person singular clitic pronoun /ʔi/ (see MP2). Compare example (11) below with example (9) above where the 1st person singular pronoun /ʔi/ is used:

Progressive aspect is expressed by means of a locative construction of the type ‘I am in X’, where X is the lexical verb and pronominal subject marking is marked on the existential verb. P6 and MP2 take place between the locative case /-te/ and the following clitic pronouns: the first consonant of the clitic pronouns is dropped (MP2) and the final vowel of the locative case, which is the first of the sequence, is deleted (P6):
Other verbal paradigms show full realization of the clitic personal pronouns. See chapter 4 and chapter 6 for more details.

P7 Complete harmony (vowel copy)
The low vowel /a/ of monosyllabic verb roots show assimilation for all vowel quality features with the following verbal suffixes. Harmony operates from right to left:

ka-á ‘pour!’ (imperative singular addressee) [kàá]
ka-é ‘pour!’ (imperative plural addressee) [kèé]
ki=da-é ‘let him be’ (da- ‘to be’) [ki=dèé]

Complete harmony operates as well across an intervening glottal stop:

gá-á ‘bite!’ (imperative singular addressee) [gaʔá]
gá-é ‘bite!’ (imperative plural addressee) [geʔé]
baʔ-ó=i=de ‘I’ll bring’ (baʔ ‘bring’) [boʔóide]

Translaryngeal harmony has been described for the neighbouring languages Arbore (Hayward 1984:73-76) and Dhaasanac (Tosco 2001:31), as well as in Somali (Armstrong 1934).

P8 Voicing assimilation
Different voicing in the same cluster are not allowed after metathesis has inverted an illicit sequence. This can be seen with both nominal inflections and verb derivations:

ʔaarák ‘uncle’ (ʔaarak-na) > ʔaaránga
sagá ‘go across’ (sag-s) > saská
c’uubá ‘wash clothes’ (c’ub-s) > c’ushpá

Clusters occurring in lexical items can have different voicing:
gasgó  ‘wheat’
dốnko  ‘speech’

**P9 Consonant elision after palato-alveolar nasal**
The palato-alveolar nasal /ɲ/ cannot cluster with other consonants. Sequences involving n+C arise with suffixation of the nominal inflections /-na/ and /-no/ followed by metathesis and assimilation:

- shooshí  ‘guest’ (shoshna, shonsha, shopsha)  > shoɲá
- c’agáj  ‘green’ (c’agajno, c’aganjo, c’agaɲjo)  > c’agáɲo

**MP1 Apocope**
Apocope involves truncation of the final syllable before suffixation of nominal inflections /-no/ and /-na/. Nouns ending in a coronal or a sonorant segment followed by a front vowel are particularly affected:

- ráat’i  ‘milk’  > ráano
- naasí  ‘child’  > naaná
- wálqanti  ‘aloe vera’  > wálqanna
- anqási  ‘lamb’  > anqána

When other suffixes such as the dative case /-na/ are suffixed to such nouns, apocope does not take place:

- naasí-na  ‘child-DAT’

**MP2 Clitic reduction**
Short form I clitic pronouns (see chapter 4) are shortened forms of independent pronouns and they are used for subject marking on main verbs in independent clauses. These clitics have a CV syllabic structure and begins with a glide: /ʔi/ (1SG), /ha/ (2SG), /wo/ (1PL), /ye/ (2PL). 3rd person clitic pronouns /ki/ and /ko/ are unaffected by this morphophonological rule. When short form pronouns occur in between words, the approximants /h, ?, w, y/ are dropped. This can be observed particularly in complex paradigms where clitics are slotted in between verb stems and auxiliaries. In (13) below the /h/ of the 2nd person singular occurring between a verb stem and an auxiliary is dropped, and P6 deletes one of the two adjacent vowels:

```
[bardádá bardélé]
```

(13) bard<á> = <h>a = da  bard-é
be.drunk=2SG=IPFV  be.drunk-PRES
You will be drunk
The initial glottal stop in the 1st person singular clitic pronoun /ʔi/ in example (14a) is fully realized. However, when it occurs intervocally, the glottal stop is deleted (14b):

\[ \text{ʔí} \text{na} \text{ʔimá} \]  
\(1SG = \text{DAT} \text{ give.IMP.2SG} \)

Give me!

\[ \text{ʔí} = \text{na} \text{ʔimá} \]

In connected speech and between words, it has been noticed that the glide of the 1st and 2nd person plural can be deleted even if they are proclitics. Compare the first example, where w is not dropped, with the second example, where the proclitic /wo/ undergoes deletion of the glide:

\[ \text{wo} = \text{yí} \text{-é} \]

\(1PL = \text{go-PRES} \)

Let’s go!

\[ \text{wo} = \text{yí} \text{-é} \]

In example (15c) vowel deletion P6 takes place after deletion of the glide.

**MP3 Deletion of final vowel of feminine relativizing suffix**
The final vowel of the feminine relative suffix /-óna/ is deleted when the feminine relativized verb is followed by the accusative case /-dan/ or whenever the relative clause does not function as subject (cf. chapter 8, section 8.4, and chapter 7, section 7.4.2):
In the previous example the low vowel /a/ of the verb root da- ‘to be’ assimilates to the quality of the following vowel suffix, as mentioned in P7 above.

MP4 Deletion of word-initial /h/ after subject proclitics
The breathy-voiced glottal approximant /h/ is deleted when subject clitic pronouns are attached to the reason clause marker hattáxa.

<table>
<thead>
<tr>
<th>Subject Pronoun</th>
<th>Resulting Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ʔi-hattáxa)</td>
<td>ettáxa</td>
</tr>
<tr>
<td>(ha-hattáxa)</td>
<td>hattáxa</td>
</tr>
<tr>
<td>(ki-hattáxa)</td>
<td>kettáxa</td>
</tr>
<tr>
<td>(ko-hattáxa)</td>
<td>kottáxa</td>
</tr>
<tr>
<td>(wo-hattáxa)</td>
<td>wottáxa ~ wɔttáxa</td>
</tr>
<tr>
<td>(ye-hattáxa)</td>
<td>yettáxa ~ yɛttáxa</td>
</tr>
</tbody>
</table>

After deletion of the glottal fricative, vowel coalescence P5 takes place between the final vowel of the subject clitics and the vowel a. MP4 applies to verbs beginning in /h/:

<table>
<thead>
<tr>
<th>Subject Pronoun</th>
<th>Resulting Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ko-hamɓadé)</td>
<td>kɔmɓadé</td>
</tr>
<tr>
<td>(ki-hamɓadé)</td>
<td>kɛmɓadé</td>
</tr>
</tbody>
</table>

MP5 Masculine mid-vowel lowering
The masculine inflections /â/ and /tâ/ lower the mid-root vowels of nouns. The assimilation is regressive and it spreads from right to left affecting previous stressed and unstressed mid-high vowels /e/ and /o/.

In consonant-ending nouns, the masculine inflection /â/ is suffixed to the uninflected form. Mid-high stem vowels, if any, lower to /ɛ/ and /ɔ/:

<table>
<thead>
<tr>
<th>Masculine Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>?atáɓ</td>
<td>‘tongue’</td>
</tr>
<tr>
<td>maz</td>
<td>‘initiated boy’</td>
</tr>
<tr>
<td>?ataɓâ</td>
<td>‘tongue:M’</td>
</tr>
<tr>
<td>mazâ</td>
<td>‘initiated boy:M’</td>
</tr>
</tbody>
</table>

23 The example with the second person clitic pronoun ha- attached to the reason clause marker hattáxa is a case of haplology.
Recall that the vowel /o/ in the uninflected form of dongár is a mid-high vowel not affected by the following low vowel because it is unstressed (cf. 2.2.2).

Nouns belonging to declension 4 (see chapter 3, section 3.3) inflect for masculine gender by means of suffixation of the marker /-tâ/. Similar to the suffix /-â/, the suffix /-tâ/ as well lowers the mid-high stem vowels.

Vowel shortening in the examples above occurs to avoid CVVC.CV structure (cf. 2.2.3). The masculine suffix /-tâ/ attaches directly to the nominal root: the final vowel of the uninflected nouns seelé and shooné is in fact dropped. In Omotic languages the terminal vowel of nouns is not considered part of the nominal root since it can be dropped when nominal inflections are suffixed, see chapter 3 for more information on this topic.

In vowel ending nouns inflected by means of the suffix /-â/, coalescence (P5) takes place between the terminal vowel and the masculine suffix. Given the mismatch between the target vowels of MP4 (/e o/) and those involved in P5 (/i e o/), and given the fact that nouns vary in terms of vowel composition and position of stress, the outcomes of the masculine inflected forms can be diverse, see 2.6 for a comparison.

The masculine inflection targets the mid-high vowels in the nominal root lowering them to /ɛ/ and /ɔ/:
qúña  ‘resin-based incense’
quñâ  ‘resin-based incense:M’
dîta  ‘type of tree’
dítâ  ‘type of tree:M’
muná  ‘sorghum dumpling’
munâ  ‘sorghum dumpling:M’
mirjá  ‘kudu’
mirjâ  ‘kudu:M’

Since the high vowel /i/ is affected by vowel coalescence (P5) but not by MP4, there are masculine nouns of the type CiCi in which root internal /i/ is unchanged, but final /i/ is lowered to /ɛ/ after vowel coalescence:

bíiri  ‘three-pronged stir stick’
bírɛ̂  ‘three-pronged stir stick:M’  *bɛɛrɛ̂
zikí  ‘goat faeces’
zikɛ̂  ‘goat faeces:M’  *zɛkɛ̂

Masculine mid-vowel lowering operates on trisyllabic nouns as well, although a few exceptions have been attested where the mid-low vowel of the first syllable is optionally lowered:

ɲoqóle  ‘type of bracelet’  >  ɲɔqɔlɛ̂ ~ ɲoqɔlɛ̂
qómbalti  ‘shell’  >  qɔmbaltɛ̂
onkólo  ‘calabash handbag’  >  onkɔlɔ̂
segeré  ‘dik-dik’  >  segerɛ̂
qómoro  ‘Adam’s apple’  >  qɔmɔrɔ̂

Intervening high vowels in the nominal root block MP4:

goití  ‘pathway’  >  goitɛ̂
ʔeiké  ‘grandfather’  >  ʔeikɛ̂
kørqishá  ‘francolin’  >  kørqishâ
shekinî  ‘beads’  >  shekinɛ̂
tesíɓe  ‘axe’  >  tesîɓɛ̂
kóofini  ‘squirrel’  >  koofinɛ̂

Masculine mid-vowel lowering is morphologically restricted to the masculine inflection, and other suffixes do not lower the mid-high vowels of nominal root. For instance the plural inflection /-na/ which is suffixed to the uninflected form of a noun, normally does not trigger lowering of the mid-high root vowels:
zóbo ‘lion’ zɔbó ‘lion:M’ zóbo-na ‘lion-PL’
*zɔbɔna is not attested.

This is valid even if we suppose that only stressed vowels adjacent to a post-tonic /a/ can be targeted by harmony (cf. 2.2.2):

meté ‘head’ metë ‘head:M’ meté-na ‘head-PL’
*mêtëna

Likewise, in nouns containing the mid-low vowels /ɛ/ and /ɔ/, nominal inflections do not ‘harmonize’ with the root vowels:

qɔɔc’a ‘nape’
qɔɔc’a-no ‘nape-F.S’ *qɔɔc’anɔ

yɛɛla ‘roof’
yɛɛla-no ‘roof-F.S’ *yɛɛlanɔ

Other suffixes containing the low vowel /a/, such as the dative /-na/, the genitive /-sa/, the instrumental /-ka/ and so on, do not trigger lowering of root mid-high vowels. However, it has been noted that a few nouns whose plural inflected forms result in disyllabic word types, may ‘harmonize’ with the low vowel of the plural suffix /-na/. For these nouns, the terminal vowel of the general form is not stable and similar to consonant ending nouns, the feminine and plural inflections are suffixed to a consonant and assimilate to it (P4). This results into a disyllabic word:

kerí ‘door’ (ker-na) kerrá ‘door:PL’
demi ‘side’ (dem-na) demmá ‘side:PL’
déer ‘red’ (deer-na) dérra ‘red:PL’

Mid-vowel lowering has been attested as well in the plural form of some monosyllabic words:

24 This proves that Hamar does not have an ATR vowel harmony system. If harmony in Hamar was a full-fledged root structure condition, one would have expected either harmonization of mid-high root vowels with any other suffix containing a low vowel, or harmonization of suffix vowels with stem vowels.

In a dominant-recessive type of harmony, a vowel carrying a dominant feature (in this case the low vowel /a/) should trigger change in any recessive vowel (/ɛ/ and /ɔ/), operating within and across the morpheme boundaries. Similarly, in an allegedly stem-controlled harmony system, the phonological characteristic of the stem should induce change in the suffix vowels.
The plural form of éedi ‘person, man’ can be uttered with both a mid-low or a mid-
high vowel, depending on the speaker:

éedi  ‘man, person’  éé-na ~ éé-na  ‘people-PL’

2.6  Realization of coalescence, mid-vowel lowering and stress in
masculine nouns

Vowel coalescence is a phonological process occurring across morpheme boundaries,
between the vowels /i e o/ and the low vowel /a/ (P5), whereas mid-vowel lowering
(MP5) is a morpho-phonological process triggered by the masculine inflections /-â/
and /-tâ/, which target the nominal root vowels /e o/. P5, MP5 and stress re-
alization are part altogether of the phonological realization of the masculine suffix
/-â/ and /-tâ/, and this section will illustrate the interaction of the three phe-
nomena. As illustrated in 2.4.1, all masculine nouns get a final stress which is
realized as falling tone. For nouns which already have final stress in the uninflected
form (i.e. nouns ending in /í/ /é/ /ó/), P5 and MP5 are the main expression of
morpheme realization, since the difference between final lexical stress and final
grammatical stress (‘) is lost in connected speech.25 If the uninflected form has final
stress and its root vowels are not mid-high, the masculine inflection is expressed by
vowel coalescence alone:

<table>
<thead>
<tr>
<th>Uninflected</th>
<th>Coalesced</th>
<th>Masculine</th>
</tr>
</thead>
<tbody>
<tr>
<td>c’ac’í</td>
<td>c’ac’ệ</td>
<td>c’ac’ệ</td>
</tr>
<tr>
<td>nukí</td>
<td>nukệ</td>
<td>nukệ</td>
</tr>
<tr>
<td>giní</td>
<td>ginệ</td>
<td>ginệ</td>
</tr>
<tr>
<td>meté</td>
<td>metệ</td>
<td>metệ</td>
</tr>
<tr>
<td>sosó</td>
<td>sẹsệ</td>
<td>sẹsệ</td>
</tr>
<tr>
<td>toré</td>
<td>torệ</td>
<td>torệ</td>
</tr>
<tr>
<td>geccó</td>
<td>geccộ</td>
<td>geccộ</td>
</tr>
<tr>
<td>wotí</td>
<td>wọtệ</td>
<td>wọtệ</td>
</tr>
<tr>
<td>kerí</td>
<td>kerệ</td>
<td>kerệ</td>
</tr>
</tbody>
</table>

If the root vowels of a stress-final uninflected form are mid-high, masculine is
marked by both vowel coalescence and mid-vowel lowering:

<table>
<thead>
<tr>
<th>Uninflected</th>
<th>Coalesced</th>
<th>Masculine</th>
</tr>
</thead>
<tbody>
<tr>
<td>meté</td>
<td>metệ</td>
<td>metệ</td>
</tr>
<tr>
<td>sosó</td>
<td>sẹsệ</td>
<td>sẹsệ</td>
</tr>
<tr>
<td>toré</td>
<td>torệ</td>
<td>torệ</td>
</tr>
<tr>
<td>geccó</td>
<td>geccộ</td>
<td>geccộ</td>
</tr>
<tr>
<td>wotí</td>
<td>wọtệ</td>
<td>wọtệ</td>
</tr>
<tr>
<td>kerí</td>
<td>kerệ</td>
<td>kerệ</td>
</tr>
</tbody>
</table>

25 Unless root vowels /a i u/ combine with final /-â/, such as mịrjá ‘kudu’, mịrjâ ‘kudu:M’. In
such cases the final falling tone is the only expression of masculine realization, but this
difference is often lost with case suffixes. For these nouns the difference between uninflected
and masculine form is not noticeable only on the basis of phonological criteria.
In 2.2.2 it was shown how stress can affect vowel realization, in particular when vowels are followed by a post tonic low vowel /a/. For nouns ending in /á/, MP5 (and stress when the falling final tone is audible) are the only cues for masculine inflection: the mid-high root vowels harmonize whereas stress remains on the final syllable (or it is realized as falling tone). Coalescence between the two vowels /a/ results in final vowel length on nouns in isolation:

<table>
<thead>
<tr>
<th>Word</th>
<th>‘Example’</th>
<th>‘Example: M’</th>
</tr>
</thead>
<tbody>
<tr>
<td>deeshá</td>
<td>‘medicine’</td>
<td>deeshó ‘medicine: M’</td>
</tr>
<tr>
<td>doolá</td>
<td>‘milk container’</td>
<td>dooló ‘milk container: M’</td>
</tr>
</tbody>
</table>

In nouns with stressed mid-low vowels in the root, and final /a/, the masculine inflection is signaled only by the position of stress, which is shifted to the last syllable and it can be realized as falling:

<table>
<thead>
<tr>
<th>Word</th>
<th>‘Example’</th>
<th>‘Example: M’</th>
</tr>
</thead>
<tbody>
<tr>
<td>déega</td>
<td>‘dumb’</td>
<td>déegó ‘dumb: M’</td>
</tr>
<tr>
<td>shóló</td>
<td>‘light’</td>
<td>shóló ‘light: M’</td>
</tr>
</tbody>
</table>

The role that vowel coalescence, stress and mid-vowel lowering play in cueing morpheme realization of the masculine suffix /-á/ is schematically displayed in the following tables, where all the possible outcomes are summarized. The occurrence of one process over the other depends on the vowel patterns of each general form and the position of stress, thus any possible Hamar word-type has been included. C can be interpreted as a single consonant or a sequence of consonants, since MP5 can spread across clusters. Vowels can be interpreted as short or long. Final consonants are not written, thus words such as dongár are represented by a CoCa word type.

In the examples illustrated in the tables 2.4, 2.5. and 2.6 below, stress always plays a role in cueing masculine inflection, at least when nouns inflected for masculine gender are not followed by case suffixes (cf. 2.4.1). When the difference between the final lexical stress of the uninflected form and final falling tone of the masculine form is lost in connected speech, stress cannot taken into consideration. In this case vowel coalescence (table 2.5) and mid-vowel lowering (2.6) are the only audible cue for masculine inflection.

<table>
<thead>
<tr>
<th>General form</th>
<th>Masculine</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>CoCa</td>
<td>CaCa</td>
<td>lâba</td>
</tr>
<tr>
<td>CoCa</td>
<td>CuCa</td>
<td>pûla</td>
</tr>
<tr>
<td>CiCa</td>
<td>CiCa</td>
<td>ziiga</td>
</tr>
<tr>
<td>CoCa</td>
<td>CxCa</td>
<td>yeéla</td>
</tr>
<tr>
<td>CoCa</td>
<td>CxCa</td>
<td>qóx'a</td>
</tr>
</tbody>
</table>
Table 2.5: Masculine inflection cued by final vowel coalescence (and stress)

<table>
<thead>
<tr>
<th>General form</th>
<th>Masculine</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>CaCé</td>
<td>CaCé</td>
<td>t’ābēt’ābē</td>
</tr>
<tr>
<td>CuCé</td>
<td>CuCē</td>
<td>tulētulē</td>
</tr>
<tr>
<td>GiCé</td>
<td>GiGē</td>
<td>tigētigē</td>
</tr>
<tr>
<td>GaGī</td>
<td>GaGē</td>
<td>banqībanqē</td>
</tr>
<tr>
<td>CuGī</td>
<td>CuGē</td>
<td>kurīkurē</td>
</tr>
<tr>
<td>GiGō</td>
<td>GiG ē</td>
<td>ginēginē</td>
</tr>
<tr>
<td>CaGō</td>
<td>CaG5</td>
<td>c’aaronc’aarō</td>
</tr>
<tr>
<td>CuGō</td>
<td>CuG3</td>
<td>kut’ōkut’ō</td>
</tr>
<tr>
<td>GiGō</td>
<td>GiG3</td>
<td>gilōgilō</td>
</tr>
</tbody>
</table>

Table 2.6: Masculine inflection cued by mid-vowel lowering (and stress)

<table>
<thead>
<tr>
<th>General form</th>
<th>Masculine</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cecā</td>
<td>CeCā</td>
<td>deeshādeeshā</td>
</tr>
<tr>
<td>CoCā</td>
<td>CoCā</td>
<td>doolādoolā</td>
</tr>
</tbody>
</table>

Vowel coalescence plays a central role in the realization of the masculine inflection for the majority of word-types (table 2.5), whereas mid-vowel lowering is crucial only for two word-types: Cecā and CoCā (table 2.6).

The tables below show the interaction of P5, MP5, and stress in morpheme realization. Whereas stress placement and MP5 can combine with vowel coalescence and vice versa, MP5 alone cannot combine with stress because stressed mid vowels in the general form are already lowered.

Table 2.7: P5 + MP5

<table>
<thead>
<tr>
<th>General form</th>
<th>Masculine</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>CeCē</td>
<td>CeCē</td>
<td>metēmetē</td>
</tr>
<tr>
<td>CeCō</td>
<td>CeC3</td>
<td>geshōgeshō</td>
</tr>
<tr>
<td>CeGī</td>
<td>CeGē</td>
<td>kerīkerē</td>
</tr>
<tr>
<td>CoCē</td>
<td>CoCē</td>
<td>torētorē</td>
</tr>
<tr>
<td>CoCō</td>
<td>CoC3</td>
<td>sosōsosō</td>
</tr>
<tr>
<td>CoGī</td>
<td>CoGē</td>
<td>shooshīshooshī</td>
</tr>
</tbody>
</table>
### Table 2.8: P5 + stress placement

<table>
<thead>
<tr>
<th>General form</th>
<th>Masculine</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>CáCe</td>
<td>CaCe</td>
<td>?aaf ?aad ?aadfe</td>
</tr>
<tr>
<td>CáCi</td>
<td>CaCe</td>
<td>qaami qaamé</td>
</tr>
<tr>
<td>CáCo</td>
<td>CaC5</td>
<td>jalo jalo</td>
</tr>
<tr>
<td>CáCe</td>
<td>CuCe</td>
<td>bume bumé</td>
</tr>
<tr>
<td>CáCi</td>
<td>CuCi</td>
<td>tuni tuné</td>
</tr>
<tr>
<td>CáCo</td>
<td>CuC5</td>
<td>shuko shuké</td>
</tr>
<tr>
<td>CíCe</td>
<td>CiCe</td>
<td>eqe eqé</td>
</tr>
<tr>
<td>CíCo</td>
<td>CiC5</td>
<td>eqie eqé</td>
</tr>
<tr>
<td>CíCi</td>
<td>CiCe</td>
<td>eqi eqé</td>
</tr>
</tbody>
</table>

### Table 2.9: P5 + stress placement + MP5

<table>
<thead>
<tr>
<th>General form</th>
<th>Masculine</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>CéCe</td>
<td>CeCe</td>
<td>méde méde</td>
</tr>
<tr>
<td>CéCo</td>
<td>CeC5</td>
<td>unattested</td>
</tr>
<tr>
<td>CéCi</td>
<td>CeCe</td>
<td>lëgi lëgi</td>
</tr>
<tr>
<td>CóCe</td>
<td>CoCe</td>
<td>kotte kotte</td>
</tr>
<tr>
<td>CóCo</td>
<td>CoC5</td>
<td>zóbo zóbo</td>
</tr>
<tr>
<td>CóCi</td>
<td>CoCe</td>
<td>unattested</td>
</tr>
</tbody>
</table>