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Proceedings of the Twentieth Annual Meeting of the Berkeley Linguistics Society: Special Session on Historical Issues in African Linguistics (1994), pp. 101-111

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The Annual Proceedings of the Berkeley Linguistics Society is published online via [eLanguage](#), the Linguistic Society of America's digital publishing platform.

The Origin of Leftward Tone Shift in Masasi Chiyao¹

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1. Introduction

The purpose of this paper is to trace the historical development of a leftward H tone shifting process which affects the dialects of the Bantu language Chiyao spoken in Masasi District in Tanzania. It is argued that tone shift arises in these dialects due to contact with Makonde, a related Bantu language.

The organization of the paper is as follows. Section 2 outlines the basic principles of tone assignment common to all dialects of Chiyao, using data from the tonally conservative Tunduru dialect. Section 3 demonstrates the first stage of the historical change with data from the Mangaka dialect: tone shift in this dialect is restricted to leftward spreading of a final H. Section 4 considers tone shift in the Ndanda dialect, which completely prohibits final H's; section 5 argues that this tone shift is due to contact-induced language change, and originated with the prohibition against final H's in neighboring Makonde.

2. Tonal Basics

This section gives an overview of tone in Chiyao, using data from the Tunduru dialect of Tanzania. More detailed information on tone can be found in Hyman and Ngunga 1994 for Mozambican Chiyao, Odden 1994 for Tanzanian Chiyao, and Mtenje 1993 for Malawian Chiyao. As is typical of languages in Guthrie's Zone P, there are no lexical tone classes in verbs. In verbs, surface H tones are assigned on the basis of morphological properties. Thus in the infinitive, H is assigned to the first root mora; in the recent perfective H is assigned to the second stem mora; in the remote perfective H goes on the final vowel. Interacting with these initial tone mapping rules are various general tone rules.

2.1. Doubling

One of these rules is Doubling, which spreads any H from its underlying mora to the mora immediately following. This can be seen in (1) with examples of the future tense. In that tense, H is assigned to the first root mora.²

- | | | |
|-----|--------------------|--------------------------|
| (1) | chíná[chi-téléche | 'I will cook it' |
| | chítwá[a-pílikane | 'we will listen to them' |
| | chítú[chi-súumisye | 'we will sell it' |

Doubling does not spread H to a prepausal syllable; however spreading is allowed to a word-final syllable in phrase-medial position.

- | | | |
|-----|-----------------------|--------------------------------|
| (2) | cháá[ji-líme | ‘he will cultivate them’ |
| | chíná[si-táve | ‘I will build them’ |
| | cháá[ji-límé miguunda | ‘he will cultivate the fields’ |
| | chíná[si-távé pe | ‘I will merely build them’ |

Doubling does spread final H from a word-final syllable to a following word, as shown in (3).

- | | | |
|-----|----------------------------|-------------------------------|
| (3) | chitúumbili chigwiíle | ‘the monkey fell’ |
| | chivigá chígwiíle | ‘the pot fell’ |
| | chíváaváláánjile mandaanda | ‘he will count eggs for them’ |
| | cháambé mándaanda | ‘he will give me eggs’ |

A formulation of Doubling is given below.

- | | | |
|-----|-----------------|-------|
| (4) | Doubling | H |
| | | |
| | | · · · |
| | | V V |

The prohibition against spreading to the prepausal syllable is due to a postlexical constraint against prepausal H’s, possibly involving extraprosodicity.

In the negative past tense, H is assigned to the second stem mora. If the stem has the shape CVCV, that H will appear on the final syllable, and in the citation form this results in a prepausal H. In the Tunduru dialect of Chiyao, this situation is tolerated. Morphosyntactically conditioned assignment of H in verbs is lexical rather than phrasal, so assignment of H within the word proceeds without consideration for the phrasal consequence of creating a prepausal H. The data in (5) illustrate application of Doubling within the word in this tense, along with the suspension of Doubling in CVCVCV stems. These data further illustrate application of Doubling between words.

- | | | |
|-----|-----------------------|------------------------------|
| (5) | nganiim[bilikána | ‘I didn’t hear’ |
| | nganiin[deléka | ‘I didn’t cook’ |
| | nganitu[limá | ‘we didn’t cultivate’ |
| | nganitu[limá míguunda | ‘we didn’t cultivate fields’ |

The data in (6) involve the remote perfective where H is assigned to the stem final vowel. This H spreads to the following word.

- (6) naa[sósilé 'I dug'
naa[sósilé lísimbo 'I dug a hole'

2.2. Retraction, Absorption

Data from the remote perfective also shows that if a final H tone is preceded by a long syllable, that H shifts to the preceding syllable, resulting in a rising tone.

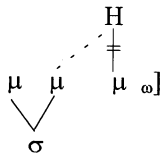
- (7) naá[liile 'I ate'
naa[téleéche 'I cooked'
naa[súúmiisye 'I sold'

Phrase-medially the H only appears on the final syllable, and does not spread to the following word.

- (8) naa[téleeché mandaanda 'I cooked eggs'
naa[súúmiisyé mandaanda 'I sold eggs'

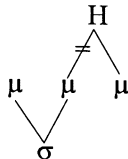
These alternations are accounted for as follows. The rule Retraction shifts final H to the preceding long syllable.

(9) Retraction



Following this, Doubling applies in phrase-medial position. This would create a rising tone followed by a H tone, which is not a possible sequence in Chiyao. Thus the following Absorption rule applies.

(10) Absorption



The derivation in (11) illustrates the interaction between Retraction, Doubling and Absorption in prepausal and phrase-medial contexts.

(11)	<pre> H H naateleeche </pre>	<pre> H H naateleeche mandaanda </pre>	Underlying
	<pre> H H naateleeche </pre>	<pre> H H naateleeche mandaanda </pre>	Retraction
	<pre> H H \ naateleeche </pre>	<pre> H H \ \ naateleeche mandaanda </pre>	Doubling
	<pre> H H naateleeche </pre>	<pre> H H naateleeche mandaanda </pre>	Absorption

2.3. Lexical Tone in Nouns

Nouns, in contrast to verbs, have lexical tone. The canonical noun stem of the form CVCV may have one of four tone patterns, corresponding to the free specification of any mora for tone.

(12)	njété	‘salt’	njété jígwiíle	‘the salt fell’
	chivigá	‘pot’	chivigá chígwiíle	‘the pot fell’
	chisúvi	‘leopard’	chisúvi chígwiíle	‘the leopard fell’
	chijuni	‘bird’	chijuni chígwiíle ³	‘the bird fell’

This gives the basic paradigm of tonal behaviour for nouns in the relevant tone classes: HH and LH nouns spread their final H to the following word, and HL nouns spread their H within the word to the word final syllable.

3. Leftward Tone Spreading in Mangaka Chiyao

Whereas the Tunduru dialect maintains a four-way tone contrast in bimoraic stems, the Chiyao dialects of Mangaka and Ndanda in Masasi District have reduced this to a three- or two-way contrast. In the Mangaka dialect, HH and LH neutralise to HH in the citation form, and in the Ndanda dialect HH, LH and HL neutralize to HL.

(13)		Tunduru	Mangaka	Ndanda	
	HH	njété	njété	njéte	'salt'
		mipíní	mipíní	mipíni	'handles'
		malóvé	malóvé	malóve	'words'
	LH	chivigá	chivigá	chiviga	'pot'
		liijáni	liijáni	liijáni	'baboon'
		manyási	manyási	manyási	'grass'
	HL	chisúvi	chisúvi	chisúvi	'leopards'
		ngúku	ngúku	ngúku	'chicken'
		machíle	machíle	machíle	'root'
	LL	ngoji	ngoji	ngoji	'rope'
		majela	majela	majela	'hoes'
		chijuni	chijuni	chijuni	'bird'

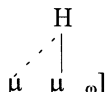
It is also appropriate to note that final HH in the Mangaka dialect is not phonetically comparable to HH in the Tunduru dialect: the pitch of final HH in Mangaka is noticeably downstepped.

In the Mangaka dialect, nouns with the historical patterns HH and LH both act like original HH nouns — phrase medially the final H spreads to the following word. Nouns with the tone pattern HL act just as they do in the Tunduru dialect: the H spreads to the final vowel in phrase medial position.

(14)	Tunduru	Mangaka	Mangaka	
	pattern	citation form	phrase medial	
	HH	njété	njété jáangu	'my salt'
		lusúló	lusúló lwáangu	'my river'
		liijóká	liijóká líwiile	'the snake died'
	LH	manyási	manyási gáangu	'my grass'
		chivigá	chivigá cháangu	'my pot'
		mapúkú	mapúkú gáangu	'my rats'
	HL	ngúku	ngúkú jaangu	'my chicken'
		mbéju	mbéjú jaangu	'my seed'
		ukána	ukáná ulíingwá	'how much beer'

The neutralization of the HH and LH patterns is due to (15).

(15) **Leftward Backspread**



- (19) náá[ng'weéle 'I drank' naa[téleéche 'I cooked'
 naa[lí'mílé 'I cultivated' ná[á-puutílé 'I beat him'
 ~naalímílé

Phrase-medially, this final H is subject to both Leftward Backspreading and Doubling.

- (20) naa[sóó'sílé lisiimbo 'I dug a hole'
 naa[liilé mandaanda 'I ate eggs'

The account of this alternation is analogous to that for the Tunduru dialect; the added complication found in the Mangaka dialect is that word final H spreads (not shifts) leftward.

- (21)
- | | | |
|--|---|-----------------------------|
| <p>H H</p> <p> </p> <p>naasoosile lisiimbo</p> | <p>H H</p> <p> </p> <p>naaliile mandaanda</p> | Underlying |
| <p>H H</p> <p> </p> <p>naasoosile lisiimbo</p> | <p>HH</p> <p> </p> <p>naaliile mandaanda</p> | Retraction |
| <p>H H</p> <p> </p> <p>naasoosile lisiimbo</p> | <p>HH</p> <p> </p> <p>naaliile mandaanda</p> | Doubling⁴ |
| <p>H H</p> <p> </p> <p>naasoosile lisiimbo</p> | <p>H H</p> <p> </p> <p>naaliile mandaanda</p> | Absorption |
| <p>H H</p> <p> </p> <p>naasoosile lisiimbo</p> | <p>HH</p> <p> </p> <p>naaliile mandaanda</p> | Leftward Backspread |

In summary, owing to paradigmatic alternations in verbs, the tonal system of the Mangaka dialect can be described as being that of the non-Masasi dialects of Chiyao, with the addition of a rule spreading word final H to the left. The system of contrasts in nouns, on the other hand, has undergone restructuring so that nouns in the original LH pattern have been reanalyzed as having the HH pattern.

4. Tone Shift in Ndanda Chiyao

The Ndanda dialect of Chiyao has taken a further step in neutralizing tone contrasts: HH, HL and LH are all represented in this dialect as HL in the citation form, alternating with HH phrase-medially, due to Doubling.

(22)	Tunduru	Ndanda	Ndanda	
	pattern	citation form	phrase-medial	
	HH	njéte	njéte jaangu	'my salt'
		lusúlo	lusúló jaangu	'my river'
		lilóve	lilóvé lyaangu	'my word'
	LH	lijáni	lijáni lyaangu	'my baboon'
		usílwa	usílwá waangu	'my callous'
		chivíga	chivígá chaangu	'my pot'
	HL	litúnu	litúnú ali	'that hyena'
		njípi	njípi jinnúmíle	'a louse bit me'
		chisúvi	chisúví chaangu	'my leopard'

This neutralization of patterns can be understood as the combined effect of Leftward Backspreading as found in the Mangaka dialect (which neutralizes LH and HH to HH) plus prepausal delinking (which neutralizes HH and HL to HL): indeed, prepausal H tones are impossible in the Ndanda dialect.

(23)	Final Delinking	H
		⊥
		μ i]

As can be seen in (22), irrespective of tone class all nouns which have a H now behave like original HL nouns.

Monomoraic stems with H present a different picture: they have the citation form HL, and phrase-medially HH with spreading of the final H to the next word. Phrase medial examples show that Final Delinking only affects phrase-final H's, but Leftward Backspread applies to a word final H even when phrase-medial.

(24)	/n-twé/	ń-twe	ńtwé wáangu	'my head'
	/lii-ú/	líi-u	lííú lyáangu	'my ash'
	/m-bwá/	m-bwa	ḿbwá jwáangu	'my dog'

- (28) náátéleéche 'I cooked'
 náátéleeché mbataáta 'they cooked a potato'

This pattern is exactly like that found in the other dialects, reflecting the interaction of Retraction, Doubling and Absorption. Thus paradigmatic alternations support the retention of the original final-H pattern in verbs. But in nouns, all historical final H's are reanalysed as being lexically on the penult (except in the case of monosyllabic nouns, where such reanalysis is impossible).

5. The Source of Leftward Tone Shifting.

It is apparent that the Masasi dialects of Chiyao are undergoing a historical change which eliminates final H tones. The initial seeds of this change are found in the Mangaka dialect, with its Leftward Backspreading rule and phonetic lowering of final H. The most fully developed version of this change appears in the Ndanda dialect which systematically moves H off of the final vowel.

The question is why this change has affected these dialects. Certain sociolinguistic facts of the area help to explain the origin of this tone shift. Tunduru is located in the most northwestern region of Chiyao speaking territory; Mangaka is located to the east near Masasi town, and Ndanda is spoken at the extreme east edge of Chiyao speaking territory, right at the base of the Makonde Plateau and Newala District. Thus Ndanda is in most intimate contact with speakers of Makonde, and Tunduru is quite insulated from Makonde speakers, with Mangaka being situated between the two but still in close proximity to Makonde speakers. In this area, bilingualism in Yao and Makonde is common.⁵

A fundamental fact about tone in all Makonde dialects (see Odden 1990a,b for discussion of Makonde tone) is that H can never be assigned to the final syllable of a word. Consider the alternations in (33).

- | | | | | |
|------|----------------|-----------------|----------------|------------------|
| (29) | nindaloóla | 'I will see' | nindaalya | 'I will eat' |
| | nindataleéka | 'I will cook' | nindaloodya | 'I will show' |
| | nindakalamoóla | 'I will cough' | nindingiliidya | 'I will chase' |
| | kungúluúma | 'to bite me' | kungúloodya | 'to show me' |
| | kungútoteéla | 'to sew for me' | kungútoteeya | 'to make me sew' |

H is assigned to the penultimate mora in the future tense. Some verb stems end in a vowel, cf. the examples in the righthand column. In such forms, H would be assigned to a prevocalic vowel, thus /nindaloodíá/. A regular rule of glide formation desyllabifies that vowel, and therefore it can no longer bear tone. One would expect H to transfer to the final syllable, but that would result in a word final H which is prohibited. Therefore, the final H tone is deleted.

As shown in Odden (1990a,b) these and a number of related facts can be explained by positing that the final syllable in Makonde is extraprosodic, and thus not a fit tone-bearer. The similarity between Makonde and the western dialects of Chiyao lies in the abstract principle that final H's are disallowed. The languages differ in how this principle is enforced, in that Chiyao allows final H's at the lexical level and takes steps to remove them postlexically, whereas Makonde systematically eschews final H's even at the lexical level.

Notes

1. Data for this paper was gathered at the University of Dar es Salaam in 1989, with the support of a Fulbright Research grant. I would like to thank the University of Dar es Salaam and the Tanzanian Commission for Science and Technology for assistance in conducting that research; I would also like to thank my Yao language consultants, Rashid Akwilombe, Emmanuel Hamisi, Gabriel Njunju, Mohammed Zuberi. I have benefited from discussion of Yao with Larry Hyman, Chuck Kisseberth, Al Mtenje and Armindo Ngunga, none of whom can be held responsible for errors in this paper.
2. The verb stem, whose left edge is marked with '[', contains an optional object prefix, which is separated from the root by a hyphen. Thus the stem in the first example is *chiteleche* and the root is *telech*.
3. H is assigned to the verb *chigwiile* by a phrasal rule inserting H after a toneless word.
4. Doubling does not spread H from the prefix *-a-* to the stem *-liile* due to a constraint against spreading to a H-toned syllable.
5. Indeed, my Mangaka Chiyao consultant is bilingual in Makonde and Chiyao, and controls the tone system of the Chimahuta dialect of Makonde.

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