Phonetics-phonology interface and laboratory phonology

Katarzyna Dziubalska-Kołaczyk

In this session we will focus on one aspect of phonetics-phonology interface investigated by laboratory phonology: consonant clusters.

Clusters are described by phonotactics, which determines phonological conditions and constraints on the occurrence or co-occurrence of sounds in a given language (e.g., [pstr-] in Polish pstrąg 'trout', [-ps] in English lapse). Syllables, morphemes or words serve as domains of phonotactics. However, the functions of phonotactics – to achieve easily pronounceable and perceptable sequences – may be distorted by morphology, which predictably leads to phonotactically marked structures. The interaction between phonotactics and morphotactics (e.g., [spstr-] in z pstrągiem 'with a trout', [-ps] in caps) is referred to as morphonotactics (Dressler and Dziubalska-Kołaczyk 2006), a subfield of morphonology (cf. Dressler 1985, 1996). Morphonotactics focuses on intermorphemic clusters arising due to morphological operations. Thus, in order to account for consonant clusters, the phonetics-phonology interface needs to be complemented by the phonology-morphology interface. The presentations in the session will be dealing with both interfaces.

Hannah Leykum (Acoustic Research Institute, Austrian Academy of Sciences, Vienna) in "Word-final (mor-)phonotactic consonant clusters in Standard Austrian German" hypothesizes that morphonotactic clusters are more robust and highlighted in speech production than phonotactic clusters. To verify this she goes on to compare high-frequency word-final morphonotactic and phonotactic clusters and 2nd and 3rd person singular endings. She examines the acoustic features of the clusters (duration and intensity) and of the preceding vowel (duration). I would like to draw your attention to the following points of her talk for further discussion: the shape of the carrier phrase, the distinction between nouns, carrying phonotactic clusters vs. verbs, carrying morphonotactic ones, the homophonous 'hasst' forms, and the t-deletions in –st vs. –ft clusters.

The other three papers deal with the phonetic aspects of phonotactics and their phonological consequences. Stefania Marin, Marianne Pouplier (Institute of Phonetics and Speech Processing, Ludwig Maximilian University of Munich) and Alexei Kochetov (Department of Linguistics, University of Toronto) in "Timing patterns of word-initial obstruent-sonorant clusters in Russian" explore timing effects in clusters whose C2 is either a nasal or a lateral. In particular, they investigate the nasal vs. lateral effect and the place of articulation effect and their interaction. The issues deserving special attention in the discussion are the language specific aspect of the investigated effects as well as the explanation of those effects by the aerodynamic and perceptual requirements on clusters. A general question concerns the consequences of the above for the phonology of clusters.

The next two papers deal with epenthesis as repair for non-native clusters. In "The influence of preceding consonant on perceptual epenthesis in Japanese" Elisabeth Hume (University of Canterbury) investigates the quality of the illusory vowel perceived by Japanese listeners in illicit consonant sequences. The different ways in which the perceptual epenthesis is shown to work provide an interesting playground for the interaction between universal, phonetically motivated factors and language specific, phonologically motivated ones. A moot point for the discussion would be the question of the priorities, i.e., which factors take precedence and why: cross-linguistic phonetic grounding, statistical patterns or language specific phonotactics? Or is the accumulation of factors decisive?

Transitional vocoids in the production of nonnative consonant clusters are also the topic of the fourth presentation in the session entitled “Acoustic characteristics of open transition in nonnative consonant cluster production”, by Colin Wilson (John Hopkins University). The study identifies several acoustic characteristics that distinguish cases of epenthesis from accurate cluster realizations. It contributes new automatic analytic methods facilitating the investigation of phonotactics.

Notably, the four papers discuss the phonetic or morphonotactic character of clusters without positing any phonological generalizations about the “goodness” of clusters. The question of universal phonotactics remains open.