Immediate exposure to high and low pitch accents affects cue weighting in online stress processing in German

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Depending on the intonational realization of the utterance, stressed syllables can be high- or low-pitched in German (Ladd 2008). F0 is hence no unambiguous cue to stress, but a cue that listeners strongly rely on: Listeners show a bias to interpret high-pitched syllables as stressed – both in offline and online tasks (Friedrich, Alter & Kotz 2001; Zahner, Kutscheid & Braun 2019). A previous visual-world eye-tracking study has demonstrated that high-pitched unstressed syllables were temporarily interpreted as stressed in German, leading to the erroneous activation of a cohort competitor with a different stress pattern, e.g., SWW-Libero [ˈlibero] 'sweeper' when hearing WSW-Libelle [liˈbɛlə] 'dragonfly' with a high-pitched unstressed first syllable, as in H+L* (Zahner, Kutscheid & Braun 2019).
We here tested whether the frequency of occurrence of different pitch accent types in the immediate input accounts for the bias for high pitch. In an exposure-test paradigm, 40 German listeners first listened to utterances containing either high- or low-pitched accented syllables (3 mins, 120 accents, between-subjects), spoken by six different speakers. In the test phase, listeners completed an eye-tracking task in which they were presented with stress competitors (e.g., Libelle/Libero) along with two distractors (see Zahner et al. 2019). WSW-targets (Libelle) were presented with either a L+H* (f0 peak on the stressed syllable) or a H+L* (f0 peak before the stressed syllable), spoken by a female speaker not part of the exposure phase (to test for generalization of the effect). SWW-competitor fixations (to Libero) were analysed as a function of intonation condition and exposure type (Figure 1). The activation of SWW-competitors was stronger after exposure to high-pitched accents as compared to exposure with low-pitched accents (corroborated by a significant interaction between exposure type and intonation condition). Hence, the exposure to high-or low-pitched accented syllables determines the weighting of f0 as a stress cue in online-word recognition such that high f0 becomes a cue to stress after immediate positive evidence. In the talk, we will discuss the implications for cross-linguistic modelling of cue weighting in stress perception as well as the role of intonation for word recognition.

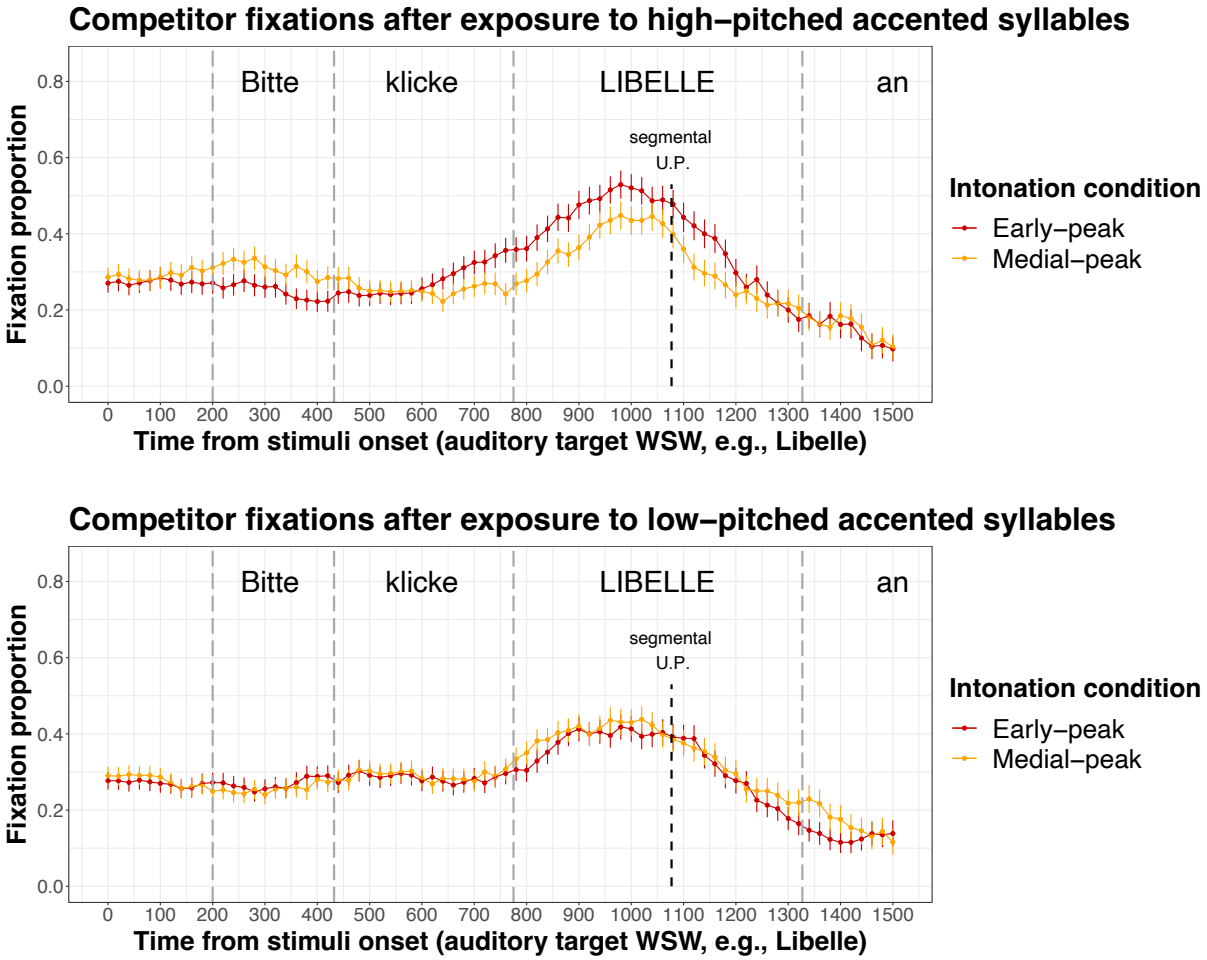

Figure 1: Competitor fixations (to SWW-word Libero, [ˈlibero]) in two intonation conditions (when WSW-target Libelle [liˈbɛlə] is presented with a medial peak = L+H*, or an early-peak H+L* accent)), split by exposure.

References

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