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## Effects of information on intentionality attributions and judgments: Punishing negligence and praising the caring for information

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## **Effects of Information on Intentionality Attributions and Judgments - Punishing Negligence and Praising the Caring for Information -**

by

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Effects of Information on Intentionality Attributions and  
Judgments  
-Punishing Negligence and Praising the Caring for  
Information- \*

Andreas Haupt<sup>†</sup>, Tobias Uske<sup>‡</sup>

June 11, 2010

**Abstract**

Understanding how observers attribute intentionality to people in the focus of their attention helps in shedding light on punishment behavior. In this paper we approach impartial observers' attributions of intentionality and the attachment of praise and blame to perpetrators of external effects. In line with findings of Joshua Knobe (Knobe, 2003, 2006) , we argue that intentionality attributions to these perpetrators are more likely, if observers consider the externality as morally bad instead of good. Due to this asymmetry, people punish the perpetrators of negative externalities more severely than they reward those of positive ones. In this paper we extend this explanation of the praise-blame bias by arguing that not only moral considerations but also the information setting of perpetrators of externalities are taken into account by observers. To that end, we analyze the answers to vignettes of 240 undergraduate students of Friedrich Schiller University of Jena. We take advantage of ordinary least square, logistic, and multinomial-logistic regression models to predict increases in chances to attribute intentionality and to attach praise or blame. We show that the awareness of, and the caring for, information related to the side effects of actions crucially affect the judgments of impartial observers.

JEL Classification: C91, D03, D62, D63, D72

Keywords: intentionality, externalities, punishment, praise, moral bias

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## 1 Introduction

*Peter has just crashed his car into a fireplug, trying not to kill the neighbor's daughter who suddenly jumped on the street. The spilling water disgorges onto the car of Mr. Miller who has recently bought it, damaging it completely.*

A challenging question would be how to judge the consequences. Peter deserves praise for not hurting the daughter, though he might deserve blame for destroying the fireplug. But can he be held responsible, hence liable for wrecking Mr. Millers' car? Pizarro et al. (2003) argue that the ascription of moral responsibility is only possible if the cause, the intention, and the outcome of an action are observable. As responsibility needs to be determined, blame and praise are attached to Peter or any other perpetrator. The level of blame and praise would be attenuated, if the described proper link between the intent and the act is obscure. Examining the intentionality behind Peter's crash helps the judgment process. Indeed, accessing the intentionality facilitates the prediction and explanation of behavior and contributes to the perception of the social world (Maselli and Altrocchi, 1969; Bratman, 1987). Hence, investigating the underlying principles of the concept of intentionality helps to better understand how and why people punish or reward (Knobe, 2006).

Judgments are handed down mainly by legal institutions. From the perspective of the law, the attribution of intentionality matters when fixing, e.g., sentences for murder or manslaughter (Huang, 2000). Intentionality attribution and the attachment of blame and praise also matter in a practical sense, e.g., in the assessment of ethical medical action (La Jansen and Fogel, 2010). In economics the intentionality of actions is analyzed mainly in fairness and reciprocity settings. Some models assume fairness intentions to be behaviorally irrelevant as long as relative outcomes reflect fairness themselves (Bolten and Ockenfels, 2000; Fehr and Schmidt, 1999). Some others postulate a major behavioral role for fairness intentions: the perceived kindness is considered the primary motivation for non-payoff maximizing behavior (Rabin, 1993; Dufwenberg and Kirchsteiger, 2004; Falk and Fischbacher, 2006). However, evidence is mixed, as there are results showing that negative intentions matter (Blount, 1995; Charness and Rabin, 2002, 2005; Charness and Levine, 2007) or do not matter (Bolten et al., 1998).

The considerations of intentionality affecting judgments of observers who do not directly interact with perpetrators of externalities are barely investigated in the experimental economic literature. Even though, Barr and Serra (2009) show that the consideration of a

negative externality influenced bribery acceptance behavior negatively; it remains unclear to what extent the moral evaluation or information set affected the intentionality attribution as well as the attachment of praise and blame.

Thompson (1991) suggests a positive impact of information on judgment accuracy, supplementing negotiation outcomes. In this light, we explore how the perception of information awareness and the caring for information revealing the impact of actions affect judgment behavior.

In section 2, we describe a disparity between the levels of praise and blame attached and present models explaining this effect. It is furthermore suggested that while observers are forming judgments they are affected not only by moral considerations but also by the information setting of the perpetrators of externalities. That is, we approach the question of how failing to consider possible externalities of actions is judged by impartial observers. The experimental design investigating this issue is presented in section 3. Our results, presented in section 4, are subsequently discussed in section 5.

## 2 Disparity between Praise and Blame

### 2.1 Differences in intentionality attributions

A frequently reported finding is that observers tend to blame perpetrators who have caused negative externalities more than they reward perpetrators who caused positive externalities (Walster, 1966; Shaver, 1970, 1985). This asymmetry corresponds to a finding by Knobe (2003a), stating that observers attribute considerably more intentionality to perpetrators of externalities considered bad rather than good. This is supported by Adams (1986) and McCann (1986), who suggest that the intuition to judge actions is indeed influenced by the moral status of the externality-causing action.

Similar to the respective literature (Knobe, 2003a, 2004, 2006; Leslie et al., 2006; Knobe and Burra, 2006; Cushman and Mele, 2006; Mele and Cushman, 2007), we refer to this effect as the “Side-Effect Effect” (SEE)

SEE: The action causing a negative externality is considered more likely as intended than one causing a positive externality.

In Knobe (2003a, 2006) an a priori assumption is made that relates negative externalities to morally bad and positive externalities to morally good evaluations of choices causing them. The key finding is that people attribute intentionality with a higher propensity if the choice causing the externality is considered morally bad than if it is considered morally good. However, this might not hold if impartial observers had the chance to evaluate the moral quality of the externality-causing choice.

If the SEE depends on the moral categorization of good and bad (Knobe, 2003a, 2006), it should not occur in observers considering the choice causing an externality as neither good nor bad. We refer to the latter as ‘not morally imputed observers’.<sup>1</sup> Therefore, we argue that

H1: Morally imputed observers attribute intentionality with higher propensity than not morally imputed observers.

While H1 links the subjective moral evaluations to intentionality, the link to judgments, i.e., praise and blame, is discussed in the next section.

## 2.2 SEE and the disparity in the attachment of praise and blame

Consider the following commonly assumed mechanism for judgment behavior (Adams, 1986): subjects observe the externality of an action, judge whether it was caused intentionally or not, subsequently access the morality of the action causing it, and then attach praise or blame to the perpetrator. The chance to attribute intentionality would be independent of moral considerations. Hence, it would be the same for positive and negative externalities. Subsequently, the moral evaluation would only determine whether to attach praise or blame. While such a mechanism provides the foundations for why an observer praises and blames at all, it cannot explain the observed asymmetry of more blame than praise. This would require variability in at least one explaining factor causing the difference in the level of praise and blame.

Knobe (2003b, 2004, 2006) postulated a mechanism capable of handling this issue: observers of externalities first consider the moral quality of the action, subsequently attributing intentionality to the perpetrator causing it, and finally attaching praise or blame to

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<sup>1</sup>Here we refer to Turner (2004), who claims that there is an intentionality attribution bias even in the absence of moral asymmetry. Hence, we add the hypothesis that without the moral stimulus, the attribution of intentionality should be equally distributed between helping and harming scenarios.

its perpetrator. That is, the moral evaluation affects the chance to attribute intentionality which, in turn, affects the level of praise, respectively blame, which is attached to externalities considered as morally good, respectively bad. The disparity in the levels of praise and blame is therefore related to differences in the moral evaluation of externalities.

Consider an externality evaluated as morally bad by an impartial observer. If she believes that it was done intentionally, then she will sanction the perpetrator by attaching blame. Hence, we argue that the higher the chance of attributing intentionality, the higher the level of the blame attached. This mechanism is essentially the same for externalities considered as morally good. However, the difference to externalities considered as morally bad originates in a level shift of intentionality attributions and, hence, in the level shift of praise attached.

The disparity between the levels of praise and blame attached is the subject of a large body of literature, especially in psychology. Motivational reasons to justify more blaming are given, e.g., by Walster (1966), who claims that the strive to avoid a similar fate or an accident occurring to the observer drives the disparity. Similarly, Shaver (1970) suggests, along the moral and legal traditions, that with more severe outcomes, a higher demand for restitution and assigned punishment can be justified. In that line of argumentation Tennen and Affleck (1990), within the framework of “attribution theory” propose that with more severe outcomes, the need to explain such events increases, shifting the focus of attention to the blameworthy issues. There are also non-motivational reasons why blaming is more pronounced than praising. Brewer (1977) argues that differences in responsibility attribution originate from differences in the probabilities of these events - where negative outcomes occur less likely than positive ones and, hence, deserve closer consideration by attributing more responsibility to them.

Similar to Shaver (1985), we claim that

H2-1: the higher the propensity to attribute intentionality, the more praise, respectively blame, is attached.

If evaluations reported as morally good or bad go along with higher chances to attribute intentionality, compared to evaluations reported as neither morally good nor bad, as suggested in section 2.1, this should also hold for the level of praise or blame attached.

H2-2: Morally imputed observers attach more praise (blame) to perpetrators of positive (negative) externalities than non-imputed observers.

### 2.3 Effects of Information

Since the evaluation is made after the perpetrator has caused an externality, impartial observers need to take the information set of the perpetrators into account. Were perpetrators aware of, and did they care for, the consequences of their actions? Malle and Knobe (1997) argue that being aware of a side effect is a necessary condition to attribute intentionality.

Furthermore, caring for consequences seems to play a role in attributing intentionality as well as praise or blame (Pellizzoni et al., 2009a,b). As shown by Nichols and Ulatowski (2007), observers who did not attribute intentionality to a perpetrator of positive externalities typically claimed this was because “he didn’t care” or “he didn’t show a motive to help” the environment [p.4]. Leslie et al. (2006) demonstrate in experiments with 3-5 year-olds that the SEE is apparent only if the children understand that the perpetrator does not care about the consequences. Pellizzoni et al. (2009b) finds evidence that not caring for negative side effects increases tendencies to attribute intentionality. However, if side effects were caused, but perpetrators signaled they cared for revealing information, we suggest adjustments in the tendency to attribute intentionality

Therefore, we extend Knobess initial claim by proposing that the evaluation of an action is indeed a process that combines the moral evaluation of the externality, the perceived awareness of its side effects, and the evaluation of the caring for such information by perpetrators.

We propose the following direct effects of awareness and caring on chances to attribute intentionality:

H3: perpetrators’ awareness of the side effects increases the propensity of observers to attribute intentionality.

If the side effect caused turns out to be

H4-1: *positive* caring increases the propensity to attribute intentionality.

H4-2: *negative* caring decreases the propensity to attribute intentionality.

if the side effect caused turns out to be

H5-1: *positive* non-caring decreases the propensity to attribute intentionality



H5-2: *negative* non-caring increases the propensity to attribute intentionality .

Concerning judgments, we propose that

H6: awareness and caring affect the levels of praise and blame attached.

Furthermore, we expect awareness and caring to have a direct effect on the moral evaluation of the perpetrator's action by the observer:

H7: the perceived awareness of externalities reinforces the moral impetus.

H8: accessing available information about externalities is perceived as a caring act (no norm breaking), reinforcing the moral impetus.

H9: not accessing available information about externalities is perceived as a non-caring act (norm breaking), reinforcing the moral impetus.

Of course, we expect indirect effects of awareness and caring and will discuss those in the subsequent sections.

Hence, the main contribution of this paper is our claim that the attribution of intentionality is affected by the negligence of information that could reveal possible externalities to the perpetrator. We expect that actively not accessing information is perceived as more (less) blameworthy (praiseworthy) as not being in the possession of relevant information while implementing the action to cause a negative (positive) externality. In our experiment, we ask how the negligence to foresee consequences is judged by impartial observers.

### **3 The Experiment**

#### **3.1 Information treatments**

The dominant method to test the Side-effect Effect are vignette experiments (Knobe, 2003a; Nadelhoffer, 2004). Therefore, we use vignette designs similar to those of (Knobe, 2003a, 2006), presenting situations to be judged by impartial observers.

“The vice-president of a company went to the chairman of the board and said, ‘We are thinking of starting a new program. It will help us increase profits, but it will also harm the environment.’ The chairman of the board answered, ‘I don’t care at all about harming the

environment. I just want to make as much profit as I can. Let's start the new program.' They started the new program. Sure enough, the environment was harmed." (Knobe, 2006, p.205-206).

We refer to this negative externality story as "full information treatment".

To approach the question of the effect of information awareness, we need to compare a situation in which the perpetrator either has information about externalities to one where she has no information. To approach how caring for information affects the judgments, we need to compare a situation where caring is possible to one where it is not. The effect of not caring for information on the judgments of observers is revealed by comparing a situation of information negligence to one where no information is available at all.

Figure 1 presents all information treatment vignettes using the harming story. To represent positive externalities the vignettes can be easily transformed into helping stories by replacing "harm" with "help" .

<p>No information treatment: "The vice-president of a company went to the chairman of the board and said, 'We are thinking of starting a new program. It will help us increase profits. We don't know whether it will help or harm the environment. We cannot access this information by acquiring an expert report.' The chairman of the board answered, 'I don't care at all about harming the environment. I just want to make as much profit as I can. Let's start the new program.' They started the new program. Sure enough, the environment was harmed."</p> <p>Don't buy information treatment: "The vice-president of a company went to the chairman of the board and said, 'We are thinking of starting a new program. It will help us increase profits. We don't know whether it will help or harm the environment. However, we can access this information by acquiring an expert report.' The chairman of the board answered, 'I don't care at all about harming the environment, don't buy the report. I just want to make as much profit as I can. Let's start the new program.' They started the new program. Sure enough, the environment was harmed."</p> <p>Buy information treatment: "The vice-president of a company went to the chairman of the board and said, 'We are thinking of starting a new program. It will help us increase profits. We don't know whether it will help or harm the environment. However, we can access this information by acquiring an expert report.' The chairman of the board answered, 'I do care about helping or harming the environment. Buy the report.' The expert report shows that the environment will be harmed. Having read it, the chairman stated 'I just want to make as much profit as I can. Let's start the new program.' They started the new program. Sure enough, the environment was harmed."</p>
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Figure 1: Information treatment vignettes

Our model of how the probability to attribute intentionality is affected by moral evaluation, the perceived awareness of the externality, and the intuition of how perpetrators care for information by either willingly accessing it or not, are displayed in table 1. This allows us to clearly distinguish between the effects of information awareness and the motive to care for relevant information.

	P(int)=	Evaluation	+	Awareness	+	Caring
Positive externality	Full information	+		+		0
	No information	+		0		0
	Don't buy information	+		0		-
	Buy information	+		+		+
Negative externality	Full information	++		+		0
	No information	++		0		0
	Don't buy information	++		0		+
	Buy information	++		+		-

“+”: increasing, “-”: decreasing, “0”: no effect

Table 1: Information treatments and the propensity to attribute intentionality

### 3.2 Experimental procedure

In total, 240 undergraduate students of Jena University with a background in the natural and social sciences took part in our experiment. They were recruited by the use of ORSEE (Greiner, 2004) and assigned to Internet-based vignettes, which were programmed using LimeSurvey (Schmitz, 2009). Sixty students participated in each information treatment. Half of them first received the positive externality vignettes and, subsequently, the negative ones, the other half vice versa.

First, we approached subjects by asking for their moral evaluation of the chairman’s decision, allowing to state “morally good”, “morally bad”, or “neither nor.” Second, they were asked to state whether the chairman *intentionally helped*, respectively *harmed*, the environment. Third, on a seven-item Likert Scale, subjects were asked to attribute either a level of praise or, respectively, blame, to the perpetrator of the externality. After the positive and the negative vignettes, a short questionnaire about the socioeconomic status was presented to the subjects. On average, they needed less than ten minutes to complete the experiment. In each treatment two subjects were randomly chosen and awarded 25, – € each.

## 4 Results

### 4.1 Intentionality attributions

Across all moral evaluations per treatment comparably more observers assigned intentionality to the perpetrators if the externality was negative rather than positive. The results shown in table 2 support the SEE.

Note that externalities that, from the authors' perspective, are assumed to be positive were indeed more often rated as "morally bad" rather than "good." For externalities a priori assumed to be negative, the reversed pattern does not occur.

	Positive externality		Negative externality	
	Intentional	Not intentional	Intentional	Not intentional
Morally good	20	45	4	6
Morally bad	4	104	108	83
Neither nor	3	64	15	24
Total	27	213	127	113

Table 2: Frequencies of intentionality attributions and moral evaluations by externalities

We control for the significance of these results with logistic regressions for the attribution of intentionality, that is, for moral evaluations, order effects, and the information treatments (see table 3). Chances to attribute intentionality significantly increased, namely by 7.326 times, when observers indeed considered the positive externality as morally good and not as neither morally good nor bad. On the other side, when observers indeed considered negative externalities as morally bad, the chance to attribute intentionality significantly increased, namely by 2.241 times.

	Positive externality			Negative externality		
	(1)	(2)	(3)	(4)	(5)	(6)
Morally good	7.326*** (5.042)	7.326*** (5.042)	7.326*** (5.042)	1.042 (0.782)	1.042 (0.782)	1.042 (0.782)
Morally bad	1.018 (0.853)	1.018 (0.853)	1.018 (0.853)	2.241** (0.835)	2.241** (0.835)	2.241** (0.835)
Praise first	0.780 (0.353)	0.780 (0.353)	0.780 (0.353)	0.494*** (0.135)	0.494*** (0.135)	0.494*** (0.135)
Full information	0.989 (0.978)	0.404 (0.327)	0.308* (0.218)	2.671** (1.028)	1.319 (0.503)	0.837 (0.323)
No information		0.408 (0.359)	0.312 (0.281)		0.494* (0.190)	0.313*** (0.122)
Don't buy information	2.451 (2.155)		0.764 (0.531)	2.024* (0.778)		0.634 (0.244)
Buy information	3.207 (2.893)	1.309 (0.910)		3.192*** (1.245)	1.577 (0.606)	
Observations	240	240	240	240	240	240
McFadden's $R^2$	0.204	0.204	0.204	0.067	0.067	0.067

Exponentiated coefficients; Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 3: Logistic Regressions for attributing intentionality

That is, given that observers evaluate actions as good, respectively bad, they tend to attribute intentionality with a higher propensity than if they evaluate the actions as neither morally good nor bad. Hence, this lends further support to the hypothesis that moral considerations affect intentionality attributions (H1).

## 4.2 Intentionality and the attribution of praise and blame

For all treatments we observe significantly higher average levels of blame than praise, indicating a disparity between the intensities of judging externalities as either positive (praise) or negative (blame) (Wilcoxon signed-rank tests for all treatments  $p < 0.001$ ).

Approaching our second hypothesis, we investigate the relation of attributed intentionality and the level of praise and blame attached, respectively. The corresponding correlations can be seen in table 4. As shown, higher frequencies of intentionality attributions correspond to higher levels of praise or blame attached.

Variables	Intentionality for Positive externalities	Level of Praise	Intentionality for For negative externalities	Level of Blame
Intentionality for positive externalities	1.00			
Level of praise	0.47***	1.00		
Intentionality for negative externalities	0.12**	0.03	1.00	
Level of blame	0.10	0.06	0.36***	1.00

\*( $p < 0.1$ ), \*\*( $p < 0.05$ ), \*\*\*( $p < 0.001$ )

Table 4: Cross-correlation of intentionality and the level of attachment of praise and blame

We further support this claim by using ordinary least squares regression models (table 5).<sup>2</sup> Given the 7 point Likert scale, these models show that subjects attach significantly more praise and blame (1.5 , respectively, 1 points more), if intentionality is attributed. This supports our hypothesis (H2-1).

Compared to those subjects evaluating the externality causing action as morally neither good nor bad, the effect of moral considerations can be revealed. Given the positive externality was indeed evaluated as “morally good” the amount of praise significantly increases by 0.829 points. If it is evaluated as morally bad, the amount of praise significantly decreases by 0.559 points. On the negative externality side, the amount of blame increases significantly by 0.936 points, if it is indeed evaluated as “morally bad”. Hence, on top of the effect of intentionality attributions, the moral impetus significantly affects the attachment of praise and blame, supporting our claim (H2-2).

Note, we do observe a significant order effect. Subjects tend to attach more praise if they were confronted with the helping scenario, first. However, our models explain 49.9 % respectively 19.3% of the observed variance of praise and blame attached, providing solid ground for our model.

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<sup>2</sup>We estimated ordered logit models, too. These did not show any systematic difference compared to the OLS models. We checked the OLS-regressions for nonlinearity, heteroskedasticity and multicollinearity. None of these effects were present.

	Amount of praise			Amount of blame		
	(7)	(8)	(9)	(10)	(11)	(12)
Intentionally positive	1.461*** (0.267)	1.461*** (0.267)	1.461*** (0.267)	0.925*** (0.182)	0.925*** (0.182)	0.925*** (0.182)
Morally good	0.829*** (0.238)	0.829*** (0.238)	0.829*** (0.238)	0.613 (0.477)	0.613 (0.477)	0.613 (0.477)
Morally bad	-0.559*** (0.203)	-0.559*** (0.203)	-0.559*** (0.203)	0.936*** (0.238)	0.936*** (0.238)	0.936*** (0.238)
Praise first	0.766*** (0.156)	0.766*** (0.156)	0.766*** (0.156)	-0.0834 (0.176)	-0.0834 (0.176)	-0.0834 (0.176)
Full information	-0.0232 (0.229)	-0.250 (0.225)	-0.959*** (0.250)	0.0122 (0.248)	0.00353 (0.247)	-0.290 (0.245)
No information		-0.227 (0.220)	-0.936*** (0.279)		-0.00866 (0.248)	-0.302 (0.249)
Don't buy information	0.227 (0.220)		-0.709*** (0.268)	0.00866 (0.248)		-0.294 (0.246)
Buy information	0.936*** (0.279)	0.709*** (0.268)		0.302 (0.249)	0.294 (0.246)	
Constant	1.566*** (0.228)	1.792*** (0.218)	2.502*** (0.237)	2.884*** (0.282)	2.893*** (0.285)	3.187*** (0.293)
Observations	240	240	240	240	240	240
$R^2$	0.499	0.499	0.499	0.193	0.193	0.193

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 5: OLS for amount of blame and praise

### 4.3 Effects of information sets

#### 4.3.1 Effects on intentionality attributions

We introduced our information sets in order to disentangle the effect of information awareness from the effect of caring for available information on the intentionality attribution. All results concentrate on the observers evaluating positive externalities as morally good and negative externalities as morally bad.<sup>3</sup>

<sup>3</sup>Note that observers evaluating positive (negative) externalities as morally bad (good) do not differ significantly from the baseline group of observers evaluating externalities as neither morally good nor bad.

	Intentionality	Evaluation	+	Awareness	+	Caring
Positive externality	Full information	7.326***		0.989		0
	No information	7.326***		0		0
	Don't buy information	7.326***		0		2.451
	Buy information	7.326***				0.308*
Negative externality	Full information	2.241**		2.671**		0
	No information	2.241**		0		0
	Don't buy information	2.241**		0		2.024*
	Buy information	2.241**				0.837

$p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 6: Summary of odds ratios to attribute intentionality

### Awareness

Table 6 summarizes those odds ratios of table 3 highlighting the different treatments and their impact on intentionality while controlling for moral evaluations and order effects. Comparing rows “full information” and “no information” reveals the impact of information awareness. Hence, for positive externalities the column “awareness” shows that there is no significant difference in the probability to attribute intentionality, whether or not perpetrators had information about consequences or not. Contrarily, for negative externalities, taking into account that perpetrators were aware of information about their actions’ consequences significantly increases the likelihood of observers to attribute intentionality to the former by 2.671 times.

### Caring

The effect of caring for information can be unraveled by comparing treatments “full information” to “buy information.” Note that “buy information” implies that the perpetrator is aware of the information but indeed cared for acquiring it. For the positive externality the estimator expresses that chances to attribute intentionality to its perpetrators significantly increase by 3.246 times if they cared for buying information instead of not doing so.<sup>4</sup> We argue that caring signals a motive for actively yielding the externality, which is rewarded by more intentionality attribution, even after controlling for moral evaluation and order effects.

For negative externalities the chance to attribute intentionality to their perpetrator does not significantly increase if information was actively accessed. Contrary to positive externalities, even a signal of caring for actively yielding the negative externalities does not imply higher chances to attribute intentionality. We relate this to already high levels of

<sup>4</sup>To allow for consistent interpretations we compare “buy info” to “full info” instead of “full information” to “buy information”. Hence, the odds ratio only needs to be inverted (1/0.308).



intentionality attributions.

The effect of not caring for information, i.e., neglecting it, can be seen by comparing the “no information” treatment to the “don’t buy” information treatment. In the positive externality case, neglecting information does not significantly increase the chance of intentionality attribution. Put differently, the signal of not caring for information would not affect intentionality attributions if the externality turned out to be positive.

However, for negative externalities the chances to attribute intentionality would increase by 2.024 times if perpetrators neglected information. In other words, the signal of not caring for information on consequences of actions increases intentionality attributions. This is true even after controlling for moral evaluations and order effects.

#### **4.3.2 Direct effects on praise and blame attached**

Concerning our hypothesis H6, we do not find support for a direct effect of information awareness, respectively caring for information, on the levels of praise and blame attached, with one exception. Being aware of information on the externality does not increase the amount of praise if the externality is positive, respectively does not increase the amount of blame attached if the externality is negative (see table 5). Interestingly, this implies that for negative externalities not knowing is no excuse for not being blamed.

The exception regards caring for information. With an increase of 0.959 points significantly more praise is attached to perpetrators actively acquiring information - compared to those merely in possession of the information on the consequences of their action without actively acquiring it. This implies that praise is attached for signaling to care for the consequences of actions if the externality turns out to be positive. We do not observe higher amounts of blame, if caring motives are revealed by purchasing information and if the externality is negative.

The negligence of information does not affect the level of praise or blame for positive, respectively negative, externalities. In the case of negative externalities, the amount of blame is as high if information is neglected as if it was not available at all. This result supports the saying that ignorance is no excuse in law.

#### **4.3.3 Effects on moral evaluations**

Observers could evaluate positive externalities, e.g., as morally good, as morally bad, or as neither morally good nor bad. We assume that observers stating no moral category (a “neither morally good nor bad” statement) can serve as a reference group to which observers that evaluate externalities as good or bad can be compared. With this reference

group we can analyze the direct effect of awareness and caring on the moral evaluations of observers with a moral impetus, as suggested by our hypotheses.

With respect to positive externalities, table 7 displays how awareness of, and caring for, information affect the moral evaluation of observers with a moral impetus compared to those without it. As shown by this comparison, the pure effect of awareness significantly decreased the chance of morally imputed observers to evaluate a positive externality as morally bad by 0.218 times.

	Positive externality			Negative externality		
	(13)	(14)	(15)	(16)	(17)	(18)
Morally good						
Full information	1.286 (0.880)		1.178 (0.707)	0.500 (0.656)		0.244 (0.289)
No information		0.777 (0.532)	0.916 (0.696)		2.001 (2.627)	0.488 (0.464)
Don't buy information	1.092 (0.830)	0.849 (0.509)		2.050 (1.948)	4.103 (4.860)	
Buy information	7.265*** (4.769)	5.647*** (2.608)	6.652*** (3.782)	0.900 (0.991)	1.801 (2.357)	0.439 (0.415)
Praise first	1.823 (0.709)	1.823 (0.709)	1.823 (0.709)	0.697 (0.505)	0.697 (0.505)	0.697 (0.505)
Morally bad						
Full information	0.218*** (0.0980)		0.346** (0.147)	1.021 (0.523)		1.390 (0.688)
No information		4.581*** (2.057)	1.587 (0.726)		0.980 (0.502)	1.362 (0.674)
Don't buy information	0.630 (0.288)	2.887** (1.226)		0.734 (0.364)	0.720 (0.356)	
Buy information	0.0150*** (0.0163)	0.0686** (0.0736)	0.0238*** (0.0256)	0.882 (0.443)	0.864 (0.434)	1.201 (0.581)
Praise first	1.993** (0.686)	1.993** (0.686)	1.993** (0.686)	1.088 (0.383)	1.088 (0.383)	1.088 (0.383)
Observations	240	240	240	240	240	240
McFadden's $R^2$	0.243	0.243	0.243	0.015	0.015	0.015

Exponentiated coefficients; Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 7: Multinomial logistic regressions for moral evaluation

In contrast to observers without a moral impetus, the effect of caring significantly increased

the chance of morally imputed observers to indeed evaluate a positive externality as morally good by 5.647 times. This finding suggests that caring for information directly affects the chance to evaluate a positive externality as morally good. Contrarily, the chance of morally imputed observers to evaluate positive externalities as morally bad significantly decreased by 0.0686 times.

We do not find any effects of not caring for information on the chances to evaluate positive externalities as either morally good or bad. For the case of negative externalities evaluated as morally good or bad by morally imputed observers, we do not find any effects of information. This implies that additional facts on awareness of, or caring for, information, do not directly affect the moral evaluations if the externality is negative.

## 5 Conclusion

Based on the experiment presented here, we find support for the SEE hypothesis stating that intentionality is more likely to be attributed to choices causing negative externalities than to choices causing positive ones. Allowing for self-evaluations of such choices, we observe that observers indeed consider positive externalities as morally bad or even negative externalities as morally good. This points to the importance of not presupposing moral judgments but explicitly asking for them. If observers are indeed morally imputed, negative externalities are more likely to be attributed as intentionally caused than positive externalities.

We find a high and significant correlation between intentionality attributions and the levels of praise and blame attached. Intentionality attributions affect the levels of praise and blame as suggested by our hypothesis (H2-1). On top of that, a moral impetus alters these levels, as well, supporting our considerations (H2-2).

Having shown that there is indeed a disparity between intentionality attributions and their effect on the corresponding levels of praise and blame, we approached two plausible impacts on intentionality: awareness of information and caring for the consequences of action choices. By comparing a situation with information to a situation without information about action choice consequences, we show that intentionality is significantly less likely attributed if there is no information awareness by the perpetrator of a negative externality.

By comparing a situation where there already is information available to one where information needs to be actively accessed, caring for the consequences of actions can be signaled. In addition, accessing such information can be seen as adhering to a moral norm stating that own action choice consequences should be taken into account (Offerman, 2002). We propose two possible effects of caring on intentionality. The first effect is transmitted indirectly via the effect of caring on the moral evaluation. The argument is that observed

adherence to the moral norm in question reinforces the direction of the moral evaluation. We find evidence for this claim in the case where perpetrators of positive externalities care for information: the chances that observers evaluate the subsequent action choice as “morally good” increase significantly compared to cases where such caring is not possible. In turn, the likelihood that intentionality is attributed also increases significantly. The second effect is revealed by controlling the effects on intentionality for the moral evaluations. Caring is a significant factor in the attribution of intentionality: it increases the chance that observers attribute intentionality to perpetrators of positive externalities. The argument here is that the signaling of caring for information increases the perceived likelihood that perpetrators intentionally chose the a particular action to cause the positive externality. For negative externalities we do not find any effects of caring on moral evaluations and intentionality attribution. Recklessness in the sense of assessing information but not taking them into account cannot be outweighed by adhering to a moral norm nor by signaling caring preferences.

If we contrast the situation where no information is available with one where information is not accessed by perpetrators of externalities, we can assess the effect of not caring on intentionality attributions. Not caring for information is only significantly effective in the case of negative externalities. Contrary to the effect of caring, it does not affect observers’ moral evaluations of the chairman’s action. Therefore, it cannot have an indirect effect on the intentionality attribution. We suggest that, additionally, not adhering to the norm of taking into account one’s choices cannot deteriorate the already bad moral evaluation in the negative externality case. However, non-caring for information does have a direct effect on intentionality attributions. By not signaling a motive to care, the chances that observers attribute intentionality are significantly higher than if no such signal is sent. That is, the negligence of information leads to higher attributions of intentionality.

Obviously, non-caring does not signal a motive to care for the helping scenario. Hence, it is clear that for positive externalities there is no significant direct effect of non-caring on intentionality attribution. Interestingly, breaking the norm to care for consequences of own actions does not affect the moral evaluations.

Adherence to norms in respect of positive externalities is rewarded by higher levels of praise. Contrarily, an additional impetus of norm breaking (a non-caring act) on moral evaluation does not lead to higher levels of blame. We argue that this originates from already high levels of blame attached, supporting that negligence is as blameworthy as not knowing.

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