

Tones prefer colour: Tone and Epenthesis in Buli

Daniel Gleim, University of Leipzig (daniel.gleim@uni-leipzig.de)

Main claim: Opaque interactions of tone/stress and epenthesis have frequently been analysed by the ordering of operations, be it in a rule-based framework or in Harmonic Serialism. The doubly opaque pattern of epenthesis-tone spreading interaction in Buli (Gur, Akanlig-Pare & Kenstowicz 2002, Schwarz 2003,2005) poses a challenge for such a conception of opacity. I claim that while the inherent flexibility of ordering of operations in Harmonic Serialism can dispose the central rule ordering paradox without making stipulative representational assumptions, it cannot account for different behaviour of epenthetic vowels on the one hand and underlying toneless vowels on the other. I show that the basic assumption of coloured containment – that epenthetic vowels are colourless, and that constraints may refer to the presence of colour – suffices to account for both types of opacity. **Data:** Buli has three phonemic tones, L(ow) H(igh) and M(id); the tone bearing unit is the syllable. The most emblematic tonal process is Low Tone Spread (LTS), in which a low tone spreads one syllable to the right if it precedes a high tone. Mid tones are neither triggers nor targets in this process. If the syllable which L spreads to is followed by another high toned syllable (1-a), the targeted syllable surfaces as low. If it precedes something else – L or M tones, or nothing at all – it surfaces with a rising contour tone (1-b). All surface rises in Buli are derived by LTS.

- (1) a. /̀n síú-kú/ → ̀n siúkú ‘my catfish’ (Schwarz 2003, p. 06)
b. /̀nòò̀̀kú tḕ/ → ̀nòò̀̀kú tḕ ‘near the lizard’ (Schwarz 2005, p.106)

Epenthesis is employed to resyllabify coda consonants. The epenthetic vowel always shows up with a tone identical to the preceding tone. If it follows a high toned syllable affected by LTS and precedes another high tone, it has a low tone (2-a), otherwise it gets a high tone (2-b). The tone on the epenthetic vowel is thus sensitive to the underlying preceding tone, the surface preceding tone and the following tone.

- (2) a. /wà núr-má/ → wà nùrú má ‘his persons’ (Akanlig-Pare & Kenstowicz 2002, p.60)
b. /wà núr/ → wà nùrú ‘his person’ (Akanlig-Pare & Kenstowicz 2002, p.60)

There are some underlying toneless affixes which also copy the tone from their left. Unlike the epenthetic vowels, they always surface with a high tone if preceded by an underlying high tone (3), no matter what tone follows them. The epenthetic vowel and the toneless affixes are therefore both tonally unspecified, yet their behaviour in LTS diverges.

- (3) a. /wà gbá̀̀n-sa-ńá/ → wà gbà̀̀nsáńá ‘his book’ (Schwarz 2003, p. 07)
b. /wà vén-ta tìyè/ → wà vèntá tìyè ‘his second lie’ (Schwarz 2005, p.124)

Assumptions: In order to derive these challenging patterns, I adopt the concept of Morphological Colour (Revithiadou 2007, van Oostendorp 2006, Trommer 2011, Zimmermann 2017), which is a way of tracking morphological information through the phonology. Every morpheme has its unique colour (represented in the tableaux by optical colours). The phonology is not able to interfere with these colours. Elements inserted by phonology, like epenthetic vowels, are thus colourless (represented by grey). I assume that in a constraint-based framework constraints may be relativised to the presence of colour (cf. Zimmermann 2017). **Analysis:** The key to both the distribution of tone on the epenthetic vowels and the differences with the underlying toneless vowels lies in the colourlessness of the epenthetic vowel. In case of epenthesis, tones prefer to associate to a morphological, thus coloured, TBU (not violating $T \rightarrow \sigma_\alpha$). But to be associated to an epenthetic vowel is still better than to be left floating (violation of $T \rightarrow \sigma$). If the epenthetic vowel is followed by another high tone, the displaced high tone prefers to associate there, violating $*T\tau T$, a constraint against many-to-one association (4). If it is followed by something else, the high tone makes do with the epenthetic vowel, since a shift further to the right would violate high ranked constraints against falling tones or is altogether impossible (5).

(4)

Input:	SPECIFY	T → σ	LTS	*R	T → σ _α	*TτT
a.	*!		*			
b.					*!	
c.						*

(5)

Input:	SPECIFY	T → σ	LTS	*R	T → σ _α	*TτT
a.	*!		*			
b.				*!		
c.					*	
d.		*!				

The explanation for the different behaviour of underlying toneless affixes and epenthetic vowels follows accordingly: toneless affixes have a colour and are thus perfect targets for the displaced high tone. A violation of *TτT is therefore unnecessary. The affix always shows up with the high tone, even if it could shift further to the right. **Alternative Analyses:** As Akanlig-Pare & Kenstowicz (2002) point out, the interaction of tone spreading and epenthesis is problematic for a standard rule-based framework, because it results in a rule-ordering paradox. They solve this problem with rather stipulative assumptions on the representation of Tone and TBUs, which is not necessary in my account. It has been argued extensively, that Harmonic Serialism offers a way to derive Stress-epenthesis opacities (Elfner 2016). It does indeed avoid the ordering paradox in Buli. However, HS cannot derive the different behaviour of underlying toneless suffixes: For processes that are induced by a constraint that penalises tonelessness (SPECIFY), they are always predicted to pattern alike. If underlying toneless syllables would get their tone due to SPECIFY before epenthesis, this very constraint would block epenthesis altogether. **Summary:** Frameworks that base opaque tone-epenthesis interactions on ordering of operations have either problems with those interactions themselves (Rules) or with deriving the difference between epenthesis and underlying toneless affixes (HS). An account with morphological colour on the other hand can derive both patterns with simple assumptions: that epenthetic elements are colourless and that constraints may be relativised to the presence of colour.

Selected references: Akanlig-Pare, George & Michael Kenstowicz. 2002. Tone in Buli. *Studies in African Linguistics* 31. • Schwarz, Anne. 2003. Low Tone Spreading in Buli. *Cahiers Voltaïques / Gur Papers* 6. • Schwarz, Anne. 2005. *Aspekte der Morphosyntax und Tonologie im Buli: Mit Schwerpunkt auf dem Buli von Wiaga*: Humboldt-Universität zu Berlin dissertation. • Zimmermann, Eva. 2017. *Morphological length and prosodically defective morphemes*: Oxford University Press.