

# The Development of Theory of Mind: Evidence from an Explanation Production Paradigm

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## Explanation and Previous Research

- Recent research by Wertz & German (2007), used an explanation production paradigm, to assess adults ability to generate belief-desire explanations in response to a specific aspect of social behaviour.
- They adapted the classic false belief task by including a second object (the distracter object) at the location where the character leaves her desired object, and in a second condition, in a separate, empty location. Each time the participants were shown a possible 'reason' for the agents action, centred around either the belief or the desire of the agent, that the participant had to endorse or reject.

## Aims

The aims of the current study were to:

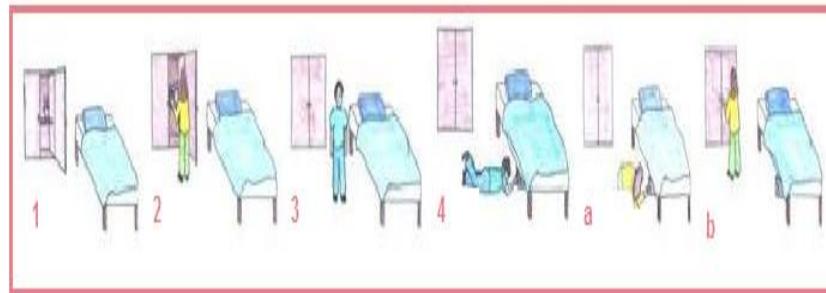
- employ this explanation production paradigm in 3-and 4-year-olds children and
- rule out the possibility that mental state representations were generated at test, when probes were presented, rather than when agents' actions were described.

## Method

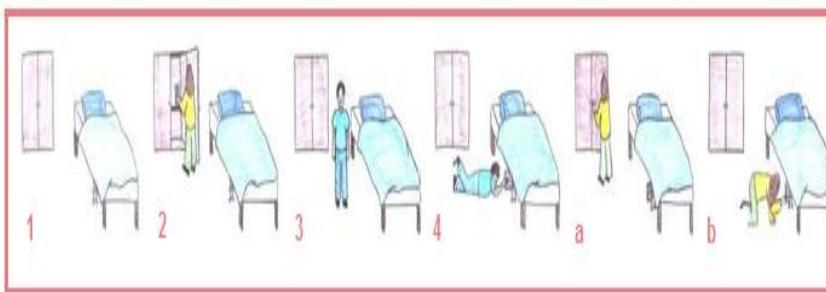
- 32 children (mean age of 38 months; range of 34-44 months) were assigned to the "Under 4-years-old" group. 21 children (mean age of 54 months; range of 46-61 months) were assigned to the "Over 4-years-old" group.
- The children were presented with four false belief tasks, presented on story boards, under two conditions; an 'Action towards distracter' (ADO) condition in which the first location also contained a distracter object, and an 'Action towards empty location' (AEL) condition in which the first location was empty.

- Each story consisted of a character placing the target object in one location and then leaving the room. In the absence of the first character, a second character moves the target object to another location. Then the first character returns to search for the target object, and searches in the first location.

### ADO condition



### AEL condition

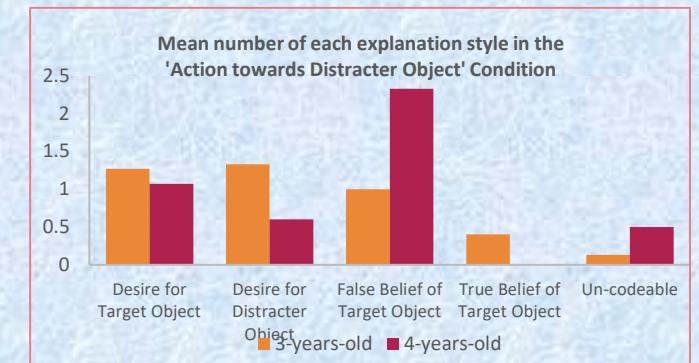


Test Question: "Why does Jenny go there?"

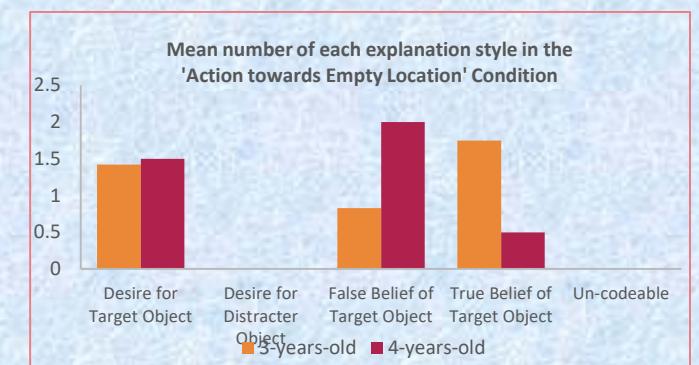
## Results

- In both conditions, the older children produced significantly more correct false belief explanations compared to younger children ( $F(1,52)=18.493$ ;  $p<0.001$ ).
- Children, like the adults in Wertz & German (2007), produced more 'desire for distracter object' explanations in the ADO condition compared to the AEL condition across both ages ( $F(1,52)=35.633$ ;  $p<0.001$ ).

- Overall, in the ADO condition, more desire explanations towards the distracter object were made by 3-year-olds than 4-year-olds ( $F(1,52)=5.127$ ;  $p=0.028$ ).



- In the AEL condition there were a greater number of (incorrect) true belief explanations about the target object than in the ADO condition from both age groups ( $F(1,53)=17.475$ ;  $p<0.001$ ), this response rate was still significantly larger in the 3-year-old group ( $F(1,52)=13.901$ ;  $p<0.001$ ).



## Conclusion

These results suggest that young children generate mental state representations about the distracter object when the agent's actions were described. Second, the results suggest that there is a developmental shift between the ages of 3 and 4 in terms of the representations generated when explaining an actions towards a distracter object.