DIFFERENTIAL RELIANCE ON THE CAUSAL CORE CONCEPT IN THE DOMAIN OF PHYSICS AND BIOLOGY

Julia Schneider, Sufi Abbaspour, Trix Cacchione
University of Bern, Switzerland, contact: julia.schneider@psy.unibe.ch

THEORETICAL BACKGROUND

- Children develop core concepts very early
- Despite considerable education, adults do not completely abandon those naive concepts
- Dispositional theories of causality model causation as an antagonistic interaction between agent- and patient-objects (living as well as inert) with intrinsic dispositions:
  - Ontological distinction between “agents” and “patients”
  - Asymmetric attribution of agency: agent acts and is viewed as the cause, whereas patient is acted upon and is the locus of effect
  - Impact of forces asymmetrically perceived: agent is stronger than patient
- Language expresses causal asymmetry
- Adhering to ideas of dispositional causality effects
  - Implicit ascription of specific features to the interacting objects
  - The view that properties are transferred from the agent to the patient
- This influences the probability that an event is interpreted as including a causal relation

Research question

- Do adults and children cross-domainly adopt an agent-patient relationship when judging a collision event with two inert objects as well as a sting event with two living objects?

Based on theoretical insights and the status quo of research, we hypothesize that:

- Interactions of inert as well as living objects are interpreted as involving causal dispositions (i.e. goal-directed agent-like causes and interaction-roles)
- Individuals will judge statements as true or false according to their naive concept
- Adults will implicitly give similar naive answers as children will explicitly

REFERENCES


METHODS

- A sample of 50 kindergartners (age M = 6, SD = .49),
- 63 first / second graders (age M = 7.32, SD = .47),
- 59 fifth / sixth graders (age M = 11.56, SD = .73) and
- 76 lay adults (age M = 23.72, SD = 5.73) were tested
- Participants watched a biological or a physical event
- Then, they heard 14 sentence pairs and judged them as right or wrong
- Adults additionally experienced time pressure

RESULTS

- Across the domains, participants categorised the two objects into agent and patient roles with corresponding attributes
- Under time pressure, adults judged the statements similar to children - suggesting that naive concepts are never fully abandoned

Findings indicate that children, as well as adults under time pressure, use dispositional causal concepts when interpreting a physical collision event and a biological sting event. Moreover, the tendency to adopt a dispositional stance increases with age, particularly noticeable in the biological domain.