

Judging cause and blame for omissions in medical contexts

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Abstract

Imagine a patient is brought to a hospital and requires treatment in order to prevent a significant damage to his health – but he never receives such treatment. Who is responsible for the consequences of his not being treated? In this paper, we investigate the relevance of an agent's knowledge of the consequences, their ability to prevent those consequences, and whether this agent was the doctor assigned to the patient. We find that all of those factors play a crucial role in determining not only the agent's blameworthiness, but also their causal responsibility for the outcome. We further show that hierarchical structures are another factor that modulates blame attribution.

Keywords: Causation by omission; blame; moral judgment; folk intuitions

Introduction

Blaming agents for their behavior as well as for its consequences is an essential part of human interactions. We blame others for drunk-driving and, thereby, causing an accident, and we also blame agents for not picking us up from the airport, thereby, causing us to take an expensive taxi and to arrive home late. It is evident that when we blame others, we do so for both their actions and their omissions as well as for the consequences resulting from them.

Omissions become particularly critical in medical contexts, for instance when a medical staff fails to treat a patient adequately. A doctor, for instance, might fail to diagnose a medical issue correctly or overlook a symptom relevant for the decision of how to treat the patient. As a consequence, a patient might not receive adequate treatment leading to even more severe health issues. In such circumstances, it seems that the doctor is both blameworthy and causally responsible for whatever health issues result from the lack of treatment. But is she always?

Outline of the Paper

In this paper, we investigate the conditions under which agents are considered blameworthy as well as causally responsible for their omissions, using medical contexts as a prime example. In Experiment 1, we demonstrate that two factors modulate responsibility attribution, namely the staff's knowledge of the consequences of not providing

treatment, and their ability to treat the patient. Surprisingly though, their formal duty does not play a significant role in the setting of our first experiment. We provide empirically testable explanations of this effect and address those in Experiment 2. Experiment 2 provides evidence that duty does have a significant effect on blame and causal judgments. Further, blame and causal responsibility attribution are sensitive to hierarchical structures. If an omission has severe consequences, doctors receive more blame and are considered more of a course compared to nurses. We discuss the implications of those findings in the general discussion.

Morally Blameworthy Omissions

Over the last few years, philosophers as well as psychologists have shown an increasing interest in agents' failures to act (Clarke et al., 2015; Henne et al., 2016; Livengood & Machery, 2007; McGrath, 2005; Sartorio, 2009; Stephan et al., 2017; Willemsen, 2016; Willemsen & Reuter, 2016). There are three reasons for this.

First, as a matter of fact, omissions are considered morally and legally relevant. An agent who fails to save a drowning child she could have easily saved is judged to deserve blame for the child's death. In many countries, including Germany, France, and others, such a failure to lend assistance is also legally punishable. When it comes to doctors, omissions to treat patients adequately is legally punishable and can end a doctor's career.

Second, philosophers and lawyers typically defend blame and legal judgments about omissions by arguing that by omitting a relevant action, the agent caused the outcome. We know from a variety of other empirical studies that causal and moral judgments have mutual dependencies when we look at the practice of action evaluation. Thus, to get a complete picture of how moral and causal responsibility judgments interact, omissions recommend themselves as an important subject of investigation.

Third, even though the moral and legal practice indicate that agents can cause outcomes by omitting to perform intervening actions, the causal relevance of omissions has been questioned by many philosophers, and it raises problems for current theories. On the one hand, process theories cannot explain how something that did not happen can cause anything; on the other hand, counterfactual

approaches run into the Causal Selection Problem (McGrath, 2005) and the Underspecification Problem (Stephan et al., 2017). Counterfactual approaches try to reduce causal dependency to counterfactual dependency and claim that A caused B if it is true that if A had not happened, B would not have happened. Applying the same rationale to omissions, it might be true that if I had watered my plants (my omission to water them had not taken place), they would not have died. But the same counterfactual is true for a variety of other people such as the Queen of England. As a consequence, we face the dilemma to either reject counterfactual approaches to causation altogether, or to accept that the Queen of England caused the death of my plants in the same way that I did.

The Underspecification Problem, in turn, questions whether the truth of the counterfactual can be easily determined in the first place. How do we come to believe that had I watered the plants, they would not have died? I might have watered them way too little or added chemicals that would have ensured the plants death either way. Whether the counterfactual is true or not, thus, depends on additional assumptions about the specifics of my plant watering behavior, namely that had I done it, I would have done it *correctly*. Such additional assumptions, however, are only contingently true and do not follow from the analysis of the counterfactual conditional; although they can be addressed – to some extent – by building a more comprehensive causal model.

Researchers have now three different reasons to be interested in omissions. However, those reasons entail three claims that cannot go together. 1. Agents are morally responsible for the consequences of their omissions. 2. Agents can cause outcomes by omissions. 3. Omissions are not causally relevant. It is this trilemma that motivates empirical research on how people do ascribe moral responsibility for omissions and on the role causal judgments play.

Empirical Work on Omissions and Moral Responsibility Attribution

The recent research on omissions provides empirical evidence of how the trilemma might be solved. Confirming claim 1 and challenging claim 3, Willemsen and Reuter (2016) and Willemsen (2016) demonstrate that laypeople do find agents morally responsible for the consequences of their omissions and that they also believe omissions to be causally relevant (see Livengood & Machery, 2007). Willemsen (ms) further showed that there is a strong correlation between causal and moral judgments, lending support to claim 2. Thus, we have good evidence that laypeople reject the third claim, namely that omissions are causally irrelevant.

Gerstenberg and colleagues provides additional insights into the cognitive process underlying causal judgments. They base their psychological model of causal judgment on an extended counterfactual account, which allows that omissions can be deemed causally relevant. (Gerstenberg et

al., 2014, 2015; Lagnado & Gerstenberg, 2017). Interestingly, they circumvent the Causal Selection Problem by considering only those omissions causally relevant if they violated moral or social expectations about how the agent should have acted (Henne et al., 2016) (Willemsen, 2016). This is akin to the ‘duty of care’ requirement in UK law. And they further avoid the philosophical challenges associated with the Underspecification Problem by assuming that had the agent intervened, he would have done it in a way suitable to prevent the outcome (Stephan et al., 2017).

The empirical research stresses the role of norms and expectations in judging omissions, both in moral and causal terms. It indicates that whether an agent was supposed to act in a certain way, but failed, provides the crucial key to predicting how much blame and causal responsibility will be ascribed to him.

The Open Question

Omissions often have severe consequences when they occur in the medical context. A patient administered to a hospital typically needs a certain treatment, so actions need to be performed on him. But there are several reasons for why medical staff might fail to perform all the actions that are medically necessary to help the patient.

However, hospitals also provide very special environments. First, the situations in which omissions have been discussed so far usually described cases in which only one agent is present at the scene: a child drowning in an abandoned lake, plants that dry up in flat to which only one agent has access, etc. Hospitals differ in this respect, as there are usually many medical staffs around who could provide the same treatment. In addition, hospitals are also environments in which different norms can conflict. Patients are typically assigned to specific doctors and nurses in order to provide clear responsibilities. However, due to the oath every doctor or nurse has sworn and their general ability to help each patient in need, it seems that doctors and nurses are always expected to help – no matter whether the patient is assigned to them or not. The conflict here arises between institutionally instantiated, job-related duties and a more general moral duty to help. Finally, medical staffs often operate under extreme time-pressure, combined with a high level of uncertainty. Very often they need to make a call hoping that they evaluated all available information correctly.

For this reason, there seems to be a particularly pressing need to understand how laypeople evaluate a doctor’s failure to provide adequate treatment for her patient. More specifically, we need to understand how duty, knowledge, and ability modulate a doctor’s or nurse’s moral responsibility for the consequences of their omissions. In the first experiment, we created a story in which we operationalized these three factors in a medical context. An unconscious patient is administered to the hospital and needs a certain treatment in order to recover. We manipulated duty by specifying that the patient is either

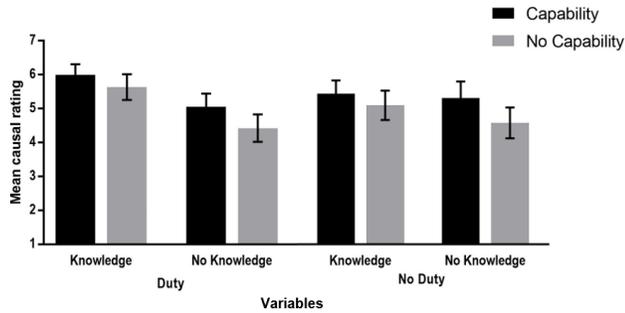


Figure 1: Experiment 1. Mean causal ratings as a function of Ability, Knowledge, and Duty. Error bars indicate 95% CIs.

assigned or not assigned to a specific doctor. This doctor either knows or does not know what treatment the patient requires, as there either is or is not a note in the patient's wallet informing about a certain medical precondition. Finally, manipulating the doctor's capability to treat the patient, we manipulated whether the drug of need is available or not.

The second experiment zooms in and investigates the relevance of a doctor's formal duty to treat a patient in a within-subject design.

Experiment 1

Based on previous research on the effect of norms and expectations, we expect that whether a doctor is assigned to a patient or not, but fails to treat this patient, plays a critical role in the attribution of blame and causal responsibility for the outcome, such that an assigned doctor receives more blame and is considered more causally relevant to the outcome. We further expect that whether the doctor knows what treatment is required as well as whether he is capable of providing such treatment will have a significant effect on both blame and causal judgments.

Methods

Participants and Material 161 participants (48% female, $M_{Age} = 35.58$ years, $SD = 10.53$ years) were recruited via Amazon's Mechanical Turk and participated in this experiment for a monetary compensation of \$0.20. No participants had to be excluded as all of them passed the manipulation check.

Participants and Material All factors were manipulated between subjects. We manipulated whether the doctor was assigned to the patient (*duty*: yes, no), whether the doctor had all the necessary equipment to treat the patient (*capability*: yes, no), and whether he knew what would happen if a certain drug was not provided (*knowledge*: yes, no). The vignette (*duty* yes, *capability* yes, *knowledge* yes) read as follows (highlights only indicate manipulated phrasings and were not present in the original study):

"Doctor Ben works in the emergency room at a busy hospital. At any one time there are many other doctors on

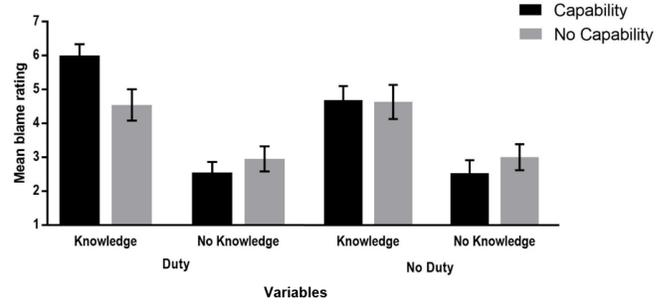


Figure 2: Experiment 1. Mean blame ratings as a function of Ability, Knowledge, and Duty. Error bars indicate 95% CIs.

duty. Each patient admitted is assigned to one specific doctor. One evening, an unconscious patient is admitted to the hospital and *assigned/not assigned* to Doctor Ben. The patient suffers from a kidney disease and needs a high dosage of steroids to decrease acute inflammation. In the patient's wallet, there *is/is not* a note stating that the patient has hepatitis B. In case of a hepatitis B infection, the patient also needs to be injected with an antiviral drug. Ben knows this procedure, and because there *is/is not* a note about the hepatitis B infection, he *also knows/does not know* that if he does not inject the antiviral drug, the patient's liver will fail. There are *plenty/no* of ampoules of this antiviral drug in the emergency room. Ben does not inject the antiviral drug and neither does anyone else. After the patient is given the steroids to decrease the inflammation of her kidneys, the patient's liver fails.

After reading the vignette, each participant provided their causal and moral evaluation of the agent for the patient's liver failure on a scale from 1 to 7:

Cause ratings: Doctor Ben not administering the antiviral drug caused the acute liver failure. (with '1' meaning 'completely disagree' and '7' meaning 'completely agree')

Blame ratings: How much blame does Doctor Ben deserve for the patient's liver failure? (with '1' meaning 'not blameworthy at all' and '7' meaning 'completely blameworthy').

Results and Discussion

Figure 1 shows participants' causal as a function of the doctor's duty, knowledge and ability. Figure 2 shows participants' blame ratings.

A global ANOVA for the causal ratings revealed a significant effect for knowledge, $F(1,153) = 5.919, p = .016, \eta^2 = .037$, and a marginally significant main effect for capability, $F(1,153) = 3.9171, p = .077, \eta^2 = .020$. When the doctor knew about the patient's hepatitis infection and, thus, what would happen if he does not receive the drug, causal ratings were significantly higher, compared to when he did not know. If the doctor does not give the drug when he could have given it, causal ratings are again higher, compared to when the drug was not available. In contrast to previous studies, we did not find a significant main effect

for duty, $F(1,153) = 0.310$, $p = .579$, $\eta^2 = .002$. No two- or three-way interaction was significant.

For the dependent variable blame, the global ANOVA revealed only a significant main effect for knowledge, $F(1,153) = 60.234$, $p < .001$, $\eta^2 = .282$, yet none for capability or duty. As a consequence, the doctor's blameworthiness is only affected by his knowledge about the consequences of not providing the drug. If he does know, blame increases compared to when he does not know. Whether he was assigned to the patient or not does not affect blame ratings, and neither does the availability of the drug. We also found a significant two-way of interaction of knowledge and capability, $F(1,153) = 4.417$, $p = .037$, $\eta^2 = .028$. The difference in blame between knowing and not knowing was higher when the drug was available rather than unavailable. No other two- or three-way interactions were significant.

A Pearson correlation analysis, comparing cause and blame ratings demonstrated a moderate correlation, $r = 0.42$, $p < .001$.

The results shed interesting and novel light on the role of duty, knowledge, and capability in modulating causal and moral judgments. First, confirming previous research by Henne and colleagues (2016) and Willemsen (2016), and undermining philosophical worries about the causal relevance of omissions, laypeople do believe omissions to be causally relevant. Second, causal and blame judgments moderately correlate, thereby confirming research by Willemsen (2016), and the standard view on the connection between causal and moral responsibility (Driver, 2007; Kanekar et al., 1985). Third, the agent's ability to prevent the outcome had only a minor effect on the agent's blameworthiness, speaking against the standard philosophical view (Mason, 2003; Sinnott-Armstrong, 1984; Vranas, 2007), but in favor of most recent empirical research (Henne, Chituc, De Brigard, & Sinnott-Armstrong, 2016; Turri, 2017). However, the fact that the agent's ability interacts with his knowledge about the consequences confirms our predictions.

In contrast to some previous research, but in line with our predictions (and Lagnado & Channon, 2008), knowledge had a significant effect. The most surprising finding concerns the effect of duty which had no effect on the causal or the moral evaluation of the agent. This result not only stands in conflict with research on omissions, but on the role of norms for causal and moral judgments as such (Alicke, 1992; Hitchcock & Knobe, 2009; Knobe & Fraser, 2008; Kominsky et al., 2015). Why did we not find this effect? There are two possible explanations: First, while we successfully manipulated the doctor's duty in terms of him being assigned to the patient, this formal duty stands in sharp contrast to the moral norms applying to the situation. A doctor qua being a doctor is always required to help a patient in need, independent of the formal assignment. It might, thus, be argued that the manipulation of norms was insufficient. In the no-duty condition, this problem might be even worsened by the fact that the doctor who actually was

assigned to the patient was not sufficiently salient to qualify as the actual target for blame and causal attribution. The only person described in the scenario is the doctor for whom participants are asked to provide a moral and causal evaluation.

Second, in previous experiments on omissions, researchers have operated with rather insignificant outcomes, such as dried up plants. Changing the severity of the outcome might, either all by itself or as an additional factor to explanation 1, increase blame and causal attribution even in the no duty conditions.

Experiment 2

In Experiment 2, we aim to decide between these difference explanations. According to the first explanation, participants focused on the doctor's general moral duty, and did not perceive the formal duty of being assigned to the patient or not as relevant. Such a difference can, however, be easily made more salient using a within-subject design. In a within-subject design both agents are alike in terms of their moral obligations, but they clearly differ in whether they are assigned to the patient or not.

According to the second explanation, severity is what prevents the effect. In cases that describe outcomes as life-threatening, such as liver failure, participants ignore other subtleties of the story. To address this possibility, we contrasted a severe outcome (again liver failure) with a minor outcome (reddening and itchiness of the skin).

We further manipulated the agents' position in the hospital. In addition to doctors, we now also introduce nurses who are either assigned to the patient or not.

Methods

Participants and Material 130 participants were recruited via Amazon's Mechanical Turk and participated in this experiment for a monetary compensation of \$0.20. 15 participants had to be excluded for either failing the attention check or not finishing the survey. Thus, reports are reported for 115 participants (63% female, $M_{Age} = 38.82$ years, $SD = 12.18$).

Participants and Material For the second experiment, we created a shorter version of the vignette used in Experiment 1. In line with our predictions, we manipulated the severity of the outcome (severe, less severe) as a between-subject factor. The factors duty (yes, no) and position (doctor, nurse) were tested within-subjects. The vignette for the less severe outcome reads:

Four medical staff, Doctor A, Doctor B, Nurse X and Nurse Y, work in the emergency room at a busy hospital. Each patient admitted is assigned to one specific doctor and one specific nurse. One evening, a patient who gets stung by a bee and has a burning pain on her arm is assigned to Doctor A and Nurse X. To relieve pain, a hydrocortisone cream should be applied. All the medical staff know this procedure and they also know that if they do not apply the cream, the patient will feel itchy or have swelling around

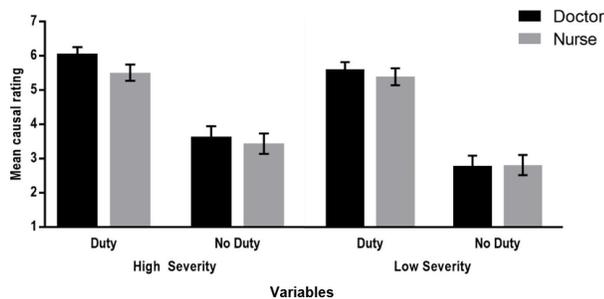


Figure 3: Experiment 2: Mean causal ratings as a function of Severity and Duty. Error bars indicate 95% CIs.

the site of the sting. There is plenty of the cream in the emergency room. None of the four staff administers the cream. The patient eventually has a mild reddening on her skin that lasts for a few days.

Participants then answered a causal and a moral question for each agent in the story (questions are adaption of those used in Experiment 1).

Results and Discussion

A global mixed-measure ANOVA for the dependent variable cause revealed a significant main effect for duty, $F(1, 113) = 114.03, p < .001, \eta^2 = .50$, a main effect for position, $F(1, 113) = 7.05, p = .009, \eta^2 = 0.06$, as well as a marginally significant main effect for severity $F(1, 113) = 3.50, p = .064, \eta^2 = 0.03$. Only the two-way interaction between duty and position was statistically significant, $F(1, 113) = 5.03, p = .027, \eta^2 = 0.04$.

For the dependent variable blame, a global mixed-measure ANOVA revealed a significant main effect for duty, $F(1, 113) = 128.21, p < .001, \eta^2 = .53$, a main effect for position, $F(1, 113) = 7.90, p = .006, \eta^2 = 0.07$, as well as a main effect for severity $F(1, 113) = 6.58, p = .012, \eta^2 = 0.03$. There was a statistically significant two-way interaction between duty and position, $F(1, 113) = 5.03, p = .027, \eta^2 = 0.04$. Also the two-way interaction between duty and position was significant, $F(1, 59) = 6.93, p = .011, \eta^2 = 0.11$. A Pearson correlation analysis, comparing cause and blame ratings demonstrated a strong correlation, $r = 0.82, p < .001$.

The main effect for duty confirms our initial hypotheses about the role of norms and expectations in moral and causal reasoning. An agent who does not act as he is supposed to is considered both more causally responsible and more blameworthy. The results clearly demonstrate that the severity of the outcome did not explain the missing effect for duty in Experiment 1. Rather, it seems likely that our manipulation of duty was insufficient, creating too little contrast between the doctor who was assigned to the patient and those who were not. In our new design, contrasting assigned and unassigned staff more directly, we found the predicted effect of duty for both dependent variables. For blame, these results not only confirm previous findings (Henne et al. 2016; Willemsen, 2016), they are also intuitively intelligible. In societies, distributing tasks among

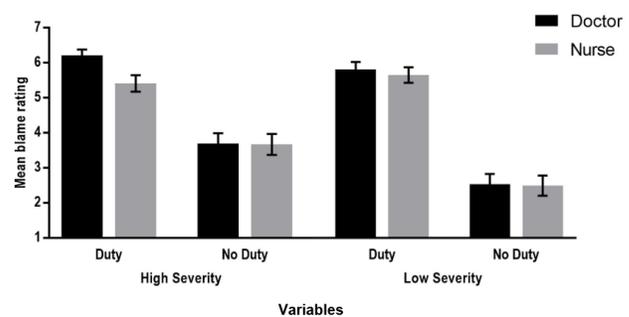


Figure 4: Experiment 2: Mean blame ratings as a function of Severity and Duty. Error bars indicate 95% CIs.

different people ensures efficiency and efficacy by making agents responsible for getting their task done. Blame has an important corrective function. For cause, the effect of duty stands in sharp contrast to many metaphysical accounts to causation, according to which norms, expectations, or duties are metaphysically irrelevant (Armstrong, 1999; Lewis, 1973). However, the effect fits in nicely with experimental work on the interplay between norms and causal judgments (Alicke, 1992; Hitchcock & Knobe, 2009)

General Discussion

In Experiment 1, we tested how blame and causal responsibility judgments are affected by three factors that are widely discussed in the philosophical and psychological literature, namely the agent's duty, his knowledge, and his ability to prevent the outcome. In line with our predictions, the agent's knowledge about the consequences of not acting had a significant effect on both his moral and causal evaluation. Those results are intuitively intelligible for the agent's moral evaluation, as a doctor who does not know that a patient needs a certain treatment seems blameless for not providing it. For the causal evaluation, this effect is rather surprising, as the causal structure should not be affected by what the doctor knew, but only by how his behavior related to the outcome. The doctor's ability to help the patient was only relevant when he had the knowledge about the patient's requirements. Also this result is intuitively plausible, as the lack of a certain drug becomes irrelevant if the doctor does not even know we needs the drug to treat the patient. Surprisingly and in contrast to previous experiments, duty had no effect on the agent's moral or causal evaluation, such that even a doctor who is not assigned to the patient is ascribed blame and causal responsibility for not treating the patient. In experiment 2, we therefore used a more salient manipulation of duty, by contrasting agents on duty and not on duty in a within-subject design. In line with our expectations, in such a design, the stuff on duty are always assigned more blame and causal responsibility, compared to stuff who was not assigned to the patient.

Experiment 2 also provided unpredicted effects. The analysis revealed a three-way interaction between duty, severity and position. When the agents had a duty, both doctors and nurses are attributed an equal amount of blame

and causation in the low severity condition. However, in the high severity condition, the doctor is ascribed significantly more blame than in the low severity condition. Such a difference was not found for the nurse.

This effect, even though unpredicted, fits in nicely with some of the most recent work on the relevance of social roles for the attribution of blame and causation. In an empirical study, Kai Kaspar, Albert Newen, Thomas Dratsch, Leon de Bruin, Ahmad Al-Issa, and Gary Bente (2016) investigated whether differences in social status affect the extent to which an agent is blamed or praised for the side effects of her action. Building on the classical vignette by Knobe (2003), they demonstrated that the person higher in status, e.g. a boss compared to a technician, always receives more blame for an unintended side-effect. This effect holds across cultures and is even stronger in strongly hierarchically organized societies. In a follow-up study, Willemsen, Kaspar, and Newen (in press) lend additional support to the relevance of social roles by demonstrating that the effect observed in Kaspar et al. (2016) cannot be explained by the agent's causal involvement. Instead, social roles seem to be an independent, irreducible factor for the moral evaluation of an agent.

The effect found in this paper goes beyond the extant empirical evidence in three ways: First, in our experiment, participants did not evaluate the agents' moral responsibility for a side- but for the main effect. Second, no study so far has tested the relevance of social roles in cases of omissions – the primary focus so far has been on actions instead. Finally, our experiments are the first to address the factors by which medical stuff are evaluated if they fail to adequately treat a patient.

Conclusion

When we ascribe blame and causal responsibility to an agent for her omissions, four factors modulate our judgments. First, both blame and causal responsibility judgments are affected by an agent's duty to act, such that an agent who fails to act in accordance with her duty is considered more blameworthy for and more of a cause of the resulting consequences. Second, an agent's ability to prevent the outcome increases blame and causal responsibility, compared to an agent who could not have prevented the outcome. Third, whether the agent knew about the consequences of not acting is relevant for our moral and causal evaluation of her omission. Fourth, also the hierarchical status of an agent affects how much blame and causation we assign to him.

Acknowledgments

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