Pitch accent type affects stress perception in German: Evidence from adult and infant speech processing

Katharina Zahner
Kolloquium FB Sprachwissenschaft, 03.05.18

In free-stress languages, e.g., German, Dutch, or English, lexical stress reduces the number of lexical competitors (e.g., German *'Oktopus* vs. *Ok'tober*) and makes word recognition more efficient. In these languages, stressed syllables are also exploited for speech segmentation, with stressed syllables indicating the word boundaries – a mechanism that is especially relevant for infants who cannot rely on a mental lexicon yet (cf. Cutler, 2012). Acoustically, stressed syllables are longer and louder than unstressed syllables, and produced with more peripheral vowel quality (Gordon & Roettger, 2017, for an overview). Often, f0 peaks have also been considered a direct correlate of stress. Yet, different pitch accent types, which differ in the alignment of f0 peaks in regard to stressed syllables (e.g., Ladd, 2008), render the position of the f0 peak an unreliable cue to lexical stress.

In this talk, I will show that different pitch accent types affect the processing of lexical stress in German adults and infants, such that f0 peaks (temporarily) guide the perception of lexical stress. I will present experimental evidence from word recognition in adults (Visual World Eye-tracking experiments) and stress-based segmentation in infants (Head Turn Preference experiments). In the final part of the talk, two potential mechanisms that may account for the observed effect of pitch accent type on stress perception will be discussed: a) the salience of the f0 cue, and b) the frequent occurrence of high-pitched stressed syllables in German infant- and adult-directed speech (Peters, Kohler, & Wesener, 2005; Zahner, Schönhuber, Grijzenhout, & Braun, 2016).

References

Cutler, A. (2012). *Native listening: Language experience and the recognition of spoken words*. Cambridge, Mass. [u.a.]: MIT Press.

Gordon, M., & Roettger, T. (2017). Acoustic correlates of word stress: A cross-linguistic survey. *Linguistic Vanguard, 3*.

Ladd, D. R. (2008). *Intonational phonology* (Vol. 119). Cambridge [u.a.]: Cambridge University Press.

Peters, B., Kohler, K., & Wesener, T. (2005). Melodische Satzakzentmuster in prosodischen Phrasen deutscher Spontansprache - Statistische Verteilung und sprachliche Funktion. In K. Kohler, F. Kleber & B. Peters (Eds.), *Prosodic Structures in German Spontaneous Speech (AIPUK 35a)* (pp. 185-201). Kiel: IPDS.

Zahner, K., Schönhuber, M., Grijzenhout, J., & Braun, B. (2016). Konstanz prosodically annotated infant-directed speech corpus (KIDS corpus). *Proceedings of the 8th International Conference on Speech Prosody*, Boston, USA, 562-566. Web: http://ling.uni-konstanz.de/pages/home/braun/KIDS.html