Kindergarteners' statistical learning is influenced by instruction

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Statistical learning
Inferring word boundaries (Safran, 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 & Safran, 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

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

References

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Picture matching task

‘Maria rigarda tra nutro’
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Eye tracking

Replication?

Effect OR 95% CI z p
Study 1 9.6% 1.515 1.071…2.182 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