Editorial

Bridging the Segment-Prosody Divide in Speech Production and Perception

The editors of *Phonetica* are pleased to present this thematic issue, focusing on the interrelation of sound segments and prosody in speech communication, thus adjusting the traditional division into separate domains. It is the result of a call for papers, which was published in *Phonetica* [68: 117–119, 2011] to solicit contributions that address the question: ‘How are sounds and prosodies intertwined, mutually shaping each other, as a reflection of different communicative functions in speech interaction?’ Despite the dominating influence of the dichotomous mainstream research paradigm, we received 12 submissions. Not all of them matched the topic we had outlined but, after thorough evaluation, we are pleased to be able to offer five papers to the speech science community for critical appraisal.

The idea originally came from Bill Barry, and developed into a joint project of all the Associate Editors. A first draft proposal for a thematic issue was sent round to them for comments in 2010, finally resulting in the public announcement in the Journal. Later on, Bill Barry, Sarah Hawkins, Vincent van Heuven, David House, Oliver Niebuhr, Francis Nolan, Richard Ogden, Yi Xu joined me in channelling a good deal of time and effort into the reviewing and editorial processing of submitted abstracts and full papers. In order to highlight the message of segment and prosody integration as a challenge to speech scientists, and aiming to attract their attention to quite an old but understudied research question, the title of the thematic issue has been changed slightly to *Bridging the Segment-Prosody Divide in Speech Production and Perception*, compared to the original proposal of *Speech Production and Perception across the Segment-Prosody Divide*.

The five papers have been arranged in the following order of topics:

(1) the influence of falling or rising intonation contours on segment production, and the influence of segments on falling or rising pitch perception (O. Niebuhr, ‘At the Edge of Intonation: The Interplay of Utterance-Final F₀ Movements and Voiceless Fricative Sounds’),

(2) the influence, in speech production, of segmental contrasts on tonal features (A. Karlsson, D. House and J.-O. Svantesson, ‘Intonation Adapts to Lexical Tone: The Case of Kammu’),

(3) the influence of intensifying emphasis on the production of vowel and consonant duration (R. Ogden, ‘Making Sense of Outliers’),

(4) the influence of segmental properties on lexical stress perception in the absence of f₀ change (K.J. Kohler, ‘The Perception of Lexical Stress in German: Effects of segmental Duration and Vowel Quality in Different Prosodic Patterns’),

(5) the combined influence of segment and stress errors on the intelligibility of foreign-accented speech (J. Caspers and K. Horloza, ‘Intelligibility of Non-Natively Produced Dutch Words: Interaction between Segmental and Suprasegmental Errors’).

The papers show the segment-prosody interaction in the different topics for a variety of languages: (1) and (4) demonstrate it for data from German; (2) for two dialects of the Austroasiatic language Kammu, where one keeps a voiced-voiceless contrast, whereas the other has developed a tonal contrast; (3) for spontaneous dialogues in English; (5) for the intelligibility of Dutch words pronounced by French and Chinese speakers. A striking finding of a two-way interaction between sounds and prosodies is that German fricatives /f/, /s/, /ʃ/, /x/ are produced with higher-spectral energy distribution in high-rising than in falling f₀ contours, and that the same fricative types in the two different prosodies sound high- versus low-pitched and, as such, heighten the perception of the rising versus falling intonation.

All of these topics may be buttressed by further investigation in many more and different types of languages on a lot more data from speech production as well as speech perception. With regard to (1) and (2), an important research question in tone languages, e.g. Mandarin Chinese and Cantonese, is the contribution of vowel and consonant qualities to the signalling of lexical tones in different phrasal intonation frames. With regard to (3), the analysis of sounds and prosody in intensifying emphasis of spontaneous talk will be enhanced by an extension to more data and more languages. With regard to (4), further insight into the hierarchy of acoustic properties in lexical stress production and perception can be gained from broadening the analysis to various prosodic frames in many more languages. With regard to (5), the effects of segmental and prosodic deviations from native norms on the intelligibility of a foreign accent will require further studies of different speaking styles in more language pairs.

So, there is ample scope for further research into the interweaving of sound segments and prosody at the various levels represented by the papers in this thematic issue. We are hoping that the small collection of examples, presented here, of mutual sound-prosody interaction in speech production and perception may kindle further interest in this fascinating field of enquiry and solicit papers that can fill the gaps in the topics outlined, and in other areas where the segment-prosody divide needs to be bridged. We are happy to offer *Phonetica* as a publication platform for this research.

Klaus J. Kohler, General Editor
on behalf of the Editorial Team