

## INTRODUCTION

- Speech recognition technologies are proliferating
- Accuracy of these technologies may be limited for individuals with dysarthric speech, including many individuals with Down syndrome
- However, if accurate, these technologies could be used to support communication between individuals with dysarthria and unfamiliar communication partners

## RESEARCH QUESTIONS

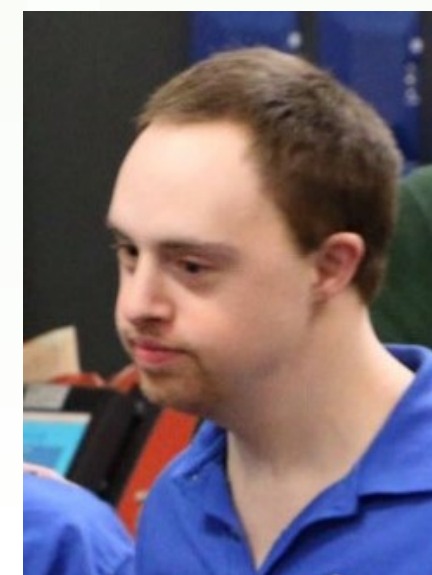
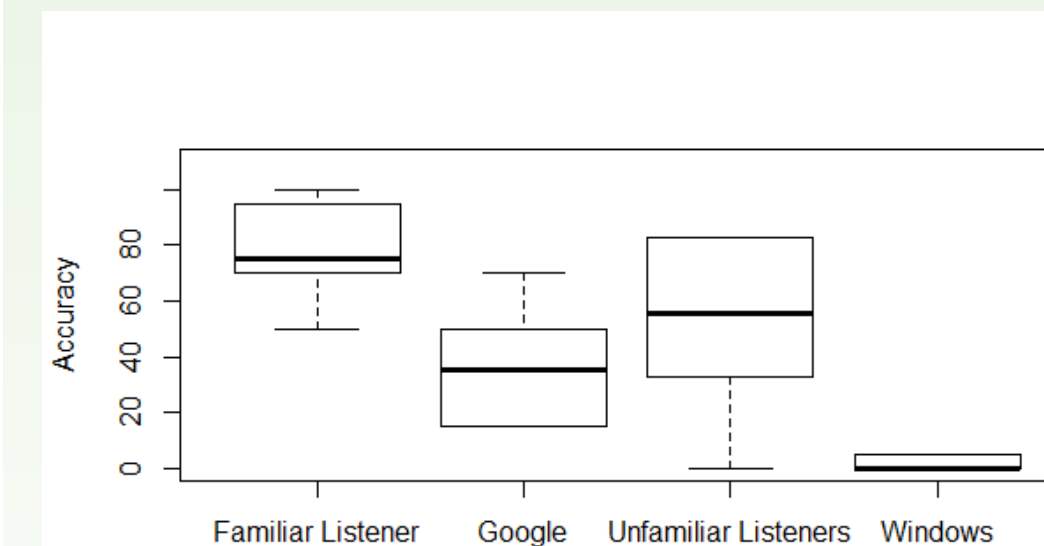
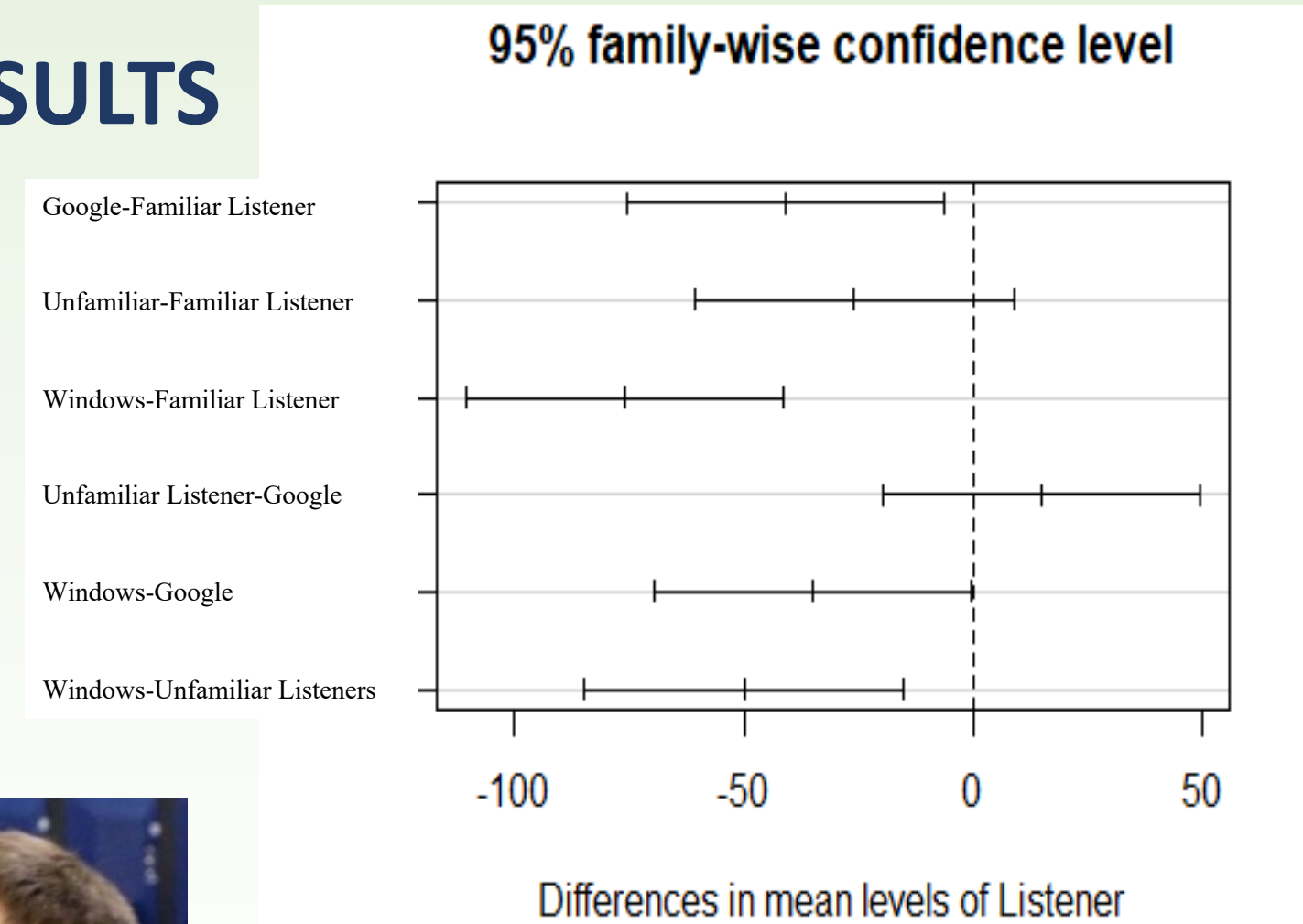
- With what level of accuracy do two popular speech recognition technologies – Google and Windows – translate the speech of adults with Down syndrome to text?
- Is there a significant difference between the accuracy of these two popular technologies?
- How do these technologies' accuracy compare to the accuracy of familiar listeners?
- How do these technologies' accuracy compare to the accuracy of unfamiliar listeners?

## METHOD

- 6 adults with Down syndrome participated
- Each adult's speech in producing 20 sentences from the BIT was recorded
- The following listener types transcribed the recorded sentences: a highly familiar partner, two unfamiliar partners, Google Speech-to-Text, and Windows Speech-to-Text
- The accuracy in the transcription of the target word from each sentence was coded for each listener type
- A one-way ANOVA and Tukey HSD was used to explore any differences between the accuracy of each listener type



## RESULTS



- Google:  $M=37\%$  (range:15-70%), Windows:  $M=2\%$  (range:0-5%), Familiar:  $M=78\%$  (range:50-100%), Unfamiliar:  $M=52\%$  (range:0-83%)
- The ANOVA revealed significant differences between listener types,  $F(3,20) = 11.69, p=0.0001$
- Familiar listeners outperformed both technologies
- Both unfamiliar listeners and Google outperformed Windows

## CONCLUSIONS

- While some speech recognition technologies may perform as well as unfamiliar listeners, they are far from having the accuracy to be functional
- Future research should explore avenues for increasing the accuracy of these technologies when transcribing the speech of adults with Down syndrome who experience dysarthria
- Concurrently, familiar partners could be considered as more accurate 'translators'

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