

Syntactic Bootstrapping: 28-month olds can assign verb meaning using both between transitive and intransitive frames at the same visit

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ABSTRACT

The current study investigated syntactic bootstrapping in 28-month old typically developing children. We examined whether the same children can flexibly adjust their interpretations of four novel verbs depending on whether they are presented in transitive (causative) vs. intransitive (non-causative) frames. The results showed that children looked *more* at the causative action during the transitive verb block and looked *less* at the causative action during the intransitive verb block. Therefore, children were successful at constraining the verb meaning for both transitive and intransitive sentences during the test trials. At this age, children showed efficient and robust syntactic bootstrapping.

INTRODUCTION

- Toddlers use the sentence structure to learn about the meaning of verbs, a core process in verb learning known as **syntactic bootstrapping**.
- Naigles (1990) showed that two-year-olds who heard novel verbs in transitive frames chose the accompanying causative actions as their referents, while those who heard the verbs in intransitive frames chose the accompanying non-causative and synchronous actions as their referents.^{1, 2, 3}
- Earlier studies have been limited because they have employed a between-subjects design in which participants heard novel verbs in transitive *or* intransitive frames, indicating abstraction of only one frame.

Objective: We investigated the degree to which the same children can flexibly adjust their interpretation of novel verbs. Children should look longer at the causative action in transitive frame and the non-causative action in intransitive frame, indicating command of multiple linguistic frames.

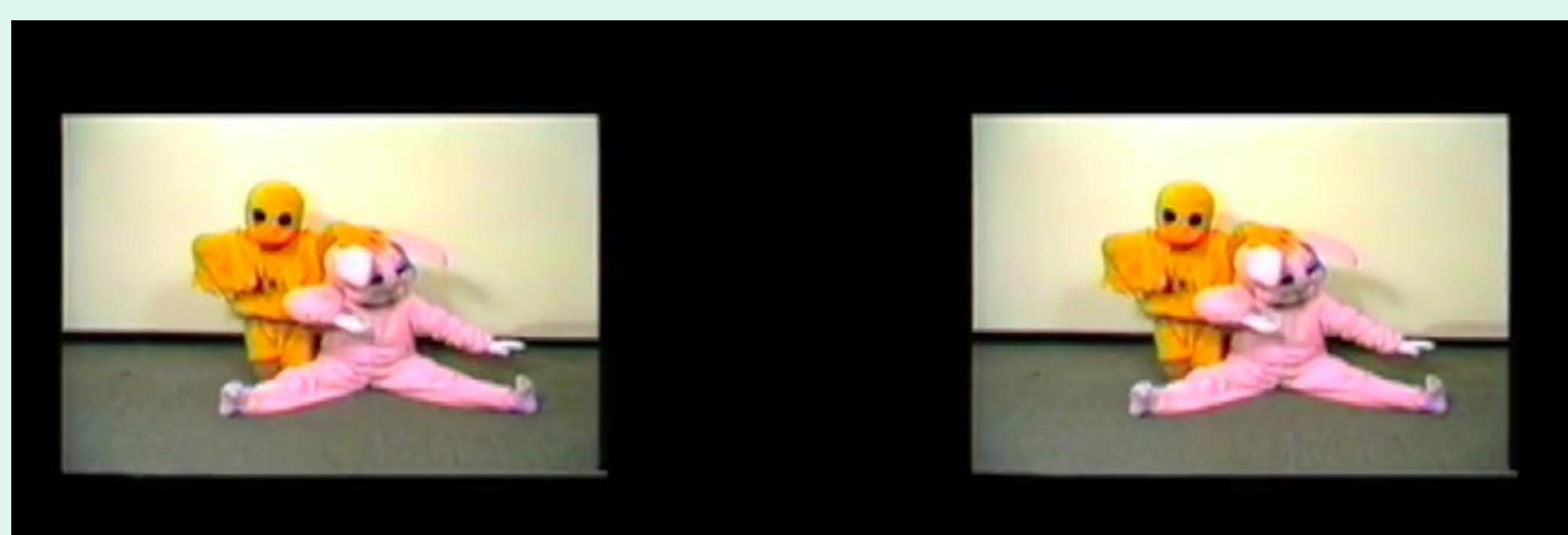
METHOD

Participants: Seventeen children ($MA = 28.75$ months; $CDI = 456.06$ words, $SD = 136.69$) were assessed at home using the intermodal preferential looking paradigm (IPL).

Children viewed a 10-min video with a costumed duck and bunny.

Transitive Block

Teaching trial: “Oh look! The duck is *gorping* the bunny!”



METHOD (CON'T)

Test Trial: “Find *gorping*” (Repeated for *kradding* with novel action)

Causative Action



Duck pushes bunny down

Non-causative action



Bunny and Duck flex arms

~ Screensaver ~

Intransitive Block

Teaching trial: “Oh look! The duck and bunny are *zubbing*!”



Test Trial: “Find *zubbing*” (Repeated for *mipping* with novel action)

Causative Action



Duck pushes bunny down

Non-causative action

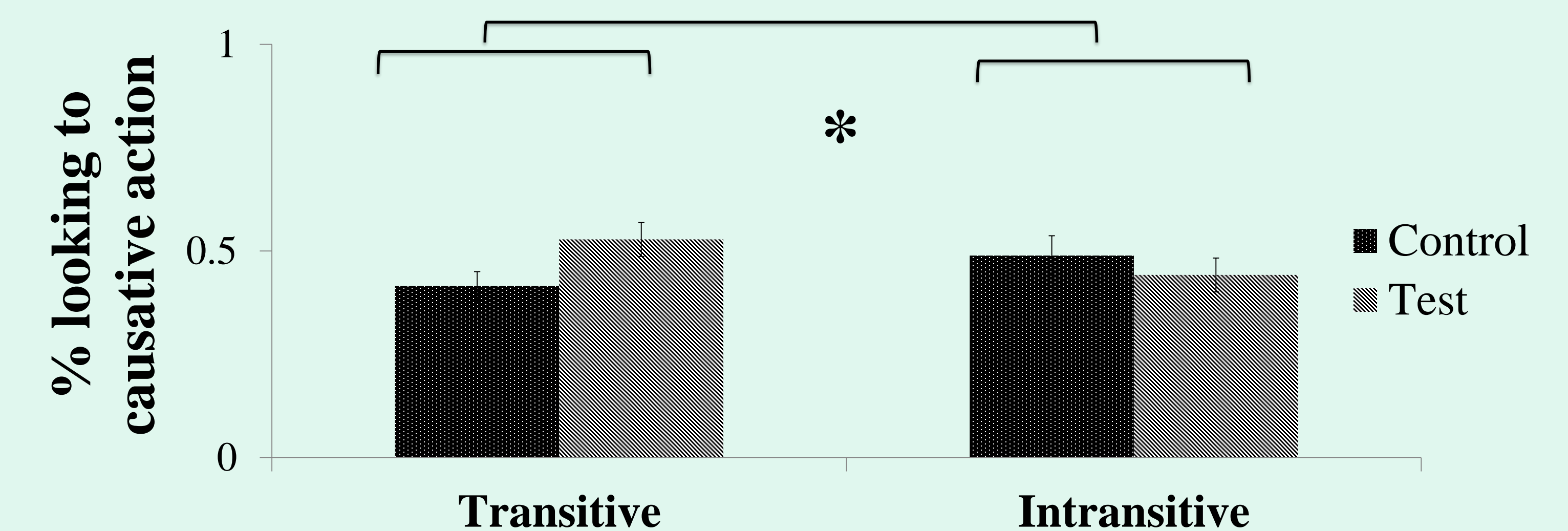


Bunny and Duck flex arms

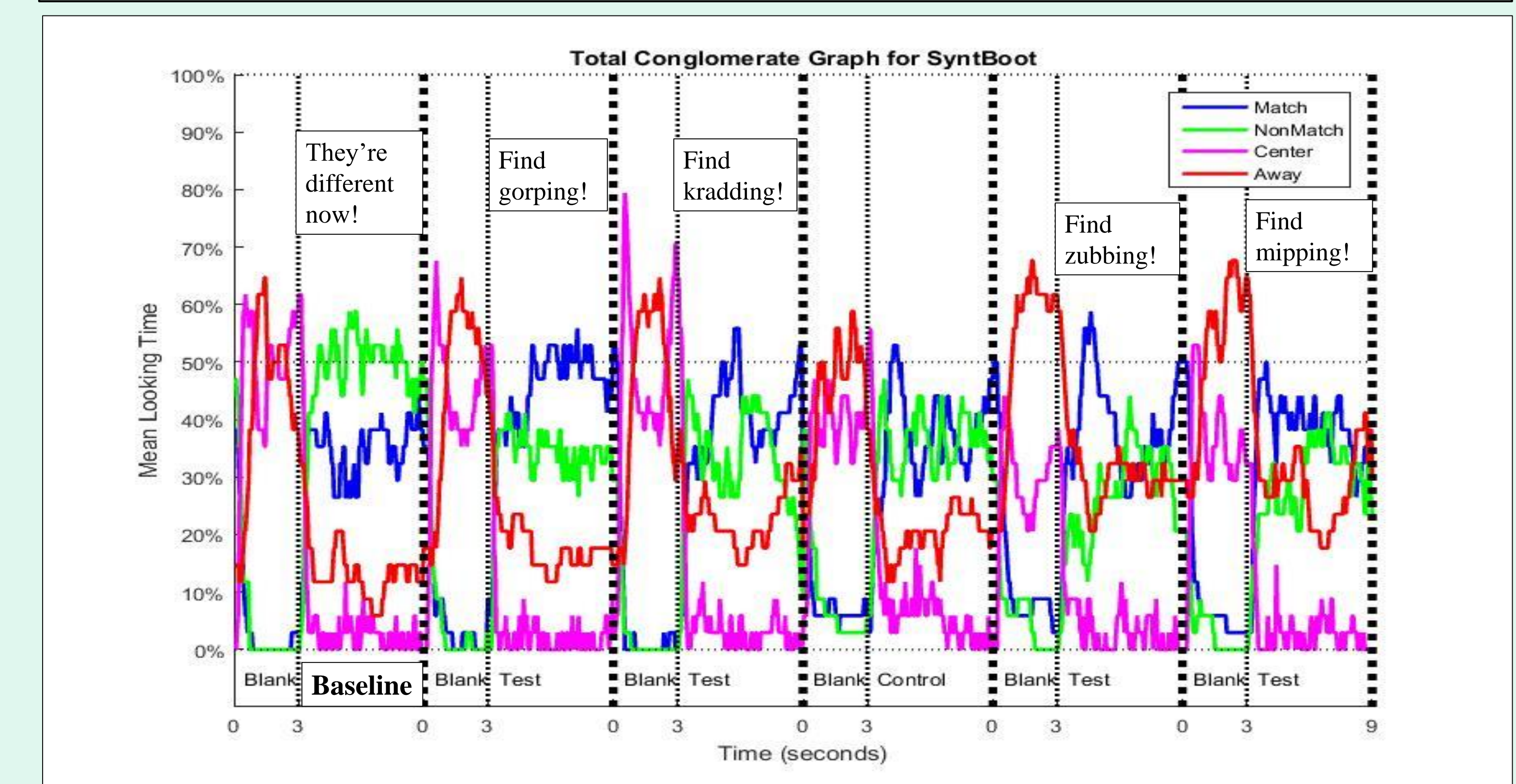
To show reliable comprehension, children should look longer at the causative actions during the transitive test trials block and less at the causative actions during the intransitive test trials/block.

RESULTS

A two (audio: transitive vs. intransitive) x two (trial: control vs. test) ANOVA was conducted with **percent looking to causative action** as the dependent measure. The results showed an interaction effect between audio and trial ($F(1,16)=7.75, p < .05$).



During the test trials, children looked longer at the causative action in the transitive block, ($t(16) = -1.99, p = .064$). In the intransitive block, children looked less at the causative action, albeit not significant, ($t(16) = 1.04, p = .315$).



DISCUSSION

- The IPL paradigm reveals that toddlers are able to use syntactic information to constrain the verb meaning for transitive and intransitive sentences, i.e., successfully map novel verbs onto causative or non-causative actions during test trials.
- This demonstration of syntactic bootstrapping shows that children can be flexible in shifting their interpretations for the novel verbs depending on the sentence frames, showing efficient and robust syntactic bootstrapping.
- In future work, syntactic bootstrapping will be investigated in children with ASD to examine whether they can show command of multiple frames instead of just one frame.

REFERENCES

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