

Is There “Deafness” to Stress Contrasts: A Case of English and Serbian Speakers?

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Previous Research

Rahmani et al. (2015)

- How well are speakers of other languages perceiving stress contrasts?
- Participants:
 - French & Indonesian (no word-prosodic marker)
 - Japanese (pitch accents)
 - Dutch (stress)
 - Persian (unclear, most likely stress)
- The results showed stress “deafness” with French and Indonesian speakers, but not with the rest of the language groups.
- The speakers of languages that have word-prosodic markers are not stress “deaf”.

The Present Study

RQ: Are speakers of languages with marked word prosody stress “deaf”?

Experiment 1

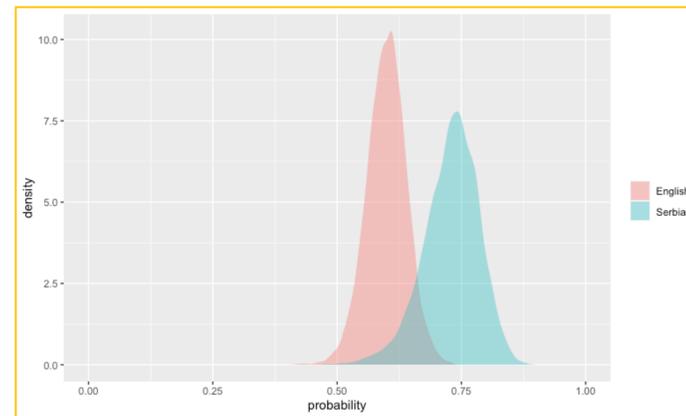
- Participants
 - English – a stress language
 - 17 Canadian English listeners (mean age 22.9)
 - From Calgary (central-west Canada)
 - Serbian – a pitch accent language
 - Advanced learners of English
 - From the Nisava District
- Sequence Recall Task
- Materials
 - 2 non-words patterned according to Serbian phonotactic rules
['pilu] vs. [pi'lu] & ['keno] vs. [ke'no]
 - All produced by a male speaker
- Data Analysis
 - Correct responses and reaction times
 - Rstudio (Horton et al. 2015)
 - Bayesian analysis by using an open-source R Package for Bayesian Statistics in Psychology, bayes4psy (Demšar et al. 2020).

References:

- Demšar, J., Repovš, G., & Štrumbelj, E. (2020). bayes4psy—An Open Source R Package for Bayesian Statistics in Psychology. *Frontiers in psychology*, 11, 947.
- Rahmani, H., Rietveld, T., & Gussenhoven, C. (2015). Stress “deafness” reveals absence of lexical marking of stress or tone in the adult grammar. *PLoS one*, 10(12), e0143968.

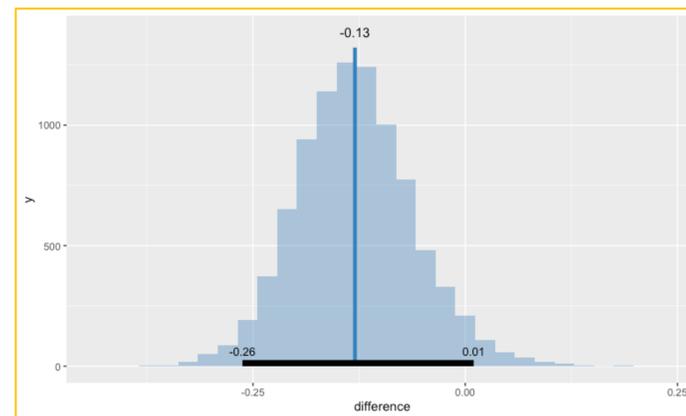
Accuracy

- English – 60%
- Serbian – 73%



Model output

- Serbian more accurate 96% ($\pm 0.002\%$)
- 95% HDI (Highest density interval) = [-0.26, 0.01]



Experiment 2

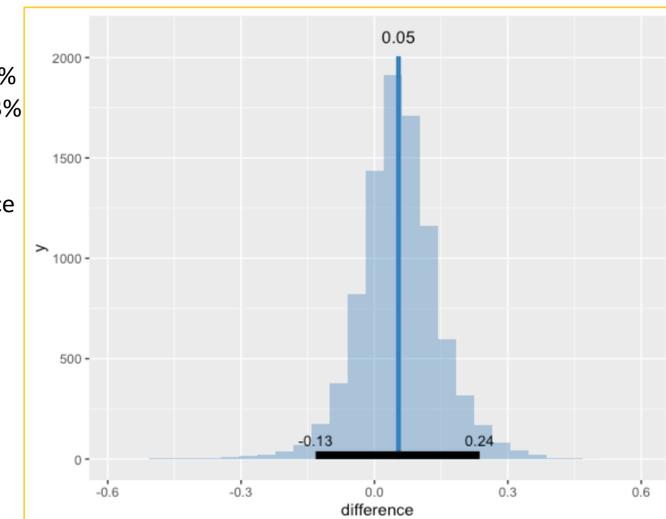
- Participants:
 - 6 Serbian speakers (the Nisava District)
 - 4 Canadian English speakers
- Procedure: the same SRT task
- Materials:
 - 2 sets of non-words (4 in total):
 - English [nallit] and [kabest] with English vowel quality
 - Serbian [bosa] and [keno] with Serbian vowel quality
 - Produced by both a female (Canadian) and a male speaker (Serbian)
 - Appended the word 'OK' at the end of each sequence.
E.g. ['nallit na'llit 'nallit 'nallit OK] (ALAA)

Accuracy

- English – 60%
- Serbian – 73%

Model output

- No difference
- 95% HDI = [-0.13, 0.24]



Overall Results & Discussion

- Experiment 1:
 - Difference between English and Serbian
 - Serbian performed better
 - Some traces of “deafness” to stress contrasts by English speakers
 - Experiment 2:
 - No difference between English and Serbian
 - No “deafness” to stress contrasts
1. The existence of lexical prosodic marking in one’s native language is not the sole determining factor in the perception of stress contrasts as claimed by Rahmani et al. (2015).
 2. The interplay of the word-prosodic marking and other cues to stress ought to be considered:
 - a) Vowel quality
 - b) Phonotactic patterns
 3. Stress “deafness” occurs in a more gradient fashion.

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