The effect of intonation on the perception of prominence in spontaneous Estonian

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Recent accounts of linguistic prominence emphasize that perception of prominence is modulated by various interacting prosodic and non-prosodic cues (e.g. Cole and Shattuck-Hufnagel, 2016; Turnbull et al., 2017). For example, Watson (2010) shows that acoustic cues such as f0, duration and intensity contribute to the perception of prominence to a varying degree. Phonological, semantic and contextual factors have also been shown to affect prominence perception independent of acoustic cues (e.g., Cole et al., 2011; Vainio and Järvikivi, 2006). In this study, we investigate for spontaneously spoken Estonian, to what degree different acoustic cues (f0, duration) and linguistic characteristics (presence vs. absence of a pitch accent, parts-of-speech and clausal position) modulate the perception of prominence in ordinary listeners.

We carried out a perception experiment with stimuli from spontaneous Estonian. The materials included 396 spontaneous utterances by 10 speakers (5 males and 5 females, average age 25.3 years) drawn from the Phonetic Corpus of Estonian Spontaneous Speech (Lippus et al. 2016). The utterances were presented together with the transcription over the internet to 51 native Estonian speakers (40 females, 11 males; average age 33) with the task to highlight all the words they heard as prominent. A probabilistic prominence value as a measure of how frequently a word was selected as prominent was calculated for each constituent and analysed in relation to parts-of-speech (subject, object, adverbial, finite and infinite verb), its position within a clause and presence of pitch accent.

The experiment demonstrated that naive listeners’ perception of prominence coincided with syllables carrying pitch accents (as annotated by experienced phoneticians) while syntactic properties did not have much influence. Pitch-accented constituents had higher f0 maxima and longer duration. Thus, non-expert prominence perception is inarguably related to relatively higher f0 and longer duration in Estonian, independent of syntactic information (clause boundaries, parts-of-speech). In the presentation, the results will be discussed in relation to the results from other languages.

References


