

An evolutionary explanation of variable stress patterns in English (and other languages)

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The talk discusses stress pattern diversity in languages such as English, where words that are otherwise equivalent in terms of prosodic structure and morphotactic category are nevertheless stressed on different syllables. Examples of such pairs are *ho'tel* – '*lentil*, '*envoy* – '*idea*, '*research*_N – *re'search*_N, or '*access*_V – *ac'cess*_V. We try to account for such diversity on the assumption that constraints on rhythmic well-formedness (such as FTBIN, see Prince & Smolensky 2002: 50) do not directly apply on isolated lexical representations but on the phrase level patterns they form when combining in utterances. Words then adopt those stress patterns that work best in most cases. This implies that the stress pattern adopted by any specific item depends on the patterns adopted by the items it can combine with. We model this hypothesis and its inherent predictions in terms of an evolutionary game (see Hofbauer & Sigmund 1998), in which items meet, adopt stress strategies and are then rewarded or punished (ultimately in terms of historical stability) according to the rhythmic well-formedness of the sequence they build. Although it involves radical abstractions and simplifications, the predictions derived by our model fit historical developments attested in actual languages surprisingly well. Thus, our model predicts that stress pattern diversity will be evolutionarily stable no matter through what events it is brought about as long as a language contains a sufficiently large number of monosyllables. Clearly this seems to be true of Middle English: the number of monosyllables had risen dramatically through final syllable reduction just when finally stressed loans from French came to enrich a lexicon in which initial stress had been the rule. Apart from fitting the historical development of English stress patterns, our model seems to predict the evolutionary dynamics attested in other languages, such as Thai, Khmer, Munda, or Mandarin Chinese.

References

- Hofbauer, J.; Sigmund, K. (1998): *Evolutionary games and population dynamics*. Cambridge: Cambridge University Press.
- Prince, A. & P. Smolensky. 2002. *Optimality Theory: Constraint interaction in generative grammar*. ROA. <https://rucore.libraries.rutgers.edu/rutgers-lib/42030/PDF/1/>