

Tapping into prominence perception

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Prominence is a complex aspect of speech; it is relative, context-dependent, and its perception typically based on a combination of prosodic and non-prosodic properties of the signal. The question as to what listeners consider prominent elements of spoken (and written) language has been investigated in many experiments over the last 10+ years. Studies on German (Baumann et al. 2018; Wagner et al. 2019) have highlighted that there are considerable differences between individual listeners in which cues they attend to; some participants are more oriented towards the acoustic–prosodic signal, while others are more attuned to structural factors such as part-of-speech.

In the present study, we present findings from two novel prominence judgment tasks. In past studies (e.g. Cole, Mo et al. 2010; Cole, Hualde et al. 2019; Bishop et al. 2020 on American English and Baumann et al. 2018 on German) participants are typically asked to underline words judged prominent on a transcript of the spoken input, a so-called Rapid Prosody Transcription (RPT) task that yields binary prominence judgments. The present prominence rating task (building on Wagner et al. 2019) requires listeners to represent the strength relationship between syllables in a continuous manner, by means of finger tapping on a pressure sensitive pad (Sensel Inc. 2021).

The first experiment consists of data from 12 tappers who listened to individual sentences extracted from spontaneous conversation (see also Bruggeman et al. 2022). Our results indicate that i) in line with past findings, many individual cues (acoustic and ‘fixed’ properties like word frequency) conspire to create the percept of greater prominence, and ii) there are considerable individual differences even in terms of the acoustic cues listeners base their judgments on.

The second experiment is work in progress: we will present preliminary findings from several tappers who listened to individual sentences extracted from a read story. For present purposes, we focus on the acoustic factors that contribute to prominence, with specific attention to voice source correlates measured with throat microphones: these allow us a straightforward look into signal properties related to glottal settings, such as the mode of vocal fold vibration, and the resulting distribution of spectral energy.

References

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