Using systematic synthetic voice differences to probe the identification of mixed-talker vowels

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Results

Identification accuracy. The effect of the context voice on the identification of vowels from base voices was also considered for the Male and Female voices. Identification performance was measured using d-prime, which takes into account both correct identifications and false alarms.

A linear-mixed-effects model was fit to the data where the RI of the context voice and the FS shift of the context voice were the fixed effects and participant was the random effect. The coding used for this model is the same as that given in Table 1. Results are presented in Table 2 and visually in Figure 3.

Conclusions

The goal of this experiment was to extend the findings reported in [1, 2]. The results presented here confirm those findings. We used targets in the interior of the vowel space, rather than on the periphery. As a result we got much lower identification rates and greater variability in performance.

- Speaker differences can have a non-additive effect on identification performance where, in some cases, larger differences between voices facilitate identification.

- This effect is largely a result of f0. Listeners appear to rely on the FS differences in the male voice.

- Even large FS differences do not appear to be enough to help listeners pick voices apart.

- There were significant target x FS shift x f0 interactions for performance, but no such interactions for response times.

- The effects on identification performance reported are dependent on the specific locations of the targets used within the FS.

- Reaction times are less dependent on the specific vowels used.

- All effects reported here are purely extrinsic; the effects of a context voice on the identification of a base vowel.

References


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