

Mòoré Tonal Polarity

by Juliann Spencer

Graduate Institute of Applied Linguistics Student

ABSTRACT

Mòoré, a tonal language spoken primarily in Burkina Faso, is governed by two high-ranking markedness constraints: tonal polarity and the spreading of high tones. High tone spreading is dominated by tonal polarity in Mòoré nouns, meaning that adjacent tone-bearing units never have identical tones within the same word. This paper describes the interaction between tonal polarity, the spreading of high tones, and other active constraints within the Mòoré language.

1. Introduction

Mòoré [mos] is a Niger-Congo language spoken by about 5,000,000 people in Burkina Faso. There are also 17,000 speakers in Mali, and 19,700 speakers in Togo. Alternate names include Mole, Moose, More, Moshi and Mossi (Lewis 2009).

The Mòoré language has two tonal levels: high and low (Kenstowicz 1994:390). Mòoré nouns show tonal polarity, as the tone of the number suffix is always the opposite of the tone of the root. Tonal polarity is demonstrated by the following data (Kenstowicz *et al.* 1988), in which high tone is marked with an acute accent and low tone is left unmarked.

sg.	pl.	gloss
kor-gó	kor-dó	'sack'
ro:-gó	ro-tó	'house'
wób-go	wób-do	'elephant'
lán-go	lán-do	'hole'
t̩i:-gá	t̩i:-sé	'tree'
ke:-gá	ke:-sé	'green'
sá:-ga	sá:-se	'broom'
wán-ga	wám-se	'hollow'
gob-ré	gwab-á	'left hand'
t̩ub-ré	t̩ub-á	'ear'
kúg-ri	kúg-a	'stone'
béd-re	béd-a	'big'

2. Tonal Polarity and the Spreading of High Tones

Tonal polarity is a markedness constraint, which can be stated as follows:

POLARITY: Roots and suffixes have opposite tones.

Another markedness constraint at work in Mòoré is the spreading of high tones.

H-SPREAD: High tones spread to an adjacent low tone from left to right.

This process can be seen in the following data (Kenstowicz *et al.* 1988), where nouns are modified by adjectives and used in phrases with the verbs /ko/ 'give' and /zá/ 'bring' (Kenstowicz 1994:391). The word for 'sack', /korgó/, has a low tone on the first syllable. When it occurs after /ko/, which has a low tone, /korgó/ remains unchanged. However, when /korgó/ occurs after /zá/, which has a high tone, the high tone spreads from /zá/ to /korgó/, as shown in the following examples.

ko sá:ga	'give a broom'
ko korgó	'give a sack'
zá sá:ga	'bring a broom'
zá kór ¹ gó	'bring a sack'
kor bẹ̀da	'big sacks'
kor ke:gá	'green sack'
zá bẹ̀da	'big brooms'
zá ké: ¹ gá	'green broom'

Notice that on nouns having a HL sequence, with high tone on the root and low tone on the suffix, the high tone does not spread from the root to the suffix. H-SPREAD is therefore dominated by POLARITY, as shown in the following tableau.

POLARITY » H-SPREAD

/ko sá:ga/	POLARITY	H-SPREAD
☞ [ko sá:ga]		*
[ko sá:gá]	*!	
[ko sa:ga]	*!	*

One may ask why POLARITY is necessary as a constraint, since the Obligatory Contour Principle (Leben 1973) also dictates that adjacent tones within the same word must not be identical. However, the OCP does not provide a satisfactory analysis of all examples. In the previous tableau, if POLARITY were replaced by the OCP, the optimal candidates would be [ko sá:gá] or [ko sa:ga], ungrammatical forms:

OCP » H-SPREAD

/ko sá:ga/	OCP	H-SPREAD
[ko sá:ga]		*
☞☹ [ko sá:gá]		
☞☹ [ko sa:ga]		

The ungrammatical candidate [ko sá:gá] does not necessarily violate the OCP because it could be considered to have a single high tone linked to both syllables. Similarly, [ko sa:ga] could simply have a single low tone linked to both syllables. POLARITY, as a constraint, is therefore preferable to the OCP.

3. Other Constraints in Mòoré

In the phrase [zá kór¹gó], the final high tone is downstepped. When the high tone spreads from [zá] to the first syllable of [korgó], the faithfulness constraint MAX-TONE (Yip 2002) prohibits the original low tone from being deleted.

MAX-TONE: Do not delete tones.

However, if the low tone remained associated with the first syllable of [korgó], this would violate the markedness constraint NO CONTOUR (Yip 2002).

NO CONTOUR: No TBU may be associated with more than one tone.

By leaving the low tone intact, but disassociating it from its original tone-bearing unit, both MAX-TONE and NOCONTOUR are satisfied. The low tone remains as a floating tone, which causes a downstep in the following high tone, satisfying POLARITY as well. The floating low tone violates another markedness constraint, NOFLOAT (Yip 2002), but this constraint is dominated by both MAX-TONE and NOCONTOUR.

NOFLOAT: Every tone must be associated with at least one TBU.

MAX-TONE, NOCONTOUR » NOFLOAT

Another potential output for /zá korgó/ would be the faithful candidate [zá korgó], which does not allow the high tone on /zá/ to spread. Such an output would prevent the violation of NOFLOAT, and at the same time satisfy both MAX-TONE and NOCONTOUR. The fact that *[zá korgó] is not realized as an output shows that NOFLOAT is dominated by H-SPREAD, in addition to MAX-TONE and NOCONTOUR. Because POLARITY outranks H-SPREAD, it also outranks NOFLOAT by transitivity.

POLARITY » H-SPREAD » NOFLOAT

The rankings of POLARITY, H-SPREAD, MAX-TONE, NOCONTOUR, and NOFLOAT are shown in the following tableau, although it should be noted that POLARITY does not necessarily dominate MAX-TONE and NOCONTOUR.

POLARITY » H-SPREAD » NOFLOAT
H-SPREAD, MAX-TONE, NOCONTOUR » NOFLOAT

/zá korgó/	POLARITY	H-SPREAD	MAX-TONE	NOCONTOUR	NOFLOAT
☞ [zá kór ¹ gó]					*
[zá kórgó]	*!		*		
[zá kôrgó]				*!	
[zá korgó]		*!			

Using the constraint IDENT-TONE instead of MAX-TONE and NOCONTOUR may initially appear to be a simpler analysis, since it replaces two constraints with one.

IDENT-TONE: Tonal specifications may not change.

However, unlike MAX-TONE and NOCONTOUR, IDENT-TONE would be violated by [zá kór¹gó], the winning candidate. The failure of IDENT-TONE to provide a satisfactory analysis is demonstrated in the following tableau. All outputs rank equally except for the correct one, which violates NOFLOAT, as well as fatally

violating IDENT-TONE twice. Regardless of the order in which the three constraints are ranked, [zá kór^lgó] will not be the winning candidate.

/zá korgó/	H-SPREAD	IDENT-TONE	NOFLOAT
☞☹ [zá kór ^l gó]		**!	*
[zá kórgó]		*	
[zá kôrgó]		*	
[zá korgó]	*		

The effects of MAX-TONE and NOCONTOUR are further demonstrated by the following data (Kenstowicz *et al.* 1988):

nɛd-a	'man'
nɛd korgó	'man's sack'
nɛd ^l sá:ga	'man's broom'
na:-bá	'chief'
na:b kór ^l gó	'chief's sack'
na:b sá:ga	'chief's broom'

Once again, high tones spread to an adjacent low tone from left to right, and a floating tone is still preferred over tone deletion or contour tones. However, note that the vowel of a suffix is deleted when it occurs in a phrase-medial position (Kenstowicz 1994:391). This deletion is caused by an additional markedness constraint that I am proposing: DELV.

DELV: Delete suffixal vowels in a phrase-medial position.

DELV outranks MAX-IO, a faithfulness constraint, as demonstrated by the following tableau:

DELV » MAX-IO		
/nɛd-a korgo/	DELV	MAX-IO
☞☹ [nɛd korgo]		*
[nɛda korgo]	*!	

Even when the vowel is deleted, the tone associated with that vowel remains as a floating tone, confirming the hypothesis that MAX-TONE outranks NOFLOAT. H-SPREAD and NOCONTOUR also apply to these data, as demonstrated by the following tableau:

/néd-a sá:ga/	POLARITY	H-SPREAD	MAX-TONE	NOCONTOUR	NOFLOAT
☞ [néd ^l sá:ga]		*			*
[nédá sá:ga]		**!			
[nédá sá:gá]	*!*				
[nédá sá:ga]	*!	*			
[néd sá:ga]		*	*!		
[néd sǎ:ga]		*		*!	
[néd ^l sá:gá]	*!				*

Based on the previous tableau, it may appear that DELV is not necessary as a constraint, since all likely candidates can be eliminated by other constraints, particularly POLARITY and H-SPREAD. However, an examination of the form [na:b kór^lgó] yields evidence that DELV is indeed a necessary constraint to prevent incorrect outputs, particularly when the input has a LH tonal pattern and is therefore less likely to violate H-SPREAD when it does not violate POLARITY.

As shown by the following tableau, if DELV were not a constraint, then the incorrect output [na:bá kór^lgó] would perfectly satisfy all constraints except NOFLOAT, just like the correct output [na:b kór^lgó] does. In order for [na:b kór^lgó] to be eliminated in favor of [na:b kór^lgó], DELV must be included as a relevant constraint. Note that there is no evidence that DELV is dominated by any of the other constraints:

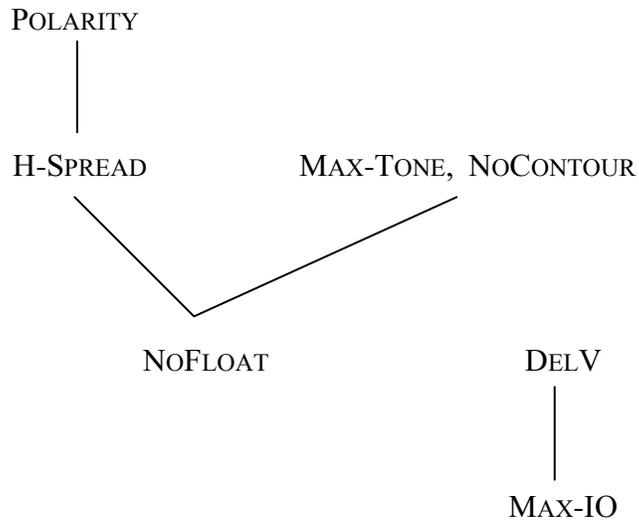
/na:-bá korgó/	POLARITY	H-SPREAD	MAX-TONE	NOCONTOUR	NOFLOAT	DELV
☞ [na:b kór ^l gó]					*	
[na:bá korgó]		*!				
[na:bá kór ^l gó]					*	*!
[na:b korgó]			*!			
[na:b kórgó]	*!		*			
[na:b kôrgó]				*!		

4. Conclusion

In summary, POLARITY dominates H-SPREAD, which dominates NOFLOAT. MAX-TONE and NOCONTOUR also dominate NOFLOAT. DELV dominates MAX-IO, and DELV does not necessarily dominate NOFLOAT:

POLARITY » H-SPREAD » NOFLOAT
 MAX-TONE, NO CONTOUR » NOFLOAT
 DELV » MAX-IO

These rankings can be more clearly seen in the following diagram:



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