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Perception of speech rate and phonological length

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This study is concerned with the interplay between various temporal factors in the perception of a phonological length contrast. Apparently contradictory findings are reported in two recent studies on the perception of phonological length in Italian. According to Esposito & Di Benedetto (1999), the absolute duration of the segment plays a central role in the perception of phonological length. In contrast, Pickett et al. (1999) report that durational ratios between neighbouring segments are the stable cue. Interestingly, Pind (1986) observed both effects in his study of the Icelandic phonological length contrast and proposes that a fixed durational ratio is used in the 'focal' region while normalisation occurs in the 'non-focal' region (regions away from and close to the category boundary, respectively). Preliminary results of our study of Finnish and Japanese listeners' perception of short versus long consonants indicate that, with a more extensive stimulus set than in the previous studies, a *systematic shift* in the durational ratio dividing the contrast might be observed as the absolute duration of the segment changes. Our finding is hardly surprising considering production studies demonstrating that both durational ratios and absolute durations of segments are affected by the speech rate (e.g., Lehtonen, 1970). At the same time, it also suggests that the perception of speech rate and phonological length is not serial but interactive. To address this question we ask the Japanese listeners to judge the speech rate and the phonological length of medial consonants in word-nonword 'minimal' pairs [e.g., /dʒíka/ (the market price) : /dʒík:a/ (nonword), and /dʒiká/ (nonword) : /dʒik:á/ (one's parents' home)]. If our hypothesis is correct, lexical bias (in this case the listener's expectation of the length of the medial consonant) tied to the location of pitch accent will affect the perceived speech rate, resulting in different patterns of change in rate perception of the two stimulus continua. [Supported in part by the Academy of Finland.]

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