Variation in home language input is linked to predictive language processing

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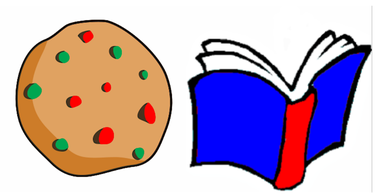
Introduction

- Prediction has been proposed as an important language learning mechanism.[1]
- In line with this view, children who predict tend to have larger vocabularies.[2]
- If prediction is a key learning mechanism, then what explains these differences?
- Children vary in the quantity/quality of their language input.[3]
- Children who receive more input are more efficient in processing words and tend to have larger vocabularies.[3]
- We hypothesized that language input also supports *predictive* language processing.

Methods

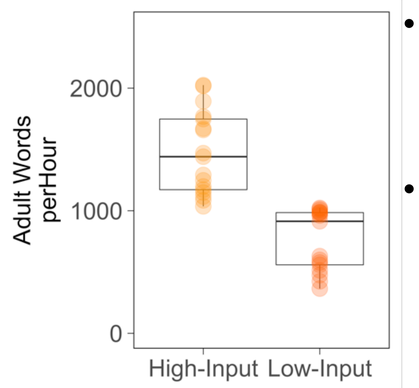
- Children were 28-32 months old (N=34).
- We measured language input via LENA, recording 16 hours at home.[3]
- We measured prediction via two established eye-tracking tasks.[4,5]

Read the book!
vs.
Where's the book?

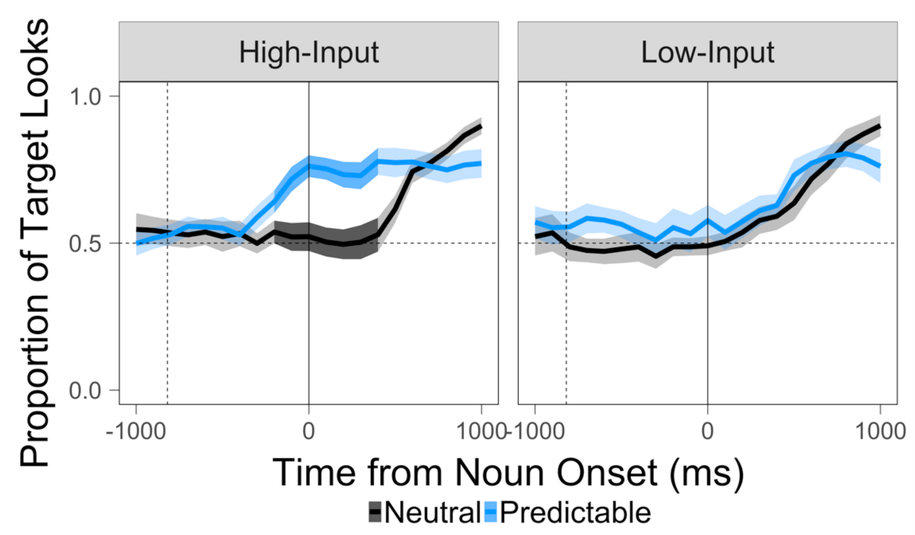


There _are_ the nice apples!
vs.
Look at the nice apples!

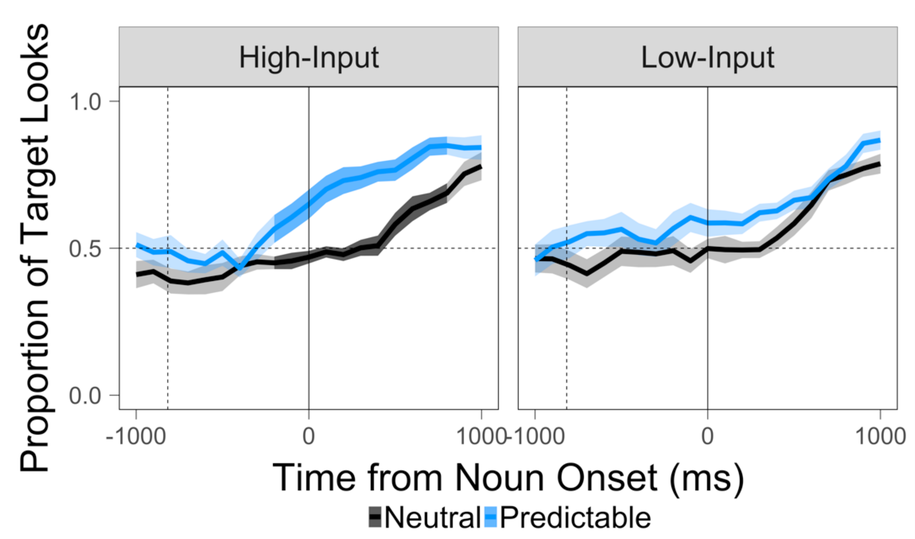
Results



- Children were divided into High-Input and Low-Input groups, based on median split.
- Language input is correlated with SES ($r(32)=0.43$, $p=0.01$) and with vocabulary size ($r(31)=0.39$, $p=0.02$).[3]



High-Input toddlers generated verbal predictions during language processing.



Summary

- Prior research indicates that differences in the quantity/quality of young children's language input shapes how children *process* familiar words.[3]
- We extend these findings to show that differences in language input also influence how young children *predict* upcoming familiar words.
- High-Input toddlers used informative verb semantics[4] and number marking[5] to predict upcoming words, but Low-Input toddlers did not predict robustly in either eye-tracking task.
- If prediction is a language learning mechanism[1] then differences in prediction, among other factors, may underlie children's language learning disparities.
- Further research is needed to determine what combination of factors - language input, language processing, prediction, etc. - underlie children's divergent language learning trajectories.

Acknowledgments

[1] Dell & Chang, 2014; [2] Mani & Huettig, 2012; [3] Weisleder & Fernald, 2013; [4] Fernald et al, 2008; [5] Lukyanenko & Fisher, 2016

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