

# Intentionality, Evaluative Judgments, and Causal Structure

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## Abstract

The results from a number of recent studies suggest that ascriptions of intentionality are based on evaluative considerations: specifically, that the likelihood of viewing a person's actions as intentional is greater when the outcome is bad than good (see Knobe, 2006, 2010). In this research we provide an alternative explanation for these findings, one based on the idea that ascriptions of intentionality depend on causal structure. As predicted by the causal structure view, we observed that actions leading to bad outcomes are associated with negative social pressures (Experiment 1), that these negative pressures give rise to a specific kind of causal structure (Experiment 2), and that when these causal structures are pitted against the badness of the outcome, intentionality judgments track with causal structure and not badness (Experiment 3). While the badness of an outcome may have an indirect effect on judgments of intentionality, our results suggest that the factors that affect judgments of intentionality most directly are non-evaluative and objective.

**Keywords:** Social cognition, Folk psychology, Theory of mind, Intentional action, Intentionality, Causal structure, Morality, Norms, Side-effect effect, Knobe effect.

## Introduction

Ascriptions of intentionality play a fundamental role in our explanations of behaviors (Malle, Moses, & Baldwin, 2001). They influence our judgments of character (Rotenberg, 1980), deservedness of blame or praise (Lagando & Channon, 2008), the impermissibility of actions (Cushman 2008), and the severity of deserved punishment (Horan & Kaplan, 1983). Standard accounts of intentionality ascription hold that judgments of intentionality are based on objective or descriptive properties of the actors and the situation, such as foreseeability, desire, and belief (Guglielmo, Monroe, & Malle, 2009; Knobe & Malle, 1997; Mele & Sverdlik, 1996; Sripada, 2010). Recent empirical work by Knobe (2003a) and others (Nadelhoffer, 2006; Wright & Bengson, 2009; Cova & Naar, 2012) raises an alternative view, that ascriptions of intentionality may be based on evaluative properties of a situation. Specifically, Knobe (2006, 2010) has argued that the likelihood of viewing a person's actions as intentional is greater when the outcome is bad than when it is good. In this paper, we offer a critical test of this proposal. We also put forward and test another possibility, that judgments of intentionality are most directly based on the causal structure of a situation, which can be influenced at times by evaluative considerations. In a series of three experiments, we show that the phenomenon originally observed in Knobe (2003a) and others is more

directly explained in terms of causal structure than badness of the outcome.

## The Side-Effect Effect (or Knobe effect)

A connection between intentionality and badness has been demonstrated in research examining the so-called *side-effect effect*, or *Knobe effect*. Experiments investigating this effect have typically included two main conditions. In the *harm* condition, participants read scenarios like the following:

The vice-president of a company went to the chairman of the board and said, 'We are thinking of starting a new program. It will help us increase profits, but it will also harm the environment.'

The chairman of the board answered, 'I don't care at all about 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 harmed.

After reading the scenario, participants are asked "Did the chairman intentionally harm the environment?" For this scenario, Knobe (2003a) found that 82% of the participants responded that the chairman intentionally harmed the environment. In *help* conditions, everything is kept the same except the side-effect is described as good. In the chairman scenario, for example, participants were told that the business plan would not only make a profit but also help the environment. Interestingly, in this alternative condition, only 23% of the participants felt that the chairman intentionally helped the environment (Knobe, 2003a). This basic finding has been replicated with other scenarios (Knobe, 2003b; Knobe, 2007; Knobe & Mendlow, 2004; Mallon, 2008; Nadelhoffer, 2004; Nadelhoffer, 2006; Uttich & Lombrozo, 2010; Wright & Bengson, 2009) and in a diverse array of populations, including Hindi speakers when the scenarios are translated into Hindi (Knobe & Burra, 2006), with four-year old children (Leslie, Knobe, & Cohen, 2006), with participants who suffer from deficits in emotional processing due to lesions in the ventromedial prefrontal cortex (Young, Cushman, Adolphs, & Hauser, 2006), and with adults with high functioning autism or Asperger's (Zalla & Leboyer, 2011). The wide range of situations and populations supports the conclusion that the basic pattern of findings is both reliable and conceptually significant, but do these findings really demonstrate that

intentionality is directly dependent on the badness of the outcome?

### Responses to the Evaluative Accounts

Though many take the side-effect effect as evidence that ascriptions of intentionality are affected by evaluative considerations (Nadelhoffer, 2004; Nado, 2008; Wright & Bengson, 2009) such as badness, others have attempted to provide accounts of the side-effect effect that are consistent with standard, descriptive models of intentionality. For example, Adams and Steadman (2004) has argued that the side-effect effect is a result of pragmatic implicature: People assent to the statement that the chairman intentionally harmed the environment not because they genuinely attribute intentionality to the chairman but because they do not want to imply that the chairman is not responsible for harming the environment. Machery (2008) has argued that the effect is the result of calculation of trade-offs, arguing that people are more likely to attribute intentionality whenever there is a trade off and that the higher rates of attributions for outcomes that involve a trade-off occur regardless of the evaluative status of the trade-off. Sripada (2010; 2012; Sripada & Konrath, 2011) has argued that the side-effect effect can be explained in terms of concordance with deeply held attitudes and values attributed to the actor. For example, in the chairman case, since the chairman states that he doesn't care about the environmental outcome in both the harm and the help case, people take this as evidence that the chairman harbors anti-environmental attitudes. However, only in the harm case does the outcome concord with anti-environmental attitudes. It's this concordance that explains the side-effect effect, not the evaluative status of the outcome (see Hughes & Trafimow, 2012, for a similar account). However, all these accounts have met explanatory or experimental challenges (e.g., Cova & Naar, 2012; Knobe, 2003b, Knobe, 2004; Mallon, 2008; Phelan & Sarkissian, 2009; see Nadelhoffer, 2011 for a review).

Uttich and Lombrozo (2010) have argued that the side-effect effect results from the fact that behavior that conforms to a norm is less informative about the underlying mental states than is behavior that violates a norm. According to their account it is the fact that a norm was violated, not any particular evaluative judgment, that leads to higher rates of attribution of intentional action. Furthermore, they argued that the higher rates of attribution for norm violations is not specific to violations of evaluatively-laden moral norms but that the phenomenon is a feature of norm violations more generally, including statistical and prudential norms. However, their account does not provide a mechanism that allows us to differentiate why some norm violations (e.g., harming versus helping the environment) lead to larger asymmetries in intentional action attributions than other norm violation (e.g., violating an industry standard versus conforming to an industry standard (see Uttich & Lombrozo, 2010, Experiment 1)) or why some norm violation do not lead to an asymmetry at all

(e.g., a supervillain who violates supervillain social norms (see Uttich & Lombrozo, 2010, Experiment 2)). In a slogan, their account can be viewed to being committed to the claim: "A norm is a norm is a norm." But the fact of the matter is when it comes to the side-effect effect, not all norms are equal. Some norm violations are more informative than others. What explains this fact? Furthermore, their evidence is still compatible with the claim that badness (or some other evaluative judgment) best explains the pattern of asymmetries observed in various side-effect effect cases.

### Causal Structure Account

Though the demonstrations of the side-effect effect suggest that evaluations of the badness of the outcome may enter into our reasoning about intentionality, another possibility is that in Knobe's experiments, more may have been varied than the valence of the outcome. In particular, in varying the badness of the outcome, Knobe may have also varied the *causal structure* of the scenarios, and it may have been the causal structure, and not the valence of the outcomes *per se*, that affected people's ascriptions of intentionality. According to this alternative view, the extra something that determines whether actions are judged as being intentional, is whether, in fact, the agent causes himself to produce the action.

The claim here begins with the idea that, in situations such as the harm version of the chairman case, there is normative force that acts on the chairman, and this normative force puts a pressure on the chairman not to pursue behavior that would knowingly violate the norm. In other words, the presence of the norm puts a preventive pressure on the chairman not to harm the environment. This establishes a preventive causal relationship: namely, Norm PREVENTS chairman from harming the environment.

However, in spite of the presence of this PREVENT relationship, the chairman overcomes that pressure and engages in behavior that will knowingly harm the environment. In overcoming the normative pressure, an additional PREVENT relation is formed: The chairman PREVENTS the norm. This string of PREVENT relations establishes what is known as a *double prevention* (Collins, 2000; Dowe, 2001; Hall, 2004; Schaffer, 2000). In this case, the chairman PREVENTS the norm from PREVENTING him from harming the environment. Prior research has shown that double preventions are interpreted as instantiating CAUSE or ALLOW relationships (McGrath, 2005; Wolff, Barbey, & Hausknecht, 2010). In this case, the pattern would result in the CAUSE relationship: The chairman causes himself to harm the environment. Interestingly, this "causing of one's self" instantiates a situation in which an actor acts on himself, making it reflexive. This self-causation is particularly important for intentionality. To intentionally do something is, if nothing else, to cause oneself to do that something. Importantly, the double prevention, and thus the reflexive relationship, will arise in the harm scenario but not in the help scenario

because there is no preventive pressure against helping the environment, only against harming the environment.

Three experiments were conducted to test this causal structure account against the badness account.

### Experiment 1

In this experiment we investigated whether the causal structure view could provide an alternative explanation for the results found in previous studies. Just as in previous studies, participants read scenarios in which an actor brought about a good or bad side-effect and then they rated the intentionality of the actor. The scenarios included six scenarios that have been used in other studies in the literature, as well as 10 new scenarios created specifically for this experiment. We were interested in whether we could replicate the intentionality effect observed in other studies. The current experiment also tested one of the main predictions of the causal structure account, that people would infer more preventive pressure in *harm* scenarios than *help* scenarios.

#### Methods

**Participants** Forty-eight Emory University undergraduates participated for course credit.

**Materials** The materials were 16 scenarios modeled after the chairman scenario described above. For each scenario, there was a HARM version in which the side effect violated a norm and a HELP version in which the side effect did not violate a norm.

**Procedure** Participants read eight of the 16 scenarios. Each participant received only one version of each scenario they read, either the HARM or HELP version of each scenario. In response to each scenario, participants provided an intentionality rating by indicating their agreement or disagreement with statements of the form “The [primary actor] intentionally [side effect]”. Participants also provided preventive pressure ratings by indicating their agreement or disagreement with statements of the form “Knowing that [going forward with the proposed plan of action] would [side effect] put pressure on [primary actor] to not [go forward with the plan]. The two types of ratings were presented in random order. All ratings were made on a scale that ranged from -4 *complete disagreement* to +4 *complete agreement*.”

#### Results and Discussion

As shown in Figure 1, participants were more willing to say that an actor intentionally brought about the side effect in the HARM condition ( $M = 1.01, SD = 1.97$ ) than in the HELP condition ( $M = -1.71, SD = 1.80$ ),  $t(47) = 7.91, p < .001$ , thus replicating, with a much wider range of materials, the phenomenon originally reported in Knobe (2003a). Of central importance to the causal structure hypothesis, participants rated the preventative pressure on the actor not to act as greater in the HARM condition ( $M = 1.56, SD = 1.85$ ) than in the HELP condition ( $M = -2.28, SD = 1.49$ ),  $t(47) = 9.38, p < .001$ .

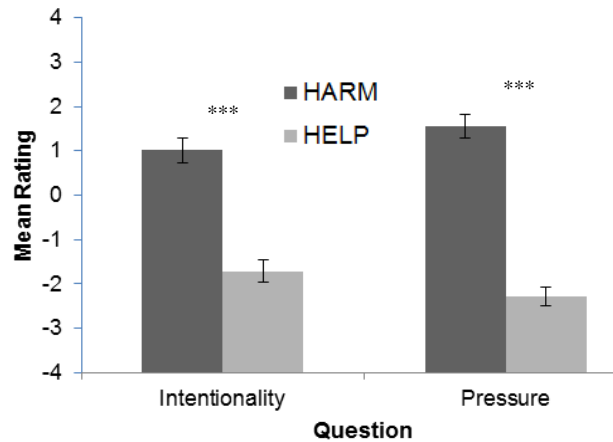


Figure 1: Mean ratings of intentionality and pressure by scenario (HARM vs. HELP) in Experiment 1. \*\*\*  $p < .001$

### Experiment 2

Experiment 1 established that people infer a greater pressure against bringing about the side effect in HARM than HELP scenarios. With the first link of the double prevention established, this entails that a double prevention would be established in any case where the first PREVENT relation is overcome. Thus, Experiment 1 establishes that when people knowingly bring about a bad side effect, they infer a sequence of PREVENT relations, or otherwise, a double prevention. Double preventions typically lead to CAUSE or ALLOW relationships (McGrath, 2005). In the context of the scenarios, this implies that people should be more willing to say that the actor either caused or allowed the side effect in the HARM condition than in the HELP condition. In Experiment 2, we tested the prediction that people will be more likely to say that the actor caused the side effect in the HARM scenarios than in the HELP scenarios.

#### Methods

**Participants** Fifty-two Emory University undergraduates participated for course credit.

**Materials and Procedure** The materials were the same as in Experiment 1. As in Experiment 1, participants provide ratings of intentionality. Unique to the present experiment, participants also provided ratings of causation by indicating their agreement or disagreement with statements of the form “The [primary actor] caused [side effect].”

#### Results and Discussion

As shown in Figure 2, participants were more likely to say that the actor caused the side effect in the HARM condition ( $M = 1.42, SD = 1.97$ ) than in the HELP condition ( $M = -.06, SD = 1.96$ ),  $t(51) = 5.94, p < .001$ . The basic asymmetry in intentional action attributions was replicated in this experiment with participants more likely to attribute intentional action in the HARM condition ( $M = .40, SD = 2.22$ ) than in the HELP condition ( $M = -1.98, SD = 1.84$ ),  $t(51) = 6.35, p < .001$ .

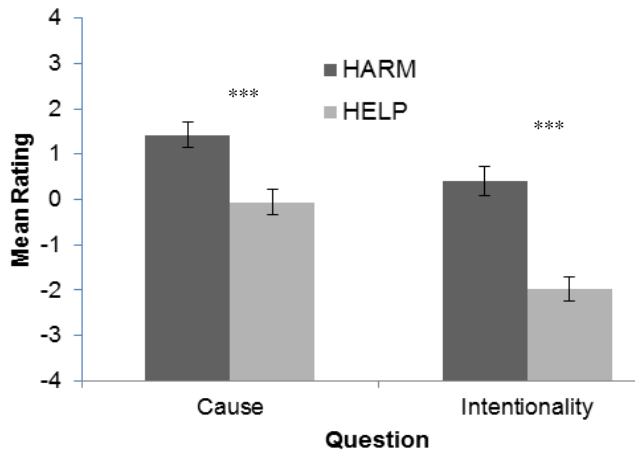


Figure 2: Mean ratings for cause and intentionality judgments by scenario type (HARM vs. HELP) for Experiment 2. \*\*\*  $p < .001$

### Experiment 3

The results from Experiments 1 and 2 support the causal structure account but are not conclusive because they remain compatible with the badness account. In order to test between badness and causal structure, the typical alignment between badness and causal structure needs to be reversed. Such a re-alignment was achieved in the current experiment by using scenarios in which an actor either violated or conformed to an unjust rule or law. Such scenarios instantiate situations in which there is a preventive pressure against doing a good thing, and little or no pressure against doing a bad thing.

Take for example the following VIOLATE scenario used in Experiment 3 (brackets indicate changes in wording for the CONFORM condition):

In Midwestern America, there was a church that had explicit rules against interracial couples participating in any church-sponsored activity.

One day a church deacon was considering which of his friends to invite to perform in a concert celebration being sponsored by the church. He decided to invite the Smiths, a husband and wife duet.

Upon hearing the news a fellow church member went to the deacon and said, “By inviting the Smiths, you will be violating [conforming to] the church’s rules against interracial couples participating in any church-sponsored activity.”

The deacon answered, “Look, I know I will be violating [conforming to] the church’s rules against interracial couples participating in any church-sponsored event, but I don’t care one bit about that. I just want to invite the most talented people to

perform in the concert. I am going to invite the Smiths to perform.”

The deacon invited the Smiths to perform.

In cases like this, it appears the right thing to do would be to violate the rule. Thus, when the deacon violates the rule it is likely that people will judge the violation as good. However, since the rule is in force, it is likely that people will judge that the deacon is under pressure not to violate the rule. In contrast, when the deacon conforms to the rule, it is likely that people will judge the conforming to the rule as being bad, yet it is likely that people will not judge that the deacon is under pressure not to conform. If this is right, then the badness account and the causal structure account make opposite predictions for intentionality judgments in cases like the church case. The badness account predicts that intentionality judgments should be higher for the conform cases than for the violate cases because it is bad to conform but good to violate. The causal structure account predicts that intentionality judgments should be higher for the violate cases than for the conform cases because the actor is under pressure not to violate but is not under pressure not to conform. Additionally, because overcoming a preventive pressure instantiates a double prevention, and since the pattern of double preventions observed in these cases should lead to the inference of a reflexive causal relationship, the causal account also predicts that people will be more likely to say that the actor causes himself to violate the law or rule than to say that the actor causes himself to conform to the law or rule.

### Methods

**Participants** Thirty-two Emory University undergraduates participated for course credit.

**Materials** The materials were 8 scenarios modeled after the church scenario. For each scenario, there was a VIOLATION version in which the decision would violate an unjust rule or law, and a CONFORM version in which the decision would conform to an unjust rule or law.

**Procedure** Participants were assigned to read one version of each scenario. For each scenario, participants were asked to rate their level of agreement with statements about whether the primary actor acted intentionally and whether the primary actor experienced preventive pressure, as in Experiments 1 and 2. Unique to the current experiment, participants rated their level of agreement with statements that the primary actor caused himself to bring about an effect by responding to statements of the form “The [primary actor] caused himself to [side effect].” As a manipulation check, participants also rated whether the outcome was good or bad, by responding to statements of the form, “How good or bad is [the occurrence of the side effect],” on a scale from -4 *very good* to 4 *very bad*.

## Results and Discussion

As is shown in Figure 3, Participants were more likely to say that an actor was under pressure not to violate an unjust rule or law ( $M = 1.11, SD = 1.89$ ) than to conform to an unjust rule or law ( $M = -1.31, SD = 1.91$ ),  $t(31) = 5.24, p < .001$ . Participants were also more likely to say that the outcome was bad when the unjust rule was conformed to ( $M = .70, SD = 1.70$ ) than when the unjust rule was violated ( $M = -1.56, SD = 1.31$ ),  $t(31) = -5.49, p < .001$ . These results lead the badness account and the causal structure account to make opposite predictions for intentionality judgments in these cases. The causal structure account predicts that intentionality judgments will be higher in the violate cases, while the badness account predicts that intentionality judgments will be higher in the conform cases. As predicted by the causal structure account, participants were more likely to say that the actor intentionally violated the rule or law ( $M = 1.67, SD = 2.35$ ) than conformed to the rule or law ( $M = -.62, SD = 2.01$ ),  $t(31) = 5.94, p < .001$ . Additionally, as predicted by the causal structure account, participants were more likely to judge that the actor caused himself to violate the rule or law ( $M = 1.98, SD = 1.74$ ) than conformed to the rule or law ( $M = .34, SD = 1.82$ ),  $t(31) = 4.91, p < .001$ .

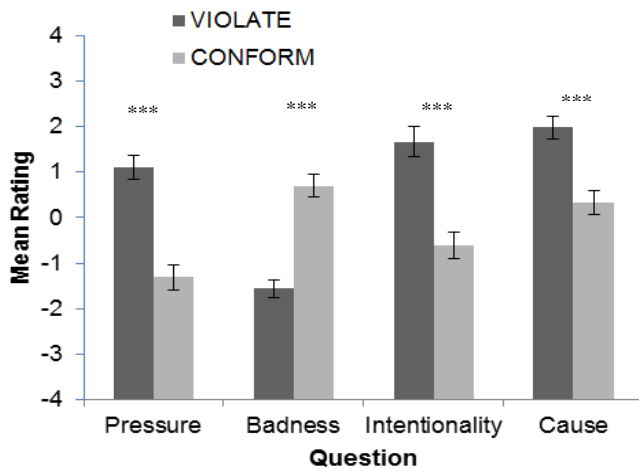


Figure 3: Mean ratings for pressure, badness, intentionality, and reflexive cause judgments by scenario type (HARM vs. HELP) for Experiment 3. \*\*\* $p < .001$ .

To provide converging statistical evidence that causal structure and not badness of outcome was leading to the asymmetrical judgments of intentional action, a regression analysis was conducted with intentionality judgments regressed on pressure judgments, reflexive-causation judgments and badness judgments. After controlling for the other variables in the model, pressure judgments and self-causation judgments significantly predicted intentionality judgments,  $\beta$ 's  $\geq .349, p$ 's  $< .005$ . However, intentionality judgments and badness judgments were unrelated,  $\beta = -.095, p = .406$ .

## General Discussion

The results from Experiments 1 – 3 support the conclusion that ascriptions of intentionality are driven by the causal structure rather than badness of the outcome. When assessing causal structure, it appears that people may look for reflexive causal relationships, that is, causal relations in which a person causes herself to do something.

Differences in causal structure are descriptive differences, not evaluative differences. Thus, our findings are compatible with the standard, descriptive views concerning the way we reason about mental states. However, it may be objected that the causal structure account is not fully compatible with the standard, descriptive views because, according to our account, causal structure is sensitive to norms. While we acknowledge that prohibitory norms are typically viewed as providing a force against behavior, it is not really any particular evaluative judgment that is providing this force (above and beyond the *non-evaluative* recognition that a norm is in effect). In Experiment 3, we demonstrated that force against behavior is perceived even in cases in which it is thought to be good to violate the norm. Additionally, even though our experiments focused on norm violations of different kinds, we don't think the effect is particular to norm violations. We would expect there would be higher rates of intentionality attribution for any situation involving a preventive, whether this force is due to norms or physical resistance.

Though we have shown that ascriptions of intentionality depend on causal structure, our results point to the possibility that the concept of intentionality itself may be little more than a kind of causal structure. Such a result might help explicate the curious role that intentionality seems to play in our understanding of causal relationships in general.

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