Listener Adaptation to Lexical Stress Misplacement in English

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INTRODUCTION
Human speech processing is robust. Despite its deviation from the canonical forms of the language or dialect along multiple phonetic dimensions, listeners are able to adapt to speech with unfamiliar accents. There is often an initial decrease in processing speed, but listeners can accommodate accented speech with adequate exposure. The recovery is known to occur regardless of the baseline intelligibility or perceived strength of the accent (Bradlow & Bent, 2008), quite rapidly (Clarke & Garrett, 2004), generalizing across lexical items (Maye, Aslin, & Tanenhaus, 2008; Kraljic & Samuel, 2006) and talkers with similar accents (Bradlow & Bent, 2008; Kraljic & Samuel, 2007; Weil, 2001). The precise mechanism of perceptual adaptation is yet to be fully uncovered. The present study investigates native listener adaptation to non-canonical prosody at the word level, in order to evaluate the contribution of prosodic information to the process of adaptation at higher levels. Preliminary results demonstrate tendency of adaptation similar to the adaptation for segmental mismatches.

BACKGROUND
Theories on how listeners may handle variable input have contemplated abstract representation and episodic memory. McQueen, Cutler, and Norris (2006) showed that while listeners rely on acoustic episodes in lexical processing, abstraction is necessary to account for the perceptual adaptation data. The present study adds to the previously demonstrated robust adaptation at the sentential level and segmental level, by examining where in the theory suprasegmental information fit in.

EXPERIMENT
Using lexical stress misplacement in English, the current experiment examined whether listener adaptation to lexical stress errors occurs, and if so, how quickly, and whether the adaptation generalizes across different items and talkers. Within the exposure-test paradigm, native listeners of English (n=16) performed a speeded cross-modal matching task, and RT and accuracy were used as measures of adaptation. It was a 2 x 2 design with stress canonicality (canonical, non-canonical) and talker variability (same, different across phases) as independent variables. Listeners in the canonical group were trained with the task only with canonical trochees (e.g. *DAIsy) in the exposure phase, and then performed the same task with a randomized set of canonical trochees and non-canonical trochees (e.g. *SARdine) in the test phase. Listeners in the non-canonical group were trained in non-canonical trochees in the exposure phase. Half of the listeners in each group were assigned to the test phase with a different talker from the exposure phase.

RESULTS AND DISCUSSION
Preliminary results for the same-talker conditions demonstrate a trend towards adaptation. As expected, we observed initial cost of processing in the exposure phase: non-canonical group (M=541.8 ms) was slower than canonical group (M=517.3 ms). In the test phase, non-canonical group (M=466.6 ms) was faster than canonical group (M=492.2 ms). Listeners are able to adapt to lexical stress mismatches across items, with as much exposure as 50 words in isolation. These results feed further data collection with talker variability, more variability within the exposure, and adaptation to prosody at sentential level.
References


