

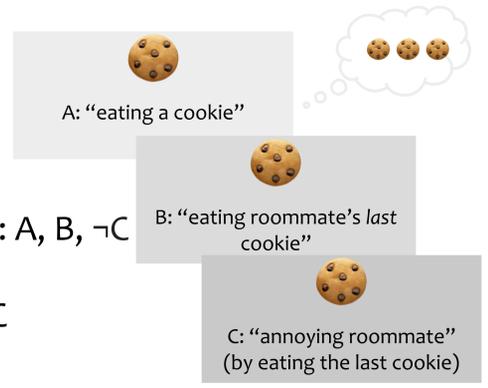
Is children's subjective intention understanding related to their counterfactual reasoning?

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Theoretical Background

- Subjectivity of intentions
→ Agents do many things simultaneously, but the intentionality of acts depends on the description under which she acts^{1,2}



- False belief: A
- Foreseen side-effect: A, B, ¬C
- Bad intention: A, B, C
- Young children distinguish unwilling vs. unable agents³ & accidental from intentional actions^{4,5}
- But children do not correctly attribute subjective intentions until 5-8 years of age⁶⁻⁸
- To fully understand that an agent is performing action **A** & **C**, yet only **intend A**, one has to understand the **counterfactuals**: If there had been...
 - Option to do **A** without **C** → agent would have chosen it
 - Option to do **C** without **A** → agent would not have chosen it

Research Question

Does children's understanding of the subjectivity of intentions show a protracted developmental trajectory because it builds on the slowly developing capacities for counterfactual reasoning⁹⁻¹¹?

Method

Online study with 4.5- to 9-year-olds (N = 96)
3 conditions & 3 stories (within-subjects)

FB

Motive:

Belief manipulation:

SE

Motive:

BI

Motive:

Intention questions

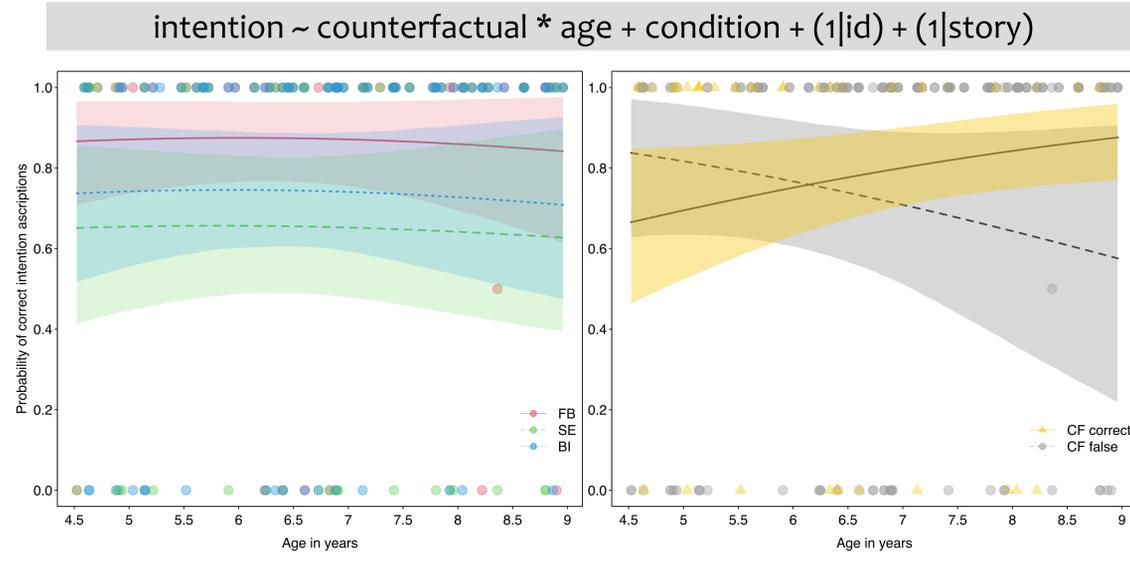
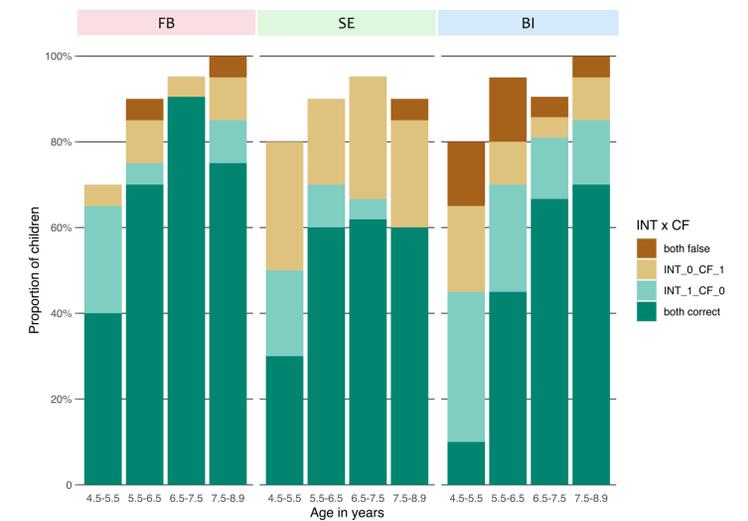
Did [agent] use the fertilizer *in order to* **fertilize his trees**?
 Did [agent] use the fertilizer *in order to* **grow fruit on his trees**?
 Did [agent] use the fertilizer *in order to* **destroy [agent's] flowers**?

Counterfactual questions

What if there had been another fertilizer, the green one, that was not toxic, which one would [agent] have taken?

What if there had been another fertilizer, the red one, that was only toxic, which one would [agent] have taken?

Results



- **Main effect of condition:** Children performed better in FB than SE ($b = -1.30, p = .005$) and not different to BI condition ($b = -0.87, p = .071$)
- **CF * age interaction:** Older children, but not younger children, were more likely to answer the intention questions correctly if they also answered the counterfactual question correctly ($b = 0.81, p = .044$)

Discussion

- No developmental changes in intention ascriptions?
 - Different method than in previous studies
 - Better performance in FB condition than in previous studies (false positive?)
 - Poorer performance when agent foresaw negative effects → adult control sample necessary
- Relationship between children's understanding of subjective intentions and their counterfactual reasoning
 - Unclear whether causal or parallel association
 - **Future directions:** test relationship in a task where children show the previously observed developmental change

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