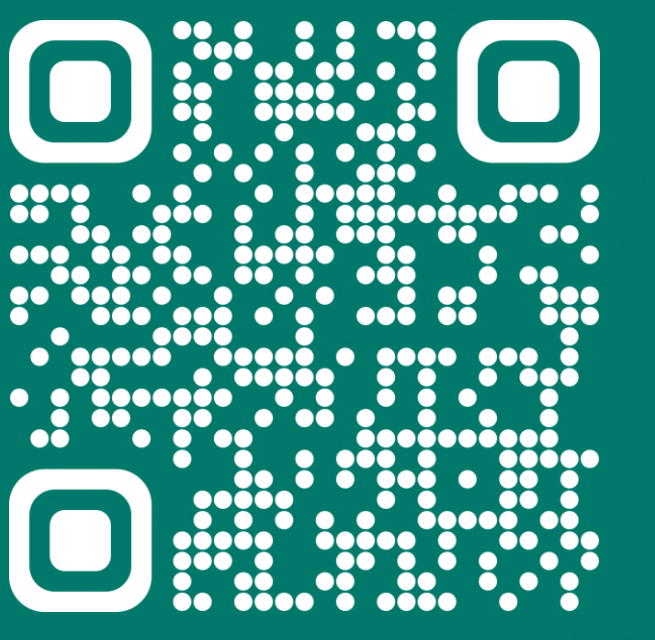


No Evidence for Convergence to Sub-Phonemic F2 Shifts in Shadowing

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later!



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Background

Phonetic convergence is the tendency of interlocutors to sound more like each other over time. Previous research has focused on phonemic and prosodic features (e.g., Pardo et al., 2018). As part of a talker familiarity project, we investigate whether convergence occurs on a smaller scale (i.e., a single formant).

RQ: Do listeners converge to sub-phonemic F2 changes?

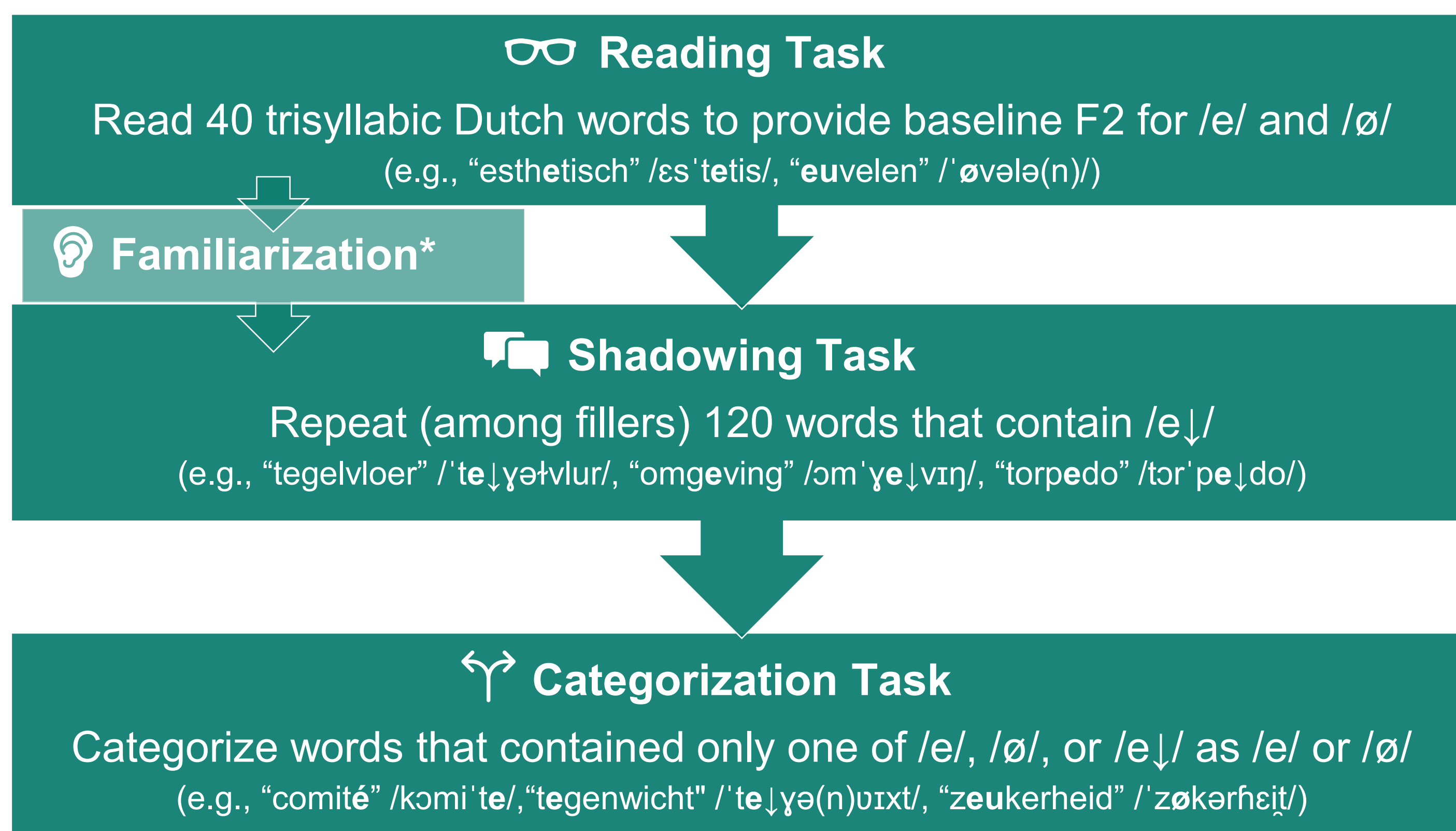
Method

Stimuli



We manipulated the F2 of the Dutch vowel /e/ ($M = 2392$ Hz) to be lower, namely equal to that of the Dutch vowel /ø/ ($M = 1902$ Hz) in recordings of a female native speaker, providing a convergence *target* (“/eɹ/”) for participants ($N = 40$).

Procedure



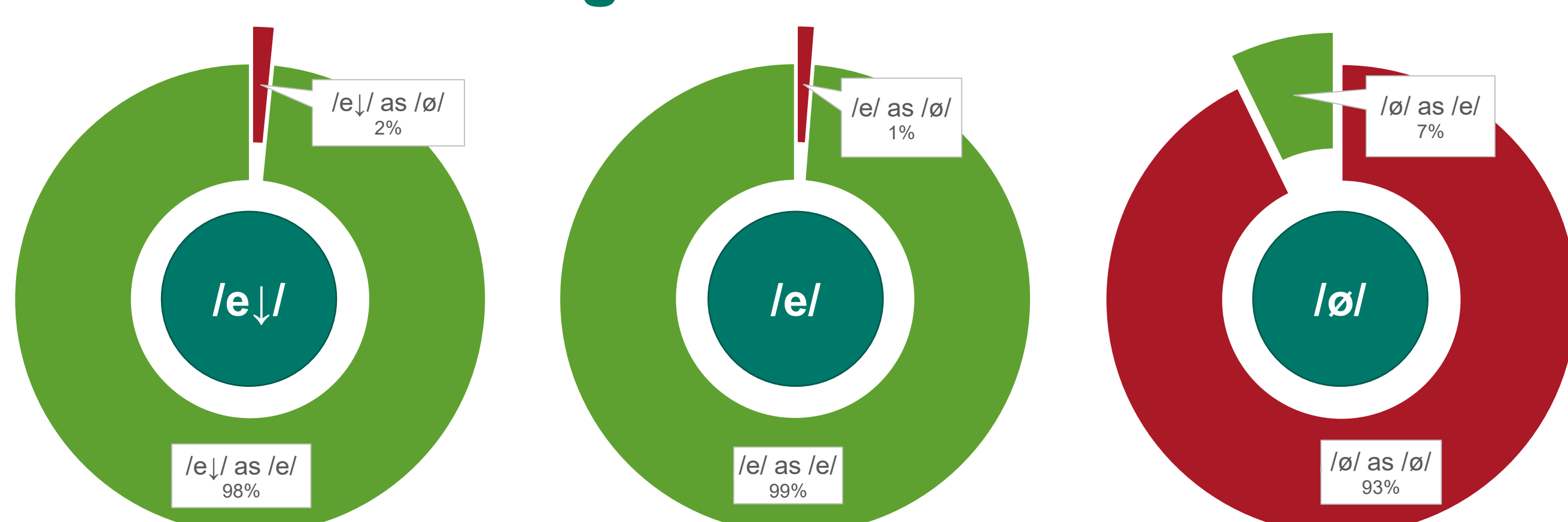
* The follow-up involving the familiarity measure was not run given the results of the current study.

Reading Results

F2	/e/	/ø/
Speaker	2392 Hz	1902 Hz
Participants	2272 Hz	1842 Hz

Participants' mean F2 baselines were comparable to those of the speaker.

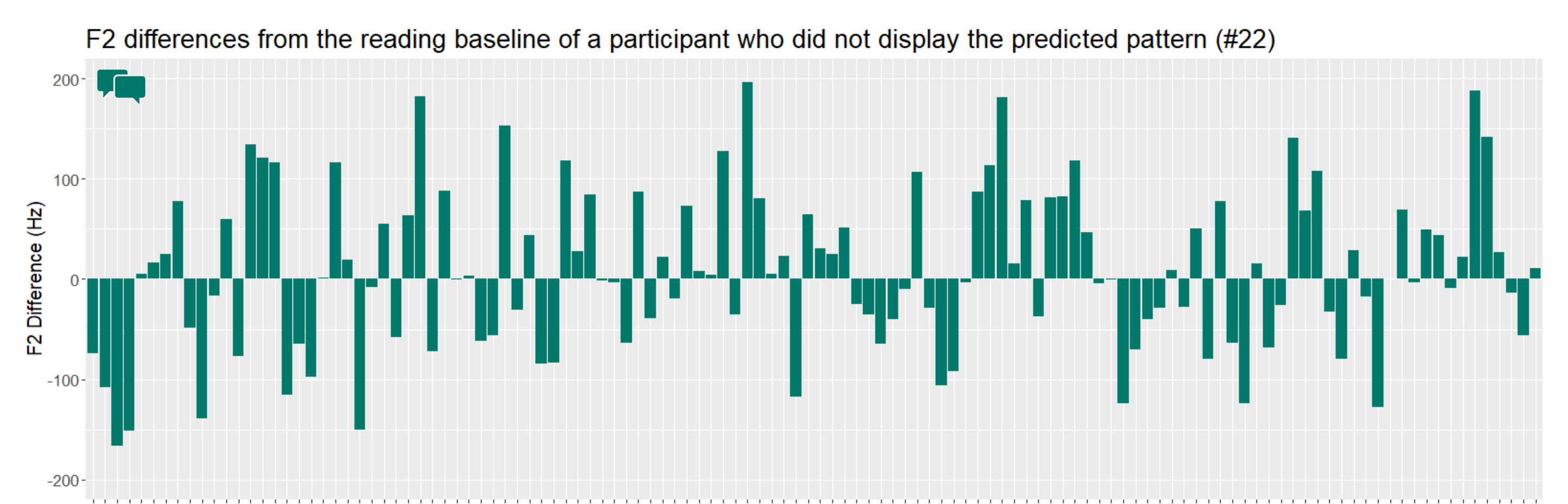
Categorization Results



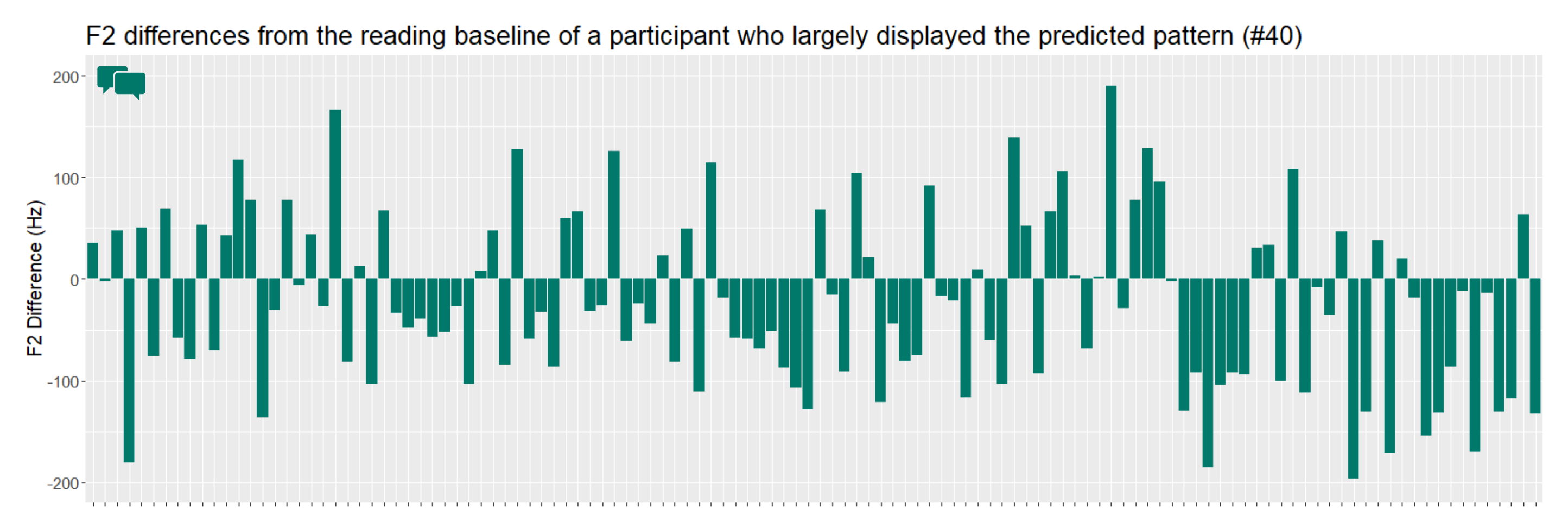
Participants perceived both /e/ and /eɹ/ as /e/, and perceived /ø/ as /ø/. As expected, we observed no consistent category shift for /eɹ/.

Shadowing Results

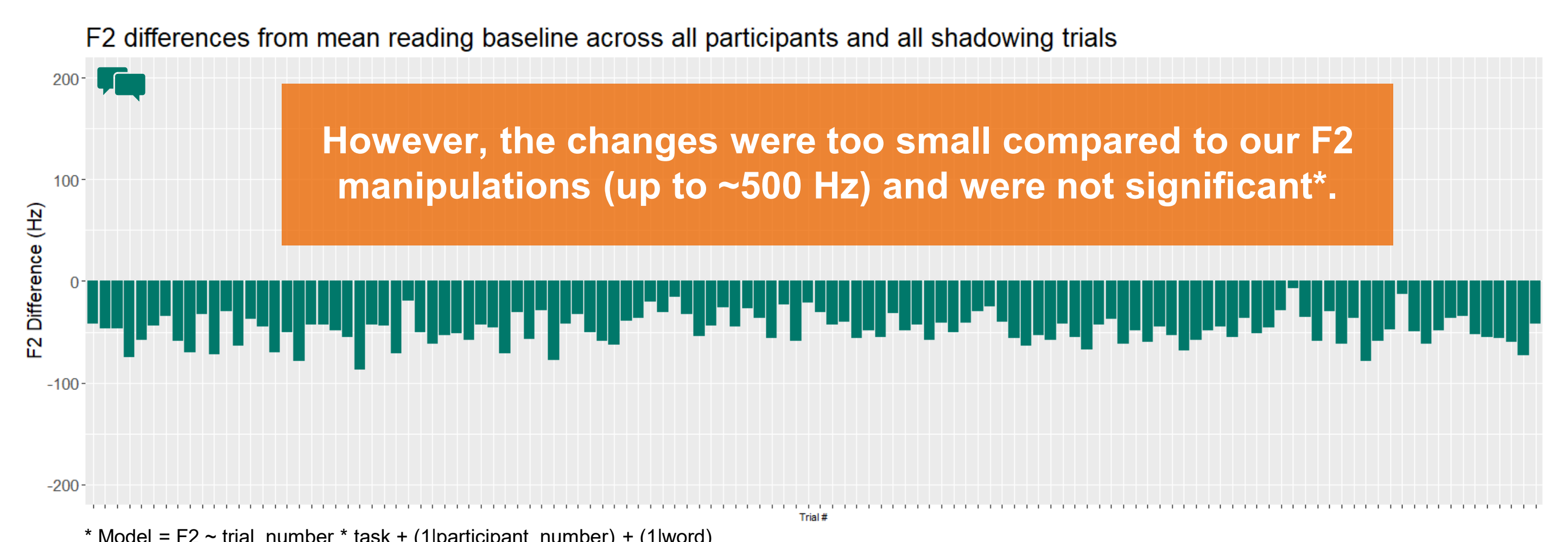
Participants had widely varying patterns of F2 change...



...and some did converge in the expected direction.



They also had lower F2s throughout the shadowing task compared to the reading task.



* Model = $F2 \sim \text{trial_number} * \text{task} + (1|\text{participant_number}) + (1|\text{word})$

Discussion

- ❖ Despite comparable F2 ranges and no category shifts for /eɹ/, participants were not more likely to produce lower F2s for the vowel /e/ after repeated exposure to /eɹ/.
- ❖ This may have been caused by the fact that our manipulations did not introduce comprehension or production challenges that demanded F2 changes.

Conclusion

Despite reports of convergence to prosodic or sub-phonemic speech features such as speech rate (e.g., Manson et al., 2013) and subtle VOT differences (e.g., Nielsen, 2011), **listeners did not automatically converge to sub-phonemic F2 shifts.**