

## Polar Tone in Kanuri

In a number of tone languages specific constructions exhibit high tone in the context of a low tone, and low tone in the context of a high tone. This phenomenon, called “polar tone” in the phonological literature (see Yip, 2002:159; and references cited there), is problematic for restrictive accounts of tonal phonology since it seems to require an equivalent of alpha-rules (Chomsky and Halle, 1968). In line with Hyman (1996), I argue that polar tone in Kanuri, a Nilo-Saharan language spoken around lake Chad (Cyffer, 1992), can be captured without mechanisms of this type and derives from independently motivated optimality-theoretic constraints.

In Kanuri, a polar tone arises in many verb paradigms, such as the imperfect forms. If the verb root bears a low tone as in (1a), the following tone on the suffixal string is high (or falling, i.e. high-low as in **səgarîn**). If the tone of the root is high, the following suffixes are low (1b):

- (1) a. *kar*, ‘carve’ b. *kúd*, ‘bring’

	sg	pl		sg	pl
<b>1</b>	karókin	karíyen		<b>1</b>	kúdəkin
<b>2</b>	karómin	karúwin		<b>2</b>	kúdəmin
<b>3</b>	səgarîn	saarîn		<b>3</b>	súwúdin

That tone polarity here is due to morphological factors not to a phonological restriction (say the OCP) can be seen from the fact that adjacent low tones are allowed in the suffix string, as in **kúdəkin**, but also from the comparison with other paradigms which have consistent high tone in the suffix string. The basic intuition behind my analysis is that imperfect **-in** is associated with the floating tone pattern H(igh) L(ow) which is not associated to syllables or segments. This pattern surfaces in both, high-tone and low-tone verbs, but in different positions:

(2) **Floating Tones:**

	H	L		H	L	
<b>Segments/Syllables:</b>	ka.	ró	kin	kú	də	kin
<b>Preassociated Tones:</b>	L	L		H	L	

These different positions result since the tones of the floating pattern can merge with identical tones which are underlyingly associated with roots and imperfect **-in**. The exact position is derived from general optimality-theoretic constraints on tone, namely unviolated \*FLOAT, MAX-TONE, SPECIFY and UNIQUENESS dominating NO-FUSION. For low-tone roots, (2a) is the only structure not violating these constraints. Fusion of the floating H with the root H in (2b) follows from high-ranked ALIGN-L(T) (Zoll, 1997). Finally, I show that the analysis also extends straightforwardly to forms with prefixes (which trigger high-tone spreading with specific roots) and paradigms with consistent high tone on the suffix string. Crucial to the analysis of all these patterns is that floating and preassociated tones are treated differently by Faithfulness constraints.

## References

- Chomsky, N. and Halle, M. (1968). *The Sound Pattern of English*. New York: Harper & Row.
- Cyffer, N. (1992). *We Learn Kanuri*. Köln: Köppe.
- Yip, M. (2002). *Tone*. Cambridge University Press.
- Zoll, C. (1997). Conflicting directionality. *Phonology*, 14:263-286.