

A Phonological Description of the Samburu Language

Anna Dahlbacka 2014
Bible Translation & Literacy, Kenya

List of abbreviations	3
Map of the language area	4
1 Introduction.....	5
2 Description of phonemes	6
2.1 Consonants	6
2.1.1 Stops.....	7
2.1.2 Nasals	12
2.1.3 Fricatives.....	13
2.1.4 Liquids	14
2.1.5 Semivowels	17
2.1.6 Evidence for consonant contrasts	19
2.1.7 Consonant clusters.....	26
2.2 Vowels	31
2.2.1 Evidence for vowel contrasts	32
2.2.2 ATR.....	34
2.2.3 Vowel clusters and moras.....	35
2.3 Tone.....	37
2.3.1 Lexical tone.....	38
2.3.2 Grammatical tone.....	38
2.3.3 Tone modifications.....	45
3 Syllable pattern	48
4 Phonological processes	50
4.1 ATR harmony.....	50
4.2 Nasal assimilation	54
4.3 Consonant deletion	55
4.3.1 The masculine gender prefix	56
4.3.2 The feminine gender prefix	58
4.4 Backing vowel harmony.....	61
4.5 Palatalisation.....	62
5 Morpheme alternation	63
5.1 The class II verb prefix	63
5.2 The masculine plural relative markers	65
6 Stress rules.....	66
Bibliography.....	69

List of abbreviations

Ø	<i>not present</i>	IMPF	<i>imperfect aspect</i>
!	<i>downstep</i>	INF	<i>infinitive</i>
1	<i>1st person</i>	INSTR	<i>instrumental</i>
2	<i>2nd person</i>	INTRANS	<i>intransitive</i>
3	<i>3rd person</i>	L	<i>low tone</i>
1S2O	<i>1st person singular subject + 2nd person singular object</i>	MASC	<i>masculine gender</i>
2S1O	<i>2nd person singular subject + 1st person singular object</i>	MID	<i>middle voice</i>
3S1O	<i>3rd person subject + 1st person singular object</i>	NAR	<i>narrative</i>
3S2O	<i>3rd person subject + 2nd person object</i>	nas	<i>nasal feature</i>
II	<i>2nd class verb marker</i>	NEG	<i>negative</i>
ACC	<i>accusative case</i>	NOM	<i>nominative case</i>
ATR	<i>advanced tongue root</i>	OBJ	<i>object</i>
C	<i>consonant</i>	OCP	<i>obligatory contour principle</i>
CAUS	<i>causative</i>	PASS	<i>passive</i>
COMP	<i>complementiser</i>	PERF	<i>perfective aspect¹</i>
cont	<i>continuant feature</i>	PREP	<i>preposition</i>
cor	<i>coronal feature</i>	PROG	<i>progressive aspect</i>
DAT	<i>dative</i>	PL	<i>plural</i>
DISC	<i>discourse marker</i>	REL	<i>relative</i>
DYN	<i>dynamic</i>	S	<i>subject</i>
F	<i>falling tone</i>	SG	<i>singular</i>
FEM	<i>feminine gender</i>	STAT	<i>stative</i>
GEN	<i>genitive particle</i>	SUBJN	<i>subjunctive</i>
H	<i>high tone</i>	TBU	<i>tone bearing unit</i>
IMP	<i>imperative</i>	UR	<i>underlying representation</i>
		V	<i>vowel</i>
		VSO	<i>verb – subject – object</i>
		VOS	<i>verb – object – subject</i>
		VOC	<i>vocative</i>

¹ The morphemes labelled as *perfective* in this paper carry a wide range of meaning, from perfective to perfect aspect. For easy readability, and to align with the literature on Maasai, I consistently use the term *perfective*, even if the term *non-imperfect* perhaps would be the most accurate.

Map of the language area

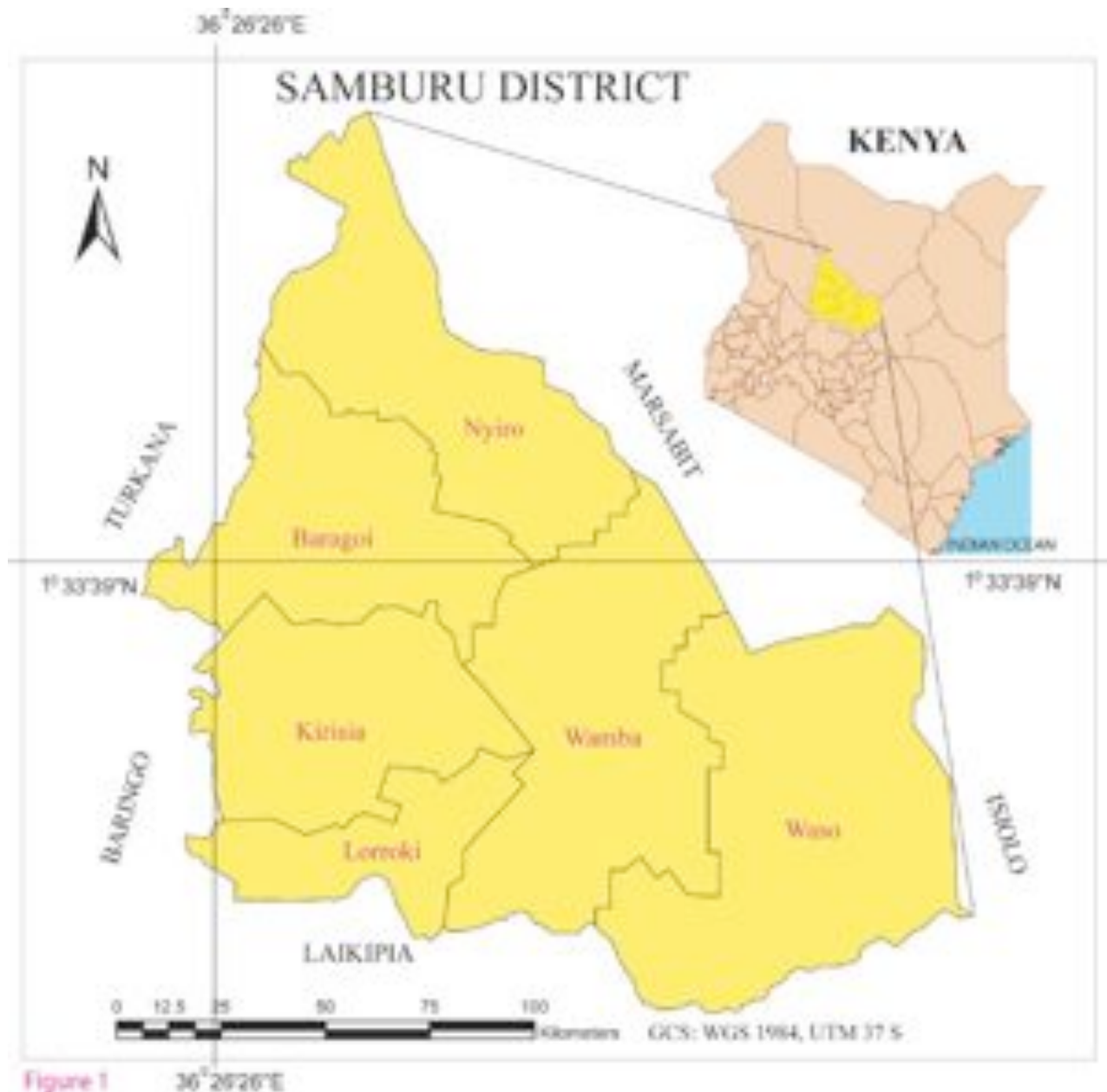


Figure 1 Samburu language area

The map in Figure 1 shows the former Samburu District with divisions and its geographical position in Kenya.² Since 2010 there is no Samburu District, but now the Samburu County. The borders are, however, the same. The vast majority of Samburu speakers live in the Samburu County.

² The map is taken from Nanyingi et.al. 2008.

1 Introduction

Samburu is, together with Maasai, one of the Maa languages.³ Lewis 2013 presents Ilchamus as a dialect of Samburu, while Maasai is reported to have 14 different dialects.⁴ Wagner 1997 describes Samburu and Ilchamus as North Maa, while he describes Maasai with its dialects as South Maa.⁵ In this paper I refer to Samburu as a language. This reflects many (though not all) Samburu speakers' strong sense of uniqueness of the Maa variety that they speak.

The Samburu language is a Nilotic language. The genetic lineage can be described as Nilo-Saharan, Eastern Sudanic, Nilotic, Eastern, Lotuxo-Teso, Lotuxo-Maa, Ongamo-Maa, Maa, North Maa, Samburu. Lexical similarity with various Maasai (i.e. South Maa) dialects has been reported as 77–89%, and lexical similarity with Ilchamus has been reported as 88–94%.⁶ Pronunciation and usage of words might differ slightly between different regions of the Samburu speaking area, though the differences are not perceived as big or unconquerable, which leads us to conclude that there are no major dialect differences within the Samburu language.

The number of Samburu speakers is, according to the 2009 census, 237 000.⁷ Most of them live within the Samburu County in Kenya or in the surrounding areas, though many, especially men, have migrated to Nairobi. That language vitality is strong is supported by several indications: Samburu speakers have a positive attitude towards their language and claim that to be a Samburu, you need to know the language. Further, children do not know other languages than Samburu before joining school. It is widely used in a variety of domains, with schools as an exception where it is used as a language of instruction only for the youngest children who do not know other languages. Samburu is virtually always used in situations where only Samburu speakers are present.⁸

This paper presents the phonemes of the Samburu language including the tone system, the syllable patterns, phonological processes and morpheme alternations, and stress rules. It builds on a preliminary sketch written by Stephen Wagner in 1997, and is extended by the current author (Anna Dahlbacka) to meet the standards of the Kenyan Bible Translation & Literacy organisation to serve the process of developing an orthography which reflects the phonology of the language. Further information has been obtained from a later paper written by Wagner in 2001. The vast majority of the examples are obtained from Wagner's wordlist, which was compiled around 1997, and they have all been checked for accuracy. Several Samburu persons have been helpful in this; these include John Lenareu, David

³ Wagner 1997 uses the term 'language' for Maa and 'dialect' for Samburu, Ilchamus, and Maasai. Lewis 2013a and Lewis 2013b list Samburu and Maasai as languages, not dialects. See also Payne 2008.

⁴ Lewis 2013b, Lewis 2013a.

⁵ Wagner 1997:2.

⁶ Lewis 2013b.

⁷ Ambetsa Oparanya 2010.

⁸ Bible Translation & Literacy (E.A.) 2003.

Lebarleyia, Timothy Lesimalele, Silas Lekairab, Tony Lesimalele, Wilson Lekeesio and Fransisca Palinta. Steve Nicolle gave helpful advice in the initial stages of writing this sketch and later on Tim Stirtz gave helpful advice and suggestions for improvement. The sketch, in the form it has now, has been checked by Doris Payne. Her insights into Maasai have been very valuable and her comments and advice have improved the paper tremendously. I am truly grateful for all the help I have received. I also owe thanks to Amos Teo, who has helped me with the phonetic analysis of the palatal explosive stop.

The more one knows about a particular subject, the more one understands how little one knows. This is true also for the Samburu phonology. Many questions remain, but my hope is that they will become answered.

Very little linguistic research has been done on the Samburu language, though the Maasai dialects have been given relatively more attention. Because of the similarities with Maasai, much of that research has been consulted and has proven useful also for Samburu.

In the phonetic and phonological transcription, IPA (International Phonetic Alphabet) conventions are used. Following common norms, square brackets indicate phonetic representations, while slashes indicate phonological representations. Sometimes the syllable marker [.] is used under vowels. This marker is used to show that a particular vowel cluster is bimoraic, as in [p^hɔ̌ɔ̌k^hɪ̌], *every, all* (or trimoraic, as in [ɔ̌ɔ̌ɔ̌s], [*they*] *who do*). When vowel clusters do not display the syllable marker, they are monomoraic units, as in [p^hé̌nɛ̌u] (i.e. [p^hé̌nɛ̌ǔ], though this work does not normally write the “tie” to represent monomoraic clusters), *a little*.

2 Description of phonemes

2.1 Consonants

Samburu has, like most other Maa varieties, 20 consonant phonemes, each of them being bilabial, dental/alveolar⁹, palatal, or velar. Except for the semivowels, which have a limited distribution, all consonants occur word initially, intervocally, and word finally. Every consonant (apart from the semivowels) can be followed by all vowels and all tones.¹⁰ Samburu also makes use of the glottal phonemes /h/ and /ʔ/ which should be seen as extra-systemic and are found outside the distribution of ordinary phonemes.

The consonants are as indicated in Table 1.

Table 1 Consonants

	labial	alveolar	palatal	velar	glottal
explosives	/p/	/t/	/c/	/k/	/ʔ/

⁹ The point of articulation seems to vary between speakers. For purposes of understanding the phonological system, I will consistently label these consonants as alveolar.

¹⁰ There is a possible exception: the velar palatal /ɲ/ has not been found preceding a falling tone. However, it is possible that more investigation would show also such instances.

implosives	/ɓ/	/ɗ/	/ɟ/	/ɡ/	
nasals	/m/	/n/	/ɲ/	/ŋ/	
fricative		/s/			/h/
lateral		/l/			
flap		/ɾ/			
trill		/r/			
weak semivowels	/w/		/j/		
strong semivowels	/w:/		/j:/		

The consonants will first be described in groups based on manner of articulation. The description is followed by a section on evidence for contrast, and finally consonant clusters are discussed.

2.1.1 Stops

The explosive series of stops, the labial /p/, alveolar /t/, /c/ (whose point of articulation is discussed below), and velar /k/, contrast in place of articulation and are variably pronounced with or without aspiration. No minimal pairs have been found that would suggest aspiration to be meaning bearing. Deaspiration is especially prevalent when these stops follow nasals, thus leading to their mis-transcription by some as voiced stops in that environment. Acoustic measurements made by Stephen Wagner have shown that the aspiration is strongest intervocalically, that it does not happen word finally and that [k] never is aspirated word initially.¹¹ However, my own recordings do not always confirm the acoustic measurements made by Wagner, which suggests that there is some variation, which can be explained by differences between speakers and between fast and slow speech.¹²

The stop /c/ is not included in Table 2 and is discussed shortly below.

Table 2 Plosives

	/p/		/t/		/k/	
<i>Word</i>	[p ^h éneʊ]	<i>a little</i>	[t ^h ené]	<i>here</i>	[keɲá]	<i>in the future</i>
<i>initially</i>	[p ^h ɔ̌k ^h í]	<i>every, all</i>	[t ^h ɔ̌m]	<i>fat in camel's hump</i>	[kore]	<i>where?</i>
	[p ^h ap ^h â]	<i>father</i>	[t ^h áp ^h át ^h ê]	<i>spear scabbard</i>	[kiní]	<i>small</i>
	[p ^h ááɲná]	<i>namesake</i>	[t ^h ááɲ ^h á]	<i>now</i>	[kááʃám]	<i>he loves me</i>
<i>Inter-</i>	[láphâ]	<i>moon</i>	[lá't ^h á]	<i>fat</i>	[lák ^h írá]	<i>star</i>
<i>vocalically</i>	[ntap ^h ók ^h ái]	<i>flower</i>	[ŋkút ^h ók ^h]	<i>mouth</i>	[laidélok ^h i]	<i>elbow</i>
	[ap ^h ál]	<i>to cease</i>	[at ^h ál]	<i>to survey</i>	[ak ^h aldáá]	<i>to flick away</i>

¹¹ Wagner 2001:39-41.

¹² As the same explosive in the same word sometimes is pronounced with aspiration and sometimes without, it could be argued that a simplified phonetic transcription where aspiration is ignored would be enough for the purposes of this paper. However, I have decided to transcribe it where I clearly heard it, to show the tendencies.

	[ap ^h út ^h]	<i>to pluck</i>	[at ^h út ^h]	<i>to miss the target</i>	[ak ^h ú]	<i>to be ripe</i>
<i>Word</i>	[lnɛ́fɛp ^h]	<i>tongue</i>	[ɲkík ^h énét ^h]	<i>door</i>	[alɛlɛ́k ^h]	<i>to be easy</i>
<i>finally</i>	[ndãp ^h]	<i>palm</i>	[súp ^h at ^h]	<i>good</i>	[mów:árák ^h]	<i>horns</i>
	[anáp ^h]	<i>to carry</i>	[amát ^h]	<i>to drink</i>	[aɖák ^h]	<i>to treat</i>
	[aɖóp ^h]	<i>to be able</i>	[aɪp ^h út ^h]	<i>to fill</i>	[aɖúk ^h]	<i>to pour out</i>

The stop /c/ is actually not palatal phonetically, but as it patterns as a palatal, and hence I interpret it phonologically as a palatal. The realisation of /c/ is in some environments in free variation between a voiceless alveolopalatal fricative [ɕ] or a postalveolar grooved fricative [ʃ], and a postalveolar grooved affricate [tʃ]. Figure 2 shows the variation between the affricate and a fricative in waveform graph and spectrogram in the word /aáč/, ‘to get stuck in the throat’. Note that ‘ch’ on the bottom of the graph refers to the affricate pronunciation, while ‘sh’ refers to the fricative pronunciation of the same word.

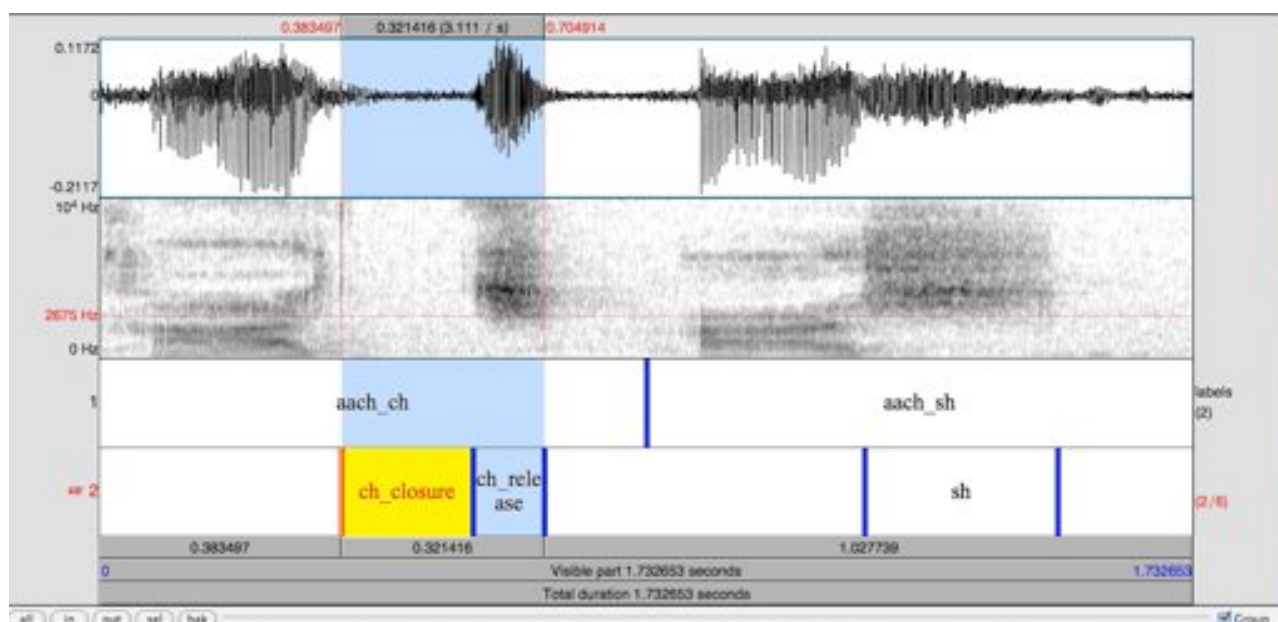


Figure 2 Variation between affricate and fricative pronunciation of the same word

It is often impossible to hear any difference between the alveolopalatal and the postalveolar fricative pronunciations if we are limited to the perception of our human ears, but spectrographic analysis has shown that the fricative is more palatalised preceding high vowels, while it is not palatalised so preceding non-high vowels. In the phonetic transcription I have transcribed the fricative as the alveolopalatal [ɕ] when preceding high vowels, and as a postalveolar [ʃ] when preceding non-high vowels. One should bear in mind, though, that there is no clear boundary between the two; rather there is continuum ranging from ‘not palatalised’ or ‘less palatalised’ to ‘more palatalised’.

When the phoneme occurs word finally, it will be more palatalised, which suggests that the alveolopalatal fricative [ɕ] is the norm for the fricative variety, but that environment may

affect the place of articulation so that the less palatalised fricative (the postalveolar [ʃ]) will still occur before non-high vowels.¹³

Figure 3 and Figure 4 show how the formants differ between [ç] and [ʃ]. For [ç], which is more palatal than [ʃ], the first two formants of the preceding vowel in /a̯aç/ ‘to get stuck in the throat’ start moving apart at the end of the vowel, which is expected when there is a transition to a palatal consonant. The vowel preceding [ʃ] in /acál/ ‘to be weak’ on the other hand does not display such movements in the formants.

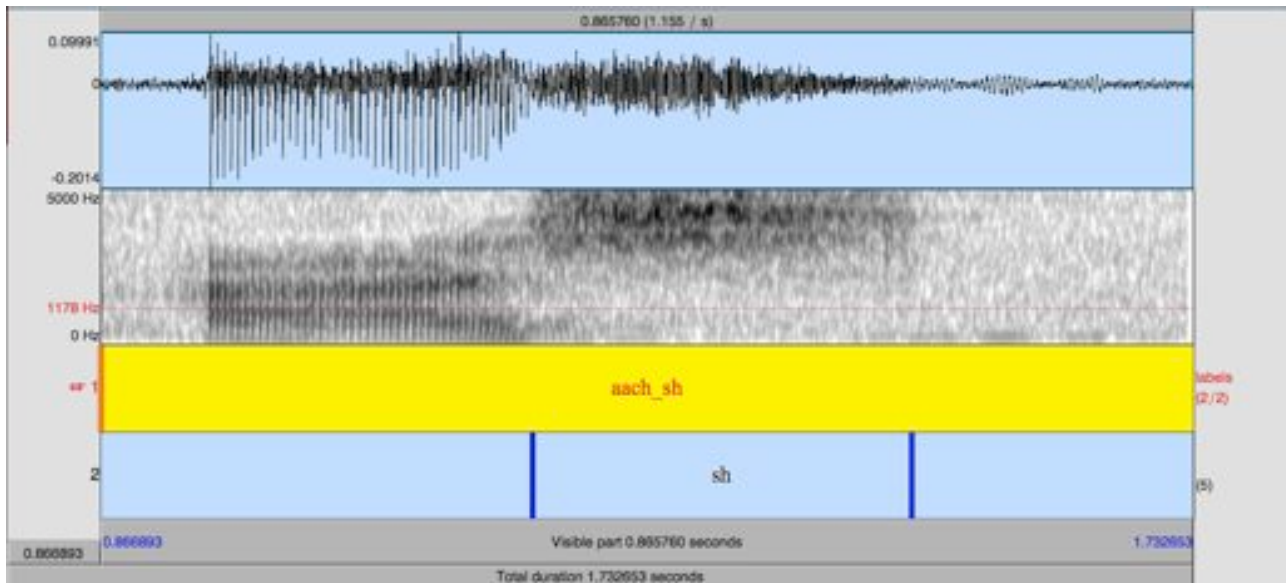


Figure 3 The alveolopalatal fricative [ç] and preceding vowel formants

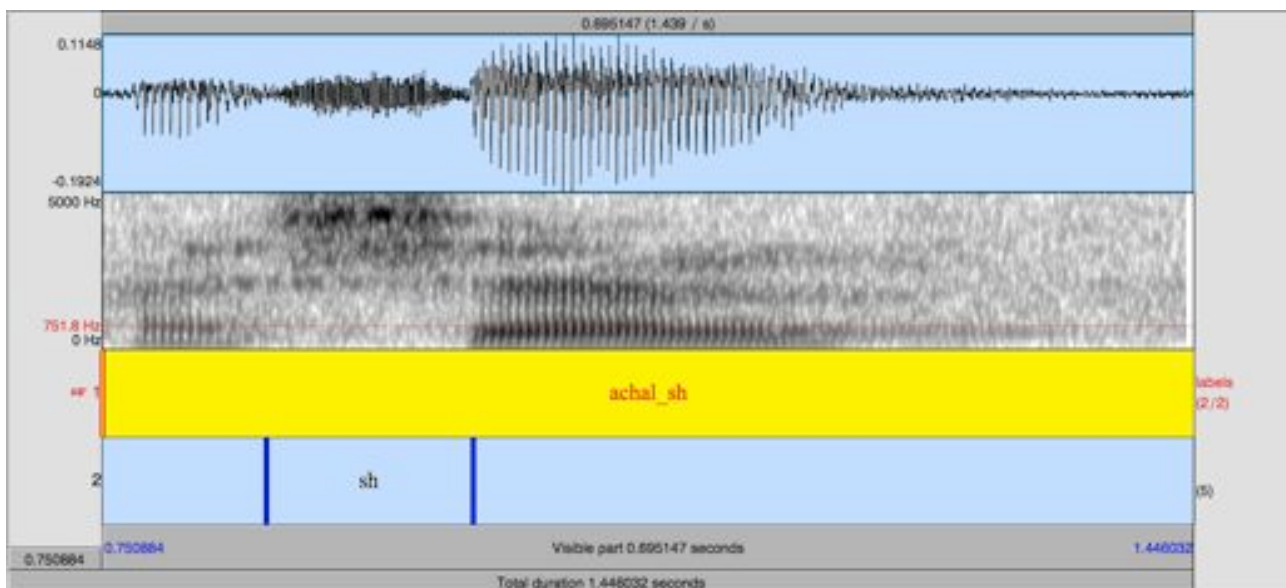


Figure 4 The postalveolar fricative [ʃ] and preceding vowel formants

¹³ Teo, Amos B., personal communication. The sound file graphs are courtesy of Teo and made using the software program Praat. See Boersma & Weenink 2014.

When following a consonant, /c/ is always pronounced as an affricate. In all other environments the alveolopalatal fricative [ç] or postalveolar fricative [ʃ] seem to be the natural choices, though it sometimes or by some speakers is pronounced as an affricate even intervocally and word finally. My conclusion is that [tʃ] and [ç]/[ʃ] are allophones in restricted free fluctuation and are not perceived as separate sounds by native Samburu speakers. The fact that free fluctuation often is found within a community of speakers, more than in one individual's pronunciation, supports this theory. However, further research is needed to determine whether the variation in environments other than after consonants is a completely free, arbitrary variation or if the plosive variety sometimes is used to, for example, denote stress.

Table 3 Variation [ç]/[ʃ] ~ [tʃ]

<i>Word initially</i>	[ʃoʔ] ~ [tʃoʔ]	<i>herding</i>
	[ʃómo] ~ [tʃómo]	<i>Go! (SG)</i>
<i>Following consonant</i>	[ltʃoní]	<i>hide</i>
	[nɪntʃé]	<i>they</i>
	[éntʃom]	<i>Go! (PL)</i>
	[lmantʃéri]	<i>tick</i>
<i>Intervocally</i>	[ŋkíçú] ~ [ŋkítʃú]	<i>cows</i>
	[aʃê] ~ [atʃê]	<i>Thank you!</i>
	[açút ^h] ~ [atʃút ^h]	<i>to castrate a bull</i>
	[aʃál] ~ [atʃál]	<i>to be weak</i>
<i>Word finally</i>	[súmaç] ~ [súmatʃ]	<i>hunger</i>
	[aɪsúç] ~ [aɪsútʃ]	<i>to wash utensils</i>
	[aʔaç] ~ [aʔatʃ]	<i>to get stuck in the throat</i>
	[ap ^h úç] ~ [ap ^h útʃ]	<i>to multiply exceedingly</i>

At a first glance it might be unclear to the reader whether the norm of the phoneme is best represented as /c/ or /ç/. However, there are two strong indications of /c/ being the norm: first, if /c/ is the norm of the phoneme, the phonology of the language will display symmetry, which it would not if /ç/ was the norm. Second, the occurrence of [ç] can be explained by fricativisation due to the adjacent vowels, while it would be difficult to explain the occurrence of [c] between vowels for some speakers.

An interesting observation is that when Samburu people speak English they usually pronounce the English postalveolar affricate /tʃ/ as an alveolopalatal [ç] or postalveolar [ʃ] in all environments except for after consonants, i.e. according to the same pattern as the variation between [tʃ] and [ç]/[ʃ] in the Samburu language.

Table 4 Samburu pronunciation of English words

	<i>Common pronunciation by native speakers of</i>		<i>English spelling</i>
	<i>Samburu</i>	<i>English</i>	
<i>Word initially</i>	[ʃəɕ]	[tʃə:tʃ]	<i>church</i>
<i>Following consonant</i>	[intʃ]	[ɪntʃ]	<i>inch</i>
<i>Intervocalically</i>	[iɕiŋ]	[ɪtʃɪŋ]	<i>itching</i>
<i>Word finally</i>	[saɕ]	[satʃ]	<i>such</i>

The implosive series of stops, /ɓ/, /ɗ/, /ɟ/, and /ɠ/, are found at the same points of articulation as the explosives. Inward flow of air is very noticeable in careful speech, but often quite subtle in fluent speech. Wagner 1997 notes that word finally these stops sometimes are unreleased (especially the /ɓ/), yet distinct from the explosives in that environment.

Table 5 Implosives

	<i>/ɓ/</i>		<i>/ɗ/</i>	
<i>Word initially</i>	[ɓát ^h á]	<i>to the side</i>	[ɗáp ^h áɕ]	<i>wide</i>
	[ɓoɕ]	<i>in the kraal</i>	[ɗóróp ^h]	<i>short</i>
	[ɓíjót ^h ó]	<i>healthy</i>	[ɗík ^h ír]	<i>benefit</i>
	[ɓárláí]	<i>pastel</i>	[ɗéí]	<i>indeed</i>
<i>Intervocalically</i>	[oɓɔ]	<i>one (MASC)</i>	[lɔɗɔ]	<i>blood</i>
	[t ^h enéɓo]	<i>together</i>	[lkéɗi]	<i>spider</i>
	[aɓéí]	<i>to beat with sth</i>	[aɗé]	<i>to shell</i>
	[aɓól]	<i>to open</i>	[aɗól]	<i>to see</i>
<i>Word finally</i>	[aŋɓɓ]	<i>to leech</i>	[aik ^h ód]	<i>to adorn</i>
	[arúɓ]	<i>to join</i>	[aúɗ]	<i>to pierce</i>
	[aɪɪɓɪlɪɓ]	<i>to be saturated</i>	[aíd]	<i>to jump over</i>
	[aikúɓ]	<i>to hit, bump</i>	[aɪlúɗ]	<i>to sway</i>
	<i>/ɟ/</i>		<i>/ɠ/</i>	
<i>Word initially</i>	[ɟa]	<i>just</i>	[ɟársîs]	<i>rich</i>
	[ɟulót ^h i]	<i>pink</i>	[ɟurét ^h]	<i>fearful</i>
<i>Intervocalically</i>	[aɟá]	<i>How many?</i>	[aɟám]	<i>to grip</i>
	[ɪŋéɟép ^h]	<i>tongue</i>	[amereɟéí]	<i>to turn around</i>
	[naɟé]	<i>a certain one (FEM)</i>	[aɟéí]	<i>to separate</i>
	[aɟón]	<i>to be raw</i>	[aɟól]	<i>to be strong</i>
<i>Word finally</i>	[aɟɔ]	<i>to scratch</i>	[aɪróɟ]	<i>to cough heavy</i>
	[asúɟ]	<i>to slander</i>	[aimúɟ]	<i>to doze off</i>
	[aíɟ]	<i>to warm oneself at a fire</i>	[aíg]	<i>to brush one's teeth</i>
	[arúɟ]	<i>to pack down (e.g. flour)</i>	[rúɟ]	<i>camel's hump</i>

The only occurrence of a glottal stop in the data is found in the word for no. I thus consider it extra-systemic.

Table 6 The glottal stop [ʔ]

[áʔa]	<i>no</i>
-------	-----------

2.1.2 Nasals

Four nasal phonemes, /m/, /n/, /ɲ/, and /ŋ/, follow the pattern of points of articulation of the stops. /ŋ/ is often realised as fronted before front vowels, and thus has been mis-transcribed by non-linguists as /ɲ/ in the past in some words.¹⁴ What might look like prenasalisation to stops should in most instances be interpreted as the feminine gender prefix attached to a noun.¹⁵ Sometimes the nasals are hard to hear word finally. This is true especially for /ɲ/ and /ŋ/.

Table 7 Nasals

	/m/		/n/	
<i>Word initially</i>	[mot ^h í]	<i>clay pot</i>	[nogút ^h]	<i>valley</i>
	[mála]	<i>calabash</i>	[náŋká]	<i>cloth</i>
	[mot ^h âi]	<i>calamity</i>	[nut ^h âi]	<i>pregnancy</i>
	[mánan]	<i>colostrum</i>	[namók ^h ε]	<i>shoe</i>
<i>Intervocally</i>	[ŋkímá]	<i>fire</i>	[siná]	<i>trouble</i>
	[ŋkumé]	<i>nose</i>	[kuná]	<i>these (FEM)</i>
	[amán]	<i>to surround</i>	[ananá]	<i>to be soft</i>
	[amúŋ]	<i>to brew</i>	[anók ^h]	<i>to fill a hole with soil</i>
<i>Word finally</i>	[aʃám]	<i>to like</i>	[lpaj:án]	<i>man</i>
	[at ^h úm]	<i>to get</i>	[aún]	<i>to plant</i>
	[adám]	<i>to slap</i>	[amán]	<i>to surround</i>
	[ait ^h ut ^h úm]	<i>to join sb/sth to meet</i>	[ait ^h ún]	<i>to grab</i>
	/ɲ/		/ŋ/	
<i>Word initially</i>	[ɲó]	<i>what?</i>	[ŋot ^h ó]	<i>mother</i>

¹⁴ Wagner 1997:3. One example is the name of the Samburu people's sacred mountain. The correct phonological representation is Mount /ŋiró/, though on some maps it is written 'Mount Nyiru'.

¹⁵ When a demonstrative modifies a gender prefixed noun, the gender prefix is dropped. Thus, the word [ŋkímá] 'fire' will drop the [ŋ] in a phrase like [ána kímá] 'this fire'. This shows that the [ŋk] does not phonologically behave like a single consonant. On the other hand it indicates that the [ŋ] in the example is a morpheme, and also that a root initial plosive does not always need to be preceded by a nasal (in fact, a root initial plosive can also be preceded by the masculine gender prefix [l], as this paper will show with numerous examples). This in turn supports the claim that Samburu does not display prenasalisation.

	[ɲamáli]	<i>problem</i>	[ɲáí]	<i>who?</i>
	[ɲúlûâ]	<i>small spear</i>	[ɲút ^h úní]	<i>your mother</i>
	[ɲámu]	<i>stolen animals</i>	[ɲamúnot ^h o]	<i>encounter</i>
<i>Intervocally</i>	[ɲá]	<i>you (SG) eat</i>	[ɲkɪɲasíá]	<i>miracle</i>
	[sónáí]	<i>sand</i>	[Itɔɲáni]	<i>person</i>
	[aɲá]	<i>to eat</i>	[aɲá]	<i>to be open</i>
	[aɲuk ^h íé]	<i>to be red</i>	[aɲúr]	<i>to cut off</i>
<i>Word finally</i>	[aráp]	<i>to sing</i>	[ɲkáɲ]	<i>home</i>
	[ɲát ^h ún]	<i>lion</i>	[aróúɲ]	<i>to catch</i>
	[aðǎɲ]	<i>to break a hole in</i>	[sáɲ]	<i>mane of donkey</i>
	[aɲóɲ]	<i>to hum</i>	[aðúɲ]	<i>to cut</i>

2.1.3 Fricatives

Only one robust phonemic fricative is found, /s/, a voiceless alveolar strident.¹⁶ /s/ does not tend to assimilate in voicing, even when found between vowels. Note the example /ndĩsi/ ‘banana’ below, which is borrowed from the Swahili /ndizi/, but devoiced.

Sometimes one can observe a phonetic lengthened [s:]. This [s:] is never contrastive, and is perceived as a plain /s/ by native Samburu speakers. E.g. the word [séɛɛn] ‘body’ is sometimes pronounced [séɛ:sɛn].

Table 8 The alveolar fricative

	/s/	
<i>Word</i>	[síp ^h]	<i>shoulder</i>
<i>initially</i>	[sóít ^h]	<i>stone</i>
	[séɛɛn]	<i>body</i>
	[səɛɛn]	<i>beads</i>
<i>Inter-</i>	[lasáí]	<i>termite</i>
<i>vocally</i>	[ndĩsi]	<i>banana</i>
	[arasú]	<i>to attack</i>
	[ntásat ^h]	<i>elderly woman</i>
<i>Word</i>	[ɲûêɛs]	<i>animal</i>
<i>finally</i>	[ɲkɪdĩs]	<i>cloud</i>
	[abós]	<i>to collect</i>
	[aisís]	<i>to praise</i>

A lightly aspirated glottal fricative [h] is found at the beginning of a handful of words, all of them in some way exclamatory or carrying negative meaning. Due to its rare occurrence

¹⁶ The alveolopalatal fricative [ç]/postalveolar fricative [ʃ] discussed above are not phonemic, but are allophones of /c/. The glottal fricative /h/ discussed below is extra-systemic to the phonology of the language.

it is reasonable to consider this sound extra-systemic to the phonology of the language.

Table 9 The glottal fricative

/h/	
[háí]	<i>an exclamation of surprise</i>
[hát ^h]	<i>something you say when beating a cow</i>
[hóó]	<i>(not) even</i>
[hóóǰ:â]	<i>completely not, indeed, really (used with negative statements)</i>
[hait ^h ók ^h í]	<i>not even one thing</i>

It is also worth noting that when words or names with an original /h/ in them are borrowed from another language, the /h/ is dropped in Samburu.

Table 10 Omission of [h] in borrowed words

<i>Samburu</i>	<i>Original language</i>	<i>Gloss</i>	<i>Language borrowed from</i>
[ma̤aɾáɣuɛ]	/maharagwe/	<i>beans</i>	Swahili
[sáani]	/sahani/	<i>plate</i>	Swahili
[eléna]	/helena/	<i>a personal name</i>	English

One minimal pair has been found where the /h/ carries negative meaning:

Table 11 Minimal pair including [h]

[mík ^h ɪát ^h a ij:óó hait ^h ók ^h í]	<i>we really do not have anything</i>
[mík ^h ɪát ^h a ij:óó ait ^h ók ^h í]	<i>we do not again have</i>

One pair of words has been found, where the variety with /h/ neither carries negative meaning nor implies exclamation:

Table 12 Pair including [h], where [h] does not carry negative meaning or imply exclamation

[háŋ]	<i>homestead, kraal</i>
[ŋkán]	<i>homestead, kraal</i>

The native-speaker consultant suggested that [háŋ] in relation to [ŋkán] is like the English ‘it’s’ in relation to ‘it is’; the variety including the glottal fricative is, according to the consultant, used “to shorten the word”. Understanding how /h/ and /k/ relate requires a historical linguistics study.

2.1.4 Liquids

There are three types of liquids in the Samburu language: a lateral, a flap, and a trill.

The alveolar lateral /l/ is fully voiced and produced with a flat tongue. The research done so far has not shown evidence of the occurrence of a velarised l in Samburu, which I have

observed in the Ilchamus dialect. As with the fricative /s/, however, there seems to be variation in some words between a plain [l] and a lengthened [l:], though this variation is not contrastive and not even perceived by native Samburu speakers. An example of this is the free alternation [ílê] ~ [íl:ê] ‘six’.

Table 13 The lateral liquid

	/l/	
<i>Word</i>	[lóit ^h o]	<i>bone</i>
<i>initially</i>	[laisót ^h óφ]	<i>finger nail</i>
	[léɛ]	<i>man</i>
	[líp ^h óη]	<i>female</i>
<i>Inter-</i>	[ηolé]	<i>yesterday</i>
<i>vocalically</i>	[ηkálém]	<i>small knife</i>
	[ntálát ^h á]	<i>clavicle</i>
	[auló]	<i>outside</i>
<i>Word</i>	[aʃál]	<i>to be weak</i>
<i>finally</i>	[sááɫ]	<i>nine</i>
	[aból]	<i>to open</i>
	[aisíl]	<i>to comb</i>

There are two rhotic phonemes: an alveolar flap /ɾ/ and an alveolar trill /r/. Wagner 1997 observes that the latter tends to partial devoicing.

Table 14 The flap and the trill

	/ɾ/		/r/	
<i>Word</i>	[réréí]	<i>word</i>	[ré ^h énét ^h]	<i>belt</i>
<i>initially</i>	[róát ^h]	<i>kicks</i>	[róát ^h]	<i>sleeping area</i>
	[rápnáré]	<i>dancing</i>	[rápníé]	<i>cowhide strap on calabash</i>
	[ríʃát ^h á]	<i>gap</i>	[ríʃát ^h á]	<i>footprint</i>
<i>Inter-</i>	[ηkéra]	<i>children</i>	[ηkerá]	<i>sheep (PL)</i>
<i>vocalically</i>	[arép ^h]	<i>to stick to</i>	[arép ^h]	<i>to praise</i>
	[aríɸ]	<i>to make a judgement</i>	[aríɸ]	<i>to be tight</i>
	[aroró]	<i>to slide</i>	[aroró]	<i>to stumble while walking</i>
<i>Word</i>	/kép ^h ér/ ¹⁷	<i>above</i>	[ηkér]	<i>sheep (SG)</i>
<i>finally</i>	/lák ^h ír/	<i>stars</i>	[sínkír]	<i>fish</i>
	/asír/	<i>to write</i>	[aít ^h ír]	<i>to flip away</i>
	/aʃór/	<i>to massage</i>	[abór]	<i>to be calm</i>

¹⁷ Note that slashes, indicating phonological form, are used for the word final flaps, instead of the square brackets, indicating phonetic form. The examples with word final flaps are given in their underlying morphological form, as they are realised as trills on phonetic level. See discussion below.

The rhotic phonemes neutralise at the end of a word or before a consonant, i.e. as codas in closed syllables, where they are both realized as a trill. There are, however, sometimes ways of determining the underlying form.

When a phonetic trill occurs before a consonant, it is not unusual to hear an echo vowel, identical to the vowel preceding the rhotic consonant, inserted between the two consonants.¹⁸ The assumption is that the echo vowel will reveal whether the underlying form is a flap or a trill. When an echo vowel is inserted we will sometimes hear [ɾ] between the preceding vowel and the echo vowel and then the assumption is that the underlying form is a flap. Sometimes we will hear [r] and then the underlying form would be a trill. However, further research is needed to confirm this. This accounts for the double transcriptions to be found of words such as the following examples:

Table 15 Echo vowels

<i>Phonetic representation</i>	<i>Phonological representation</i>	<i>Underlying phoneme</i>	<i>Gloss</i>
[ndɔrkó] ~ [ndɔrok ^h ó]	/ndɔrkó/	/ɾ/	<i>a fruit</i>
[mpartût ^h] ~ [mparat ^h ût ^h]	/mpartût/	/ɾ/	<i>wife</i>

When a phonetic alveolar trill occurs word finally, adding of suffixes will reveal the underlying form. At the end of a word the neutralised rhotic archiphoneme is written as /ɾ/ in the phonemic transcription when the addition of a suffix reveals it as a flap; when the addition of a suffix reveals the rhotic consonant to be a trill, it is transcribed /r/.

Table 16 The rhotic archiphoneme

<i>Phonetic representation</i>	<i>Phonological representation</i>	<i>Underlying phoneme</i>	<i>Gloss</i>
[aɪp ^h ár]	/aɪpár/	/ɾ/	<i>to ask</i>
[mpará]	/npará/ ¹⁹		<i>Ask (sb)!</i>
[aɪbór]	/aɪbór/	/ɾ/	<i>to be white</i>
[aɪbórú]	/aɪbórú/ ²⁰		<i>to become white</i>

There will, however, be instances where we do not hear an echo vowel or where we cannot add suffixes to find out which the underlying form is. In such instances it is arbitrary which phoneme the particular [ɾ] is assigned to.

¹⁸ Wagner 1997:4.

¹⁹ The initial [m] comes from a morphophonological /n/, as discussed in 5.1.

²⁰ The [ATR] value has changed in this word, compared to the simple infinitive form, due to the dominant [+ATR] inchoative suffix -u. See discussion below in 4.1.

2.1.5 Semivowels

There are four semivowels (also known as glides): two labiovelar and two palatal, each point of articulation having both a weak /w/, /j/ and a strong /w:/, /j:/ phoneme. The weak phoneme is less common than the strong one. Wagner 2001 has, through spectrographic analysis, found two main differences between the weak and the strong phonemes: duration, and formant frequency. The strong semivowels have phonetically longer duration and are phonetically higher in first formant value than the weak semivowels.²¹

No data has been found with word initial /j/, nor with word final semivowels. What may look like word final semivowels should be interpreted as vowel clusters. Vowel clusters are very common in the language, and are most common word finally; they include other than those with a high vowel as second phoneme (i.e., involving elements that could not be interpreted as semivowels, see further in 2.2.3). If some vowel clusters were interpreted as semivowels while others were not, the distribution of vowel clusters would be uneven. Then no vowel clusters with a high vowel as second phoneme would occur word finally, even though they are very common elsewhere, in fact, they are the most common vowel clusters.

Some examples of semivowels include those in Table 17.

Table 17 Semivowels

	/w/		/w:/	
<i>Word initially</i>	[wót ^h ó]	<i>dripping</i>	[w:ɔrw:ɔrsán]	<i>a fox</i>
	[wálét ^h á]	<i>answer</i>	[w:át ^h á]	<i>thorn fence</i>
	[waɲán]	<i>light</i>	[w:âs]	<i>animal with large patch of contrasting colour</i>
<i>Intervocally</i>	[wôr]	<i>swamp</i>	[w:ára]	<i>gum</i>
	[awá]	<i>to have taken</i>	[aw:á]	<i>to fence</i>
	[awó]	<i>to bleed</i>	[aw:ón]	<i>to sit</i>
	[awál]	<i>to answer</i>	[aw:ap ^h aa]	<i>to snatch away</i>
	[awól]	<i>to arbitrate</i>	[aw:oiʃó]	<i>to build a thorn fence with branches</i>
	/j/		/j:/	
<i>Word initially</i>			[j:ej:ô]	<i>mother</i>
			[j:árát ^h á]	<i>cooking</i>
			[j:ɛ́ɲnot ^h ó]	<i>desire</i>
			[j:oloɲnot ^h ó]	<i>knowledge</i>
<i>Intervocally</i>	[ajá]	<i>to take</i>	[aj:ajá]	<i>to look for</i>
	[ajéɲ]	<i>to breathe</i>	[aj:éɲ]	<i>to butcher</i>
	[ajém]	<i>to marry</i>	[aj:asá]	<i>to doze off</i>
	[ajé]	<i>to die</i>	[aj:ét ^h]	<i>to stretch, pull</i>

²¹ Wagner 2001:8-10.

Wagner 2001 lists the semivowels as a separate section in his inventory of phonemes, apart from true consonants and vowels.²² He gives several reasons for this. First, he says that they differ from consonants in that they can appear as geminates (i.e. in the strong form), which true Samburu consonants cannot do. Second, he says that they pattern differently from consonants in syllable structure. Further, acoustic measurements have shown that they are different from the vowels in that they are phonetically higher than their corresponding vowels, and finally, they do not participate in [ATR] harmony as vowels do.²³ The interpretation of the strong semivowels as geminates is, however, problematic,²⁴ and further, Wagner does not explain in what way the semivowels pattern differently from other consonants in syllable structure. My own analysis below contradicts the last statement. I do not find enough reasons to treat the semivowels as a separate type of phoneme apart from consonants.

It is clear that the semivowels cannot be interpreted as vowels when found word initially or intervocalically. There are two reasons for this. First, if interpreted as consonants, they form syllables consistent with the normal syllable pattern (see below in section 3). Second, the semivowels break up vowel clusters that otherwise would be very complex and would form extra-complex syllables. The data in Table 18 lends weight to the interpretation that semivowels should be regarded as consonants. The “V” interpretation in Table 18 treats the strong semivowels as “VV”.

Table 18 Syllable pattern for words with semivowels

<i>Example</i>	<i>Gloss</i>	<i>C interpretation</i>	<i>V interpretation</i>
[mów:árák ^h]	<i>horns</i>	CV.CV.CVC	CVVV.V.CVC
[lpáj:án]	<i>man</i>	(C)CV.CVC	(C)CVVV.VC
[w:át ^h á]	<i>thorn fence</i>	CV.CV	VVV.CV
[aw:ón]	<i>to sit</i>	V.CVC	VVV.VC

If the semivowels were interpreted as vowels, we would encounter VVV-clusters not found elsewhere in Samburu (interpreting the strong semivowels as VV). The consonant interpretation is less complicated and gives rise to syllables consistent with the normal

²² Wagner 2001 consistently labels them as ‘glides’.

²³ Wagner 2001:7-8.

²⁴ Wagner addresses this by mentioning two problems. First, according to the moraic theory, geminates should occur across syllable boundaries and the geminate should be dominated by two adjacent σ (i.e., syllable) nodes. Geminates should also carry a mora. In Samburu we face a problem with an analysis of the strong semivowels as geminates in word initial position, because there is no σ node to the left of a word initial segment, and onsets do not carry moric weight. Wagner suggests that the left half of a geminate is dominated by a σ node attached directly to the prosodic word and thus such word initial semivowels can have moraic weight. Second, the strong semivowels are quite common in Samburu. This presents a second challenge in that geminates occur infrequently cross-linguistically; this is mentioned, but not discussed by Wagner 2001:10-11. An alternative interpretation, which will pose fewer problems, is to understand the strong semivowels as fortis consonants, and the weak ones as lenis consonants.

syllable pattern.

The examples in Table 19 show that some words would consist of vowels only if semivowels were to be interpreted as vowels. There are no such unambiguous words in Samburu, i.e. words consisting of vowels only but without semivowels, apart from a few short and often exclamatory words.²⁵

Table 19 Syllable pattern for words with semivowels

<i>Example</i>	<i>Gloss</i>	<i>C interpretation</i>	<i>V interpretation</i>
[aw:á]	<i>to fence</i>	V.CV	VVV.V
[j:ej:ô]	<i>mother</i>	CV.CV	VVV.VVV
[aj:ajá]	<i>to look for</i>	V.CV.CV	VVV.VV.V
[ij:é]	<i>you (SG)</i>	V.CV	VVV.V

When a u- or i-like sound follows a consonant and precedes a vowel, but the sequence comprises just one mora, I have interpreted the high u- or i-like sound as a vowel in the phonetic transcription. This is because the syllables created will be consistent with the unambiguous syllable pattern (see section 3). My interpretation contrasts, however, with those of Wagner 1997 and Rasmussen 2002 (the latter is a Maasai study). They interpret that particular high vocalic sound in that particular environment as a semivowel, since it is not moraic. My interpretation is in line with the intuition of many Samburu speakers. They usually prefer to spell these sounds with vowel letters, which suggests that these sounds are perceived as vowels. Some examples are given in Table 20.

Table 20 High vowel versus semivowel analyses following consonants

<i>My interpretation</i>	<i>Wagner et.al.</i>	<i>Orthographic representation</i>	<i>Gloss</i>
[ŋkɪŋasíá]	[ŋkɪŋasyá]	<i>nking'asia</i>	<i>miracle</i>
[apɔk ^h íé]	[apɔk ^h yé]	<i>anyukie</i>	<i>to be red</i>
[rúát ^h]	[rwát ^h]	<i>rruat</i>	<i>sleeping area</i>
[ŋûêš]	[ŋwêš]	<i>ng'ues</i>	<i>animal</i>

2.1.6 Evidence for consonant contrasts

The description above of the Samburu consonants gives evidence of internal contrast between all explosives, all implosives, all nasals, the flap and the trill, and all semivowels. This section will show evidence for contrast of phonetically similar phonemes across the groups based on manner of articulation.

The explosive stops contrast with the implosive stops. First, /p/ and /b/ contrast.

²⁵ [óê] ‘Yes? What?’ is such a word.

Table 21 Contrast between /p/ and /b/

	/p/		/b/	
<i>Word</i>	[p ^h ɔ̌k ^h ɪ]	<i>all, every</i>	[bɔ̌ɔ̌]	<i>in the kraal</i>
<i>initially</i>	[p ^h ap ^h â]	<i>father</i>	[bát ^h á]	<i>to the side</i>
	[p ^h úrúɔ̌]	<i>with horns pointing down</i>	[búlû]	<i>eye paint</i>
	[p ^h áárná]	<i>namesake</i>	[bárláí]	<i>pastel</i>
<i>Inter-</i>	[ap ^h ík ^h]	<i>to put</i>	[abík ^h]	<i>to stay in a place</i>
<i>vocalically</i>	[ap ^h áj:â]	<i>O elder! (VOC)</i>	[abájá]	<i>to arrive there</i>
	[ap ^h uk ^h ú]	<i>to come out</i>	[abuk ^h ú]	<i>to pour towards</i>
	[ap ^h ór]	<i>to creep</i>	[abór]	<i>to be calm</i>
<i>After</i>	[mpáɔ̌]	<i>space</i>	[mbâê]	<i>issue, matter</i>
<i>nasal</i>	[mpéré]	<i>spear</i>	[mbéné]	<i>bag</i>
	[mpóróí]	<i>clot of blood and milk</i>	[mborôí]	<i>dry cattle dung</i>
	[mpúnít ^h]	<i>bee stinger</i>	[mbulát ^h i]	<i>large intestine</i>
<i>Word</i>	[aisíap ^h]	<i>to cover</i>	[aisáb]	<i>to stroll</i>
<i>finally</i>	[aʃóp ^h]	<i>to slaughter</i>	[aɲób]	<i>to leach</i>
	[aðúp ^h]	<i>to be able</i>	[arób]	<i>to join</i>
	[airap ^h iráp ^h]	<i>to feel around with the hand</i>	[lɣaráb]	<i>warthog</i>

/t/ and /d/ contrast in all environments.

Table 22 Contrast between /t/ and /d/

	/t/		/d/	
<i>Word</i>	[t ^h éip ^h a]	<i>in the evening</i>	[dǎí]	<i>indeed</i>
<i>initially</i>	[t ^h ɔ̌rɔ̌k ^h]	<i>bad (PL)</i>	[dʒróp ^h]	<i>short</i>
	[t ^h ét ^h éné]	<i>righthand</i>	[dǎt ^h]	<i>recently</i>
	[t ^h ɔ̌m]	<i>fat in camel's hump</i>	[dũóó]	<i>very early today</i>
<i>Inter-</i>	[at ^h íp ^h]	<i>to split up and eat food with</i>	[adíp ^h]	<i>to resemble</i>
<i>vocalically</i>		<i>great conservation</i>		
	[at ^h á]	<i>to be, become</i>	[adaá]	<i>to feed</i>
	[at ^h ék ^h]	<i>to change course</i>	[adék ^h]	<i>to curse</i>
	[at ^h út ^h]	<i>to miss the target</i>	[adút ^h]	<i>to select</i>
<i>After</i>	[ntaré]	<i>small stock</i>	[ndǎáré]	<i>grazing</i>
<i>nasal</i>	[ntérá]	<i>an elders' dance</i>	[nderí]	<i>duiker spec.</i>
	[ntírkíɔ̌]	<i>prostitution</i>	[ndík ^h ír]	<i>mountain pass</i>
	[ntɔ̌p ^h]	<i>lateral half of rib cage with</i>	[ndɔ̌ɔ̌]	<i>morning feeding of cattle</i>
		<i>internal organs</i>		
<i>Word</i>	[aút ^h]	<i>to point at</i>	[aúd]	<i>to pierce</i>
<i>finally</i>	[amít ^h]	<i>to go dry</i>	[aip ^h íd]	<i>to straighten</i>
	[lɛk ^h út ^h]	<i>shepherd</i>	[lkúndúd]	<i>large muscle</i>
	[aip ^h ót ^h]	<i>to call</i>	[aik ^h ód]	<i>to adorn</i>

Also /c/ and /f/ show contrast.

Table 23 Contrast between /c/ and /f/

	/c/		/f/	
<i>Word</i>	[çíp ^h a]	<i>a bird</i>	[filót ^h i]	<i>pink</i>
<i>initially</i>	[ʃái]	<i>tea</i>	[fa]	<i>just</i>
<i>Inter-</i>	[aʃó]	<i>to be straight</i>	[aʃó]	<i>to say</i>
<i>vocalically</i>	[aʃé]	<i>to smooth a hide</i>	[aʃé]	<i>to be a certain one</i>
	[açól]	<i>to live together</i>	[aifúl]	<i>to mix milk and blood</i>
	[aʃá]	<i>to rain</i>	[aʃá]	<i>How many?</i>
<i>After</i>	[ntʃán]	<i>rain</i>	[nʃasí]	<i>plant spec.</i>
<i>nasal</i>	[ntʃílí]	<i>metal cross used with head beads</i>	[nʃírí]	<i>giant rat (FEM)</i>
	[ntʃóó]	<i>herd of cattle</i>	[nʃót ^h é]	<i>ant spec.</i>
	[ntʃóla]	<i>fellowship</i>	[nʃulót ^h i]	<i>blood and milk mixture</i>
<i>Word</i>	[aóç]	<i>to hit</i>	[aóf]	<i>to scratch</i>
<i>finally</i>	[aíç]	<i>to pass</i>	[aíf]	<i>to warm oneself at a fire</i>
	[aisúç]	<i>to wash utensils</i>	[asúf]	<i>to slander</i>
	[ailíç]	<i>to be drowsy</i>	[ak ^h íf]	<i>to tear</i>

Finally, /k/ and /g/ contrast in all environments.

Table 24 Contrast between /k/ and /g/

	/k/		/g/	
<i>Word</i>	[kák ^h e]	<i>but</i>	[gǽrsîs]	<i>rich</i>
<i>initially</i>	[kiní]	<i>small</i>	[gǽrim]	<i>strong</i>
	[kúro]	<i>whirlwind</i>	[gǽrét ^h]	<i>fearful</i>
<i>Inter-</i>	[akúét ^h]	<i>to run</i>	[aǵúét ^h]	<i>to carve</i>
<i>vocalically</i>	[ak ^h órd]	<i>to bend</i>	[aǵór]	<i>to choke</i>
	[ak ^h út ^h]	<i>to blow</i>	[aǵút ^h]	<i>to be deep</i>
	[ak ^h íf]	<i>to tear</i>	[aǵíl]	<i>to break</i>
<i>After</i>	[ŋkáríp ^h]	<i>sb who looks after sth</i>	[ŋǵáǵíç]	<i>canoe type</i>
<i>nasal</i>	[ŋkólón]	<i>dry season</i>	[ŋǵolón]	<i>strength</i>
	[ŋkoríi]	<i>sound heard from afar</i>	[ŋǵorí]	<i>honey badger</i>
	[ŋkuré]	<i>thirst</i>	[ŋǵúrét ^h iço]	<i>cowardice</i>
<i>Word</i>	[aík ^h]	<i>to hang</i>	[aíg]	<i>to brush one's teeth</i>
<i>finally</i>	[alák ^h]	<i>to pay</i>	[aílág]	<i>to retch</i>
	[aná ^h k]	<i>to suckle</i>	[aimág]	<i>to hit</i>
	[anók ^h]	<i>to fill a hole with soil</i>	[aimúg]	<i>to doze off</i>

The implosive stops contrast with their corresponding nasals at the same place of articulation. /b/ and /m/ contrast in all environments:

Table 25 Contrast between /b/ and /m/

	/b/		/m/	
<i>Word</i>	[búlû]	<i>eye paint</i>	[múlúǵ]	<i>bee hole</i>
<i>initially</i>	[bát ^h á]	<i>to the side</i>	[madáí]	<i>stupidity</i>
	[bɔɔ]	<i>in the kraal</i>	[mot ^h í]	<i>clay pot</i>
	[bárláí]	<i>pastel</i>	[márnáí]	<i>bracelet</i>
<i>Inter-</i>	[abulú]	<i>to grow</i>	[amúl]	<i>to be uniform</i>
<i>vocally</i>	[abór]	<i>to be calm</i>	[amór]	<i>to insult</i>
	[abúák ^h]	<i>to bark</i>	[amúát ^h]	<i>to fasten a bracelet</i>
	[abúk ^h]	<i>to pour out</i>	[amúǵ]	<i>to brew</i>
<i>Word</i>	[aik ^h úǵ]	<i>to hit, bump</i>	[aik ^h úm]	<i>to bump sb or oneself</i>
<i>finally</i>	[arúǵ]	<i>to join</i>	[arúm]	<i>to poke in order to startle</i>
	[arsáǵ]	<i>to stroll</i>	[aǵám]	<i>to love</i>
	[aŋóǵ]	<i>to leech</i>	[alóm]	<i>to be jealous</i>

/d/ and /n/ also display contrast.

Table 26 Contrast between /d/ and /n/

	/d/		/n/	
<i>Word</i>	[dét ^h]	<i>recently</i>	[nérê ^h]	<i>area under the tongue</i>
<i>initially</i>	[děí]	<i>indeed</i>	[néfia]	<i>in that way</i>
	[dúó]	<i>earlier today</i>	[nut ^h âí]	<i>pregnancy</i>
	[dǒróp ^h]	<i>short</i>	[nónót ^h ó]	<i>valley</i>
<i>Inter-</i>	[adút ^h]	<i>to select</i>	[anút ^h]	<i>to fumble</i>
<i>vocally</i>	[aidɪŋá]	<i>to be crowded</i>	[aininín]	<i>to listen</i>
	[adǎp]	<i>to break a hole in</i>	[anáŋ]	<i>to throw</i>
	[adédé]	<i>to be true</i>	[anenén]	<i>to be light in weight</i>
<i>Word</i>	[aúd]	<i>to pierce</i>	[aún]	<i>to plant</i>
<i>finally</i>	[aik ^h ód]	<i>to adorn</i>	[aiḃón]	<i>to practice divination</i>
	[ailúd]	<i>to sway</i>	[ait ^h ún]	<i>to grab</i>
	[akárd]	<i>to scratch</i>	[ŋkárɪ]	<i>names</i>

Likewise, /f/ and /p/ contrast.

Table 27 Contrast between /f/ and /p/

	/f/		/p/	
<i>Word</i>	[fílót ^h i]	<i>pink</i>	[pílet ^h]	<i>sortilege</i>
<i>initially</i>	[fa]	<i>just</i>	[pámu]	<i>stolen animals</i>

<i>Inter-vocally</i>	[aʃɔ̃n]	<i>to be raw</i>	[aɲóʔk ^h]	<i>to try hard</i>
	[aʃɪ]	<i>to strain</i>	[aɲíɪ]	<i>to be smooth</i>
	[aɪʃɪp ^h ʔá]	<i>to follow from a distance</i>	[aɲíʒ]	<i>to hiccup</i>
	[aɪʃo̞]	<i>to swallow</i>	[aɲo̞]	<i>to have woken up</i>
<i>Word finally</i>	[aɪʃ]	<i>to warm oneself at a fire</i>	[aɪɲ]	<i>to beat and humiliate</i>
	[aʃ]	<i>to scratch</i>	[aʃɔ̃]	<i>to bite</i>
	[ap ^h éʃ]	<i>to roast</i>	[ap ^h éɲ]	<i>alone</i>
	[ak ^h ɪʃ]	<i>to tear</i>	[ak ^h ɪɲ]	<i>to peel</i>

/g/ and /ŋ/ contrast in all environments.

Table 28 Contrast between /g/ and /ŋ/

	/g/		/ŋ/	
<i>Word</i>	[gʰársɪs]	<i>rich</i>	[ŋásúnot ^h ó]	<i>beginning</i>
<i>initially</i>	[gʰírɪm]	<i>strong</i>	[ŋíríat ^h á]	<i>patience</i>
	[gʰurét ^h]	<i>fearful</i>	[ŋúsúr]	<i>tailless</i>
<i>Inter–</i>	[aɡám]	<i>to grip</i>	[aŋám]	<i>to trace footprints</i>
<i>vocally</i>	[aɪɡór]	<i>to groan</i>	[aɪŋór]	<i>to look at</i>
	[aɡúár]	<i>to stop raining</i>	[aŋúár]	<i>to desire</i>
	[aɡír]	<i>to gnaw</i>	[aŋírí]	<i>to be patient</i>
<i>Word</i>	[aɪlág]	<i>to retch</i>	[alán]	<i>to cross over</i>
<i>finally</i>	[aɪníɡ]	<i>to hiccup</i>	[anín]	<i>to hear</i>
	[aɪsíɡ]	<i>to flee</i>	[asín]	<i>to sneeze</i>
	[rúɡ]	<i>camel’s hump</i>	[aɪróŋ]	<i>to snore</i>

Other phonetically similar segments that contrast include different combinations of alveolar phonemes, and combinations that include the semivowels. The phonetically similar alveolar phonemes include /t/ and /s/, /d/ and /l/, /d/ and /r/ and /d/ and /r/.

/t/ and /s/ contrast in all environments.

Table 29 Contrast between /t/ and /s/

	/t/		/s/	
<i>Word</i>	[tʰáar]	<i>whey</i>	[sáár]	<i>forest</i>
<i>initially</i>	[tʰásatʰ]	<i>elderly</i>	[sâs]	<i>thin, skinny</i>
	[tʰípʰatʰ]	<i>importance</i>	[sípʰátʰá]	<i>righteousness</i>
	[tʰárá]	<i>late evening</i>	[sará]	<i>goatskin used in ceremonies</i>
<i>Inter-vocally</i>	[atʰúr]	<i>to dig deep</i>	[asúr]	<i>to be dangerous</i>
	[atʰáá]	<i>to be, become</i>	[asaáan]	<i>to try</i>
	[atʰarú]	<i>to change how sth is adorned</i>	[asarú]	<i>to flee into</i>
	[atʰípʰ]	<i>to split up food and eat under great conservation</i>	[asípʰ]	<i>to strip a bone of meat</i>

<i>Word</i>	[aǵút ^h]	<i>to be deep</i>	[aǵús]	<i>to kiss</i>
<i>finally</i>	[amít ^h]	<i>to refuse</i>	[aimís]	<i>to drop out of sight</i>
	[aŋát ^h]	<i>to outgrow</i>	[aŋás]	<i>to do first</i>
	[aip ^h ot ^h]	<i>to call</i>	[aidós]	<i>to sneak</i>

Also /d/ and /l/ contrast in all environments.

Table 30 Contrast between /d/ and /l/

	/d/		/l/	
<i>Word</i>	[dǎp ^h áç]	<i>wide</i>	[láp ^h â]	<i>moon</i>
<i>initially</i>	[dér ^h léí]	<i>yellow</i>	[léléú]	<i>sand lizard</i>
	[dǒr ^h óp ^h]	<i>short</i>	[lɔrɔ́ɔ]	<i>a particular piece of meat</i>
	[dĩk ^h ír]	<i>benefit</i>	[lik ^h órót ^h ó]	<i>announcing</i>
<i>Inter-</i>	[adám]	<i>to slap</i>	[alám]	<i>to stand aloof</i>
<i>vocalically</i>	[adút ^h]	<i>to select</i>	[alút ^h]	<i>to urinate</i>
	[adúá]	<i>to be bitter</i>	[alúá]	<i>to cough</i>
	[adot ^h ú]	<i>to uproot</i>	[alot ^h ú]	<i>to come</i>
<i>Word</i>	[aílúd]	<i>to sway</i>	[aimúl]	<i>to cover</i>
<i>finally</i>	[ap ^h íd]	<i>to straighten</i>	[aǵíl]	<i>to do again</i>
	[aík ^h ód]	<i>to adorn</i>	[aǵól]	<i>to be strong</i>
	[aúd]	<i>to pierce</i>	[aifúl]	<i>to mix milk and blood</i>

/d/ and /r/ also contrast.

Table 31 Contrast between /d/ and /r/

	/d/		/r/	
<i>Word</i>	[dét ^h]	<i>recently</i>	[rét ^h o]	<i>help</i>
<i>initially</i>	[dĩk ^h ír]	<i>benefit</i>	[rík ^h órét ^h]	<i>bridewealth ox or sheep</i>
	[dǎp ^h áç]	<i>wide</i>	[ráp ^h a]	<i>bridewealth cow</i>
	[dét̚]	<i>indeed</i>	[réɪt ^h áɪ]	<i>sticks used in house construction</i>
<i>Inter-</i>	[adǎp]	<i>to break a hole in</i>	[aráp]	<i>to sing</i>
<i>vocalically</i>	[adúp ^h]	<i>to be able</i>	[arúp ^h]	<i>to heap</i>
	[adé]	<i>to shell</i>	[aré]	<i>to step on</i>
	[adúá]	<i>to be bitter</i>	[arúá]	<i>to kick</i>

Finally, /d/ and /r/ contrast.

Table 32 Contrast between /d/ and /r/

	/d/		/r/	
<i>Word</i>	[dét ^h]	<i>recently</i>	[rét ^h énét ^h]	<i>belt</i>

<i>initially</i>	[dĩk ^h ír]	<i>benefit</i>	[rínd'ík ^h]	<i>slave</i>
<i>Inter-</i>	[adǎ́n]	<i>to break a hole in</i>	[araǎ́n]	<i>to strap a calabash with</i>
<i>vocalically</i>	[adúp ^h]	<i>to be able</i>	[arú]	<i>to lend sb a cow for the use</i>
				<i>of its milk</i>
	[adě]	<i>to shell</i>	[arép ^h]	<i>to praise</i>
	[adúá]	<i>to be bitter</i>	[arúáç]	<i>to trip over sth</i>
<i>Word</i>	[aip ^h íd]	<i>to straighten</i>	[aip ^h ír]	<i>to stir vigorously</i>
<i>finally</i>	[ǎíd]	<i>to jump over</i>	[ǎír]	<i>to fumigate a calabash</i>
	[ǎúd]	<i>to pierce</i>	[ǎúr]	<i>to listen carefully</i>
	[aik ^h ód]	<i>to adorn</i>	[aigóór]	<i>to groan</i>

The phonetically similar sets that include the semivowels include /b/, /w/ and /w:/; /g/, /w/ and /w:/; and /f/, /j/ and /j:/. First, /b/ and /w/ contrast word initially and intervocalically.

Table 33 Contrast between /b/ and /w/

	/b/		/w/	
<i>Word</i>	[bát ^h á]	<i>to the side</i>	[walát ^h]	<i>answers</i>
<i>initially</i>	[bɔɔ]	<i>in the kraal</i>	[wôr]	<i>swamp</i>
	[bót ^h ór]	<i>senior</i>	[wót ^h ó]	<i>dripping</i>
<i>Inter-</i>	[aból]	<i>to pry open</i>	[awól]	<i>to arbitrate</i>
<i>vocalically</i>	[abǎǎ]	<i>to be a length</i>	[awá]	<i>to have taken</i>
	[abák ^h]	<i>to treat</i>	[awǎn]	<i>to be light out</i>

Also /b/ and /w:/ contrast word initially and intervocalically.

Table 34 Contrast between /b/ and /w:/

	/b/		/w:/	
<i>Word</i>	[bát ^h á]	<i>to the side</i>	[w:át ^h á]	<i>thorn fence</i>
<i>initially</i>	[bárláí]	<i>pastel</i>	[w:ára]	<i>gum of a particular tree</i>
<i>Inter-</i>	[aból]	<i>to pry open</i>	[aw:ón]	<i>to sit</i>
<i>vocalically</i>	[abǎǎ]	<i>to be a length</i>	[aw:á]	<i>to be a weight</i>
	[aboliǎó]	<i>to rape</i>	[aw:oiǎó]	<i>to build a thorn fence</i>
	[abǎǎjá]	<i>to open the chest of a</i>	[aw:aryé]	<i>to use for fence-building</i>
		<i>slaughtered animal</i>		

/g/ and /w/ and /g/ and /w:/ show similar contrasts, but as the semivowels are relatively rare, it is difficult to find good examples of word initial contrasts (even word initial /g/ is rare). First, compare /g/ and /w:/.

Table 35 Contrast between /g/ and /w/

	/g/		/w/	
<i>Inter-</i>	[aǵól]	<i>to be strong</i>	[awól]	<i>to arbitrate</i>
<i>vocalically</i>	[aǵám]	<i>to grip</i>	[awán]	<i>to be light out</i>
	[aǵór]	<i>to choke</i>	[awó]	<i>to bleed</i>

Then compare /g/ and /w:/.

Table 36 Contrast between /g/ and /w:/

	/g/		/w:/	
<i>Word</i>	[ǵársîs]	<i>rich</i>	[w:âs]	<i>having a large patch of contrasting colour</i>
<i>initially</i>				
<i>Inter-</i>	[aǵól]	<i>to be strong</i>	[aw:ón]	<i>to sit (SG)</i>
<i>vocalically</i>	[aiǵór]	<i>to groan</i>	[aiw:ót ^h]	<i>to move</i>
	[aǵém]	<i>to stop a blood flow</i>	[áaw:eni]	<i>to sit (PL)</i>
	[aiǵúán]	<i>to judge</i>	[aiw:án]	<i>to flash (of lightening)</i>

/f/ and /j/ also contrast.

Table 37 Contrast between /f/ and /j/

	/f/		/j/	
<i>Inter-</i>	[aɪfɪp ^h áá]	<i>to follow from a distance</i>	[aijɪ]	<i>to whet</i>
<i>vocalically</i>	[aɪáɪp ^h]	<i>to shelter</i>	[ajá]	<i>to take</i>
	[aɪé]	<i>to be a certain one</i>	[ajé]	<i>to die</i>
	[aɪúɪ]	<i>to inherit</i>	[ajók ^h]	<i>to fan a fire</i>

Finally, /f/ and /j:/ contrast.

Table 38 Contrast between /f/ and /j:/

	/f/		/j:/	
<i>Word</i>	[fa]	<i>just</i>	[j:â]	<i>What did you say?</i>
<i>initially</i>				
<i>Inter-</i>	[aɪéú]	<i>to be safe</i>	[aj:éú]	<i>to want</i>
<i>vocalically</i>	[aɪej:ó]	<i>to to sleep over at a place</i>	[aj:eló]	<i>to know</i>
	[aɪé]	<i>to be a certain one</i>	[aj:éɪ]	<i>to butcher</i>

2.1.7 Consonant clusters

There are two types of consonant clusters in the Samburu language: clusters within a syllable, and clusters crossing syllable boundaries.²⁶

²⁶ Syllables are discussed in section 3.

2.1.7.1 Consonant clusters within a syllable

There are a few examples of word final consonant clusters. These clusters are always made up of a combination of /r/ as the first phone and /n/, /t/ or /d/ as the second, or /n/ as the first phone and /t/ as the other.

Table 39 Word final consonant clusters

/r/ + /n/	[ŋkárn]	<i>names</i>
	[aḁárn]	<i>to shave</i>
/r/ + /t/	[lkúrt]	<i>maggots</i>
	[múrt]	<i>neck</i>
	[ɲírt]	<i>gum (of mouth)</i>
	[arḁárt]	<i>to watch over</i>
/r/ + /d/	[aḁúrt]	<i>to strip sth off</i>
	[akárd]	<i>to scratch, inscribe</i>
	[akórd]	<i>to bend</i>
	[apúrd]	<i>to crush to bits</i>
/n/ + /t/	[lpílpírínt]	<i>name of a tree (PL)</i>

2.1.7.2 Consonant clusters crossing syllable boundaries

There are two types of consonant clusters crossing syllable boundaries: extra-syllabic consonants preceding root initial consonants word initially, and clusters created when a coda meets an onset.

The word initial consonant clusters are nearly always clusters where the two consonants belong to different morphemes, a lateral or a nasal being the first consonant.²⁷ I consider the first consonant extra-syllabic and outside the syllabic structure of the syllable that follows. By doing this it is easier to explain onset clusters starting with laterals, which are universally uncommon.²⁸ It should be noted, however, that /l/ and /n/ before another consonant are not perceived as syllabic by native Samburu speakers. The timing in pronunciation supports this statement. The gender prefixes /- ‘masculine’ and *n-* ‘feminine’, or class II²⁹ verb marker allomorph *n-*, is never given a beat in Samburu songs

²⁷ There is at least one exception, where a word initial consonant cluster does not belong to two different morphemes: [nɲí] ‘in this way’.

²⁸ Wagner 2001:17, referring to Kenstowicz 1994:254-255.

²⁹ The Samburu verbs can be divided into two classes. Class I verbs are characterised by a *tV-* prefix in the perfective aspect as well as in the imperative forms (where the V is identical to the first verb root vowel), while class II verbs are characterised by the prefix *ɪ-*, which is attached to the verb root (and altered to *n-* in some environments, see 5.1). There are also a few verbs that do not clearly fit into any of these two groups, like [ak^húét^h] ‘to run’, which neither carries a *tV-* prefix nor an *ɪ-* prefix, and partly conjugates like a class I verb and partly like a class II verb.

and native Samburu speakers will not clap for it if asked to clap for syllables.³⁰

The gender prefixes are /l/ for masculine and /n/ for feminine. They attach to the noun root and will give rise to consonant clusters whenever the root starts with a consonant. In the same way, the class II verb marker allomorph /n/ attaches to the verb it modifies.³¹

The consonant clusters starting with the masculine gender prefix /l/ consist of the lateral and a stop, the lateral and a nasal, or the lateral and strong labiovelar semivowel. Clusters with lateral + strong palatal semivowel have been found only in borrowed words.³² Masculine noun stems with an initial fricative or a liquid delete the gender prefix. The deletion of the masculine gender prefix is discussed in 4.3.1.

Some examples of unambiguous clusters starting with the lateral include those in Table 40.

Table 40 Word initial consonant clusters with extrasyllabic /l/

/lp/	[lpaj:án]	<i>man</i>
/lt/	[ltuŋáni]	<i>person</i>
/lc/	[ltʃoní]	<i>hide</i>
/lk/	[lkédi]	<i>spider</i>
/lɓ/	[lɓaá]	<i>gully</i>
/ld/	[ldíâ]	<i>dog</i>
/lf/	[lfip ^h ét ^h]	<i>toothpick</i>
/lɕ/	[lɕoó]	<i>chest</i>
/lm/	[lmúráni]	<i>warrior</i>
/ln/	[lniŋó]	<i>agreement</i>
/lp/	[lpáp ^h árai]	<i>name of a clan</i>
/lŋ/	[lŋéǰé ^h p ^h]	<i>tongue</i>
/lw:/	[lw:aó]	<i>wind</i>

The consonant clusters starting with extrasyllabic /n/ (i.e. in nouns starting with the feminine gender prefix or verbs starting with the class II verb marker allomorph) are more

³⁰ Wagner 2001 claims that there are good reasons to believe that the gender prefix is moraic. The main reason for Wagner's conclusion is that monosyllabic nouns are allowed in Samburu only if they are heavy, whether by having a coda (i.e., heavy syllables/two moras, as in [ír] 'tree spec.' or [lôm] 'jealousy'), a bimoraic nucleus (i.e., heavy syllables/two moras, as in [léǰ] 'man' or [mǰô] 'python'), or a gender prefix (hence, two moras, as in [ntʃá] 'a kind of song' or [lkí] 'breasts'). He also draws a parallel to Maasai, where the gender prefixes are ɔl- and il- respectively for masculine singular and plural and en- and in- respectively for feminine singular and plural. In the Maasai gender prefixes the consonants are codas, and hence moraic. When it comes to Samburu, the initial vowel has been deleted in the gender prefixes so that only the consonant remains. Wagner suggests that also the mora has remained in the Samburu gender prefixes, even though there is no (additional) coda in the Samburu gender prefixes. Wagner 2001:18-19.

³¹ See 5.1 for a description of the morpheme alternation process relating to the class II verb prefix.

³² The word [lj:aúdi] 'Jew' is borrowed.

limited than the ones starting with /l/, as /n/ only occurs in combinations with explosives or implosives. The consonants in these clusters share the same place feature as the nasal, which undergoes place assimilation (see discussion in 4.2).

Class II verbs are prefixed with an /ɪ/, which is altered to an [i] before [+ATR] roots. In some environments (see 5.1) the /ɪ/ alters to an /n/ (namely, before explosives or implosives). This happens also in the imperative form of the class II verbs. This will give rise to word initial consonant clusters in the singular imperative forms.

Some examples of consonant clusters starting with extrasyllabic /n/ are given in Table 41.

Table 41 Word initial consonant clusters starting with extrasyllabic /n/

[mp]	[mpáɾí]	<i>day</i>
	[mpará]	<i>Ask (sb)!</i>
[nt]	[ntap ^h úk ^h ái]	<i>flower</i>
	[ntuk ^h ó]	<i>Wash (it)!</i>
[ntʃ]	[ntʃamán]	<i>love</i>
	[ntʃóó]	<i>Give (it)!</i>
[ŋk]	[ŋkúɾ ^h úk ^h]	<i>mouth</i>
	[ŋkenó]	<i>Close (it)!</i>
[mɓ]	[mɓéné]	<i>bag</i>
	[mɓuŋá]	<i>Catch (it)!</i>
[nd]	[ndâp ^h]	<i>palm</i>
	[ndip ^h á]	<i>Finish (it)!</i>
[nʃ]	[nʃɪɾí]	<i>giant rat</i>
	[nʃɪp ^h ái]	<i>Follow (it)!</i>
[ŋɡ]	[ŋɡólón]	<i>strength</i>
	[ŋɡílá]	<i>Repeat (it)!</i>

When a syllable with a coda meets another consonant-initial syllable it gives rise to a hetero-syllabic cluster. These clusters are infrequent and the allowed cluster constructions are limited. The first phone in the coda of the first syllable has to be a lateral, a nasal, or a trill.

When a lateral meets another hetero-syllabic consonant, the second consonant has to be either a stop or a nasal. Many of these examples involve a reduplicated stem, which means that they may be ambiguous (see discussion below).

Table 42 Word medial consonant clusters with the lateral

/lp/	[ip ^h álp ^h ái]	<i>you (PL) will cease</i>
/lt/	<i>not attested</i>	
/lc/	[ltʃáltʃáloi]	<i>tonsil</i>
/lk/	[lólkút ^h ófóólie]	<i>a trick used in wrestling</i>

/lʲb/	[mʲbʲolʲbʲól]	<i>eggs</i>
/ld/	[ak ^h aldʲaʲá]	<i>to flick away</i>
/lf/	<i>not attested</i>	
/lǵ/	[lǵólǵól]	<i>warrior's neck pendant</i>
/lm/	[salmáǵ]	<i>bee glue</i>
/ln/	<i>not attested</i>	
/lj/	<i>not attested</i>	
/lŋ/	[iŋólŋól]	<i>you (PL) will agitate</i>

The clusters involving a nasal as first consonant follow the same rule that governs allowed clusters within a single syllable: a nasal can only be followed by a stop and the place features are shared.

Table 43 Word medial consonant clusters with a nasal

/mp/	[lúmpái]	<i>light blue</i>
/nt/	[éntudŋiʃere]	<i>Use it for cutting! (PL)</i>
/nc/	[nmtʃé]	<i>they</i>
/ŋk/	[náŋká]	<i>cloth</i>
/mʲb/	[ímʲbá]	<i>you hate</i>
/nd/	[andá]	<i>that (FEM)</i>
/nf/	[lʃínʃil]	<i>type of basket</i>
/ŋǵ/	[iŋǵóran]	<i>you (SG) will play</i>

There is, however, an exception which has to be mentioned.³³ When reduplication of a noun or verb stem occurs and gives rise to a word medial cluster involving a nasal, nasal place assimilation will not apply. Hence we can find consonant clusters like these:

Table 44 Word medial consonant clusters in reduplicated stems

/ŋd/	[lóđónđón]	*[lóđónđón]	<i>wooden animal bell</i>
/pʲb/	[mʲbáŋpʲaŋ]	*[mʲbámʲbáŋ]	<i>decorative necklace beadwork</i>

The word medial clusters that involve the trill can be designed more freely. The trill can occur with any consonant apart from the trill itself or the flap. These clusters are, however, not very common. Some examples of the unambiguous clusters include those in Table 45.

Table 45 Word medial consonant clusters with the trill

/rp/	[sɪrpelêɪ]	<i>superb starling</i>
/rt/	[aɪk ^h urtót ^h]	<i>to crawl</i>
/rc/	<i>not attested</i>	

³³ The exception is noted by Wagner. Wagner 2001:26.

/rk/	[lpúrkél]	<i>lowland</i>
/rɓ/	[ntúrɓúɓ'úá]	<i>puff adder</i>
/rd/	[aisardakíé]	<i>to scatter sth</i>
/rf/	[lkárǰáf]	<i>wasteland</i>
/rg/	[árgí]	<i>a tree</i>
/rm/	[sirmoléí]	<i>cliterodectomised unmarried girl</i>
/rn/	[aɓarníé]	<i>to shave with</i>
/rɲ/	[aɪk ^h arɲasaré]	<i>to argue</i>
/rŋ/	<i>not attested</i>	
/rs/	[ǰársís]	<i>rich</i>
/rl/	[nturleǰé]	<i>tree stump</i>

Apart from the consonant clusters so-far discussed, reduplication of verb (or other) stems can cause even more consonant clusters. The clusters arising from stem reduplication are more freely designed and can consist of almost any consonant combination. These clusters should, however, be seen as ambiguous, as some speakers insert a vowel to break up the cluster, while others do not. Sometimes also slow and fast speech will give different surface forms – slow speech may give rise to clusters, while vowels are inserted in fast speech to aid pronunciation. Hence we find variant pronunciations like those in Table 46.

Table 46 Word medial consonant clusters in reduplicated stems

/pc/	[intʃoptʃóp ^h] ~ [intʃop ^h iʃóp ^h]	<i>you (PL) wear</i>
/pn/	[ɪnapnáp ^h] ~ [ɪnap ^h ɪnáp ^h]	<i>you (PL) carry</i>
/ɓs/	[ɪsɓsáɓ] ~ [ɪsɓɪsáɓ]	<i>you (PL) stroll</i>
/tɓ/	[ɪmɓatɓát ^h] ~ [ɪmɓat ^h ɪɓát ^h]	<i>you (PL) walk on the side of the road</i>
/tl/	[ɪletlét ^h] ~ [ɪlet ^h ɪlét ^h]	<i>you (PL) exclaim</i>
/kɓ/	[ɪɓakɓák ^h] ~ [ɪɓak ^h ɪɓák ^h]	<i>you (PL) treat</i>

2.2 Vowels

Samburu has nine vowels, each of them displaying all the tones, and occurring in nearly all syllable types³⁴ as well as in both stressed and unstressed syllables. The vowel system is symmetrical, having two sets of four vowels distinguished by the feature [ATR] (advanced tongue root), i.e. /i, e, u, o/ and /ɪ, ɛ, ʊ, ɔ/. The vowel /a/ occurs with both [ATR] sets with no phonetic distinction. Apart from [ATR] value, vowels contrast in height, backness and rounding.

The nine vowels are as follows:

³⁴ No data has been found with /ʊ/ and /ɔ/ occurring in V-syllables.

Table 47 Vowels

		–back	+back	
			–round	+round
+high	+atr	/i/		/u/
	–atr	/ɪ/		/ʊ/
–high	+atr	/e/		/o/
	–atr	/ɛ/	/a/	/ɔ/

First, evidence for contrast is presented. [ATR] is given special attention in a separate subsection (2.2.2). Finally, vowel clusters and moras will be discussed.

2.2.1 Evidence for vowel contrasts

The verb data in Table 48 shows that vowels contrast in height.

Table 48 Contrast between [+high] and [–high]

[+high]			[–high]		
/i/	[ap ^h ír]	<i>to be fat</i>	/e/	[ap ^h ér]	<i>to lie down</i>
	[aiβíl]	<i>to be very fat</i>		[aiβél]	<i>to rock from side to side</i>
	[ap ^h íʃú]	<i>to become sharp</i>		[ap ^h éʃ]	<i>to roast</i>
	[ŋkií]	<i>whetstone</i>		[ŋkɛ́k ^h]	<i>poles</i>
/ɪ/	[aǵíl]	<i>to break</i>	/ɛ/	[aǵél]	<i>to separate</i>
	[aðír]	<i>to climb</i>		[aðér]	<i>to chat</i>
	[aʃí]	<i>to strain</i>		[aʃé]	<i>to be a certain one</i>
	[ap ^h ír]	<i>to stir vigorously</i>		[ap ^h ér]	<i>to split logs</i>
/u/	[aβúl]	<i>to poke</i>	/o/	[aβól]	<i>to open</i>
	[aʃú]	<i>to be hairy</i>		[aʃó]	<i>to say</i>
	[alut ^h ú]	<i>to duck under</i>		[alot ^h ú]	<i>to come</i>
	[aŋúr]	<i>to cut off</i>		[aŋór]	<i>to shoot an arrow</i>
/ʊ/	[aɕól]	<i>to live together</i>	/ɔ/	[aʃól]	<i>to melt</i>
	[aɕór]	<i>to take shelter</i>		[aʃór]	<i>to massage</i>
	[aróp ^h]	<i>to heap</i>		[aróp ^h]	<i>to bribe</i>
	[arúʃ]	<i>to pack down</i>		[aróʃ]	<i>to signal</i>

Vowels also contrast in backness, as seen in Table 49.

Table 49 Contrast between [+back] and [–back]

[+back]			[–back]		
/u/	[arúk ^h]	<i>to thread</i>	/i/	[arík ^h]	<i>to lead</i>
	[aβúk ^h]	<i>to pour out</i>		[aβík ^h]	<i>to stay</i>
	[ap ^h úr]	<i>to steal</i>		[ap ^h ír]	<i>to be fat</i>
	[ait ^h ún]	<i>to shoot, but not deep enough</i>		[ait ^h ín]	<i>to come to an end</i>

/u/	[aɸúl]	<i>to live together</i>	/ɪ/	[aɸíl]	<i>to watch</i>
	[aðúp ^h]	<i>to be able</i>		[aðíp ^h]	<i>to resemble</i>
	[amúr]	<i>to plaster a house with mud</i>		[amír]	<i>to sell</i>
	[amút ^h]	<i>to finish off</i>		[amít ^h]	<i>to go dry</i>
/o/	[aʃó]	<i>to be straight</i>	/e/	[aʃé]	<i>to smooth a hide</i>
	[ap ^h ór]	<i>to creep, climb</i>		[ap ^h ér]	<i>to lie down</i>
	[arót ^h]	<i>to have diarrhoea</i>		[arét ^h]	<i>to help</i>
	[aiǵórr]	<i>to groan</i>		[aiǵér]	<i>to make beauty scars</i>
/ɔ/	[aʃór]	<i>to massage</i>	/ɛ/	[aʃér]	<i>to belch</i>
	[aðól]	<i>to pry open</i>		[aðél]	<i>to beat with sth</i>
	[aʃóp ^h]	<i>to slaughter</i>		[aʃép ^h]	<i>to follow alongside</i>
	[aðó]	<i>to be red</i>		[aðé]	<i>to shell</i>
/a/	[alán]	<i>to cross over</i>	/e/	[alén]	<i>to be grassy</i>
	[aʃá]	<i>to rain</i>		[aʃé]	<i>to smooth a hide</i>
	[ará]	<i>to be</i>		[aré]	<i>to step on</i>
	[ap ^h á]	<i>long ago</i>		[ap ^h é]	<i>to sweep dust with fingers</i>
/a/	[amán]	<i>to surround</i>	/ɛ/	[amén]	<i>to despise</i>
	[aðár]	<i>to scream</i>		[aðér]	<i>to chat</i>
	[aǵám]	<i>to grip</i>		[aǵém]	<i>to stop a blood flow</i>
	[alak ^h ó]	<i>to untie</i>		[alæk ^h ó]	<i>to have leftover food</i>

Within the set of back vowels, there is a contrast in rounding.

Table 50 Contrast between [+round] and [-round]

[+round]			[-round]		
/u/	[aðúk ^h]	<i>to pour out</i>	/a/	[aðák ^h]	<i>to treat</i>
	[aúr]	<i>to listen carefully</i>		[aár]	<i>to kill</i>
	[amún]	<i>to pinch</i>		[amán]	<i>to surround</i>
	[aɲúr]	<i>to cut off</i>		[aɲár]	<i>to share</i>
/u/	[aɸúm]	<i>to store (milk)</i>	/a/	[aʃám]	<i>to love, like</i>
	[aɸúl]	<i>to live together</i>		[aʃál]	<i>to be weak</i>
	[amút ^h]	<i>to finish off</i>		[amát ^h]	<i>to drink</i>
	[anók ^h]	<i>to fill a hole with soil</i>		[aná ^h k]	<i>to suckle</i>
/o/	[aʃó]	<i>to be straight</i>	/a/	[aʃá]	<i>to rain</i>
	[aʃóɸ]	<i>to hit</i>		[aʃáɸ]	<i>to get stuck in the throat</i>
	[aʃór]	<i>to sweep</i>		[aʃár]	<i>to kill</i>
	[alóm]	<i>to be jealous</i>		[alám]	<i>to stand aloof</i>
/ɔ/	[aʃól]	<i>to melt</i>	/a/	[aʃál]	<i>to be weak</i>
	[aðór]	<i>to be calm</i>		[aðár]	<i>to increase the herd</i>
	[alók ^h]	<i>to seduce</i>		[alák ^h]	<i>to pay</i>
	[aɲór]	<i>to be incomplete</i>		[aɲár]	<i>to share</i>

The data above has shown that vowels contrast in height, backness, and rounding. Also [i] and [e] on one hand and [u] and [o] on the other contrast. (Contrast in [ATR] will be discussed below.)

Table 51 Contrast between [+high][-ATR] and [-high][+ATR] vowels

[+high][-ATR]			[-high][+ATR]		
/i/	[ap ^h í]	<i>to be sharp</i>	/e/	[ap ^h é]	<i>to sweep dust with the fingers</i>
	[aɓíɾí]	<i>to sip through the teeth</i>		[ap ^h eríé]	<i>to sleep in a given manner</i>
	[ap ^h ík ^h]	<i>to put</i>		[at ^h ék ^h]	<i>to change course</i>
	[íran]	<i>anxiety, concern</i>		[éro]	<i>Young man! (VOC)</i>
/u/	[amóɾ]	<i>to plaster a house with mud/dung</i>	/o/	[amór]	<i>to insult</i>
	[aɔ́t ^h]	<i>to point at</i>		[aɔ́t ^h]	<i>to scoop out a well</i>
	[aip ^h ót ^h]	<i>to fill</i>		[aip ^h ót ^h]	<i>to call</i>
	[aɕúm]	<i>to store (milk)</i>		[aɕómo]	<i>to go, to have gone</i>

2.2.2 ATR

The feature [ATR] (advanced tongue root) is a very prominent feature in Samburu. Vowels that differ just in [ATR] value contrast, but the feature is also very prone to harmony modification. Note that the vowel /a/ occurs with both [ATR] sets within a single word, and that a negative [ATR] value cannot be explained by vowel weakening in unstressed syllables.

There are a few, though not many, minimal pairs based on [ATR] value alone.

Table 52 Lexical contrast between [+ATR] and [-ATR]

[+ATR]			[-ATR]		
/i/	[amít ^h]	<i>to refuse</i>	/i/	[amít ^h]	<i>to go dry</i>
	[aip ^h íd]	<i>to struggle/bother</i>		[aip ^h íd]	<i>to straighten</i>
/e/	[mɓéné]	<i>leaves</i>	/e/	[mɓéné]	<i>bag</i>
	[aik ^h én]	<i>to close</i>		[aik ^h én]	<i>to count</i>
	[adé]	<i>Shh! (a warning signal to be quiet)</i>		[adé]	<i>later</i>
/u/	[alút ^h]	<i>to remove sth from underneath sth else</i>	/u/	[alút ^h]	<i>to urinate</i>
	[ak ^h urú]	<i>to discover</i>		[ak ^h urú]	<i>to tighten sth tightly</i>
	[ak ^h út ^h]	<i>to hide/refuse/come out</i>		[ak ^h út ^h]	<i>to blow</i>
	[aiɕú]	<i>to be alive</i>		[arɕú]	<i>to finish off</i>
/o/	[aɓól]	<i>to open</i>	/ɔ/	[aɓól]	<i>to pry open the jaw of a cow</i>
	[aɲór]	<i>to shoot an arrow/gun</i>		[aɲór]	<i>to be incomplete</i>
	[aip ^h ók ^h]	<i>to paint</i>		[aip ^h ók ^h]	<i>to jab</i>

There is at least one minimal morpheme pair that differs phonologically only by [ATR] value. The inchoative suffix is /-u/ while the ventive suffix is /-u/. But as inchoative suffixes mostly are used with stative verbs, and ventive suffixes mostly with motion verbs, it is difficult to find minimal word pairs involving the [ATR] value in a contrastive way in grammatical morphemes. However, Table 53 does present one such word pair.

Table 53 [+ATR] versus [-ATR] in contrasting grammatical morphemes

[aap ^h ú]	ventive suffix	<i>to raise up, to give support</i>
[aap ^h ú]	inchoative suffix	<i>to become pregnant</i>

The root /ap/ has the meaning ‘to be pregnant’ and occurs also without any suffix. It does not, however, have another meaning related to ‘to raise’ or ‘to support’ that occurs without the ventive suffix, though a root with such a meaning can be seen in the verb [aap^haré] ‘to assist, to support’.

The feature [ATR] generally extends over the entire word, though /a/ occurs with either [+ATR] or [-ATR] vowels. This is explained in greater detail in 4.1 where [ATR] harmony is discussed.

2.2.3 Vowel clusters and moras

Any vowel can occur in sequences of identical vowels. The examples in Table 54 show that vowel duration is a contrastive phenomenon in Samburu, as it can mark both grammatical and lexical differences. This suggests that study of moras has much to contribute to the understanding of Samburu vowel clusters; duration differences, which can be described as variation in number of moras, sometimes carry meaning contrasts.

Table 54 Vowel length contrasts

[ait ^h úk ^h]	<i>to wash (SG)</i>	[áait ^h uk ^h]	<i>to wash (PL)</i>
[óit ^h uk ^h]	<i>[he/she] who washes</i>	[óóit ^h úk ^h]	<i>[they] who wash (PL)</i>
[sip ^h íl é mpéré]	<i>the blade of the spear</i>	[sip ^h ilí ẹẹ mpería]	<i>the blades of the spears</i>
[káǎm]	<i>I love</i>	[káǎǎm]	<i>He/she loves me</i>

Clusters of two dissimilar vowels occur frequently in Samburu. Table 55 shows that these clusters are most common word finally, but they are also common word medially. Word initially only clusters with a high vowel as the second phone occur, mostly (but not always) for morphological reasons.

The examples in Table 55 show vowel clusters constituting one syllable. Sometimes it is difficult to determine the syllable breaks, especially if a bimoraic vowel cluster with two dissimilar vowels is involved. As the bimoraic clusters often are ambiguous in terms of syllable count, only monomoraic clusters are included in the table.

No word initial clusters with high vowels are attested, as such clusters are interpreted as

a semivowel plus a vowel.

Table 55 Vowel clusters of one mora

	<i>Word initially</i>		<i>Word medially</i>		<i>Word finally</i>
/ie/	<i>not attested</i>		[arisieré]	<i>to resemble</i>	[aɓarnié] <i>to shave with</i>
/ɛ/	<i>not attested</i>		[aɪɪɐ ^h ú]	<i>to come up</i>	[aɪsɪmaríé] <i>to kidnap</i>
/iu/	<i>not attested</i>		<i>not attested</i>		[ait ^h ip ^h íú] <i>to resurrect</i>
/ɪu/	<i>not attested</i>		<i>not attested</i>		[aɪɕíú] <i>to recover from illness</i>
/io/	<i>not attested</i>		[ɪkórion]	<i>back</i>	[arisíó] <i>to resemble in measure or age</i>
/ia/	<i>not attested</i>		<i>not attested</i>		[ɪbeniá] <i>bags</i>
/ɪa/	<i>not attested</i>		[aɪɕɪaɐ ^h ɪnó]	<i>to be fitting</i>	[aɪɐsɪá] <i>to be amazed</i>
/ei/	[(eɪ ^h ú) eɪ ^h úk ^h]	<i>he does (not) wash³⁵</i>	[ɪameɪt ^h ín]	<i>droughts</i>	[ɪréɪí] <i>word</i>
/ɛɪ/	[ɛɪ ^h ú]	<i>not</i>	[ɪmáɪɪt ^h a]	<i>phratries, clans</i>	[ɪmáɪɪí] <i>phratry, clan</i>
/ɛʊ/	<i>not attested</i>		<i>not attested</i>		[p ^h éɛʊ] <i>a little</i>
/ai/	[aɪt ^h úk ^h]	<i>to wash</i>	[sɪáɪt ^h ím]	<i>works</i>	[ɪasâɪ] <i>termite</i>
/aɪ/	[aɪsúɕ]	<i>to wash utensils</i>	[asaɪɔ]	<i>to beg aggressively</i>	[ɪkásímáɪ] <i>minor infections in children</i>
/æ/	<i>not attested</i>		<i>not attested</i>		[ɪɓâê] <i>large wound</i>
/au/	[auló]	<i>outside (the kraal)</i>	[aɪnaurú]	<i>to become tired</i>	[ɪaɔáú] <i>bull calves</i>
/aʊ/	<i>not attested</i>		[ɪkairáúráú]	<i>leather wrist bracelet</i>	[ɪkɪk ^h áú] <i>first-born child</i>
/ui/	<i>not attested</i>		<i>not attested</i>		[ɪkúɪí] <i>maggot</i>
/ʊɪ/	<i>not attested</i>		[aɪɔɪɔɔɔɔɔɔɔɔɔ]	<i>to crawl</i>	[ɪpudɔɔɔɔɔɔɔɔɔ]
/ue/	<i>not attested</i>		[ɪúési]	<i>animals</i>	[ɪkúé] <i>head</i>
/ʊɛ/	<i>not attested</i>		[aɔɔɔɔɔɔɔɔɔɔ]	<i>to carve out</i>	<i>not attested</i>
/uo/	<i>not attested</i>		[áap ^h uonu]	<i>to come (PL)</i>	[áap ^h uo] <i>to go (PL)</i>
/ʊɔ/	<i>not attested</i>		[súómí]	<i>livestock (SG)</i>	<i>not attested</i>
/ua/	<i>not attested</i>		[ɪkuaríé]	<i>night</i>	[súrua] <i>blue</i>
/ʊa/	<i>not attested</i>		[aɪɔuaná]	<i>to hold a meeting</i>	[aɔúá] <i>to be bitter</i>
/oi/	[óít ^h uk ^h]	<i>(he) who washes</i>	[ɪólóít ^h o]	<i>adultery</i>	[ɪkip ^h orôí] <i>scar</i>
/ɔɪ/	[óíɔɔɔɔɔɔɔɔɔ]	<i>(he) who catches</i>	[áaɔɔɔɔɔɔɔɔɔ]	<i>to live together</i>	[ɪkɪɔɔɔɔɔɔɔɔɔ]

³⁵ The verb form [eɪt^húk^h] does not normally occur in isolation (the isolation form is typically [keɪt^húk^h]), and hence the word is given in a context in this example.

Table 58 Tones

/á/	high tone
/a/	low tone
/â/	falling tone, which occurs only in word final syllables

The falling tone can be interpreted as a high tone and a low tone carried by one single mora; thus, the underlying inventory can be reduced to two phonemic tones.

Every mora in a vowel or vowel cluster carries one of these three tones. Research done by Rasmussen 2002 shows that the mora is the tone bearing unit (TBU) in Il-Keekonyokie Maa; he also refers to research done by Levergood 1990 which established the mora as the TBU in Arusa Maa.³⁸ Not surprisingly, research done on Samburu by Wagner brings forward similar evidence.³⁹

Almost every word carries at least one high or falling tone, with only a few exceptions.⁴⁰ The language also exhibits downdrift and downstep processes, which are discussed below. Tone melodies on roots and affixes need more investigation (but see Tucker and Mpaayei 1955 for lists of nominal tone melodies in Maasai). More research is also needed on what happens when tone melodies from different morphemes come together within complex words.

2.3.1 Lexical tone

A few pairs of words can be shown to differ on the basis of tone alone.

Table 59 Lexical tone contrast

[so ^h tûâ]	<i>walking stick</i>
[so ^h túá]	<i>friend</i>
[Itép ^h és]	<i>acacia tree</i>
[Itép ^h es]	<i>acacia trees</i>

Such pairs are, however, rare. Nevertheless, the tone patterns of different noun stems, at least, are not predictable and must be learned as part of the arbitrary forms of words.

2.3.2 Grammatical tone

Perhaps functionally more important than lexical differences in tone are the grammatical differences that tone causes in Samburu. At least the grammatical contrasts discussed

³⁸ Rasmussen 2002:20.

³⁹ Wagner 2001.

⁴⁰ At least [aa] 'which', [fa] 'just', [kore] 'Where?' and [kore] 'DISCOURSE MARKER' carry low tones only. These words never occur in isolation, they always occur in phrases.

below are attributed to tone alone.⁴¹

Every Samburu noun, as well as its modifiers, has two case forms each, for both singular and plural forms. The two cases differ in tone alone. These forms have traditionally been called the accusative and nominative case forms (see Tucker and Mpaayei 1955). Compare the following examples:

- (1.) [kɛ́ár lɪmuraní lɔ́atʰúɲ]

/k- ɛ- ar l- muraní l- ɲátúɲ/
K- 3- kill MASC- warrior.NOM MASC- lion.ACC
The warrior will kill the lion.

- (2.) [kɛ́ár lɪmúrání lɔ́atʰúɲ]

/k- ɛ- ar l- múrání l- ɲátúɲ/
K- 3- kill MASC- warrior.ACC MASC- lion.NOM
The lion will kill the warrior.

- (3.) [néfókʰí nɪntʃɛ j:esó]⁴²

/n- ɛ- fók -í nínɛɛ j:esó/
NAR- 3- tell -DAT they.NOM Jesus.ACC
They told Jesus:...

- (4.) [néfókʰí nɪntʃɛ j:éso]

/n- ɛ- fók -í nɪncé j:éso/
NAR- 3- tell -DAT they.ACC Jesus.NOM
Jesus told them:...

The word order in Samburu is verb – more topical – less topical. Often this means a VSO word order, as the subject often is more topical than the object. But sometimes the object is more topical than the subject, and then the word order will be VOS. The examples above show this distinction, which is difficult to catch in the English gloss. However, definite pronouns like 'they/them' are typically not used unless the speaker assumes the hearer knows already who is being referred to – i.e. the pronominal referent is typically more topical than a nominal referent.

The following two examples show the tonal difference between nominative and accusative case forms, where the word order is normal in both cases.

⁴¹ Many examples correspond to forms found in Rasmussen 2002:227-243 for Maasai, but are adjusted to represent the Samburu language.

⁴² Low tones are raised phrase initially, see 2.3.3, which explains why the very first tone in the example is phonetically high, but phonologically low.

(5.) [kéísáp^húk^h sílê]

/k- ε- ɪ- sapuk sílê/
 K- 3- ɪl- be.big debt.NOM
The debt is big.

(6.) [káát^ha síle]

/k- a- ata síle/
 K- 1 SG- have debt.ACC
I have a debt.

The nominative case form is used not only on grammatical subjects, but also after the oblique preposition tɛ.

(7.) [kéít^huk^h ɲotɲɲé ɲkéráí ɛɲé t^ha ɲkáɛ námololoɲ]

/K- ε- ɪ- tuk ɲotɲɲé ɲ- kéréáí ɛɲé
 K- 3- ɪl- wash his.mother.NOM FEM- child.ACC her.ACC

tɛ ɲ- káɛ ná- mololoɲ/
 PREP FEM- water.NOM REL- lukewarm.NOM
The mother washes her child with lukewarm water.

The accusative case form has a wider range of use than on grammatical objects only. It is, for example, used after the discourse marker kore, and even on subjects in certain constructions.

(8.) [amû kore ɲkiçúi náa kéát^ha t^híp^hat^h alán ndǎa]

/amû kore ɲ- kiçúi naa k- ε- ata
 because DISC FEM- life.ACC DISC K- 3- have

típat alán n- dǎa/
 meaning.ACC more.than FEM- food.ACC
Because life is more important than food [...]

Further, many verbs in 2nd and 3rd person differ between singular and plural only by differences in tones. The difference between the singular and the plural forms often appears on the last syllable (though not always), and often a falling tone or a downstepped high tone is contrasted to either a high or a low tone. Downstep is discussed in greater detail in 2.3.3.

(9.) [íǎáú]

/ɪ- ǎau/
 2- arrive
You (SG) will arrive.

(10.) [íḃáŋ]

/ɪ- ḃau/

2- arrive

You (PL) will arrive.

(11.) [ké^htóḃóló]

/k- ε- tV- ḃol -o(k)/

K- 3- PERF- open -PERF

He opened it.

(12.) [ké^htóḃólô]

/k- ε- tV- ḃol -o(k)/

K- 3- PERF- open -PERF

They opened it.

(13.) [kéík^héno]

/k- ε- ɪ- ken -o(k)/

K- 3- II- open -PERF

He shut it.

(14.) [kéík^hén'ó]

/k- ε- ɪ- ken -o(k)/

K- 3- II- open -PERF

They shut it.

Tone marks the difference between the subjunctive and the negative indicative forms of verbs belonging to class II:

(15.) [méisisi ŋkáí]

/m- ε- ɪ- sis -i ŋkáí/

SUBJN- 3- II- praise -PASS God.ACC

Praise God! (Lit. May God be praised!)

(16.) [meisisí ŋkáí]

/m- ε- ɪ- sis -i ŋkáí/

NEG- 3- II- praise -PASS God.ACC

May God not be praised!

Perfective passive versus dative imperfective is sometimes expressed by tone, as shown in the examples below:

- (17.) [káait^huk^hok^hi]
- | | | | | | |
|-----|-------|-----|------|--------|-------|
| /k- | áa- | I- | tuk | -o(k)/ | |
| K- | 3S1O- | II- | wash | -PERF | -PASS |
- I was washed.*

- (18.) [káait^huk^hók^hi]
- | | | | | | |
|-----|-------|-----|------|-----------|--|
| /k- | áa- | I- | tuk | -oki(n)/ | |
| K- | 3S1O- | II- | wash | -DAT.IMPF | |
- He will wash for me.*

There is a contrast between perfective and imperfective in the following examples. It is not clear, however, if these words represent “plain” perfective and imperfective respectively, or if the word final /a/ in the imperfective actually has a grammatical function. In the analysis below I assume that it is part of the verb root. Alternatively, the final /a/ might be interpreted as the perfective suffix in the first example, and in the second example as a suffix with unknown function.

- (19.) [káírít^há]
- | | | | | |
|-----|------|-----|-----------------|--|
| /k- | a- | I- | rita/ | |
| K- | 1SG- | II- | look after.PERF | |
- I looked after them [e.g. cows].*

- (20.) [káírít^ha]
- | | | | | |
|-----|------|-----|-----------------|--|
| /k- | a- | I- | rita/ | |
| K- | 1SG- | II- | look after.IMPF | |
- I will look after them [e.g. cows].*

In the examples below the only difference between active voice perfective aspect and middle voice imperfective aspect is the tone of the verb. Within the middle imperfectives, there is a tonal contrast between stative middles and dynamic middles. Here also the perfective form is contrasted for singular and plural, with a total of four different tone patterns as a result:

- (21.) [kéídóŋó]
- | | | | | |
|-----|----|-----|------|----------|
| /k- | ε- | I- | dŋ | -o(k)/ |
| K- | 3- | II- | beat | -PERF.SG |
- He beat it.*

- (22.) [kéídóŋô]
- | | | | | |
|-----|----|-----|------|----------|
| /k- | ε- | I- | dŋ | -o(k)/ |
| K- | 3- | II- | beat | -PERF.PL |
- They beat it.*

- (23.) [keidóno]
 /k- ε- I- dón -o/
 K- 3- II- beat -MID.STAT
He is/they are beaten.

- (24.) [keidón'ó]
 /k- ε- I- dón -o/
 K- 3- II- beat -MID.DYN
They will beat each other.

Another tonal contrast is found in the perfect versus imperfect of causative instrumental verbs of class I. In the examples below the tonal difference between singular and plural is also shown, resulting in three words with identical segments, but different tones.

- (25.) [káait^hudúníé]
 /k- áa- itV- dún -ie/
 K- 3S1O- CAUS- cut -INSTR.PERF.SG
He made me cut using it.

- (26.) [káait^hudúnîê]
 /k- áa- itV- dún -ie/
 K- 3S1O- CAUS- cut -INSTR.PERF.PL
They made me cut using it.

- (27.) [káait^hudúnie]
 /k- áa- itV- dún -ie/
 K- 3S1O- CAUS- cut -INSTR.IMPF
He/they will make me cut using it.

Likewise, there is a tonal contrast between the perfective and imperfective of class II causative verbs. As above, also the singular and plural tonal distinction is displayed in the examples below.

- (28.) [káaiđeríé]
 /k- áa- I - gër -ie/
 K- 3S1O- II- write -CAUS.PERF.SG
He made me write.

- (29.) [káaiđerîê]
 /k- áa- I - gër -ie/
 K- 3S1O- II- write -CAUS.PERF.PL
They made me write.

- (35.) [ík^hí6'árn]
 /íkí- 6arn/
 3S2O/2S1O- shave
He will shave you./You will shave me.

- (36.) [ík^hí6ârn]
 /íkí- 6arn/
 1 PL- shave
We will shave.

2.3.3 Tone modifications

As Wagner 1997 observes, low tones are often raised on initial syllables and high tones are lowered on final syllables. The following example shows how a low tone is raised phrase initially, giving rise to a phonetically high tone, while a high tone is lowered phrase finally, giving rise to a phonetically low or lowered tone.

- (37.) [néfók^hí níntʃɛ j:esó]
 /n- ɛ- fók(k) -í nínce j:esó/
 NAR- 3- tell -DAT they.NOM Jesus.ACC
They told Jesus: [...]

The phonetic output will conform to the phonological form when the position is not phrase initial or phrase final.

- (38.) [kore ɣolé nefók^hí níntʃɛ j:esó áʔfo]
 / kore ɣolé n- ɛ- fók(k) -í nínce j:esó áʔfo/
 DISC yesterday NAR- 3- tell -DAT they.NOM Jesus.ACC COMP
Yesterday they told Jesus that [...]

Wagner 1997 also describes a tonal fusion process which operates over word boundaries in fast speech, such that the final high tone(s) of a word are inherited by the first syllable of following word: ⁴⁴

- (39.) [sáʔáí áʔa]?
 /sáa -í aʔá/
 hour -PL how many?
What time is it?

The word affected by the tonal fusion in the example above is [áʔa], which in isolation or

⁴⁴ Wagner 1997:6.

in other contexts, i.e. phonemically, is /afá/. The last tone is phonemically high, but is phonetically lowered in example 39 due to its phrase final position.

Tucker and Mpaayei describe in their Maasai grammar a downdrift process, “i.e. the gradual sinking of the voice as the sentence proceeds”.⁴⁵ The rule is that when a low tone occurs after a high tone, all subsequent high tones will be lower than the previous high tone, which occurred before the intervening low tone. This is illustrated in Figure 5, where the utterance starts with two high tones, continues with three low tones followed by a high tone lower than the first two highs, and finally a low tone and a high tone, where the high tone is even lower than the previous high tone.

- (40.) [kódóɫ ntomononí nɪɛ́]?
 /K- ε- dól n- tomononí nɪɛ́/
 K- 3- see FEM- woman.NOM him.ACC
The woman sees him.

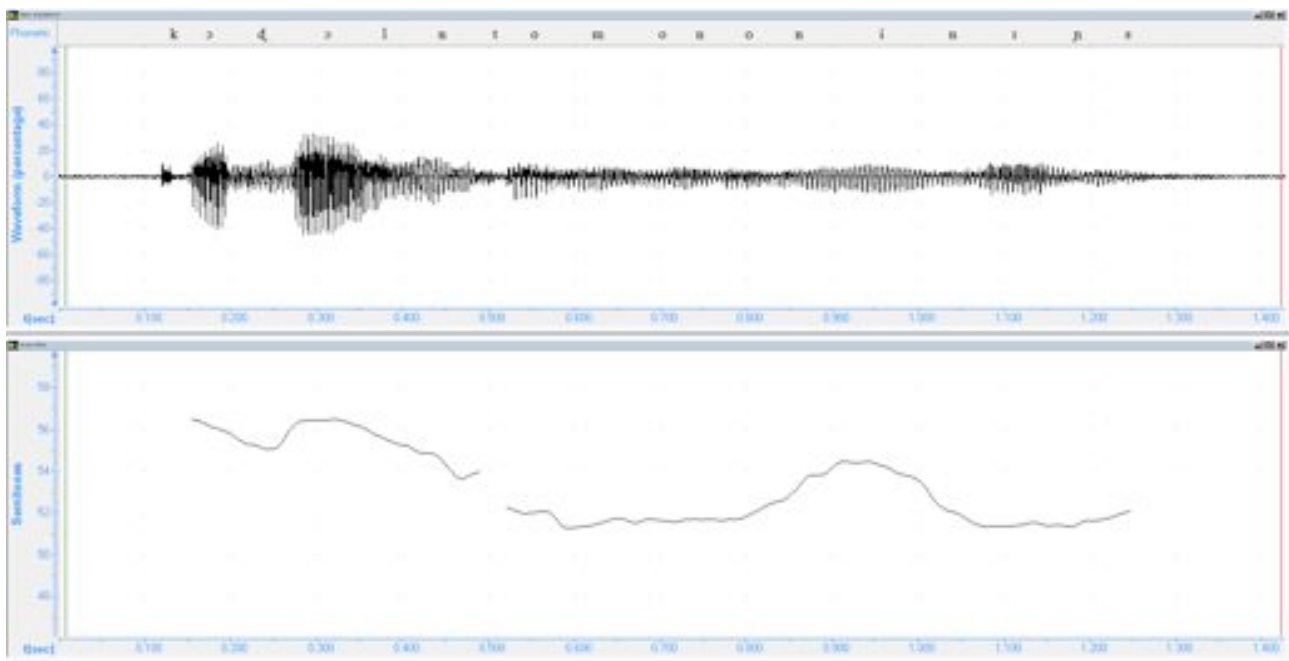


Figure 5 Downdrift

Another similar key-lowering phenomenon, downstep, operates both within words and across word boundaries in declarative clauses. Downstep differs from downdrift in that no (synchronic) intervening low tone needs to be involved.⁴⁶ In Samburu it also occurs inherently in some words and sometimes it carries grammatical meaning, as seen in 2.3.2.

In the example below five low tones follow a high tone. Figure 6 shows the phonetic realisation of the low tones – the first low tone is phonetically higher than the rest, the following three are at about the same pitch level, while the last tone is lowest.

⁴⁵ Tucker & Mpaayei 1955:170-171.

⁴⁶ Downstep may synchronically or diachronically be downdrift, but the low tone has been deleted. See Leben 1973:71.

A failure to note downdrift and downstep would require the analyst to posit a level mid tone, which would not be phonemic.

(41.) [éntudũŋɪʃere]

/en- tV- dũŋ -içere/
 2 PL- IMP- cut -INTRANS.INSTR
Use it for cutting! (you PL)

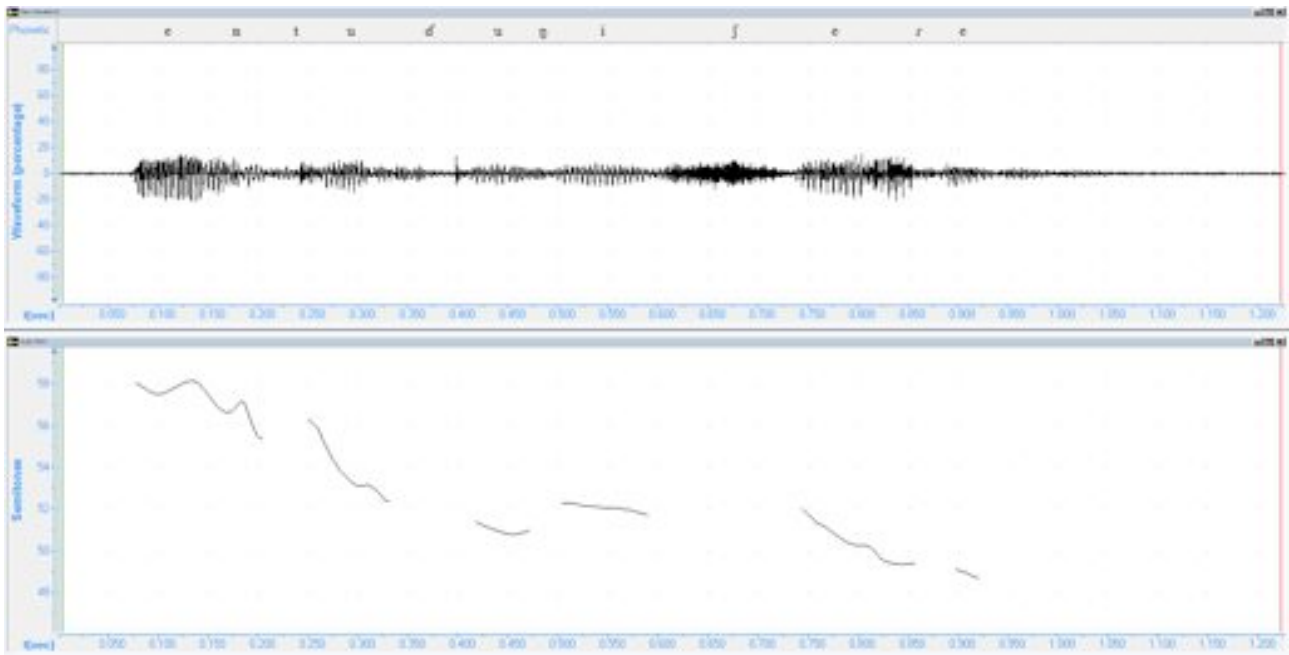


Figure 6 Downstep

Some words carry a downstep property inherently word internally, while the entire word will be downstepped in other cases. The examples below illustrate this: the words in examples 42 and 44 below are downstepped word internally, while the entire word is downstepped in examples 43 and 45 below.

Downstep is marked with a raised exclamation mark, / ' /:

(42.) [íɛw:o ɪj:'é]

/ɪ- ew:o ij:'e/
 2- came you.SG.NOM
You came.

(43.) [kárá nanú ŋk'éráí]

/k- a- ra nanú n- k'éráí/
 K- 1SG- be I.NOM FEM- child.ACC
I am a child.

- (44.) [kát^hódũḡ ntít^hó]
- | | | | | | | |
|-----|-------|-------|-----|-------|------|----------|
| /k- | a- | tV- | đu | -a | n- | tító/ |
| K- | 1 SG- | PERF- | see | -PERF | FEM- | girl.ACC |
- I saw a girl.*

Word internal downstep will be overridden if another word follows in the same phonological phrase. Note that /íj:é/, which is downstepped in example 42, is not downstepped in example 45. Similarly, /ntít^hó/ is downstepped in example 44, but not in example 46.

- (45.) [írá íj:é ŋk'éráí]
- | | | | | |
|-----|----|------------|------|-----------|
| /í- | ra | íj:é | n- | k'éráí/ |
| 2- | be | you.SG.NOM | FEM- | child.ACC |
- You are a child.*

- (46.) [kát^hódũḡ nanú ntít^hó naḡô]
- | | | | | | | | | | |
|-----|-------|-------|-----|-------|-------|------|----------|-------------|---------|
| /k- | a- | tV- | đu | -a | nanú | n- | tító | na- | ḡô/ |
| K- | 1 SG- | PERF- | see | -PERF | I.NOM | FEM- | girl.ACC | REL.FEM.SG- | one.ACC |
- I saw one girl.*

Just like downstep is overridden if another word follows, falling tones are raised (or simplified) to high tone when another word follows. Compare these two examples, where the falling tone surfaces when the word is pronounced in isolation:

- (47.) [ík^híḡârn]
- | | |
|-------|-------|
| /íkí- | ḡarn/ |
| 1 PL | shave |
- We will shave.*

- (48.) [ík^híḡârn t^héísíére]
- | | | |
|-------|-------|-----------|
| /íkí- | ḡarn | téísíére/ |
| 1 PL | shave | tomorrow |
- We will shave tomorrow.*

Phonetic tone is also affected by phrase level intonation patterns, such as question intonation.⁴⁷

3 Syllable pattern

The distinction between light syllables and heavy syllables helps us describe the Samburu syllable system. Heavy syllables are syllables with a branching rhyme, i.e. a vowel cluster

⁴⁷ Most of this section is adapted from Wagner 1997:6-7.

which is either bimoraic or a syllable with a coda.

V and VC syllable types are rare. What looks like complex onsets I interpret as syllables with a preceding extra-syllabic segment, outside the main syllable structure. These segments occur only word initially and virtually always represent separate morphemes (as gender prefix morphemes or the class II prefix allophone). Coda clusters occur only word finally. The coda clusters are the ones discussed in 2.1.7.1, i.e. a trill + an alveolar nasal or voiceless explosive stop, or an alveolar nasal + a voiceless alveolar explosive stop.

Apart from these restrictions, all syllable types can occur both word initially and word finally. All syllable types apart from CṼṼC and CVCC syllables have been attested word medially.

Any consonant can occur as an onset, and any consonant except for the semivowels can occur as codas, as long as the coda is word final. Word medial codas are restricted to the lateral, a nasal, and the trill; see 2.1.7 for details and examples.

Single syllable words are accepted as long as they have a coda or a bimoraic nucleus. Light open monosyllabic words are also allowed as long as they are preceded by an extra-syllabic segment (i.e. with a gender prefix, class II prefix or similar).⁴⁸ This indicates that all Samburu words are at least bimoraic, if we count the extra-syllabic segment as a mora.⁴⁹

In the table below syllable breaks are indicated by a full stop while extra-syllabic segments are listed as (C) in brackets. The examples show that syllables with both a bimoraic nucleus (ṼṼ) and a complex coda (CC) are not attested – this indicates that there are limitations as to how complex the syllables can be.

Table 60 Syllable patterns

<i>Syllable type</i>			<i>Example</i>	<i>Gloss</i>
light	open	CV	[lá.kʰí.rá]	<i>star</i>
			[ku.lé]	<i>milk</i>
		V	[ú.ro]	<i>axe</i>
			[a.ʔól]	<i>to open</i>
		(C)CV	[ŋkó]	<i>take!</i>
			[lkí]	<i>breasts</i>
heavy	open	CṼṼ	[léɛ]	<i>man, gentleman</i>
			[réí.tʰáí]	<i>sticks used in house construction</i>
		ṼṼ	[óê]	<i>Yes? What? (used by men)</i>
			[ɛ́ɛ́]	<i>yes</i>
heavy	closed	(C)CṼṼ	[lw:áó]	<i>wind</i>
			[ntʃóó]	<i>herd of cattle</i>
		CVC	[lôm]	<i>jealousy</i>

⁴⁸ The word [fa] ‘just’ could be seen as an exception. On the other hand, it never occurs isolated, but always follows another word.

⁴⁹ Wagner 2001:18-19.

	[náŋ.k ^h ân]	<i>clothes</i>
VC	[ít ^h]	<i>name of a tree (PL)</i>
	[én.tʃom]	<i>Go! (PL)</i>
CVCC	[múrt]	<i>neck</i>
	[a.ḁárn]	<i>to shave</i>
(C)CVC	[ntʃán]	<i>rain</i>
	[ndâp ^h]	<i>palm</i>
(C)CVCC	[lkúrt ^h]	<i>maggots</i>
	[ŋkárn]	<i>names</i>
CYVC	[t ^h ɕóm]	<i>fat in camel's hump</i>
	[sáál]	<i>nine</i>
YVC	[aár]	<i>to beat, kill</i>
	[aás]	<i>to do</i>
CYVCC	<i>not attested</i>	
(C)CYVC	[ntɕóp ^h]	<i>lateral half of rib cage with internal organs</i>
	[ndɕór]	<i>morning feeding of cattle</i>
(C)CYVCC	<i>not attested</i>	

4 Phonological processes

The major phonological processes operating in Samburu are described below. As they account for most of the phonetic and phonological variation also affecting morphemes, most of the Samburu morphophonology is included in this section.

4.1 ATR harmony

As briefly mentioned above in 2.2.2, [ATR] harmony is a prominent feature in Samburu. The [+ATR] feature is dominant. All morphemes, including roots of words, that inherently carry [-ATR] vowels and that can be modified by [+ATR] affixes, have a [+ATR] allomorph. The [+ATR] allomorph is used when a [+ATR] affix modifies the word in question. The following examples show how a [+ATR] suffix changes the [ATR] value of a word, causing the word to make use of its [+ATR] allomorph:

a) morphemes with [-ATR] vowels

(49.) [adɕ]

/a- dɕ(r)⁵⁰/

INF.SG be.blood-red

to be blood-red

⁵⁰ The consonants in brackets are underlying consonants that often surface when suffixes are added. They are probably historic remnants of old forms of the language.

- (50.) [kédǝ]
 /k- ε- dǝ(r)/
 K 3 be.blood-red
He/she/it is blood-red.

b) morphemes with [+ATR] vowels

- (51.) [aǝorú]
 /a- dǝ(r) -u/
 INF.SG be.blood-red INCHOATIVE
to become blood-red

- (52.) [kedǝorú]
 /k- ε- dǝ(r) -u/
 K 3 be.blood-red INCHOATIVE
He/she/it will become blood-red.

The inventory of Samburu affixes contains affixes of both [ATR] types. But as the [+ATR] feature is dominant, all [-ATR] affixes also have a [+ATR] allomorph, while inherently [+ATR] affixes do not have [-ATR] variants. The [-ATR] affixes are attached to roots with [-ATR] vowels, while the [+ATR] allomorphs are attached to roots with [+ATR] vowels, and have the ability to trigger underlying [-ATR] morphemes to switch to their [+ATR] allomorphs. The following morphemes serve as illustration of this (hyphens are added to help the reader identify the relevant affix):

Table 61 –ATR morphemes with +ATR allomorphs

Verb modification/ noun type	[-ATR] affix	[+ATR] variant	Example	Gloss
2 nd person	I-	i-	[í-rét ^h én]	<i>you (SG) wrap [the clothes]/you (SG) encourage/you (SG) prepare it</i>
3 rd person	ε-	e-	[í-6ol] [k-é-rét ^h én] [k-é-6ól]	<i>you (SG) open it he wraps it he opens it</i>
1 st person PL ⁵¹	(i)ki-	(i)ki-	[ík ^h í-rét ^h én] [íkí-6ól]	<i>we wrap it we open it</i>
Ventive IMPF	-u(n) ⁵²	-u(n)	[kéret ^h én-u]	<i>he encourages as he is coming towards [a place]</i>

⁵¹ These prefix segments can also be used for verbs with 2nd person subject + 1st person SG object, as well as on verbs with 3rd person subject + 2nd person SG object. The tones are, however, then different.

⁵² Some of the suffixes are shown with a final consonant in brackets. The consonant often surfaces when the suffix is followed by another suffix, but is dropped elsewhere. The consonantal form may be a remnant of a historic, old form of the suffix.

Passive IMPF	-I	-i	[kébol-ú]	<i>he uncovers it</i>
			[kɛrɛt ^h én-í]	<i>it will be wrapped</i>
			[kebol-í]	<i>it will be opened</i>
Causative, class I verbs	-itV ⁵³	-itV-	[ké-ít ^h é-rét ^h én]	<i>he makes sb wrap it</i>
			[ké-ít ^h ó-b'ól]	<i>he makes sb open it</i>
Middle PERF	-ɛ	-e	[kɛt ^h ɛrɛt ^h én-ɛ]	<i>it was wrapped</i>
			[kɛt ^h oóól-e]	<i>it was opened</i>
Dative PERF, irreg.	-ikI(n)	-iki(n)	[kéɛn-ík ^h I]	<i>he ties it to [something]</i>
			[kel-ík ^h i]	<i>he tells to [somebody]</i>
Noun instrument	SG	-et	[rét ^h én-ét ^h]	<i>belt</i>
			[lól-ét ^h]	<i>key</i>
	PL	-eta	[rɛt ^h én-ét ^h a]	<i>belts</i>
			[lól-ét ^h a]	<i>keys</i>

A subtype of [-ATR] affixes with [+ATR] allomorphs are affixes characterised by the vowel /a/, which pattern with morphemes of [-ATR] type. Their [+ATR] counterparts are characterised by the vowel /o/ and go with words using the [+ATR] set of vowels. Words containing /a/ as the only stem vowel take suffix allomorphs that pattern with the [-ATR] set. These affixes occur on verbs and nominalised verbs. Table 62 shows the allomorphs.

Table 62 Allomorphs determined by ATR

Verb modification/ noun type	[-ATR] suffix	[+ATR] variant	Example	Gloss
Perfective	-a(k)	-o(k)	[két ^h ér'ét ^h én-á] (class II)	<i>he wrapped it/he encouraged/he prepared it</i>
		+ tV- prefix in class I verbs ⁵⁴	[két ^h óóól-ó] (class I)	<i>he opened it</i>
Progressive	-ita	-ito	[kérét ^h én-ít ^h a]	<i>he is wrapping it</i>
			[kéból-ít ^h o]	<i>he is opening it</i>
Imperative SG ⁵⁵	-a(k)	-o(k)	[t ^h érét ^h én-á]	<i>Wrap (SG) it!</i>
			[t ^h óóól-ó]	<i>Open (SG) it!</i>
Andative IMPF	-aa	-oo	[kérét ^h én-áá]	<i>he will encourage as he is going away</i>
			[kéból-óó]	<i>he will open it (direction away from himself)</i>

⁵³ The V in the -itV-/itV-prefix is identical to the first root vowel of the verb, also in [ATR] value. Note that this prefix has a [-ATR] as well as a [+ATR] allomorph.

⁵⁴ In the tV-prefix for class I verbs, which occurs in perfectives and imperatives, the V is always identical with the first root vowel of the verb.

⁵⁵ Imperative PL takes the same suffixes for class II verbs as imperative SG, though not for class I verbs.

Andative IMPF, irreg.	-aja	-ojo	[kéip ^h á-ajá] [kéíj ^h ó-ojó]	<i>he sends him on an errand</i> <i>he gives away</i>
Andative IMPF, before suffix ⁵⁶	-ar-	-or-	[kéret ^h en-ár-i] [kébol-ór-i]	<i>it will be wrapped (direction away from oneself)⁵⁷</i> <i>it will be opened (direction away from oneself)⁵⁸</i>
Andative PERF SG	-aj:ε	-oj:e	[két ^h eret ^h en-áj:ε] [két ^h oðol-ój:e]	<i>he wrapped it (direction away)</i> <i>he opened it (direction away)</i>
Andative PERF PL	-aityε	-oitye	[két ^h eret ^h en-áit ^h îê] [két ^h oðol-óit ^h îê]	<i>they wrapped it (direction away)</i> <i>they opened it (direction away)</i>
Andative subjunctive	-ai	-oi	[mát ^h eret ^h en-ái] [mát ^h oðol-ói]	<i>Let's wrap it!</i> <i>Let's open it!</i>
Middle IMPF	-a(r)	-o(r)	[kerét ^h en-a] [keðol-o]	<i>it is wrapped</i> <i>it is opened</i>
Dative IMPF	-aki(n)	-oki(n)	[kéret ^h en-ák ^h i] [kébol-ók ^h i]	<i>he will tie it to/for him</i> <i>he will open it for him</i>
Dative PERF SG	-aka(k)	-oka(k)	[két ^h eret ^h en-ák ^h a] [két ^h oðol-ók ^h a]	<i>he tied it to/for him</i> <i>he opened for him</i>
Dative PERF PL	-akita	-okita	[két ^h eret ^h en-ák ^h it ^h a] [két ^h oðol-ók ^h it ^h a]	<i>they tied it to/for him</i> <i>they opened for him</i>
Action nominaliser	-arε	-ore	[múg ^h -árê] [mpúr-óre]	<i>brewing</i> <i>theft</i>
Agentive nominaliser	SG -anɪ	-oni	[laréw-anɪ] [larét-oni]	<i>driver</i> <i>helper</i>
	PL -ak	-ok	[larew-ák] [laret-ók]	<i>drivers</i> <i>helpers</i>
Resultative nominaliser	SG -ata	-oto	[ás-át ^h á] [lík ^h ór-ót ^h ó]	<i>action, deed</i> <i>announcement</i>
	PL -at	-ot	[as-át ^h] [lík ^h or-ót ^h]	<i>actions, deeds</i> <i>announcements</i>
Other nominaliser ⁵⁹	-an	-on	[røk ^h -án] [ngól-ón]	<i>blackness</i> <i>strength</i>

⁵⁶ In the examples the passive suffix has been added after the -ar/-or-suffix, but also other suffixes are possible, at least the instrumental -ie(k) and the ventive -u(n)/-u(n).

⁵⁷ This word could be used e.g. to describe a baby who is tied on someone else's back, not on the speaker's back.

⁵⁸ This word could be used e.g. to describe a door which is opened outwards, if the speaker is inside a room.

⁵⁹ I have not been able to establish a common denominator for the nominalised verbs that take the -an/-on suffix. The verbs are often stative verbs, but not always, e.g. [ntfamán] 'love' is derived from [ačám] 'to love' and [ɲkígúran] 'game' is derived from [aigúrán] 'to play'.

Words usually carry either [+ATR] or [-ATR] vowels, but sometimes both types of vowels can be found in the same word. Words which are not entirely either [+ATR] or [-ATR] can usually be shown to pivot on the vowel /a/, with vowels to the right of /a/ being [+ATR] and vowels to the left of /a/ being [-ATR]. The example below illustrates this seeming irregularity: the addition of the inchoative [+ATR] suffix changes underlying [-ATR] vowels to [+ATR], working leftward until it hits /a/, at which point the iterative process is arrested, leaving the [-ATR] vowels to the left of /a/ unaffected.⁶⁰

(53.) [kéísamisú]

/k- e- i- samis -u/

K 3 II stink INCHOATIVE

It begins to stink/ferment/rot.

4.2 Nasal assimilation

Another major phonological process is nasal assimilation. Nasal assimilation visibly operates over morpheme boundaries. The feminine gender prefix is a good example and will serve as illustration in this section. The regular case is that the feminine gender prefix is /n/, as in the examples in Table 63. It is possible to know whether the /n/ is part of the root, or whether it is the gender prefix, by testing the word with a demonstrative; if the noun loses the /n/, the /n/ must be a gender prefix, because a demonstrative and a gender prefix cannot co-occur.⁶¹ If the /n/ is retained, it must be part of the noun root.

Table 63 Feminine gender prefix

<i>Example</i>		<i>Gloss</i>	<i>With demonstrative</i>	<i>Gloss</i>
[náap ^h o]	/náapo/	<i>place for prayer in a large kraal</i>	[aná áap ^h o]	<i>this place for prayer</i>
[ntap ^h uk ^h ái]	/ntap ^h uk ^h ái /	<i>flower</i>	[aná tap ^h uk ^h ái]	<i>this flower</i>
[ntít ^h ó]	/ntító/	<i>girl</i>	[aná tit ^h ó]	<i>this girl</i>

The feminine gender prefix will be modified to [m] before bilabials and to [ŋ] before velars due to place assimilation. Phonetically it will also be more or less palatalised preceding /c/ and /ʃ/, depending on the degree of palatalisation of the stop.

⁶⁰ Wagner 1997:4.

⁶¹ This is the case when the demonstrative acts as a modifier; it is not the case in predicate constructions.

$$\begin{matrix} C \\ [+nas] \\ [+cor] \end{matrix} \rightarrow [\alpha Place] / \text{---} + \begin{matrix} C \\ [\alpha Place] \end{matrix}$$

Figure 7 Nasal place of articulation rule

The morpheme alternation rule can be seen in the examples below.

Table 64 Feminine gender prefix alternation

Prefix	Example	Phonological form	Gloss
[n]	[ntít ^h ó]	/ntító/	<i>girl</i>
[m]	[mpálái]	/npálái/	<i>letter</i>
[ŋ]	[ŋkéráí]	/nkéráí/	<i>child</i>

It is worth noting that when a nasal precedes a palatalised or a velar consonant, Samburu speakers still perceive the nasal as alveolar. This does of course not mean that the native speaker perception is phonetically correct, but for psycholinguistic reasons it supports the statement that the underlying form of the gender prefix is /n/.

Other environments where the nasal assimilation rule takes effect is in the class II imperatives, discussed in 2.1.7.1, and environments where a prefix /ɪ/ hits the class II prefix /ɪ/, discussed in 5.1.

4.3 Consonant deletion

As the allowed consonant clusters (see discussion and examples in 2.1.7.1) are limited, consonants will in some environments be deleted to avoid clusters that are not allowed. The gender prefixes – /l-/ for masculine and /n-/ for feminine⁶² – are examples of how these principles are realised, but the consonant deletion rules operate to some degree also on other morphemes.

The following pairs of words provide evidence for deletion of the feminine gender prefix:

Table 65 Feminine gender prefix deletion

Masculine	Gloss	Feminine	Gloss
[lmál'á]	<i>large calabash</i>	[mál'á]	<i>calabash</i>
[lmâô]	<i>human twins</i>	[mâô]	<i>a pair of spears</i>
[lój:ete]	<i>wisdom tooth</i>	[ój:ete]	<i>riddle</i>

It would be difficult to explain why the feminine words in Table 65 inherently do not carry gender prefixes, while their masculine counterparts do so. It is more likely that the

⁶² Apart from the masculine and feminine genders, there is a third gender in Samburu, the place gender. It is, however, rare, and does not provide any phonological challenges. It will hence not be discussed here.

feminine gender prefix has been deleted for phonological reasons. The feminine gender prefix is discussed below (4.3.2).

In analogy with this, it is also reasonable to believe that masculine nouns lacking gender prefix have lost the gender prefix in a consonant deletion process, which is phonologically conditioned. Examples of masculine nouns lacking gender prefix are given in Table 66. Even when a gender prefix is missing it is possible to determine the gender of the nouns e.g. by adding demonstratives before them, or relative clauses after them. Nouns which take masculine demonstratives or relative clauses with masculine gender prefixes must be masculine, while feminine nouns take feminine demonstratives and relative clauses with feminine gender prefixes.

Table 66 Masculine nouns lacking gender prefix

<i>Masculine</i>	<i>Gloss</i>	<i>With masculine demonstrative</i>	<i>Gloss</i>
[síp ^h]	<i>shoulder</i>	[ɛlé súp ^h]	<i>this shoulder</i>
[réréí]	<i>word</i>	[ɛlé réréí]	<i>this word</i>
[léɛ]	<i>gentleman</i>	[ɛlé léɛ]	<i>this gentleman</i>

The masculine gender prefix is discussed below (4.3.1).

Without the consonant deletion rule it would be difficult to explain why some nouns, masculine and feminine, carry gender prefix in their underlying forms, while other nouns do not carry gender prefix. The positing of such a rule explains the lacking gender prefixes.⁶³

4.3.1 The masculine gender prefix

Masculine nouns whose roots start with stops, nasals and the labiovelar semivowel carry an overt gender prefix, while roots beginning with liquids, the fricative, and the palatal semivowel do not. Also masculine nouns starting with /a/, /o/, and /ɔ/ carry the gender prefix, though nouns starting with /i/ and /ɪ/ do not.⁶⁴ The lateral gender prefix is hence deleted before coronal continuants, which the examples below will show. A formal description of this rule is as follows:

$$[+lat] \rightarrow \emptyset \text{ / } \text{---} + \begin{bmatrix} +cor \\ +cont \end{bmatrix}$$

Figure 8 Lateral deletion rule

It is possible to determine what consonant roots start with by putting a demonstrative before them; the demonstrative functioning as a modifier does not allow a gender prefix to

⁶³ Wagner 2001:27-28. Wagner also posits a zero morpheme allomorph, which takes the place of the gender prefix when the gender prefix is deleted.

⁶⁴ There are a few exceptions to this where words that phonologically could carry gender prefix do not carry it., e.g. [p^hap^hâ], ‘father’. Masculine nouns with word initial /e/, /ɛ/, /u/, and /ʊ/ are not attested.

also occur, so what is left must be just the root. Thus, whether /l/ on a particular noun is part of the root, or is the masculine gender prefix, can be determined by the “demonstrative test”. The items in Table 67 demonstrate that the masculine prefix /l/ occurs before roots that begin with non-high vowels. The items in Table 68 demonstrate that the masculine prefix /l/ occurs before stops, nasals, and the labiovelar semivowel, but not before liquids, the fricative, or palatal semivowels.

Table 67 Masculine gender prefix in nouns with root initial vowels

Vowel	Example	Gloss	Example with demonstrative	Gloss	Prefix
/a/	[láʃê]	<i>calf</i>	[elé áʃê]	<i>this calf</i>	l-
/e/	<i>not attested</i>				
/ɛ/	<i>not attested</i>				
/i/	[ír'í]	<i>a tree</i>	[elé ír'í]	<i>this tree</i>	Ø
/ɪ/	[íjái]	<i>porcupine</i>	[elé íjái]	<i>this porcupine</i>	Ø
/o/	[loʃoró]	<i>porridge</i>	[elé oʃoró]	<i>this porridge</i>	l-
/ɔ/	[lɔdɔ]	<i>blood</i>	[elé ɔdɔ]	<i>this blood</i>	l-
/u/	<i>not attested</i>				
/ʊ/	<i>not attested</i>				

Table 68 Masculine gender prefix in nouns with root initial consonants

Consonant	Example	Gloss	Example with demonstrative	Gloss	Prefix
/p/	[lpaj:án]	<i>man</i>	[elé paj:án]	<i>this man</i>	l-
/t/	[ltuŋáni]	<i>person</i>	[elé tuŋáni]	<i>this person</i>	l-
/c/	[ltʃoní]	<i>hide</i>	[elé ʃoní]	<i>this hide</i>	l-
/k/	[lkédi]	<i>spider</i>	[elé kédi]	<i>this spider</i>	l-
/b/	[lbəá]	<i>gully</i>	[elé bəá]	<i>this gully</i>	l-
/d/	[ldíâ]	<i>dog</i>	[elé díâ]	<i>this dog</i>	l-
/f/	[lɸip ^h ét ^h]	<i>toothpick</i>	[elé ɸip ^h ét ^h]	<i>this toothpick</i>	l-
/g/	[lgɔɔ]	<i>chest</i>	[elé gɔɔ]	<i>this chest</i>	l-
/m/	[lmúráni]	<i>warrior</i>	[elé múráni]	<i>this warrior</i>	l-
/n/	[lninó]	<i>agreement</i>	[elé ninó]	<i>this agreement</i>	l-
/ɲ/	[lɲáp ^h árai]	<i>name of a clan</i>	[elé ɲáp ^h árai]	<i>this person from the Lnyaparraí clan</i>	l-
/ŋ/	[lŋéʃép ^h]	<i>tongue</i>	[elé ŋéʃép ^h]	<i>this tongue</i>	l-
/s/	[síp ^h]	<i>shoulder</i>	[elé súp ^h]	<i>this shoulder</i>	Ø
/l/	[léɛ]	<i>man, gentleman</i>	[elé léɛ]	<i>this gentleman</i>	Ø
/r/	[réréí]	<i>word</i>	[elé réréí]	<i>this word</i>	Ø
/r/	[ríát ^h á]	<i>footprint</i>	[elé ríát ^h á]	<i>this footprint</i>	Ø
/w/	<i>not attested</i>				

/w:/	[lw:aó]	<i>wind</i>	[elé w:aó]	<i>this wind</i>	l-
/j/	<i>not attested</i>				
/j:/	[j:et ^h ét ^h]	<i>skin rope</i>	[elé j:et ^h ét ^h] ⁶⁵	<i>this skin rope</i>	Ø

The common denominator for the phonemes that do not allow the masculine gender prefix is that they all are coronal continuants. The fact that the masculine gender prefix /l/ also does not occur before high front vowels and /j/ implies that both the palatal semivowel and the front vowels might be considered [+coronal] in Samburu.⁶⁶ Note that this rule applies to the gender prefix only – combinations of /l/ and front vowels are allowed if the /l/ is not a gender prefix.⁶⁷

4.3.2 The feminine gender prefix

Feminine nouns with root initial stops carry gender prefixes⁶⁸, while nouns with root initial nasals, liquids, fricatives, and semivowels do not, i.e., words with either initial nasals or initial continuants delete the feminine gender prefix.⁶⁹ The deletion of the feminine gender prefix is described below (though it should be noted that this rule is irregularly applied on vowels).

⁶⁵ There seems to be a variation as to which gender the word [j:et^hét^h] is assigned; some of my informants say it is masculine, others say it is feminine. I have not been able to find another word with an initial /j:/ that clearly would be masculine.

⁶⁶ Wagner 2001:33-34. My own analysis of the properties of /l/ differs from Wagner's. Wagner analyses /l/ as [-continuant], as a [+continuant] analysis would imply that the sequence of two [+cont][+cor] segments would be disallowed if /l/ is the first phone, but allowed if /r/ is the first phone, as in the /rs/ cluster in e.g. [ǵársís] 'rich'. My response to his analysis is that even a [-continuant] analysis of /l/ gives rise to problems and complex rules; why would a cluster of [+cor][-cont] and [+cor][+cont] (e.g. */ls/) not be allowed, if [+cor][-cont] and [-cor][+cont] (e.g. /lw:/) and [+cor][-cont] and [+cor][-cont] (e.g. /lt/) are allowed? And why is not e.g. */td/ allowed then, which is clearly a [+cor][-cont] and [+cor][-cont] cluster? The rule would then be that "two sequences of [+cor][-cont] can occur, but only if /l/ is the first phone, two sequences which differ in both [cor] and [cont] value can occur, but two sequences which agree in the feature [+cor] but differ in the feature [cont] cannot occur". However, if /l/ is analysed as [+continuant] we face fewer problems. Then the rule would be that "two [+cor][+cont] segments cannot concur, but a [+cor][+cont] segment can be combined with another segment which differs in either [cor] or [cont] value." This rule is simpler and more logical as the obligatory contour principle (OCP) hypothesis (see Leben 1973, MacCarthy 1981:383) would explain the first part of it. We also need to add that these rules apply to clusters involving the gender prefix only. I think that Wagner is wrong in applying rules for word medial clusters, where there are no morpheme boundaries, to clusters involving the gender prefix.

⁶⁷ Examples of /l/ combined with front vowels, where /l/ is part of the noun root, are [líp^hóŋ], 'female', and [léɛ], 'man'.

⁶⁸ There are a few exceptions to this, e.g. [t^háp^hátê], 'spear scabbard'. Since the word takes feminine demonstratives and since feminine prefixes are used on verbs introducing relative clauses modifying it, rather than masculine demonstratives and masculine prefixes, we know that the word is feminine in gender.

⁶⁹ Such a cluster is never allowed within morpheme boundaries either. This consonant deletion rule also applies to the class II verb prefix, as discussed in 2.1.7.2 and in 5.1.

$$\begin{matrix} C \\ [+nas] \end{matrix} \rightarrow \emptyset / \text{---} + \begin{Bmatrix} +cont \\ +nas \end{Bmatrix}$$

Figure 9 Nasal deletion rule

The following examples show how the rule is applied on feminine nouns with root initial consonants. As with the masculine gender prefix, the “demonstrative test” reveals the underlying form of the word.

Table 69 Feminine gender prefix in nouns with root initial consonants

<i>Consonant</i>	<i>Example</i>	<i>Gloss</i>	<i>Example with demonstrative</i>	<i>Gloss</i>	<i>Prefix</i>
/p/	[mpáɾí]	<i>day</i>	[aná páɾí]	<i>this day</i>	[m-]
/t/	[ntap ^h ʊk ^h áí]	<i>flower</i>	[aná tap ^h ʊk ^h áí]	<i>this flower</i>	[n-]
/c/	[ntʃamán]	<i>love</i>	[aná ʃamán]	<i>this love</i>	[n-]
/k/	[ŋkút ^h ʊk ^h]	<i>mouth</i>	[aná kút ^h ʊk ^h]	<i>this mouth</i>	[ŋ-]
/b/	[mbéné]	<i>bag</i>	[aná béné]	<i>this bag</i>	[m-]
/d/	[ndãp ^h]	<i>palm</i>	[aná dãp ^h]	<i>this palm</i>	[n-]
/f/	[nfírí]	<i>giant rat</i>	[aná fírí]	<i>this giant rat</i>	[n-]
/g/	[ŋgólón]	<i>strength</i>	[aná gólón]	<i>this strength</i>	[ŋ-]
/m/	[mála]	<i>calabash</i>	[aná mála]	<i>this calabash</i>	∅
/n/	[narɔɕónɪ]	<i>waterbuck</i>	[aná narɔɕónɪ]	<i>this waterbuck</i>	∅
/ɲ/	[ɲamáli]	<i>problem</i>	[aná ɲamáli]	<i>this problem</i>	∅
/ŋ/	[ŋamúnot ^h o]	<i>encounter</i>	[aná ŋamúnot ^h o]	<i>this encounter</i>	∅
/s/	[séré]	<i>river</i>	[aná séré]	<i>this river</i>	∅
/l/	[líp ^h óŋ]	<i>female</i>	[aná líp ^h óŋ]	<i>this female</i>	∅
/r/	[ríʃ'át ^h á]	<i>gap</i>	[aná ríʃ'át ^h á]	<i>this gap</i>	∅
/r/	[rúát ^h]	<i>sleeping area</i>	[aná rúát ^h]	<i>this sleeping area</i>	∅
/w/	[wót ^h ó]	<i>dripping</i>	[aná wót ^h ó]	<i>this dripping</i>	∅
/w:/	[w:át ^h á]	<i>thorn fence</i>	[aná w:át ^h á]	<i>this thorn fence</i>	∅
/j/	<i>not attested</i>				
/j:/	[j:ej:ô]	<i>mother</i>	[aná j:ej:ô]	<i>this mother</i>	∅

Feminine nouns starting with /a/, /o/, /ɔ/, and /ɪ/ sometimes carry a gender prefix, though not in the form /n-/, but in the form /nk-/. An exception is found in nouns starting with /a/, that sometimes carry /n-/ as the gender prefix, as the examples below show. Again it is possible to know when an /n/ is the feminine gender prefix and when it is the initial consonant of a feminine noun root by doing the “demonstrative test”, i.e. by adding a demonstrative before the noun to see if the [n] is deleted or not.

Table 70 Feminine gender prefix in nouns with root initial vowels

Vowel	Example	Gloss	Example with demonstrative	Gloss	Prefix
/a/	[áj'át ^h á]	<i>treeless plain</i>	[aná áη'át ^h á]	<i>this treeless plain</i>	∅
	[namók ^h ε]	<i>shoe</i>	[aná amók ^h ε]	<i>this shoe</i>	[n-]
	[ηkafĩ]	<i>house</i>	[aná afĩ]	<i>this house</i>	[ηk-]
/e/	<i>not attested</i>				
/ε/	[εné ^h]	<i>knot</i>	[aná εné ^h]	<i>this knot</i>	∅
/i/	[ínót ^h ó]	<i>birth</i>	[aná ínót ^h ó]	<i>this birth</i>	∅
/ɪ/	[íran]	<i>anxiety, concern</i>	[aná íran]	<i>this concern</i>	∅
/o/	[orét ^h]	<i>broom</i>	[aná orét ^h]	<i>this broom</i>	∅
	[ηkóit ^h éí]	<i>path, way</i>	[aná óit ^h éí]	<i>this way</i>	[ηk-]
/ɔ/	[ηkóʃεk ^h ε]	<i>stomach</i>	[aná óʃεk ^h ε]	<i>this stomach</i>	[ηk-]
/u/	[údót ^h ó]	<i>hole</i>	[aná údót ^h ó]	<i>this hole</i>	∅
/ʊ/	<i>not attested</i>				

Wagner 2001 attempts to understand the occurrence of the /nk-/ before vowels. First he states that the occurrence of /nk-/ (and /n-/) before vowels is irregular. Insertion of the /k-/ could be a strategy used by the language to maintain faithfulness to the pronunciation of the gender prefix – simply an /n-/ would not distinguish the gender prefix from root initial nasals, but the insertion of the /k/ would clarify the function of the /n-/. The /k/ would then be chosen because it shares place features with the following vowel. A formal rule for Wagner’s k-insertion process would look like this:

$$\emptyset \rightarrow \begin{matrix} C \\ [+back] \\ [-voice] \end{matrix} \bigg/ \begin{matrix} V \\ [+nas] \end{matrix} \text{---} + \begin{matrix} -high \\ +back \end{matrix}$$

Figure 10 k-insertion rule

He is not able to explain why the /nk-/ allomorph never occurs before /u/ or /ʊ/, but mentions that non-high back vowels form a natural class in Samburu for other phonological processes (he does, however, not give any examples of those “other processes”). But if Wagner is right, there is a possible explanation to the deletion of the gender prefix before front vowels, as deletion would be a sensible way of eliminating unpronounceable elements. By unpronounceable elements, I understand elements whose pronunciation would not clearly reveal the function of the element in question: i.e., an /n-/ before e.g. [íran] would give the phonetic output *[níran], and it would be unclear whether /n-/ is part of the noun root or if it is a gender prefix, so the language deletes the /n-/ to eliminate that ambiguity. Note, however, that /n/ can occur with front vowels if /n/ is not a gender prefix – the rule of

thumb would hence be that whenever an /n-/ is present before a front vowel, it is part of the noun root, as it otherwise would be deleted.⁷⁰

This theory does not, however, shed any light on why the feminine gender prefix is deleted before [+continuant] consonants. Perhaps the easiest explanation simply is that the allowed consonant clusters must consist of two [-continuant] segments, though not two [+nasal] segments, while nouns with root initial vowels are subject to irregularities.

Also, this theory raises the question why there is no similar process that deletes “unpronounceable” masculine gender prefixes.

4.4 Backing vowel harmony

A backing vowel harmony rule sometimes governs the assimilation of vowels on the phonetic level and causes a front vowel to be backed due to the influence of a back vowel. This rule is operative over a word including any proclitic (genitive particle, *tɛ/te*).⁷¹

$$V \rightarrow [+back] / \text{---} (C) C \overset{V}{[+back]}$$

Figure 11 Backing vowel harmony rule

The rule applies in some words, while not in others, even though they share the same environment.

Table 71 Backing vowel harmony

<i>UR, slow speech</i>	<i>Fast speech</i>	<i>English</i>
[sínkólio]	[súnkólio]	<i>song</i>
[ɨkɨgúran]	[ɨkugúran]	<i>game</i>
[Itʃek ^h út ^h]	[Itʃok ^h út ^h]	<i>shepherd</i>
[Imɛɔlí]	[Imɔɔlí]	<i>an age-set</i>
[t ^h ɛ ɨkân]	[t ^h a ɨkân]	<i>at home</i>

In verbs, the backing vowel harmony rule often operates on inflectional affixes. The 3rd person subject prefix thus has allomorphs, whose variants are governed by the first vowel of the verb root. Likewise, the progressive suffix -it^ha/-it^ho also has allomorphs.

- (54.) [kóg'ól]
- | | | |
|-----|----|-----------|
| /k- | ɛ- | gól/ |
| K | 3 | difficult |
- It is difficult (/strong/expensive).*

⁷⁰ Wagner 2001:31-32. An example of the combination of /n/ and a front vowel, where /n/ is part of the root of the word, is [negúm] ‘valley’. Wagner 2001:30.

⁷¹ Wagner 2001:50.

(55.) [kót^hurút^ho]

/k- ε- tur -ito/
 K 3 dig PROG
He is digging [it].

The class I prefixes for perfective and imperative, tV-, and the causative prefix itV-/itV also display vowel harmony, though not a backing harmony. The V in the prefix is identical to the first root vowel, and thus harmonises in height, backness, rounding and [ATR] value.

(56.) [két^hér^hét^héná]

/k- ε- tV- retɛn -a/
 K- 3- PERF- tie -PERF
He tied it.

(57.) [két^hóóóló]

/k- ε- tV- ɓol -o/
 K- 3- PERF- open -PERF
He opened it.

(58.) [t^hérét^héná]

/ tV- retɛn -a/
 IMP- tie -IMP
Tie (SG) it!

(59.) [t^hóóóló]

/ tV- ɓol -o/
 IMP- open -IMP
Open (SG) it!

(60.) [kéít^hérét^hén]

/k- ε- itV- retɛn/
 K- 3- CAUS- tie
He makes somebody tie it.

(61.) [kéít^hóóól]

/k- ε- itV- ɓol/
 K- 3- CAUS- tie
He makes somebody open it.

4.5 Palatalisation

A palatalisation process sometimes occurs after V [+high -back] C [+cor] where another V

[+high] [-back] is inserted.⁷² This appears to be a dialectal variation, as some native Samburu speakers seem to be more prone to palatalisation than others. As this insertion can be explained by phonological rules the assumption is that the unpalatalised form is underlying.

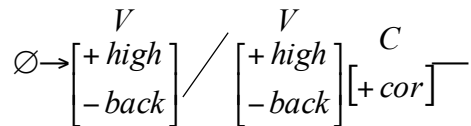


Figure 12 Palatalisation rule

Some examples of words undergoing the palatalisation process include:

Table 72 Palatalisation

[ŋkóit ^h i'éí]	/nkóit'éí/	<i>path, way</i>
[lḁóit ^h i'éí]	/lḁóit'éí/	<i>companion on a journey</i>
[ŋkánjít ^h ie]	/nkánjíte/	<i>homes, settlements</i>

5 Morpheme alternation

Apart from the phonological processes described above, there are a number of other processes that affect morphophonology, or other types of morpheme alternation. Some of these are described in this section.

5.1 The class II verb prefix

The class II prefix /ɪ-/ is attached immediately before the verb root and is obligatory for all class II verbs.⁷³ Some examples include:

Table 73 Class II verbs

Verb	Gloss
[aɪk ^h én]	<i>to close</i>
[aɪt ^h úk ^h]	<i>to wash</i>
[aɪʃ]	<i>to give</i>
[aɪdĩp ^h]	<i>to complete</i>

The class II prefix will, however, undergo changes in some environments. The first thing to notice is that when another /ɪ-/ hits it, it will be transformed to an /n-/ (realised as [m-] before bilabials and as [ŋ-] before velars, compare Figure 7). This is what happens when the

⁷² Wagner 1997:5.

⁷³ This could be discussed. Whether for example [ak^húét^h] 'to run' belongs to class I or to class II may be a matter of definition. It lacks characteristic ɪ, which would place it with the class I verbs, but it patterns with class II verbs when it comes to e.g. perfective forms.

2nd person subject prefixes or the 1st person plural subject prefix, or 3rd person subject and 2nd person object (below 3S2O) prefix/2nd person subject and 1 person object (below 2S1O) prefix – all of which end in a high front vowel – occur on class II verbs.

Table 74 Class II prefix alternation

<i>Verb</i>	<i>Gloss</i>	<i>Pronoun prefix</i>	<i>Class II prefix</i>
[káíʃʹó]	<i>I give</i>	(k)a- 1 SG	/ɪ/
[íntʃʹó]	<i>you (SG) give</i>	ɪ- 2	/n/
[kéíʃʹó]	<i>he gives</i>	(k)ɛ- 3	/ɪ/
[íkʰíntʃɔ]	<i>we give</i>	íkʰɪ- 1 PL	/n/
[íntʃʹóʃʹó]	<i>you (PL) give</i>	ɪ- 2	/n/
[kéíʃɔ]	<i>they give</i>	(k)ɛ- 3	/ɪ/
[íkʰíntʃʹó]	<i>he gives you/you give me</i>	íkʰɪ- 3S2O/ 2S1O	/n/

This alternation can be described by the following formal rule:

$$\begin{matrix} V \\ [+high] \\ [-back] \end{matrix} \rightarrow \begin{matrix} C \\ [+nas] \end{matrix} \bigg/ \begin{matrix} V \\ [+high] \\ [-back] \end{matrix} + \text{---} +$$

Figure 13 Class II prefix alternation rule

There is, however, another rule that intervenes with the rule in Figure 13 and which hinders the surfacing of the /n-/ prefix in some environments, i.e., the nasal deletion rule described above (see Figure 9). The nasal deletion rule says that morpheme final nasals are deleted before continuant consonants, other nasals, and often before vowels. A combination of these rules will give rise to verbs where the class II prefix is dropped altogether before continuant consonants and nasals.⁷⁴

Table 75 Class II prefix alternation

<i>Verb</i>	<i>Gloss</i>	<i>Pronoun prefix</i>	<i>Class II prefix</i>
[káísʹís]	<i>I praise</i>	(k)a- 1 SG	/ɪ/
[ísʹís]	<i>you (SG) praise</i>	ɪ- 2	/Ø/
[kéísʹís]	<i>he praises</i>	(k)ɛ- 3	/ɪ/
[íkʰísís]	<i>we praise</i>	íkʰɪ- 1 PL	/Ø/
[ísísísʹís]	<i>you (PL) praise</i>	ɪ- 2	/Ø/
[kéísís]	<i>they praise</i>	(k)ɛ- 3	/ɪ/
[íkʰísís]	<i>he praises you/you praise me</i>	íkʰɪ- 3S2O/ 2S1O	/Ø/

⁷⁴ Rasmussen 2002:40-42.

Rule ordering is necessary as the relationship between the rules is counter-feeding. The following derivations show that the class II prefix alternation rule must be ordered before the nasal deletion rule. The example word is the 2nd person singular imperfective form of [aísís] ‘to praise’, the underlying representation being /IISIS/.

Table 76 Class II prefix rule ordering

Rule	Derivation	Rule	Derivation
	/IISIS/		/IISIS/
<i>nasal deletion</i>	IISIS	<i>prefix alternation</i>	INSIS
<i>prefix alternation</i>	INSIS	<i>nasal deletion</i>	ISIS
	*[INSIS]		[ISIS]

The class II prefix /ɪ/ is altered to /n/ before stops also in the imperative forms.

Table 77 Word initial class II prefix alternation

Verb	Gloss	Imperative, SG	Imperative, PL	Gloss
[aɪp ^h ár]	<i>to ask</i>	[mpará]	[émpará]	<i>Ask (sb)!</i>
[aɪt ^h úk ^h]	<i>to wash</i>	[ntuk ^h ó]	[éntuk ^h ó]	<i>Wash (it)!</i>
[aɪjó]	<i>to give</i>	[ntʃó]	[éntʃó]	<i>Give (it)!</i>
[aɪk ^h en]	<i>to close</i>	[ŋkenó]	[éŋkenó]	<i>Close (it)!</i>
[aɪbóŋ]	<i>to catch</i>	[mbóŋá]	[émboŋá]	<i>Catch (it)!</i>
[aɪdɪp ^h]	<i>to finish</i>	[ndɪp ^h á]	[éndɪp ^h á]	<i>Finish (it)!</i>
[aɪfɪp ^h áá]	<i>to follow</i>	[nfɪp ^h áí]	[énfɪp ^h áí]	<i>Follow (it)!</i>
[aɪɣíl]	<i>to repeat</i>	[ŋɣílá]	[éŋɣílá]	<i>Repeat (it)!</i>

There is no overt prefix alternation before other phonemes than stops in the imperative forms. Instead the class II prefix is dropped according to the same rule ordering as above.

Table 78 Word initial class II prefix deletion

Verb	Gloss	Imperative, SG	Imperative, PL	Gloss
[aísís]	<i>to praise</i>	[sís'á]	[ésísá]	<i>Praise (him)!</i>

5.2 The masculine plural relative markers

The masculine plural relative marker has several allomorphs, as can be seen in the following examples:

Table 79 Masculine plural relative marker allomorph

Verb	Gloss	MASC PL REL	Gloss	Prefix
[adúŋ]	<i>to cut</i>	[óóduŋ]	<i>[they] who cut</i>	ɔɔ-
[aŋɪdá]	<i>to be happy</i>	[óóŋɪdá]	<i>[they] who are happy</i>	ɔɔ-

[aʃám]	<i>to love</i>	[ʒaaʃám] ~ [ʒʒʃám]	<i>[they] who love</i>	ɔaa- ~ ɔɔ-
[ap ^h arú]	<i>to remember</i>	[ʒááp ^h arú] ~ [ʒóp ^h aru]	<i>[they] who remember</i>	ɔaa- ~ ɔɔ-

The ɔaa-variety is the preferred, yet optional, choice for use in verbs with /a/ as the first stem vowel. Many verb stems starting with /a/ will, however, not follow this pattern, but form a tonal minimal pair with the masculine singular relative construction, as seen below. There is also a contrast in number of moras between the singular and the plural forms.⁷⁵

Table 80 Masculine singular and plural relative tonal minimal pairs allomorph

<i>Verb</i>	<i>Gloss</i>	<i>MASC SG REL</i>	<i>Gloss</i>	<i>MASC PL REL</i>	<i>Gloss</i>
[aár]	<i>to kill</i>	[ʒár]	<i>[he] who kills</i>	[ʒáâr]	<i>[they] who kill</i>
[aás]	<i>to do</i>	[ʒás]	<i>[he] who does</i>	[ʒáâs]	<i>[they] who do</i>

6 Stress rules

Stress is not contrastive in Samburu. There are two simple rules for stress assignment, that involve a combination of tone pattern and position of the syllable in the word. As stress and tone interact it is important to listen to the tone pattern of a word if one wants to determine where the stress falls. The stress placement rules operate in phonological words, which include any proclitic (genitive particle, *te/te*, *εitú*).⁷⁶

Stress is phonetically realised in Samburu by extra pitch height, and in some instances by extra duration on a syllable.

High tone attracts stress. This means that if a word has only one high tone, that syllable will be stressed, and stress is then realised as extra pitch height. Note the mark ['], which indicates stress.

Table 81 High tone attracts stress

[ntʃa'mán]	<i>love</i>
[la'láʃe]	<i>brother</i>
[l'tʃóði]	<i>stingless bee</i>

If a word has several high tones, a change in pitch alone cannot help us in stress assignment. The pitch level will be the same for all high tones, assuming that other factors like downdrift or downstep do not apply. In these cases extra duration plays an important role and helps us determine stress placement.

The first stress rule says that the last high tone will be stressed in the following environments:

⁷⁵ This is the case also for verb with stems starting with /o/ or /ɔ/. E.g. the verb 'to hit', [aóɕ], is [óɕɕ] in its masculine singular relative form and [ʒóɕɕ] in its masculine plural relative form.

⁷⁶ Wagner 1997:7.

a) If a word has only high tones, the last syllable will be stressed.⁷⁷ Stress is then realised as longer duration. The data in Table 82 confirms this rule.

Table 82 Stress in words with only high tones

[lá ^h í ^h rá]	<i>star</i>
[ǵá ^h t ^h á]	<i>to the side</i>
[ǵí ^h ó ^h t ^h ó]	<i>healthy</i>

b) If there is a series of high tones followed by one or several low tones, the last high tone is stressed.

Table 83 Stress in words where several high tones are followed by several low tones

[ndá ^h dáp ^h oi]	<i>large flat rock</i>
[ŋkáí ^h ǵártani]	<i>female initiate, bride</i>

c) If a low tone intervenes between two high tones, the second high tone is stressed.

Table 84 Stress in words where a low tone intervenes between two high tones

[káǵit ^h u ^h k ^h ók ^h i]	<i>He will wash for me.</i>
[kére ^h t ^h énu]	<i>he encourages as he is coming towards [a place]</i>
[két ^h oǵo ^h lók ^h a]	<i>he opened for him</i>

d) If there is a falling tone, it is the stressed syllable. Note that if the falling tone is interpreted as a high tone and a low tone fused into a single mora – the interpretation I follow – this stress assignment is consistent with the rule that says that the last high tone syllable is stressed.⁷⁸

Table 85 Stress in words with falling tone

[lá ^h ǵê]	<i>calf</i>
[Itǵe ^h k ^h ât ^h]	<i>shepherd</i>

The second stress rule says that if a word starts with one or several low tones, and is followed by several high tones, the first high tone will be stressed. This suggests that it is

⁷⁷ In the stress analysis I have done, I come to different conclusions than Wagner 1997:7-8 (who in turn has borrowed his stress rules from Heine 1980:103-104). I have confirmed my stress rules by auditory impression, combined with measurements made in recorded sound files.

⁷⁸ The equivalence of these rules, taken together with the psycholinguistic evidence from mother tongue speakers who often prefer to write falling tones in verbs as involving double vowel letters, lends weight to an analysis of the falling tone as being historically the fusion of a high tone and a low tone. The limited distribution of this tone (word final syllables only) is further evidence of its unique status. Wagner 1997:7.

the contour – the shift between low and high tone – that causes some syllables to be accented, not the sequential order of high tones per se.

In the examples below, measurements have shown that the duration of syllables do not play a role in stress assignment – the duration is about the same for each syllable in the same word – but that the first high tone phonetically comes out with a slightly higher pitch than the other high tones.

Table 86 Stress in words where one or several low tones are followed by several high tones

[li'k ^h órót ^h ó]	<i>announcing</i>
[ŋkar'ráúráu]	<i>leather wrist bracelet</i>

Heavy syllables do not play a role in stress assignment – neither closed syllables nor syllables with a complex nucleus attract stress per se. It is still the tone pattern, not the syllable weight, that determines stress assignment.

Table 87 Stress in words with heavy syllables

[^h súp ^h at ^h]	<i>good</i>
[^h súmaɸ]	<i>hunger</i>
[nn ^h tʃé]	<i>they</i>
[aɸaɸ ^h já]	<i>to open the chest of a slaughtered animal</i>
[p ^h ɔɔ ^h k ^h í]	<i>every, all</i>
[aɸ ^h p ^h ú]	<i>to become pregnant</i>

Bibliography

- Ambetsa Oparanya, Wycliffe. 2010. *2009 Population and housing census results*. www.knbs.or.ke/Census%20Results/Presentation%20by%20Minister%20for%20Planning%20revised.pdf
- Boersma, Paul and Weenink, David. 2014. *Praat: doing phonetics by computer* [Computer program]. Version 5.3.67 www.praat.org Consulted 2014, March 17.
- Bible Translation & Literacy. 2003. 'Preliminary report on Samburu language assessment 7th–20th of July 2003.' Ms. Nairobi, Kenya.
- Heine, Bernd. 1980. 'Chamus, a Maa dialect.' *The non-Bantu languages of Kenya (Language and dialect atlas of Kenya, 2)* ed. by Bernd Heine and Wilhelm J. G. Möhlig, 99–140. Berlin: Dietrich Reimer.
- Kenstowicz, M. 1994. *Phonology in generative grammar*. Cambridge, MA: Blackwell.
- Leben, William R. 1973. *Suprasegmental phonology*. PhD dissertation, Massachusetts Institute of Technology. <http://www.ai.mit.edu/projects/dm/theses/leben73.pdf>
- Levergood, Barbara. 1990. 'The syllable in Maasai'. San Diego: University of California, San Diego. Ms.
- Lewis, M. Paul, Gary F. Simons, and Charles D. Fennig (eds). 2013a. 'Maasai'. In *Ethnologue: Languages of the world, seventeenth edition*. Dallas, Texas: SIL International. <http://www.ethnologue.com/language/mas> Consulted 2013, October 4.
- Lewis, M. Paul, Gary F. Simons, and Charles D. Fennig (eds). 2013b. 'Samburu.' In *Ethnologue: Languages of the world, seventeenth edition*. Dallas, Texas: SIL International. <http://www.ethnologue.com/language/saq> Consulted 2013, June 27.
- McCarthy, J. 1981. 'A prosodic theory of nonconcatenative morphology' *Linguistic Inquiry* 12, 373–418.
- Nanyingi, Mark O. et.al. 2008. *Ethnofarmacological survey of Samburu District, Kenya*. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2412850/> Consulted 2013, June 27.
- Payne, Doris L. 2008. 'The Maa language vs. Maasai ethnicity.' <http://darkwing.uoregon.edu/~maasai/Maa%20Language/mcclang.htm> Consulted 2013, October 4.
- Rasmussen, Kent A. 2002. *Verb tone in Il-Keekonyokie Maa*. Master's Thesis. University of Oregon.
- Teo, Amos B. Re: *Fw: waveform graph problems*. Email 2014, February 14.
- Tucker, A. N., and J. Tompo Ole Mpaayei. 1955. *A Maasai grammar with vocabulary*. London: Longmans, Green and Co.
- Wagner, Stephen. 1997. *Phonology and grammar notes*. Ms.

Wagner, Stephen. 2001. *A non-linear analysis of selected segmental phonological processes operative in the Samburu noun*. Plan B Paper. Ms. University of Minnesota.