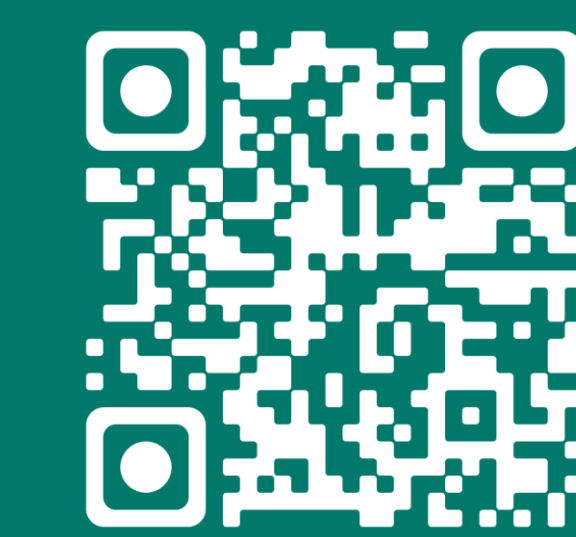


Knowledge of a talker's F0 affects subsequent perception of voiceless fricatives

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Poster



Paper



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Background

- The perceptual system uses a variety of processes to deal with the immense variability of speech^[1].
- Signal-driven processes rely entirely on the incoming speech signal while knowledge-driven processes rely on the listener's linguistic/world knowledge.
- The F0 of surrounding speech has a contrastive signal-driven effect on pitch perception as measured by fricative (/s/ and /ʃ/) CoG perception^[2], but the potential role of a talker's habitual F0 in this paradigm is unknown.
- RQ: Does knowledge of a talker's habitual F0 affect pitch perception, as measured by fricative CoG perception?**

Stimuli

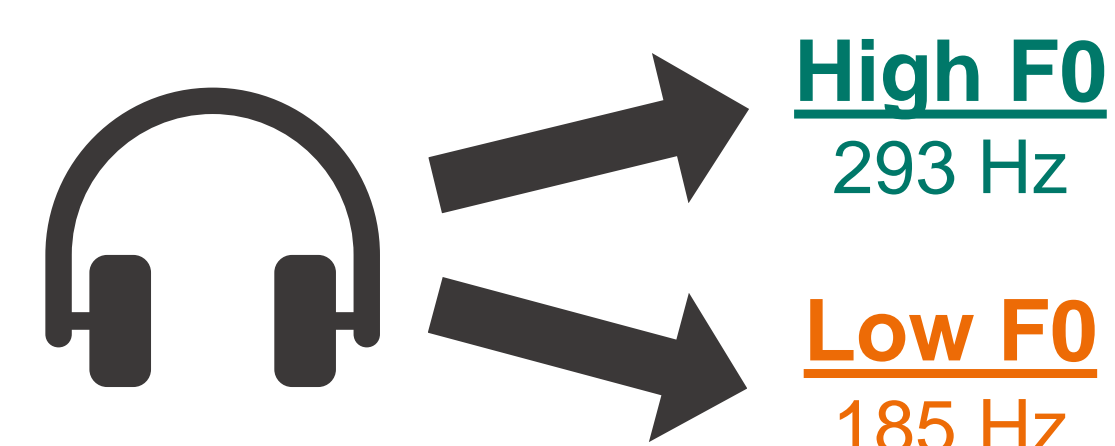
5 steps of an artificial 8-step /s/-/ʃ/ continuum, followed by fixed F0 /ɔk/, creating the Dutch words *sok* "sock" and *sjok* "trudge".



Procedure

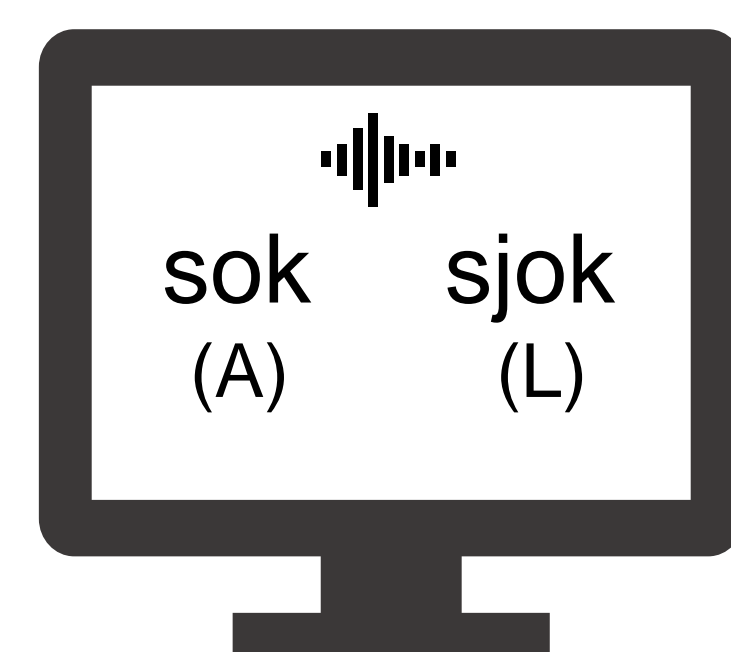
Exposure Task

Participants (N=16 per group) hear the same talker at a high or low mean F0 for 20 minutes.

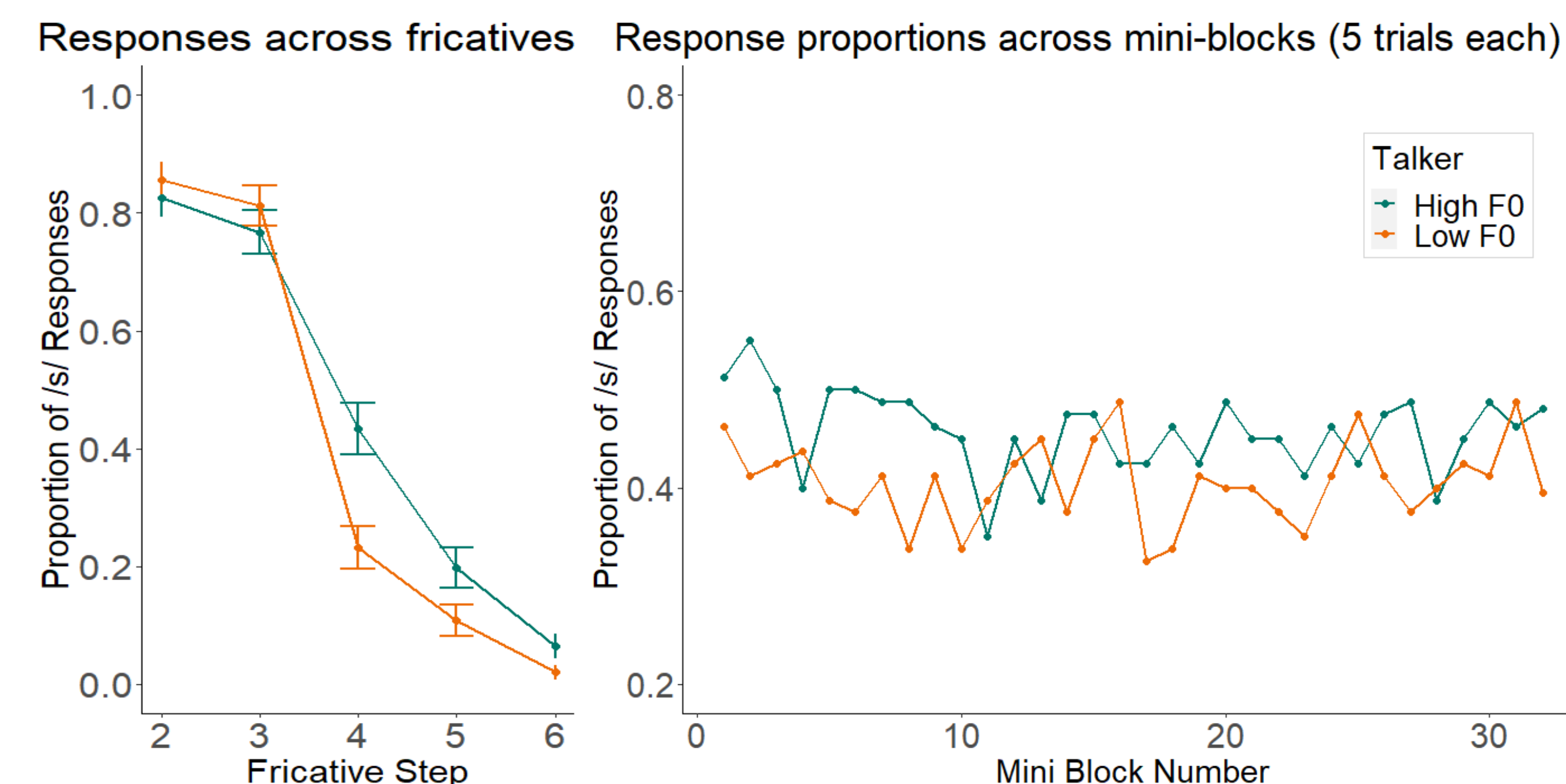


2AFC Task

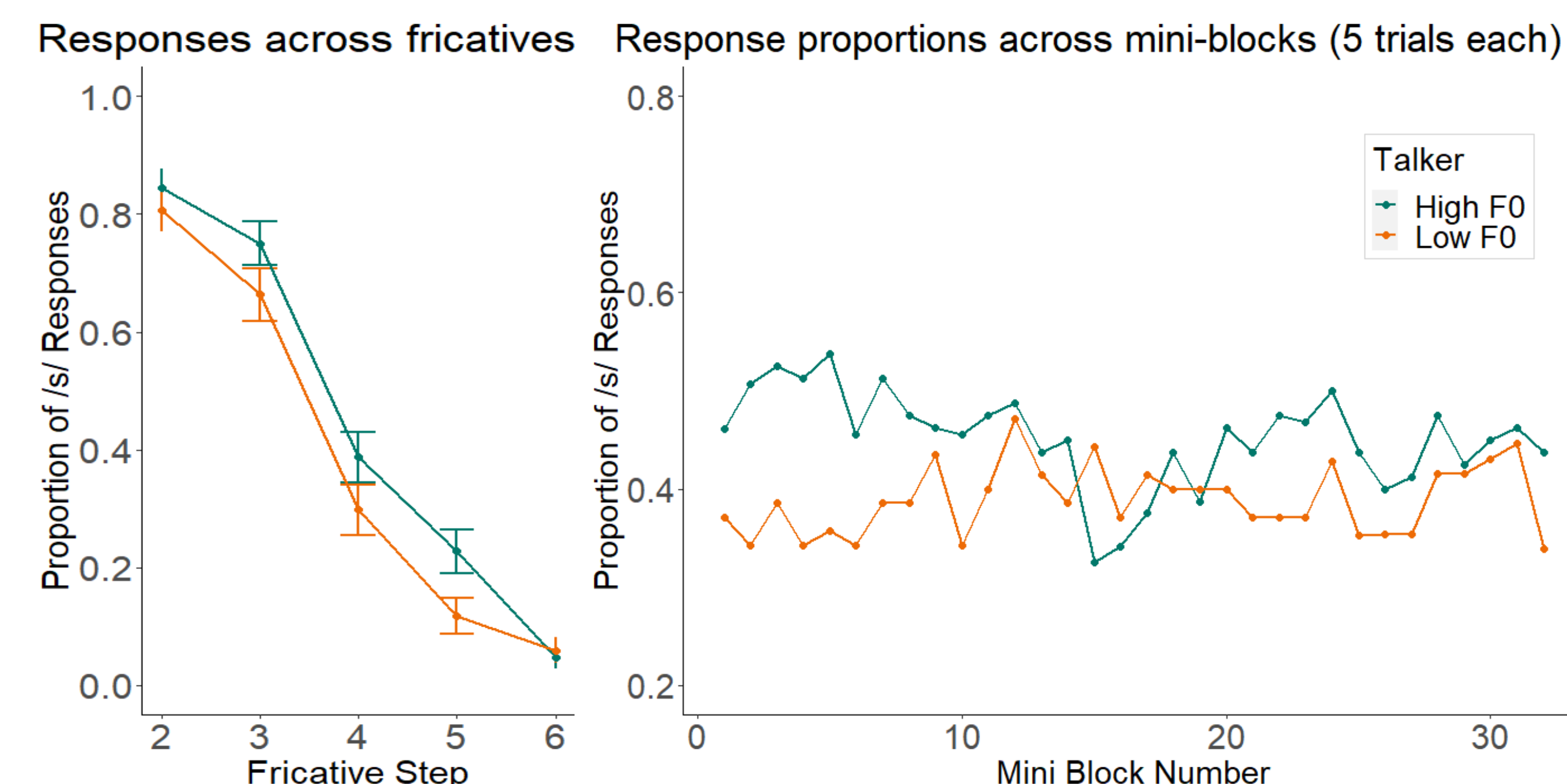
Participants indicate which word they hear. For each mini-block of 5 trials, the fricatives are shuffled.



Experiment 1 (Online – 32 participants)

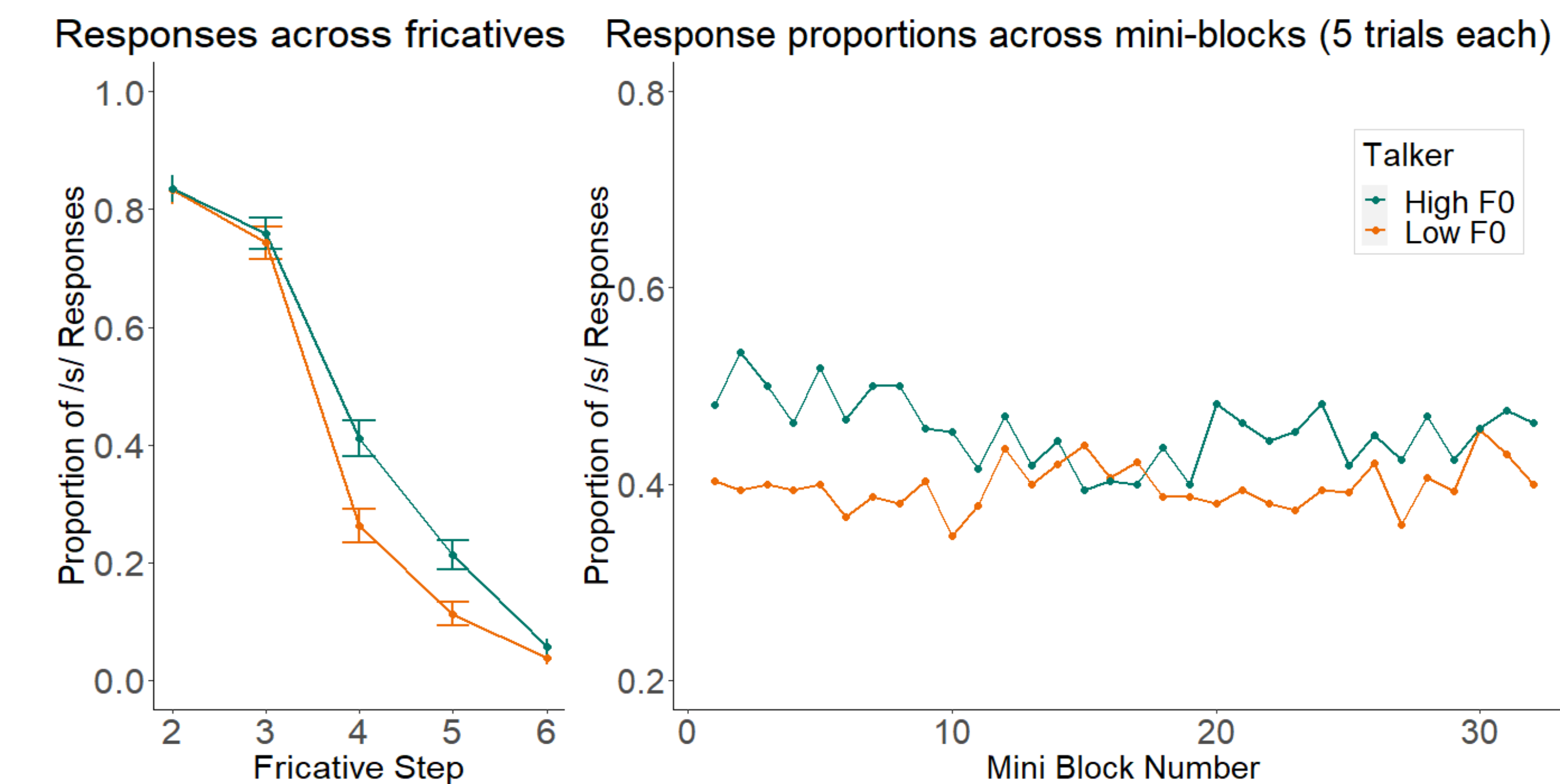


Experiment 2 (Lab-Based – 30 participants)



In both experiments, high F0 exposure led to a higher proportion of high-CoG (i.e., /s/) responses, indicating a non-contrastive direction for a potential talker effect

Joint Results & Analyses



The data from the two experiments were analyzed together in a GLMM.

Primary Analyses

Significant effect of talker F0 on response proportions.
($\beta = 0.61$, $SE = 0.22$, $z = 2.80$, $p = 0.005$)

Secondary Analyses

Comparable responses across experiments and no effect of mini-block.

Conclusion

- Using voiceless fricative CoG perception as a proxy measure, **we found evidence for an effect of talker F0 on pitch perception.**
- Unlike analogous signal-driven effects, **this talker effect was not contrastive.**
- This could be explained by an assimilatory effect or **an interaction of two contrastive effects** where talker F0 contrastively affects the perception of the post-fricative vowel, which in turn affects the fricative.