

## BOUNDARIES AND BOLE HIGH TONE SPREADING

### Tonal Basics

Bole is a Chadic language of northeastern Nigeria. Like most African languages and all Chadic languages, Bole is a tone language, that is, relative pitch of the voice from syllable to syllable can make a difference in meaning. Bole has just two phonemic tones: High (H) and Low (L). Bole also has Falling (F) tone, which is H+L on one syllable, and Rising (R) tone, which is L+H on one syllable. The following pairs of words in Bole are distinguished only in tone.

<b>a:we</b> ǀǀ ‘jujube’	<b>à:wè</b> ǀǀ ‘cat’
<b>dindì</b> ǀǀ ‘tale’	<b>dìndì</b> ǀǀ ‘toad’
<b>tere</b> ǀǀ ‘festival’	<b>tère</b> ǀ+ ‘moon’
<b>bid’iki</b> ǀǀǀ ‘chicken cage’	<b>bìd’iki</b> ǀ+ǀ ‘flour’
<b>shà:</b> ǀ ‘rushing of water’	<b>shâ:</b> ǀ = ǀ+ǀ ‘circumcision’
<b>ma:</b> ǀ ‘indeed’	<b>mǎ:</b> ǀ = ǀ+ǀ ‘you (plural)’

- L tone is marked by a grave accent over a vowel, such as **à**
- H tone is marked by ABSENCE of any tone marking, such as **a**
- F tone (= H+L on one syllable) is marked by circumflex accent, such as **â**
- R tone (= L+H on one syllable) is marked by hachek, such as **ǎ**
- IPA “tone letters” after the words show tones graphically. The vertical stroke represents the speaking pitch range and the left-to-right strokes show the approximate pitch level for each syllable.
- DOWNDRIFT: Bole, like most two-tone African languages, has “downdrift”. If a H tone follows a L tone, the H does not rise to as high a pitch as a H would have at the beginning of an utterance. This is illustrated in the words for ‘moon’ and ‘flour’. The result is that the pitches of H tones “drift down” from the beginning of a sentence to the end if there are intervening L tones.

### HIGH TONE SPREADING (HTS)

Bole has a process that we will call HIGH TONE SPREADING (HTS). The basic process is as follows:

“Spread a H tone to the right and replace a L tone on a following syllable.”<sup>1</sup>

THE PROBLEM TO BE SOLVED: Whether or not HTS applies depends on the presence or absence of boundaries. What is the requirement for boundaries? HINT: The factors for Bole HTS are similar to those for Polish palatalization discussed by Hayes, pages 187-189.

<sup>1</sup> HTS does not apply if the L-bearing syllable begins with a voiced obstruent (**b, d, d̥, g, z**). To simplify the discussion, all examples here involve syllables that begin with sounds other than voiced obstruents and hence HTS would apply if other environmental factors are met.



Basis for the solution:

This is something like the Polish problem presented by Hayes:

HIGH TONE SPREADING *requires* the presence of a boundary. The rule applies across WORD BOUNDARIES and CLITIC BOUNDARIES (such as between prepositions and their complements or subject clitics and a verb). However HTS does *not* apply word internal, i.e. where there is no boundary at all, nor across affix boundaries, such as verb+tense marker or verb+object marking suffix. Assuming the correctness of this analysis, the reduplicative “prefix” is actually a “clitic”.

The full picture is more complex. Syntactic boundaries above a certain level do block HTS, e.g. between a nominal subject and a verb and between a noun and a post-nominal adjective.

<b>gorzo pàta:wò</b>	<b>*gorzo pata:wò</b>	‘the man went out’
<b>tèmfi pè:tilà</b>	<b>*tèmfi pe:tilà</b>	‘white sheep’ (“sheep white”)

There are also certain classes of words, such as proper names, determiners, and numbers that never undergo HTS, regardless of syntactic environment.