



Verbal tonology of Setswana – An overview

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lex. toneless verbs

χàttà	go tla / to come
χàlìmà	go lema / to cultivate
χòtswèlèlà	go tswelela / to continue
χàdùmèdìsà	go dumedisa / to greet
χàdùmèdìsàná	go dumedisana / to greet each other

lex. H-toned verbs

χòtšá	go ja / to eat
χòréká	go reka / to buy
χòrékìsá	go rekisa / to sell
χòsí mólólà	go simolola / to begin
χòtthókómólòχà	go tthokomologa / to neglect

This talk

- ongoing work in progress
- based on Chebanne, Creissels & Nkhwa (1997) + own observations
- primary verbal patterns only (non-relative, non-compound verb forms: present, perfect, future, potential, infinitive, imperative, subjunctive, consecutive, selected participial forms)
- behaviour of verb-final H vs. [L] ('strong vs. weak finals') not discussed
- Setswana of SE Botswana
- typological and practical approach
- research question: How can tone be represented in practically-oriented descriptions of Setswana (comprehensible also for non-linguists, e.g. for orthographic disambiguation in reference books or in language teaching)?

Representation (standard orthography + additional diacritics)

Consonants

	bilab	lab-dent	alv	alv affr	alv later	p-alv (affr)	vel	uvul	glott
Stops, vls.	p [~p']		t [~t']	ts [~ts']	tʰ <tl>	tʃ <tš>	k [~k']		
Stops, aspirated	p ^h <ph>		t ^h <th>	ts ^h <tsh>	tʰ <tlh>	tʃ ^h <tšh>	k ^h <kh>	q ^h ~q <kg>	
Stops, voiced	b		(d) <d>			dʒ~j <j>			
Nasals	m		n			ɲ <ny>	ŋ <ng>		
Fricatives, vls.		ɸ~f <f>		s		ʃ <š>		χ <g>	h
Frikatives, vd.		(v)		(z)					
Laterals					l l				
Vibrants			r						
Approximants	w					j <y>			

Vowels

/i/ <i> /u/ <u>
 /ɪ/ <e> /ʊ/ <o>
 /e/ <ē> /o/ <ō>
 /ɛ/ <ê> /ɔ/ <ô>
 /a/ <a>

Suprasegmentals


- high tone marked: í, é, ẹ́, ế, á, ú, ó, ọ́, ố́, ḿ, ń, ńg
- [low tone] usually unmarked, e.g. [à] <a>: i, e, ẹ̀, ề, a, u, o, ọ̀, ồ, m, n, ng
- (predictable) downstep unmarked
- (predictable) stress unmarked

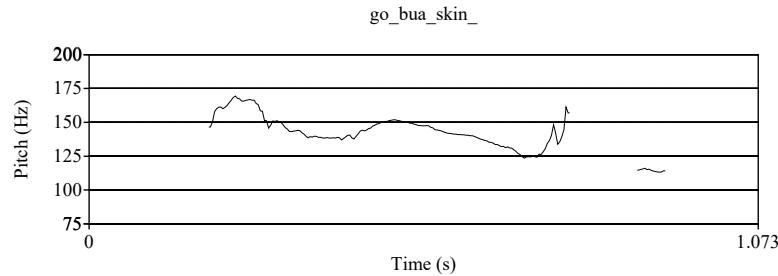
Other


- <_> - morpheme break not rendered in the orthography (disjunctive writing in Sotho-Tswana languages)

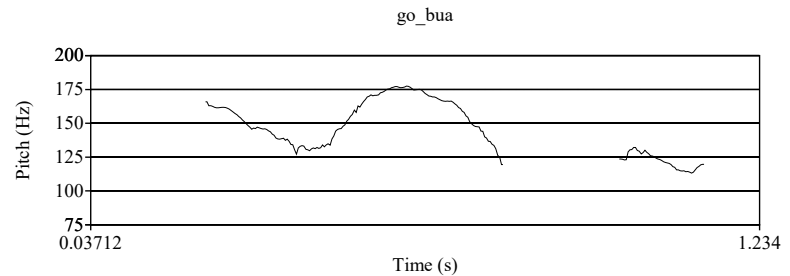
Setswana as a tone language


- two contrastive tone levels: high (H) vs. low (L) (cf. Chebanne et al. 1997: 12ff., Creissels 2003: 9, Dall 2001: 33, Bennett et al. 2016: 243)

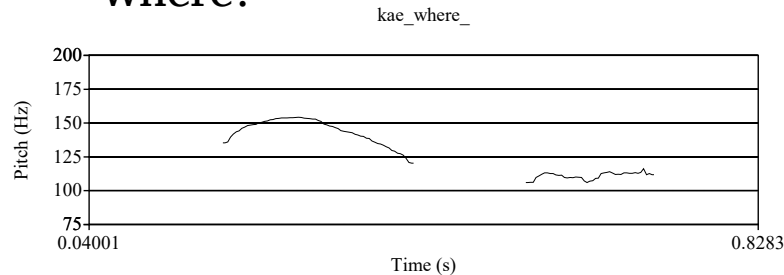
(1) **go_bu-a** [dò.'bù:.(?)à] 
15_skin-FV
"to skin"




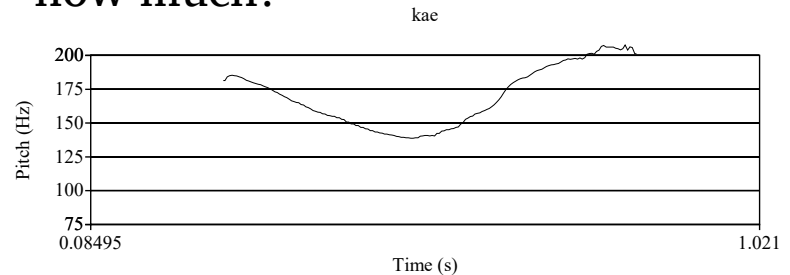
go_bú-a [dò.'bú:.(?)à] 
15_speak-FV
"to speak"



(2) **káe** ['ká:.(?)ì] 
where
"where?"



kaé ['kà:.(?)í] 
how.much
"how much?"



Setswana as a tone language

- distributional constraints: bisyllabic words in isolation only allow 3 tonal patterns (at surface): LL, HL, LH (*HH)¹
- comparatively little functional load for lexical distinctions (not many minimal pairs)
- greater functional load for grammatical distinctions, e.g. pervasive contrast L : H for subject markers 2SG : noun class 1 ("s/he")

(3) *O_a_rékís-a.*
2SG_PFOC_sell-FV
"You are selling."



Ó_a_rékís-a.
1_PFOC_sell-FV
"S/he is selling."



(4) *O_gó_y-á sé-ńtlê.*
2SG_OM:LOC_go-FV 7-good
"You are going there well."



Ó_go_y-á sé-ńtlê.
1_OM:LOC_go-FV 7-good
"S/he is going there well."



¹Avoidance or deletion of final H is common in Bantu languages (Marlo & Odden 2019: 156).
Audio: Boago Joseph Majafe

Setswana as a tone language - General tonal constraints and rules

- A sequence of two phrase-final high tones is not allowed: /HH/ > /HL/
- H on a penultimate (= stressed) syllable is realised as a falling contour tone [F]

(5) *mo-tswáná á_lé mó-ngwe*

[mò.tswá.ná ...]

1-Tswana 1_being 1-one

"one Motswana/Tswana person"



> underlying form: *motswáná* (LHH)
(as in the middle of a phrase, preceding)

mo-tswána

[mò.'tswâ:.nà]

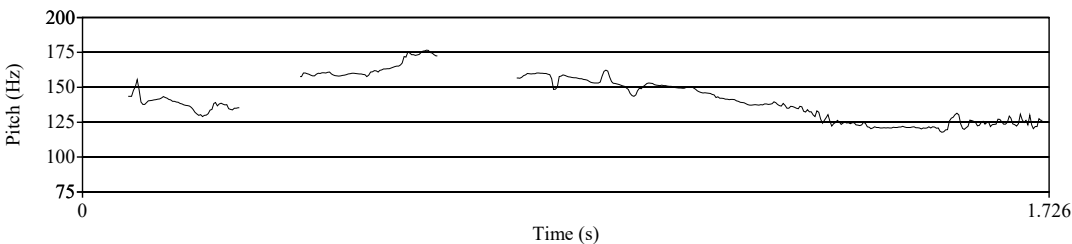
1-Tswana

"a Motswana/Tswana person"

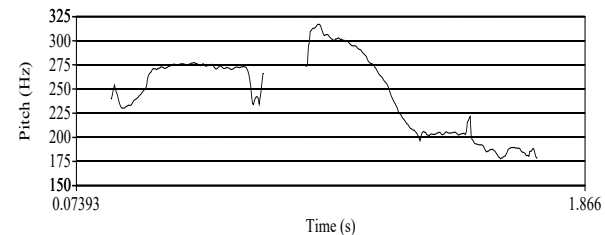


> LHH not allowed in final position,
...HL# realised as [...FL]

Motswana_a_le_mongwe



motswana_FS_



(Observe the downstep following *motswáná* [mò.tswá.ná ↓ álí mô:.ŋwí]:

Downsteps occur if a word ends with a high-toned syllable and is followed by two high tones (Chebanne et al. 1997: 17)

Low tone = absence of high tone? (tonelessness)

- While high tone is marked, low tone in Setswana is analysed (at least by some authors) as the absence of high tone (i.e. as toneless syllables), corresponding to a respective theory of tone in Bantu languages:

"Significant asymmetries between H and L tones have led analysts since Stevick (1969) to posit privative analysis of tone systems as H vs. Ø (cf. Hyman 2001)."

Marlo & Odden (2019: 151)

"(La combinatoire tonale, complexe dans le détail, se prête assez bien à une description en termes de processus de propagation/rétraction du ton haut à partir de structures sous-jacentes où ...) l'on a seulement un contraste entre syllabes à ton haut et syllabes atones."

Creissels (2003: 10)

["... there is only a contrast between high-toned syllables and toneless syllables", CN]


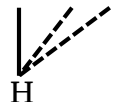
"... most Bantu tone languages have a peculiar type of tone system in that only some syllables (only between 20 % and 25 %) are associated with H tones. The rest could be described as toneless at the underlying level.

Thus, the High tones on the few syllables can displace, spread out or be deleted. For example in Setswana, there is a peculiar tone rule which requires that an H on a verb stem should spread out ..."

DALL (2001: 33)

H tone spreading in Setswana (DALL 2001: 33f., cf. Chebanne et al. 1997: 18f.)

- 1. A high tone spreads (in most cases) to the two following syllables in the word, e.g.

underlying form		resulting surface form	
símolola	>	(go_)símólóla	"to begin" (spread by 2σ)
			
símologêla	>	(go_)símológêla	"to begin for/at"
ó_ (NCL1) + a_ + bua	>	ó_á_búa	"s/he is skinning (an animal)"
lé_ "with" + Bakgalagadi	>	lé_Bákgálagadi	"with the Bakgalagadi"

- 2. H tone spreading is blocked from final/prepausal [phrase-final, CN] syllables

búa	>	(go_)búa	"to speak" (no spread)
rékisa	>	(go_)rékísa	"to sell" (spread by 1σ only)
ó_ (NCL1) + a_ + tla	>	ó_á_tla	"s/he is coming"
lé_ "with" + batho	>	lé_bátho	"with the people"

- 3. H tone spreading is blocked from syllables followed by another H*

ó_ (NCL1) + a_ + búa	>	ó_a_búa	"s/he is speaking" (no spread)
lé_ "with" + Batswána	>	lé_Batswána	"with the Batswana"
lé_ "with" + Baforá	>	lé_Báforá	"with the French" (spread by 1σ only)

(This matches H spreading rules in other Bantu languages (Marlo & Odden 2019: 155-157).)

*Successive H tones in Bantu are often disfavoured, 'Obligatory contour principle' (OCP).

H tone copying across word boundaries (within the same phrase)

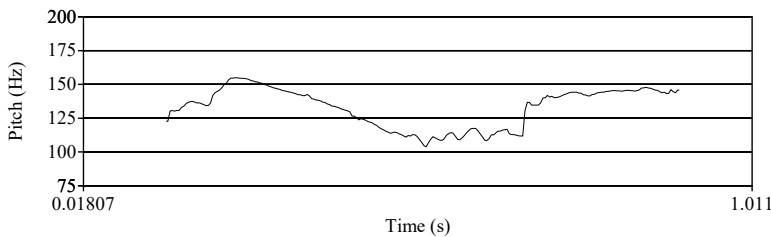
- If the last syllable of a word bears a high tone, and (at least) the next two syllables of the following word bear a low tone, the high tone of the first word is copied to the first syllable of the second. There, high tone spreading may start again.

(6) *di-jó*

8(PL)-food
"food"



dijo2



já

eat(IMP)

di-jó!

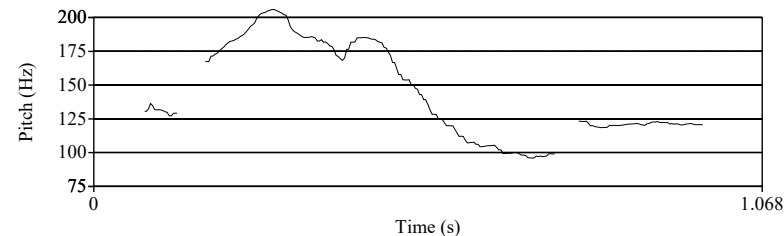
8(PL)-food

"Eat (the) food!"

Ja_dijo



no H
copying

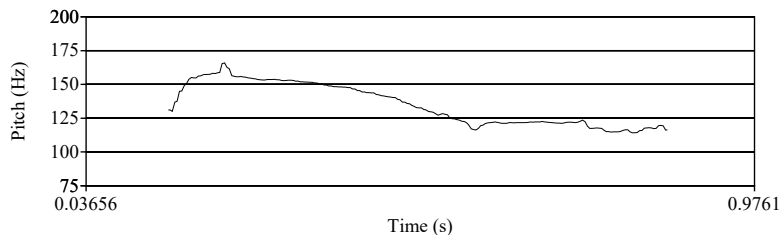


(7) *nama* ['nà:.mà]

9(SG).meat
"meat"



nama2



já

eat(IMP)

nama! [dʒá.'nâ:.mà]

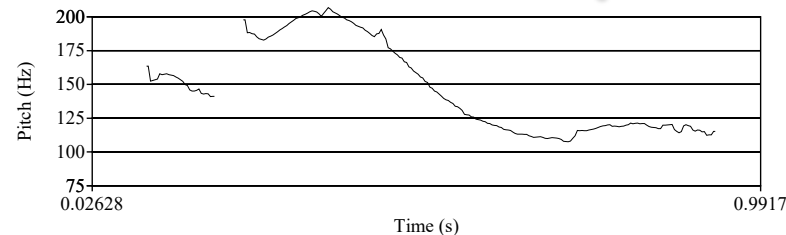
9(SG).meat

"Eat (the) meat!"

Ja_nama



H
copying



(8) *di-tlhakó*

8(PL)-shoe
"shoes"



réká *dī-tlhakó*

buy 8(PL)-shoe

"Buy (the) shoes!"

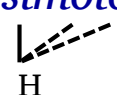


H
copying

Toneless [low-toned] vs. high-toned verbs in Setswana: Simple inflections

- As most common in Bantu languages (Marlo & Odden 2019: 160), there is
 - a simple lexical contrast between toneless/low-toned and high-toned verb roots
 - H-toned verbs are characterised by H located on the first syllable (+ H spreading)
- > tone patterns in several primary TAM categories

	1. Verbal nouns [go_STEM-a]	/	[go_ŠTEM-a]	
	Toneless verbs		High-toned verbs	
1 σ (stem)	<i>go_tla</i>	"to come"	<i>go_já</i>	"to eat"
2 σ	<i>go_bala</i>	"to read"	<i>go_réka</i>	"to buy"
3 σ	<i>go_lebala</i>	"to forget"	<i>go_rékisa</i>	"to sell"
4 σ	<i>go_amogêla</i>	"to receive"	<i>go_símólóla</i>	"to begin"
5 σ	<i>go_atumêlana</i>	"to approach e.o."	<i>go_símólógêla</i>	"to begin for"



 H

> no H in toneless verbs

> H on first (one to three) syllables in H-toned verbs, depending on the number of syllables and H tone spreading

Modifying suggestion here: HH > HL lowering rule (cf. slide 6) should be regarded as a *late/postlexical* rule, so that the underlying forms of verbal stems with 2 and 3 syllables would be HH and HHH, respectively:

<i>go_réká</i>	"to buy"
<i>go_rékísá</i>	"to sell"


> H tone spreading rule #2 is dispensable.

Toneless vs. high-toned verbs in Setswana: Simple inflections

2. Present Conjoint: [SBJ_STEM-*a*] / [SBJ_ŠTEM-*a*]

a) toneless subject markers (SBJ)


	Toneless verbs		High-toned verbs
1 σ (stem)	<i>o_tla</i>	"you come (to...)"	<i>o_já</i> "you eat"
2 σ	<i>o_bala</i>	"you read"	<i>o_réká</i> "you buy"
3 σ	<i>o_lebala</i>	"you forget"	<i>o_rékísá</i> "you sell"
4 σ	<i>o_amogêla</i>	"you receive"	<i>o_símólóla</i> "you begin"
5 σ	<i>lo_atumêlana</i>	"you (PL)approach e.o."	<i>o_símológêla</i> "you begin for"



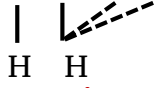
> lexical H + spread (2 syll.)

b) high-toned subject markers (ŠBJ)

	Toneless verbs		High-toned verbs
1 σ (stem)	<i>ó_tlá</i>	"s/he comes (to..)"	<i>ó_já</i> "s/he eats"
2 σ	<i>ó_bálá</i>	"s/he reads"	<i>ó_réká</i> "s/he buys"
3 σ	<i>ó_lébála</i>	"s/he forgets"	<i>ó_rékísá</i> "s/he sells"
4 σ	<i>ó_ámógêla</i>	"s/he receives"	<i>ó_símólóla</i> "s/he begins"
5 σ	<i>bá_átúmêlana</i>	"they approach e.o."	<i>ó_símológêla</i> "s/he begins for"



> ŠBJ + spread (2 syll.)



> ŠBJ + lexical H + spread (2 syll.)

Toneless vs. high-toned verbs in Setswana : Simple inflections

3. Present Disjoint [SBJ_a STEM-a] / [SBJ_a ŠTEM-a]

a) toneless subject markers (SBJ)

	Toneless verbs		High-toned verbs	
1 σ (stem)	<i>o_a_tla</i>	"you come"	<i>o_a_já</i>	"you eat"
2 σ	<i>o_a_bala</i>	"you read"	<i>o_a_réká</i>	"you buy"
3 σ	<i>o_a_lebala</i>	"you forget"	<i>o_a_rékísá</i>	"you sell"
4 σ	<i>o_a_amogêla</i>	"you receive"	<i>o_a_símólóla</i>	"you begin"
5 σ	<i>lo_a_atumêlana</i>	"you (PL) approach e.o."	<i>o_a_símológêla</i>	"you begin for"

↓
H

> lexical H + spread (2 syll.)

b) high-toned subject markers (ŠBJ)

	Toneless verbs		High-toned verbs	
1 σ (stem)	<i>ó_á_tlá</i>	"s/he comes"	<i>ó_a_já</i>	"s/he eats"
2 σ	<i>ó_á_bála</i>	"s/he reads"	<i>ó_a_réká</i>	"s/he buys"
3 σ	<i>ó_á_lébala</i>	"s/he forgets"	<i>ó_a_rékísá</i>	"s/he sells"
4 σ	<i>ó_á_ámogêla</i>	"s/he receives"	<i>ó_a_símólóla</i>	"s/he begins"
5 σ	<i>bá_á_átumêlana</i>	"they approach e.o."	<i>ó_a_símológêla</i>	"s/he begins for"

↓
H

> ŠBJ + spread (2 syll.)

↓ H ↓
H H

> ŠBJ (spread blocked),
lexical H + spread (2 syll.)

Toneless vs. high-toned verbs in Setswana : Simple inflections

4. Future [SBJ_tlaa STEM-a] / [SBJ_tlaa_STEM-a]

a) toneless subject markers (SBJ)

Toneless verbs

1 σ (stem)	<i>o_tlaa_tla</i>	"you will come"
2 σ	<i>o_tlaa_bala</i>	"you will read"
3 σ	<i>o_tlaa_lebala</i>	"you will forget"
4 σ	<i>o_tlaa_amogêla</i>	"you will receive"
5 σ	<i>lo_tlaa_atumêlana</i>	"you (PL) will..."

High-toned verbs

<i>o_tlaa_já</i>	"you will eat"
<i>o_tlaa_réká</i>	"you will buy"
<i>o_tlaa_rékísá</i>	"you will sell"
<i>o_tlaa_símólóla</i>	"you will begin"
<i>o_tlaa_símólógêla</i>	"you will begin for"



> lexical H + spread (2 syll.)

b) high-toned subject markers (SBJ)

Toneless verbs

1 σ (stem)	<i>ó_tláá_tla</i>	"s/he will come"
2 σ	<i>ó_tláá_bala</i>	"s/he will read"
3 σ	<i>ó_tláá_lebala</i>	"s/he will forget"
4 σ	<i>ó_tláá_amogêla</i>	"s/he will receive"
5 σ	<i>bá_tláá_atumêlana</i>	"they will approach ..."



> SBJ + spread (2 syllables)

High-toned verbs

<i>ó_tláá_já</i>	"s/he will eat"
<i>ó_tláá_réká</i>	"s/he will buy"
<i>ó_tláá_rékísá</i>	"s/he will sell"
<i>ó_tláá_símólóla</i>	"s/he will begin"
<i>ó_tláá_símólógêla</i>	"s/he will begin for"



> SBJ + spread (1 syll.), lexical H + spread (2 syll.)

Toneless vs. high-toned verbs in Setswana: Simple inflections

5. Perfect Disjoint [SBJ_STEM-*ilẹ/-itse/-e*] / [ŚBJ_ŚSTEM-*ilẹ/-itse/-e*]

a) toneless subject markers (SBJ)

	Toneless verbs		High-toned verbs
1 σ (stem)	<i>o_tl-ilẹ</i>	"you have come"	<i>o_j-élẹ</i> "you have eaten"
2 σ	<i>o_bad-ilẹ</i>	"you have read"	<i>o_rẹk-ílẹ</i> "you have bought"
3 σ	<i>o_lebetse</i>	"you have forgotten"	<i>o_rẹkís-itse</i> "you have sold"
4 σ	<i>o_dumedis-itse</i>	"you have received"	<i>o_símólótsê</i> "you have begun"



> lexical H + spread (2 syll.)

b) high-toned subject markers (ŚBJ)

	Toneless verbs		High-toned verbs
1 σ (stem)	<i>ó_tl-ílẹ</i>	"s/he has come"	
2 σ	<i>ó_bád-ílẹ</i>	"s/he has read"	(CF. BELOW!)
3 σ	<i>ó_lébětse</i>	"s/he has forgotten"	
4 σ	<i>ó_dúmédís-itse</i>	"s/he has received"	



> ŚBJ + spread (2 syllables)

Note: Chebanne et al. (1997: 105) recognise a slightly different pattern for toneless verbs following high-toned subject markers: *ó tlíle*, *ó bádile*, *ó ápeile*, *ó dúmedisitse*.

Grammatical H on σ_2

- recurrent tone pattern of grammatical H being assigned to 2nd syllable/mora
 - common in Bantu languages (cf. Marlo & Odden 2019: 161)
 - accompanied by a different type of > **unbounded H tone spreading** (until final syllable)

6. Imperative (SG) [S[́]TEM-*a*] / [S[́]TEM-*a*]

Toneless verbs

High-toned verbs

1 σ (stem)	<i>tlá / tlaá</i>	"come!"
2 σ	<i>balá</i>	"read!"
3 σ	<i>lebálá</i>	"forget!"
4 σ	<i>amógélá</i>	"receive!"
6/4 σ	<i>amógéléségá</i>	"be welcome!"

<i>já</i>	"eat!"
<i>réká</i>	"buy!"
<i>rékísá</i>	"sell!"
<i>símólólá</i>	"begin!"
<i>símológélá</i>	"begin for/at ...!"

> grammatical H, spread →

> lexical H, grammatical H, spread →

7. Imperative Negative/Prohibitive (SG) [*sa*_S[́]TEM-*e*] / [*sa*_S[́]TEM-*e*]

Toneless verbs

High-toned verbs

2 σ	<i>sa_balé</i>	"don't read!"
4 σ	<i>sa_amógélé</i>	"don't receive!"

<i>sa_réké</i>	"don't buy!"
<i>sa_símólolé</i>	"don't begin!"

Grammatical H on σ_2

8. Present Negative [*ga_* \acute{S} BJ \acute{S} TEM-*e*] / [*ga_* \acute{S} BJ \acute{S} TEM-*e*]

a) (cf. toneless subject markers of simple inflections)

Toneless verbs

1 σ (stem)	<i>ga_ó_tlé</i>	"you don't come"
2 σ	<i>ga_ó_balé</i>	"you don't read"
3 σ	<i>ga_ó_lebálé</i>	"you don't forget"
4 σ	<i>ga_ó_amógélé</i>	"you don't receive"
5 σ	<i>ga_ló_atúméláné</i>	"you (PL) don't appr."

> \acute{S} BJ, grammatical H, spread→

High-toned verbs

<i>ga_ó_jé</i>	"you don't eat"
<i>ga_ó_réké</i>	"you don't buy"
<i>ga_ó_rékisé</i>	"you don't sell"
<i>ga_ó_símólólé</i>	"you don't begin"
<i>ga_ó_símológélé</i>	"you don't begin for"

> \acute{S} BJ, lex.H, gram.H, spread→

b) (cf. high-toned subject markers of simple inflections)

Toneless verbs

1 σ (stem)	<i>ga_á_tlé</i>	"s/he doesn't come"
2 σ	<i>ga_á_balé</i>	"s/he doesn't read"
3 σ	<i>ga_á_lebálé</i>	"s/he doesn't forget"
4 σ	<i>ga_á_amógélé</i>	"s/he doesn't receive"
5 σ	<i>ga_bá_atúméláné</i>	"they don't appr."

> \acute{S} BJ, grammatical H, spread→

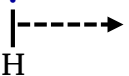
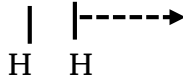
High-toned verbs

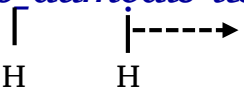
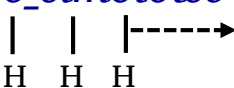
<i>ga_á_jé</i>	"s/he doesn't eat"
<i>ga_á_réké</i>	"s/he doesn't buy"
<i>ga_á_rékisé</i>	"s/he doesn't sell"
<i>ga_á_símólólé</i>	"s/he doesn't begin"
<i>ga_á_símológélé</i>	"s/he doesn't b. for"

> \acute{S} BJ, lex.H, gram. H, spread→

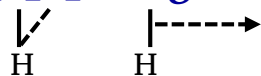
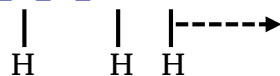
Grammatical H on σ_2


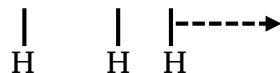
9. Perfect Conjoint [SBJ_ŠTÉM-ile/-itse/-e] / [SBJ_ŠTÉM-ile/-itse/-e]

a)	Toneless verbs		High-toned verbs	
2 σ	<i>o_bad-ílé</i>	"you have read"	<i>o_rék-ílé</i>	"you have bought"
4 σ	<i>o_dumédís-ítsé</i>	"you have greeted"	<i>o_símólótsé</i>	"you have begun"
				

b)				
2 σ	<i>ó_bad-ílé</i>	"s/he has read"	<i>ó_rék-ílé</i>	"s/he has bought"
4 σ	<i>ó_dumédís-ítsé</i>	"s/he has greeted"	<i>ó_símólótsé</i>	"s/he has begun"
				

10. Perfect Negative [ga_ŠBJ_a_ŠTÉM-a] / [ga_ŠBJ_a_ŠTÉM-a]

a)	Toneless verbs		High-toned verbs	
2 σ	<i>ga_ó_á_balá</i>	"you haven't read"	<i>ga_ó_a_réká</i>	"you haven't bought"
4 σ	<i>ga_ó_á_amógélá</i>	"you haven't received"	<i>ga_ó_a_símólólá</i>	"you haven't begun"
				

b)				
2 σ	<i>ga_á_a_balá</i>	"s/he hasn't read"	<i>ga_á_a_réká</i>	"s/he hasn't bought"
4 σ	<i>ga_ó_á_amógélá</i>	"s/he hasn't received"	<i>ga_á_a_símólólá</i>	"s/he hasn't begun"
				

Grammatical H on final syllable

- subjunctive: grammatical H assigned to last syllable (plus first syllable)
 - again common in Bantu languages (cf. Marlo & Odden 2019: 161: "The most frequent locations of grammatical H are the final mora or the second stem mora.")
 - contrast between high-toned and toneless verbs is neutralised (same tone pattern)
 - no tonal contrast for subject markers (all high-toned - series B)

11. Subjunctive [ŠBJ_ŠTEM-ê]

	Toneless verbs		High-toned verbs	
1 σ (stem)	<i>ó_tlé</i>	"you should come"	<i>ó_jé</i>	"you should eat"
2 σ	<i>ó_bálé</i>	"you should read"	<i>ó_réké</i>	"you should buy"
3 σ	<i>ó_lébalé</i>	"you should forget"	<i>ó_rékisé</i>	"you should sell"
4 σ	<i>ó_ámogêlé</i>	"you should receive"	<i>ó_símólolé</i>	"you should begin"
1 σ (stem)	<i>á_tlé</i>	"s/he should come"	<i>á_jé</i>	"s/he should eat"
2 σ	<i>á_bálé</i>	"s/he should read"	<i>á_réké</i>	"s/he should buy"
3 σ	<i>á_lébalé</i>	"s/he should forget"	<i>á_rékisé</i>	"s/he should sell"
4 σ	<i>á_ámogêlé</i>	"s/he should receive"	<i>á_símólolé</i>	"s/he should begin"
	H H	H	H H	H



> ŠBJ, grammatical H on σ_1 (which may spread) and σ_{final}

Note: Chebanne et al. (1997: 167f.) recognise a slightly different pattern for 4-syllable stems and more: *ó ámogêlé*.

Suggestion: Cases of phonological low tone

- Some tone patterns observed in verbs and beyond are not accounted for by the previously stated tone rules, e.g.

1. Imperative plural

(9) *Réká dí-tlhakó!*  but: *Réká-ng di-tlhakó!* 

$\begin{array}{c} \diagdown \text{---} | \\ \text{H} \quad \text{H} \quad \text{H} \end{array}$ $\begin{array}{c} \diagdown \quad \quad | \\ \text{H} \quad \quad \quad \text{H} \end{array}$

buy 8(PL)-shoe buy-IMP.PL 8(PL)-shoe
"Buy (the) shoes!" (SG) "Buy (the) shoes!" (PL)

If H may spread until a word-final syllable (in the middle of a phrase), then why does it not spread to *-ng* (which should lead to H tone copying)?

Note: Similar behaviour of *-ng* in locative and relative constructions: low-toned.

2. Potential of toneless verbs

(10) *Nká_tla Lobatsé.*  *Ke_ká_bál-a le-foko.* 

$\begin{array}{c} | \quad \quad | \\ \text{H} \quad \quad \text{H} \end{array}$ $\begin{array}{c} \diagdown \quad \quad | \\ \text{H} \quad \quad \quad \text{H} \end{array}$


1SG:POT_come Lobatse 1SG_POT_read-FV 5(SG)-word
"I can come to Lobatse." "I can read the word."


Why does H of *ká_* (Potential) does not spread to the final syllable of the verb (which would lead to H tone copying)?

Suggestion: cases of (marked) low tone

Suggestion: Cases of phonological low tone

- Assuming cases of (marked) low tone would also explain why some nouns never have final high tone:

(11) *Mo-sádí* *ó_káe?* 
 ↓ | |
 H H H
1(SG)-woman 1_where
"Where is the woman?"

but: *Mo-sétsána* *ó_káe?* 
 ↓ | |
 H H H
1(SG)-girl 1_where
"Where is the girl?"
(H does not spread to final syllable)

Suggestion: cases of (marked) low tone

(12) *Réká-̀ng* *di-tlhakó!*
 ↓ | |
 H L H
buy-IMP.PL 8(PL)-shoe
"Buy (PL) (the) shoes!"

(13) *Mo-sétsánà* *ó_káe?*
 ↓ | | |
 H L H H
1(SG)-girl 1_where
"Where is the girl?"

(14) *Nká_tlà* *Lobatsé.*
 | | |
 H L H
1SG:POT_come Lobatse
"I can come to Lobatse."

Ke_ká_bál-à *le-foko.*
 | |
 H L
1SG_POT_read-FV 5(SG)-word
"I can read the word."


Tonal inflections including low tone

12. Potential of toneless verbs [SBJ_ká_STEM-a]

a) toneless subject markers (SBJ)

Toneless verbs


1 σ (stem)	<i>o_ká_tla</i>	"you can come"
2 σ	<i>o_ká_bála</i>	"you can read"
3 σ	<i>o_ká_lébála</i>	"you can forget"*
4 σ	<i>o_ká_ámógêla</i>	"you can receive"*



b) high-toned subject markers (SBJ)

Toneless verbs

1 σ (stem)	<i>ó_ká_tla</i>	"s/he can come"
2 σ	<i>ó_ká_bála</i>	"s/he can read"
3 σ	<i>ó_ká_lébála</i>	"s/he can forget"
4 σ	<i>ó_ká_ámógêla</i>	"s/he can receive"



*Note: Chebanne et al. (1997: 127ff.) recognise a slightly different pattern for toneless verb stems of 3 and more syllables: *o_ká_lébála*, *o_ká_ámógêla*, *ó_ká_lébála*, *ó_ká_ámogêla*.

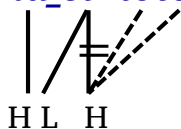
Tonal inflections including low tone

13. Potential of high-toned verbs

a) toneless subject markers (SBJ) [$\grave{\text{S}}\text{BJ_káa/ká_}\acute{\text{S}}\text{TEM-}a$]

High-toned verbs

- | | | |
|-------------------|-------------------|-----------------|
| 1 σ (stem) | $o_káa_já$ | "you can eat" |
| 2 σ | $o_ká_rêká$ | "you can buy" |
| 3 σ | $o_ká_rêkísá$ | "you can sell" |
| 4 σ | $o_ká_simólóla$ | "you can begin" |

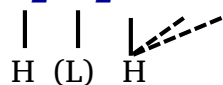


> Floating L of $ká\grave{}$ overrules lexical H on first syllable while spreaded H tones remain

b) high-toned subject markers ($\acute{\text{S}}\text{BJ}$) [$\acute{\text{S}}\text{BJ_ka_}\acute{\text{S}}\text{TEM-}a$]

High-toned verbs

- | | | |
|-------------------|-------------------|--------------------|
| 1 σ (stem) | $ó_ka_já$ | "s/he can come" |
| 2 σ | $ó_ka_rêká$ | "s/he can read" |
| 3 σ | $ó_ka_rêkísá$ | "s/he can forget" |
| 4 σ | $ó_ka_simólóla$ | "s/he can receive" |



(Alternative analyses of allomorphic toneless ka or L-toned $kà$ possible.)

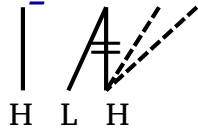
Tonal inflections including low tone - floating low tone

14. Perfect Disjoint of high-toned verbs

b) high-toned subject markers (SBJ) [SBJ_`STEM-*ile/-itse/-e*]

High-toned verbs

- | | | |
|-------------------|----------------------|--------------------|
| 1 σ (stem) | <i>ó_ j-elé</i> | "s/he has eaten " |
| 2 σ | <i>ó_ reḱ-ílé</i> | "s/he has bought " |
| 3 σ | <i>ó_ reḱís-ítse</i> | "s/he has sold " |
| 4 σ | <i>ó_ simólótsê</i> | "s/he has begun " |



> Floating L (/`/) marking perfect disjoint (between H-toned subject markers and H verb stems)

Summary

- avoidance of phrase-final HH is not part of H spreading (avoiding final syllables) but the result of a late rule of H tone deletion
- grammatical H is often assigned to the 2nd syllable in verbal inflections > with a different type of H spreading: unbound H spreading
- grammatical H may also be assigned to the last syllable (subjunctive)
- acceptance of cases of (marked) L seems simpler than resorting to other explanations (e.g. empty syllables, Chebanne et al. 1997: 49)
- → hierarchy of toneless [low] syllables > high-toned syllables > (few cases of) marked low-tone for grammatical distinctions (cf. 'three-way lexical contrast between L, Ø and H' claimed also for some Bantu J languages, Marlo & Odden 2019: 153)
- Question: Should the representation of tone (if wished e.g. in linguistic descriptions; not necessarily in the general orthography) be restricted to lexical and grammatical H and L, and leave out cases of H due to H spreading? For example (cf. (12 - 14), inflections 13a, 14):

Rêkáng ditlhakó! > *Rêkaṅg ditlhakó!* "Buy (PL) (the) shoes!"

Mosétsána ó káe? > *Mosétsanà ó káe?* "Where is the girl?"

Nká tla Lobatsé. > *Nká tlà Lobatsé.* "I can come to Lobatse."

Ke ká bála lefoko. > *Ke ká balà lefoko.* "I can read the word."

O ká rēkísá ... > *O ká rēkísa ... / O kâ rēkisa ...* "You can sell (the) ..."

Ó rēkílé lé êné. > *Ó rēkíle lé êné. / Ô rēkile lé êné.* "S/he has bought, too."

Overview

TAM category	pattern of H verbs				pattern of L verbs (prior to H spreading)				
VN	<i>go_</i> STEM- <i>a</i>				<i>go_</i> STEM- <i>a</i>				
*1)	H	HH	HHH	HHHL	L	LL	LLL	LLLL	
	<i>go já</i> "to eat"	<i>go réká</i> "to buy"	<i>go rĕkísá</i> "to sell"	<i>go s̄mólóla</i> "to begin"	<i>go tla</i> "to come (to)"	<i>go bala</i> "to read"	<i>go lebala</i> "to forget"	<i>go amogĕla</i> "to receive"	
PRS.CONJ	SBJ_STEM- <i>a</i>				SBJ_STEM- <i>a</i>				
	H	HH	HHH	HHHL	L	LL	LLL	LLLL	
2S (you)	<i>o já</i>	<i>o réká</i>	<i>o rĕkísá</i>	<i>o s̄mólóla</i>	<i>o tla</i>	<i>o bala</i>	<i>o lebala</i>	<i>o amogĕla</i>	
1 (he/she)	<i>ó já</i>	<i>ó réká</i>	<i>ó rĕkísá</i>	<i>ó s̄mólóla</i>	<i>ó tlá</i>	<i>ó bálá</i>	<i>ó lebála</i>	<i>ó ámogĕla</i>	
PRS.DISJ	SBJ_ <i>a</i> _STEM- <i>a</i>				SBJ_ <i>a</i> _STEM- <i>a</i>				
	H	HH	HHH	HHHL	L	LL	LLL	LLLL	
2S	<i>o a já</i>	<i>o a réká</i>	<i>o a rĕkísá</i>	<i>o a s̄mólóla</i>	<i>o a tla</i>	<i>o a bala</i>	<i>o a lebala</i>	<i>o a amogĕla</i>	
1	<i>ó a já</i>	<i>ó a réká</i>	<i>ó a rĕkísá</i>	<i>ó a s̄mólóla</i>	<i>ó á tlá</i>	<i>ó á bálá</i>	<i>ó á lebála</i>	<i>ó á ámogĕla</i>	
PRS.NEG	<i>ga_</i> SBJ_STEM- <i>e</i>				<i>ga_</i> SBJ_STEM- <i>e</i>				
*1, 2)	H	HH	HHH	HHHH	H	LH	LHH	LHHH	
2S	<i>ga ó jé</i>	<i>ga ó rĕké</i>	<i>ga ó rĕkísé</i>	<i>ga ó s̄mólólé</i>	<i>ga ó tilé</i>	<i>ga ó balé</i>	<i>ga ó lebáilé</i>	<i>ga ó amógĕlé</i>	
1	<i>ga á jé</i>	<i>ga á rĕké</i>	<i>ga á rĕkísé</i>	<i>ga á s̄mólólé</i>	<i>ga á tilé</i>	<i>ga ó balé</i>	<i>ga á lebáilé</i>	<i>ga á amógĕlé</i>	
PRF.CONJ	SBJ_STEM- <i>ile_</i> / <i>-itse_</i> / <i>-e</i>				SBJ_STEM- <i>ile_</i> / <i>-itse_</i> / <i>-e</i>				
	HH	HHH	HHHH	HHHHH	LH	LHH	LHHH	LHHHH	
2S	<i>o jéilé</i>	<i>o rĕklé</i>	<i>o rĕkistsé</i>	<i>o bóĕléditsé</i>	<i>o tilé</i>	<i>o badilé</i>	<i>o apĕilé</i>	<i>o dumĕditsé</i>	
1	<i>ó jéilé</i>	<i>ó rĕklé</i>	<i>ó rĕkistsé</i>	<i>ó bóĕléditsé</i>	<i>ó tilé</i>	<i>ó badilé</i>	<i>ó apĕilé</i>	<i>ó dumĕditsé</i>	
PRF.DISJ	ŠBJ_STEM- <i>ile_</i> / <i>-itse_</i> / <i>-e</i>				SBJ_STEM- <i>ile_</i> / <i>-itse_</i> / <i>-e</i>				
	ŠBJ	HH	HHH	HHHL	HHHLL	LL	LLL	LLLL	LLLLL
	ŠBJ	LH	LHH	LHHL	LHHLL	LL	LLL	LLLL	LLLLL
2S	<i>o jéilé</i>	<i>o rĕklé</i>	<i>o rĕkistsé</i>	<i>o bóĕléditsé</i>	<i>o tilé</i>	<i>o badilé</i>	<i>o apĕilé</i>	<i>o dumĕditsé</i>	
1	<i>ó jéilé</i>	<i>ó rĕklé</i>	<i>ó rĕkistsé</i>	<i>ó bóĕléditsé</i>	<i>ó tilé</i>	<i>ó bádilé</i>	<i>ó ápĕilé</i>	<i>ó dúmĕditsé</i>	

Overview

TAM category	pattern of H verbs				pattern of L verbs (prior to H spreading)			
PRF.NEG	<i>ga_ŠBJ_a_ŠTEM-a</i>				<i>ga_ŠBJ_a_ŠTEM-a</i>			
*1, 2)	H	HH	HHH	HHHH	H	LH	LHH	LHHH
2S	<i>ga ó a já</i>	<i>ga ó a réká</i>	<i>ga ó a rẹ́ktsá</i>	<i>ga ó a bóéłetsá</i>	<i>ga ó a tlá</i>	<i>ga ó á balá</i>	<i>ga ó á lebdlá</i>	<i>ga ó á duméđtsá</i>
1	<i>ga á a já</i>	<i>ga á a réká</i>	<i>ga á a rẹ́ktsá</i>	<i>ga á a bóéłetsá</i>	<i>ga á a tlá</i>	<i>ga á á balá</i>	<i>ga á á lebdlá</i>	<i>ga á á duméđtsá</i>
FUT	<i>SBJ_tlaa_ŠTEM-a</i>				<i>SBJ_tlaa_ŠTEM-a</i>			
	H	HH	HHH	HHHL	L	LL	LLL	LLLL
2S	<i>o tlaa já</i>	<i>o tlaa réká</i>	<i>o tlaa rẹ́ktsá</i>	<i>o tlaa símólóla</i>	<i>o tlaa tla</i>	<i>o tlaa bala</i>	<i>o tlaa lebala</i>	<i>o tlaa amogēla</i>
1	<i>ó tláa já</i>	<i>ó tláa réká</i>	<i>ó tláa rẹ́ktsá</i>	<i>ó tláa símólóla</i>	<i>ó tláa tla</i>	<i>ó tláa bala</i>	<i>ó tláa lebala</i>	<i>ó tláa amogēla</i>
IMP	<i>ŠTEM-a (-ng)</i>				<i>ŠTEM-a (-ng)</i>			
*2)	H	HH	HHH	HHHH	H	LH	LHH	LHHH
2S	<i>já (-jaá) (-ng)</i>	<i>rẹ́ká</i>	<i>rẹ́ktsá</i>	<i>símólóla</i>	<i>tlá (~tlaá)</i>	<i>balá</i>	<i>lebdlá</i>	<i>amogéłá</i>
IMP.NEG	<i>sa_ŠTEM-ę (-ng)</i>				<i>sa_ŠTEM-ę (-ng)</i>			
*2)	H	HH	HHH	HHHH	H	LH	LHH	LHHH
2S	<i>sa je</i>	<i>sa rẹ́kẹ</i>	<i>sa rẹ́ktsẹ</i>	<i>sa símólólẹ</i>	<i>sa tlẹ</i>	<i>sa balẹ</i>	<i>sa lebdlẹ</i>	<i>sa amogéłẹ</i>
SUBJ ("should")	<i>ŠBJ_ŠTEM'ê</i>				<i>= (ŠBJ_ŠTEM'ê)</i>			
*2)	H	HH	HLH	HHLH	H	HH	HLH	HHLH
2S	<i>ó je</i>	<i>ó rẹ́ké</i>	<i>ó rẹ́kisé</i>	<i>ó símólólé</i>	<i>ó tlé</i>	<i>ó balé</i>	<i>ó lebalé</i>	<i>ó amogéłé</i>
1	<i>á je</i>	<i>á rẹ́ké</i>	<i>á rẹ́kisé</i>	<i>á símólólé</i>	<i>á tlé</i>	<i>á balé</i>	<i>á lebalé</i>	<i>á amogéłé</i>
POT ("can")	<i>ŠBJ_káa/ká`_ŠTEM-a</i>				<i>SBJ_ká_ŠTEM-a</i>			
	<i>ŠBJ_ka_ŠTEM-a</i>							
ŠBJ	H	LH	LHH	LHHL	L	HL	HHL	HHLL
ŠBJ	H	HH	HHH	HHHL	L	HL	HHL	HHLL
2S	<i>o káa já</i>	<i>o ká rẹ́ká</i>	<i>o ká rẹ́ktsá</i>	<i>o ká símólóla</i>	<i>o ká tla</i>	<i>o ká bala</i>	<i>o ká lebála</i>	<i>o ká amogēla</i>
1	<i>ó ka já</i>	<i>ó ka rẹ́ká</i>	<i>ó ka rẹ́ktsá</i>	<i>ó ka símólóla</i>	<i>ó ká tla</i>	<i>ó ká bala</i>	<i>ó ká lebála</i>	<i>ó ká amogēla</i>

Notes: Word-final ..HH is always lowered to ..HL at the end of a phrase (cf. *go rẹ́ká dijó* "to buy food" vs. *go rẹ́ka###* "to buy"). Mostly, final ..HH to ..HL lowering also applies if followed by adverbs, interrogatives, demonstratives and relatives (e.g. *o rẹ́ka tháta* "you buy a lot"). Exceptions: *1) Final HH lowering does not apply if followed by adverbs (e.g. *go rẹ́ká tháta* "to buy a lot"). *2) Final HH lowering also applies before additive constructions (e.g. *rẹ́ka lé wēná* "buy, you too!").

1, 2, 5, 7, 8, 15 ... - noun classes

2SG - 2nd person singular

CONJ - conjoint (i.e. complemented)

DISJ - disjoint (i.e. non-complemented)

F - falling tone

FUT - future

FV - final vowel

H - high tone

IMP - imperative

L - low tone

LOC - locative

NCL - noun (/agreement) class

NEG - negative

OM - object marker

σ - syllable

PFOC - predication focus

PL - plural

POT - potential

PRF - perfect

PRS - present

SBJ - subject marker

ŠBJ - high-toned subject marker

ḤBJ - toneless/low-toned subject marker

SG - singular

spread[→] - unbound spread (until end of word)

STEM - verbal stem (radical + extension + final vowel)

ŠTEM - verbal stem with H on 1st syllable (+ bound spreading)

ŠTEM - verbal stem with grammatical H assigned to the 2nd syllable (+ unbound spreading)

STEM̂ - verbal stem with grammatical H assigned to the last syllable

STEM̀ - verbal stem with grammatical L assigned to the last syllable

SUBJ - subjunctive

TAM - tense, aspect, mode/modality

VN - verbal noun

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