I don't know if you did it, but I know *why:* A 'motive' preference at multiple stages of the legal-investigative process

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Abstract

What makes an explanation satisfying? Much work has investigated explanatory preferences for things like animals and artifacts, but how do explanation preferences manifest in everyday life? Here, we focus on the criminal justice system as a case study. In this domain, outcomes critically depend on how members of the system (e.g., lawyers, jurors) generate and interpret explanations. We investigate lay preferences for two different classes of explanations: those that appeal to 'mechanistic' aspects of a crime (i.e., *how* the culprit committed the crime) vs. 'teleological' aspects of that crime (i.e., the *purpose* of the crime). In two experiments, we demonstrate that people have a systematic preference for 'motive' accounts of crimes (analogous to a teleology preference) at different stages of the investigative process. We discuss these findings in light of a broad literature on the cognitive basis of explanation preferences. We also discuss implications for the criminal justice system.

Keywords: Explanations; information-seeking; sense-making; legal decision-making; teleology; mechanism

Introduction

"You haven't even heard of the why of it, the *why* he did it. And you know he did it. Now, this murder did not occur in a vacuum, and it's very important evidence that you heard at the beginning of the case, showing that this murder occurred in the context of a stormy relationship, a relationship scarred by violence and abuse. And this important evidence completes the picture of the Defendant's guilt, as it explains the motive for these murders, and shows you what led this Defendant to be sitting here in this courtroom today" (Clark, 1995). These are the words Marcia Clark spoke to the jury in the closing argument of the trial against O.J Simpson. Words addressing the ambiguous question of *why* the defendant is guilty of murder, by appealing to purpose and reason (i.e. akin to a teleological explanation). Another way in which this *why* question could be answered is by addressing the *how* and appealing more to a causal chain of actions (i.e. akin to a mechanistic explanation).

Despite what we think we know from watching crime series, according to the "irrelevance of motive principle" information appealing to motive is technically irrelevant when determining if someone is guilty (though it may bear on sentencing decisions, see Binder, 2002). Despite this, as demonstrated in the excerpt above, prosecutors such as Marcia Clark often appeal to motive and purpose when trying to convince the jury of someone's culpability (thereby informally implicating motive in judgments of guilt). Even though in criminal trials judges do not directly instruct the jury to find a motive, we know that jurors remain concerned with the *reason* for the person on trial committing the crime in question (Listrom, 2007). Therefore, to truly persuade a jury of someone's guilt, there remains a sense that legal representatives *must* address potential motives – but why?

Richard Dawkins once wrote that "we humans have purpose on the brain. We find it difficult to look at anything without wondering what it is for, what the motive for it, or the purpose behind it, might be" (Dawkins, 1995). A popular view in cognitive science shares this outlook by postulating that people are 'promiscuously teleological', preferring explanations about function and purpose to mechanistic explanations for a wide range of phenomena (e.g. see Kelemen, 1999a; Kelemen, Rottman & Seston, 2013). Although this more extreme 'promiscuous teleology' view is not shared by all (e.g. see Dink & Rips, 2017), most studies in the field report a preference for teleological explanations in both children and adults, especially when seeking answers to questions about parts of animals and artifacts (Kelemen, 1999b; Kelemen & Rosset, 2009; Lombrozo & Carey, 2006; Talanquer, 2013). Despite being present across the developmental span, teleological preferences in adults are more selective, less defective, and are exaggerated by cognitive load (Casler & Kelemen, 2008; De Regt, 2017; Keil & Wilson, 2000).

Decades of work in philosophy and cognitive science has contemplated the kind of explanations people generate and prefer, and the kind of explanations people *ought* to generate and prefer — yet we know surprisingly little about explanatory preferences in applied domains such as the criminal justice system. In this domain, professionals operating at various stages of the justice process (e.g. investigators, lawyers, jurors, and judges) are all required to actively form explanations of their own and interpret the explanations of others. Research is therefore needed to address questions such as: Does the law's confinement of teleological information to matters of sentencing reflect folk consideration of this type of information? Do people have systematic teleological preferences when generating and accepting explanations of a crime? If so, what might the consequences of this preference be?

There are several reasons to think that teleological preferences might extend to the criminal justice system. First, as humans we possess a drive to naturally engage in sense-making (Chater & Loewenstein, 2016) and this involves not only identifying individual items of information relevant to a situation but viewing these together as a coherent whole. Second, certain types of information seem to be more important than others in allowing us to complete this step and successfully engage in holistic processing. For example, even though we might receive plentiful information on the mechanistic details of *how* a crime was carried out – and are not questioning the fact the crime was carried out – we might need additional information in order to be convinced that a certain *individual* (e.g. the defendant) committed the crime, and did so in the stated way. A natural candidate for this type of additional information, which would arguably boost our sense-making process by unifying the agent with the criminal action, is information presenting viable reasons or motivations for their actions. Third, the story-model of juror decision-making (Pennington & Hastie, 1991) suggests that *purpose* plays an important role in the narratives we build and that this influences our understanding of a situation and our judgments within it. The model illustrates that when constructing a narrative of what happened, jurors use the evidence presented at trial, their personal knowledge of similar events, and their expectations of what makes a complete story. This includes an assumption that actions were preceded by certain goals; in other words, there is an assumption that there ought to be a motive. Empirical work has since shown that jurors spontaneously create these narratives and that those creations actually mediate verdict decisions (Huntley & Costanzo, 2003; Pennington & Hastie, 1992). Jurors may not only rely on a mechanistic account of what happened, but may also consider information about intentions, goals, desires, etc.

These claims could partly explain why legal representatives introduce motive in criminal trials (i.e., because of some implicit sense that jurors tend to expect or rely on this sort of information). They could also explain why this information might play an important role at earlier stages of the criminal justice process, given, for example, that case construction against a suspect is carried out keeping in mind that the case might be presented in front of a jury (Eady, 2009). In fact, a focus on purpose-oriented information can be traced back as far as the initial investigative phases of a criminal case, in which pursuing the 'why' (for what reason) question is often used to help identify the 'who' (Innes, 2002). Given that explanatory preferences (e.g. for teleological information) might have adverse effects on how the criminal justice process unfolds, the study of explanation (and inferences made based on those explanations) within this domain is crucial.

In the present paper we offer findings from two experiments that begin exploring these issues by probing lay people's preferences for "mechanistic" and "teleological" explanatory information at two stages of the criminal investigative process.

Experiment 1

In our first study, we explored whether, given limited information, people differentially prefer investigating a suspect with a known motive versus one with known opportunity. This enabled us to probe people's preferences for purpose-oriented/teleological (motive) information versus more mechanistic (opportunity) information in early stages of the information-seeking and sense-making process. All of our experimental materials, hypotheses and analyses were pre-registered (see https://osf.io/k43a8).

Method

Participants 245 participants (M_{age} = 37.1, SD_{age} = 10.7; N_{male} = 144) completed the study online through Amazon Mechanical Turk. All participants were native English speakers who gave informed consent.

Design and Procedure Participants were randomly allocated to one of four independent conditions. All participants were required to reason within a fictitious criminal case, though the *type* of crime varied across the four conditions (robbery, double homicide, homicide and bombing). This allowed us to ascertain whether people's explanatory preferences are robust across contexts. Participants in each condition were initially provided with a 'case briefing' containing a short description of the pertinent fictitious crime. They were tasked as criminal investigators and asked to make certain investigative decisions. Initially they were presented with two pieces of information relevant to their case. This included learning of an individual (hereafter dubbed the 'opportunity suspect') who was sighted in proximity of the crime scene and had access to the location in which the crime had occurred due to a professional affiliation (e.g. in the 'Double Homicide' case, this person was the neighborhood gardener). For the second item of information they learned of a second individual (hereafter dubbed the 'motive suspect') who had an altercation with the victim a short time before the crime (e.g. in the 'Double Homicide' case, this person was an ex-employee of the victim who had been recently fired). Thus, participants in each condition were presented with

information about an individual with stated opportunity but no known motive, and an individual with stated motive but no known opportunity.

After learning both items of information, participants were required to select which individual they wished to make their *primary* suspect at this stage of the investigation. Finally, using sliders ranging from 0-100 (restricted to summing to 100), they were asked to indicate the percentage of resources they would like to allocate in the next stage of the investigation towards pursuing the two leads (the 'opportunity suspect' and the 'motive suspect'). Participants were instructed that they could allocate a percentage of resources to each lead (e.g. 60% to one and 40% to the other) or allocate the entirety of the resources to one lead. They were told that "resources" included things like a monetary budget, number of investigators to be placed on the case and hours they will work on it and that the leads have equal resource demands. After each question (primary suspect choice and resource allocation) participants provided written explanations for their answers.

Results and Discussion

Primary Suspect Choice Binomial tests revealed that a significant proportion of participants selected the motive suspect as their primary suspect in the 'robbery' condition (proportion = 0.7, p = 0.02), in the 'double homicide' condition (prop. = 0.76, $p < 0.0001$), in the 'homicide' condition (prop. = 0.82, $p < 0.0001$ and in the 'bombing' condition (prop. = 0.71, $p = 0.001$). Pearson's Chi-Square test of independence ensured us that this 'motive preference' did not vary across the four conditions, χ^2 (3) = 3.17, p = 0.37 suggesting that type of criminal scenario was not a significant factor in explaining our findings.

These results confirmed our expectations of a modal 'motive' preference at early stages of the criminal investigative process. The consequences of this preference are explored in the analyses below.

Resource Allocation Given the lack of between-condition differences[1], we collapsed the four conditions in order to investigate whether the proportion of resources that participants allocated between investigating the two suspects, differed (see Figure 1 for distribution of resource allocation).

Given the non-parametric nature of our data, we carried out two Wilcoxon Signed Rank tests, testing the median resource allocation of each lead to a (null) hypothesized median of 50. We found a significant difference in the amount of resources allocated to pursuing the opportunity suspect (median = 32), $Z = -8.3$, $p < 0.0001$, and consequently to pursuing the motive suspect (median = 68), Z = 8.3, $p < 0.0001$. As such, participants across conditions allocated significantly more resources to pursuing the suspect with known motive than the suspect with known opportunity.

[1] One-Way ANOVA's showed no significant between-condition difference in the amount that participants allocated to Lead 1, F (3,244) = 2.24, p = 0.08 or to Lead 2, F (3,244) = 2.22, p = 0.09.

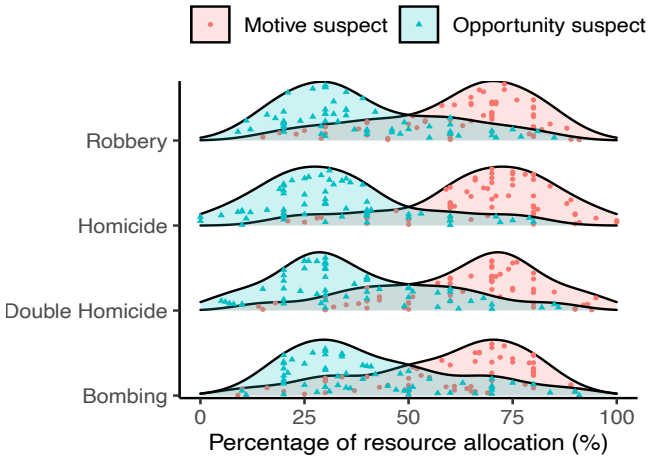

Figure 1: Distribution of percentage of resources allocated to pursuing each suspect within each condition.

As can be seen from Figure 1 however, this preference was somewhat nuanced, given that few participants allocated 100% (or close to) of resources to pursuing the motive suspect. Overall, motive-centered information-seeking at very early stages of the investigation could make intuitive sense in the presence of no other suspect, but, in the presence of an alternative suspect with clear opportunity, as was the case in our scenarios, could lead to biased case construction as featured in numerous miscarriages of justice (Eady, 2009).

Experiment 2

In Experiment 2 we probed people's explanatory preferences at a later stage of the criminal investigation process and explored how these preferences are reflected in people's judgments of guilt. As such, we examined whether participants weigh information pertaining to 'motive' and 'opportunity', in favor or not in favor of guilt, differently, and whether the order in which the information is viewed impacts people's judgments of guilt. All of our materials, hypotheses and analyses were pre- registered (see https://osf.io/2536h).

Method

Participants 378 participants (M_{age} = 35.6, SD_{age} = 24.9; N_{male} = 234) completed the study online through Amazon Mechanical Turk. All participants were native English speakers who gave informed consent.

Design and Procedure A mixed-subjects design was employed. All participants completed the same task, although half of the total sample (n = 189) were reasoning with the 'Bombing' criminal case and half with the 'Double Homicide' case (the case briefings were the same as those utilized in Experiment 1). Participants reasoning within each type of cover story were randomly allocated to one of four

experimental conditions (labelled 'Motive: Exc.-Inc.'[2], 'Opportunity: Exc.-Inc.', 'Motive: Inc.-Exc.' and 'Opportunity: Inc.-Exc.'). Participants in each condition were presented with the relevant case briefing, tasked as criminal investigators and introduced to a suspect at the outset (minimal information was provided e.g. in the 'Double Homicide' case they were told "*Your first suspect is Mr. Douglas, the neighborhood gardener who tended to the houses on the street of Mr. and Mrs. Finch once a week*"). Subsequently, participants received two pieces of information, sequentially. The order and the type of information that was received varied across the four conditions.

In the 'Motive: Exc.-Inc.' condition, participants firstly received *exculpatory* information pertaining to the *motive* of the suspect (e.g. in the 'Double Homicide' case this was "*Overall Mr. Douglas appears to have had a good relationship with Mr. and Mrs. Finch. In fact, Mr. Douglas was receiving financial support from the couple as they helped him pay for his younger son's after school tutoring- and they intended to continue doing so. This was verified by other neighbors and the school".* This was followed by a question eliciting their quantitative rating of guilt of the suspect (on a scale ranging from 0 -100). Next, participants learnt a second piece of information, still pertaining to the *motive* of the suspect but this time it was *incriminating* (e.g. "*Mr. Douglas had been the neighborhood gardener for ten years. One week before the murders, after a dispute with Mr. Finch, he was let go by the neighborhood committee and is therefore now unemployed. Mr. Douglas did not take this well, as was evidenced by an angry threat letter that he left outside of Mr. Finch's door on the day he was let go".* After learning this information, they were asked to indicate (through a forced-choice question) whether the suspect was *more, less than or equally likely* to have committed the crime given the new information. Subsequently, they once again provided us with a quantitative rating of guilt. Finally, after having learnt both items of information participants were asked to indicate (forced-choice question) whether they would like to *maintain the current suspect as lead* or *drop him and pursue a new suspect* in subsequent stages of the investigation.

The procedure was identical for participants in the 'Opportunity: Exc.-Inc.' condition, except that these first viewed *exculpatory* information pertaining to *opportunity* (e.g. "*the night of the murders, Mr. Douglas had a dinner reservation with two friends. The friends confirmed they were there from 8- 10pm. Following that, they attended another friends' party. They are believed to have remained there until late at night"*) and subsequently viewed incriminating information of the same type (on opportunity) e.g. "The *night of the murders, Mr. Douglas's car was seen parked two blocks from the house of Mr. and Mrs. Finch. His fingerprints were recovered from the doorknob of the Finch's home, and some of his gardening tools were found in the house. Investigators concluded Mr. Douglas must have been at the Finch's home sometime in the last several days".* Participants in the 'Motive: Inc.-Exc.' condition viewed first the *incriminating* information on *motive* and subsequently the *exculpatory* information on *motive.* Finally, participants in the 'Opportunity: Inc.-Exc.' condition viewed first the *incriminating* information on *opportunity* and subsequently the *exculpatory* information on *opportunity*.

We expected that when information on motive in favor of guilt (incriminating) was viewed first, participants' ratings would decrease less after viewing the second item of (exculpatory) information, compared to those of participants who viewed opportunity information in favor of guilt first. As such, we expected that receiving incriminating motive information would 'anchor' people's judgments of guilt, leading them to under-adjust ratings given new information.

The two items of incriminating and exculpatory information pertaining to motive or opportunity in any given scenario were not mutually exclusive (e.g. both items of information could be true). This ensured that participants would have to engage in more sophisticated evidence integration and that either item of information would not push participants' judgments towards the respective extremes of 'completely guilty' or 'completely innocent'.

Results and Discussion

Given that we found no influence of cover story on people's choices in Experiment 1, we collapsed the data from the two cover stories, leaving us to conduct all subsequent analyses comparing the four experimental conditions. Results pertaining to participants' qualitative choice on the direction of change of guilt ratings after viewing the second item of information will not be reported due to space constraints and the fact that these mirrored the quantitative findings reported below.

Updating of Guilt Ratings The average guilt rating after learning the first and second piece of information within each condition can be seen in Figure 2 below.

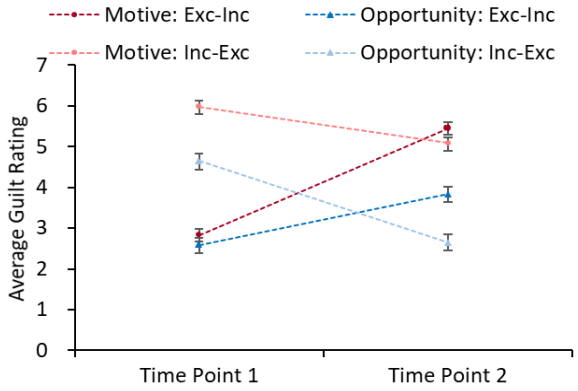

Figure 2: Average guilt rating within each condition after learning the first piece of information (Time Point 1) and the second (Time Point 2). Error bars = SE of mean.

[2] Exc. = Exculpatory; Inc. = Incriminating

To ascertain whether the order and type of information received influenced participants' ratings of the suspect's guilt, we built a Mixed Effects GLM with one within-subjects factor (time point) and one between-subjects factor (condition). Due to a violation of the assumption of homogeneity of variance, we implemented a Greenhouse-Geisser correction. Our analysis revealed an overall main effect of time point on participants' ratings of guilt, F (1,374) = 9.8, p = 0.02 and a main effect of condition, F (3, 374) = 34.9, p < 0.0001. A significant interaction effect was also found, F (3,374) = 174.8, p < 0.0001.

Post-hoc pairwise comparisons with Tukey HSD correction illustrated that the mean difference ratings between time points of the 'Motive: Exc.-Inc.' condition significantly differed from those of the 'Opportunity: Exc.-Inc.' condition (mean diff = 0.92), p = 0.001 and from those of the 'Motive: Inc.-Exc.' condition (mean diff = -1.4), p < 0.0001. From Figure 2 we can see that despite reporting similar ratings after the first piece of information, participants in the 'Motive: Exc.-Inc.' condition gave a significantly higher end rating than participants in the 'Opportunity: Exc.-Inc.' Comparatively, participants in the 'Motive: Exc.-Inc.' condition gave a lower initial guilt rating than participants in the 'Motive: Inc.-Exc.' condition but increased their rating after the second piece of information, whereas participants in the 'Motive: Inc.-Exc.' decreased it.

Significant post-hoc pairwise comparisons were also found between the ratings of the 'Opportunity: Exc.-Inc.' condition and 'Motive: Inc.-Exc.' condition (mean diff = -2.3), p < 0.0001 and the ratings of 'Motive: Inc.-Exc.' condition and the 'Opportunity: Inc.-Exc.' condition (mean diff =1.9), p <0.0001. Participants in the 'Opportunity: Exc.-Inc.' and 'Opportunity: Inc.-Exc.' conditions provided lower guilt ratings than participants in the 'Motive: Inc.-Exc.' condition, but whereas participants in the 'Motive: Inc.-Exc.' and 'Opportunity: Inc.-Exc.' conditions decreased their ratings after the second piece of information, participants in the 'Opportunity: Exc.-Inc.' condition increased them. The end ratings of participants in the 'Motive: Inc.-Exc.' condition however remained higher than those of participants in the 'Opportunity: Exc.-Inc.' and the 'Opportunity: Inc.-Exc.' conditions.

In summary: a) participants rated the suspect as being more likely to be guilty after receiving incriminating *motive* evidence (this was true compared to receiving incriminating opportunity evidence and either type of exculpatory evidence), b) receiving incriminating motive evidence *first,* led participants to adjust their guilt ratings significantly less after learning about the exculpatory information on motive, compared to participants who viewed any other type of information first and c) participants who learnt incriminating motive information *second*, increased their guilt ratings significantly more than participants who learnt incriminating opportunity information second. The preference for motive information found in Experiment 1 therefore extends to later stages of the investigative process and leads to differential (increased) and less adjustable judgments of a suspect's guilt.

Maintain Current Lead Suspect? The percentage of participants within each condition who chose to maintain the current suspect as lead vs. drop the current suspect in order to pursue a new lead, after having seen both pieces of information, can be seen in Table 1 below.

Table 1: Percentage of participant choices on maintaining vs. dropping current suspect as lead across conditions

Condition	Drop Lead	Maintain Lead
Motive: Exc.-Inc.	23.2%	76.8%
Opportunity: Exc.-Inc.	58.5%	41.5%
Motive: Inc.-Exc.	40%	60%
Opportunity: Inc.-Exc.	73.4%	26.6%

A Chi-Square test of Independence illustrated a significant difference in the percentage of participants who selected each option between conditions, $\chi 2$ (3) = 54.3, p < 0.0001. Post-hoc pairwise comparisons (adjusted α = 0.008) indicated the significant differences to lie between the 'Motive: Exc.-Inc.' condition and both the 'Opportunity: Exc.-Inc.', χ^2 (1) = 24.5, p < 0.0001 and the 'Opportunity: Inc.- Exc.', χ^2 (2) = 47.8, p < 0.0001 conditions, as well as between the 'Motive: Inc.-Exc.' and the 'Opportunity: Inc.-Exc.' conditions, χ^2 (1) = 21.5, p < 0.0001. As such, participants who saw exculpatory and then incriminating motive evidence chose to maintain the current suspect as lead significantly more than participants in either of the opportunity evidence conditions. Participants who saw incriminating and then exculpatory motive evidence also chose to maintain current suspect as lead significantly more than participants who saw incriminating and then exculpatory opportunity evidence.

This solidifies our previous findings of a partiality for motive information, by illustrating that participants are more willing to keep pursuing a suspect given the presence of incriminating motive information than incriminating opportunity information. This effect was less pronounced if incriminating motive information was presented *before* the exculpatory information, showing that order of discovery can also influence investigative decisions.

General Discussion

Adults and children (though to somewhat different extents) tend to prefer teleological explanations over mechanistic explanations for a range of phenomena (for review see Keil & Wilson, 2000; Kelemen & Rosset, 2009). Lombrozo (2012) illustrated that people's explanatory preferences are consequential because of their crucial role in inference and learning. Nevertheless, whether (or how) this preference extends to applied domains such as the criminal justice system, and what its consequence might be in this domain, remained unknown. We started to address this by carrying out two experiments probing people's explanatory preferences at different stages of (fictitious) criminal investigations. We found that people are partial to "teleological information" by preferring to focus the investigation on a suspect with a known motive but no known opportunity rather than the

inverse (Experiment 1). In addition, we found that presenting participants with incriminating information pertaining to a suspect's motive led to higher and less flexible judgments of guilt compared to receiving incriminating information pertaining to a suspect's opportunity (Experiment 2). This was true even when exculpatory motive information was subsequently provided. Our experiments extend existing findings in the psychological literature to more applied domains and raise important questions about the consequences of these preferences.

For example, findings of Experiment 1 suggest that a motive preference can lead to the allocation of significantly more resources to pursuing this type of line of inquiry. In the real world, this has been identified as a feature of myopic information-seeking and case construction behavior with harmful consequences. As such, history of miscarriages of justice that feature these elements include a number of homicide convictions of those close to victims (e.g. see Sheila Bowler, Ryan James, Donna Clarke and Sion Jenkins cases in Eady, 2009). In these cases, investigators fell victim to the "close perpetrator assumption", focusing the investigation on people close to the victim under the assumption they would have had a "reason" (despite perhaps not having an obvious opportunity), rather than suspects in more peripheral concentric circles that might have had an opportunity but no known motive (Eady, 2009; Ormerod, Barrett & Taylor, 2008). After all, case construction is completed with the ultimate goal of persuading a judge or a jury — and motives, beliefs, and desires seem to be core features of the narratives people are inclined to construe and to believe (e.g. see Pennington & Hastie, 1992).

Even if a jury is instructed to be "rational" and not consider motive when evaluating whether the defendant is guilty beyond reasonable doubt, a question remains: can it really ignore motive? Possibly not. Findings of Experiment 2 illustrated that the mere introduction of incriminating motive evidence is enough to anchor people's (high) judgements of guilt significantly more than the introduction of incriminating opportunity evidence. As such, explanatory information relating to why the suspect might have committed the crime carried special weight on people's judgments of a suspect's guilt and made these judgments less flexible in the face of new (even exculpatory) information. This finding becomes extremely relevant given that introducing *conjectural* motives (i.e. akin to speculative teleological explanations) in criminal trials has been found to be a feature of a number of wrongful convictions (e.g. see Sion Jenkins case in Eady, 2009). Even if in some of these cases eventually it was conceded during the trial that the motive could not be substantiated with evidence, its sole introduction seemed enough to allow the jury to solidify a narrative that otherwise comprised of weak or even contradictory evidence (Eady, 2009).

Though further research is needed to unravel the cognitive mechanisms underlying the explanatory preferences we observed, one tentative account of these might include the role of information pertaining to motive and purpose in increasing our *understanding* of a certain situation. As such, understanding the purpose of someone's actions might ultimately make us more likely to believe that the person did in fact act in that way. This notion is supported by deductive-nomological arguments in philosophy, positing that successful explanations are ones that demonstrate that an event was *expected* (e.g. learning of the presence of an undersea volcanic eruption would make an anomalous event such as a 100 foot wave, suddenly seem expected or; after outlining these explanations, our experimental findings might now seem more expected and you might be more willing to accept them). In this view, the feeling of understanding a phenomenon/event after it is explained to us is because we are no longer surprised that it occurred (Hempel, 1965). In legal contexts, explaining not only the mechanism of a crime but the reason for the actions involved might bolster one's feeling of understanding of the event itself by making it seem more "expected", which in turn might make one more willing to accept that particular account of the event. Further, information on motive and purpose might be particularly solidifying as it may enable us to understand a criminal act by fitting that act within our background knowledge (Schurz & Lambert, 1994). Given that we likely do not generally believe that an average person is a criminal, in order to fit the criminal account into our background knowledge, we need information that re-constructs the identity of the accused into that of a criminal. One type of information that is usually used for such purpose in trials is that pertaining to motive and character (Hessick, 2006).

Motive and purpose-oriented information clearly play an important role in sense-making at various stages of the criminal justice process, although their importance is not currently reflected in its relegation to judgments of sentencing. Ultimately, our findings a) add to the psychological literature of the study of people's explanatory preferences and b) add to the growing argument for the inclusion of motive to matters of culpability (for debate see Husak, 1989; Hessick, 2006). To enable the latter, future research could explore how explanatory variables pertaining to motives and reasons can be normatively represented within causal models. Fenton, Neil & Lagnado (2013) demonstrated this can be done successfully and does not need to disturb the order of causation, given that a true explanation of a phenomenon describes its causes, and causes (i.e. motives/reasons) come before effects (actions) (Hempel & Oppenheim, 1948). This approach would help to formalize the role of these variables in judgments of guilt and operationalize how their diagnosticity compares to that of variables representing other types of evidence e.g. pertaining to opportunity. In general, further research is needed to probe people's explanatory preferences, their consequences, and the cognitive mechanisms underlying them, at additional stages of the criminal justice process (e.g. jury deliberations), as well as in other specialized domains.

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