Comparing utterance composition and conversational content in everyday language input to blind and sighted toddlers

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Background

Blind babies:

- do not have visual access to information about the world.
- eventually acquire language on par with their sighted peers (Andersen et al, 1984).
- could be relying on **linguistic input** from their parents to bridge the gap
- receive the **same quantity** of input (MLU, conversational turns) as sighted babies (Campbell et al, submitted).
- What about the **content** (Hirsch-Pasek et al, 2015)?

Does the **informativeness of the linguistic content** blind and sighted infants hear differ?

Method - Corpus

Participants: 15 blind, 15 sighted infants, 6-30 mo. (matched on: age, maternal education, # siblings)

Corpus: 16hr recordings of child speech enviro.

Transcribed regions: 40 min/child = 1200 min total

15 2-min. clips/child randomly selected from full day

5 2-min. clips/child from high-talk volume regions

~4k utterances per group (blind, sighted)

Present study tags <u>child-directed utterances</u> for:
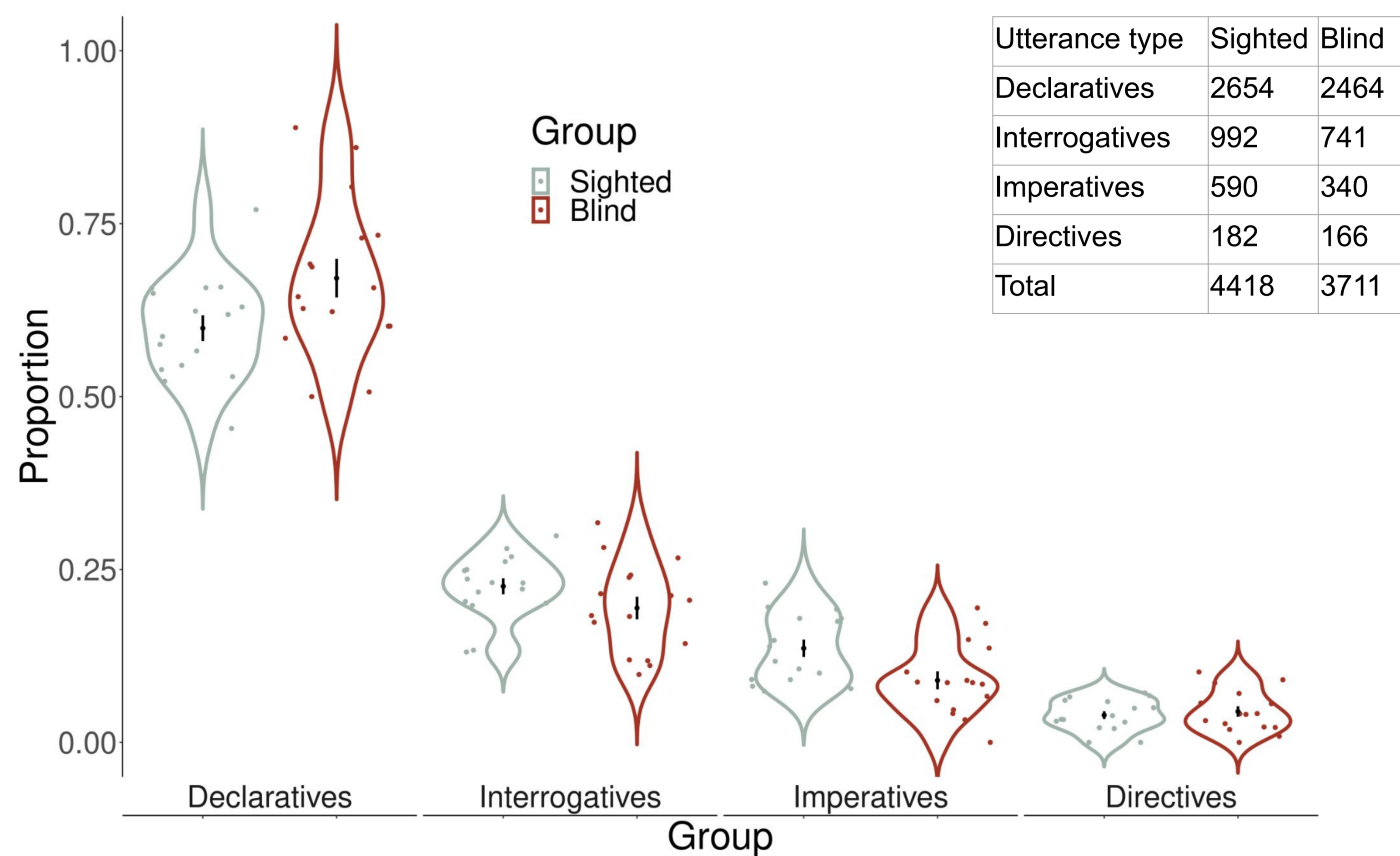
Utterance type:

- Imperatives – "Come here!"
- Directives – "Let's go to the park, shall we?"
- Interrogatives – "What color is the truck?"
- Declaratives – "The truck is red."

Conversational content:

- Expansions – "Church" "Say squirch."
- Extensions – "Ducky." "That's a gull, innit?"
- Affirmations – "Again!" "Again?? Okay."
- Repetitions – ""And he will squash you like a..." "Flea." "Flea, right!"
- Reading and Singing - "You are my sunshine..."
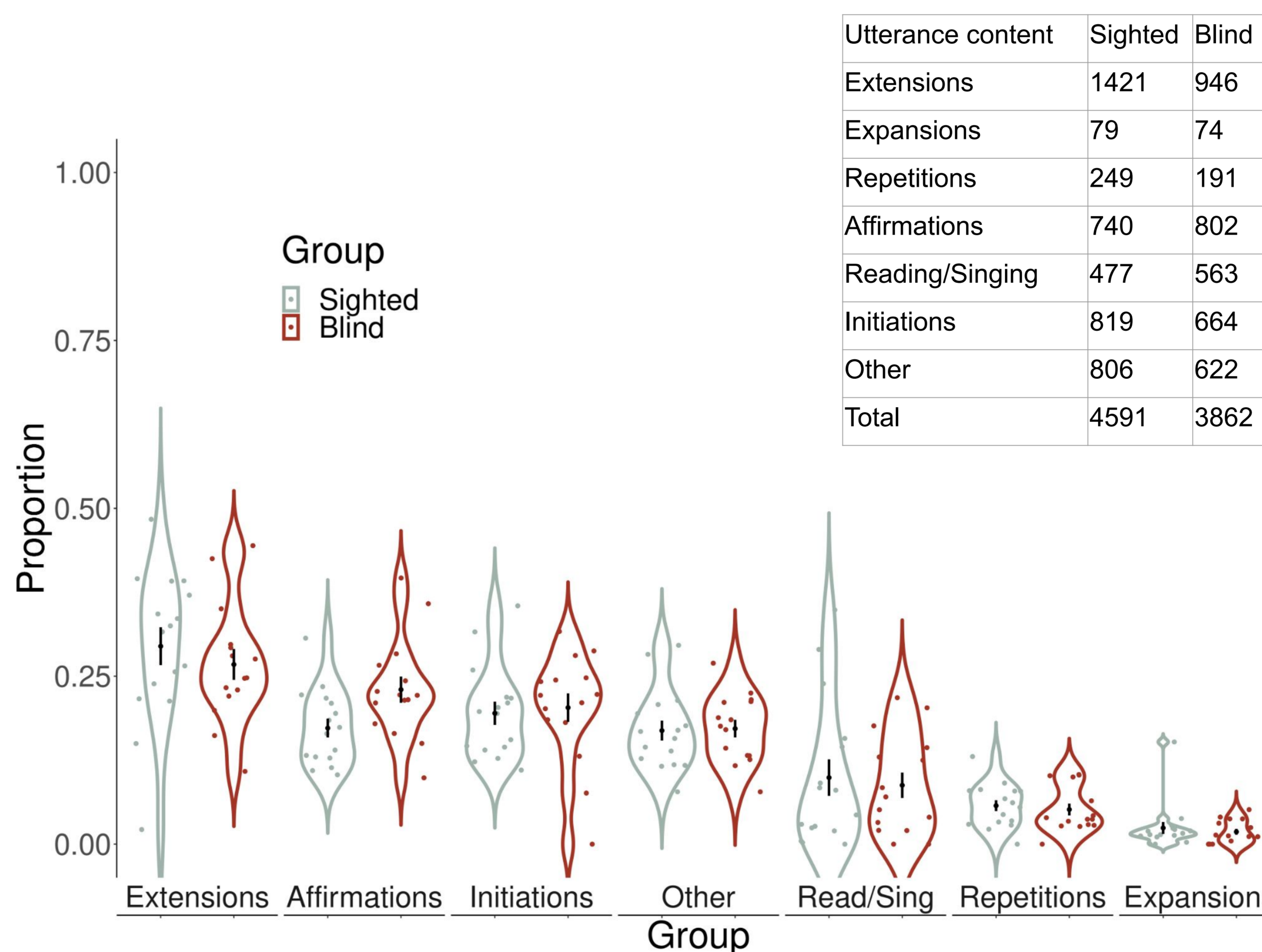- Initiations - "Hey!"

Results

Do blind and sighted infants hear the same distribution of *utterance types?*

Utterance type	Sighted	Blind
Declaratives	2654	2464
Interrogatives	992	741
Imperatives	590	340
Directives	182	166
Total	4418	3711

More or less. Blind infants hear a *slightly* higher proportion of declaratives, but no differences across other utterance types

- lm(prop. utt ~ group * utt-type) provides a strong fit to the data (Adj R^2=.94, p<.001)
- including this interaction significantly improves model fit, driven largely by a small but reliable increase for declaratives

Do blind and sighted infants hear the same distribution of *conversational content?*

Utterance content	Sighted	Blind
Extensions	1421	946
Expansions	79	74
Repetitions	249	191
Affirmations	740	802
Reading/Singing	477	563
Initiations	819	664
Other	806	622
Total	4591	3862

Yes! Blind and sighted infants hear **the same** (i.e. a statistically indistinguishable) proportion of conversational content across all categories

- no evidence that including a 'group' term improves model fit (p>.05 by model comparison)

Discussion

- Other conversational content types or classifications to consider?
  - 17.5% of utterances were "Other"
  - "Other" contains non-response repeats, asides, negations, etc.

- Analyzed only child-directed utterances

- **Future directions:**
  - Unpack 'Other' category
  - Analyze adult-directed utterances
  - Attempt to discover how blind infants use what they hear

Conclusions

- Blind and sighted infants hear highly similar utterance and conversational content distributions
- The informativeness of linguistic content, as measured here, does not differ for blind vs. sighted infants
- Whether blind infants *use* their (highly similar) input differently from sighted infants to acquire language remains an open question

Thank you

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