

## Causal deviance and the attribution of moral responsibility<sup>☆</sup>

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### Abstract

Are current theories of moral responsibility missing a factor in the attribution of blame and praise? Four studies demonstrated that even when cause, intention, and outcome (factors generally assumed to be sufficient for the ascription of moral responsibility) are all present, blame and praise are discounted when the factors are not linked together in the usual manner (i.e., cases of “causal deviance”). Experiment 4 further demonstrates that this effect of causal deviance is driven by intuitive gut feelings of right and wrong, not logical deliberation.

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### Introduction

The question of when to hold an individual responsible for an action has been central to philosophy and psychology. In an effort to codify our intuitions concerning moral responsibility, various theories have posited necessary conditions for the ascription of responsibility (Aristotle, 4th Century, B.C.E./1998; Kant, 1785/1998; Shaver, 1985; Weiner, 1995). The most influential descriptive theories of moral responsibility include criteria such as that an act be intended, controllable, and singly caused in order for that individual to be fully responsible (Shaver, 1985; Weiner, 1995).

Yet the descriptive criteria for moral responsibility do not seem to account for a certain type of action, described by various philosophers as those in which the causal chain is “deviant,”—i.e., although there is an intention to perform an action, and the agent caused the outcome, it did not happen in the intended way (Searle, 1983). Take this example, adapted from Chisholm (1966):

Joe wants to kill his rich uncle, as he stands to inherit a large sum of money. He formulates his plan to murder his uncle, and begins the drive to his uncle’s home. Excited at the prospect of soon acquiring a lot of money, Joe is a bit careless at the wheel and hits and kills a pedestrian. This pedestrian turns out to have been his uncle.

In this scenario Joe’s intention to kill his uncle leads directly to the death of his uncle. Yet although Joe intended and caused his uncle’s death, intuition suggests that Joe does not deserve full blame. However, descriptive theories of responsibility seem unable to account for such blame reduction. Consider two of the most influential theories of responsibility and blame, from Shaver (1985) and Weiner (1995).

Shaver (1985) predicts that full blame is assigned if an agent intends an act and is its single cause (i.e., the causal chain begins with his intention as a necessary condition), but blame will be reduced or eliminated if the act is unintended and has multiple causes present. In the case of Joe, these criteria seem to have been met, and Joe should thus receive full blame. It may be that Shaver would characterize this as an intended act *with* multiple causes—the intention is a necessary condition for the result to obtain (had Joe not intended to kill his uncle, his uncle would not have died), but other unintended causes are also present (the accident that killed his uncle was not intended). However, this category of action is omitted from Shaver’s model, presumably because of its relatively rare occurrence (1985, p. 170).

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Similarly, on Weiner's (1995) characterization, responsibility is attenuated when a cause is perceived as uncontrollable. Certainly Joe's intention to kill his uncle is controllable, and it is this intention that in the end causes his uncle's death. On this interpretation, Joe should be held fully responsible. However, whether Joe's act should be considered controllable or uncontrollable is unspecified by the theory. For instance, on another interpretation Joe had no control over the nervousness that caused him to drive carelessly, and should thus receive less blame. Current descriptive theories are thus agnostic as to whether individuals will assign blame to the agents of these acts.

Although psychological theories do not seem to account for causally deviant acts, the deviant link between Joe's intentions and the outcome has led many philosophers to the intuition that Joe's act cannot be considered intentional, and should thus not receive full blame. Some have even suggested a further condition for an event to be considered an intended action, and thus open to judgments of responsibility, a so-called *intention-in-action*.

On Searle's (1983) view, an intentional action generally consists of a "prior intention" (the deliberate formulation of a plan to act), and an "intention-in-action" (the direct mental cause of the physical movements, or the intention present in the action). To illustrate the distinction between the two, Searle points to cases in which agents act without deliberation, but nevertheless do so intentionally. Acts that are committed impulsively, for instance, are missing prior intentions because the agent did not deliberately form a plan to act (e.g., striking someone in anger), but can nevertheless be said to be intentional. Cases of causal deviance are of interest because they contain a clear prior intention, but lack the intention-in-action.

It may be that lay assessments of moral responsibility are similarly sensitive to the manner in which intentions affect outcomes, and we may thus find that individuals discount moral blame for actions that lack a specific link between intentions and actions. On the other hand, judgments of responsibility may not reflect such a sophisticated calculus of intent and action. It may be that, in the end, the presence of intentions, causation, and outcome are indeed sufficient for lay ascriptions of responsibility. Accordingly, the first goal of the present research was to determine whether causally deviant acts do, indeed, elicit a discounting of moral responsibility from lay judges (Experiments 1–3).

At the same time, we were interested in the judgmental process that underlies moral assessments of causally deviant acts (Experiment 4). If individuals explicitly endorse a discounting of moral responsibility for causally deviant events, they may do so as a rational strategy. Alternatively, such discounting may be based on gut "feelings" of right and wrong—intuitions that

might potentially conflict with the outcome of rational deliberation.

## Experiment 1

### Overview

In Experiment 1, we sought to provide initial evidence that individuals would discount responsibility for acts that were caused and intended by an agent, but which were not caused in the intended way—that is, cases of "causal deviance" (Searle, 1983).

### Method

#### Participants

One hundred and twenty-three undergraduates at Yale University participated for monetary compensation.

#### Materials and procedure

In a  $2 \times 2$  between-participants design participants were provided with two vignettes describing the actions of an agent that were either positive or negative (we utilized both positive and negative acts, because under some conditions there is an asymmetry in judgments of responsibility for positive and negative acts; Pizarro, Uhlmann, & Salovey, in press), and either followed a normal causal chain (normal condition), or followed a "deviant" causal chain (deviance condition). In both conditions, respondents were asked to judge the moral responsibility of an agent that: (a) saved the life of a little girl or (b) murdered his enemy by stabbing him with a knife. In the causally "normal" versions, the protagonist saved the life of the little girl by lunging forward and knocking her out of the way of an oncoming car, or murdered his enemy by lunging forward and thrusting the knife in his enemy's stomach. In the causally "deviant" versions of the story, the protagonist prepared to lunge forward (in both cases), but before he could lunge he was hit by an oncoming jogger, which caused him either to knock the little girl out of harm's way, or to plunge the knife in his enemy's stomach (see Appendix for a listing of vignettes across all experiments).

Participants were then asked to make judgments concerning the agent's behavior with three questions intended to be judgments of moral sanctions (blame or praise). Responses were assessed on a 9-point semantic differential scale anchored by positive and negative attribution terms (e.g.,  $-4 = \textit{extreme blame}$ ,  $0 = \textit{neither blame nor praise}$ , and  $+4 = \textit{extreme praise}$ ). Specifically, participants judged the agents by rating: (1) how moral or immoral the agent was, (2) how much blame or praise the agent should receive for his actions, and (3) how positively or negatively the agent should be judged.

To facilitate analyses, scores for negative actions were multiplied by  $-1$  in order to place positive and negative actions on the same scale.

### Results and discussion

The three dependent variables intended to measure moral responsibility were highly correlated and were averaged to create a moral sanction index (Cronbach's  $\alpha = .98$ ). In order to test the hypothesis that individuals would discount moral responsibility for causally deviant acts, a  $2$  (causal condition: normal vs. deviant)  $\times$   $2$  (positive vs. negative acts) Analysis of Variance (ANOVA) was conducted. As predicted, there was a main effect for experimental condition,  $F(1, 119) = 4.32$ ,  $p < .05$ , such that individuals discounted moral responsibility for acts that were causally deviant (as characterized in Fig. 1). This main effect was not qualified by an interaction with valence of action (positive or negative acts),  $F(1, 119) = .44$ , *ns*, suggesting that judgments of moral responsibility were discounted for both positive and negative causally deviant behaviors. Thus, lay judges do not appear to believe that causally deviant actions deserve full-blown moral responsibility. Although the agents in the causally deviant scenarios possessed the intention to commit an act, and were the (successful) physical cause of the act, the proper linking of intent and act was not present, and seemed to lead participants to attenuate judgments of blame and praise.

## Experiment 2

### Overview

It is possible that in Experiment 1 participants believed that responsibility should be attenuated because

in the causally deviant scenarios the intent itself was not the *proximal* cause of the outcome. So, although the hero (or fiend) intended to leap forward in order to save (or stab) another individual, the *intention* to jump was itself not the cause of the saving or the stabbing (it was a bump by a passing jogger). As such, the agent could not have been said to possess full causal control over his own actions. Such a possibility, respondents may have reasoned, is enough to have given the agent a reasonable moral excuse (and would be in accord with Weiner's (1995) prediction that causal control is a necessary condition for a judgment of responsibility). Accordingly, in Experiment 2 we sought to replicate the discounting found in the first experiment, but with acts in which the intention was the proximal cause of the outcome.

### Method

#### Participants

Twenty-six undergraduates at Yale University participated for monetary compensation.

#### Materials and procedure

In a  $2 \times 2$  within-participants design, participants received vignettes describing an agent that performed a positive or negative action, and the causal chain was normal or deviant. In all conditions participants read about an agent that possessed an intention to perform an action, and the intention itself was the proximal physical cause of the outcome. In the positive condition, the vignette described an agent who saw a man choking on a sandwich and performed the Heimlich maneuver to save his life. In the negative condition, the vignette described an agent who waited for his enemy to exit a building, and then shot him dead. In the normal causal condition the agent successfully performed the intended action. In the causally deviant condition the intention to perform an action caused the actor to become nervous, and this nervousness triggered a seizure that caused a trigger pull (in the negative vignette), or a successful Heimlich squeeze (in the positive vignette). The vignettes describing the causally deviant actions were designed such that the intention was integral to the causal chain of events. Although it is unlikely that the agents in these scenarios could have changed their mind, we added a phrase indicating that, had the agent not experienced a seizure, he would have carried out the intended action. A Latin-square design counterbalanced the order of the four vignettes (there were no order effects).

As in Experiment 1, we asked participants to make judgments concerning the agent's behavior with three questions intended to be judgments of moral sanctions (blame or praise). Responses were assessed on a 9-point semantic differential scale anchored by positive and negative attribution terms (e.g.,  $-4 = \textit{extreme blame}$ ,

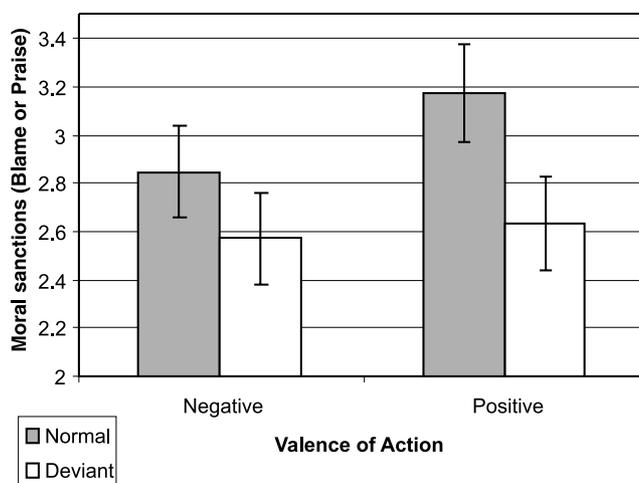


Fig. 1. Moral sanctions ( $\pm SE$ ) for positive and negative acts that followed a normal or causally deviant causal chain (Experiment 1).

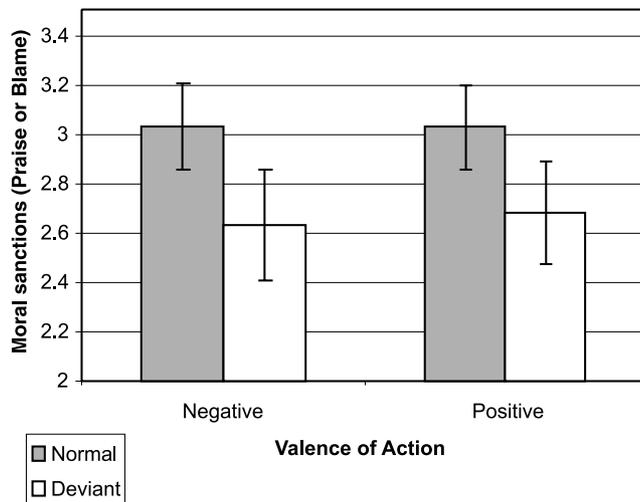


Fig. 2. Moral sanctions ( $\pm SE$ ) for positive and negative acts that followed a normal or causally deviant causal chain (Experiment 2).

0 = neither blame nor praise, and +4 = extreme praise). As in Experiment 1, scores for negative actions were multiplied by  $-1$  in order to place positive and negative actions on the same scale.

### Results and discussion

The three dependent variables intended to measure moral responsibility were once again highly correlated across vignettes as well as within each vignette, and were thus averaged to create a moral sanction index (Cronbach's  $\alpha = .88$ ). In order to test the hypothesis that individuals discounted responsibility for causally deviant actions, a 2 (causal condition: deviant vs. normal)  $\times$  2 (positive vs. negative act), repeated measures ANOVA was conducted. As predicted, there was a main effect for experimental condition,  $F(1, 25) = 18.13, p < .001$ , such that individuals discounted moral responsibility for acts that were causally "deviant," (as characterized in Fig. 2). Once again, this main effect was not qualified by an interaction with positive and negative behavior-type,  $F(1, 25) = .11, ns$ , suggesting that judgments of moral responsibility were discounted for both positive and negative causally deviant behaviors, even though the intentions clearly were the cause of the outcomes.

## Experiment 3

### Overview

In Experiment 3 we sought to eliminate an additional alternative explanation for why participants were making differential judgments of moral responsibility for causally deviant acts. Although in Experiment 2 we included explicit information that the agent would not

have changed his mind in the causal deviance conditions, it may have been that the possibility that an agent could have, at the last moment, changed his mind and acted otherwise nonetheless led participants to reduce moral responsibility. In order to address this possibility, in Experiment 3 we constructed vignettes describing behaviors that were clearly not subject to a last-minute change of mind. In addition, for the sake of simplicity we eliminated the positive act conditions present in the first two experiments, as there were no interactions with the valence of the acts in our previous studies.

### Method

#### Participants

Seventeen undergraduates at Yale University participated for monetary compensation.

#### Materials and procedure

All participants read two sets of vignettes. In one set of vignettes, an agent intended to murder her husband by poisoning his dish while they were out to dinner at a favorite restaurant. In the causally normal versions of these vignettes the agent poisoned her husband's dinner, causing him to die a few minutes later. In the causally deviant version of these vignettes, the agent also poisoned her husband's dinner. However, unbeknownst to her the poison was not strong enough to kill her husband; it simply made the dish taste extremely bad. Because of the bad taste, the husband changed his order and requested a new dish. This dish contained a substance that he was deathly allergic to, and, shortly after eating it he died.

A similar second pair of vignettes described an agent that threw a knife at another individual, intending to kill him. In the causally normal version of these vignettes, the knife plunged into the heart of the individual and killed him. In the causally deviant version of these vignettes, the agent's actions scared the individual so much that he had a heart attack and fell dead. The knife landed where his heart would have been had he remained standing. Participants were further informed that the knife would have hit and killed the victim had he not first had the heart attack and fallen to the floor.

The order in which participants read both versions of the vignette was randomized (half of the participants received the causally deviant versions first, and the other half received the normal versions first; there were no order effects).

Once again, we asked participants to make judgments concerning the agent's behavior. However, this time we assessed moral sanctions with two questions on a 6-point Likert-type scale anchored by a judgment of neutrality at one end and one of extreme negativity on the other (e.g., 0 = no blame, 5 = extreme blame). Specifically, participants judged the agents by rating how

much moral blame the agent deserved, and how negatively the agent should be judged.

### Results and discussion

The two dependent variables intended to measure moral responsibility across all four vignettes were highly correlated and were averaged to create a moral sanction index (Cronbach's  $\alpha = .87$ ). In order to test the hypothesis that causally deviant acts would garner less responsibility, a  $t$  test was conducted on the moral sanction index. As predicted, there was an effect for experimental condition,  $t(16) = 4.08$ ,  $p = .001$ , such that individuals discounted moral responsibility for acts that were causally "deviant" (deviant condition,  $M = 4.47$ ,  $SD = .73$ ; normal condition,  $M = 4.81$ ,  $SD = .50$ ).

These results provide further evidence that, despite the creation of scenarios in which normative criteria of responsibility are heavily stacked, individuals still believe that something is missing, and that a judgment of full moral responsibility should not be made for causally deviant acts.

## Experiment 4

### Overview

In Experiment 4, we sought to address the judgmental process that underlies moral assessments of causally deviant acts. Many scholars propose that individuals can operate in either of two distinct "modes" of thought—one analytic, rational, and systematic, and one intuitive, quick, and heuristic (Chaiken, 1980; Devine, 1989; Epstein, 1994; Epstein, Lipson, Holstein, & Huh, 1992; Fazio & Towles-Schwen, 1999; Greenwald & Banaji, 1995; Petty, Cacioppo, Strathman, & Priester, 1994; Wilson, Lindsey, & Schooler, 2000). If this is true, then this opens up the possibility that the discounting of moral responsibility for deviant acts might work for one sort of reasoning, but not the other.

To explore this, we employed a paradigm developed by Epstein and his colleagues (Epstein et al., 1992), inducing participants to respond to causally deviant acts in a rational manner, and compared these responses to those in which they were asked to respond in an intuitive manner. Following Epstein et al. (1992), we further altered the order in which intuitive and rational instructions were given. We expected that when first placed in a rational mindset, participants would correct their moral intuitions and refrain from discounting responsibility for causally deviant acts. However, when asked first to provide their intuitive assessments, we hypothesized that participants would rationalize them—i.e., continue to discount responsibility for causally deviant acts when asked to respond rationally. In other words, after

committing themselves to their intuitive judgments, they may make efforts to rationalize their moral intuitions (as argued by Haidt, 2001; see also Epstein, 1994; Epstein et al., 1992).

### Method

#### Participants

Thirty undergraduates at Yale University participated for monetary compensation.

#### Materials and procedure

In a 2 (within-participants: rational instructions vs. intuitive instructions)  $\times$  2 (between-participants: rational instructions first vs. intuitive instructions first) design, participants received two vignettes identical to those in Experiment 3. However, participants in these scenarios were presented with a set of dependent variables intended to measure moral responsibility that differed from those in Experiments 1–3. Specifically, participants were asked to compare the actions of the agents in the causally deviant and causally normal vignettes by rating on 5-point scales which of the actions they deemed more morally blameworthy (the values for judgments of the act were 1 = [Person A's] actions deserve much more blame than [Person B's]; 2 = [Person A's] actions deserve a little more blame than [Person B's]; 3 = [Person A's] and [Person B's] actions deserve equal blame; 4 = [Person B's] actions deserve a little more blame than [Person A's]; and 5 = [Person B's] actions deserve much more blame than [Person A's]) and to judge which of the agents were, globally speaking, worse individuals (the values for global judgments of character were similar to those above, except judgments were made on whether Person A or Person B was a worse individual). For these responses a judgment of three indicates no blame discounting for causally deviant acts compared to normal acts; judgments greater than three indicate blame discounting for causally deviant scenarios.

Participants were asked to make these judgments from either an intuitive perspective (i.e., "my intuitive, gut feeling is that..."), or a deliberative perspective (i.e., "my most rational, objective judgment is that..."). Half of the participants were instructed to respond in a rational manner first, and the other half were instructed to respond intuitively first, in order to test the effects of priming an intuitive mindset first (Epstein et al., 1992).

### Results and discussion

The dependent variables assessing the degree to which individuals differentially judged causally deviant vs. causally normal scenarios were significantly correlated, and were thus combined to facilitate analyses (within the intuitive instructions, global character judgments and

judgments of the act were correlated at  $r(30) = .46$ ,  $p = .01$ ; within the rational instructions the correlation was similar,  $r(30) = .48$ ,  $p < .01$ .

In order to test the hypothesis that mindset instructions would affect judgments of responsibility, we conducted a 2 (instructions: intuitive or rational; within-participants)  $\times$  2 (order of instructions: intuitive instructions first vs. rational instructions first; between-participants) mixed-design ANOVA on the combined judgments of the two vignettes. There was no main effect on the type of instructions participants received (rational instructions vs. intuitive instructions;  $F(1, 28) = 1.28$ , *ns*). However, as expected, the main effect of discounting was qualified by a significant interaction with instruction order (i.e., whether the rational instructions came before or after participants provided their intuitive responses)  $F(1, 28) = 4.60$ ,  $p < .05$ , as characterized in Fig. 3.

In order to identify whether this interaction was in the predicted pattern, one-sample *t* tests were conducted on judgments of responsibility. Judgments were compared to a value of 3, which indicated an identical judgment of responsibility between causally deviant and causally normal acts (i.e., no blame discounting). Numbers greater than 3 indicated that individuals discounted blame for the causally deviant scenarios. As predicted, when the rational instructions were received first, individuals asked to respond rationally did not significantly discount blame for causally deviant acts,  $M = 3.01$ ,  $SD = .21$ ,  $t(16) = 1.43$ , *ns*. In contrast, individuals who received the intuitive instructions first discounted blame for causally deviant acts  $M = 3.21$ ,

$SD = .27$ ,  $t(12) = 2.09$ ,  $p < .06$ , and continued to discount blame for causally deviant acts even when subsequently asked to respond rationally  $M = 3.29$ ,  $SD = .35$ ,  $t(12) = 2.96$ ,  $p < .05$ . In other words, individuals seem to abandon their intuition to discount responsibility when asked to respond rationally, as long as the rational instructions were given first (this condition was the only one in which participants did not significantly discount blame for causally deviant acts).

### General discussion

Across four experiments, participants reduced moral responsibility for acts that were “causally deviant”—acts in which intentions and outcomes were present, but not linked in the intended manner. This effect held despite efforts to construct scenarios in which normative criteria for the ascription of responsibility are met (e.g., those outlined by Shaver, 1985, and Weiner, 1995). Even when intentions were the proximal causes of intended outcomes (Experiments 2 and 3), and the agents could not have changed their mind at the last moment (Experiment 3), participants were unwilling to ascribe full moral responsibility for causally deviant acts.<sup>1</sup>

Furthermore, Experiment 4 presented evidence that the judgments of attenuated responsibility for causally deviant acts stem from respondents’ intuitions concerning issues of moral responsibility. When first asked to respond as rationally as possible, participants all but eliminated their judgment that agents in causally deviant scenarios were less blameworthy.

This suggests that although moral intuitions seem to be de facto guides when arriving at judgments of moral responsibility (and perhaps when making moral judgments in other domains as well [Haidt, 2001; Haidt, Koller, & Dias, 1993; Shweder & Haidt, 1994]), a more deliberative mindset can “undo” the effects of moral intuitions (Epstein, 1994; Epstein et al., 1992). This analytic, rational perspective is certainly one of the processes that lead many moral philosophers to reach conclusions that are at odds with our every day moral intuitions.

As evidence for the strength of these intuitive judgments, Experiment 4 also revealed that if respondents were asked to make intuitive judgments first, they were unable (or unwilling) to make changes in their subsequent rational judgments. This finding is consistent with theory and findings from Epstein and colleagues (Epstein et al., 1992), who argue that once the intuitive system is primed, the rational system engages in post

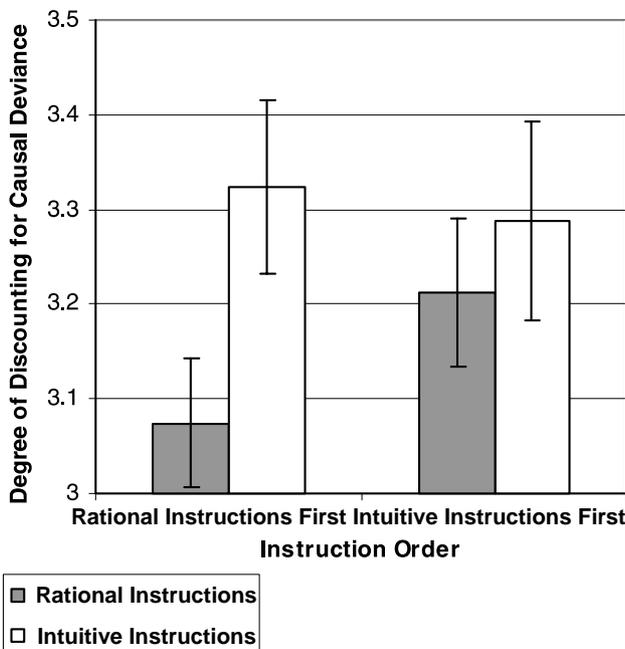


Fig. 3. Blame discounting for causally deviant acts ( $\pm SE$ ) as a function of intuitive vs. rational mindset (Experiment 4).

<sup>1</sup> Across these experiments we went to lengths to derive our examples from a body of literature not explicitly concerned with our hypotheses, and to refrain from making post hoc adjustments to the scenarios to strengthen the effect, in order to avoid biased selection of examples that support our hypothesis.

hoc justification of the intuitive system. This is also consistent with Haidt's (2001) social intuitionist model of moral judgment, which describes reason as often engaged in post hoc justifications of moral intuitions. The results from Experiment 4, however, are only a first step in uncovering the nature of intuition and reason and their effects upon moral judgments. Future research in this area should utilize experimental manipulations of intuitive and rational thinking that do not depend on explicit participant instructions (such as manipulations of cognitive load).

It may seem puzzling that asking individuals to respond rationally can, at least in some instances, undo an intuition to discount causally deviant acts that is endorsed by many philosophers. One possibility is that most individuals who are unable to find a rational justification for their initial intuition simply abandon the intuition. Some philosophers (who are in the business of thinking rationally), on the other hand, may go to great lengths to justify their intuitions, and are thus able to "reason their way back" to consistency with the initial intuition. Another possibility is that some individuals simply grant greater status to intuitions, using these intuitions as first principles from which they begin the reasoning process.

In sum, current descriptive theories of moral responsibility may be missing the complexity of laypeople's moral intuitions—their gut "feelings" of right and wrong. Individuals readily incorporate Searle's (1983) criteria of "intention-in-action" as a necessary condition for the full ascription of moral responsibility.

## Appendix

### Experiment 1

#### *Positive normal*

George is on the edge of the street, when he notices that a little girl in the middle of the street is about to be hit by a truck. Intending to save her life, George lunges forward to knock the girl out of harm's way. George succeeds, and the little girl reaches safety and is not harmed—neither is George.

#### *Positive deviant*

George is on the edge of the street, when he notices that a little girl in the middle of the street is about to be hit by a truck. Intending to save her life, George prepares to lunge forward to knock the girl out of harm's way. Right before he lunges, however, he is hit by a passing jogger. This causes George to accidentally knock the girl out of harm's way. The little girl reaches safety and is not harmed—neither is George.

#### *Negative normal*

George sees his enemy on the street. Intending to kill him, George prepares to lunge forward to plunge a knife into his enemy's stomach. George lunges forward and plunges the knife into his enemy's stomach. His enemy dies, and George is not harmed.

#### *Negative deviant*

George sees his enemy on the street. Intending to kill him, George prepares to lunge forward to plunge a knife into his enemy's stomach. Right before he lunges, however, he is hit by a passing jogger. This causes George to accidentally plunge his knife into his enemy's stomach. His enemy dies, and George is not harmed.

## Experiment 2

#### *Positive normal*

Tom is walking in the park when he sees a man choking on a sandwich. Tom, full of nervousness because of his intention to save the man's life, runs over and performs the Heimlich maneuver. The man coughs up the sandwich he had been choking on and his life is saved.

#### *Positive deviant*

Tom is walking in the park when he sees a man choking on a sandwich. Tom, full of nervousness because of his intention to save the man's life, runs over to perform the Heimlich maneuver. However, Tom's nervousness leads him to have an epileptic seizure. (Had Tom not had the epileptic seizure, he would have carried out the Heimlich maneuver and saved the choking man's life.) By chance, the epileptic fit happens to lead Tom's arms to squeeze on the man's chest, causing the man to cough up the sandwich and saving his life.

#### *Negative normal*

Tom lies in wait for his enemy, who had stolen his life savings. As soon as his enemy appears, Tom, nervous because of his intention to kill the man, pulls out a gun and shoots his enemy dead.

#### *Negative deviant*

Tom lies in wait for his enemy, who had stolen his life savings. As soon as his enemy appears, Tom, nervous because of his intention to kill the man, pulls out a gun. However, Tom's nervousness triggers an epileptic seizure. (Had Tom not had an epileptic seizure, he would have shot his enemy dead.) By chance, the epileptic fit

leads Tom to squeeze the trigger, and the bullet happens to hit and kill his enemy.

### Experiments 3 and 4

#### Normal A

Dirk pulls out a knife and throws it at Nathan, intending to kill him. The knife plunges into Nathan's heart and kills him.

#### Deviant A

Zeke pulls out a knife and throws it at Alan, intending to kill him. When Alan sees the knife coming at him he is so scared that he has a heart attack and falls to the floor, dead. The knife hits the spot where he had been standing. If Alan had not had a heart attack, the knife would have plunged into his heart and killed him.

#### Normal B

Beth wants to kill her husband Pete. When they are eating at a restaurant, Beth slips some poison into Pete's dish while he isn't looking. The poison kills him within minutes.

#### Deviant B

Barbara wants to kill her husband, John. When they are eating at a restaurant, Barbara slips some poison into John's dish while he isn't looking. Unbeknownst to Barbara, the poison isn't strong enough to kill her husband. However, it makes the dish taste so bad that John changes his order. When he receives his new order, it contains a food that John is extremely allergic to, and which kills him within minutes.

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