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Kindergarteners' statistical learning is influenced by instruction

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Statistical learning

Inferring word boundaries (Saffran, Johnson & Aslin, 1996; Endress & Bonatti, 2007; Gomez & Gerken, 1999)
 Learning words and referents (e.g. Vouloumanos, 2008; Yu & Smith, 2007; Smith, Suanda & Yu, 2014)
 Acquiring agreement markers (e.g. Lany, 2014; Lany & Saffran, 2013; Monaghan, Mattock, Davies & Smith, 2015)
 Learning a meaningful agreement marker (Spit, Andringa, Rispens & Aboh, under review)

Explicit instruction and replication

Lack of replication in general (Cumming, 2014),
 and in linguistics in particular (Marsden, Morgan-Short, Thompson & Abugaber, 2018)
 Reported positive effects of explicit instruction in adults (Spada & Tomita, 2010), but no studies with children

Research questions

Can we replicate our findings that kindergarteners learn a meaningful agreement marker on the basis of distributional properties?
 Does explicit instruction influence the acquisition of such a marker?

Participants

102 Dutch speaking children (51 females, $M = 5;7$), 50 were explicitly instructed, 52 were not instructed

Method

Exposure

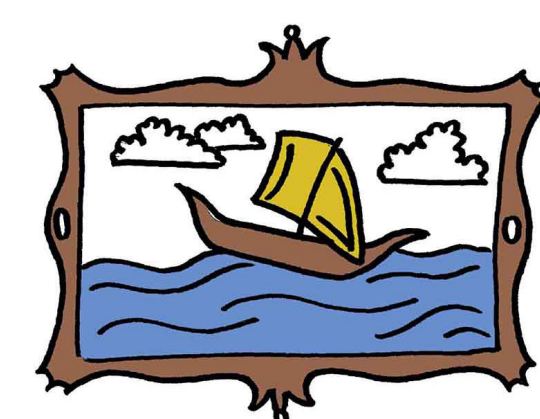
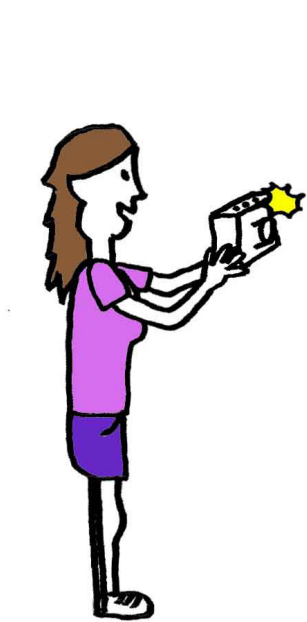
Miniature language:
 Four proper names, three verbs, two grammatical markers,
 six frequent nouns and twelve infrequent nouns
 Exposure: 108 training sentences (+ 12 fillers)

Rule

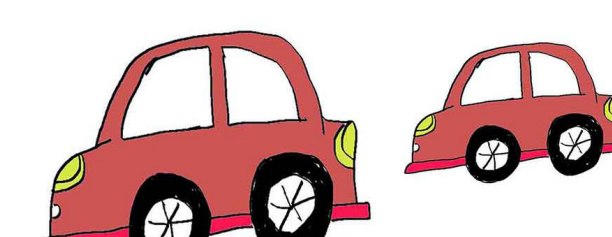
Pli: probability that the noun has multiple referents = 1
Tra: probability that the noun has multiple referents = .5

Test

Picture matching task with eye tracking



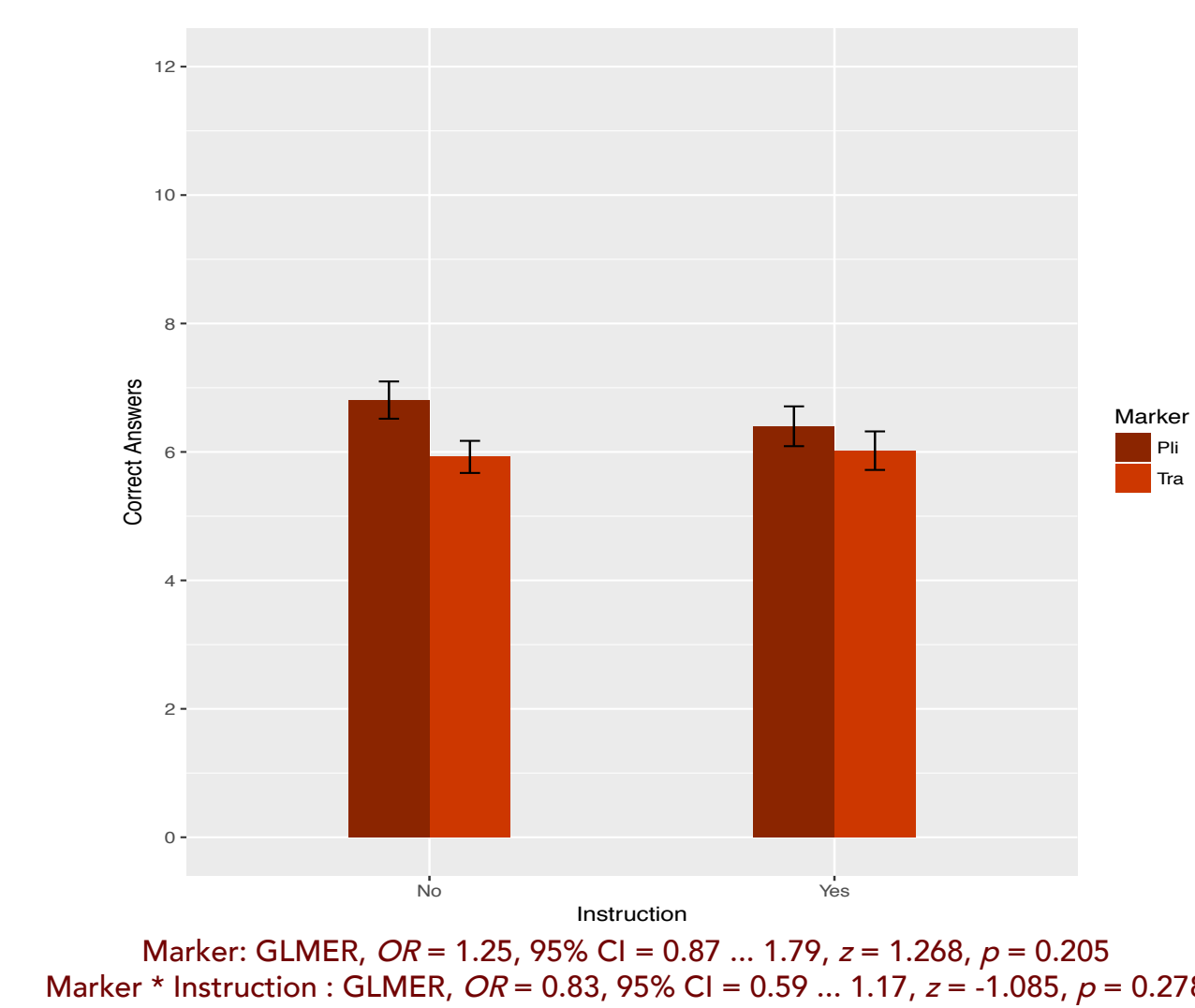
'Maria rigarda tra nutro'



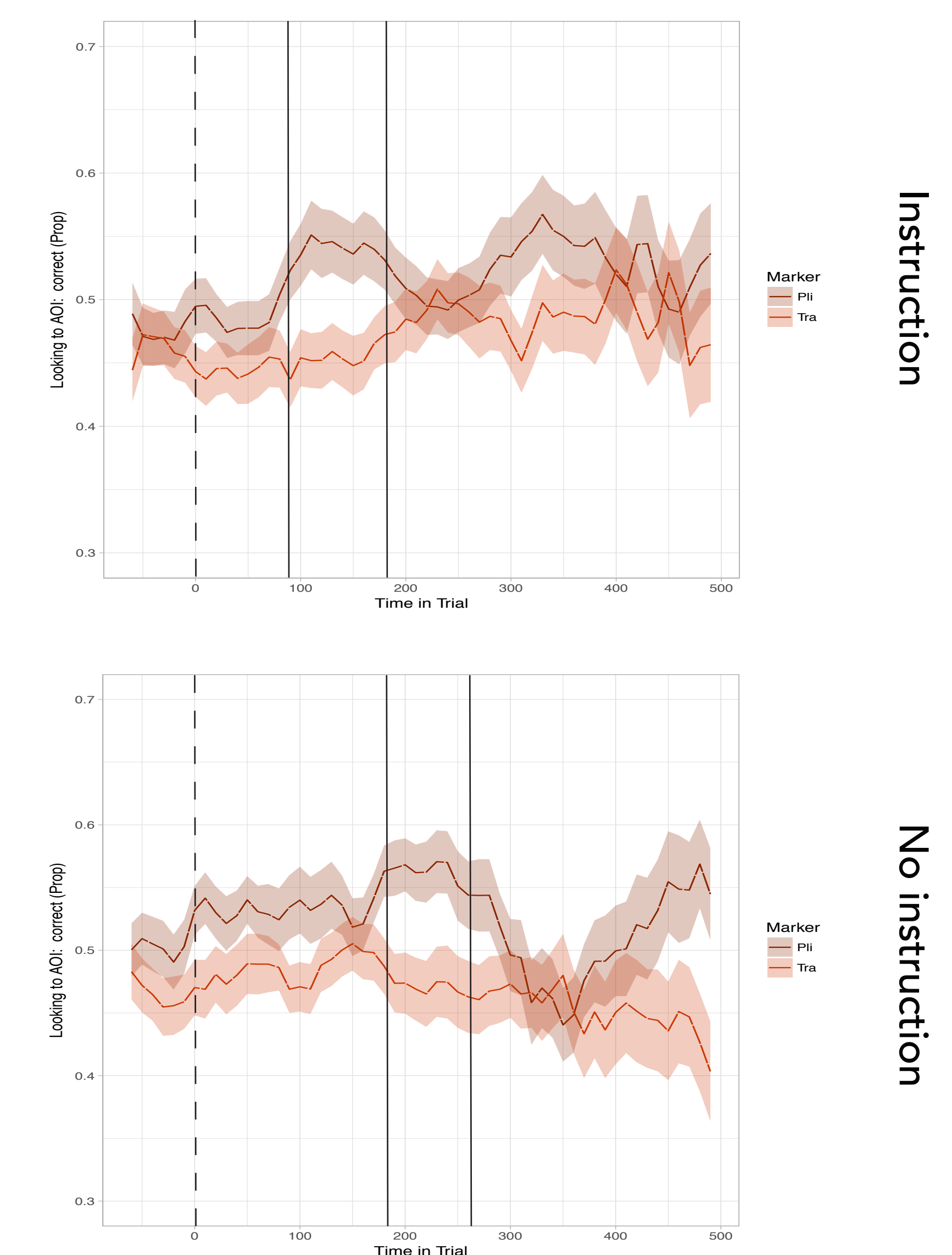
'Maria rigarda pli wiro'

Results

Picture matching task



Eye tracking



Replication?

	Effect	OR	95% CI	z	p
Study 1	9.5%	1.515	1.071...2.257	2.178	0.029
Study 2	7%	1.347	0.975...1.863	1.843	0.065
Current study	7.4%	1.370	0.927...2.023	1.614	0.107

Conclusion

Explicit instruction did not increase accuracy, but it did lead to earlier predictive eye movements
 In a follow-up experiment, we will test children on a delayed post-test,
 to investigate the effect of sleep on the development of kindergarteners' knowledge

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