

Preschoolers vary the production of their vowels with the discourse context

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1. Introduction and Background

Adults can modulate the prosody of their speech with the discourse context and the speaker-hearer relationship.

Child-directed speech has:
expanded pitch range, longer duration, higher intensity³

Question:

•Are young children also sensitive to similar aspects of the discourse context?

Redford & Gildersleeve-Neumann (2009) argued that children's ability to alter their speech is piecemeal and protracted over child development. But, they did not:

- Control for vowel quality in their stimuli.
- Control for how the words in the casual speech condition were elicited.
- Compare same number of tokens or pairs for each child and age group.²

Current study controls for these aspects.

Hypothesis:

Like adults, children are sensitive to the discourse context. They can accomplish modulating their speech prosody with child-directed speech by expanding the pitch range, increasing duration, and increasing intensity of their vowels.

2. Experimental Design

Two tasks (within subject):

1. List and Adult-Directed Speech (ADS) Task
 - Experimenter said each word (ADS).
 - Children were asked to repeat each word.

Sheep

Sheep



2. Picture and Child-Directed Speech (CDS) Task
 - Premise: A puppet was learning words.
 - Children were asked to speak clearly.
 - Images were on power point slides to reinforce words as object labels.

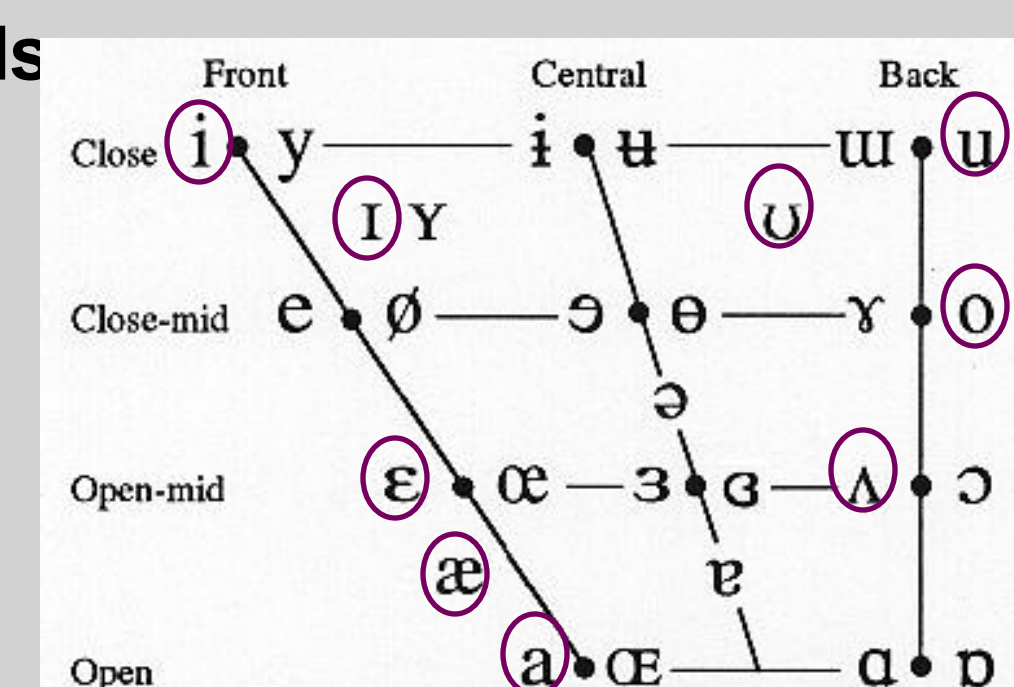
Stimuli: 36 monosyllabic, imageable words

9 vowels

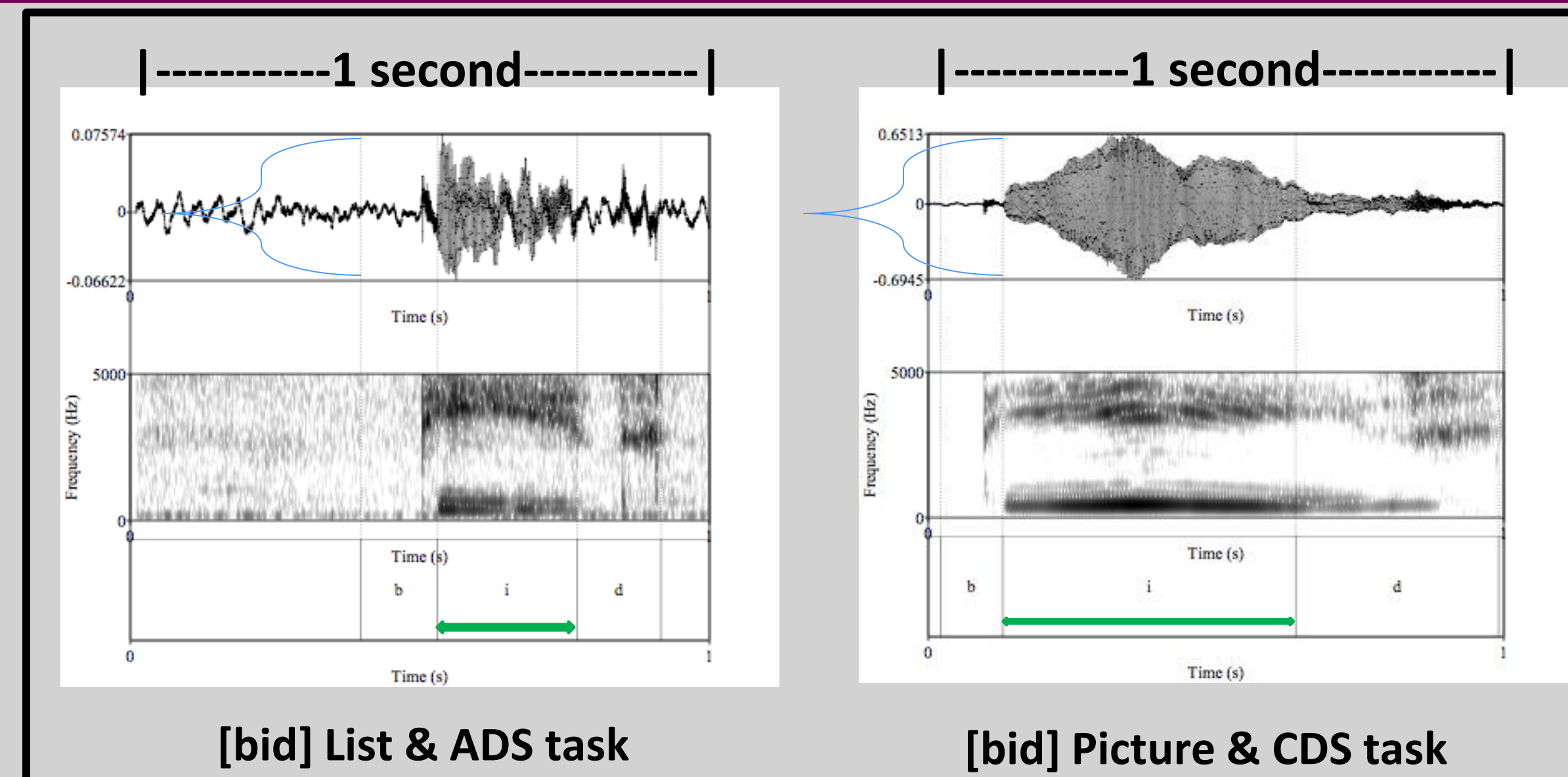
(/a/, /æ/, /ɪ/, /u/, /o/, /ʊ/, /i/, /ɪ/, /ɛ/)

4 words per vowel

“/b_ /d/” word for each vowel

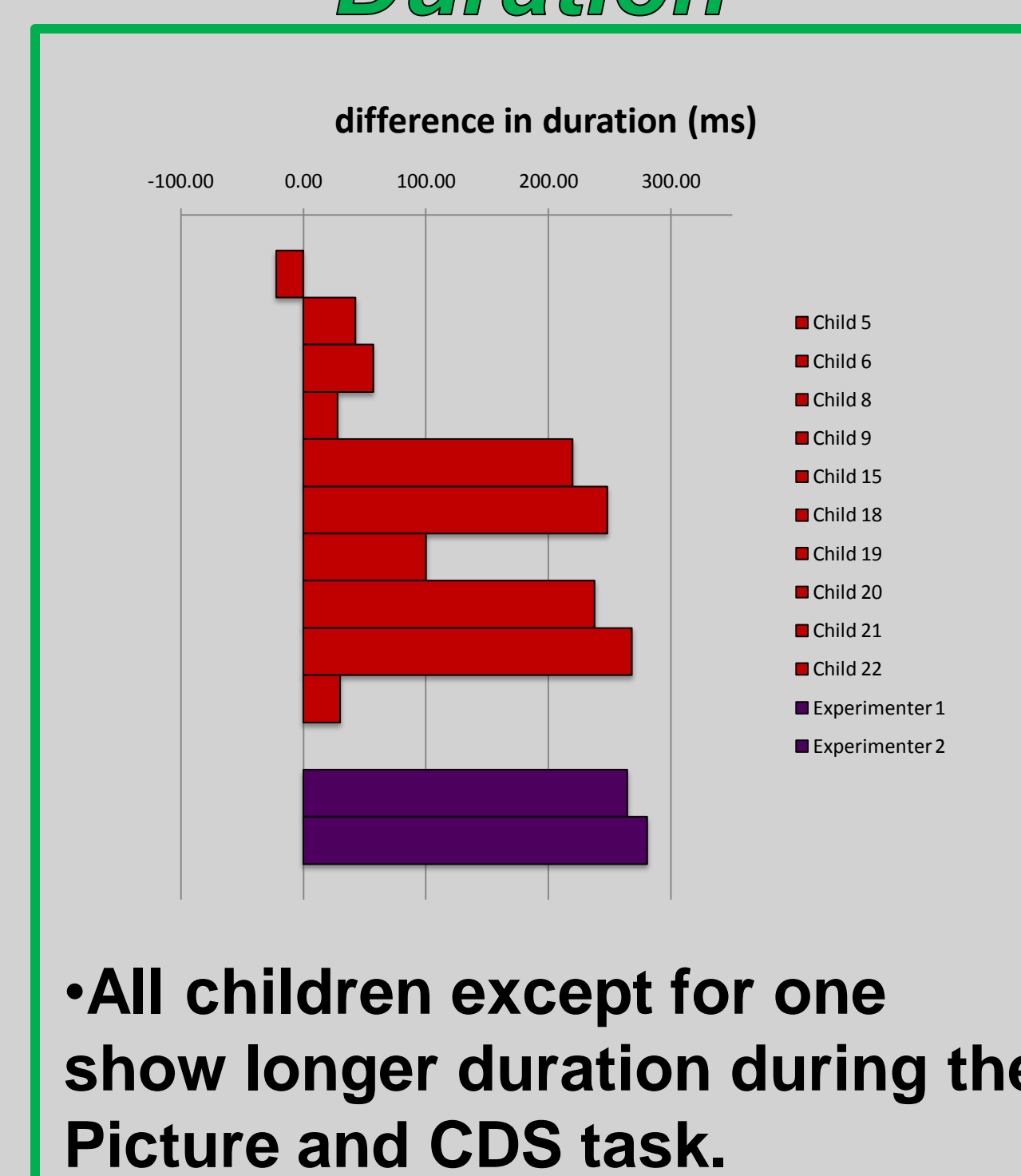


3. Results



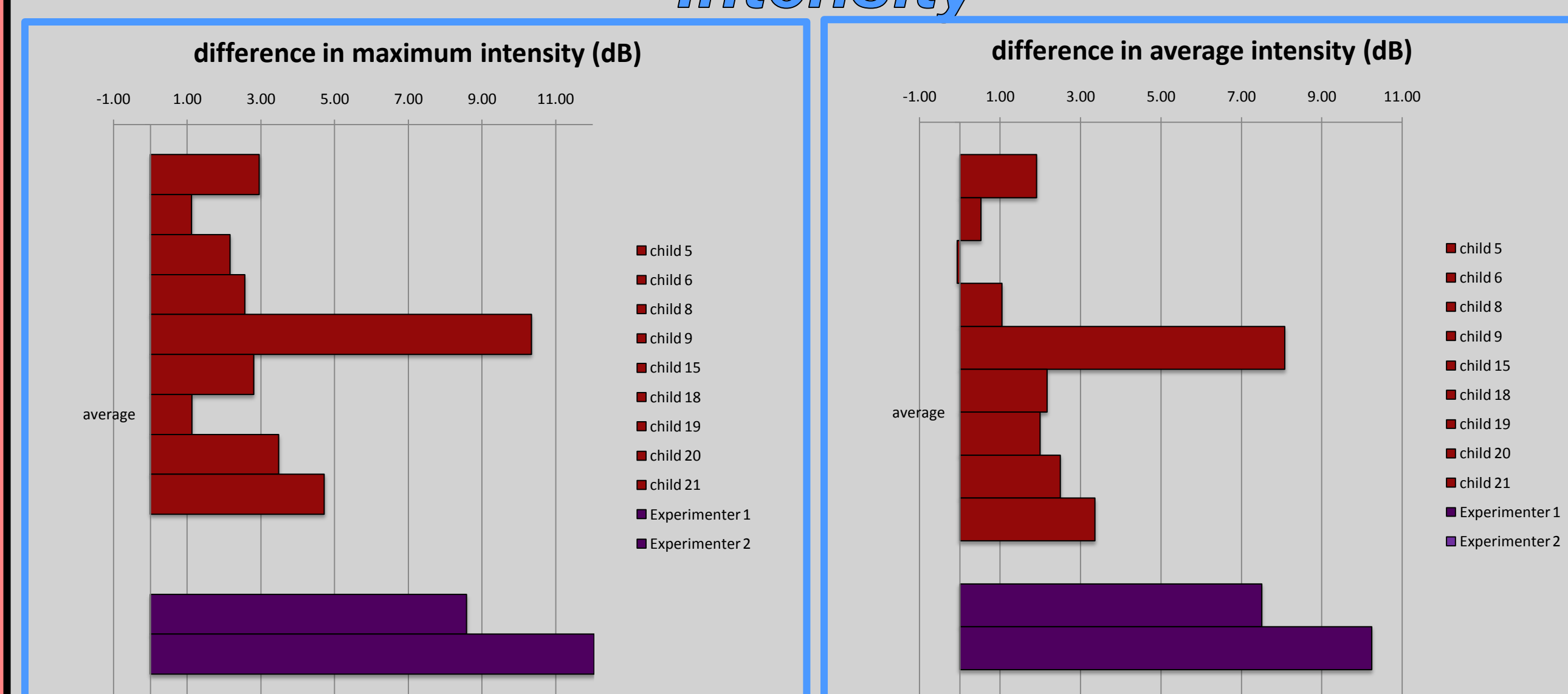
Difference = [Picture & CDS task] – [List & ADS task] (expected to be positive)

Duration



•All children except for one show longer duration during the Picture and CDS task.

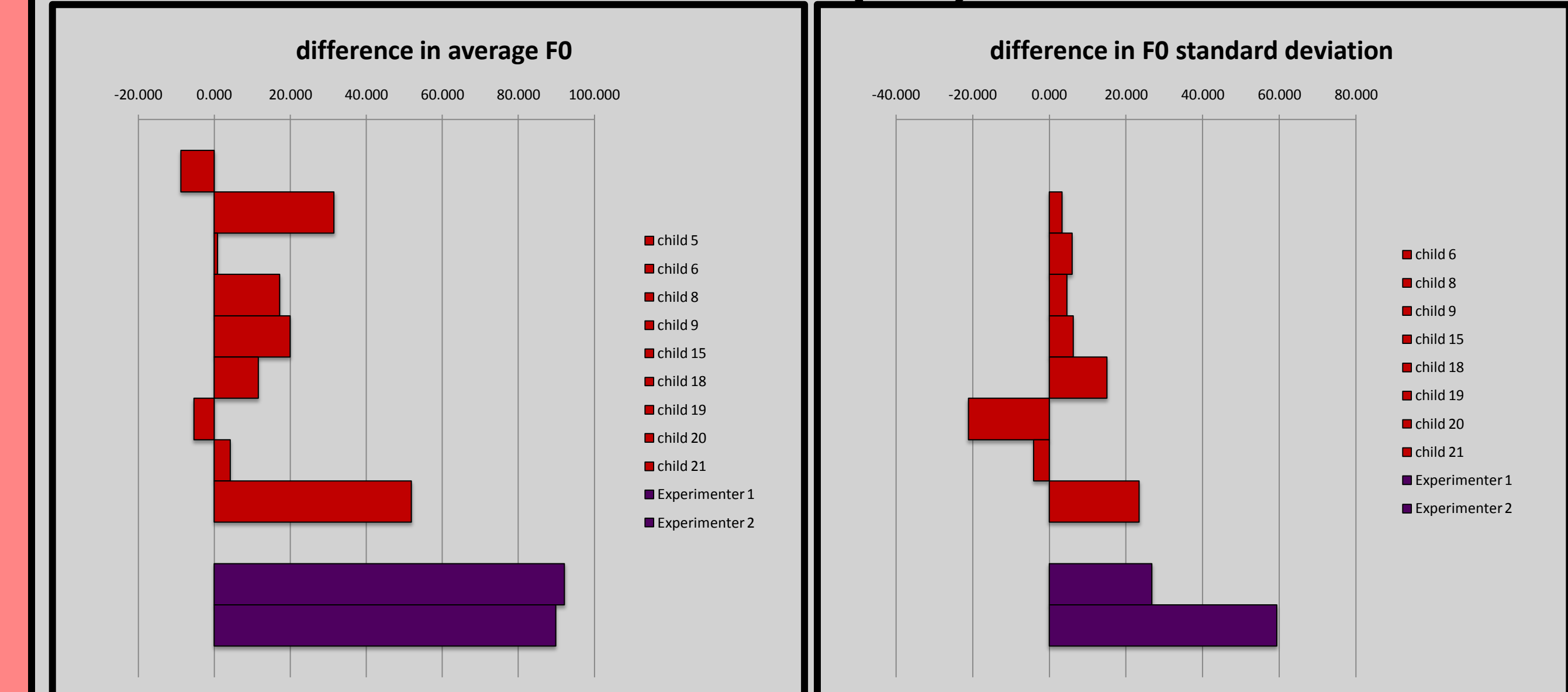
Intensity



•All children have a higher maximum intensity in the Picture and CDS task than the List and ADS task.

•All children except for one have a higher average intensity in the Picture and CDS task than the List and ADS task.

Pitch (F0)



•All children except for two have a higher pitch in the Picture and CDS task than in the List and ADS task.

•Positive difference in F0 standard deviation shows more pitch movement in Picture and CDS than List and ADS task.

4. Discussion

Differences are apparent between children's CDS and ADS.

- Duration is longer.
- Intensity is increased.
- Pitch range is expanded.

Children paired with the best possible scenario to elicit CDS.

-Current:

List & ADS task compared with Picture & CDS tasks

-Future:

List & ADS task compared with Picture (no repetition)

List & ADS task compared with List & CDS task (no picture)

Like adults, children can modify their voices.

Implications for communication disorders: children can be motivated to change their voices based on the discourse context.

Future research: What is the cause of this motivation?

5. References

- ¹Bradlow, A.R., Torretta, G.M., Pisoni, D.B., (1996). Intelligibility of normal speech I: Global and fine-grained acoustic-phonetic talker characteristics. *Speech Communication*, 20, 259-272.
- ²Redford, M.A. & Gildersleeve-Neumann, C.E., (2009). The development of distinct speaking styles in preschool children. *Journal of Speech, Language, and Hearing Research*, 52, 1434-1448.
- ³Igarashi, Y. & Mazuka, R., (2008). Exaggerated prosody in infant-directed speech: Intonational phonological analysis of Japanese infant-directed speech.