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Foreknowledge, Caring, and the Side-Effect Effect in Young Children

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Children and adults often judge that the side effects of the actions of an uncaring story agent have been intentional if the effects are harmful but not if these are beneficial, creating an asymmetrical "side-effect" effect. The authors report 3 experiments involving 4- and 5-year-olds ($N = 188$) designed to clarify the role of foreknowledge and caring in judgments of intentionality. Many children showed the side-effect effect even if agents were explicitly described as lacking foreknowledge of the outcome. Similarly, when agents were described as possessing foreknowledge but their caring state was unspecified, children more often judged that the negative, compared with the positive, effects of agents' actions were brought about intentionally. Regardless of foreknowledge, children infrequently judged positive outcomes as intentional when agent caring was unspecified, and they gave few attributions of intentionality when agents were described as having a false belief about the outcome. These results testify to the robustness of the side-effect effect and highlight the extent to which children's intentionality judgments are asymmetrical. The findings suggest developmental continuity in the link between reasoning about morality and intentionality.

Keywords: moral development, side-effect effect, intentionality

In the context of the recent burgeoning interest in moral psychology (Dwyer, 2006; Hauser, 2006), a major focus for research has concerned the side-effect effect (SEE). This effect occurs in adults asked to consider scenarios in which agents dismiss information about the harming or helping side effects of their actions. Harmful side effects of these actions are judged as having been produced intentionally, whereas the helpful side effects are not. The asymmetry is surprising because in both the negative and positive scenarios, agents are explicitly described as dismissive ("not caring") about the side effects of their actions.

In an intriguing series of studies, Knobe (2003a, 2003b, 2004) gave adults stories in which the issue of not caring was stated in relation to positive or negative side effects. For example, in one situation, a company vice-president was described as having told the board chairman, "We are thinking of starting a new program. It will help us increase profits, and it will also help/harm the environment." The chairman of the board answered, "I don't care at all about helping/harming the environment. I just want to make as much profit as I can. Let's start the new program." They started the new program. Sure enough, the environment was helped/harmed. The test question was, "Did the chairman help/harm the environment intentionally?" Judgments of whether or not the chairman brought about the side effect intentionally depended on whether the side effect was helping or harmful. Participants often—but not always—judged the helpful side effect to be unintentional. If the effect was harmful, it was often judged to be intentional. In this case, there had been a clear reference to declarations of uncaring that the environment could be harmed by the company's action.

Leslie, Knobe, and Cohen (2006) found a similar, asymmetrical SEE in 4- and 5-years-olds. In one condition in which the outcome was negative, children were told the following story:

> Here is a boy named Andy, and he's over at his house. And here is a girl named Janine, and she's over at her house. And look what Andy has with him—he has a . . . [frog]. Now Andy loves frogs, but Janine hates frogs. Now can you remember—does Andy love frogs? Does Janine love frogs? Andy wants to bring the frog over to Janine's house, but she will get upset. Why will she get upset? Now listen very carefully. Andy does not care that Janine will get upset. He is going to bring the frog over anyway. Does Andy care that Janine will get upset? So Andy brings the frog over to Janine's house, and she gets upset. Now I have a question for you: Did Andy make Janine upset on purpose?

In another condition, the story structure was the same except that the second character liked the frog, and there was a happy outcome. The children answered that the side effect was brought

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about "on purpose" when it was negative but not when it was positive, suggesting a link that runs from moral outcomes to theory of mind in which evaluations of moral outcomes influence theory-of-mind reasoning processes. This finding complements research that has pointed to a link that runs from theory of mind to negative judgments of morally reprehensible outcomes in which evaluations of an agent's state of knowledge influence processes of moral reasoning (Nuñez & Harris, 1998; Piaget, 1932). These processes extend to judgments of negligence by both preschoolers (Siegal & Peterson, 1998) and adults (Walster, 1966).

Leslie et al.'s (2006) studies represent an initial examination indicating continuity between young children and adults in showing a SEE. The aim of our investigation was to clarify the circumstances under which children demonstrate this effect. Though in research such as that carried out by Leslie et al., the asymmetry in judgments has been assumed to arise from declarations of uncaring in which the agent apparently does not intend to bring about a specific outcome, such declarations could have been interpreted to imply that the agent did have knowledge of the outcome but chose to dismiss this possibility. In fact, as Nichols and Ulatowski (2007, p. 360) have observed, the key issue for intentionality judgments may concern foreknowledge. If so, participants could interpret declarations of not caring as evidence of a deliberate intention on the basis of the agent's possessing the foreknowledge that harm could occur. Adults may regard statements such as "The chairman harmed the environment intentionally" and "The chairman knowingly incurred the risk of harming the environment" to merit equivalent intentionality judgments (Adams & Steadman, 2004). Nevertheless, it is unclear whether Leslie et al.'s SEE findings concern only side effects that are foreknown but disavowed—ones that are similar to negligent mistakes with an negative outcome that were identifiable beforehand—or extend also to side effects similar to an "honest" mistake in which the consequences are genuinely brought about without foreknowledge.

To clarify the issue of foreknowledge and declarations of not caring in creating the SEE and asymmetry in intentionality judgments, we carried out three experiments involving White children living in northeastern Italy. Although we did not have information on family socioeconomic status, the children attended preschools located in urban, middle-class areas. They participated with informed parental consent, and no child was included in more than one experiment. In Experiment 1, we manipulated the state of knowledge (explicitly possessing or lacking foreknowledge) of an uncaring agent whose behavior resulted in either a positive or negative outcome. We predicted that "on purpose" intentionality judgments would be restricted to situations in which the action of an uncaring agent created a negative side effect rather than a positive one. In this respect, we sought to determine whether this asymmetry would be attenuated by the agent's lack of foreknowledge.

Experiment 1

Method

Participants

Participants were 89 children divided in two age groups: 4-year-olds (n = 34; 14 girls and 20 boys; age M = 4 years 6 months, SD = 3.16 months; age range = 48–59 months) and 5-year-olds (n = 55; 25 girls and 30 girls; age M = 5 years 5 months, SD = 3.52 months; age range = 60–71 months). Each child was tested in a quiet schoolroom during two 15-min sessions separated by a 1-month interval. Five other 4-year-olds were excluded: 1 who had a specific language disability, and 4 who failed control questions.

Procedure

Training phase. To ensure that the children understood thought bubbles that were to be used in the test stories, each child was told a story about twin brothers who were about to celebrate their fifth birthday that was illustrated with a sequence of three pictures: a boy with a dog inside a thought bubble to represent "thinking about a dog," a boy with a dog on a leash to represent actually having a dog, and a girl drawn with an empty thought bubble to represent not knowing the information about the agent's state of mind. The story was retold to children who answered incorrectly on comprehension control questions. No child in the experiment failed the questions twice, consistent with previous studies on preschoolers' understanding of thought bubbles (Kerr & Durkin, 2004; Wellman, Hollander, & Schult, 1996).

Test phase. Each child was told eight stories, two of which were each used to represent four possible combinations: knowing agent–positive outcome, unknowing agent–positive outcome, knowing agent–negative outcome, and unknowing agent–negative outcome (see Appendix). Half of the children were told four stories with the positive outcome first (two with agent foreknowledge and two without agent foreknowledge). Then in a second testing session about a month later, they received four negative outcome stories (again two with foreknowledge and two without). The remaining children received the four negative outcome stories in the first testing session and the positive ones in the second one. The order of presentation in the stories of agents possessing or lacking foreknowledge was counterbalanced across children. In all eight cases, the agent was described as not caring about the outcome as in Leslie et al.'s (2006) investigation.

Illustrations were used to aid in storytelling, and the children were asked control questions to ensure that they were attentive and understood the basic plot. The stories had two female and two male characters and two different types of animal (a frog and a gerbil) that one character, the agent, was described as having presented to a second character. The gender of the story characters and type of animal were counterbalanced across children.

Answers to each of the test questions were given a score of 1 if the child judged the side effect as intentional and a score of 0 if child judged it as unintentional. Thus for each of the two stories that represented the four combinations of foreknowledge and outcome, a child received a score on a 0–2 scale.

Results and Discussion

Preliminary analyses indicated that there were no main or interaction effects attributable to the story theme characteristics (agent gender and animal type), order of the story presentation, order of story valence, or order of test questions. Therefore, responses were analyzed in a 2 (age group: 4- vs. 5-year-olds) × 2 (valence outcome: positive vs. negative) × 2 (foreknowledge: present vs. absent) ANOVA, with age group as a between-subjects

factor and valence outcome and foreknowledge as within-subjects factors. As shown in Figure 1, a SEE pattern emerged. There were significant main effects for valence outcome, $F(1, 87) = 53.51$, $p < .001$, $\eta^2 = .38$, and foreknowledge, $F(1, 87) = 22.31$, $p < .001$, $\eta^2 = .20$. More "on purpose" judgments were given for negative than for positive side effects and for agents possessing rather lacking foreknowledge. The Valence Outcome × Foreknowledge interaction effect was also significant, $F(1, 87) = 10.76$, $p < .01$, $\eta^2 = .11$. When the outcome was negative, more "on purpose" judgments were assigned to the agent with foreknowledge ($M = 1.39$, $SD = 0.77$) than the agent without foreknowledge ($M = 0.94$, $SD = 0.78$), $F(1, 87) = 23.08$, $p < .001$, $\eta^2 = .21$. By contrast, when the outcome was positive, the difference was nonsignificant ($M = 0.49$, $SD = 0.72$, and $M = 0.39$, $SD = 0.68$, respectively), $F(1, 87) = 3.07$, $p > .08$, $\eta^2 = .03$.

There was considerable consistency in responses across conditions. The correlations between intentionality judgments of the agents with and without foreknowledge were significant (for positive outcome stories, $r = .73$, $p < .01$; for negative outcome stories, $r = .46$, $p < .01$). Altogether, 34 of 89 children unambiguously displayed an asymmetrical pattern in their intentionality judgments of the stories involving foreknowledge by judging the agents as having acted intentionally when causing harm on both "knowing agent–negative outcome" stories but not having acted intentionally on either of the "knowing agent–positive outcome" stories.

The children judged about half (47.7%) of the agents who had no foreknowledge and whose actions resulted in a negative outcome as having acted intentionally; however, there were indications that the children were not responding by chance alone. In the negative scenarios, 19 of the 25 children who judged in both stories that the agent without foreknowledge acted on purpose also judged that the agent with foreknowledge in both stories also acted on purpose.

As Leslie et al. (2006) found for the SEE, preschoolers often judge agents' actions as intentional when there is a disavowed (uncaring) negative outcome but not when there is a positive outcome. However, the presence of substantial individual differences supports the notion of *interpretative diversity* of intentionality proposed by Nichols and Ulatowski (2007, p. 360) that involves both foreknowledge and motive. On the one hand, children's judgments often focused on the presence or absence of foreknowledge in an uncaring agent ("Andy does not care that Janine will get upset"). Children were more likely to judge as intentional a negative effect produced by an agent with foreknowledge than one produced by an agent without foreknowledge. On the other hand, although intentionality judgments decreased significantly when the agent was described as not knowing about the effect, a substantial number of children displayed the SEE even in the agent's absence of foreknowledge. They displayed a judgmental pattern that appeared to be mainly based on agent motive in relation to declarations of uncaring.

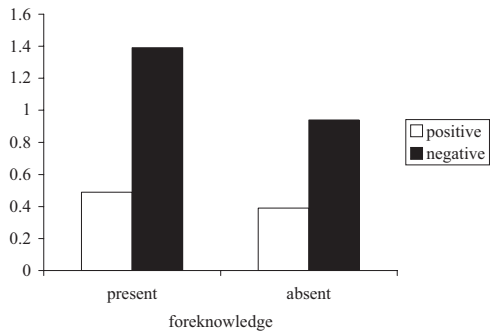

Figure 1. Children's intentionality judgments in positive and negative scenarios of Experiment 1 for uncaring agents whose foreknowledge of the outcome was present or absent.

In Experiment 2, we sought to test the strength of the asymmetrical pattern shown in Experiment 1 by determining whether omitting information about the agent's state of caring would influence children's intentionality judgments. We predicted that judgments would be influenced by knowledge only when the outcome was negative.

Experiment 2

Method

Participants

These were 46 children divided in two age groups: 4-years-olds ($n = 24$; 11 girls and 13 boys; age $M = 4$ years 5 months, $SD = 4.20$; range = 48–59 months) and 5-years-olds ($n = 22$; 18 girls and 4 boys; age $M = 5$ years 4 months, $SD = 3.5$ months; range = 60–71 months). Each child was tested in two 15-min sessions separated by a 1-month interval. One other 4-year-old who failed control questions was excluded.

Procedure

The procedure was the same as in Experiment 1 except that no mention was made of the disinterest ("not caring") of the actor in the outcome.

Results

Preliminary analyses indicated that there were no main or interaction effects attributable to the story theme characteristics (agent gender and animal type), order of the story presentation, order of story valence, or order of test questions. Therefore the results were analyzed in a 2 (age group: 4- vs. 5-year-olds) × 2 (valence outcome: positive vs. negative) × 2 (foreknowledge: present vs. absent) ANOVA with age group as a between-subjects factor and valence outcome and foreknowledge as within-subject factors. There were significant main effects for valence outcome, $F(1, 44) = 27.46$ $p < .001$, $\eta^2 = .38$, and foreknowledge, $F(1, 44) = 96.11$, $p < .001$, $\eta^2 = .69$, together with a significant Valence Outcome × Foreknowledge interaction effect, $F(1, 44) = 64.47$, $p < .01$, $\eta^2 = .59$. As predicted, intentionality judgments were influenced by foreknowledge only when the outcome was negative. As shown in Figure 2 with regard to negative outcomes, children were significantly more likely to assign "on purpose" judgments when the agent had foreknowledge ($M = 1.54$, $SD = 0.75$) than when the agent did not ($M = 0.17$, $SD = 0.48$), $F(1, 44) = 111.83$, $p < .001$, $\eta^2 = .71$. When the reaction was positive, the difference was nonsignificant and negligible ($M = 0.30$, $SD =$

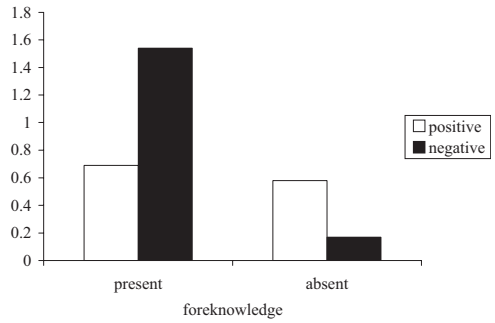

Figure 2. Children's intentionality judgments in positive and negative scenarios of Experiment 2 for agents with unspecified caring whose foreknowledge of the outcome was present or absent.

0.69, and $M = 0.28$, $SD = 0.58$, respectively), $F(1, 44) = 0.58$, $p > .81$, $\eta^2 = .001$.

In the case of negative outcomes, we compared children's responses in Experiments 1 and 2. A 2 (age group) × 2 (caring state: uncaring vs. unspecified) × 2 (foreknowledge: present vs. absent) ANOVA with age group and caring state as between-subjects factors and knowledge state as a within-subjects factor revealed a significant main effects for caring state, $F(1, 131) = 8.55$, $p < .01$, $\eta^2 = .06$, and foreknowledge, $F(1, 131) = 136.36$, $p < .001$, $\eta^2 = .51$, as well as a significant Caring State × Foreknowledge interaction effect, $F(1, 131) = 36.07$, $p < .001$, $\eta^2 = .22$. When foreknowledge of the potential harm was absent, intentionality was attributed significantly more often to the uncaring agent than to the agent for whom caring was unspecified, $F(1, 134) = 36.59$, $p < .001$, $\eta^2 = .22$. When foreknowledge was present, the difference between the agents was insignificant, $F(1, 134) = 1.15$, $p > .28$, $\eta^2 = .0.01$. There were no significant main or interaction effects involving age group.

Experiment 3

In both Experiments 1 and 2, there was substantial asymmetry in intentionality judgments, with children often responding that negative effects were brought about on purpose. Only in the case of an agent who was described as having no foreknowledge and whose state of caring was unspecified did children generally respond that the effect was not brought about on purpose. The aim of Experiment 3 was to examine the effects on intentionality attributions of an agent explicitly described as having a false belief about the outcome of his or her actions. In contrast to Experiment 2 in which the negative outcome of a knowledgeable agent's actions was judged as purposeful, we predicted that in the case of an agent with a false belief, children would be unlikely to attribute intentionality regardless of outcome.

Method

Participants

These were 52 children divided into two age groups: 4-year-olds ($n = 26$, 15 girls and 11 boys; age $M = 4$ years 6 months, $SD = 2.7$ months; range = 51–59 months) and 5-year-olds ($n = 26$, 11 girls and 15 boys; age $M = 5$ years 5 months, $SD = 4.4$ months; range = 60–71 months). Each child was tested in an experimental session lasting about 15 min. No children were excluded because of failure on control questions.

Procedure

Procedure was similar to that in Experiments 1 and 2 except that children received four stories instead of eight (two with a positive outcome and two with a negative outcome). In two of the four stories, we described the agent as believing that the reaction of the other character in the story would be negative, but in reality it was positive. In the other two stories, the agent believed that the reaction of the other character would be positive, but in reality it was negative. For example, in the story of the character with a false belief who creates a positive outcome, the children were told about a child named Andy and his frog that he loves and always takes with him. Andy is described as wanting to bring the frog over to Janine's house but also as thinking that Janine will be upset when she sees the frog because she will not like it. The children were then asked a belief control question: "Does Andy think that Janine will be happy or upset when she sees the frog? Why will she be upset?" Then they were told, "So Andy brings the frog over to Janine's house, but she is really happy because she likes the frog," and they were asked the "on purpose" test question: "Did Andy make Janine happy on purpose or without wanting to?" [Italian: *Andrea ha fatto arrabbiare Gaia apposta o senza volere?*]. As in Experiment 2, there was no mention of the uncaring state of the agent.

Results

Preliminary analyses indicated that there were no main or interaction effects attributable to the story theme, order of the story presentation, order of story valence, or order of test questions. The results were analyzed in a 2 (age group: 4- vs. 5-years-olds) × 2 (valence outcome: positive vs. negative) repeated measures ANOVA. There was a main effect of age, $F(1, 50) = 5.66$, $p < .05$, $\eta^2 = .10$, but no main or interaction effect involving outcome, $F(1, 50) = 1.60$, $p > .20$, $\eta^2 = .031$, and $F(1, 50) = 0.40$, $p > .52$, $\eta^2 = .08$, respectively. In keeping with findings that preschoolers' success on standard false belief tasks increases with age (Callaghan et al., 2005; Siegal, 2008), the 5-year-olds were significantly less likely for both the false belief stories with a positive outcome ($M = 0.31$, $SD = 0.58$) and the false belief stories with a negative outcome condition ($M = 0.23$, $SD = 0.58$) to respond that the story character acted on purpose than were the 4-year-olds (positive outcome, $M = 0.77$, $SD = 0.91$; negative outcome, $M = 0.54$, $SD = 0.76$). Nevertheless, in both age groups, the overall percentages of "on purpose" responses were low: 33% and 14% for the 4- and 5-year-olds, respectively. Of the 26 children in each age group, only 4 children in the 4-year-old group and 2 children in the 5-year-old group responded that in both stories with the negative outcome, the action was brought about on purpose. Comparable numbers for the stories with the positive outcome were 8 children in the 4-year-old group and 2 children in the 5-year-old group. There was a significant correlation between the children's answers to the false belief stories with a positive and negative outcome ($r = .36$, $p < .05$).

To compare the results of Experiment 3 with those of the foreknowledge present (true belief) condition of Experiment 2, we carried out a 2 (age group) × 2 (epistemic state: true vs. false belief) × 2 (valence outcome: positive vs. negative) ANOVA with age group and epistemic state as between-subjects factors and valence outcome as a within-subjects factor. There was a significant main effect for outcome, $F(1, 97) = 64.32$, $p < .001$, $\eta^2 = .39$, and a significant Outcome × Epistemic State interaction effect, $F(1, 97) = 16.45$, $p < .001$, $\eta^2 = .14$. When the outcome was negative, children were significantly more likely to judge as intentional the action of an agent with a true belief ($M = 1.55$, $SD = 0.74$) than the action of an agent with a false belief ($M = 0.38$, $SD = 0.69$), $F(1, 98) = 65.49$, $p > .001$, $\eta^2 = .40$. When the outcome was positive, the difference between the agent with a true belief ($M = 0.30$, $SD = 0.68$) and the agent with a false belief ($M = 0.54$, $SD = 0.80$) was nonsignificant, $F(1, 98) = 2.97$, $p > .08$, $\eta^2 = .03$.

We also compared the results of Experiment 3 with those of the foreknowledge absent condition of Experiment 2 in a 2 (age group) × 2 (epistemic state: foreknowledge absent vs. false belief) × 2 (valence outcome: positive vs. negative) ANOVA with age group and epistemic state as between-subjects factors and valence outcome as a within-subjects factor. There were significant main effects for age group, $F(1, 94) = 7.46$, $p < .01$, $\eta^2 = .07$, and epistemic state, $F(1, 94) = 4.72$, $p < .05$, $\eta^2 = .05$, but no significant interaction effects, $F(1, 94) = 0.001$, $p > .96$, $\eta^2 < .001$. Children who were 5 years old ($M = 0.19$, $SD = 0.08$) were significantly less likely than those who were 4 years old ($M = 0.47$, $SD = 0.07$) to respond that the actions were brought about on purpose. False beliefs produced more "on purpose" judgments ($M = 0.44$, $SD = 0.07$) than the absence of foreknowledge ($M = 0.22$, $SD = 0.07$), suggesting that information about false beliefs is more difficult to take into account than information about ignorance or the absence of foreknowledge (Wellman, 1990).

General Discussion

The aim of this investigation was to examine the influence of agent's foreknowledge and uncaring declarations on children's intentionality judgments of beneficial or harmful side effects. Experiment 1 compared judgments of the actions of agents who either possessed foreknowledge of the effects or did not, after making declarations of not caring. When a careless agent knowingly produced a negative side effect, young children—and also adults—(Knobe, 2004)—often judge this effect as intentional, consistent with the proposal of continuity in the SEE (Leslie et al., 2006). However, our main finding was that although a lack of foreknowledge produced a significant decline, many children persisted in displaying the SEE even if agents were explicitly described as lacking foreknowledge of the outcome. The pattern was asymmetrical in that for the positive stories, the effects were mostly judged as having been brought about unintentionally whether foreknowledge was absent or present.

In Experiment 2, we examined the influence of unspecified caring on intentionality judgments. When foreknowledge was present and the outcome was harmful, children attributed intentionality significantly more often to the agent than when foreknowledge was absent. As shown by a comparison of responses in Experiments 1 and 2, an asymmetrical judgmental pattern occurred even in the absence of uncaring declarations but only when foreknowledge was present. This finding is contrary to the assumption that the asymmetrical pattern arises from declarations of uncaring in which the agent apparently does not intend to bring about a specific outcome. Consistent with responses to agents who acted without foreknowledge, children in Experiment 3 infrequently judged an agent with a false belief who produced a negative outcome as having acted purposely.

Our investigation was limited in that no detailed rationale was provided for the uncaring declarations of the agent and the effects were restricted to a single instance of a child's happiness or upset reaction. It did not address the issue of whether children use different psychological criteria to praise helpfulness and assign blame for harm, and did not examine the extent to which the severity of the effect influences intentionality judgments (Knobe, 2006; Machery, 2008). For example, a mild side effect may be seen as having been brought about unintentionally, whereas a severely harmful one may not viewed as intentional, such as would be the case if the frog in the story caused bodily harm to one of the characters.

Bearing these issues in mind, our results suggest that many preschoolers as well as adults are capable of a rational analysis of situations involving helping or harming using information about a protagonist's mental state, both in terms of caring and foreknowledge. An area in need of further study concerns the extent to which asymmetry in intentionality judgments depends on the expression of theory-of-mind reasoning and whether continuity in asymmetry is influenced by considerations of caring and foreknowledge that remain stable with age. In terms of the debate over the primacy of cognitive and emotional factors in moral judgment (Danovitch & Keil, 2008; Greene & Haidt, 2002; Haidt, 2001; Nichols & Mallon, 2006; Pizarro & Bloom, 2003), another important question concerns how asymmetry relates to variations in moral orientations across cultures (Shweder, Much, Mahapatra, & Park, 1997), and the extent to which asymmetrical patterns can be mediated by the strength of reactions involving emotions such as fear and disgust.

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Appendix

Examples of Stories in Experiment 1

Knowing Agent–Negative Outcome Script

This is the story of a child named Andy and his frog/gerbil. Andy loves his frog/gerbil, and he wants to keep it always with him:

Here is a boy named Andy, and he's over at his house [point to the drawing]. And here is a girl named Janine, and she's over at her house [points to the drawing]. And look what Andy has with him—he has a frog/gerbil [let child answer]. Now Andy loves frogs/gerbils, but Janine hates frogs/gerbils. Now can you remember—does Andy love frogs/gerbils? Does Janine love frogs/gerbils? Andy wants to bring the frog/gerbil over to Janine's house. If Andy brings the frog/gerbil over, Janine will get upset. Why will Janine get upset? Now listen very carefully.

Andy knows that Janine hates frogs/gerbils and that she will be really upset when she sees the frog/gerbil. Andy does not care if Janine will get upset. He is going to bring the frog over anyway.

Knowledge control question. Does Andy know that Janine will be very upset to see the frog/gerbil?

Caring control question. Does Andy care that Janine will get upset?

So Andy brings the frog/gerbil over to Janine's house, and she gets upset. Now I have a question for you:

"On purpose" test question. Did Andy make Janine upset on purpose or without wanting to? [Italian: *Andrea ha fatto arrabbiare Gaia apposta o senza volere?*]

Unknowing Agent–Positive Outcome Script

This is the story of a child named Andy and his frog/gerbil. Andy loves his frog/gerbil, and he wants to keep it always with him:

Here is a boy named Andy, and he's over at his house [point to the drawing]. And here is a girl named Janine, and she's over at her house [point to the drawing]. And look what Andy has with him—he has a frog/gerbil [let child answer]. Now Andy loves frogs/gerbils, but he doesn't know if Janine loves or hates frogs/gerbils. Now can you remember—does Andy love frogs/gerbils? Does he know if Janine loves or hates frogs/gerbils?

Andy does not know if Janine loves or hate frogs/gerbils or if she will be really happy or upset when she sees the frog/gerbil. Andy does not care if Janine will be happy or upset. He is going to bring the frog/gerbil over just for himself. Now listen very carefully.

Knowledge control question. Does Andy know if Janine will be happy or upset to see the frog/gerbil?

Caring control question. Does Andy care if Janine will be happy or upset?

So Andy brings the frog/gerbil over to Janine's house, and she is happy. Now I have a question for you:

"On purpose" test question. Did Andy make Janine happy on purpose or without wanting to? [Italian: *Andrea ha fatto contenta Gaia apposta o senza volere?*]

Knowing Agent–Negative Outcome Script

This is the story of a child named Andy and his frog/gerbil. Andy loves his frog/gerbil, and he wants to keep it always with him:

Here is a boy named Andy, and he's over at his house [point to the drawing]. And here is a girl named Janine, and she's over at her house [points to the drawing]. And look what Andy has with him—he has a frog/gerbil [let child answer]. Now Andy loves frogs/gerbils, but Janine hates frogs/gerbils. Now can you remember—does Andy love frogs/gerbils? Does Janine love frogs/gerbils? Andy wants to bring the frog/gerbil over to Janine's house. If Andy brings the frog/gerbil over, Janine will get upset. Why will Janine get upset? Now listen very carefully.

Andy knows that Janine hates frogs/gerbils and that she will be really upset when she will see the frog/gerbil. Andy does not care if Janine will get upset. He is going to bring the frog over anyway.

Knowledge control question. Does Andy know that Janine will be very upset to see the frog/gerbil?

Caring control question. Does Andy care that Janine will get upset?

So Andy brings the frog/gerbil over to Janine's house, and she gets upset. Now I have a question for you:

"On purpose" test question. Did Andy make Janine upset on purpose or without wanting to? [Italian: *Andrea ha fatto arrabbiare Gaia apposta o senza volere?*]

Unknowing Agent—Positive Outcome Script

This is the story of a child named Andy and his frog/gerbil. Andy loves his frog/gerbil, and he wants to keep it always with him:

Here is a boy named Andy, and he's over at his house [point to the drawing]. And here is a girl named Janine, and she's over at her house [point to the drawing]. And look what Andy has with him—he has a frog/gerbil [let child answer]. Now Andy loves frogs/gerbils, but he doesn't know if Janine loves or hates frogs/gerbils. Now can you remember—does Andy love frogs/gerbils? Does he know if Janine loves or hates frogs/gerbils?

Andy does not know if Janine loves or hate frogs/gerbils or if she will be really happy or upset when she sees the frog/gerbil. Andy does not care if Janine will be happy or upset. He is going to bring the frog/gerbil over just for himself. Now listen very carefully.

Knowledge control question. Does Andy know if Janine will be happy or upset to see the frog/gerbil?

Caring control question. Does Andy care if Janine will be happy or upset?

So Andy brings the frog/gerbil over to Janine's house, and she is happy. Now I have a question for you:

"On purpose" test question. Did Andy make Janine happy on purpose or without wanting to? [Italian: *Andrea ha fatto contenta Gaia apposta o senza volere?*]

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