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Unintended, but still blameworthy: the roles of awareness, desire, and anger in negligence, restitution, and punishment

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ABSTRACT

Two experiments (Experiment 1 $N = 149$, Experiment 2 $N = 141$) investigated how two mental states that underlie how perceivers reason about intentional action (awareness of action and desire for an outcome) influence blame and punishment for unintended (i.e., negligent) harms, and the role of anger in this process. Specifically, this research explores how the presence of awareness (of risk in acting, or simply of acting) and/or desire in an acting agent's mental states influences perceptions of negligence, judgements that the acting agent owes restitution to a victim, and the desire to punish the agent, mediated by anger. In both experiments, awareness and desire led to increased anger at the agent and increased perception of negligence. Anger mediated the effect of awareness and desire on negligence rather than negligence mediating the effect of mental states on anger. Anger also mediated punishment, and negligence mediated the effects of anger on restitution. We discuss how perceivers consider mental states such as awareness, desire, and knowledge when reasoning about blame and punishment for unintended harms, and the role of anger in this process.

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Questions about how people determine whether an action is intentional have long been of theoretical interest (e.g., Heider, 1958). Among other mental states such as sufficient skill or effort expended to bring about an outcome, theoretical models of intentional action often require several mental states—such as belief, desire, awareness, and intention—to be present in an agent's mind to consider the agent's action intentional (e.g., Jones & Davis, 1965; Malle & Knobe, 1997; Shaver, 1985). Belief generally refers to an agent's belief that an action will or might lead to an outcome, desire refers to an agent's desire for an outcome, awareness refers to an agent's awareness of performing an action (presumably linked to an intention to perform it), and intention refers to an agent's intention to perform an action (but see Laurent, Clark, & Schweitzer, 2015, for a discussion regarding folk conceptualisations of intentions). Each of these components is hypothesised

as necessary for actions to be seen as intentional, even if people are able to reason quite quickly or do not reason consciously about each component (Malle & Holbrook, 2012).

The relationship of intentionality to blame is an important topic, particularly since intentionality is not only a philosophical and psychological concept, but also a legal one that can prescribe serious consequences to agents who intentionally act to cause harm (e.g., Malle & Nelson, 2003). Although intentionality itself is of interest, the individual mental state components *underlying* intentionality judgements are also of interest because each may play a role in how perceivers apportion responsibility for and want to punish unintended harms (e.g., Cushman, 2008; Laurent, Nuñez, & Schweitzer, 2015). Specifically, if judgements of intentionality require the conjoint presence of several components, and if intentionally caused harmful outcomes are maximally blameworthy, then

each component likely provides a unique contribution to how people apportion blame. The current research examines how perceivers use information about two of these mental states—awareness and desire—to determine how much blame agents deserve for the unintended harms their actions cause, the extent to which agents should compensate individuals who are harmed, the extent to which agents should be punished for their actions, and the role of anger in this process.

Three components of intentionality: beliefs (knowledge), awareness, and desires

Leaving aside the necessity of skill (often a minimal requirement; see Guglielmo & Malle, 2010a) and specific intent to harm, three components underlying intentionality—belief/knowledge, awareness, and desire—deserve a brief discussion prior to elaborating on the role of awareness and desire in judgements of negligence, restitution, and punishment. Belief is often defined as an agent's belief that her or his action will have a certain consequence (e.g., Malle & Knobe, 1997), implying an action about to be performed or an intention to act. The concept of knowledge, defined as knowledge that certain types of actions might, can, or will lead to certain types of outcomes, is closely related to that of beliefs (Nuñez, Laurent, & Gray, 2014), but may be construed more abstractly in a way that subsumes beliefs or occurs prior to them. That is, beliefs about the consequences of an intended action can only emerge when knowledge linking the action to an outcome is available. Knowledge can be "common" or "general", implying that most people possess it (e.g., that driving a car into a pedestrian might hurt them), or specialised in that only some people would possess it (e.g., that a certain car has failing brakes, and thus might cause an accident in traffic).

Awareness can be defined as awareness of performing an action, while performing it. However, combined with knowledge, awareness implies subjective foresight or foreseeability (Lagnado & Channon, 2008). That is, if one knows that an action can have a particular consequence, awareness of performing the action suggests awareness of the possible consequence. However, in part because actions can be construed or identified at multiple levels (Vallacher & Wegner, 2012), awareness can vary in scope. Simple awareness of acting can take on multiple meanings depending on the context, available information,

and knowledge. For example, a person might be aware of throwing a stone off of a cliff, but not be aware of a hiker below who could be hit in the head by the stone. In this case, the agent might have general knowledge about stones thrown from heights and their effects on heads, but, in the limited scope of awareness, should not have formed a belief about the consequences of the action. On the other hand, imagine a person who throws the stone while aware of the hiker; if knowledge about stones and heads is present, this person should be aware of the potential for harm while acting. In this case, simple "awareness of throwing a stone" becomes the more complex "awareness of throwing a stone that might hit someone below", even if there is no specific intention to harm the hiker.

Unlike knowledge and full awareness, which can each link actions to outcomes, desire does not require action or even an intention to act. It simply requires wanting (to some extent) an outcome to occur. Desire can be weak (e.g., "it would be nice if X happened") or strong (e.g., "I really want X to happen"), or somewhere in between, where an agent does not seem to care whether an outcome occurs. An agent could also actively desire that harm *not* befall someone.

Awareness, desire, and negligence

As discussed above, when knowledge is present and harm occurs, awareness should be implicated in negligence because of its relationship to foreseeability. That is, full awareness of acting in a way one knows might have a harmful consequence suggests, at least, a failure to take appropriate precautions to avoid harm. Similarly, even when the scope of awareness is limited, negligence might be attributed when an agent *should have* been aware of the possible scope of the action (e.g., when throwing stones off cliffs, one should make sure no hikers are below).

Although little psychological research on negligence exists to confirm or refute these assertions, what is available suggests that awareness (and knowledge) might be important in how people reason about the concept. For example, Shultz and Wright (1985) presented participants with examples of intentional, negligent, and accidental actions that led to the same outcome. The examples of negligent actions suggested that agents had knowledge but failed to meet reasonable standards for awareness (e.g., an agent throws shingles off of a roof without looking

below, damaging property). That is, the agents (a) did not intend harm, (b) were aware of their actions in a basic sense, and could be expected to have knowledge connecting the action to harm, but (c) failed to take reasonable precautions to understand the full scope of their actions. Similarly, Nobes, Panagiotaki, and Pawson (2009) suggested that negligent acts involve carelessness, which presumes knowledge and awareness without reasonable care.

In recent work, Nuñez et al. (2014) investigated lay reasoning about negligence. In one study (Study 2), they asked participants to define the concept in their own words. Results from this study led to a conclusion that beliefs about negligence involve an agent (whose action causes harm) (a) knowing that an action could cause harm and (b) being aware of acting in a way that might cause harm¹ when (c) the agent has no *desire* for harm to occur (and presumably, no intention to harm). A subsequent experiment (Study 3) manipulated knowledge and awareness and found that awareness without knowledge was not seen as particularly negligent, but awareness with knowledge led to the highest ratings of negligence, blame, and desire to punish.

Although Nuñez et al. (2014) found that negligence suggests a lack of desire, there are reasons to think that the presence of desire in an agent's mental states would affect perceptions of negligence, because when an agent's actions cause a desired harm, people think the action is wrong and blameworthy even if the harm is unintended (Cushman, 2008). Desire might also affect blame for unintended harm because desiring harm is non-normative (e.g., Guglielmo & Malle, 2010b; Uttich & Lombrozo, 2010) and implicates character judgements, possibly suggesting an antisocial motivation for action (Reeder, 2009). Consistent with this, recent work suggests that desire to harm informs moral character judgements prior to any harm being described, mediating later blame (Laurent, Nuñez, et al., 2015). Ascribing negligence might thus indicate disapproval for an agent's counter-normative and immoral desires, particularly when the desired harm occurs. Finally, Alicke's (2000) culpable control model suggests that people want to assign blame when harm occurs, leading to biases in how they search for and process

causal and mental state information. Knowing that an agent desired a harm that in fact occurred might bias perceivers towards assuming other mental states were present (Laurent, Nuñez, et al., 2015), suggesting the agent foresaw the harm (even when he or she did not), and was therefore negligent.

The mediating role of anger in blame and punishment

When harm occurs, having wanted it to occur or having believed that one's actions would cause it prompts judgements of wrongness (Cushman, 2008). Similarly, even when no harm has occurred, wanting to see someone harmed leads to judgements of immorality (Laurent, Nuñez, et al., 2015). Haidt's (2001) moral intuitionist model suggests that people reason intuitively and affectively when making moral judgements, and research suggests that people may even prefer intuition to more deliberative processes (e.g., Merritt & Monin, 2011). Anger, or moral outrage, may play a particularly important role in how people reason about agents' immoral thoughts² or actions because it motivates blame and the desire to seek retribution (Haidt, 2003). Consistent with this, research has shown that anger can mediate judgements of blame, responsibility, and punishment for moral transgressions (e.g., Alicke, 2008; Goldberg, Lerner, & Tetlock, 1999; Haidt, 2001; Laurent, Clark, Walker, & Wiseman, 2014; Mullen & Skitka, 2006). Of interest, though Darley and Pittman (2003) suggested that moral outrage motivates desire for retributive punishment, they also noted that for unintentional harms, "if the harm-doer could have foreseen the harm ... then he or she owes compensation to the victim" (p. 327). This suggests that perception of negligence should primarily predict victim compensation, while anger at a moral transgression should also predict retribution (also see Robinson & Darley, 1995).

There are reasons to believe that when an agent's actions cause harm, both awareness and desire to harm might lead to anger at the agent, although the reasons may differ in each case. When an agent is aware of acting in a way that he or she knows could cause harm and the harm occurs, anger should arise because the harm was foreseeable and the agent

¹Nuñez et al. (2014) also describe how negligence can involve agents not possessing knowledge they reasonably *should have* possessed or lacking awareness when they reasonably *should have been* aware.

²It should be noted that some research has shown that the tendency to hold others accountable for their immoral thoughts may vary as a function of cultural or religious background. For example, Jews may focus more on observable behaviours when assigning blame, while Protestants are more likely to view immoral thoughts as equally harmful (e.g., Cohen, 2015; Cohen & Rozin, 2001).

should have acted differently, even if the harm was not intended. That is, when an agent performs an action leading to harm that could have been foreseen and avoided, perceivers should be angry because even if the agent is not immoral, *per se*, the agent's *action* constitutes a moral violation in that it was wrong to act. On its own, wishing that harm would occur does not inform foreseeability; however, it suggests poor character and immorality, which should lead to anger, particularly when the agent's action leads to the desired harm. That is, desire itself should suggest immorality and in light of the consequences of the agent's action, anger should arise as a way to justify the craving to blame the agent for the harm. We should note that when perceivers form judgements about agents who cause harm to unknown or hypothetical others, self-reports of anger might reflect not only perceivers' own emotional experience, but also a belief that anger is a reasonable response (i.e., because any reasonable person would be angered at the agents' transgressions). This suggests the utility of not only asking participants about their own anger, but also asking them if they think other reasonable people would be angry.

Experiment 1

To examine whether awareness and desire would lead to anger, resulting in perceptions of negligence, accountability, and desire for retribution, a first experiment was embedded in the context of a US civil court case, using abbreviated fictional trial details involving a case where a man kills a neighbour's cat while ostensibly test-firing a gun. Awareness was manipulated by describing the agent as believably aware (or not) of the cat's nearby presence when he discharged his weapon (i.e., by manipulating the scope of the agent's awareness of the risk for harm). Desire was manipulated by describing the agent as liking or disliking the cat, and wishing (or not) that he could harm the cat (i.e., "in a perfect world"). In all cases, the agent claimed to not have intended the outcome. Participants were then asked to rate how angry they were, how angry most people would be, and how negligent the agent was. In addition, to index agent responsibility and desire for retribution, we included measures of how much restitution the victim deserved

from the agent and a measure we expected would indirectly index desire to punish (i.e., costs that should be paid by the agent to the victim for his emotional distress). Although both restitution and emotional suffering are *de jure* examples of compensatory damages, we reasoned that the victim's request for a large sum of money for emotional distress might seem frivolous and would capture participants' desire to punish the agent, while restitution would primarily capture agent accountability because if the agent is negligent, he reasonably owes restitution for the victim's property.

Without prior research on the independence of awareness and desire in predicting negligence and related variables, we expected the influence of these variables to be independent. We predicted that awareness and desire would each arouse anger, which would subsequently predict judgements of negligence, restitution, and punishment. Tentatively, and in line with prior theorising, we also hypothesised that although anger should predict both restitution and punishment, negligence should most strongly impact restitution (Darley & Pittman, 2003).

Method

Participants

Based on prior research, we concluded that 40 participants per cell should provide sufficient power to detect effects if they existed. Participants were 149 US citizens, aged 18 and older, recruited through Amazon's Mechanical Turk (MTurk) website (74 females, 75 males; $M_{\text{age}} = 32.68$, $SD = 12.54$).³ Self-reported racial/ethnic identity was: 80.5% Caucasian, 8.1% African-American, 7.4% Asian-American, 2% Hispanic, and 1.3% Native American. One person reported "other". Eighty-six per cent reported "some college"; the remaining participants reported an associate's or bachelor's degree, or postgraduate study.

Procedure

After giving consent, participants were randomly assigned to read one of four summarised descriptions of an "actual" (fictional) court case from 2011.⁴ In these descriptions, Mr Jason Clark was accused of having killed an expensive, blue-eyed Siamese cat belonging

³Ten participants were removed for failing a check question regarding the names of the agents in the presented scenarios (original $N = 159$).

⁴All stimulus materials for Experiments 1 and 2 are available in the appendix.

to his neighbour, Mr Paul Davis. Mr Davis was suing for the cost of the cat and emotional damages. Embedded in the case details were the (crossed) manipulations of awareness and desire. Mr Clark was described as either aware or unaware that the cat was nearby when he test-fired his gun, and as either quite fond of or strongly disliking the cat and wishing (“in a perfect world”) that he could shoot it. In all cases, Mr Clark claimed to not have intended to hurt the cat, maintaining that the shooting was purely accidental.

Measures⁵

After reading the scenarios, participants responded to the following questions. Except where noted, all variables were measured on 6-point scales, where higher numbers indicate higher levels of the constructs (e.g., 1 = *disagree completely*, 6 = *agree completely*). When measured with multiple questions, items were averaged to create scales.

Awareness ($r = .88$). Two items: “Mr. Clark knew his neighbor’s cat was nearby when he discharged the gun” and “Mr. Clark was unaware that his neighbor’s cat was nearby when he fired his weapon” (reverse-coded).

Desire ($r = .78$). Two items: “Mr. Clark wanted to shoot his neighbor’s cat” and “Mr. Clark had no desire to shoot his neighbor’s cat” (reverse-coded).

Negligence. After being provided a definition of negligence (“The act of negligence can be defined as a failure to do an act which a reasonably careful person would do, or the doing of an act which a reasonably careful person would not do, under the same or similar circumstances”), negligence was assessed with a single item: “According to this definition, was Mr. Clark negligent?”

Anger ($\alpha = .64$). Two items: “Mr. Clark’s behavior makes me angry” and “Most people would be angered by Mr. Clark’s behavior.”

Restitution (replacement). The value of Mr Davis’s cat was described as between \$400 and \$1500.

Participants were asked: “How much money should Mr. Clark have to pay to Mr. Davis for replacement of the animal (from \$0 to \$1,500.00)?” Participants could type in any value from 0 to 1500.

Punishment (emotional distress). Mr Davis was described as suing Mr Clark for \$10,000 in emotional distress. Participants were asked: “Above and beyond any replacement costs, what percentage of this amount (\$10,000.00) should Mr. Davis be awarded from Mr. Clark (i.e., paid by Mr. Clark to Mr. Davis)?” Responses to this question were on a 10-point scale, in percentage increments of 10% (e.g., 1 = “0–10%” and 10 = “90–100%”).

Results

Manipulation checks

To confirm that our manipulations had the expected effect, we conducted two 2 (no awareness/awareness) \times 2 (no desire/desire) ANOVAs on perceived awareness and desire (df for all tests here and below were 1, 145). For perceived awareness, there were main effects of awareness ($F = 233.55$, $p < .001$, $d = 2.24$) and desire ($F = 9.66$, $p = .002$, $d = 0.23$), and an interaction between the two ($F = 22.55$, $p < .001$). When awareness was absent, desire had a large and significant impact on perceived awareness, with higher awareness in the desire cell than in the no desire cell ($d = 1.11$, $p < .001$). When awareness was present, the presence versus absence of desire had a much smaller (nonsignificant) impact on perceived awareness ($d = 0.33$, $p = .16$). Simple main effects of awareness were significant at both levels of desire ($ps < .001$). For perceived desire, a main effect of desire was all that emerged ($F = 155.92$, $p < .001$, $d = 2.02$; other F s < 2.92 , $ps > .09$), with desire perceived as higher in the desire condition than in the no desire condition (see Table 1 for M and SD of all measured variables as a function of manipulated awareness and desire, and for correlations among all variables).

⁵In addition to the variables reported here, two variables related to accidental causation and intentionality were collected using the same 6-point scale, primarily as respective checks of whether (a) in the no awareness/no desire cell, participants perceived the killing of the pet as reasonably accidental, and (b) intentionality ratings were not unreasonably high in the presence of either awareness or desire. Analyses of these variables confirmed that accidental cause ratings were reasonably high in the appropriate cell ($M = 3.71$, $SD = 1.64$), and that ratings of intentionality in the presence of awareness, desire, or both, were not unreasonably high (awareness present, desire absent, $M = 2.03$, $SD = 1.06$; desire present, awareness absent, $M = 3.22$, $SD = 1.60$; awareness and desire both present, $M = 4.03$, $SD = 1.47$). Because our interest was in ratings of negligence and not in perception of accident or intentional action, no further discussion of these variables is provided. Two variables also asked the extent to which perceivers were and “most people would be” disgusted by Mr Clark’s actions. These variables were meant to index annoyance rather than bodily disgust (e.g., Nabi, 2002) and were strongly correlated with anger ratings, but were dropped because our interest was primarily in anger. However, analyses were not substantively different from those reported when using a composite “negative moral emotion” variable (i.e., anger and disgust, combined) rather than the reported anger variable.

Table 1. Correlations in Experiment 1 among perceived awareness, perceived desire, anger, negligence, restitution, and punishment, including *M* and *SD* of the variables.

	PA	PD	ANG	NEG	RES	PUN
Perceived Awareness (PA)						
Perceived Desire (PD)	.33**					
Anger (ANG)	.44**	.51**				
Negligence (NEG)	.31**	.29**	.61**			
Restitution (RES)	.15 [†]	.23*	.42**	.47**		
Punishment (PUN)	.20*	.30**	.52**	.41**	.35**	
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
No Awareness/No Desire	1.75 (1.23)	1.65 (1.13)	2.80 (1.37)	3.00 (1.39)	3.51 (2.16)	1.78 (1.70)
No Awareness/Desire	3.23 (1.42)	4.51 (1.25)	3.99 (1.21)	3.72 (1.36)	4.27 (1.90)	2.25 (1.82)
Awareness/No Desire	5.53 (0.87)	2.29 (1.38)	3.85 (1.39)	3.72 (1.34)	3.76 (1.86)	2.11 (1.56)
Awareness/Desire	5.22 (1.01)	4.57 (1.23)	4.47 (1.02)	4.32 (1.38)	4.27 (1.75)	2.85 (2.01)

Notes: With the exceptions of restitution and punishment, all variables were measured on 6-point scales. For restitution, participants could choose any amount between \$0 and \$1500. Punishment was measured on a 10-point scale. Restitution and punishment were both converted here to 6-point scales for comparison with other variables.

[†] $p = .07$, * $p \leq .01$, ** $p < .001$.

Dependent variables

Next, we examined all dependent variables using 2 (awareness/no awareness) \times 2 (desire/no desire) ANOVAs. Total effects of awareness emerged for ratings of anger ($F = 13.68$, $p < .001$, $d = 0.54$) and negligence ($F = 8.75$, $p = .004$, $d = 0.45$),⁶ but no total effects of awareness were found for restitution and punishment ($F_s < 2.55$, $p_s > .11$). The main effects of desire were significant for all variables, including anger ($F = 19.21$, $p < .001$, $d = 0.65$), negligence ($F = 8.75$, $p = .004$, $d = 0.45$),⁷ restitution ($F = 4.06$, $p < .05$, $d = 0.33$), and punishment ($F = 4.28$, $p = .04$, $d = 0.33$). No interactions were significant, all $p_s > .18$.

Path analysis

Next, we used path analyses ($N = 149$) with bootstrapping (5000 replications) to examine hypotheses regarding the effects of (a) manipulated awareness and desire (in both experiments, 0 = awareness and desire respectively absent, 1 = awareness and desire present) on negligence, restitution, and punishment, through anger, and (b) anger on restitution and punishment, through negligence. Specifically, we expected that awareness and desire would predict anger, which would predict negligence, restitution, and punishment, and that negligence would predict restitution (but tentatively, not punishment).

First, we wanted to rule out a plausible reduced reverse causal model, where awareness and desire

(as exogenous variables) predicted negligence, which in turn predicted anger. This model did not fit the data well, $\chi^2(3) = 14.03$, $p = .003$, Comparative Fit Index (CFI) = 0.88, root mean square error of approximation (RMSEA) = .16, p -close = .01. Reversing the causal order so that awareness and desire predicted anger, which then predicted negligence, provided a model with excellent fit, $\chi^2(3) = 1.77$, $p = .74$, CFI = 1.0, RMSEA = .00, p -close = .74. Next, we added restitution and punishment to this model, allowing each to be predicted by both anger and negligence. This model also had excellent fit, $\chi^2(8) = 6.90$, $p = .55$, CFI = 1.0, RMSEA = .00, p -close = .77 (see Figure 1 for all direct and indirect path coefficients with bias-corrected 95% confidence intervals). All hypothesised direct paths were significant, including those from awareness and desire to anger, from anger to negligence and punishment, and from negligence to restitution ($p_s \leq .001$); two direct paths that were not specifically hypothesised were also significant (from anger to restitution, $p = .03$, and from negligence to punishment, $p = .04$). Similarly, all hypothesised indirect paths were significant, including those from awareness and desire through anger to negligence and punishment, from anger through negligence to restitution, and from awareness and desire through anger and negligence to restitution ($p_s \leq .001$); all remaining indirect paths were also significant, including those from awareness and desire through anger to restitution ($p = .02$), from anger through negligence to

⁶Because the effects of perceived awareness were unexpectedly affected by the manipulation of desire, ANCOVAs (analysis of covariances) examining the effects of awareness while controlling for perceived desire were also conducted. The significant effects of awareness on anger and negligence remained significant controlling for perceived desire ($F_s > 6.93$, $p_s < .01$).

⁷The identical effect of awareness and desire on negligence, while surprising, is simply coincidental.

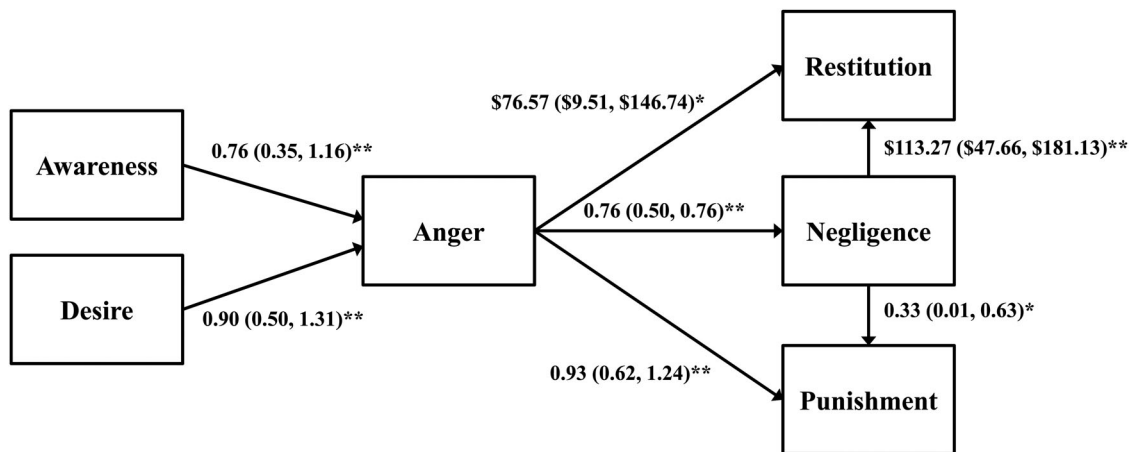


Figure 1. Effects of manipulated awareness and desire on anger (ANG), negligence (NEG), restitution (RES), and punishment (PUN) in Experiment 1. Notes: Model fit was excellent, $\chi^2(8) = 6.90$, $p = .55$, CFI = 1.0, RMSEA = .00, p -close = .77. All direct effects were significant (* $p < .05$, ** $p \leq .001$). Unstandardised path coefficients are shown (bias-corrected 95% confidence intervals within parentheses). R^2 : ANG = .18, NEG = .37, RES = .25, PUN = .29. Indirect path coefficients are given below with 95% CIs [in brackets] and p -values: AWR→ANG→RES (\$57.85 [\$13.29, \$128.63], $p = .02$); AWR→ANG→NEG (0.48 [0.22, 0.77], $p = .001$); AWR→ANG→PUN (0.70 [0.32, 1.21], $p < .001$); AWR→ANG→NEG→RES (\$53.89 [\$18.63, \$118.97], $p < .001$); AWR→ANG→NEG→PUN (0.16 [0.02, 0.39], $p = .03$); DES→ANG→RES (\$68.64 [\$14.36, \$141.50], $p = .02$); DES→ANG→NEG (0.57 [0.31, 0.87], $p < .001$); DES→ANG→PUN (0.83 [0.43, 1.34], $p < .001$); DES→ANG→NEG→RES (\$63.95 [\$22.95, \$135.59], $p < .001$); DES→ANG→NEG→PUN (0.19 [0.02, 0.45], $p = .03$); ANG→NEG→RES (\$71.34 [\$30.28, \$121.64], $p < .001$); ANG→NEG→PUN (0.21 (0.01, 0.42), $p = .04$). Anger and negligence were measured on 6-point scales. Restitution could be any dollar value between \$0 and \$1500. Punishment was on a 10-point scale.

punishment ($p = .04$), and from awareness and desire through anger and negligence to punishment ($ps = .03$). Further constraining this model by adding in all other possible direct paths (i.e., from awareness and desire to negligence, restitution, and punishment) did not improve model fit, ($\Delta\chi^2(6) = 3.97$, $p = .68$), and none of these direct paths were significant (ps from .18 to .93).

Discussion

Experiment 1 provided good initial support for our hypotheses. The presence versus absence of awareness and desire each had total effects on self-reported anger at the harm-causing agent and perceptions of his negligence. Desire, but not awareness, had additional total effects on both restitution and punishment. Path analyses confirmed that increased anger strongly predicted both negligence and punishment, mediating the effects of awareness and desire on these variables. Moreover, in line with our prediction, ratings of negligence strongly predicted restitution, mediating the effects of anger, awareness, and desire. In addition to these hypothesised effects, weaker effects also emerged, highlighting the strong influence of anger on judgements. Specifically, even

beyond the effects of negligence on restitution, anger continued to predict restitution, showing a direct link between affective response to the agent's action and a desire to compensate the harmed victim. Of interest, negligence also predicted punishment in this model, albeit more weakly than it predicted restitution. Finally, testing a reverse causal model where awareness and desire predicted negligence, which then predicted anger, did not fit the data well, suggesting that even if the two judgements were co-activated temporally, anger worked to exacerbate judgements of negligence rather than the reverse.

Several limitations of this experiment should be noted. First, rather than allowing participants to determine the meaning of negligence on their own, we provided a legal definition, which may have constrained their responses. Although this was done to remain consistent with our presentation of the study as regards legal reasoning, it limits generalisability somewhat. Relatedly, our measure of punishment was only indirect, and even though participants appeared to treat it as a measure of punishment in line with our expectations, it was in fact a *de jure* measure of compensation, limiting again to some extent the conclusions that can be drawn. Second, awareness was

operationalised in a way that focused less on the agent's direct awareness of acting and more on his awareness that his action might lead to harm. Third, while the described harm was severe and physical (i.e., involving death), the physical harm was to a cat and not a human. This makes it difficult to know if the same findings would emerge if a human and not a cat was physically harmed, particularly if the harm is less severe (i.e., not mortal). Fourth, although the harming agent was described as claiming not to have intended harm (and ratings of intentionality were not excessively high), participants may not have fully believed the agent's claim. Last, and perhaps most importantly, most of the details presented served to simplify rather than complicate participants' ability to discern relevant details. That is, most of the provided information highlighted the harming agent's awareness and desire, without providing additional contextual details about either the agent or the victim. One possibility is that the effects for awareness and desire emerged because there was little additional individuating information available for participants to attend to. That is, rather than placing relevant details within a richer background of contextual details, including other potentially biasing information about the agent and victim (as in more realistic social cognition), all of the relevant details were presented in isolation as information relevant to the judgement task. A second experiment was conducted to address these limitations and provide greater generalisability.

Experiment 2

Experiment 2 differed in several ways from Experiment 1. First, rather than presenting the study as one of legal reasoning, participants were asked only to read a story and then answer a few questions about the people in it. Second, no definition of negligence was provided; participants were simply asked if the agent was negligent. Third, participants were asked directly whether the agent should be punished for his actions and if they would punish him if they could. Fourth, the harm that occurred was to a human rather than a feline victim, involving both physical harm (the breaking of several bones) and financial harm (damage to the victim's automobile). Fifth, the manipulation of awareness dealt directly with the agent's awareness of his actions, not with the risks of his actions. Finally, the manipulations of both awareness and desire were embedded within a

rich and complex array of background information that provided neutral and negative individuating information about both the agent and the victim of harm (the longest version had 942 words and the shortest version had 920 words; in all versions of the stimuli, there were nine paragraphs; for comparison, this paragraph contains 296 words). Importantly, to help rule out whether the effects of awareness and desire in Experiment 1 reflected a general negative bias towards the agent when he was described as having either awareness or desire, in all conditions of Experiment 2, the same negative information was provided about the harming agent. Specifically, he was described as romantically interested in his housemate's girlfriend (the housemate is an old, close friend from high school) and jealous of the housemate's relationship with her. Therefore, if effects emerge for awareness and desire against this backdrop, they likely reflect more than a general negative bias against the agent on the basis of the manipulations.

Hypotheses were the same as in Experiment 1. We expected that the presence of awareness and desire would increase anger at the agent, which would mediate judgements of negligence and punishment. We also expected negligence to mediate restitution. For the same reasons outlined in the introduction to Experiment 1 and informed by the results from it, we continued to tentatively hypothesise that anger would affect restitution primarily through ratings of negligence, and that negligence would only weakly affect punishment, if at all.

Method

Participants

Based on the results of Experiment 1 and prior work, we expected to have sufficient power to detect effects with 35 participants per cell. Participants were 141 US citizens, aged 18 and older, recruited through Amazon's MTurk website (64 females, 77 males; $M_{\text{age}} = 33.36$, $SD = 12.17$). Self-reported racial/ethnic identity was: 72.3% Caucasian, 10.6% African-American, 7.1% Asian-American, 5.7% Hispanic, and 4.3% Native American.

Procedure

After giving consent, participants were randomly assigned to read one of four versions of a story that described a relationship between two housemates who had been friends since high school (see the

appendix). Neutral (e.g., the friends often do things together, but also have their own separate lives) and negative information about the agent (e.g., messy and secretly interested in the housemate's girlfriend) and housemate (e.g., lets his girlfriend smoke in the house against the agent's wishes and borrows the agent's possessions without asking) appeared in all versions. Desire was manipulated by describing the agent as either caring about his friend and being unwilling to jeopardise their friendship or as secretly disliking and resenting the friend, wishing something bad would happen to him. In all versions, the agent is realistically portrayed as being unwilling to ever act on this desire. The awareness manipulation was embedded in information describing the agent borrowing the friend's car and getting a flat tyre. In short, when changing the tyre after a frustrating experience on a hot day, the agent cannot get one of the lug nuts back onto the lug and fails to properly tighten the three remaining lugs. In all versions, the agent knows that it is unsafe to drive without fully tightening the three remaining lugs (i.e., knowledge is explicitly described as present) but forgets to do so prior to putting a hubcap (damaged during its removal) back on. In the awareness absent version, he simply forgets to tighten the lug nuts, and then later also forgets to tell his friend what happened. Thus, he is unaware of his actions (i.e., failing to tighten the nuts and failing to tell his friend). In the awareness present version, he acts in the same way, but with awareness of acting. After putting the hubcap on, he remembers that he should tighten them, but does not for fear of further damaging the hubcap. Later, he is aware of not telling his friend about what happened, because he is planning on fixing the car (which seems to be driving fine) the next week. In the last part of the story, the remaining lug nuts come off while the friend is driving his car, leading to an accident where the car is seriously damaged and the housemate breaks two bones. Following this, participants completed the dependent measures and answered a few demographic questions.

Measures⁸

After reading the scenarios, with the exception of one item (described below), participants rated their agreement with provided statements using a 9-point scale (1 = *completely disagree*, 5 = *neither disagree nor agree*, 9 = *completely agree*). Responses to items were averaged to create dependent variables. Higher scores indicate higher levels of agreement. Correlations or reliability coefficients are given in parentheses for all variables.

Perceived Awareness ($r = .40$). Awareness was measured with two items:⁹ "When replacing the wheel on Adam's car, Ben was aware that he should have further tightened the lug nuts before driving on it" and "Ben was aware that he didn't tell Adam about the tire repair when Adam came home."

Perceived Desire ($\alpha = .89$). Three items measured desire: "Ben wished something bad would happen to his friend, Adam," "Even if you think he would not have deliberately done something to hurt Adam, Ben wanted Adam to be harmed," and "Ben desired that Adam would be harmed."

Anger ($\alpha = .92$). Participants were asked to think back to the details of the story and consider how they, **personally** (bolding present in materials), felt at that moment about it. Four items followed: "I feel angry, thinking about the story," "Thinking about this story makes me mad," "Ben's behavior angers me," and "If I was a friend of these two men and knew about Ben's thoughts and actions, I'd be angry with him." Participants were also asked to consider how **other reasonable people** (bolding present in materials) would feel after reading the story. Three additional items followed: "Most people would be angry when thinking about this story," "Thinking about this story would make most people mad," and "Pretty much anyone would be mad at Ben if they had access to his thoughts and learned of his actions."¹⁰

Negligence ($r = .86$). Two items measured perceptions of negligence: "Ben was negligent" and "Ben's actions are a good example of negligence."

⁸In addition to the variables presented here, three items measured whether the agent intentionally acted in such a way that harm would come to the victim (e.g., "Ben's actions were intentionally done in order to hurt Adam."). As in Experiment 1, inclusion of these variables was simply to insure that ratings of intentionality were not unreasonably high in the presence of awareness, desire, or both. Neither awareness nor desire significantly affected intentionality ratings, and the highest rated intentionality (when awareness and desire were both present) was low ($M = 3.12$, $SD = 2.09$, using the same 9-point scale as other items).

⁹Although these items were not strongly correlated—most likely because the manipulation and manipulation check of awareness involved two yoked actions that were independently assessed—results from analyses using the items independently did not differ substantively from analyses using the composite item and led to the same conclusions.

¹⁰The correlation between own and others' anger was high ($r = .82$) and results were not substantively different using either variable independently. Thus, we combined all items to form our measure of anger.

Restitution ($\alpha = .95$). Three items measured the extent to which participants thought the agent should retribute the victim: “Ben should pay for any costs that might otherwise need to be paid by Adam, associated with Adam’s accident (e.g. medical costs, automotive repairs),” “Ben owes restitution to Adam for the accident,” and “Ben has a financial responsibility to retribute Adam.”

Punishment ($\alpha = .92$). Two items measured agreement that Ben should be punished: “Ben should be punished for what he did” and “If I had the power to do so, I would want to see Ben punished.” A third item asked: “To what extent do you think Ben should be punished if he could be?” Responses to this item were also on a 9-point scale (1 = *No punishment at all*, 5 = *Moderate punishment*, 9 = *Maximum punishment*).

Results

Manipulation checks

To confirm that our manipulations worked as expected, we examined perceived awareness and desire using 2 (awareness absent/present) \times 2 (desire absent/present) ANOVAs (for all ANOVAs reported here and below, *df* were 1, 141). For perceived awareness, only manipulated awareness had a significant effect ($F = 37.50, p < .001, d = 1.05$); no other effects reached significance ($F_s < 0.89, p_s > .34$). For perceived desire, only manipulated desire had a significant effect ($F = 84.03, p < .001, d = 1.50$); no other effects were significant ($F_s < 2.85, p_s > .09$).¹¹ See Table 2 for *M* and *SD* of all measured variables as a function of manipulated awareness and desire and for correlations among all variables.

Dependent variables

All dependent variables were also examined using 2 (awareness absent/present) \times 2 (desire absent/present) ANOVAs. Significant total effects of awareness emerged for all variables, including anger ($F = 13.24, p < .001, d = .63$), negligence ($F = 5.21, p = .02, d = .42$), restitution ($F = 4.14, p = .04, d = .36$), and punishment ($F = 3.73, p = .055, d = .35$). Significant total effects of desire were found for anger ($F = 4.54, p = .035, d = .35$) and negligence ($F = 4.64, p = .03, d = .34$), but not for restitution and punishment ($F_s < 0.95, p_s > .33$). However, interactions between awareness and desire also emerged for each variable (F_s ranged from 4.59 for punishment to 9.25 for negligence, p_s from .03 to .003).

Examination of simple main effects of both awareness and desire revealed the same pattern: When one of the variables was absent, the other variable had a strong and significant effect and when one of the variables was present, the other variable had weak and non-significant effects. This suggests that the presence of either variable was all that was necessary to create the maximum response, and that further information did not have an additive effect. Specifically, when desire was absent, the presence versus absence of awareness had strong effects on all dependent variables ($t_s(72)$ ranged from 2.90 for punishment to 3.64 for negligence, $p_s \leq .005, d_s$ from .67 for punishment to .99 for negligence). When desire was present, awareness had no significant effect on any variable ($t_s(65) < 0.76, p_s > .44$). Similarly, when awareness was absent, desire had strong effects on all dependent variables ($t_s(65)$ ranged from 2.01 for punishment to 3.31 for negligence, $p_s < .05, d_s$ from .49 for punishment to .82 for negligence). When awareness was present, desire had no significant effect on any variable ($t_s(72) < .72, p_s > .09$).

Path analyses

As in Experiment 1, we used path analyses ($N = 141$) with bootstrapping (5000 replications) to test our primary hypotheses regarding mediation. We again wanted to first rule out a possible reverse causal model, where ratings of negligence, driven by awareness and desire, mediated anger. We used manipulated awareness and desire to predict negligence, which was then used to predict anger. This model did not fit the data well, $\chi^2(3) = 11.40, p = .01, CFI = 0.78, RMSEA = .14, p\text{-close} = .03$. Replicating Experiment 1, reversing the order of anger and negligence led to a model that fit the data well, $\chi^2(3) = 3.62, p = .31, CFI = 0.98, RMSEA = .04, p\text{-close} = .45$. Next, we tested the full model where awareness and desire predicted anger, anger predicted negligence, restitution, and punishment, and negligence predicted restitution and punishment. This model fit the data well, $\chi^2(8) = 5.78, p = .67$. However, consistent with our tentative hypothesis, the direct path from negligence to punishment was not significant ($p = .39$). After removing this path (Figure 2), the model continued to fit well, $\chi^2(9) = 6.60, p = .68, CFI = 1.0, RMSEA = .00, p\text{-close} = .85$. All direct and indirect paths were significant ($p_s < .05$). Further constraining this model by adding in direct

¹¹A marginally significant interaction between awareness and desire on perceived desire emerged because the effect of desire was stronger when awareness was absent (no desire $M = 2.12$, desire $M = 5.49, d = 1.86$) rather than present (no desire $M = 2.22$, desire $M = 4.54, d = 1.28$). The simple main effect of desire was significant at both levels of awareness ($p_s < .001$).

Table 2. Correlations in Experiment 2 among perceived awareness, perceived desire, anger, negligence, restitution, and punishment, including *M* and *SD* of the variables.

	PA	PD	ANG	NEG	RES	PUN
Perceived Awareness (PA)						
Perceived Desire (PD)	-.09					
Anger (ANG)	.32**	.17*				
Negligence (NEG)	.50**	-.06	.38**			
Restitution (RES)	.49**	-.08	.39**	.77**		
Punishment (PUN)	.09	.19*	.44**	.11	.15 [†]	
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
No Awareness/No Desire	5.73 (1.53)	2.13 (1.40)	4.95 (1.72)	7.18 (1.56)	7.22 (1.87)	4.38 (1.95)
No Awareness/Desire	5.98 (2.12)	5.49 (2.15)	6.27 (1.68)	8.28 (1.06)	8.17 (1.33)	5.38 (2.12)
Awareness/No Desire	7.85 (1.63)	2.22 (1.57)	6.69 (1.78)	8.31 (1.08)	8.42 (0.99)	5.76 (2.14)
Awareness/Desire	7.54 (1.84)	4.54 (2.16)	6.56 (1.37)	8.12 (1.24)	7.95 (1.39)	5.31 (1.80)

Note: All variables were measured on 9-point scales.

[†] $p = .08$, * $p < .05$, ** $p < .001$.

paths from awareness and desire to negligence, restitution, and punishment did not improve model fit, ($\Delta\chi^2(6) = 5.13$, $p = .53$), and none of these direct paths were significant (ps from .18 to .98).¹²

Discussion

Experiment 2 provided a conceptual replication of Experiment 1 while addressing several limitations of it. In Experiment 2, participants were allowed to determine the agent's negligence without being provided any definition of the concept. This increases the generalisability of our findings, showing that awareness and desire not only impact reasoning about the legal concept, but participants' own naïve beliefs about the construct. We also used a more transparently valid measure of punishment, manipulated awareness in a way that focused on the agent's phenomenological awareness of his actions rather than of the scope of his actions, and used a human rather than feline victim. Most importantly, Experiment 2 embedded relevant details regarding awareness and desire within a complex array of individuating information about the agent and victim, including information that suggested the agent was all too human and perhaps even deserving of scorn, making participants' judgement task more similar to the types of judgements made in everyday life. The ability of participants to distinguish and attend to the details

of our manipulation in the context of other potentially distracting information is notable, vastly increasing the generalisability of our findings.

Results closely replicated those of Experiment 1. Total effects for anger and negligence emerged for both awareness and desire. For restitution and punishment, total effects of awareness (but not desire) were also found. Qualifying the interpretation of these effects, however, were the significant interactions between awareness and desire for all dependent variables. Simple effects analyses revealed that total effects for awareness were only present when desire was absent, and that total effects for desire were only present when awareness was absent. These findings strongly suggest ceiling effects, particularly for negligence and restitution. That is, on a 9-point scale, the presence of awareness (with desire absent) resulted in very high agreement that the agent was negligent ($M = 8.31$) and should retribute the victim ($M = 8.42$). Similarly, the presence of desire without awareness strongly affected perception of negligence ($M = 8.28$) and restitution ($M = 8.17$). Further supporting this contention, even when awareness and desire were both absent, negligence ($M = 7.18$) and restitution ($M = 7.22$) judgements were high, suggesting that the agent's actions on their own were viewed as negligent and necessitating compensation, but also that the presence of either awareness or desire exacerbated these judgements. For anger and punishment, although there may have been further

¹²Two additional path analyses were conducted, estimating the same model described here (see Figure 2), but separately testing the simple effect of (a) awareness with desire absent and (b) desire with awareness absent as exogenous variables. The model using only awareness fit the data adequately well, $\chi^2(5, N = 74) = 8.18$, $p = .15$, CFI = .97, RMSEA = .09, p -close = .23, $ps < .005$ for all direct and indirect paths. The model using desire also fit the data well $\chi^2(5, N = 67) = 6.61$, $p = .25$, CFI = 0.98, RMSEA = .07, p -close = .34, $ps < .002$ for all direct and indirect paths except the direct paths from anger to restitution ($p = .07$) and the indirect path from desire, through anger, to restitution (i.e., not additionally mediated by negligence, $p = .05$).

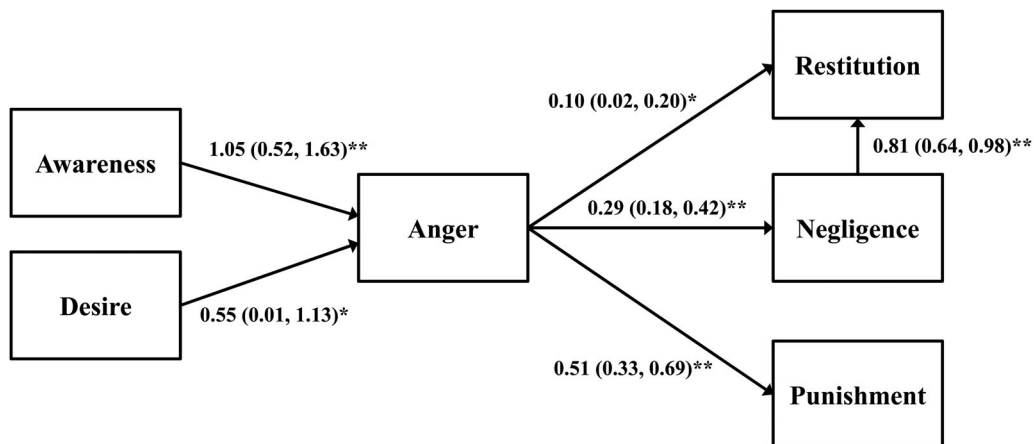


Figure 2. Effects of manipulated awareness and desire on anger (ANG), negligence (NEG), restitution (RES), and punishment (PUN) in Experiment 2. Notes: Model fit was excellent, $\chi^2(9) = 6.60$, $p = .68$, CFI = 1.0, RMSEA = .00, p -close = .85. All direct effects were significant (* $p < .05$, ** $p < .001$). Unstandardised path coefficients are shown (bias-corrected 95% confidence intervals within parentheses). R^2 : ANG = .11, NEG = .15, RES = .60, PUN = .20. Indirect path coefficients are given below with 95% CIs [in brackets] and p -values: AWR→ANG→RES (0.10 [0.02, 0.25], $p = .01$); AWR→ANG→NEG (0.30 [0.13, 0.55], $p < .001$); AWR→ANG→PUN (0.54 [0.23, 0.97], $p < .001$); AWR→ANG→NEG→RES (0.24 [0.10, 0.47], $p < .001$); DES→ANG→RES (0.05 [0.00, 0.16], $p = .035$); DES→ANG→NEG (0.16 [0.01, 0.34], $p = .035$); DES→ANG→PUN (0.28 [0.03, 0.60], $p = .03$); DES→ANG→NEG→RES (0.13 [0.01, 0.29], $p = .03$); ANG→NEG→RES (0.23 [0.14, 0.35], $p < .001$). All variables were measured on 9-point scales.

room on the scale to increase judgements, awareness and desire may have led to conceptual ceiling effects, in that participants only had a certain amount of anger they were willing to expend and would only punish the agent to a certain extent, both of which were maximised by the presence of either mental state.

Path analyses also directly replicated the effects of Experiment 1, with the exception that support was found for a tentatively hypothesised relationship between anger, negligence, and punishment that was not supported in Experiment 1. That is, in Experiment 2 but not Experiment 1, anger alone directly predicted punishment and negligence did not. All other effects were fully replicated. A model testing whether the effects of awareness and desire on negligence were mediated by anger fit the data well, but a model where negligence mediated effects on anger did not. We discuss this issue further in the General Discussion. Indirect effects of awareness and desire on punishment were also fully carried by anger. And although anger continued to predict restitution beyond the effect of negligence, most of the impact of awareness, desire, and anger on restitution was carried by ratings of negligence.

General discussion

The current research set out to investigate whether two mental state components that are thought to

underlie how people reason about intentional action—awareness and desire—also inform how people reason about unintended harms, and to probe the role of anger in this process. We hypothesised that when an agent possesses knowledge linking an action to a harmful outcome and is aware of performing this action, anger will arise when the outcome occurs because the agent could have reasonably foreseen the outcome (Lagnado & Channon, 2008). That is, action that causes foreseeable harm is wrong and should be avoided, and when it is not, perceivers should be angry with the agent for acting and label the action negligent. Although our research did not directly address whether foreseeability further mediated anger ratings, we did find that the presence of awareness led to increased anger and higher negligence ratings, consistent with this reasoning. Similarly, we hypothesised that the presence of desire for harm in an agent's mental states, when the harm actually occurs, might also lead to increased anger and perception of negligence. This is because a counter-normative desire to harm might increase perceptions of the agent as immoral (Laurent, Nuñez, et al., 2015), potentially also affecting judgements that the agent could have (or should have) foreseen the potential for harm (e.g., Alicke, 2000). Motivated by a desire to blame, participants may also have exaggerated or focused on the agent's causal role in the outcome,

and labelled the agent as negligent as one way to indicate disapproval of the agent's desire.

Two experiments provided support for these hypotheses. The first experiment was couched in the context of legal reasoning about a "previously tried" US civil lawsuit, where an agent's actions led to the death of a neighbour's cat. The second experiment described a relationship between two housemates and old friends, situating the manipulations of awareness and desire within a framework where other neutral and negative individuating information about the agent and victim were available, in order to more closely simulate real-world social cognitive decision making. In both experiments, total effects for awareness and desire emerged for anger and negligence. In Experiment 1, total effects of desire were also found for punishment and restitution, while in Experiment 2, total effects of awareness were found on these variables. However, in Experiment 2, interactions between awareness and desire were found for all dependent variables, suggesting that ceiling effects can emerge in some cases, with the presence of either mental state being enough to maximise perceptions of negligence and belief that the harming agent should compensate the victim.

Of greater interest than the total effects was the role that anger played in the decision process. We hypothesised that anger would mediate judgements of negligence (which we expected to further mediate a belief that the victim should be compensated for the harm) and a desire to punish the agent. Although the role of anger in blame deserves further attention (e.g., Maroney, 2006), research and theorising clearly suggests that moral emotions such as anger influence how people accord blame and punishment (e.g., Alicke, 2000, 2008; Darley & Pittman, 2003; Goldberg et al., 1999; Haidt, 2001; Laurent et al., 2014; Lerner, Goldberg, & Tetlock, 1998; Nuñez, Schweitzer, Chai, & Myers, 2015; Skoe, Eisenberg, & Cumberland, 2002). In Experiments 1 and 2, anger performed well as a mediator of the effects of awareness and desire on negligence and punishment rather than the reverse. Given that common wisdom might suggest, if anything, that perception of negligence should precede anger, and because the current data only suggest but do not definitively show that phenomenological awareness of anger precedes judgements of negligence, one question remains: If anger comes before judgements of negligence, why? That is, what cognitive mechanism(s), if any, might mediate the relationship between awareness, desire, and anger?

One possibility suggested above that might be examined in future research is the role of moral judgement. Research has shown that when a person desires an unsavoury outcome, they are seen as immoral, and when this immoral person's actions later cause the desired harm, earlier perception of immorality predicts blame (Laurent, Nuñez, et al., 2015). Theoretically, anger seems unlikely to arise solely from a judgement of immorality based on desire in an agent's mental states, although unmediated anger is possible if perceiving desire leads to an *expectation* for harm. Still, expecting harm should only prime a *readiness* for anger, and anger should thus be predicated on *if* the harm actually occurs, caused by the agent's action. If it does, anger should emerge quite quickly and be applied to (i.e., mediate) blaming the agent, such as by labelling the agent negligent. Of interest, even if the agent's action was not the proximate cause of harm or no action by the agent was causally linked to harm, some lesser amount of blame might still be forthcoming, mediated by anger (Cushman, 2008).

Similar to desire, by postulating one extra step, awareness might impact anger through arousing perceptions of wrongness of *action*—and perhaps, subsequently, of immoral character. Specifically, when an agent has knowledge, understanding that she or he had awareness of acting should lead rapidly to a perception that the agent could foresee, did foresee, or should have foreseen the potential for harm. Foreseeability in this case should then arouse anger, or again, a readiness to be angry, because an agent who foresees harm should not act in a way that might bring it about.

One additional possibility for both awareness and desire should be considered. The above analysis suggests that anger arises from a combination of perceiving mental states, knowing that harm has occurred, and connecting the harm to the agent's action. However, if each of these conditions is satisfied, anger is almost certainly not *needed* to cognitively arrive at a judgement of negligence, even if it is a natural response. In fact, it is possible that perceiving negligence causes anger or that anger is co-activated with perception of negligence. The former possibility seems unlikely given that rational reasoning about negligence should require at least some deliberation about each element of cause and effect and the links between causes and mental states. On the other hand, anger can emerge quickly in response to the idea that something bad has happened and someone should be blamed (e.g., Alicke, 2000; Haidt,

2001). The co-activation of anger with judgements of negligence seems more reasonable as a hypothesis. In this case, anger may serve as a better mediator of negligence than the reverse because greater anger exacerbates perception of negligence or increases beliefs in the probability of negligence. On this view, the elements of thought, action, and outcome that drive judgements of negligence also prompt anger, and anger leads to an approach motivation (e.g., Ugazio, Lamm, & Singer, 2012) centred on assigning blame. Though perceivers who are less angry might still perceive negligence, greater anger leads to greater assignment of negligence. The reverse should not be true because once blame is assigned by labelling an agent as negligent, increased anger serves no further purpose, as it leaves the perceiver with no outlet to channel emotion, except perhaps by assigning greater negligence. Consistent with this interpretation, in both experiments, anger was a much stronger predictor of punishment than were negligence ratings, suggesting that both negligence ratings and punishment provided a place for participants to direct their anger. Further research might help sort out the temporal ordering of these variables. For example, research might manipulate whether an agent is described as negligent (or not) and as having been punished (or not) for it to see if negligence affects anger at the agent. Also useful would be testing whether priming anger prior to a judgement task involving a negligent agent leads to greater assignment of negligence. Using reaction time paradigms to get at this question might also be useful in determining what is faster: assignment of negligence or awareness that one is angry at a (negligent) agent.

Conclusion

Although research has clearly delineated a role for intentional action in the assignment of blame for intended harm, less research has examined the process by which people judge those harms that are unintended. This work provides an important step forward in understanding how people assign blame in these cases. Together with other work (e.g., Cushman, 2008; Laurent, Nuñez, et al., 2015; Nuñez et al., 2014), the current research suggests that the very components underlying judgements of intentionality—such as knowledge/beliefs, desire, and awareness—also underlie how people reason about concepts such as negligence. Importantly, the current research also describes a role for anger in

the process of assigning blame, compensating victims, and punishing those who cause harm. When harm occurs and agents' mental states suggest the agents desired or could have foreseen the harm, anger drives blame more than blame drives anger, prompting perceivers to believe that the agents not only owe restitution for their actions, but should be punished for them as well.

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Appendix

The full scenarios provided to participants in Experiments 1 and 2 are below. Dependent measures are described in the main text.

Experiment 1

Participants in all conditions were presented with the following information. Following this, the crossed manipulations of awareness and desire were presented.

Thank your for your participation.

Our interest is in how jurors decide to apply verdicts in actual court cases that have previously taken place, in order to understand how future cases might be decided, and to compare how new jurors would decide verdicts and decisions that have already been handed down.

On the next several pages, you will be presented with selected details of facts (i.e. summaries of important information discovered at trial) from a recently tried court case. Please read all presented information

carefully, and answer the questions that follow thoughtfully.

The following case was actually decided in July, 2011, in Salina Co., Virginia.

The defendant in this case was Mr. Jason Clark.

Mr. Clark was accused of shooting and killing a cat belonging to his neighbor, Mr. Paul Davis. Mr. Davis had owned the cat for the last 10 years, and the cat was an expensive, blue-eyed Siamese. Although estimates differ, the cat has been valued at between \$400.00 and \$1500.00. Because of the cat's worth and Mr. Davis's emotional connection to the cat, he sued Mr. Clark for replacement costs of \$1500.00, as well as an additional \$10,000 for emotional damages.

The facts of the case which were presented or discovered at trial are as follows:

Recently, on his birthday, Mr. Clark was given a new Remington rifle. On the day in question, Mr. Clark loaded the gun and brought it into the woodlot behind his house, where he discharged the weapon. The woodlot, which is privately owned by a logging company, abuts both Mr. Clark's and Mr. Davis's properties, extends for several square miles, and is clearly marked with "no trespassing" signs. However, both Mr. Clark and Mr. Davis have permission to access the land.

Awareness and desire both absent.

Mr. Clark is well-acquainted with Mr. Davis, as they have been neighbors for the last 4 years. Both parties claim to have gotten along well in the past. Mr. Clark also knew the cat, having met him while in Mr. Davis's home, and both parties agree that Mr. Clark was friendly with the cat (for example, he petted the animal and had been seen giving it a treat on more than one occasion). Mr. Clark claimed at trial that, according to Mr. Davis, the cat was an "indoor" cat that was not allowed to leave the house, so he would have no reason to believe the cat was in the woods on the day he discharged his weapon. Mr. Davis admitted this, although he also claims to have told Mr. Clark that occasionally the cat would "escape" the house.

According to Mr. Clark's testimony, on the day in question, he was simply test-firing his new weapon in the woods, and had no idea that his neighbor's cat was in the area, because as far as he knew, the cat was not allowed outdoors. Mr. Clark maintained that he had no desire to shoot the cat (in fact, he contended that he was quite fond of the cat), and was not aware that the cat was in the area, as he thought the cat stayed indoors. He was not trying to shoot the cat and was not even aware of its presence, but was shooting at a tree near where the cat was standing, and did

not see it. He does, however, admit that as a result of test-firing his gun, the cat was killed.

Awareness present, desire absent.

Mr. Clark is well-acquainted with Mr. Davis, as they have been neighbors for the last 4 years. Both parties claim to have gotten along well in the past. Mr. Clark also knew the cat, having met him while in Mr. Davis's home, and both parties agree that Mr. Clark was friendly with the cat (for example, he petted the animal and had been seen giving it a treat on more than one occasion). Mr. Clark admitted at trial that he was aware the cat was an "outdoor" cat, that he often saw the animal in the woods behind their houses, and that before he discharged his weapon at a tree, he noticed the cat standing not far away. However, he was confident of his aim and was sure he would hit the tree and not the cat.

According to Mr. Clark's testimony, on the day in question, he was simply test-firing his new weapon in the woods, although he was aware that the cat was out, because he had seen it earlier that morning. Mr. Clark maintained, however, that he had no desire to shoot the cat (in fact, he contended that he was quite fond of the cat), although he became aware of the cat's presence in the woods before he shot his weapon. He was not trying to shoot the cat, but was shooting at a tree near to where he saw the cat standing. He does, however, admit that as a result of test-firing his gun, the cat was killed.

Awareness absent, desire present.

Mr. Clark is well-acquainted with Mr. Davis, as they have been neighbors for the last 4 years. Both parties admit that in the past, they have not gotten along well. Mr. Clark also knew the cat, having met him once while in Mr. Davis's home. Both parties stipulate that on this occasion, Mr. Clark was not friendly with the cat, because the cat bit him for no apparent reason. And when he tried to swat it away angrily, the cat scratched him and ran off. Mr. Clark claimed at trial that, according to Mr. Davis, the cat was an "indoor" cat that was not allowed to leave the house, so he would have no reason to believe the cat was in the woods on the day he discharged his weapon. Mr. Davis admitted this, although he also claims to have told Mr. Clark that occasionally the cat would "escape" the house.

According to Mr. Clark's testimony, on the day in question, he was simply test-firing his new weapon in the woods, and had no idea that his neighbor's cat was in the area, because as far as he knew, the cat was not allowed outdoors. Mr. Clark stated that he

never forgave the cat for biting and scratching him, and that “in a perfect world, where one can do whatever one wants”, he would have liked to shoot the cat, but that this was beside the point because he was not aware that the cat was in the area, as he thought the cat stayed indoors. He was not trying to shoot the cat and was not even aware of its presence, but was shooting at a tree near where the cat was standing, and did not see it. He does, however, admit that as a result of test-firing his gun, the cat was killed.

Awareness and desire both present.

Mr. Clark is well-acquainted with Mr. Davis, as they have been neighbors for the last 4 years. Both parties admit that in the past, they have not gotten along well. Mr. Clark also knew the cat, having met him once while in Mr. Davis’s home. Both parties stipulate that on this occasion, Mr. Clark was not friendly with the cat, because the cat bit him for no apparent reason. And when he tried to swat it away angrily, the cat scratched him and ran off. Mr. Clark admitted at trial that he was aware the cat was an “outdoor” cat, that he often saw the animal in the woods behind their houses, and that before he discharged his weapon at a tree, he noticed the cat standing not far away. However, he was confident of his aim and was sure he would hit the tree and not the cat.

According to Mr. Clark’s testimony, on the day in question, he was simply test-firing his new weapon in the woods, although he was aware that the cat was out, because he had seen it earlier that morning. Mr. Clark stated that he never forgave the cat for biting and scratching him, and that “in a perfect world, where one can do whatever one wants”, he would have liked to shoot the cat. He also stated that he became aware of the cat’s presence in the woods before he shot his weapon. However, Mr. Clark maintains that he was not trying to shoot the cat, but was shooting at a tree near to where he saw the cat standing. He does, however, admit that as a result of test-firing his gun, the cat was killed.

Experiment 2

Below, unformatted text was presented to all participants. *Italicized text in Part 1 was specific to the DESIRE ABSENT conditions. In Part 2, italicized text was specific to the AWARENESS ABSENT conditions. Text in bold in Part 1 was specific to the DESIRE PRESENT conditions. In Part 2, bolding was specific to the AWARENESS PRESENT conditions.*

Instructions: In this study, you will read a brief story about two individuals. After reading the story on the next page, you will be asked to respond to questions about the people in the story. Please read the story closely and think about what you are reading. When you finish, consider all questions carefully before answering.

Your honest responses are appreciated, and will help us understand how people think about and make judgments about other people.

(Part 1, Desire manipulation)

Ben and Adam, two men in their mid-twenties, have been housemates for the last 6 months. The two met in high school and their relationship is generally what you’d expect from old friends who live together. At home, they hang out with one another often and generally get along well. Sometimes they go out and do things together, like watching a movie or getting dinner. They like a lot of the same things and have fun together, but also have their own separate lives.

Adam gets annoyed with Ben sometimes because Ben only cleans up after himself after being reminded multiple times, leaving dishes piled up in the sink and dirty clothes lying around the house. Adam also occasionally thinks that despite Ben’s complaints about his girlfriend’s smoking, Ben shows a little too much interest in her. Despite all of this, Adam really cares about Ben. Although he wonders sometimes if Ben is secretly romantically interested in his girlfriend, he trusts him fully and knows he would never do anything about it. Adam would never want to see Ben harmed in any way.

Sometimes, Ben also gets mad at Adam because Adam borrows his things without asking. Adam’s girlfriend also comes over a lot, and even though Ben has asked her not to—and asked Adam as well—the girlfriend often smokes cigarettes in the house. Ben, although he hates to admit it, is also jealous of Adam’s relationship. *Ben also really cares about his close friend, though, and would never do anything to jeopardize their friendship. Although he realizes on some level that he is interested in Adam’s girlfriend and even thinks she might be interested in him too, he would never consider acting on his desire.* **Unlike Adam, however, Ben secretly dislikes and resents his friend, sometimes wishing something bad would randomly happen to him so that he would have a chance with the girlfriend, who he thinks is also interested in him. However, he would never consider acting on his desire.** He could

never live with himself if he did anything that would lead to his friend being harmed.

(Part 2, Awareness manipulation and consequence)

Recently, Adam let Ben borrow his car for three days while he was out of town with his girlfriend. While driving on the first day, Ben drove over something in the road, leading to a flat front tire. Unfortunately, the spare tire in the trunk was also flat. Ben had just passed a tire shop down the road, and having little money until payday, he decided to carry the heavy tire down the road to the shop rather than paying someone to come and fix it.

The day was very hot, and while trying to get the damaged wheel off the car, Ben cracked the plastic hubcap cover. Then, one of the lug nuts seemed stuck and did not want to come off. After a lot of effort, Ben finally got the last lug off, painfully scraping his knuckles in the process. In the heat of the sun, he then carried the flat tire down the road to get it fixed.

The tire shop was busy, and it took over an hour and a half to get the simple repair done. Ben then rolled the tire back to the car. While trying to put the first lug back on a stud (the bolts the lug nuts thread onto), he found that it would not screw onto the stud very far (because unknown to him he had threaded it on incorrectly). He tried to force it on first, then unscrewed it and tried to screw it on again several times, but the lug kept twisting and would not go on all the way. Finally, he gave up and set the stubborn lug down on the front fender, making a mental note to pick it up when he was done. He realized that he would have to get the stud repaired and might also have to replace the hubcap, two expenses he couldn't afford until payday. *He decided to tell Adam what happened and borrow the car and get it fixed the following week, after getting paid. He decided that he would not tell Adam what had happened, but would borrow it again and get it fixed the following week after getting paid.*

Tired, sweaty, and feeling very frustrated, he hurriedly put the remaining lugs on their studs, and took the car off the jack. Although he knew enough about changing tires to know he should have tightened the lugs further once the car was on the ground, particularly since only three lugs were holding the wheel on, *he completely forgot to do so. Instead, he managed to get the hubcap back on the wheel, noting that the crack in it was barely visible once it was back on the wheel. he completely forgot to do so until after he had managed to get the hubcap back on the wheel, noting that the crack in it was barely visible once it was back on the wheel. Not wanting to pull the hubcap off again and possibly break it further, he reasoned that he had probably tightened the lugs enough anyway.* Finally done, Ben put the jack back in the trunk and drove away. The lug he had left on the fender, forgotten, rolled off onto the side of the road.

Over the next few days, Ben used the car several times. Although it seemed to be driving fine, unknown to him, the lugs he had put back on the tire were growing looser by the mile. *When Adam came home, Ben asked him about his trip but forgot to mention what had happened with the tire. He remembered the next morning while Adam was at work, and planned to tell him when he got home and get it fixed the next week. When Adam came home, Ben asked him about his trip, but didn't say anything about the tire. He reasoned that it was driving fine and that he would be fixing it the next week anyway.*

The next day, when Adam was driving home from work, the tire Ben had fixed came off the car when one of the lug nuts came off and the others followed. Adam tried to control the car, but without one of the front wheels, it skidded out of control and Adam drove off the road into a ditch. The car hit a utility pole. Adam ended up breaking a wrist and fracturing his collarbone. After the crash, the car needed expensive repairs.