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Implicit theory of mind in infancy: An experimental study based on an unexpected-identity task

Introduction

Currently, there are mixed findings about infants' and toddlers' capacity to attribute false beliefs to others (Baillargeon et al., 2018; Poulin-Dubois, 2020). The debate about children's implicit theory of mind (ToM) has extended to identity tasks, which require understanding others' beliefs about different identities of an object.

- The present study applies eye-tracking technology to investigate toddlers' implicit ToM in a novel unexpected-identity task.
- By comparing children's reactions in true- (TB) and false-belief (FB) conditions, we assessed their looking times with respect to the AOI

Method

Participants: 66 toddlers aged 20-24 months ($M_{age}=22$, $SD=1.44$).

Materials:

- a double-sided puppet (wolf and granny on the two sides, respectively);
- 2 videos created ad hoc, adapted from the identity test devised by Butterfill & Apperly (2013);
- eye-tracker.



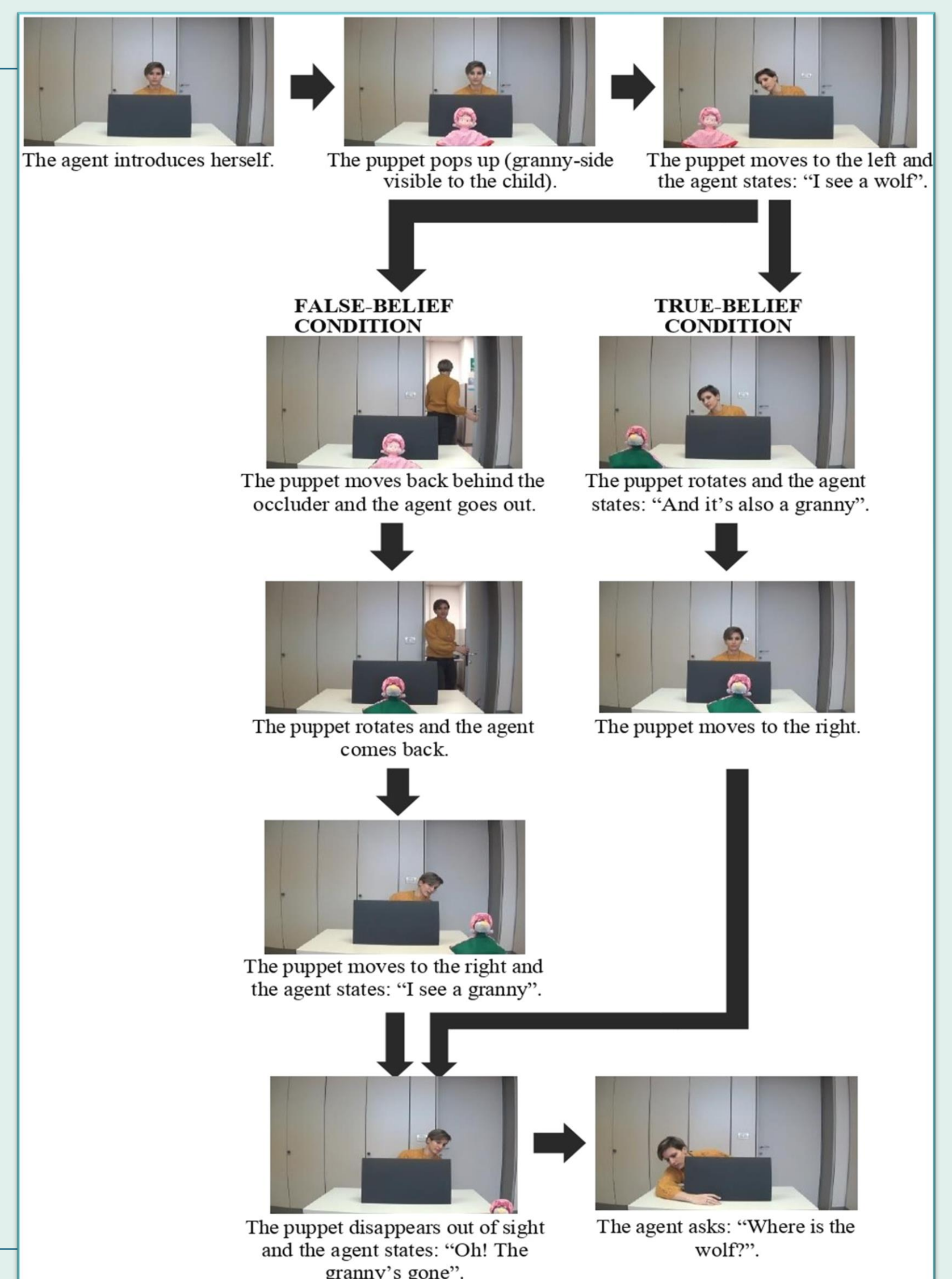
Paradigm: violation-of-expectation

Research design: within-subject (i.e., everyone watched the 2 videos).

Procedure:

- **Familiarization phase.** The puppet was displayed for about 30 seconds to each participant, showing the two identities.
- **Testing.** In the video of FB condition, the agent's behavior is coherent with her state of knowledge. In the TB condition, the agent's behavior contradicts her state of knowledge (i.e., the child's expectation is violated). The videos were presented in counterbalanced order.

Coding: the area of interest (AOI) covering the critical aspects of the scene.



Results

Preliminary analysis

ANOVA showed different patterns of looking behaviors in TB and FB conditions, regardless of trial sequence →

longer looking times to the agent's face in the TB condition, as compared to FB condition ($F=6.02$, $p=.017$, $\eta^2=.10$).

		True-Belief Condition		False-Belief Condition	
		M	SD	M	SD
Looking time (in seconds)	Face	4.76	1.97	4.17	1.89

Conclusions

Findings from preliminary analysis would support the view that toddlers, from the second year of life, attribute FB to others concerning the dual identity of an object. In terms of theoretical explanations, these results support a 'one-system account' according to which toddlers possess genuine ability to represent an agent's FB.

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