Research Report

"BLAMING THE VICTIM" UNDER MEMORY LOAD

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Abstract—*When presented with negative outcomes, people often engage in* counterfactual thinking*, imagining various ways that events might have been different. This appears to be a spontaneous behavior, with considerable adaptive value. Nevertheless, counterfactual thinking may also engender systematic biases in various judgment tasks, such as allocating blame for a mishap, or deciding on the appropriate compensation to a victim. Thus, counterfactuals sometimes require thought suppression or discounting, potentially resource-demanding tasks. In this study, participants made mock-jury decisions about control and counterfactual versions of simple stories. The judgments of two groups of participants, differing in their respective levels of working memory capacity, were compared. In addition, all participants held memory loads during various stages of the primary task. Lower-span individuals were especially susceptible to bias associated with the counterfactual manipulation, but only when holding memory loads during judgment. The results suggest that counterfactual thoughts arise automatically, and may later require effortful, capacity-demanding suppression.*

For months, many conversations had similar themes: If only the ballots had been better designed . . . . If only Nader had pulled out of the election . . . . Clearly, the 2000 U.S. presidential election generated many "what if" scenarios for consideration. Although "the road not taken" is a venerable theme in literature and cinema, the psychological study of *counterfactual thinking* is typically traced to Kahneman and Tversky's (1982) chapter on the simulation heuristic. Kahneman and Tversky observed that people easily generate alternate versions of reality, a process akin to running multiple computer simulations with various parameter values. Of particular importance, they noted that people have systematic tendencies in counterfactual thinking, and that these tendencies have potentially important personal and societal consequences. Since that inception, research on counterfactuals has advanced in several directions, investigating, for example, the "triggers" for counterfactual thinking, its relation to judgments of causality, its affective consequences, and its possible adaptive value (Roese, 1997).

Counterfactual thinking is a complex behavior that may evoke positive or negative affect, may vary across personality types (Sanna, 2000), and may involve either "upward" or "downward" imagination (Markman, Gavanski, Sherman, & McMullen, 1993). Nevertheless, regularities do arise, forming the basis of the present investigation. First, counterfactuals are generally triggered by surprising, negative events (Sanna & Turley, 1996). This is especially true given scenarios with salient, easily changed features. Second, the onset of counterfactual thinking appears to be a spontaneous, possibly automatic, process (Kahneman, 1995; Kahneman & Miller, 1986). Third, counterfactual thinking can alter perceptions of causality, systematically affecting measures such as decisions regarding the appropriate victim compensation following a crime or accident (Branscombe, Owen, Garstka, & Coleman, 1996; Roese & Olson, 1996; Wells & Gavanski, 1989). For example, imagine that Paul normally leaves work at 5:30 and drives directly home. One day, while following this routine, Paul is broadsided by a driver who violated a stop sign and receives serious injuries. Given this story, most people would recommend compensation for Paul and possible punishment for the other driver, and would not blame Paul for his own misfortune. Alternatively, imagine that Paul, feeling restless at work, leaves early to see a movie. Along the way, the same accident occurs. Although the accidents are identical, in this case people may note Paul's cavalier behavior and decide that a lower compensation is appropriate.[1]

Although counterfactual thinking is often adaptive and beneficial (Roese, 1997), it may have undue impact on decision making by juries, when they are either deciding on a defendant's guilt or selecting appropriate compensation to a victim. In the foregoing example, the counterfactual idea "if only he stayed until 5:30" should have no bearing on the compensation awarded—to behave rationally, jurors should suppress or discount such thoughts. In this manner, counterfactuals are reminiscent of other automatic thought processes, such as stereotyping, wherein ideas unwittingly spring to mind, often requiring suppression[2] (Bargh & Chartrand, 1999).

In this study, we collected people's judgments in response to control and counterfactual (i.e., counterfactual-inducing) versions of brief scenarios. As in the contrasting versions of Paul's accident, the main actors behaved in either a typical or an atypical manner, just before some personal disaster. The unusual acts were salient targets for counterfactual thoughts, but had no causal bearing on the actors' fates. Thus, careful judges would discount the counterfactuals, despite their salience. Following Kahneman and Tversky (1982), we assumed this would be difficult, and we expected less compassionate verdicts (i.e., more victim blaming) to emerge for the counterfactual than for the control stories. Our deeper interest, however, was to assess the relationship between counterfactual thinking and cognitive load, to better elucidate the hypothesized sequence of automatic and controlled mental processes.

In addition to story type (control, counterfactual), the experiment included two factors. The first was a within-subjects manipulation of *memory load*; participants were required to hold sets of nonwords in

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1. The opposite result is also possible, as observed by Miller and McFarland (1986). The critical element appears to be freedom of choice. Imagine that instead of growing restless at work, Paul receives an emergency call to return home. The accident now appears exceptionally tragic, and compensation awarded to him increases.

2. Suppression of counterfactual thoughts may also be important for mental and emotional health. Imagine that your standard set of "lucky" Lotto numbers finally won last week, but you skipped buying a ticket that week. Although a mourning period for the near-miss is natural, it also poses the risk of an unhealthy obsession.

memory during various phases of the primary task. The second was a grouping factor, based on individual differences in *working memory capacity* (or *span*). Many recent studies have shown that low- and high-span individuals differ in attentional control. Specifically, lower-span people are relatively poor at suppressing irrelevant thoughts or signals (Conway & Engle, 1994; Engle, Tuholski, Laughlin, & Conway, 1999; Gernsbacher, 1993). Given our focus on suppression (or discounting) of salient counterfactuals, we expected this group comparison to accentuate any observed effects.

METHOD

Participant Selection: Operation-Word Span Test

One-hundred thirty-eight Arizona State University undergraduates participated in groups of 4 to 8, receiving course credit. Everyone completed the experiment, but data analyses included only low- and high-span individuals, determined by an operation-word span test. This working memory test has proven sensitive and reliable, predicting performance differences across many cognitive tasks (Engle et al., 1999). In the test, participants received simple mathematical equations for true/false verification, alternating with words to be memorized. For example, participants saw the string "(9/3) + 5 = 8?," requiring a "yes" response, followed by the word "CHAIR," shown for 2 s. Correct answers to the equations were evenly divided between "yes" and "no" (the "z" and "/" keys, respectively). This sequence repeated a varying number of times, until a "recall" prompt instructed participants to write all remembered words, in order, from the preceding set. Span scores were derived by summing the number of words from all perfectly recalled sets (Turner & Engle, 1989). Memory sets varied from two to seven words, with 2 trials per value, creating 12 trials and a maximum score of 54. We eventually adopted low- and high-span cutoffs of 12 and 21, respectively. This created two groups of 35 participants (approximating the lower and upper quartiles of our sample), all of whom correctly verified more than 80% of the equations; the two groups had mean span scores of 6.5 and 29.9, respectively, $F(1, 68) = 270.9$, $p < .0001$.

Design and Procedure

The experimental procedure began with the span test. Afterward, participants were told that our primary interest was decision making by juries: They would read fictional cases, deciding upon issues of responsibility and possible compensation. They were also told that, to make the task more challenging, we would "load" and "unload" their memories at various times. The experiment consisted of eight trials, crossing two story types (control, counterfactual) by four timing conditions that varied the task stages completed under memory load.

The main experimental materials were 16 short (one-paragraph) stories. These were derived from 8 story kernels, each used to generate control and counterfactual versions. For example, one story kernel involved Mark, a basketball season-ticket holder. In the control version, Mark attends a game, sitting in his usual seat. A light fixture falls from the ceiling, breaking his foot. In the counterfactual version, Mark takes advantage of an open seat closer to the floor, and the light falls on his foot. This pattern was maintained throughout: One unusual decision formed the sole difference between the control and counterfactual versions of each story kernel, and none of these decisions had causal relevance. Each participant received 4 control and 4 counterfactual stories, with no kernels repeated. The assignment of story kernels to control and counterfactual conditions was counterbalanced across subjects.

The participants' primary task was to read each story (on a computer screen) and make three decisions afterward. The first concerned monetary compensation to the victim. In the case of the story about Mark, for example, participants decided on a reasonable financial settlement with the arena's insurance company, using a 7-point scale ranging from $5,000 to $95,000. The midpoint ($50,000) was described as an average award for this type of case. Next, participants decided on the percentages of blame attributable to the victim and the company, using 7-point scales ranging from 5% to 95% (50% was the midpoint). Thus, the primary task entailed three dependent measures: *monetary compensation*, *victim's blame*, and *company's blame*.

The memory-load materials were 48 bisyllabic nonwords (e.g., *flozick*, *nucade*), presented in sets of 6. In addition to story type, we manipulated the timing of memorization and recall, relative to the reading and judgment stages of the primary task. There were four counterbalanced timing conditions: In the first, people memorized nonwords after reading the story and recalled them before rendering judgments (hereafter, we refer to memorization and recall as "loading" and "unloading" memory, respectively). This was essentially a control condition, as no memory load existed during either stage of the primary task. In the second condition, people loaded memory after reading, but did not unload until after making judgments. In the third condition, people loaded memory before reading, but unloaded prior to making judgments. In the fourth condition, people held the memory load throughout reading and judgment. When given instructions to recall the list of nonwords, participants wrote them, in any order, on an answer sheet.[3] Altogether, the experiment had a $2 \times 2 \times 4$ design, with story type and timing as within-subjects variables and span as the between-subjects variable.

RESULTS

Monetary Compensation

The data were analyzed in separate mixed-model analyses of variance, one for each kind of judgment that participants rendered. In the monetary-compensation judgments (see Fig. 1), a main effect of story type (control vs. counterfactual) was observed, $F(1, 68) = 177.6$, $p < .0001$. More money was awarded to victims in control stories than to victims in counterfactual stories. A main effect of span, $F(1, 68) = 18.2$, $p < .001$, showed that high-span participants generally awarded more money than low-span participants. A main effect of timing, $F(3, 66) = 5.2$, $p < .05$, mainly reflected several interactions. All two-way interactions were reliable: Story Type × Span, $F(1, 68) = 31.9$, $p < .001$; Story Type × Timing, $F(3, 66) = 5.6$, $p < .05$; and Timing × Span, $F(3, 66) = 2.9$, $p < .05$. Most important, the three-way interaction was also reliable, $F(1, 68) = 177.6$, $p < .0001$. As shown in Figure 1, low-span participants were especially affected by the counterfactual manipulation, but only when holding a memory load during the judgment phase (lower panels). Memory loads during reading had little effect.

3. Recall rates were used primarily to verify that participants gave a reasonable effort to the secondary task. We were prepared to exclude anyone whose average recall fell below 33% (two correct items per trial), but nobody fell below that standard. A trend ($p = .07$) suggested that recall decreased with more intervening primary-task stages. Of greater interest, low- and high-span participants differed in recall (72.5% and 89.4%, respectively), $F(1, 68) = 23.5$, $p < .001$, a result that helps validate the group delimitation.

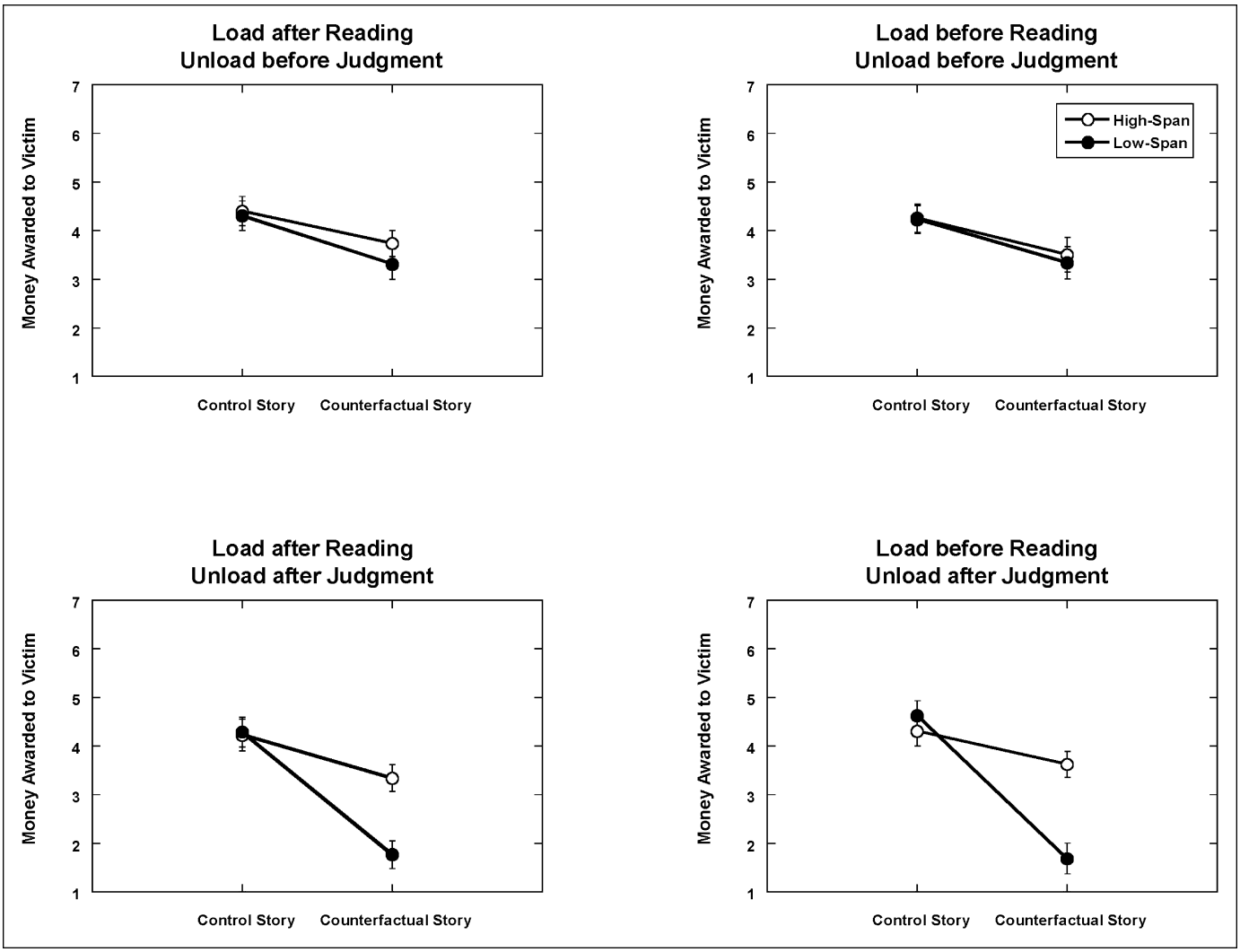

Fig. 1. Average monetary awards to victims in all conditions. Separate panels display different timing sequences for memory loading and unloading. All panels show results for low- and high-span groups, as a function of story type. The 7-point scales ranged from $5,000 to $95,000, increasing in $15,000 increments.

Victim's Responsibility

The percentages of blame assigned to victims are shown in Figure 2. Among main effects, only the effect of story type was reliable, $F(1, 68) = 125.0$, $p < .0001$. However, several key interactions emerged: Story Type × Span, $F(1, 68) = 37.6$, $p < .001$; Timing × Span, $F(3, 66) = 14.9$, $p < .01$; and Story Type × Span × Timing, $F(3, 66) = 5.7$, $p < .05$. In essence, these results closely resemble the monetary-compensation results: Given a memory load during judgment (Fig. 2, lower panels), low-span participants were particularly affected by the counterfactual manipulation.

Company's Responsibility

Logically, the results for company's blame should complement the results for victim's blame, as "total responsibility" for events should equal 100%. The results, however, were less robust. A main effect of story type emerged: Estimated company responsibility was 59% for control stories and 42% for counterfactual stories, $F(1, 68) = 33.6$, $p < .001$. There were trends toward interactions of Timing × Span, $F(3, 66) = 2.3$, $p = .08$, and Story Type X Timing X Span, $F(3, 66) = 2.4$, $p = .07$, in the same directions seen previously. Overall, these results qualitatively resembled those for the victim's responsibility, but with less statistical support.[4]

DISCUSSION

The present results complement recent findings in several domains of inquiry. As in prior research, stories with salient, mutable events evoked less sympathy for their portrayed victims, relative to control stories (McCloy & Byrne, 2000). Although the causal factors were identical in the two versions of each story kernel, participants tended to blame the victims when counterfactual thoughts were more easily generated. Victim blaming was especially prevalent among low-span participants given memory loads

4. Because all three measures were conceptually similar, we conducted a combined analysis (scales were adjusted to remain comparable). All main effects and interactions were reliable, including the critical three-way interaction, $F(1, 68) = 40.9$, $p < .0001$.

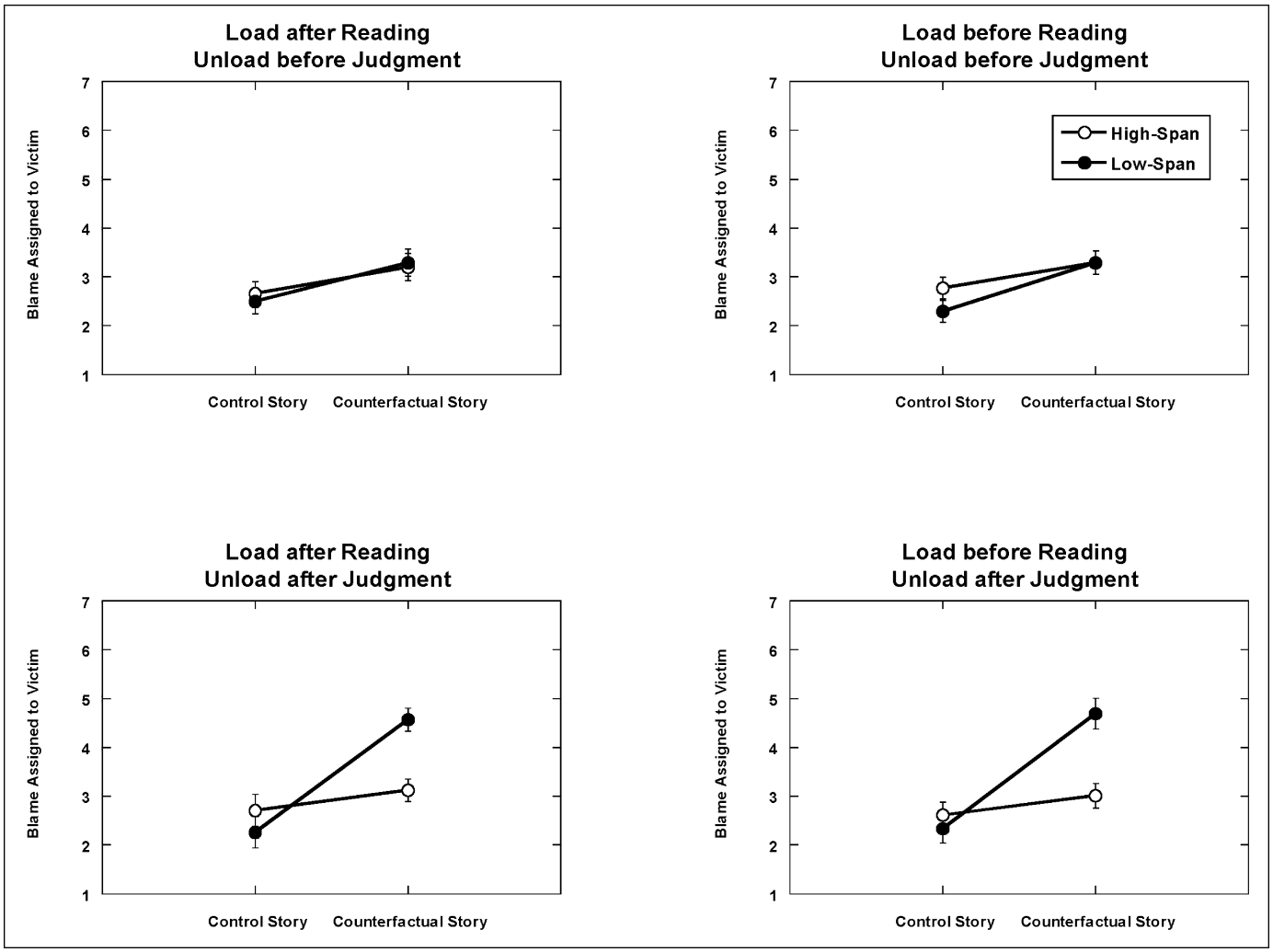

Fig. 2. Average assessments of victims' blame in all conditions. Separate panels display different timing sequences for memory loading and unloading. All panels show results for low- and high-span groups, as a function of story type. The 7-point scales ranged from 5% to 95%, increasing in 15% increments.

during judgment. Memory loads during the reading (encoding) stage had little effect. Together, the results suggest that counterfactual thoughts were automatically elicited during reading. During judgment, the intellectual and affective components of these thoughts apparently required an effortful resistance. Similar sequences of cognitive events have been reported previously, motivating *correction models* of social cognition (Wegner & Bargh, 1998).

As Gilbert and Gill (2000) noted, correction models propose that people initially process information in a heuristic manner, then make rational adjustments if they have adequate time and mental resources. Throughout this report, we have referred to such adjustment alternatively as thought suppression (which implies effortfully blocking the counterfactual thought from consideration) and discounting (which implies acknowledging the counterfactual, then excluding it from future deliberations). Both interpretations are viable: The working memory literature contains many examples of unwanted signals or ideas that selectively disrupt low-span participants (Engle et al., 1999). The social-cognitive literature provides examples that better fit the discounting hypothesis. Given our data, we cannot state which process—suppression or discounting—is more likely. In fact, both processes may occur, in repeating cycles. This is easily imagined as a function of memory cuing: A judgment question calls a salient counterfactual to mind. This idea is set aside (discounted) and then effortfully forgotten (suppressed), only to become reactivated when the judgment question is reconsidered.

Regardless of mechanism, the present results complement Gilbert and Gill's (2000) portrayal of thought processes, tying it to recent views of working memory. Our participants seemed to blend automatic and controlled responses, with varying degrees of success. The likelihood of correcting counterfactual thinking was a function of available mental resources, operationalized by explicit memory loads and implicit variations in working memory capacity.[5] It often appears that working memory capacity is synonymous with the ability to suppress irrelevant thoughts or

5. Although we treated "implicit" and "explicit" memory loads separately, they are conceptually related. Cognitive loads often make high-span people's performance come to resemble that of (unloaded) lower-span people (Engle et al., 1999). Our present goal was simultaneous assessment of individual differences and the time course of counterfactual thinking. With harder memory loads, high-span participants would likely increase victim blaming, and fewer low-span participants would meet our minimum criterion for memory-load performance.

signals (Rosen & Engle, 1998). For example, when seeing an easily stereotyped individual, people under cognitive load show increased stereotyping, despite efforts to the contrary (Macrae, Bodenhausen, Milne, & Jetten, 1994; Macrae, Bodenhausen, Schloerscheidt, & Milne, 1999). Similarly, cognitive load increases the recall of stereotypical traits, despite directed-forgetting instructions (Wenzlaff & Wegner, 2000).

Kasimatis and Wells (1995) found that individual differences in cognitive ability had no bearing on people's abilities to generate counterfactual thoughts. Our data are consistent with their results, but suggest that the opposite form of equality may not hold. The ability to suppress such thoughts, characterized here by victim blaming among mock jurors, seemingly varies across individuals. Although we cannot extrapolate from our experiment to bona fide juries, we note that thought suppression or discounting must arise during deliberation, helping jurors disregard inadmissible statements or histrionics. Individual variations in working memory capacity may affect the likelihood of success, and may modulate the impact of counterfactual thinking.

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