“Sink positive”: Experience with foreign accents influences native and non-native word recognition
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INTRODUCTION

• Phoneme substitutions as in /s/nk/ for English think are typical features of foreign-accented speech.
• Substitutes depend on the language background of the L2 speaker. While German learners of English substitute /t/ mainly with /s/, Dutch learners substitute it with /n/.
• Research on L1 shows that phonological variants of words can be recognized, but the ease of recognition is modulated by production frequency (Ranbom & Connine, 2007) and perceptual similarity (Connine et al., 1993).
• Little is known about how L1 and L2 listeners process phonological variants in foreign-accented speech.

• Goal: To examine whether recognition of th-mispronounced variants is influenced by substitution preferences or by perceptual similarity.
-> Do words with preferred substitutions, e.g. /tʃt/ for Dutch and /sʃt/ for German listeners, lead to faster recognition of English theft than less frequent substitutions do? Or do listeners, independently of their L1, recognize the perceptually most similar /ʃt/ faster than other variants?

METHODS

• Five eye-tracking studies with printed words
• Subjects: 72 German and 72 Dutch advanced English learners, and 31 native listeners of English
• Materials: 33 critical sentences (e.g. “Now you will hear soft”) with equal number of /t/, /s/, or /ʃ/ substitutions; 60 fillers

Printed word display

| competitor | left mask | distractor |
|            |           |           |
| distractor | kíss      | target    |

• Exp 1: sentences spoken by a Dutch speaker
• Exp 2: sentences spoken by a German speaker
• Task: participants listen passively to sentences while they look at displays (cf. Huettig & Altman, 2005)
• Subsequent production task: reading aloud English text with /θ/ words

RESULTS

• Between 200 ms after target onset and 200 ms after target offset, there was a significant interaction between condition (t-, s-, and f-substitute) and listener group in both experiments.
• Main effect of condition significant within each participant group except in Exp. 2 for English (p=.25) and German (p=.07) listeners.
• No significant correlation between production preferences of individual participants and their looking behavior.

Experiment 1

Experiment 2

SUMMARY & CONCLUSION

• Words with th-substitutions were always fixated more than any of the competitors or distractors (max. competitors value -0.6 log odds).
• Dutch listeners fixated th-words more when they were mispronounced with /t/ than when they were mispronounced with /s/, while the reverse was true for German listeners.
• This effect held independently of whether the sentences were spoken by a German or a Dutch speaker.
• There was a larger difference in fixations to /t/- versus /s/-substitutes for Dutch than for German listeners, possibly an orthographic effect.
• The perceptually similar /ʃ/-substitution was a dominant match for the target word only for English L1 listeners.
• Overall, the results suggest that L2 and L1 listeners can recognize words with mispronunciations, independently of their experience.
• However: For L2 listeners ease of recognition is mainly modulated by listener’s accent-specific preference for th-mispronunciations, while L1 listeners’ recognition is influenced by perceptual similarity.

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