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(3) Name of author : Seunghun J. Lee

(4) Affiliation of author : Rutgers University

(5) Email address : juliolee@eden.rutgers.edu

Anti-depressor consonants in Mulao

Introduction This paper argues that the co-occurrence restriction between tone and initial consonants in Mulao (a language spoken in southern China) is a result of constraint interaction to preserve an anti-depressor effect, which is caused by consonants that require high pitch.

Tone in Mulao Wang and Zheng (1993) show that open syllables (CV) and syllables with a sonorant coda (CVC_{son}) can host six tones. However, syllables with stop codas (CVC_{stop}) have four contrasting tones. The syllable-type-based tonal inventory can be simplified if tone in Mulao were based on registers. Mulao's tone, then, can be divided into level tone and contour tone.

	level	***contour (falling)***
upper register	high 55	high 53
	mid 44	mid 42
	level	***contour (rising)***
lower register	low 11	low 12
		mid 24
		low rise-fall 121

Onsets and tone Initial consonants have restrictions with respect to the type of tone with which they can occur. The following onsets can license only upper register tones: (a) glottal stop and glottalized onsets, (b) Aspirated onsets and their palatalized, or labialized counterparts, (c) Voiceless nasals, voiceless lateral onsets, (d) Some onsets with voiceless fricatives. For example, [ʔuk^{55}] 'to exit, to go out' is possible, but Mulao has no word like *[ʔuk^{11}]. All other onsets can license both upper and lower register tones. Although phonetics can explain this restriction, it does not provide an account for the distribution of non-laryngeal onsets.

Proposal & Analysis This restriction is opposite to the one observed in African languages, in which voiced consonants lower pitch. Thus, laryngeal onsets in Mulao can be dubbed as 'anti-depressors (AD)'. Although it is controversial whether consonants can host tone, I propose following two markedness constraints. One constraint requires onsets to receive tone from the tone bearing unit (the vowel) if onsets have laryngeal features (AD→T). The other constraint is that tone cannot be low in laryngeal onsets (*AD-low). These constraints interact with faithfulness constraints. This grammar predicts that a hypothetical input, in which laryngeal onsets occur in low tone syllables, will change the tone of the syllable rather than change the laryngeal feature of the onsets (shaded cells).

		input		output	
laryngeal onsets	high	/p^{h}v́/	→	/p^{h}v́/	high
	low	/p^{h}v̀/	→	/p^{h}v́/	***high***
non-laryngeal onsets	high	/pv́/	→	/pv́/	high
	low	/pv̀/	→	/pv̀/	low

v = vowel
acute accent = upper register
grave accent = lower register
p = non-laryngeal consonants
p^{h} = laryngeal consonants

Conclusion This paper argues that the interaction between laryngeal onsets and tone is best analyzed in a constraint-based framework (Optimality Theory, Prince and Smolensky 2004). The proposed markedness constraints not only account for the distribution of the consonant-tone restriction in Mulao, but they also predict the behavior of the grammar, in which syllables with laryngeal onsets prefer to change tone rather than segmental features to satisfy the co-occurrence restriction.

References:

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