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The Origin of Leftward Tone Shift in Masasi Chiyao

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OSU

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.

(1) chíná[chi-téléche]  ‘I will cook it’
    chítwá[cha-pilikane]  ‘we will listen to them’
    chítú[chi-súúmisye]  ‘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-lí-me
    chiná[si-tá-ve
    cháá[ji-lí-mé miguunda
    chiná[si-távé pe

    'he will cultivate them’
    'I will build them’
    'he will cultivate the fields’
    'I will merely build them’

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

(3) chitúúmbili chigwiile
    chivigá chigwiile
    chíváavááánjile mandaanda
    cháambé mándaanda

    'the monkey fell’
    'the pot fell’
    'he will count eggs for them’
    '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) nganíim[bilíkána
    nganiin[deléka
    nganitu[límá
    nganitu[límá míguunda

    'I didn’t hear’
    'I didn’t cook’
    'we didn’t cultivate’
    '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) \text{nàa[sósílé}
\text{nàa[sósílé lísiimbo} \quad \text{‘I dug’}
\text{‘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) \text{nàá[liíle}
\text{nàa[téleéche}
\text{nàa[súúmiísye} \quad \text{‘I ate’}
\text{‘I cooked’}
\text{‘I sold’}

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

(8) \text{nàa[téleéché mandaanda}
\text{nàa[súúmiísyé mandaanda} \quad \text{‘I cooked eggs’}
\text{‘I sold eggs’}

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

(9) \text{Retraction}

\[ \begin{array}{c}
\text{H} \\
\mu \mu \mu \omega \\
\sigma
\end{array} \]

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) \text{Absorption}

\[ \begin{array}{c}
\text{H} \\
\mu \mu \mu \\
\sigma
\end{array} \]

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

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>njété</td>
<td>'salt'</td>
<td>njété jígwiíle</td>
<td>'the salt fell'</td>
</tr>
<tr>
<td>chivígá</td>
<td>'pot'</td>
<td>chivígá chígwiíle</td>
<td>'the pot fell'</td>
</tr>
<tr>
<td>chisúvi</td>
<td>'leopard'</td>
<td>chisúvi chígwiíle</td>
<td>'the leopard fell'</td>
</tr>
<tr>
<td>chijuni</td>
<td>'bird'</td>
<td>chijuni chígwiíle</td>
<td>'the bird fell'</td>
</tr>
</tbody>
</table>

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.
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.

The neutralization of the HH and LH patterns is due to (15).
Since tone is not assigned by productive rules in nouns as it is in verbs, it is impossible to motivate the backspreading rule with CVCV noun stems, since there are no alternations. In such nouns it is just as simple to assume that nouns which formerly had the tone pattern LH now have the tone pattern HH. However Leftward Backspreading can be motivated in monosyllabic noun stems with H; in such nouns, the noun class prefix which would otherwise be toneless has a H tone. Note that this H appears both prepausally and utterance-medially.

(16) mī-bwā mī-bwā jwāangu
    mī-twē mī-twē jēetu
        ‘my dog’
        ‘our heads’

Thus the backspreading rule of the Mangaka dialect applies at the word level, not the phrase level — compare this to the more common variety of backspreading found in Kikerewe which spreads H to the left only if it is prepausal, thus giving alternations such as ndalā → ndālā ‘leopard’ ~ ndalā yāanga ‘my leopard’.

In the realm of verbs, Leftward Backspreading is easy to motivate given the paradigmatic nature of tone in verbs. Such data also shows that there is a restriction on (15), namely that it is optional if the antepenultimate syllable has a H tone — in which case applying the rule would create adjacent H tones in violation of the OCP. In that case, the two H’s are separated by a downstep: this is due to the fact that all final H’s in this dialect have a lower pitch.

(17) aka[télēche] ‘go cook’
    aka[líme] ‘go cultivate’
    mna[télēche] ‘don’t cook’
    mna[yé] ‘don’t eat’
    chā[a-tu-límíle] ‘he’ll cultivate for us’
    chā[a]-tú-pé ‘he will give us’
        ~chāátpé

Backspreading applies in the negative future, where H is assigned to the second stem mora. If the stem is bimoraic, H would be assigned to the final vowel, and therefore the H spreads leftward by (15).

(18) ngaam[bilíkānila] ‘I won’t listen’
    ngaan[deléka] ‘I won’t cook’
    ngaan[dimá] → /ngaandimá/ ‘I won’t cultivate’

In the remote perfective, H is assigned to the final vowel. This H is retracted to a long penult; otherwise the H spreads (optionally, if the penult is preceded by a H tone) to the penult.
(19) náá[ng’weéle  ‘I drank’  naa[téleéche  ‘I cooked’
      naa[li’milé  ‘I cultivated’  ná[a-puutilé  ‘I beat him
      ~naa[limilé

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

(20) naa[sóó’sílé lísíimbo  ‘I dug a hole’
      náá[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) \[ \begin{array}{cc}
      \text{Underlying}  \\
      \text{naasooisile lisiimbo} & \text{naaliile mandaanda} \\
    \end{array} \]

\[ \begin{array}{cc}
      \text{Retraction}  \\
      \text{naasooisile lisiimbo} & \text{naaliile mandaanda} \\
    \end{array} \]

\[ \begin{array}{cc}
      \text{Doubling}^4  \\
      \text{naasooisile lisiimbo} & \text{naaliile mandaanda} \\
    \end{array} \]

\[ \begin{array}{cc}
      \text{Absorption}  \\
      \text{naasooisile lisiimbo} & \text{naaliile mandaanda} \\
    \end{array} \]

\[ \begin{array}{cc}
      \text{Leftward Backspread}  \\
      \text{naasooisile lisiimbo} & \text{naaliile mandaanda} \\
    \end{array} \]

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 Chi-yao, 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.

<table>
<thead>
<tr>
<th>(22)</th>
<th>Tunduru pattern</th>
<th>Ndanda citation form</th>
<th>Ndanda phrase-medial</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH</td>
<td>njête</td>
<td>njêté jaangu</td>
<td>‘my salt’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>lusúlo</td>
<td>lusúló jaangu</td>
<td>‘my river’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>lilóve</td>
<td>lilóvé lyaangu</td>
<td>‘my word’</td>
<td></td>
</tr>
<tr>
<td>LH</td>
<td>lijáni</td>
<td>lijáni lyaangu</td>
<td>‘my baboon’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>usílwá</td>
<td>usílwá waangu</td>
<td>‘my callous’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>chivíga</td>
<td>chivíga chaangu</td>
<td>‘my pot’</td>
<td></td>
</tr>
<tr>
<td>HL</td>
<td>litúnu</td>
<td>litúnu ali</td>
<td>‘that hyena’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>njípi</td>
<td>njípi jinnúmíle</td>
<td>‘a louse bit me’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>chisúvi</td>
<td>chisúví chaangu</td>
<td>‘my leopard’</td>
<td></td>
</tr>
</tbody>
</table>

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**

\[
\begin{array}{c}
H \\
\mu \quad 1
\end{array}
\]

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.

<table>
<thead>
<tr>
<th>(24)</th>
<th>/n-twé/</th>
<th>ñ-twe</th>
<th>ñtwé wáangu</th>
<th>‘my head’</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>/līi-ú/</td>
<td>lí-ú</td>
<td>lííú lyáangu</td>
<td>‘my ash’</td>
</tr>
<tr>
<td></td>
<td>/m-bwá/</td>
<td>m-bwa</td>
<td>mbwá jwáangu</td>
<td>‘my dog’</td>
</tr>
</tbody>
</table>
In other words, the pattern LH found with disyllabic noun stems is restructured as HL, but the same pattern with monosyllabic stems is not since the pattern is not limited to a single morpheme, precluding lexical reanalysis.

Verbs present robust evidence in the form of paradigmatic alternations for this analysis of leftward shifting of final H. Consider infinitives: in the infinitive, H is assigned to the initial root mora, but if the root is monosyllabic, the H surfaces on the infinitive prefix.

(25) kú[wa] ‘to die’ kú[ng’wa] ‘to drink’

Similar evidence can be marshalled from other tenses.

(26) tuka[téléche] ‘let’s go cook’ tuka[súúme] ‘let’s go buy’
tuká[lye] ‘let’s go eat’ nká[ng’we] ‘go drink’
nká[ng’wé máveele] ‘go drink milk’

In the remote perfective, H is assigned to the final vowel. In most dialects H remains if the preceding vowel is short (it will spread to the preceding vowel in the Mangaka dialect by Leftward Backspreading). But in the Ndanda dialect, all final H’s shift to the penult, so the question arises whether there is evidence that this dialect retains the original pattern assigning H to the final. It is conceivable that this verbal tone pattern has been reanalyzed as one assigning H to the penult, and indeed such a reanalysis is found in nouns which originally had the tone pattern LH. Nevertheless, there is evidence that even in this dialect H is assigned to the final syllable, and shifts to the left either by Retraction or by the combination of Leftward Backspreading and Final Delinking.

If the penult is short, a H appears on the penult in the citation form, and on the penult, final, and following word phrase medially.

(27) nááválaásíle ‘I counted’
náásuú’mile ‘I bought’
náásuú’mílé lígóombo ‘I bought a banana’

This follows from assigning H to the ultima, applying (15) in all contexts, and either delinking the final H in prepausal position, or else applying Doubling phrase-medially.

When the penult is long, that syllable bears the H in the citation form; phrase medially, the final syllable has the H and that H does not spread to the following word.
(28)  náátéélééche  ‘I cooked’
náátéeleché 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.²

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’  nindaalalya  ‘I will eat’
nindataleéka  ‘I will cook’  nindaloodya  ‘I will show’
nindakalamoóla  ‘I will cough’  nindavingiliidyà  ‘I will chase’
kungúluúma  ‘to bite me’  kungúloodya  ‘to show me’
kungútoteéla  ‘to sew for me’  kungútoteeyà  ‘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 /nindaloodya/. 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 'i', 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.

References


