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 with understandings of how language sound systems function and evolve in communities over time. 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. 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.