The Message Shapes Phonology: A Unified Account of Strong and Weak Patterns

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A central goal of phonology is to achieve an understanding of sound patterns that can account for both cross-linguistic commonalities and language-specific details. Notable success in recent years has come through integrating insights about the articulatory and perceptual underpinnings of phonology (Archangeli & Pulleyblank 1994; Boersma 1998; Browman & Goldstein 1986; Flemming 1995; Hayes, Kirchner & Steriade 2004; Hume & Johnson 2001; Jun 1995; Padgett 2005; Steriade 2008; etc.) with understandings of how language sound systems function and evolve in communities over time (Blevins 2004; Bybee 2001; Kirby 2010; Lindblom 1990; Ohala 1981; Pierrehumbert 2003; Wedel 2006; etc.). Here, we contribute to this project by synthesizing these general findings with newer information theoretic and Bayesian approaches that investigate sound patterns as part of a larger communication system (Aylett & Turk 2004; Cohen-Priva 2012; Hall 2009, 2013; Hume & Bromberg 2005; Hume & Mailhot 2013; Hume et al. 2013; Pate & Goldwater 2015; Piantadosi et al. 2011; Seyfarth 2014; Wedel et al., in press). We show that inclusion of a putative bias toward effective message transmission into our model improves explanatory coverage for a broad range of phonological patterns. Specifically, we show that an approach that incorporates competing biases in lexical information transmission toward (i) low error probability and (ii) low resource cost provides a more predictive account for the range and diversity of many phonological pattern types.

To introduce this approach we concentrate on a diverse group of asymmetrical phonological patterns that can be framed, in general terms, as being weak or strong, exemplified by lenitions and fortitions. To begin, we describe a general puzzle that is presented by the apparently disparate contexts in which strong and weak phonological patterns appear. We then provide background on language as a communication system, and review evidence that communicative goals, such as robust information transmission, do in fact influence language variation and change. We then return to the puzzle and provide a predictive account of strong and weak phonological patterns that makes use of the message-based framework. Time permitting, we return to sound patterns more generally and suggest that the fundamental principles and mechanisms at issue here form part of the context in which most, if not all, phonological patterns arise.

References:


Pate, John K & Sharon Goldwater. 2015. Talkers account for listener and channel characteristics to communicate efficiently. *Journal of Memory and Language* 78.1-17.


