

## Low-Tone Spreading in Chalcatongo Mixtec

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This paper discusses a rule of Low-Tone Spreading found in the variety of Mixtec spoken in the town of Chalcatongo (Oaxaca, Mexico), which is absent from the closely related San Miguel el Grande dialect documented by Pike (1948) and Dyk and Stoudt (1973). The analysis is based on the speech of Luciano Cortés Nicolás.

**1. The rule.** Chalcatongo Mixtec has three distinctive tones: High (H), Mid (M), and Low (L); I treat the Mid tone as underlyingly unspecified and filled in by default rule (cf. Pulleyblank 1986). Low-Tone Spreading occurs in several different environments, but in all cases a Low tone spreads rightward onto a vowel (mora) which otherwise would bear Mid tone, i.e. a toneless vowel:

(1) *Low-Tone Spreading (basic form)*



Once the rule applies, the target vowel is no longer unspecified and will not receive a default M.

**2. Spreading within the root.** San Miguel has roots with the surface tones LM but none with LL; Chalcatongo has LL and no LM. There is evidence in Chalcatongo from the linking of a floating High tone that the surface LL roots actually derive from underlying LM: when the H tone links to the first syllable of the root, it replaces the L and the root surfaces as HM. One source of this floating H is the preposition *h á* 'with'. We can see from the following simple examples that it changes the first tone of the noun to H:

- |     |             |        |                  |
|-----|-------------|--------|------------------|
| (2) | kítɪl       | MM     | 'horse'          |
|     | h á ák ɪáɪl | HH HM  | 'with (a) horse' |
| (3) | haäæ        | ML     | 'foot'           |
|     | h á áhaäæ   | HH HL  | 'with (a) foot'  |
| (4) | sɬu á       | LH     | 'money'          |
|     | h á á sɬu á | HH HH  | 'with money'     |
| (5) | haluä ä     | MHH    | 'child'          |
|     | h á áhaüä ä | HH HHH | 'with (a) child' |

But when the surface tone on the noun in isolation is LL, the form after *h á* is HM:

- |     |                |       |                 |
|-----|----------------|-------|-----------------|
| (6) | kaæ            | LL    | 'metal'         |
|     | h á ákaä       | HH HM | 'with metal'    |
| (7) | seæ            | LL    | 'son'           |
|     | h á áseä(-r ä) | HH HM | 'with (my) son' |

The same is true for verbs, which take a floating H in the Continuative aspect:

- |      |               |          |                             |
|------|---------------|----------|-----------------------------|
| (8)  | haaæ<br>haäæ  | ML<br>HL | 'arrive'<br>'is arriving'   |
| (9)  | k hææ<br>k hä | LL<br>HM | 'enter'<br>'is entering'    |
| (10) | haäæ<br>haä   | LL<br>HM | 'pass (a test)'<br>'passes' |

We can explain this by treating the underlying form as LM. In isolation the L spreads onto the following syllable (11); but when the H replaces the L, the spreading rule cannot occur and a default M is inserted (12):

- (11) UNDERLYING                      L-SPREAD  
       k aæ                      →        k aææ  
       |                                      |  
       L                                      L
- (12) H LINKING                      (REDRAWN)                      DEFAULT M  
       h ä ä k aä                      →        h ä ä k aä                      →        h ä ä k aä  
       |    |    |                      |                      |                      |                      |  
       H H L                                      H                      H                      H                      HM

**3. Spreading from a prefix.** The verb prefix (or proclitic) *n æ* which marks Completive aspect, bears an underlying L tone. In the following examples the tones of the root are unchanged (though there are segmental changes which mark the Realis mood):

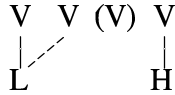
- |      |                     |              |                          |
|------|---------------------|--------------|--------------------------|
| (13) | taää<br>n æääde     | HH<br>L-HH-M | 'break'<br>'he broke it' |
| (14) | kunu<br>n æinu-r ä  | MM<br>L-MM-H | 'run'<br>'I ran'         |
| (15) | kusuæ<br>n æisL æ ä | ML<br>L-ML-H | 'sleep'<br>'I slept'     |

Notice in (14) and (15) that the L from the prefix does not spread onto the following vowel, even though it is underlyingly toneless (and surfaces as M). This is because all cases of Low-Tone Spreading across morpheme boundaries impose additional requirements on the environment beyond the simple schema in (1). Specifically, in order for a L to spread from the prefix onto the root, there must be a H tone after the toneless vowel(s) within the root; *n æinu-r ä* shows that the presence of H in the person marking suffix will not trigger the rule. But when there are one or more toneless vowels followed by a H in the root, Low-Tone Spreading does apply:

- |      |                          |                |                       |
|------|--------------------------|----------------|-----------------------|
| (16) | kuta ää<br>n ækua ää-r ä | MHM<br>L-LHM-H | 'fight'<br>'I fought' |
| (17) | cindeää<br>n æ indeää    | MHH<br>L-LHH   | 'help'<br>'helped'    |
| (18) | kacaää<br>n æacaää       | MHH<br>L-LHH   | 'dance'<br>'danced'   |

We can express this revised version of Low-Tone Spreading, which applies in derived environments, as follows:

(19) *Low-Tone Spreading (derived environment)*



Here a simple mora is one which will surface as M if no rule applies to it. Low-Tone Spreading seems to apply regardless of the number of toneless moras which separate the L and H. The rule applies iteratively to all the toneless syllables preceding the H; but the scope of the rule excludes the suffix (or, alternatively, the suffix is added after the rule has applied).

**4. Spreading in compounds.** Another case in which Low-Tone Spreading requires a H trigger is in noun compounds:

(20) ML + MH → ML LH

nuuæ 'face'	rosaä 'rose'	nuuærosaä 'face of rose'
nuuæ 'face'	pisuä 'floor'	nuuæpisuä 'surface of floor'
ŋæ 'insides'	tiŋ lä 'mouse'	ŋætiŋ lä 'insides of mouse'

(21) LL + MH → LL LH

seäæ 'son'	tiŋ lä 'mouse'	seäætiŋ lä 'son of mouse'
n uæç 'tooth'	tiŋ lä 'mouse'	n uæçtiŋ lä 'tooth of mouse'

(22) HL + MH(H) → HL LH(H)

taäæ 'father'	haluä ä 'child'	taäæhaluä ä 'father of child'
taäæ 'father'	tiŋ lä 'mouse'	taäætiŋ lä 'father of mouse'
taäæ 'father'	rosaä 'rose'	taäærosaä 'father of Rose'
naäæ 'mother'	rosaä 'rose'	naäærosaä 'mother of Rose'

There is a special case involving monosyllabic words (including CV̆, which contains a long glottalized vowel) with the isolation pattern LH. When they serve as the first element of a compound, they take the form LL. This happens regardless of the tone in the second element of the compound:

(23)

coää 'flea'	kiltiŋ 'horse'	coääkiltiŋ 'flea of horse'
	riŋ læ 'sheep'	coäæriŋ læ 'flea of sheep'

(24)

sLu ç 'money'	baäæ 'coyote'	sLu ç baäæ 'money of coyote'
	soäkoä 'well'	sLu ç soäkoä 'money of well'
	naä 'woman'	sLu ç naä 'money of woman'

The reason for this change in tone is unclear; but notice that the L tone spreads onto a following M when the required H is also present:

- (25) LL + MHH → LL LHH  
 co~~æ~~æ 'flea'      disL ä~~ä~~ä 'goat'      co~~æ~~æ d ~~æ~~L ä~~ä~~ä 'lea of goat'

The presence of a H in a word following the second element of the compound has no effect on Low-Tone Spreading, which still fails to apply:

- (26) sLu ~~ç~~ n a~~ä~~ä 'money of woman'  
 sLu ~~ç~~ n a~~ä~~ä wa ~~ä~~ä 'that woman's money'

This fact suggests that phonologically the bracketing of such phrases is as follows:

- (27) [ [ sLu ~~ç~~ n a~~ä~~ä ] wa ~~ä~~ä ]  
 money woman that

The compounding of the two nouns is a lexical process, whereas the addition of the demonstrative is syntactic. That means that the morphosyntactic bracketing corresponds to the phonological in (27), and Low-Tone Spreading applies to the compound but not to the entire noun phrase. Similar facts hold of the possessive suffixes:

- (28) sLu ~~ç~~ n a~~ä~~ä-r ä 'my wife'      sLu ~~ç~~ n a~~ä~~ä-fräy wife's money'  
 \*sLu ~~ç~~ n a~~æ~~ä  
 [ [ sLu ~~ç~~ n a~~ä~~ä ] -r ä]

The possessive suffix is added to the compounded unit, and is not present to trigger the spreading rule at the time of compounding.

**5. Spreading across words.** There is a periphrastic future with *k* Öç 'go' placed before the form of the verb used for future tense, and usually there is no change in the main verb's tone:

- (29) de~~æ~~ä-r ä                      LM-H                      'I will look'  
 k Öç de~~æ~~ä-r ä                  ML LM-H                      'I'm going to look'

- (30) ta~~ä~~äde                              HH-M                      'he will break it'  
 k Öç ta~~ä~~äde                          ML HH-M                      'he's going to break it'

Low-Tone Spreading can occur here across the word boundary if M tones at the beginning of the main verb are immediately followed by a H — and in this case the H can be in a suffix:

- (31) kunu-r ä                              MM-H                      'I will run'  
 k Öç ku~~æ~~ä-r ä                      ML LL-H                      'I'm going to run'

- (32) dani~~ä~~ä-r ä                              MMM-H                      'I will lift'  
 k Öç da~~æ~~ä-r ä                          ML LLL-H                      'I'm going to lift'

The spreading can optionally fail to apply, especially in slow speech, but the form with spreading is preferred. If there is no H later in the word, or if a L intervenes, the M's remain unaffected:

- (33) kusu~~æ~~ä                              ML-H                      'I will sleep'  
 k Öç kusu~~æ~~ä                          ML ML-H                      'I'm going to sleep'  
 \*k Öç ku~~æ~~ä                          \*ML LL-H

We expect this result given the formulation of the rule in (19). This is simply an application of the rule at the phrasal level, where the distinction between root and suffix is no longer accessible or relevant to the phonology.

## References

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