



Artigo original

CITSHWA PHRASAL TONOLOGY

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ABSTRACT: In this paper we examine the two principal rules of phrasal tonology in Citshwa language of Tsonga group (Zone S50 in Guthrie's classification of the Bantu languages). Using verb-noun sequences, this paper argues that a verb that ends in a H tone is separated from a following initial H noun by downstep ("!"). However, if the following noun has initial 0H, the H of the verb spreads to the initial toneless syllable and induces the Downstep of the following H. If the noun has two or more initial toneless syllables preceding a H, the verb H spreads to the initial syllable but no further. The H in the noun is automatically downstepped by virtue of the toneless syllable(s) intervening between it and the preceding H tone. A significant complication arises when the noun is modified, as the verb's H spreads to an initial toneless syllable of all nouns, but in the case of a toneless noun does not spread any further. However, in Citshwa there is another phrasal tone rule that deletes a phrase-final H tone. A phrase-final word that ends in a H tone(-span) deletes this H tone obligatorily when it immediately precedes a main verb that has a H tone in its pre-stem structure, and optionally deletes even when it is separated from the verb by another phrase. The syntactic role of the phrase is irrelevant. The present paper sketches these dual phrasal principles: the spreading of a H tone as well as the deletion of a word-final H tone.

Keywords: Citshwa, H-spreading, H-deletion, phrasal-final, phrasal tonology.

TONOLOGIA DE FRASE EM CITSHWA

RESUMO: Neste artigo examinamos as duas regras principais da tonologia a nível de frase em Citshwa, uma língua do grupo Tsonga (Zona S50 na classificação de Guthrie das línguas Bantu). Usando sequências verbo-nome, o artigo defende que um verbo que termina em tom alto é separado do nome (ou complemento nominal) de tom alto na sílaba inicial por um *downstep* ("!"). Contudo, se o complemento nominal tiver tom baixo na sílaba inicial, o tom alto do verbo propaga-se para a sílaba inicial do nome sem tom, induzindo o *Downstep* para o tom alto da sílaba seguinte. Se o complemento nominal tiver duas ou mais sílabas iniciais sem tom precedendo uma sílaba de tom alto, o tom alto do verbo propaga-se apenas para a sílaba inicial do nome e não mais. O tom alto do nome é automaticamente sujeito a *downstep* em virtude da(s) sílaba(s) de tom baixo entre o tom alto do nome e o tom alto na primeira sílaba no nome. Se o complemento nominal não tiver tom alto em nenhuma das sílabas, então o tom alto do verbo propaga-se até à penúltima sílaba do nome. Uma complicação significativa surge quando o nome é modificado, pois o tom alto do verbo propaga-se a sílaba inicial sem tom de todos os nomes, mas no caso de um nome sem tom alto não se propaga mais. Todavia, em Citshwa, há uma outra regra tonal que elimina o tom alto em posição final na frase. Uma palavra no fim da frase que termina em tom alto, obrigatoriamente apaga esse tom quando precede imediatamente um verbo principal que possui um tom alto na sílaba inicial e, opcionalmente apaga mesmo tom quando está separado do verbo por outra frase. A função sintática da frase é irrelevante. O presente artigo examina estes dois princípios: a propagação do tom alto, bem como a elisão do tom alto na posição final da palavra.

Palavras-chave: Citshwa, propagação tonal, elisão do tom, sílaba final, tonologia frasal.

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INTRODUCTION

The Bantu languages of Eastern and Southern Africa have played a key role in the theoretical analysis of tone systems both at the word level as well as the sentence level, beginning with the work of Meeussen (1963, 1965) in the second half of the twentieth century and reaching a crescendo in work in generative phonology and autosegmental phonology. The literature on this topic is extensive and involves a wide range of languages.

One of the earliest studies to address the tonology of sentences was Beuchat-(Cole)'s series of paper in 1959, 1962 focusing on various dialects of the Tsonga language cluster spoken in southern Mozambique and adjacent regions in South Africa. Beuchat (-Cole)'s description of the alternations in phonological shapes that occur across words in Tsonga was comprehensive, but unfortunately fails to clearly describe the changes on the basis of the interaction of the particular *sound* structures of the words involved.

Kisseberth (1994), using newly collected data from Xidzonga, a dialect not mentioned in Beuchat-(-Cole)'s study but clearly very similar in its phrasal tonology, showed that the observed data could be accounted for in terms of a High tone at the end of one word “spreading” into the next word, subject to various constraints associated both with the phonological structure as well as with the morphosyntactic structure. More than a decade later, Selkirk (2011), Selkirk and Lee (2015) and Lee and Selkirk (2022) began to construct a theory of the Phonology-Syntax interface (“Match Theory”) that allows for the various generalizations developed in Kisseberth's analysis to be predicted.

In April of 2021, Kisseberth and Ugembe began a collaborative effort to document the tonology of a previously undescribed member of the Tsonga language cluster, Citshwa (cf. Kisseberth and Ugembe, 2022 ms., 2023 ms.). It soon became evident that there are many similarities between Citshwa and the other Tsonga dialects with respect to the spreading of a H tone from one word to another, but that there is also a significant difference. As the research deepened, it also turned out that Citshwa has a second phrasal principle that has not been previously observed in Tsonga to our knowledge: namely, a principle whereby a final High tone “span” is deleted in certain pre-verbal positions, in some cases obligatorily and in other cases optionally. The present paper sketches these dual phrasal principles: the spreading of a word-final H tone as well as the deletion of a word-final H tone, as well as system of pitch lowering whereby H tones across the sentence are systematically lowered relative to one another.

METHODOLOGY

The data analyzed in this paper was provided by the second author, Zeferino Ugembe, who is also a native speaker of Citshwa. The information was collected in two different ways: part of it was collected from native speakers in Vilankulo district, Inhambane province, Mozambique, while other information was taken from Citshwa textbooks, like A Ngango wa Mutshwai (Mbanze, 1993), Nkutsulani wa Matimu ya vaTshwa (Mukhombo, 1988), A Mavingu ya vaTshwa ni Titekatekani (Mucambe, 1989) and Mina nzi Khokho (Helgesson, (n/d)). The second author, using a tape recorder, recorded the information provided by the speakers and the information collected from the textbooks

and sent it to the first author, Charles Kisseberth. Using *WavePad by NCH* software, a software for recording sound waves, Kisseberth marked the tone. Any mistake in the data (examples) is from the second author.

RESULTS AND DISCUSSION

The Citshwa tone system and its transcription

The tone-bearing unit in Citshwa is the vowel. All vowels in Citshwa are basically short vowels (at least in the non-ideophonic portion of the vocabulary, which is the focus of this summary). The penult vowel in the intonational phrase is lengthened. There is a tonal contrast between whether a vowel has a High tone or not. We indicate the presence of a H tone in the pronunciation with an acute mark over the vowel. Adjacent H-tones at the same pitch level represent a single multiply-linked H tone using the autosegmental phonology approach to tone. Adjacent H tones that are separated by downstep represent a sequence of independent H tones. We propose that the downstep that separates two independent H tones is a phonological rule that operates both inside words and also across words. There is also a Downdrift rule that lowers the pitch level of an independent H tone that is separated from a preceding High tone by one or more toneless tone-less vowels. All the H tones in a multiply-linked H tone span are pronounced at the same pitch level. We should note that while High-spans arise often from word-level High tone spreading inside the verb and across words, inside non-verb words they are largely underlying and not derived.

(1) illustrates the tonal representation of a number of nouns and verbs.

(1) toneless:

nya:ma ‘meat’, **nhanya:na** ‘girl’, **papi:lu** ‘paper’, **va-nhanya:na** ‘girls’
ndz-a-xa:va^{#3} ‘I am buying’, **u-ta-ri:ma**^{#4} ‘you will cultivate’, **ku-girimu:xa**^{#1} ‘to demolish’

multiply-linked H tone:

mbú:tí ‘goat’, **n’wá:ná** ‘child’, **sá:tí** ‘wife’, **khúhú:nhu** ‘owl’
ku-lángú:tá^{#1} ‘to look for’, **ndz-a-rá:ndzá** ‘I like’, **u-girímúxí:li**^{#15} ‘you have demolished’
vá-khúngúmúli:li^{#15} ‘they have demolished’

single H tone

mu-fá:na ‘boy’, **ho:mú** ‘cow’, **ti-ho:mú** ‘cows’, **li-ngo:tí** ‘rope’, **keré:ke** ‘church’

multiple single H tones

háha:n!í ‘aunt’, **kháha:lá** ‘armpit’, **mu-fúndi:s!í**
a-ndzí:hle:k!í^{#5a} ‘I am not laughing’.

High-span and single H’s

kókw!á:ní ‘grandparent’, **wá-s!á:tí** ‘woman’
á-!á-nga-rw!á!ísi^{#23} ‘he was not helping carry’, **ú-halákí:li**^{#15} ‘it was dumped’

Phrasal tonology: Downstep

Although the tonology of the word, particularly of the verb, is complex and of great interest, in this paper we confine our attention to the phrasal tonology. This is possible to do since the phrase-

level rules are almost entirely dependent on whether a word ends in a H tone or begins with a H tone. In almost all cases where the first word ends in a H tone and the next word begins with a H tone, the previously mentioned rule of Downstep lowers the pitch level of the initial H of the second word. Some examples in (2) and (3):

(2) Phrasal Downstep:

Verb plus nominal:

ndzi-dáyá^{#4} mb!ú:tí ‘I am killing a goat’ (cf. **mbú:tí**)

vá-góndzá^{#4} bh!ú:ku ‘they are reading a book’ (cf. **bhú:ku**)

ndzi-wóná^{#4} z!úkú:lu ‘I see the grandchild’ (cf. **zúkú:lu**)

Downstep is not an exceptionless phenomenon. The associative particle *AGR-ó/á* does not undergo Downstep when preceded by a H-toned nominal, although it does when preceeded by a verb. Look at the case where the basic word order of the associative construction is employed. What we see is that with a H-final nominal head, there is no downstepping of the associative particle (cf. **mu-yíví w-á ho:mb!í**). When the nominal ends in a Low tone but is preceded by a High tone, we find that Downdrift does apply (cf. **li-mb!ávi y-!á tú:va**).

(3) H-final nominal:

mu-yíví w-á ho:mb!í ‘a big thief’

ma-tandzá y-á h!ú:kú ‘eggs of a hen’

bzalá g-á má-ka:njh!ú ‘beer of cashew nuts’

L-final nominal:

nyama y-á ho:mú ‘cow meat’

yi-ndlu y-á mú-ngo:m!á ‘brick house’

li-mb!ávi y-!á tú:va ‘feather of a dove’

sáya y-!á s!á:tí ‘skirt for wife’

In the following examples (4), the associative construction (*Noun_i AGR-ó/á Noun_j ‘N_i of N_j’*) undergoes preposing of the *AGR-ó/á Noun_j* in front of the head noun preposed in front of the head noun for purposes of emphasis, and is subject to Downstep from the verb.

(4) **ndzi-dáyá c!ó-bása ci-hukwa:na** ‘I am killing a *white* chicken’

ndzi-gá y!ó-nómbéla ma-papaka:yi ‘I am eating *sweet* papaws’

Finally, with respect to Downstep, we will see below that when phrasal High Spreading creates the context for Downstep, Downstep will apply word-internally as a consequence of the derived environment.

Phrasal tonology: High Spreading

The phrasal tonal rule that has been most widely studied in the literature on Tsonga is High Spreading.

While there is some difference in detail in Citshwa from other Tsonga varieties, the basic environment for this rule is a word that ends in a H tone (whether a singleton or a span) and a following word that begins with a toneless syllable. When the initial toneless word is in an unmodified phrase,

in all dialects there is a bifurcation between words that have a H tone somewhere in their structure (0XHX-words, i.e. a toneless initial followed by anything at all as long as it contains a H tone) and words that are entirely toneless.

In the first case, i.e. 0XHX words, the final H tone spreads *one* vowel to the right in Citshwa. We will illustrate this fully from sequences of a verb and a noun. We cite a range of examples of 0XHX words, but not all possibilities). Notice that when the second word begins *cvcv*, spreading to the initial vowel creates a sequence of two independent H tones and Downstep applies. In all other contexts, Downdrift occurs if there is a preceding H tone in the phrase. (The tense of a verb is identified by a number immediately following it; we do not explain this numbering here, since it is irrelevant to the contents of the paper. See Kisseberth and Ugembe (2023, ms.) for a detailed account of the Citshwa verbal tonology and each of the numbered verb tenses.). See illustrations in (4).

- (4) H-final verb *cvcv* > *cv≡c!v≡*
á-tá-hlótá^{#10} mhá:!!á ‘he will hunt the impala’ (cf. **mha:lá** ‘impala’)
ndzi-xaví^{#15} njhí:n!í ‘I bought an engine’ (cf. **njhi:ní** ‘engine’)
vá-nwá^{#4} bzá:!!á ‘they are drinking alcohol’ (cf. **bza:lá** ‘alcohol’)
- H-final verb *cvcvcv* > *cv≡cvc!v≡*
á-hlótá^{#4} tí-mha:!!á ‘he is hunting the impalas’ (cf. **ti-mha:lá** ‘impalas’)
vá-gá^{#4} má-ta:ndz!á ‘they are eating eggs’ (cf. **ma-ta:ndzá** ‘eggs’)
- H-final verb *cvcv≡cv≡* > *cv≡c!v≡cv≡*
yí-tlhélísá^{#4} cí-t!ú:lú ‘he is returning a chair’ (cf. **ci-tú:lú** ‘chair’)
á-ríválá^{#4} tí-nh!ó:ndzwá ‘he forgets elder brothers/sisters’ (cf. **ti-nhó:ndzwá** ‘elder brothers/sisters’)
phóyisa g!í-hlóngólísá^{#4} mú-y!í:ví ‘the policeman is chasing a thief’ (cf. **mu-yí:ví** ‘thief’)
- H-final verb *cvcv≡cv≡cv* > *cv≡c!v≡cv≡cv≡*
ndzi-wóná^{#4} vá-z!úkú:lu ‘I see the grandchildren’ (cf. **va-zúkú:lu** ‘grandchildren’)
- H-final verb *cvcv≡cv* > *cv≡c!v≡cv*
Katarína !á-hlek!í^{#15} mú-f!á:na ‘Catarina laughed at the boy’ (cf. **(mu-fá:na)**
ndzi-góndzá^{#4} má-bh!ú:ku ‘I am reading books’ (cf. **ma-bhú:ku** ‘books’)
vá-xává^{#4} má-h!é:mbi ‘they are buying shirts’ (cf. **ma-hé:mbi** ‘shirts’)
- H-final verb *cvcvcvcv* > *cv≡cvc!v≡cv*
ndz-a-rándzá^{#3} Kátar!í:na ‘I do like Catarina’ (cf. **Katarí:na** ‘female personal name’)
- H-final verb *cvcvcvcv≡* > *cv≡cvc!v≡cv*
ndzi-nwá^{#4} cí-nambur!é:ti ‘I am drinking a cold drink’ (cf. **ci-namburé:ti** ‘a cold drink’)

We should note that the above observations are identical to the facts found in other Tsonga dialects. However, it must be pointed out that Kisseberth (1994) incorrectly claimed that the H-spreading was blocked only onto a vowel that was immediately followed by a H tone. Lee (2014) pointed out that in the dialect he explored, spreading was only to the first vowel in the VXHX word regardless of how many toneless vowels followed. The Citshwa data confirms this point. Kisseberth’s false generalization was simply due to limited data (and the fact that in several other Bantu languages, spreading is in fact blocked only when a toneless vowel is followed by a H tone).

The second case of phrasal High Spreading involves toneless words, and here what we see is that the spreading goes not just onto the initial vowel, but rather extends as far as the penult vowel in the toneless word. See illustrations in (5).

- (5) H-final verb $cvcv > cv\equiv cv$
á-hlótá^{#4} mhú:ti ‘he is hunting a buck’ (cf. **mhú:ti** ‘buck’)
ku-ti-xává^{#1+OM} tí-njhi:n!í ‘to buy the engines’ (cf. ‘engines’)
- H-final Verb $cvcvcv > cv\equiv cv\equiv cv$
á-hlótá^{#4} tí-mhú:ti ‘he is hunting the bucks’ (cf. **tí-mhú:ti** ‘bucks’)
ndzi-tsálélí^{#15} Mási:ngi ‘I wrote to Massingue’ (cf. **Mási:ngi** ‘male personal name’)
ndzi-tsálélí^{#15} nhányá:na ‘I wrote to a girl’ (cf. **nhanya:na** ‘girl’)
ndzi-wóná^{#4} bótó:ri ‘I see a bottle’ (cf. **boto:ri** ‘bottle’)
vá-vhúlá^{#4} cí-vhá:lu ‘they are opening the door’ (cf. **ci-vha:lu** ‘door’)
- H-final Verb $cvcvcvcv > cv\equiv cv\equiv cv\equiv cv$
ndzi-tsálélí^{#15} vá-nhányá:na ‘I wrote to girls’ (cf. **va-nhanya:na** ‘girls’)

A significant difference between Citshwa and the dialects described by Beuchat(-Cole) and Kisseberth is observed when one considers cases where the second word is itself followed by a modifier. In Citshwa, High Spreading remains in effect, but remains restricted to the initial vowel even in toneless words as well as 0XHX words. Spreading occurs when the initial vowel is a stem vowel as well as when it is a prefix, whereas in other dialects it is only a prefix on a modified noun that accepts spreading.

In (6), we illustrate modified 0XHX words, while in (7) we show toneless words.

- (6) H-final verb followed by a toneless initial vowel with a H later in the word
vá-gísá^{#4} hóm!ú l!é:yi ‘they are feeding this cow’ (cf. **ho:mú** ‘cow’)
ndzi-gá^{#4} tándz!á l!é:gi ‘I am eating this egg’ (cf. **ta:ndzá** ‘egg’)
vá-xává^{#4} má-h!émbi l!á:wá ‘they are buying these shirts’ (cf. **ma-hé:mbi** ‘shirts’)
ndzi-dáyá^{#4} tí-mb!úti l!é:ti ‘I am killing these goats’ (cf. **tí-mbú:ti** ‘goats’)
ndzi-góndzá^{#4} má-bh!ú:ku l!á:wá ‘I am reading these books’ (cf. **ma-bhú:ku**)
vá-gá^{#4} má-tándz!á l!á:wá ‘they are eating these eggs’ (cf. **ma-ta:ndzá**)
ndzi-nwá^{#4} cí-nambur!éti l!é:ci ‘I am drinking this cold drink’ (cf. **ci-namburé:ti**)

If the noun following a H-final verb is entirely toneless, the H from the verb spreads only to the initial toneless syllable, whether a prefix or part of a stem.

- (7) H-final verb followed by a modified toneless nominal
ndzi-lángútá^{#4} vá-nhanyana va-ny!í:ngi ‘I am looking for many girls’
 cf. without the modifier: **ndzi-lángútá^{#4} vá-nhányá:na** ‘I am looking for girls’
ndzi-wóná^{#4} bótó:ri ‘I see this bottle’ (cf. **boto:ri**)
vá-vhúlá^{#4} zvi-vhalu l!é:zvi ‘they are opening these doors’ (cf. **zvi-vha:lu**)

These data are sharply at odds with the data in Beuchat(-Cole) and Kisseberth where it is also true that High-spreading affects only the initial vowel, but in addition it is *only when the initial vowel is the noun class prefix*.

Additional environments for High Spreading: Ideophone to nominal

There are other word sequences where spreading occurs, though it is never the case that the spreading is to a true verb (note that infinitives in Bantu, which do accept spreading, are arguably nouns. Perhaps somewhat surprisingly (given that ideophones typically have a tonal pattern quite distinct from non-ideophonic words), a H-final ideophone triggers High spreading on a nominal complement. This is one of a number of arguments for treating ideophones as verbs. See illustrations in (8).

(8)	ideophone	H-initial noun	phrase
	nwaníyaní	má:tí ‘water’	nwaníyaní m!á:tí ‘drink water instantly’
	ideophone	0X H X noun	
	rwé	li-hú:nyí ‘firewood’	kámá n’w!áná !á-ngá-ku kora a-ku rwé lí-
	h!ú:nyí	‘the time the child bowed and took	the firewood’
	rwé	ma-ta:ndzá ‘eggs’	á-tí ma rwé má-ta:ndz!á ‘he took away eggs’
	nwaníyaní	ci-namburé:ti ‘cold drink’	nwaníyaní cí-nambur!é:ti
			‘drink cold drink instantly’
	ideophone	toneless noun	phrase
	húzú	ndzha:va ‘basket’	húzú ndzhá:va ‘snatch a basket’
	hójó	boto:ri ‘bottle’	á-tí hójó bótóri cí-khel!é:=ni
			‘he put bottle in the hole’
	nwaníyaní	mu-jamba:ni ‘cashew juice’	nwaníyaní mú-jámbá:ni
			‘drink cashew juice instantly’

Additional environments for High Spreading: from H-toned prepositions/particles to nominals

There are a number of monosyllabic H-toned prepositions or particles that may spread onto a following nominal. One example is (**hí**) which conveys meanings like ‘because’, ‘by’, ‘by means of’, ‘for’. See illustrations in (9).

(9)	[hí]	H-initial noun	phrase
		vá-la:l!á ‘enemies’	hí v!á-la:l!á
		n’wá:ná ‘child’	hí n’w!á:ná
		v-á:ná ‘children’	hí v!-á:ná
		kókw!á:ní ‘grandparent’	hí k!ókw!á:ní
		háha:n!í ‘aunt’	hí h!áha:n!í
(hí)	LXHY		phrase
		mu-fá:na ‘boy’	hí mú-f!á:na ‘for a boy’
		va-fá:na ‘boys’	hí vá-f!á:na
		tí-mbú:tí ‘goats’	hí tí-mb!ú:tí
		na:lá ‘enemy’	hí ná:l!á (phonetically: hí nâ:l!á)
(hí)	toneless noun		phrase
		ja:ha ‘teen-age boy’	hí já:ha
		ma-ja:ha ‘teen-age boys’	hí má-já:ha
		nhanya:na ‘girl’	hí nhányá:na
		va-nhanya:na ‘girls’	hí vá-nhányá:na

ci-phukuphu:ku ‘fool’
ci-hotlovi:la ‘giant’

hí cí-phúkúphú:ku
hí cí-hótlóví:la

Another example is (ká). See illustrations in (10).

- (10) (ká) H-initial noun phrase
sí:nya ‘tree’ ká sí:nya ‘to the tree’
LHX
mi-ko:vhá ‘bananas’, ká mí-ko:vh!á ‘in bananas’
LLHX

Additional environments for High Spreading: from an adjective to the following word

A H-final adjective may spread. This can be seen, for example, when an adjective is preposed in front of the noun that it modifies. See illustrations in (11).

- (11) High Spreading from a preposed adjective to the noun that it modifies:
toneless nominal
ndzi-wóná mu-ts!óngw!ání mú:-nhu ‘I am seeing a *little* person’
ndzi-gá ti-ny!íngí tí-má:nga ‘I am eating a *lot of* peanuts’
ndzi-lángúta^{#4} va-ny!íngí vá-nhányá:na ‘I am looking for *many* girls’
LXHX
ndzi-rándzá va-ny!íngí vá-f!á:na ‘I am loving *many* boys’
ndzi-gá ma-mb!ísí má-d!í:n’wa ‘I am eating *raw* oranges’
ndzi-ní^{#4} gi-ts!óngw!ání wú-t!í:ví ‘I have a *little* knowledge’
ndzi-wóná ti-ny!íngí tí-ny!éle:t!í ‘I am seeing *many* stars’
ndzi-bhika^{#4} ma-nyíngí má-tsa:w!ú ‘I am cooking *lots of* vegetables’
vá-bhíká ma-ny!íngí má-tsa:w!ú ‘they are cooking *lots of* vegetables’
ndzi-ní ci-ts!óngw!ání cí-mbilw!á:ná ‘I am impatient’ (lit: ‘I have a *very small* heart’)

Additional environments for High Spreading: from an interrogative word

Examples of H-final interrogative words (*ri:ní*) ‘when?’, (*yi:ní*) ‘what’, (*-hí*) ‘which’. All of these words double onto a following word with a toneless initial vowel, while downstep is introduced when the next word is H-initial. See illustrations in (12).

- (12) interrogative + H-initial: downstep introduced
u-ta-dáyá^{#10} rin!í mb!ú:tí ‘when will you kill the goat?’
á-khúngúmúlá^{#4} yin!í Mbh!á:ndzí ‘what is Mbanze demolishing?’
interrogative + LXHX
á-lúlámísá^{#4} yin!í Xjú:z!í ‘what is José repairing?’ (cf. Xju:zí ‘male personal name’)
á-xává^{#4} yin!í Zúng!ú:zi ‘what is Zunguze buying?’ (cf. Zungú:zi ‘male personal name’)
á-lángútá^{#4} yin!í mú-f!úndi:s!í ‘what is the pastor looking for?’ (cf. mu-fúndi:sí ‘pastor’)
á-gírímúxa^{#4} yin!í rá:r!ú ‘he is demolishing what, father?’ (cf. ra:rú ‘father’)
á-lwa^{#4} yin!í mú-f!á:na ‘he is fighting what, the boy?’
á-xávísá^{#4} yin!í Kátar!í:na ‘what is Catarina selling?’ (Katarí:na ‘female personal name’)
interrogative + toneless
u-ta-khungumula^{#10} riní yí:-ndlu ‘when will you demolish the house?’ (cf. yi:-ndlu

‘house’)
u-ta-xokola^{#10} riní wú-ló:mbi ‘when will you extract the honey?’ (cf. **wu-lo:mbi**
 ‘honey’)

u-ta-lángúta^{#10} rin!í nhányá:na ‘when will you look for the girl?’ (cf. **nhanya:na**
 ‘girl’)

á-ga^{#4} yin!í Másí:ngi ‘he is eating what, Massingue?’

gí-lángúta^{#4} yin!í já:ha ‘what is he looking for, the youth?’

má-lángúta^{#4} yin!í má-já:ha ‘what are they looking for, the youths?’

cí-xávísa^{#4} yin!í cí-hótlóví:la ‘he is selling what, the giant?’

But if the postposed subject is modified, the doubled H tone on the noun does not spread further than the initial syllable of the toneless noun:

vá-ga^{#4} yin!í vá-nhanyana va-mbir!í ‘they are eating what, the two girls?’

There are other cases, but the point should be clear that High Tone Spreading is the norm across all word categories. Next, we will show that there are also situations where High Tone Spreading is not possible.

Failure of High Spreading

Although High-Spreading has wide application, there are a limited number of cases where it simply fails to apply or where it does not apply to the full range of targets.

Specific contexts in which it does not apply even if appropriate conditions are satisfied (i.e. a final H tone (-span) and a following toneless syllable). A couple of examples in (13) and (14).

- (13) a verb does not accept spreading from a preceding final H:

tí-húkú hi-ta-xavi:sa^{#10} ‘hens, we will sell’

yi-pí ndzi-ta:-lwa^{#10} ‘a fight, I will fight’

ma-símú u-ta-ri:ma ‘the fields, you will cultivate’

- (14) a 0HX adverb does not accept spreading

ku-fá^{#1} nyan’w!á:ka ‘to die this year’

ku-bá^{#1} kany!í:ngí ‘to beat often’

ku-gá nyam!ú:tlha ‘to eat today’

ku-góndzá^{#1} zvi-n!é:né ‘to read well’

The phrasal principle of Final H-Deletion

The data in the previous section focused on final H words in the verb phrase. Most of the time, these final H words exhibited the phrasal principle of High-Spreading. The examination of pre-verbal data reveals the second major principle of phrasal tonology in Citshwa: the deletion of a final H tone. We have found no discussion of this phenomenon in the other Tsonga dialects and thus cannot be certain whether or not it occurs in any of these varieties. It applies *extensively*, however, in Citshwa.

The final H-Deletion principle targets a *phrase-final* H tone(-span) in pre-verbal position. Its application is blocked in cases where there is no H tone in the pre-stem portion of the verb or ideophone. There is variability with respect to deletion when there is a H tone in the pre-stem portion: deletion is obligatory if the phrase-final H(-span) is located immediately before the verb. If there is

another syntactic phrase separating the phrase-final H tone from the verb, the deletion is optional for these non-immediate preverbal phrases. The grammatical relationship of the phrase undergoing deletion is irrelevant.

Phonological considerations in triggering Final H-Deletion

A phrase-final H tone(-span) deletes obligatorily in position immediately preceding a verb whose pre-stem portion contains a H tone. See illustrations in (15).

- (15) final-H noun pre-stem contains H
Xju:zí ‘José’ **á-tá-rím á...** **Xjuzi á-tá-rímá má-s!í:mú** ‘José will cultivate the fields’
wá-s!á:tí ‘woman’ **á-tá-xávísá...** **wá-sati !á-tá-xávísá tí-ho:m!ú** ‘the woman will sell cows’
yi:-pí ‘fight’ **vá-tá:-lwá...** **yi-pi vá-tá:-lwá** ‘a fight they will fight’

A phrase-final H tone (-span) that does not immediately precede a verb with a H tone in the pre-stem portion will optionally delete the H tone regardless of whether the immediately preceding phrase undergoes deletion or not.

- (16) remote final-H pre-stem contains H
ti-hunyi jaha gí-rw!é:lí^{#15} ‘firewood, the youth carried’ (cf. **ti-hú:nyí** ‘firewood’, **ja:ha** ‘youth’)
Xjuzi ma-simu á-tá-rí:ma ‘José, the fields will cultivate’ (cf. **Xju:zí** ‘José’, **ma-sí:mú** ‘fields’)
ti-mbewu nhanyana á-bz!é:lí^{#15} ‘the seeds, the girl sowed’ (cf. **ti-mbé:wú** ‘seeds’, **nhanya:na** ‘girl’)
ti-homu nuna a-ngá-xáví:sa ‘cows the husband can sell’ (cf. **ti-ho:mú** ‘cows’, **nú:ná** ‘husband’)

In the following examples (17), the remote phrase-final H tone fails to delete.

- (17) **ma-símú Xjuzi !á-tá-rí:ma** ‘the fields Jose will cultivate’ (cf. **ma-sí:mú** ‘fields’, **Xju:zí mbzáná n’w!écemu ndzi-y!í-xav!í:lí^{#15+OM}** ‘dog last year I bought it’ (cf. **mbzá:ná** ‘dog’, **n’wéc!é:mú** ‘last year’)

Ideophones in Citshwa are essentially verbs that most often are preceded by an inflectional structure similar to the pre-stem portion of a verb, and a phrase-final H tone (-span) obligatorily deletes when there is a H tone in the inflectional structure. A few example inflectional structures triggering deletion. See illustrations in (18).

- (18) H-toned subject marker triggers deletion
vhuwu yí vhu:n’wa m!átí:=ni ‘the hippo is diving in water’ (cf. **vhu:wú** ‘hippo’)
tilu gí hati hé:hla ‘the lightning is flashing in the sky’ (cf. **tí:lú** ‘sky’)
mati mí tho...tho...h!á:sí ‘water is pouring onto the ground’ (cf. **má:tí** ‘water’)
H-toned subject marker plus present tense *lí*
kókwani á-lí gáá s!ángwé:ni ‘grandparent sleeps in a sleeping mat’ (cf. **kókw!á:ní** ‘grandparent’)
kuku ú-lí khága ci-hahlwi:ni ‘the cock comes out of a chicken hut’ (cf. **kú:kú**

mbzana yí-lí h!ú ‘the dog barks’ (cf. **mbzá:ná** ‘dogs’)

H-toned subject marker plus past tense **tí**

mu-yivi á-tí chakala ‘the thief has appeared suddenly’ (cf. **mu-yí:ví** ‘thief’)

ti-homu tí-tí chóla chóla khwátí:=ni ‘cows have walked on dry leaves in the bush’ (cf. **ti-ho:mú** ‘cow’)

vana vá-tí rítí ‘the children slipped’ (cf. **v-á:ná** ‘children’)

H-toned subject marker plus future **tú** and infinitive **ku**

li-vati yí-tá-ku háa ‘the door will be widely open’ (cf. **li-va:tí** ‘door’)

bava á-tá-ku gee c!í-t!úlwí=ni ‘father will sit comfortably in chair’ (cf. **ba:vá** ‘father’)

mi-sava yí-tá-ku kobokobo h!í m!á:tí ‘the ground will be very wet because of water’ (cf. **mi-sá:vá** ‘ground, sand’)

If the pre-verbal H-final tone (=span) is not immediately in front of the inflectional element, deletion is doubtless optional, though at present we have no examples in our data base for ideophones.

We must now turn to demonstrating that when there is not a H tone in the pre-stem portion of the verb, there is no Dinal H-Deletion. See illustrations in (19).

- (19) final-H noun toneless pre-stem
- | | | |
|--------------------------|------------------------------------|--|
| ma-sí:mú ‘fields’ | u-ta-ri:ma^{#10} | ma-símú u-ta-ri:ma ‘the fields you will cultivate’ |
| yi:-pí ‘fight’ | ndzi-ta:-lwa^{#10} | yí-pí ndzi-ta:-lwa^{#10} ‘a fight I will fight’ |
| ti-hú:kú ‘hens’ | hi-ta-xavi:sa^{#10} | ti-húkú hi-ta-xavi:sa^{#10} ‘hens we will sell’ |

A phrase-final H tone(-span) immediately before a toneless inflectional element of an ideophone also fails to delete.

- (20) Final H not deleted when in front of a toneless inflectional element: **SM^L-ku**
- á-g!ílí^{#15} zv-!á-kug!á zvi-ku gú** ‘he ate food and finished it completely’ (cf. **zv-!á-kug!á** ‘food’)
- bavá a-ku rítí !á:w-á^{#6}** ‘father slipped and fell on the ground’ (cf. **ba:vá** ‘father’)
- vá-m!ú-bz!é!lí:li^{#15+OM}, yená a-ku beebé !á-káné:tá^{#6}** ‘he had been told, but he rejected insistently’ (cf. **ye:ná** ‘he’)
- va-bé!lí va-ku kakatsuku** ‘the players stood up’ (cf. **va-bé:li** ‘players’)

Final H not deleted when in front of a toneless inflectional element **SM^L-ta-ku**

á-ndz!í-nú-tsh!á:ma/ sá!í a-ta-ku ndzi yáka pa:ma ‘I was sitting, then (my) wife slapped me’ (cf. **sá:tí** ‘wife’)

á-ndz!-ú-ti-f!ámbé!á:na^{#63+refl}/ mu-yíví a-ta-ku ndzi zaa ‘I was walking (on my own), then the thief grasped me’ (cf. **mu-yí:ví** ‘thief’)

ndzi-wisílí^{#15} cí-p!á:chi/ n’wáná a-ta-ku ci bî ‘I dropped wallet, then the child took it’ (cf. **n’wá:ná** ‘child’, **ci-pá:chi** ‘wallet’)

Remote pre-verbal final-H words also retain their final H when there is a toneless element in the inflection of a verb or ideophone. We will forgo examples.

We have seen that deletion or retention of final H-tones depends on the presence or absence of a H tone in the pre-stem inflectional structure of a verb or ideophone. This raises the question of what happens in the absence of any inflectional structure. In (21) we see that an ideophone may be used without any inflectional structure at all, and in this case a preceding H-final word deletes.

(21) Final H-Deletion in bare ideophone case

subject has no final H tone

mu-sóchwa gí kh!á:mbá ‘the soldier grasps the thief’

móvha vhu r!úw!é=ni ‘the car passes at high speed in the road’

tuva khaapá s!íny!é=ni ‘the dove perches itself in a tree’ (cf. **tu:va** ‘dove’)

congo khápa h!í m!á:tí ‘the river is full of water’ (cf. **co:ngo** ‘river’)

subject has a final singleton H that deletes

li-kótani gwee s!íny!é=ni ‘the eagle perches itself in a tree’ (cf. **li-kóta:n!í** ‘eagle’)

vhuwu vhu:n!wa m!átí=ni ‘the hippo dives in water’ (cf. **vhu:wú** ‘hippo’)

subject has a final H-span that deletes

mu-yivi pwáa j!é:lí ‘the thief runs from jail’ (cf. **mu-yí:ví** ‘thief’)

n’wana háwú cí-hu:k!ú ‘the child takes the hat’ (cf. **n’wá:ná** ‘child’, **ci-hu:kú** ‘hat’)

kókwani hwú h!í tí-nga:n!á ‘the grandparent stays silent because he is shy’ (cf.

kókw!á:ní)

The only verbal word that lacks an inflectional structure is the imperative, where the stem is the initial element. Again, we see in (22) that a preceding H-final word deletes its H(-span).

(22) Final H-Deletion in the case of the imperative.

ma-tsawu gá:na^{#2} ‘vegetables, eat!’ (cf. **ma-tsa:wú** ‘vegetables’)

homu dá:ya^{#2} ‘cow, kill!’ (cf. **ho:mú** ‘cow’)

mu-kwana né:ha^{#2} ‘knife, bring!’ (cf. **mu-kwá:ná** ‘knife’)

sati fá:mba^{#2} ‘wife, go!’ (cf. **sá:tí** ‘wife’)

sa:ti dáyá la:ha ‘wife, kill here!’

yi:-pi lwáná mándzí:ku ‘the fight, fight it tomorrow!’ (cf. **yi:-pí** ‘fight’)

ta:ndza fáya^{#2} kwála:ha ‘egg, break right here!’

mbu:ti sati dáyá^{#2} la:ha ‘goat, wife kill here!’ (cf. **mbú:tí** ‘goat’, **sá:tí** ‘wife’)

n’wa:na nuna mu-néhi^{#2+OM} nyamú:tlha ‘the child, husband bring (him) today!’ (cf.

n’wá:ná ‘child’, **nú:ná** ‘husband’)

mha:ka jaha wú:la^{#2} kany!í:ngí ‘the matter, youth say often!’ (cf. **mha:ká** ‘matter’,

ja:ha ‘youth’)

The last set of examples show that both a remote final H- word as well as the immediately post-verbal final-H word may delete. The final example shows that the remote final-H word may delete even if the immediately post-verbal word does not actually undergo deletion, being inherently toneless.

Syntactic aspects of Final H-Deletion: Only phrase-final words are targeted

The final H tone that deletes must stand at the end of a phrase and not medial to the phrase. Single word phrases have been employed in the examples cited so far, so now we must turn to multi-word phrases. We will discuss a number of phrase types, which share susceptibility to the inversion of the phrase as a means to put emphasis on the modifying element.

Take a *Noun + Adjective* phrase as an example. In this normal order, if the adjective is H-final, it is a deletion target, while if the noun is H-final, it is not subject to deletion. However, if the

adjective is located in front of the noun (to give emphasis to the adjective), it is no longer a target for deletion whereas the noun is now the target. Thus in the phrase *ci-hla:ngi ci-tsána:ná* ‘a tiny baby’, *ci-tsána:n!á* ‘tiny [cl.7]’ obligatorily undergoes Final H-Deletion if located immediately before a triggering verb. But in the phrase *ci-tsánan!á cí-hlángi* the H at the end of the preposed adjective does not delete, but instead spreads rightward. The fact that this H tone spreads to the penult of the nominal shows that the rule of High Spreading is not restricted to post-verbal position. Since the phrase-final noun *ci-hla:ngi* does not end in a H tone, there is no deletion. See illustrations in (23).

- (23) *ci-hlangi ci-tsánana c-!á-rí:la^{#3}* ‘tiny baby is crying’ (cf. *ci-tsánan!á* ‘tiny’
ci-tsánan!á cí-hlángi c-!á-rí:la^{#3} ‘tiny baby is crying’ (cf. *ci-hla:ngi* ‘baby’)
va-nhanyana va-nyingi v-á-bhí:ka^{#3} ‘many girls are cooking’ (cf. *va-nyí:ngí* ‘many
[cl.2]’)
va-nyíngí vá-nhanyána v-!á-bhí:ka^{#3} ‘many girls are cooking’ (cf. *va-nhanya:na*
‘girls’)

In an example like *homu yi-n’we yí-tá-xáví:swa^{#10}* ‘one cow will be sold’ it might look like *ho:mú* ‘cow’ has undergone deletion even though *ho:mú* is not final in the phrase. But this is not what is really going on. The pronunciation of ‘one cow’ in isolation is *homú yí-n’wé* due to the fact that the adjective *yi-n’we* ‘one’ undergoes a special tone raising rule when preceded by a final H noun. So in *homu yi-n’we yí-tá-xáví:swa^{#10}*, the final H on *ho:mú* forms a H-span with the adjective and it is this H-span that is deleted. The fact that ‘one’ is toneless can be seen in the inverted phrase: *yi-n’we ho:mú* which undergoes Final H-Deletion when in subject position: *yi-n’we homu yí-tá-xáví:swa^{#10}* ‘one cow will be sold’. See illustrations in (24).

- (24) *homu yi-n’we yí-tá-xáví:swa^{#10}* ‘one cow will be sold’ (cf. *homú yí-n’wé* from *homú yi:-n’we* ‘one cow’
yi-n’we homu yí-tá-xáví:swa^{#10} ‘one cow will be sold’ (cf. *yi-n’we ho:mú* ‘one cow’)

Another example of a phrase that permits inversion is the associative phrase: *Noun_i –ó/á Noun_j* ‘s.t. of s.t.’, where *N_i* is not a target for deletion when H-final but *N_j* is, which has an inverted alternant *N_j–ó/á N_i* where the preposed *N_j* is not a deletion target while *N_i* is. Consider an associative phrase like *mbzáná y-á t!í:má* ‘dog of black, i.e. black dog’ (note that there is a systematic absence of downstep between *Noun_i* and the associative particle). The final H-span on non-final *mbzáná* does not delete whereas the phrase-final *y-á t!í:má* does delete its final H-span. In the inverted structure, *yá t!í:má* retains its H-span while *mbzá:ná* deletes its final H-span. See illustrations in (25).

- (25) *mbzáná y-á tima n’wana !á-y!í-b!í:lí^{#15+OM}* ‘the black dog, the child beat it’
y-á-t!ímá mbzana n’wana !á-y!í-b!í:lí^{#15+OM} ‘the black dog, the child beat it’

Syntactic aspects of Final H-Deletion: Only main clause verbs trigger deletion

A second syntactic restriction on Final H-Deletion is that the triggering verb must be a main clause verb. Relative verbs and verbs in dependent clauses do not trigger deletion even when there is a pre-stem H tone. We illustrate this failure of deletion even though the pre-stem portion of the relative verb has a H-toned element. See illustrations from (26) to (29).

- (26) head Noun (subject) – relative verb
wá-s!átí !á-ga:=k!ú^{#8} ‘the woman who is eating’

- n'wáná !á-r!íla:=k!ú^{#8}** ‘the child who is crying’
wá-n!úná !á-l!ángúta=k!ú^{#8} **Mányí:si** ‘the man who is looking for Manhice’
ti-mbúti t!í-d!áyíwa:=k!ú^{#8} ‘the goats which are being slaughtered’
- (27) head Noun (object) – relative verb
v-áná ndz!í-va-g!ísa:=k!ú^{#8+OM} ‘the children whom I am feeding’
ma-tsawú h!í-ga:=k!ú^{#8} ‘the vegetables which we are eating’
nyóká ndz!í-d!áya:=k!ú^{#8} ‘the snake that I am killing’
ma-tandzá ndz!í-bh!íka:=k!ú^{#8} ‘the eggs that I am cooking’
- (28) head Noun – subject Noun – relative verb (neither the immediate nor the remote final-H word undergoes deletion)
v-áná Xjuz!í !á-va-g!ísa:=k!ú^{#8+OM} ‘the children whom Jose is feeding’
nyóká Mbh!ándzí !á-d!áya:=k!ú^{#8} ‘the snake that Mbanze is killing’
ma-tsawú Xjuz!í !á-ga:=k!ú^{#8} ‘the vegetables which Jose is eating’
ma-tandzá Mbh!ándzí !á-bh!íka:=k!ú^{#8} ‘the eggs that Mbanze is cooking’
- (29) complex head – relative verb (final H in the inverted associative phrase does not delete)
gá mí-mov!á bzál!á !á-nwile:=k!ú^{#8} ‘it is the cane sugar’s beer that he has drunk’ (cf. **bza:lá** ‘beer, alcohol’)
y-á h!ú:kú má-tandz!á ndz!í-xav!ísa:=k!ú^{#8} ‘it is the hen’s eggs that I am selling’
g-á ngwénýa bh!ébhí !á-xav!íle:=k!ú^{#8} ‘it is the crocodile’s skin that he has bought’
 (cf. **ngwe:nya** ‘crocodile’)

The inflectional structure *SM^H-ngá-ku*, used in conjunction with the word *kámá* ‘when’ introduces a relative ideophone. A H-final subject located between *kámá* and this inflectional element does not undergo Final H-Deletion. See illustrations in (30).

- (30) **kámá Xjuz!í !á-ngá-ku tlhíndlímu** ‘when José woke up’ (note: not ***Xjuzi** ‘José’)
kámá v-!áná v!á-ngá-ku tlhíndlímu ‘when the children woke up’ (note: not ***v-ana** ‘children’)
kámá mu-y!íví !á-ngú-ku chúkú a-ku wáni ku-tsutsu:ma ‘the time the thief escaped and ran away’, (note: not ***mu-yivi** ‘thief’)

Most verb tenses in Citshwa assume a participial form when preceded by the proclitic *na* and conveys the notion ‘while doing’. *Na* is never separated from the verb by a subject or any other pre-verbal element. The participial form of the verb generally involves a H-toned inflectional element and thus might be reasonably expect to trigger Final H-Deletion, but in fact does not affect such phrases. See illustrations in (31).

- (31) **rará na=á:-lwá^{#6}** ‘father while he fights’
háhan!í na=!á-xá:vá^{#6} ‘aunt while she buys vegetables’
nakúlórlí na=!á-pákátsá^{#6} tí-h!ú:nyí ‘brother while he carries firewood on the shoulders’
sátí na=á-rívá:lá^{#6} ‘wife while she forgets’
mu-xadí na=!á-gírímúxá^{#6} yí:-ndlu ‘brother-in-law while demolishes the house’

The participial form of the verb is also used in conjunction with the proclitic *lókó* to convey the notion “if x does s.t.”. *lókó* may immediately precede the verb, or may be separated from the verb by a subject or other pre-verbal phrase. In neither case does the pre-verbal phrase undergo Final H-

Deletion. A final-H phrase to the right of *lókó* is never a target of deletion. We will illustrate (32) just the case of a subject post- *lókó*:

- (32) *lókó Xjuz!í !á:-lwá^{#6}* ‘if José fights’
lókó rar!ú !á:-lwá^{#6} ‘if father fights’
lókó s!átí !á-rívá:lá^{#6} ‘if wife forgets’
lókó h!áhan!í !á-xává^{#6} má-tsa:w!ú ‘if aunt buys vegetables’

It should be noted that *lókó* does not undergo Final H-Deletion either when separated from the verb by another phrase (e.g. the subject) or when immediately preceding the verb. When *lókó* immediately precedes the verb, we found that a preceding phrase-final final-H word may either be retained or is subject to deletion. See illustrations in (33).

- (33) no deletion
mu-xadí !ókó !á-gírímúxá^{#6} yí:-ndlu ‘brother-in-law if he demolishes the house’
ma-tsawú !ókó má-gí:wá^{#6} ‘vegetables if they are eaten’
núná !ókó !á-dáyá^{#6} mb!ú:tí ‘husband if he kills a goat’
wá-n!úná !ókó !á-lángútá^{#6} ny!ó:ká ‘the man if he looks for a snake’
wá-s!átí !ókó !á-cúkúméta^{#6} tí-ngú:wu ‘the woman if she throws away clothes’
 deletion
Xjuzi lókó !á:-lwá^{#6} ‘if José fights’ (cf. *Xju:zí* ‘José’)
mu-yivi lókó !á-wú:tlá ‘if the thief snatches s.t.’ (cf. *mu-yí:ví* ‘thief’)
raru lókó !á-gírímúxá yí:-ndlu ‘if father demolishes’ (cf. *ra:rú* ‘father’)
Mbhandzi lókó !á-lángú:tá ‘Mbanze, if he looks for’ (cf. [*Mbhá:ndzí*], personal name)
raru lókó !á-cúkúmé:tá ‘father, if he throws away’

CONCLUSION

We have shown that Citshwa has a rich and complex phrasal tonology that involves the extensive application of an exceptionless Downdrift rule, a nearly exceptionless Downstep Rule, and two complex rules that either spread or delete a final H-tone (-span). A final-H word immediately preceding a verb deletes under certain circumstances (a main verb/ideophone with a H in the inflectional structure). If it cannot delete due to the absence of an inflectional H, then it is retained but cannot spread (due to the failure of High Spreading to target a verb). If the final-H word is not immediately before the verb, then if deletion fails for whatever reason (e.g. the final-H word is not phrase-final or it is phrase-final, but deletion may optionally fail to apply), spreading is possible.

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All authors made a significant contribution to the work reported, whether that is in the conception, execution, acquisition of data, analysis and interpretation; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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NOTES

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- ⁱ A Ngango wa Mutshwa ‘The tshwa family’
A Mavingu ya vaTshwa ni Titekatekani ‘Tshwa proverbs and Riddles’
Nkutsulani wa Matimu ya vaTshwa ‘Traditions of the tshwa people’
Mina nzi Khokho ‘I am a coconut’