Adapting infant looking time paradigms for the web

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The Child Language Lab, University of Pennsylvania
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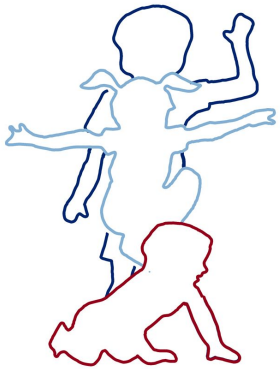


HPP paradigm

Head-turn preference procedure (HPP):

- crucial to the study of infant language acquisition
- measures how long infant's attention is held by sound sequences relevant to the language they are learning

Photo credit: Baby Speech Lab, University of Konstanz

(Nelson, Jusczyk, Mandel, Myers, Turk & Gerken, 1995)

HPP paradigm

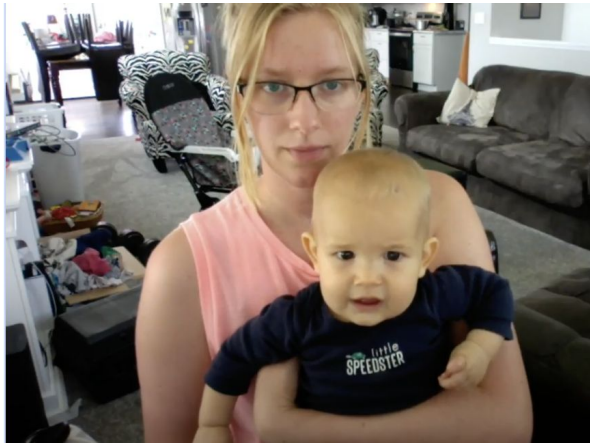
HPP remains restricted to the lab:

- Assume substantial researcher control is required
- Assume sound-attenuated booth is required
- Assume parent-blinding is required
- Assume differences in looking behavior are very subtle and would be eliminated over web
    - e.g. due to noise contributed by environment, different computers, web connection, etc

Current study

Today:

- the first demonstration that HPP can be adapted online using Lookit (https://lookit.mit.edu/)
- new opportunities for infant studies during the pandemic



Shi et al. (2006): Design

Can 11-month-olds use functors like ‘the’ to facilitate the extraction of novel nouns?

Familiarization - 6 trials (fixed length - 16s)

Test - 4 trials (fixed length - 16s)

functor + pseudoword

“the breek…the breek…”

“kuh tink…kuh tink…”

“the breek…the breek…”

“kuh tink…kuh tink…”

pseudoword (alone)

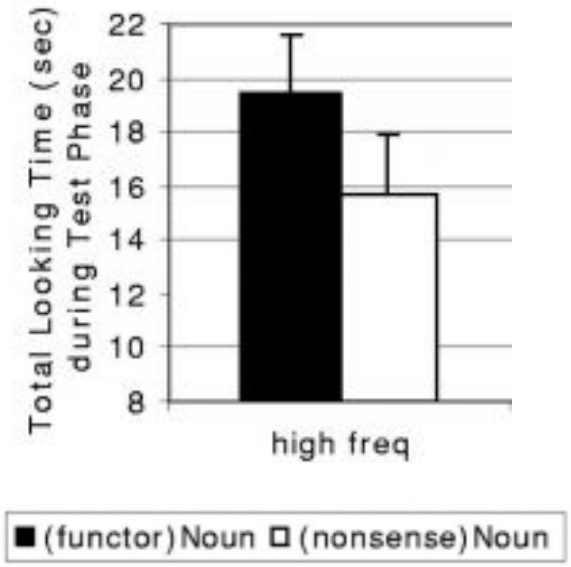
“breek…breek…”

“tink…tink…”

“breek…breek…”

“tink…tink…”

Shi et al. (2006): Results



Current study: Design

	Shi et al. (2006) In lab	Current study Online via Lookit
Setup	Sound-attenuated chamber	Home over the web

Current study: Design

	Shi et al. (2006) In lab	Current study Online via Lookit
Setup	Sound-attenuated chamber	Home over the web
Parent blinding	Masking music over headphones	None

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Attention getter	None reported	Laughing baby video after each trial

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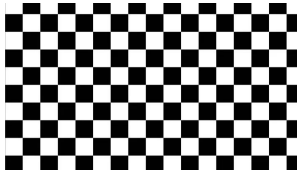
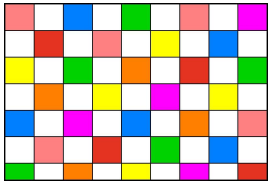
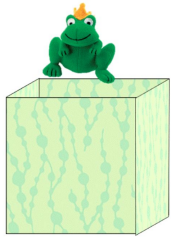
Trial length	Fixed 16s	Fixed 16s
Visual stimuli	Checkerboard	Checkerboard (low interest) or toy-in-box (high interest)







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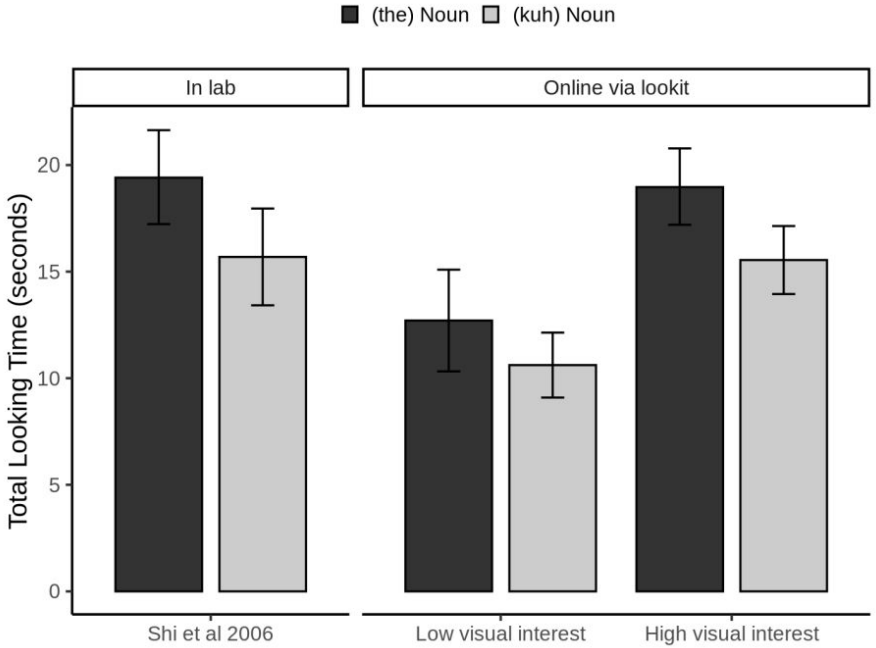
Visual stimuli	Checkerboard	Checkerboard (low interest) or toy-in-box (high interest)
Exclusion criteria	Fussiness; equipment failure; infant failed to reach 15s of cumulative looking for each token during familiarization	As in Shi et al (2006) *plus* unusable video (e.g. baby not visible in webcam recording)

Current study: Participants

62 11-month-old infants: 14 in the low interest condition, 29 in the high interest condition, and 19 excluded.

Current study: Results



Mixed effects regression: functor ($X^2(1)=5.58$, $p=0.02$) and condition ($X^2(1)=5.11$, $p=0.02$), but not their interaction ($p=0.62$) were significant predictors of looking time.

Conclusion

While infants in the high interest condition looked longer overall, we replicated Shi et al. (2006) in both conditions: Infants looked longer to the noun familiarized with ‘the’, indicating that functors indeed facilitate novel noun extraction.

This suggests HPP can be successfully adapted for the web.

- This creates new opportunities for infant studies during the pandemic;
- As well as for the future: more convenient and comfortable to participate in research from home.

Thank you!

Thanks to

Dr. Rushen Shi

Members of the Child Language Lab, Language and Cognition Lab, and Language Learning Lab at Penn

Questions?