When is it Best to go First?
A Reversal of the Temporality Effect in 3-5 Year Olds.

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SUMMARY

- We tested 3-5 year olds on a version of Byrne's Temporal Order Effect task
- Children did not show the adult bias to blame the second player when the outcome of the game was negative
- However, we found the surprising result that the temporal order effect was reversed when the outcome of the game was positive
- The difference between the win and lose trials suggests that children may bring counterfactual thinking to bear on the problem

INTRODUCTION

• Imagine a game where two players sequentially pick a card at random. Cards are either red or blue. If both pick the same colour, they each win a prize. If they pick different colours, neither wins a prize.

•John goes first and picks a red card. Bob goes second and picks blue. Who feels worse?

•Adults show a strong tendency to say that player 2, Bob, will feel worse.

•One argument is that this is due to counterfactual thinking, or the ability to consider *what might have been* (e.g. Byrne et al. 2000)

•Byrne (2005) argues that when people think counterfactually, they make only minimal changes to what they know to be true (see also Lewis's theory of nearest possible worlds (1973)). Thus they may take John's card to be fixed and change the more recent event.

•Meehan & Byrne (2006) investigated when children would show this effect. 8 year olds but not 6 year olds tended to blame the 2nd player, like adults. They used only lose trials.

•They used a sentence completion task "They could have won the prize if only one of them had picked a different coloured card, so if…" followed by questions about guilt and blame and finally a forced choice question about "Who feels worse?"

•However, children's counterfactual thinking first appears at around 3-4 years (e.g. Harris et al., 1996; Riggs et al., 1998).

•We wondered if we would see earlier success if we:
- •included trials where people won as well as lost
- •focussed only on the who feels worse/best question
- •checked children's understanding at outset

METHOD

PARTICIPANTS: 20 younger children (Mean=52 months, range 47-56) and 22 older children (mean 62, 57-70)

MATERIALS: We used two dolls, a set of cards coloured blue and red on one side only, and sticker prizes.

PROCEDURE: The game was explained: the dolls take it in turns to pick a card. If they pick the same colour they each win a sticker. If they pick different colours they don't win.

Children had four trials: two win trials (cards match)
two lose trials (cards don't match)

Children were asked to judge whether the dolls had won or not.

Followed by the test question "Who feels worse?" or "Who feels best?"

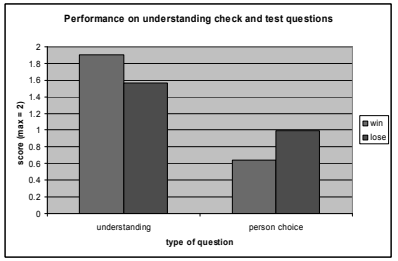
'Correct' answer (according the counterfactual theory) is the second player.

RESULTS & DISCUSSION

Children understood the game, but did better judging the outcome of the win trials than the lose trials.

Children performed 'better' on the lose trials than the win trials
$t(41) = -2.82$, $p = .007$, i.e. they were more likely to choose the second player on lose trials.

Children performed at chance on the lose trials
$t(41) = 0.00$, $p > .999$
Children showed a preference to chose the first player on win trials
$t(41)$ -3.75, $p = .001$



We did not find the expected temporality effect with 3- 5 year old children. If it is dependent on counterfactual thinking, it may be related to later developments e.g. thinking about counterfactuals as possibilities, Beck et al. (2006).

However, we did find a reversed effect on win trials. It is not clear whether this may result from counterfactual thinking about the first player's card, "I could have picked the other colour" or about the second player's card, "She could have picked the other colour". If this result does demonstrate counterfactual thinking, it would be out of line with findings that children and adults are more likely to consider counterfactuals following negative outcomes (e.g. German, 1999)

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