

# CAUSE BY OMISSION AND NORM: NOT WATERING PLANTS

Paul Henne, Ángel Pinillos, and Felipe De Brigard

People generally accept causation by omission—that the omission of some events cause some related events. But this acceptance elicits the selection problem, or the difficulty of explaining the selection of a particular omissive cause or class of causes out of the causal conditions. Some theorists contend that dependence theories of causation cannot resolve this problem. In this paper, we argue that the appeal to norms adequately resolves the selection problem for dependence theories, and we provide novel experimental evidence for it.

**Keywords:** Causation, Omission, Counterfactual Dependence, Process Theories, Norm

## 1. Introduction

Often, we say things like ‘Mary failing to water Sam’s plant caused it to die.’ These statements, however, face the selection problem: the difficulty of explaining why a particular cause or class of causes was selected out of all other causal conditions. This problem persists for process theorists [Schaffer 2000]—those who accept that causation is a physical exchange of entities between events [Dowe 2004]—and for dependence theorists of causation [McGrath 2005]—those who accept that counterfactual dependence is sufficient for causation [Lewis 1973]. Recent process theorists, however, insist that their theory resolves this problem, while dependence theories cannot [Wolff, Barbey, and Hausknecht 2010]. In this paper, we defend dependence theories’ ability to handle the selection problem by arguing that judgments about omissive causes have a normative feature. We follow Kahneman and Miller [1986], McGrath [2005], Hitchcock and Knobe [2009], and Halpern and Hitchcock [2014] in this line of argument, and we provide novel evidence for it.

## 2. A Problem for Causation by Omission

Suppose Sam goes on vacation for the weekend to Bismarck, and she asks her friend, Mary, to water her plant in Chicago. Mary agrees to do so. And suppose that Mary fails to water it and that the plant dies. Sam might then say, ‘Mary’s failure to water my plant caused it to

die.’ She identifies Mary’s failure to water her plant as the cause of death. Knowing the details of this story, people accept Sam’s causal ascription. But for some philosophers, acceptance of this claim engenders at least one problem, which is related to a more general problem with causal ascriptions. This problem consists in determining why a particular cause emerges as *a cause* against a background of causal conditions that are necessary for the result. It is unclear, for instance, why people identify Mary’s omission as a cause instead of Sam’s trip or some other event or omission. In line with prior usage [Hesslow 1988], let us call this the selection problem.<sup>1</sup>

There is a version of the selection problem that is specific to omissions and challenging for dependence theories in particular. On this version of the problem, it is difficult to distinguish the causal status of an omission from all similar omissions that would make a difference to the result. Sam, for instance, identifies Mary’s failure to water her plant as a cause of death. But by accepting this omissive ascription, she should also accept that George Bush failing to water her plant caused its death, for if he had watered Sam’s plant, it would not have died. Since these statements identify someone failing to water Sam’s plant as a cause of its death, it would seem like anyone failing to water Sam’s plant caused its death. Generally, if omissions are causes on a dependence theory, an inordinate number of omissions are also causes. Nonetheless, accepting all of these omissions as causes bucks common sense. Menzies [2004] calls this worry the problem of profligate causes.<sup>2</sup>

To resolve the selection problem and the problem of profligate causes, the metaphysician requires a principled account of why one or more events (or omitted events) are more salient than others, and why some events that are still causally relevant are rejected

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<sup>1</sup> A stronger version of the selection problem is the selection of *the cause*—not just *a cause*—out of the causal conditions [Hesslow 1988: 12].

<sup>2</sup> We do not assume that the selection problem or the problem of profligate causes require that for each effect, there is exactly one cause. These problems arise even if we accept multiple causes—for example, if Mary and Cary promised to water Sam’s plant yet failed to do so. So, as long as we are ready to rule out, for instance, George Bush’s failure to water the plant as a cause of death, the problems persist.

as causes.<sup>3</sup> While many metaphysicians have a principled way to deny all omissive causes, only a few have a way to discriminate between selected omissive causes and seemingly irrelevant omissions. Dependence theorists who have such an account arrive at diverse conclusions about causation and omissions. They lead Bernstein [2013] to develop an account of omissions as possibilities, Beebe [2004] and Tang [2015] to reduce omissive causal ascriptions to causal explanation, and Hall [2004] to develop a kind of causal pluralism.

Dependence theories, however, can accommodate cause by omission and avoid the selection problem without necessarily accepting these accounts. McGrath's account of omissive causes does just this. She proposes: 'o causes e iff o occurs, e occurs and Co is a normal would-be preventer of e' [2005: 142]. Here, o is an omission, and Co is the corresponding would-be event whose omission is a purported cause. According to this analysis, Mary failing to water Sam's plant is a cause of the plant dying because Mary watering the plant is a normal preventer of the plant's death (since she was supposed to water it). In contrast, George Bush watering the plant is not a normal preventer of the plant's death. The analysis correctly predicts that George Bush's failure to water the plant is not a cause of the plant's death.

McGrath's solution promises to solve the selection problem and the problem of profligate causes: only omissions having corresponding positive events that are normal preventers of the effect are causes. If McGrath is right, we should expect ordinary causal judgments to align with her account. For she—like other metaphysicians—uses ordinary causal judgments to construct solutions to the problems above. In investigating these

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<sup>3</sup> The metaphysician may not require an account of salience if she does not think that this question is metaphysical—for instance, if she thinks that salience results from pragmatics.

judgments, we provide novel empirical evidence suggesting that omissive causal judgments accord with McGrath's account.

### 3. Prior Work

Omissive causal judgments and their normative component have not been extensively studied. Among those who examine causal ascriptions, Hitchcock and Knobe [2009] propose a general theory on which all causal judgments are sensitive to norms. On this view, norms compose a heterogeneous class ranging from statistical norms to prescriptive norms [Halpern and Hitchcock 2014: 17-18].<sup>4</sup> And to say that causal judgments are sensitive to norms is to say that people are more likely to judge counterfactually dependent events that diverge from norms as causes than they are to judge those counterfactually dependent events that conform to norms.

An earlier experiment [Knobe and Fraser 2008] bolsters Hitchcock and Knobe's theory. In it, a vignette describes a receptionist in a philosophy department who keeps her desk stocked with pens. The administrative assistants, but not faculty members, are allowed to take the pens. Despite the restriction, both the administrative assistants and the faculty members typically take pens. One morning, one of the administrative assistants and Professor Smith take pens. Later that day, the receptionist needs to take an important message, but there are no pens left on her desk. The only difference between the administrative assistant and the professor is that the professor's action violates a norm. The researchers asked participants to indicate whether they agreed or disagreed with the two statements: one identifying Professor Smith as having caused of the receptionist's problem and the other identifying the

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<sup>4</sup> Hitchcock and Knobe [2009: 597-8] use 'norm' to include statistical and prescriptive norms. Statistical norms are determined by frequency. 32°C is statistically normal for Phoenix in May. Prescriptive norms identify what people ought to do. That one should not interrupt another person when she is speaking is a prescriptive norm. McGrath's account also contends that what counts as normal is heterogeneous [2005: 144]. This feature gives her theory the flexibility to account for causation across many domains. Following these authors, we think of norms as denoting a heterogeneous class.

administrative assistant as having caused the problem. Participants overwhelmingly judged Professor Smith as having caused the problem rather than the administrative assistant.<sup>5</sup>

Given such results, Hitchcock and Knobe argue that counter-normal events are more likely to be deemed causes. They explain that this feature of causation makes sense given that the point of making a judgment about causation is to intervene in the world. While the details need not concern us here, Hitchcock and Knobe, like McGrath, appeal to a norm view to account for the salience of particular events in causal ascriptions.

Hitchcock and Knobe's studies, however, did not involve omissive causal judgments and their potential sensitivity to norms. Hence, we do not know whether ordinary causal judgments involving omissions are sensitive to norms—or even if ordinarily people judge omissions to be causes. Indeed, in a recent study Livengood and Machery [2007] failed to discover experimental evidence that people judge omissions to be causes, so they challenged philosophers who hold such judgments: 'rather than guess from the comfort of your armchair, you ought to go out and check' [2007: 126].

Clarke et al [2013] have recently taken up Livengood and Machery's challenge. In particular, they have investigated whether folk causal judgments of omissions are sensitive to norms, and their results reveal that they are. Moreover, such sensitivity does not seem to depend on whether the cause is an action or an omission. In one study, participants were given the following vignette:

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<sup>5</sup> Researchers respond to these results in many distinct ways (e.g. Knobe's person-as-a-moralist view [Knobe 2010]). One group of researchers posits the person-as-a-bumbling-scientist view (See Knobe [2010: 320]). Under this view, the folk make causal judgments using folk scientific methods and statistics, but they mess up. The folk's normative judgments distort their correct (i.e. scientific) judgments about causation. In sum, the moral judgment—or otherwise—interferes with the true causal judgment. People's competencies for making causal judgments are nonmoral, but moral biases impede people's ability to correctly make causal ascriptions. Among the many forms of this view, one is called *the blaming objection*. This objection claims that people are motivated to make particular causal judgments when they want to blame. Because participants, for instance, want to blame Professor Smith in the pen scenario, they deem him a cause. Participants' moral judgment, in other words, distorts their causal judgment [Alicke 2011]. For Knobe's response, see Knobe [2010: 322-3].

Two cars, one driven by Greta and the other driven by Rachel, were approaching an intersection. Greta had a green light. Rachel had a red light, but she wasn't paying attention. The lights stayed that way. Unaware of each other, neither driver stepped on the brakes. Both cars collided.

They were then asked to record their agreement with one of the following statements:

Greta's not stepping on her brakes was one of the causes of the collision.

Rachel's not stepping on her brakes was one of the causes of the collision.

Clarke et al [2013] found that people were more likely to agree that Rachel's not stepping on the brake was a cause of the collision than Greta's not stepping on the brake. This result supports the idea that causal judgments involving omissions are sensitive to norms in the way that McGrath's view predicts.

At this point, we must distinguish two claims: (1) the categorical judgment that omissions are causes only when they diverge from norms and that they are not causes when they conform to norms, and (2) the claim that causal judgments are sensitive to or influenced by normative judgments. These claims come apart. For in the second, it could be that participants deny that omissions are causes, yet the degree to which they deny omissions as causes may vary depending on whether the omission violates a norm.<sup>6</sup> This point is subtle, but it is an important one to consider as we evaluate the relevance of prior experimental work to the norm view. For instance, while Clarke et al [2013] suggest that people do not judge omissive causes differently than positive causes, they did not show participants categorically denying omissions as genuine causes when they did not violate norms. This categorical hypothesis is distinct, and it needs to be explored.

With this distinction in mind, McGrath and Hitchcock and Knobe's accounts make three predictions about omissive causes. First, they predict that for causal judgments, the

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<sup>6</sup> This variation can happen when participants strongly disagree that omissions are causes where no norm is broken and when they moderately disagree where a norm is broken. They disagree either way, but there is a detectable difference attributed to norm differences.

causes—as opposed to the causal conditions—will be sensitive to norms. Second, they predict that where omissions do not violate norms (and there is counterfactual dependence), they will not be judged to be causes (the categorical claim). Third, they predict that where omissions violate norms (and there is counterfactual dependence), they will be judged to be causes. Previous work has focused on the first prediction, and it has left the second and third prediction underexplored. We explore all three predictions.

#### **4. The Present Study**

In what follows, we offer empirical evidence from several experiments that we take to support three points. First (Point A), by investigating ordinary judgments, we bolster the view that omissive causal judgments are sensitive to norms. Second (Point B), we ensure that these results are robust in that certain confounds are excluded. Lastly (Point C), we find that when an omission does not violate a norm (and there is counterfactual dependence) it will not be identified as a cause and when it does violate a norm it will be identified as a cause. These three points, together with the work of philosophers defending the norm view, advance a solution for dependence theorists to the selection problem.

##### *4.1 Experiment 1*

In this experiment, we test the claim that some omissive causal judgments are sensitive to norms (Point A).

##### *4.1.1 Participants*

70 participants from the USA were recruited via Amazon Mechanical Turk (43% Female) to take part in a five-minute survey for which they received \$0.20 in compensation. 12 participants were excluded for failing a reading comprehension task included in the survey, providing incomplete or incomprehensible responses, or not completing the survey. As such, data from 58 participants is reported.

##### *4.1.2 Materials and Procedure*

To test omissive causal judgments, participants read a vignette about a fictional game called Bash Ball (Supplement A).<sup>7</sup> In Bash Ball, opposing teams try to score points in the other team's zone by entering it. On each team, there are two types of players: Bashers and Runners. During the game, Bashers remain in the same spot, trying to hit the other team's Runners with balls, and Runners try to enter the other team's zone without getting hit. A member of one team (Zach, a Basher) fails to tell his teammate (Harmon, a Runner) about the other team's Basher, who later bashes Harmon out of the game. There are two conditions. In the abnormal condition, Bashers are allowed to talk to Runners on their team, and in the normal condition they are not allowed to do so. The omission in the abnormal condition is more abnormal than the omission in the normal condition because participants expect Zach to tell Harmon about the opposing Basher—specifically, when there is no rule prohibiting him from doing so, he is supposed to tell Harmon about the Basher (so their team can win)—yet he does not: he violates a norm. Participants were asked, 'Do you agree with the following statement? Zach not telling Harmon where the other team's Basher is caused Harmon to get out of the game'. They gave a confidence rating for their response.

#### *4.1.3 Results*

In the abnormal condition ( $n = 29$ ), 21 participants (72.41%) answered 'Yes', and 8 (27.58%) answered 'No'. In the normal condition ( $n = 29$ ), 7 participants (24.13%) answered 'Yes', and 22 (75.86%) answered 'No'. The distributions of answers suggests that omission causal judgments are sensitive to norms,  $\chi^2(1, n = 29) = 11.67, p < .01, V = .483$ . On a weighted scale (1 being 'Very Confident' for 'No'; 14 being 'Very Confident' for 'Yes'), the mean answer in the abnormal condition was 9.79 ( $SD = 3.947$ ) and 4.55 ( $SD = 4.672$ ) in the normal condition. The differences are significantly different ( $t(58) = 4.561, p < .001, d = 1.211$ ).

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<sup>7</sup> Supplementary Materials can be found at <http://www.paulhenne.com/cause-by-omission>.

In the abnormal case, the observed distribution of yes/no responses to the causal question (where most people claim the omission is a cause) is distinct from a 50-50 distribution,  $\chi^2(1, n = 29) = 4.97, p < .05, V = .246$ . In the normal condition, the observed distribution of yes/no responses to the causal question (where most people deny the omission is a cause) is distinct from a 50-50 distribution,  $\chi^2(1, n = 29) = 6.76, p < .05, V = .251$ . Using the weighted scale, the responses to the causal question in the abnormal condition were in the agreement side ( $M = 9.79$ ) and distinct from the neutral response ( $M = 7.5$ ):  $t(28) = 3.13, p < .01, d = .58$ . Similarly, responses to the causal question in the normal condition were in the disagreement ( $M = 4.55$ ) side and distinct from the neutral response ( $M = 7.5$ ):  $t(28) = 3.44, p < .01, d = .631$ .

#### *4.1.4 Discussion*

This result is revealing. The structure of counterfactual dependence is the same in each case, yet participants are more likely to identify an omission as a cause in the abnormal case—when the omission violated a norm. Thus, some omissive causal judgments are sensitive to norms (Point A).

When a norm is not being violated, participants tend to deny that the omission was a cause. Moreover, when an omission violated a norm, they tend to accept that the omission was a cause (Point C). This point is then a novel elaboration of the earlier views that was not revealed in earlier work.

Clarke et al [2013] found that when participants are faced with two omissions that are candidates for being causes of a single event, participants are more willing to say a counter-normal omission caused the event than they are to say that the normal omission caused the event. This result accords with McGrath's proposal. McGrath's theory, however, allows for the possibility that multiple omissions are causes of the same event. As long as the omissions

are counter-normal would-be preventers of the effect, multiple omissions can be causes. In the following experiment, we test this prediction.

## *4.2 Experiment 2*

The aim of this experiment is to test whether or not people identify multiple omissions as causes of the same effect where both violated a norm.

### *4.2.1 Participants*

82 participants from the USA were recruited via Amazon Mechanical Turk (31% Female) to take part in a five-minute survey for which they received \$0.35 in compensation. 17 participants were excluded for failing a reading comprehension task included in the survey, providing incomplete or incomprehensible responses, or not completing the survey. As such, data from 65 participants is reported.

### *4.2.2 Materials and Procedure*

In this study, participants read a vignette where two characters failed to put oil into a machine called the K4 MAGNUM (Supplement B). In the normal condition, Kate is not expected to put oil in the K4 MAGNUM, while Janet is expected to do so. In the abnormal condition, Janet is expected to put oil in the machine and Kate is the backup. Each participant received questions about each actor, which were counterbalanced; they read, for instance, 'Do you agree with the following statement? Kate not putting oil in the K4 MAGNUM caused it to break down'. They were asked to give a confidence rating for their answers.

### *4.2.3 Results*

In the abnormal condition ( $n = 37$ ), 94.59% of participants agreed that Janet not putting the oil in the K4 MAGNUM caused it to break down, and 91.89% agreed that Kate's omission also caused the machine to break down. The proportion of people who agree, in both cases, is greater than would be expected by chance,  $\chi^2(1, n = 37) = 29.43, p < .01, V = .51$  (Janet),  $\chi^2(1, n = 37) = 25.97, p < .01, V = .47$  (Kate). In the normal condition ( $n = 28$ ), 96.42% of

participants agreed that Janet's omission caused the machine to break down, but only 21.42% of participants agreed that Kate's omission caused the machine to break down. The proportion of people who disagree that Kate's omission caused the machine to break down is greater than would be expected by chance,  $\chi^2(1, n = 28) = 3.811, p = .05, V = .298$ . On a weighted scale (1 being 'Very Confident' for 'No'; 14 being 'Very Confident' for 'Yes'), the mean answer in the abnormal condition (for the question about Kate) was 12.14 ( $SD = 2.50$ ) and 4.07 ( $SD = 4.64$ ) in the normal condition. The differences are statistically significant  $t(63) = 8.9994, p < .0001, d = 2.65$ .

#### *4.2.4 Discussion*

As predicted, participants judged Kate's omission to be a cause in the abnormal condition and not to be a cause in the normal condition (Points A and C), and they identify Janet's omission as a cause in both conditions. In accordance with McGrath's thesis and our predictions, the results show that people identify multiple omissions as causes of the same effect where both violated a norm. Specifically, participants in the abnormal condition of this experiment accept both Janet and Kate's omissions as causes without significant decreases in their responses. We now turn to the question of whether this result was particular to omissions.

### *4.3 Experiment 3*

The aim of this experiment is to test whether or not people identify multiple events, where both violated a norm, as causes of the same effect.

#### *4.3.1 Participants*

121 participants from the USA were recruited via Amazon Mechanical Turk (33% Female) to take part in a short survey for which they received \$0.25 in compensation.

#### *4.3.2 Materials and Procedure*

We developed a vignette to test whether people accept multiple positive events as causes (Supplement C). Specifically, we tested a causal overdetermination case. We ran a between-subjects experiment where we varied the amount of money that Kathy needs to buy milk (\$1/\$2). In all conditions, there is only \$2 in a jar; her roommates, Scott and Frederick, each take a dollar from the jar (although they are not allowed to do so); and Kathy needs money from the jar to buy milk. In the joint-causation condition – where Kathy needs \$1 – both counterfactuals are true (if Scott hadn't taken one dollar, Kathy would be able to buy milk), and they are false in the overdetermination condition. On a Likert scale (1 – 7), participants were asked to rate the extent to which they agreed with statements ascribing causation to Scott, to Frederick, and to Scott and Frederick's actions; for instance, they agreed or disagreed with, 'Scott taking one dollar from the jar caused Kathy not to be able to buy milk'. Participants received all three statements, which were counterbalanced.

#### 4.3.3 Results

Both actors in the overdetermination condition (Scott:  $M = 6.07$ ,  $SD = 1.49$ ; Frederick ( $M = 6.19$ ,  $SD = 1.32$ ) were judged to be significantly more causal,  $t(119) = -3.15$ ,  $p = .002$ ,  $d = .574$ , than the two actors in the joint-causation condition (Scott:  $M = 5.14$ ,  $SD = 1.74$ ; Frederick:  $M = 5.14$ ,  $SD = 1.73$ ),  $t(119) = -3.74$ ,  $p < .001$ ,  $d = .68$ . There was no significant difference, however, in the judgments for Scott and Frederick acting together in the overdetermination ( $M = 6.25$ ,  $SD = 1.50$ ) vs joint-causation ( $M = 6.45$ ,  $SD = 1.11$ ) conditions,  $p > .05$ . Direct contrasts indicated that participants' ratings of each or both actors as cause were significantly above the midpoint (4) in the joint causation and overdetermination conditions, respectively: Scott,  $t(63) = 7.56$ ,  $p < .001$ ,  $d = .942$ , and  $t(56) = 13.06$ ,  $p < .001$ ,  $d = 1.72$ ; Frederick,  $t(63) = 7.60$ ,  $p < .001$ ,  $d = .947$  and  $t(56) = 15.46$ ,  $p < .001$ ,  $d = 2.037$ ; and Scott and Frederick together,  $t(63) = 21.251$ ,  $p < .011$ ,  $d = 2.65$  and  $t(56) = 13.79$ ,  $p < .001$ ,  $d = 1.83$ .

#### 4.3.4 Discussion

Participants are just as willing to accept that multiple positive events caused an event where a norm is broken. That is, participants gave the overdetermination judgments that are typically expressed in philosophy.

While these results are revealing, there is a familiar critique of experimental philosophy that applies to every experiment discussed so far; specifically, participants might fail to respond to the questions or to the conditions to which the experimenters expect them to respond in at least two ways.<sup>8</sup> First, participants might not respond to the semantic content of the presented question, but rather to what they believe is pragmatically conveyed in the situation—including what they believe the experimenter attempts to convey. And in many cases, participants' best guess about what the experimenter asks radically differs from what the experimenter intends to ask. The fact that philosophical thought experiments are often unusual and bizarre, potentially triggering unintended interpretations, exacerbates this problem. Second, demand characteristics might distort participants' responses [Orne 1969; Weber and Cook 1972]. For example, participants may feel pressure to give socially acceptable responses as opposed to giving responses reflecting their true attitude. Or they may play the faithful participant, whereby they follow instructions literally and ignore contextual clues investigators expect them to observe. This criticism, if sound, undermines the significance of the studies discussed so far—all of which fail to address these problems.

In order to meet these worries, Powell et al [2013, 2014, 2015] developed an experimental method called semantic integration, which was inspired by the research of Gentner [1981] and Loftus [1978]. According to this paradigm, participants are more likely

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<sup>8</sup> For detailed discussions, see Cullen [2010], Clark and Schober [1992], Schaeffer and Presser [2003], and Schwarz [1994].

to falsely recall that they read a word in a passage if that word's semantic content accords with the overall meaning conveyed in the passage.

In her work, Gentner had participants read a story that included the critical sentence: 'Max finally gave Sam the money'. In the experimental condition, the passage expressed that Max owed Sam money. In the control condition, this information was omitted. Gentner found that participants in the experimental condition were more likely to falsely recall the verb in the critical sentence as 'paid'. Gentner suggested that 'pay' is semantically composed of 'give' and 'owe'; for participants falsely recall that 'give' was 'pay' in a context in which they also know that the agent owed the other person money.

Powell et al [2013, 2014, 2015] modified this paradigm to inform philosophically interesting concepts. The purpose of Gentner's studies was to show that meanings integrate in real-time language processing; that is, she assumed that a verb has a complex meaning and showed how the semantic contents integrate with a semantic whole. Powell and colleagues reversed this paradigm to investigate philosophically interesting concepts; specifically, they used the semantic whole to investigate the complex semantic concepts that comprise it. In one experiment [Powell et al 2013], they tested the folk concept of knowledge. They showed that participants who were asked to read a story with a critical sentence such as 'A believes P' were more likely to falsely recall that the verb they read was 'knows' as opposed to 'believes' in an ordinary case where other conditions for knowledge are present—including P being true, A being justified in believing P, and not being in a Gettier case—as compared to an ordinary case where P is false or where A is not justified in believing P. One way of interpreting this result is to say that 'knows' is semantically composed of the concept of 'justification', 'belief', 'truth', etc. Another way is to hold that that 'know' is semantically related to such concepts on a connectionist model.

With the method of semantic integration, participants respond to a memory task instead of responding to survey questions that may be misinterpreted. They are asked to read a passage and then to recall a word that appeared in a sentence. A request to recall which word appeared in a sentence is unlikely to pragmatically implicate some other request such that agents will be likely to respond to this other request. Relatedly, it is difficult to see how demand characteristics are active. Trying to please the experimenter, for instance, seemingly could not lead participants to do something other than what is being asked of them: to recall a word from memory. Hence, semantic integration alleviates some of the worries about pragmatics and demand characteristics.

#### *4.4 Experiment 4*

We use semantic integration to explore the concept of causation and omissive causes. Our prediction is that participants will be more likely to falsely recall the word ‘cause’ in place of related words like ‘allow’ in sentences such as ‘o allowed k to occur’, where ‘o’ is a norm-violating omission, than when it is not. This result would bolster our findings (Point B) because it would be evidence that the judgments that appear to support the norm view are not distorted by pragmatics or by demand characteristics.

##### *4.4.1 Participants*

175 participants from the USA were recruited via Amazon Mechanical Turk (50% Female) to take part in a ten-minute survey for which they received \$0.65 in compensation. 39 participants were excluded for failing a reading comprehension task included in the survey, providing incomplete or incomprehensible responses, or not completing the survey. As such, data from 136 participants is reported.

##### *4.4.2 Procedure and Materials*

The current experiment tests whether norms affect people’s ability to correctly recall ‘allow’ or to incorrectly recall ‘cause’. We used an extended version of the vignettes used in

Experiment 2 with an added distracter vignette and reading comprehension questions (Supplement D). In the normal condition, Kate was not expected to put oil in the K4 MAGNUM if Janet forgot, and in the abnormal condition she was. Participants were asked to recall the verb of the critical sentence: ‘While he noted Janet’s inaction, Stephen also noticed that Kate not putting oil into the machine \_\_\_\_\_ the K4 MAGNUM to break down’. They were asked to type the word that they read into the blank. In both conditions, the missing word was ‘allowed’.

#### *4.4.3 Results*

In the abnormal condition ( $n = 72$ ) 51 participants (70.83%) incorrectly recalled reading ‘cause’, ‘caused’, or ‘causing’ in the critical sentence, while 21 participants (29.17%) correctly recalled ‘allow’, ‘allowed’, or ‘allowing’. In the normal condition ( $n = 64$ ) 31 participants (48.44%) incorrectly recalled reading ‘cause’, ‘caused’, or ‘causing’ in the critical sentence, while 33 participants (51.56%) correctly recalled ‘allow’, ‘allowed’, or ‘allowing’. A  $\chi^2$  test of independence was performed to examine the relation between the condition (abnormal, normal) and the recalled verb of the critical sentence (‘cause’, ‘allow’). The relation between these variables was significant,  $\chi^2(1, n = 136) = 7.099, p = .008, d = .228$ , suggesting that participants in the normal condition were less likely to falsely recall ‘cause’ (and related words) than those in the abnormal condition.

#### *4.4.4 Discussion*

Our results corroborate the norm view for omissive causes (Point B), and they show another use for the semantic integration paradigm in the causation literature.

Nonetheless, there is another critique of the earlier experiments that is worth exploring: although participants are answering target  $\chi^2$  questions, their responses are, perhaps, quick and unreflective. And it may be thought that philosophers are interested in reflective folk responses, which may differ from unreflective ones. Experimental and theoretical work

confirms the common-sense platitude that reflective judgments can differ from quick, automatic responses.<sup>9</sup> This fact informs a critique of experimental philosophy by which philosophers argue that experimenters have not ensured that the data is not just a repository of impulsive responses to philosophical questions [Williamson 2010; Pinillos et al 2011].

Some experimental philosophers, moreover, found differences between reflective and automatic responses to philosophical thought experiments. For example, Paxton and colleagues [2012] found that more reflective judgments are associated with utilitarian judgments in moral cognition, and Pinillos and colleagues [2011] found that more reflective reasoning diminishes display of the Knobe Effect.<sup>10</sup>

We agree with this criticism of some experimental philosophy. However, we have reason to believe that this criticism does not apply to our present study. After all, many philosophers—including McGrath, Knobe, Hitchcock, and the authors of this paper—have made omissive causal judgments that are sensitive to norms. Presumably, these philosophers are—at least sometimes—making quite reflective judgments. Thus, reflectiveness seems unlikely to be a confound in our studies. Nonetheless, we now explore this possibility.

#### *4.5 Experiment 5*

In this experiment, we use the CRT (Cognitive Reflection Test) to separate participants into those who are more likely to give reflective responses and those who are less likely to do so [Frederick 2005].<sup>11</sup> We then compare CRT scores to questions about whether omissions are causes.

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<sup>9</sup> For discussions, see Epstein [1994], Sloman [1996], Chaiken and Trope [1999], Kahneman and Frederick [2002], and Kahneman [2011].

<sup>10</sup> Also known as the Side-Effect Effect, the Knobe Effect occurs when the moral valence of an agent's action affects people's intentionality ascriptions to the agent's performing of that action's side-effect [Knobe 2010].

<sup>11</sup> The CRT is a three-question test used to assess people's ability to suppress unreflective or spontaneous incorrect responses and opt for their more reflective and deliberative correct responses. Frederick [2005] showed that it is a better predictor than many other intelligence tests for detecting cognitive biases. Toplak et al [2011] bolstered this claim and argued, 'it is a particularly potent measure of the tendency toward miserly processing.' Caution, nonetheless, is warranted; one study, for instance, suggested that the CRT may really be tracking numerical ability [Welsh et al 2013].

#### *4.5.1 Participants*

121 students in an Introduction to Philosophy course at Arizona State University took part in a short survey. 8 participants were excluded for failing a reading comprehension task included in the survey, providing incomplete or incomprehensible responses, or not completing the survey. As such, data from 113 participants is reported.

#### *4.5.2 Procedure and Materials*

Students were given a version of either the normal or abnormal vignette from experiment 2 (Supplement B) followed by or preceded by the CRT.

#### *4.5.3 Results*

We divided the participants into a low (score = 0) and a high scoring group (score = 1, 2, or 3) depending on their performance on the CRT. A 2 (CRT performance: low, high) x 2 (Vignette: normal, abnormal) ANOVA revealed a main effect of vignette,  $F(1, 53) = 24.56, p < .01$ ; no main effect for CRT score  $F(1, 53) = 1.94, p = .169$ ; and no interaction  $F(1, 53) = .02, p = .883$  (Low CRT group:  $M = 6.07, SD = 4.827, n = 27$ ; High CRT group  $M = 8, SD = 5.37, n = 30$ ). To verify that responding to the vignettes did not affect their responses to the CRT, we compared responses to the CRT to a condition when the CRT was given before the vignette (CRT score  $M = .82, SD = .984$ ) as opposed to after the vignette (CRT score  $M = .91, SD = 1.06$ ). No effect was found,  $t(111) = .44, p = .665$ .

#### *4.5.4 Discussion*

Reflectiveness played no detectable role on whether participants judged omissions to be causes. That is, the effect that we have been noting so far, that folk judgments about omissions are sensitive to norms, is unaffected by the level of reflectiveness as measured by the CRT. This result helps to vindicate the robustness of our earlier findings since it does not seem like those results are the product of unreflective reasoning.

With further experimentation, we also think the CRT can rule out an alternative hypothesis. Beebee [2004] argues that when people identify an omission as a cause, they are confusing explanation and causation.<sup>12</sup> She thinks that while omissions are not causes, omissions can enter into causal explanations. As an implication of her view, she makes the empirical claim that if people agree that omissions can be causes they are making a mistake by confusing causation and causal explanation. We disagree with Beebee. We think that omissions are selected as causes and that many of the cases when people claim as such, they are not confused. But we can test Beebee's claim.

#### *4.6 Experiment 6*

An implication of Beebee [2004] is that people confuse causation with causal explanation; on this view, stating that omissions are genuine causes is a mistake. This account suggests that more reflective people (like some philosophers) avoid mistaking omissive causal explanation for causation. Using the CRT to measure reflectiveness, we test this prediction; specifically, we test the prediction that participants with high CRT scores are less likely to judge that omission is a cause.

##### *4.6.1 Participants*

148 students in an Introduction to Economics course at Arizona State University took part in a short survey for course credit. No participants were excluded for failing a reading comprehension task included in the survey, providing incomplete or incomprehensible responses, or not completing the survey. As such, data from 148 participants is reported.

##### *4.6.2 Procedure and Materials*

We asked participants to take the CRT and then read a version of the vignette from Experiment 2 (Supplement B). We split the participants into two groups. We asked one group

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<sup>12</sup> It is important for us to note that Beebee's thesis is not about the selection of omissive causes; rather, her claim is about omissions being a cause, or a causal condition, at all.

whether Kate's omission caused the ensuing event and the other group whether the omission explained the event; in the explanation condition, for instance, we asked, 'Do you agree with the following statement: The K4 Magnum broke down because Kate did not put oil in it'. In each group, half of the participants received a vignette where Kate's omission was normal and the other half received one where it was abnormal.

#### *4.6.3 Results*

While norms still affected participants' responses, there were no differences between the causation ( $M = 10.73$ ) and explanation responses ( $M = 10.63$ ). These results were on a weighted scale (1 being 'Very Confident' 'No'; 14 being 'Very Confident' for 'Yes'). There was no difference between these responses:  $t(80) = .094, p = .925$ . The CRT did not affect responses  $F(1, 74) = 1.86, p > .05$ , and there were no interaction effects,  $F(1, 74) = .6, p > .05$ .

#### *4.6.4 Discussion*

We failed to find that performance on the CRT affected responses. This result does not bode well for Beebee's thesis about the conflation of causation and causal explanation. Making the reasonable assumption that high CRT scorers are less likely to confuse explanation with causation, we expect these scorers to be less likely to identify omissions as causes. We do not find this. But, as this is an inference from a negative result, further studies will have to be done to disconfirm this hypothesis.

The semantic integration and CRT studies support Point B. That is, we have some evidence that our experimental results are not distorted by irrelevant pragmatic or contextual features and are not produced by unreflective thinking. In addition, as we mentioned before, our results are in accordance with deliberate and reflective claims by philosophers like McGrath. Hence, there is reason to think that they are robust and not mere unreflective reactions.

## 5. General Discussion and Philosophical Implications

Our experiments support points A, B, and C. The results of experiment 1 suggest that omissive causal judgments are sensitive to norms (Point A). In addition, they suggest that people make the categorical judgment that particular omissions can be causes (Point C). The results of Experiment 2 bolster these findings, and they suggest that multiple omissions could be causes. The results of experiments 4, 5, and 6, moreover, suggest that the findings from the prior experiments are robust and not subject to distortions like demand characteristics (Point B).

While these results alone do not resolve the selection problem and the problem of profligate causes, they explain why our judgments about omissive causes favour some causal conditions over others. Our experiments suggest that the selected causes are those omissions (or events) where a counterfactual dependence relationship holds between the omission and the result and where the omission violates a norm. By this account, unselected omissions are not simply irrelevant, but they are denied causal status because they do not violate a norm. Our results, therefore, help explain how the selection problem and the accompanying problem of profligate causes are solved in causal cognition.

There may be philosophers who accept the psychological explanation of omissive causal judgments but who insist that the folk are, strictly speaking, wrong. On such views, omissions are not causes [Beebee 2004; Tang 2015], or if they are, norms do not account for their salience [Bernstein 2013]. On this approach, our ordinary causal judgments and causation itself will fail to be aligned. Such philosophers have their work cut out for them. First, some of them still need to solve the selection problem and the problem of profligate causes. Second, some of them need to explain why ordinary causal judgments and causation are misaligned.

An alternative picture we find attractive is that the causal judgments investigated here track causation. We take it that the extension of ‘causation’ is determined *in part* by its ordinary use. And if our experiments are an indication, this ordinary use is infused with normativity. The advantages of this approach are not just that it accords with the judgments of ordinary speakers but also—as we have argued—it gives dependence theorists a promising solution to the selection problem and to the problem of profligate causes. Understanding how to align these ordinary, norm-laden omissive causal judgments with metaphysical views of causation is a vital project for future philosophical research.<sup>13</sup>

*Duke University*  
*Arizona State University*  
*Duke University*

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