

A number of phonetic studies have investigated the role of dynamic information in the perception of vowels (see Strange 1989 for a review). A common theme running through these studies is that since articulatory targets are often not reached in speech, in vowel identification listeners may use the dynamic formant transitions at the onset and offset of a vowel. These findings raise a number of interesting questions for phonological and typological analysis that to my knowledge have not been addressed. Do cross-linguistic differences in vowel ‘purity’ (or lack thereof) reflect the extent to which speakers/listeners exploit dynamic phenomena in vowel identification? What role might prosodic organization play in the dynamic or static realization of vowels? Also, what benefits can be reaped by treating the dynamic properties of syllabic nuclei as a phonological category?

This talk presents a set of pilot experiments investigating these questions. A production study compares selected Polish vowels, which are relatively pure in quality, with selected English vowels showing a strong tendency for diphthongization. Preliminary results indicate that Polish and English vowels differ significantly in several dynamic parameters, including the percentage of vowel duration marked by a spectral steady state, and the time needed to reach that steady state target. A perceptual study of Polish vowels is also under way employing the “Silent Center” paradigm (Jenkins and Strange 1999). If listener performance in the SC condition does not differ significantly from performance in the Initial Pitch Period conditions, we may infer that dynamic spectral qualities play less of a role in Polish vowel categorization than they do in English. Such a finding would signal a typological distinction in vowel purity, and suggest the existence of a scalar phonological category. An informal study of several other languages points to a possible correlation between stress vs. syllable timing and the dynamic properties of vowels – languages classified as ‘stress-timed’ seem to have more dynamic vowel quality.

Finally, the classification of dynamic vs. pure vowel quality is applied to some familiar phonological problems, including epenthesis or lack of epenthesis in English borrowings into Korean (Kang 2003), and Polish perception of English diphthongs (Bogacka 2005). Cross-linguistic differences in the categorization of dynamic vowel quality may provide an additional tool for explaining problematic phenomena in loanword adaptation.

#### References:

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