

Processing load and verb learning in an online study with autistic and non-autistic preschoolers

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INTRODUCTION

- Young children can use syntactic and semantic information in a novel verb's linguistic context to glean its meaning [1-3].
- Processing load of contexts plays a role; in previous work, typically-developing children learned novel verbs presented with unmodified nouns ('The ball is kradding') but not with more informative but harder-to-process modified nouns ('The round ball is kradding') [4].
- Autistic children often have slower processing [5].
- **Aims of the current study:**
 - Replicate the findings of He et al., (2020) in an online study.
 - Investigate whether autistic children show the same pattern.

METHODS

This novel verb learning study was preregistered (<https://osf.io/z463x>).

- Language-matched subset of 39 autistic children (mean age = 57.2 months), 39 non-autistic children (mean age = 35.3 months).

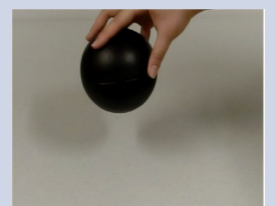

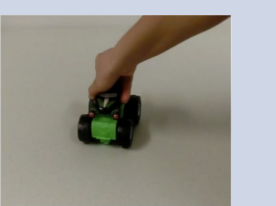
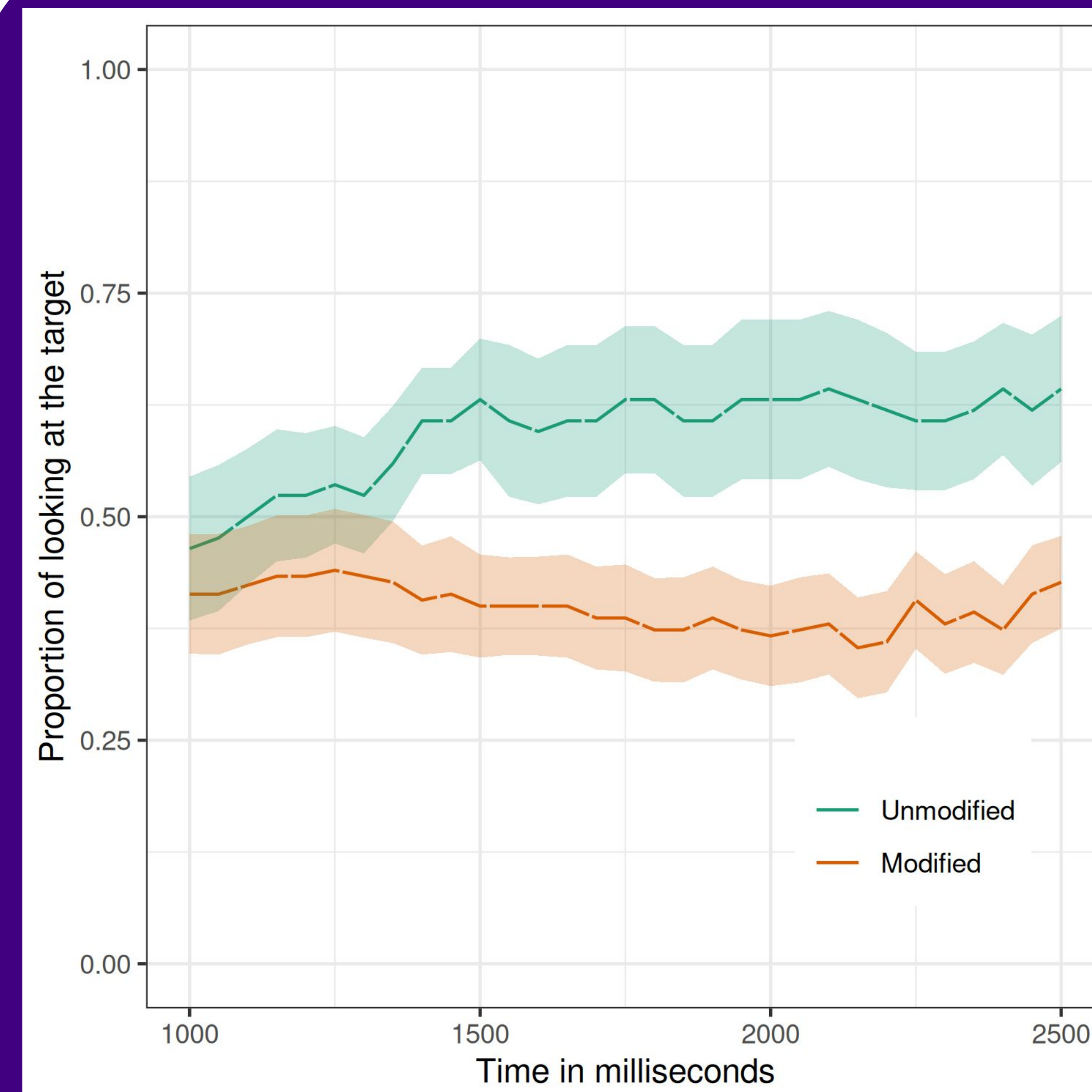
	Familiarization		Test
Visual			
Auditory	Unmodified	The ball is kradding	Where is kradding?
	Modified	The round ball is kradding	

Figure 1: Design of one representative trial (of 3)

- Between-subjects design
- Conducted over Zoom™
- Direction of gaze was manually coded from the recorded sessions.
- Analysis window: First 1-2.5 seconds of the test phase [4]

RESULTS



Non-autistic children performed better in the unmodified noun condition.
($\beta = 0.53, p < 0.01$)

Autistic children showed no difference between the two conditions
($\beta = 0.06, p = 0.8$)

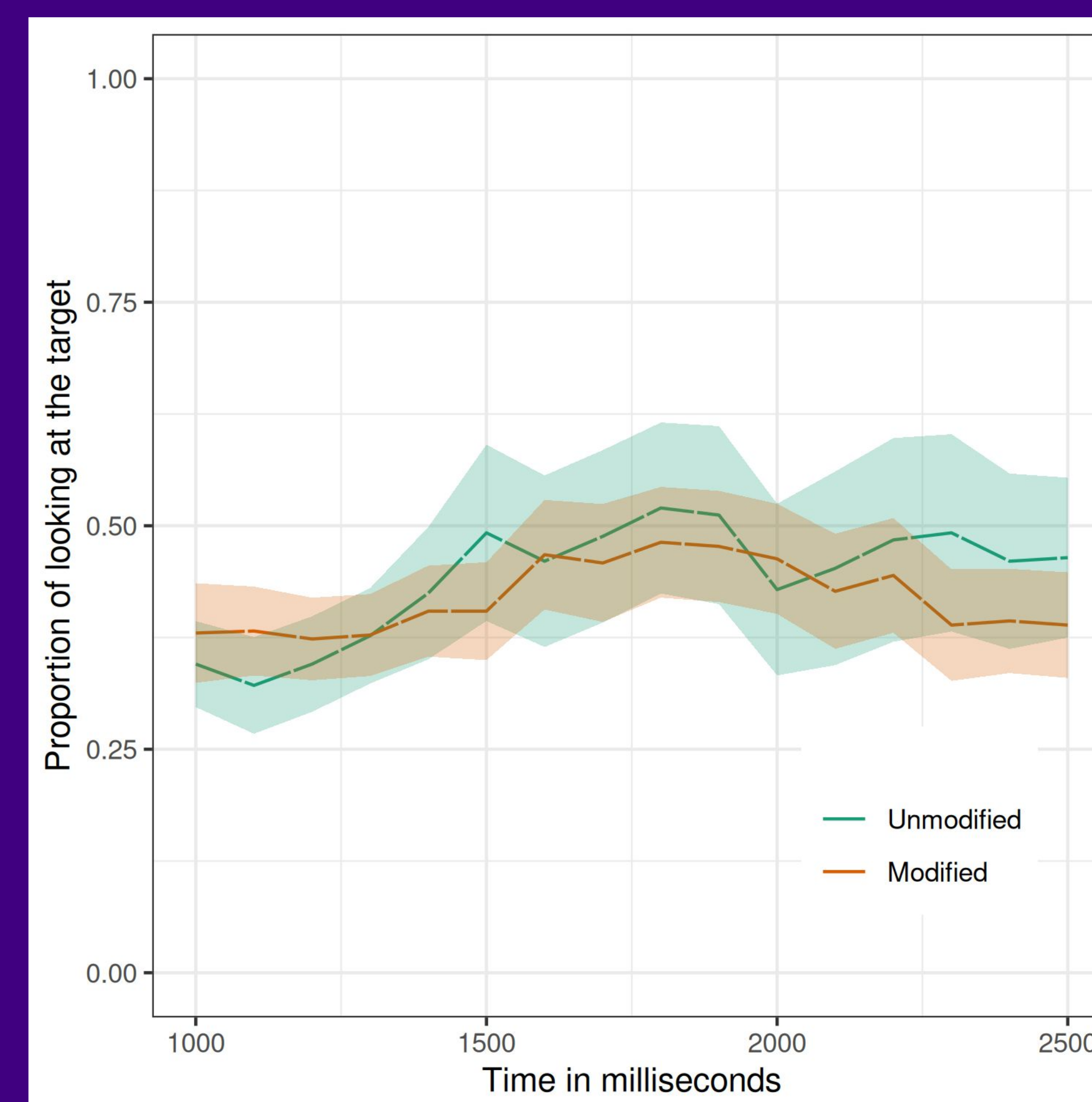


Figure 2: Proportion of looking at the target, collapsed across trials. Looks outside of the two areas of interest are included, but data points with trackloss are excluded.

CONCLUSIONS

- We replicated an in-lab study [4] demonstrating that non-autistic children learn novel verbs more successfully in unmodified contexts compared to modified contexts.
- Autistic children did not show this pattern in the first 1-2.5 seconds of the test phase. Cluster-based permutation analysis of the full response phase did not reveal a significant cluster. This indicates that the lack of effect is not due to selection of an inappropriate time window.
- **Next step:** We will try to identify individual child characteristics that might predict their gaze pattern (e.g. attention during the familiarization phase).

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