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Using Sound Change to Inform Theories of Phonological Representation

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Theories of phonological representation such as Autosegmental Phonology (Goldsmith 1976) and Distinctive Feature Theory (Jakobson et al. 1952) have traditionally looked to the synchrony to evidence their claims. For example, the burden of distinctive features is to define phonemic contrasts, natural classes and the targets of phonological rules (Jakobson et al. 1952, Clements et al. 2011). These are all evidenced by synchronic phenomena such as morphological interactions and phonotactics.

Because of their focus on the synchrony, these theories have run into difficulty when analyzing phonological features common in languages that lack traditional synchronic sources of evidence. For example, the richest inventories of contour tones are found in South-East Asia, in languages with isolating morphologies. Autosegmental Phonology treats contour tones as sequences of phonological level tones (targets specified only for tone height) assigned to a single tone-bearing unit (Goldsmith 1976, Yip 1989). Current iterations of Distinctive Feature Theory thus only cater to level tones and have no representation for the tone differential (the direction of change in the tone contour). Such analyses of contour tones are claimed to be universal, but clearly privilege tone systems of languages with smaller tonal inventories but more dynamic morphologies (such as African languages).

An untapped source of evidence for theories of phonological representation is sound change. This talk will examine the relationship between a triggering phonetic environment and its resulting phonologized feature, using Evolutionary Phonology, a formal framework of phonetically-based sound change (Blevins 2004, 2013). Specifically, the importance of this relationship for informing phonological representation will be demonstrated in the tonogenesis of Utsat, a Chamic language of Hainan Island, China.

Under heavy contact with Sinitic and other tonal languages, most of the Chamic languages underwent some degree of registro- and tonogenesis (Thurgood 1999). Utsat is the most extreme case, having restructured its roots to monosyllables and gained an inventory of five tones (H, M, L, LH, HL) (Maddieson & Pang 1993). With evidence from other Chamic languages and reconstructions of Proto-Austronesian, the stages of Utsat tonogenesis are known in detail (Thurgood 1993, 1999, Maddieson & Pang 1993). In particular, the evolution of the Utsat falling tone from an earlier environment of breathy-voiced vowel with coda glottal stop suggests a stage where listeners directly phonologized a negative tone differential (as opposed to discrete targets in the pitch range). Attempts to account for the phonologization of contour tones in Utsat are problematic for models of phonology that only represent tone height.

This paper expands on Thurgood 1999's account of Utsat tonogenesis in order to propose a representation of the tone differential within autosegmental phonology. This representation is then used as an example of informing theories of phonological representation using sound change.

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