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Juror Interpretations of Ambiguous Evidence

The Need for Cognition, Presentation Order, and Persuasion*

Saul M. Kassin,† Marisa E. Reddy,† and William F. Tulloch†

In the context of a mock jury study, we tested the hypothesis that people's interpretations of ambiguous evidence depend on how (i.e., by whom) that evidence is introduced. Subjects watched a 45-min interrogation of a murder suspect who emphatically asserted her innocence but told an imperfect story. Before the tape, subjects read either the prosecution or defense lawyer's arguments concerning the suspect's interrogation performance; after the tape, they read counter-arguments from the opposing side. Results indicated that subjects high in the need for cognition (NC) were influenced more by arguments that preceded the evidence, whereas low-NC subjects were more influenced by arguments that followed the evidence. Theoretical and practical implications of these findings are discussed.

In criminal law, there is probably no category of evidence more powerful and more controversial than pretrial confessions. To the uninformed, it all seems straightforward. The pages of history, however, tell us that nothing could be further from the truth. Whether a confession was authentic, whether it was coerced, or whether the suspect was of sound mind are just a few of the issues that appear often in the courts (Kassin & Wrightsman, 1985).

* We are indebted to the late Bronx District Attorney Mario Merola and to Assistant District Attorney Sean Walsh for generously providing us with the interrogation tape used in this study. Portions of these data were presented at the Annual Meeting of the American Psychological Association, Atlanta, August 1988. Reprint requests should be addressed to the first author at the Department of Psychology, Bronfman Science Center, Williams College, Williamstown, Massachusetts 01267.
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There is an interesting recent development in the use of confession evidence. With increasing frequency, law enforcement officials are keeping videotape records of their interrogations of criminal suspects. It is not surprising that prosecutors find that videotaped confessions are quite persuasive when presented in court (Domash, 1985). According to the late Mario Merola, the Bronx District Attorney who first introduced the idea, "We get a conviction in virtually every case" (Capeci, 1983). This use of videotape raises some important issues. Lassiter and Irvine (1986), for example, recorded a mock interrogation from three different camera angles so that either the interrogator, the suspect, or both were visible. They found that mock jurors who watched the suspect viewed the situation as less coercive than those who were focused on the interrogator. In other words, when the camera prompts attention toward the accused, as it so often does, it can lead jurors to underestimate the amount of pressure exerted by the "hidden" interrogator.

There is another interesting issue raised by the practice of videotaping interrogations. Recently, we received videotapes of criminal interrogations from the Bronx District Attorney's office. While viewing the tapes, we were struck by the fact that not all suspects brought in for interrogation succumbed under the pressure to confess. That observation prompted the following question concerning trial strategy: What happens to interrogation tapes when confessions are not obtained, that is, when suspects maintain their innocence and proceed to trial? When suspects deny the charges but—in doing so—tell imperfect (i.e., implausible, incoherent, or internally inconsistent) stories, should the defense introduce the tapes in order to focus the jury's attention on the defendant's persistent denials? Or, should the state introduce these same tapes in an effort to encourage jurors to listen with a critical ear for incriminating statements?

In courtrooms and other settings that involve social judgment, people are often confronted with evidence that is ambiguous enough to accommodate contradictory interpretations. From a theoretical standpoint, the issue raises two important questions. First, does the party who introduces the ambiguous evidence from his or her own perspective benefit from having done so? Beginning with Asch's (1946) initial study of primacy effects in person perception, research on the power of first impressions suggests an affirmative answer. Social perceivers who are provided with a hypothesis, or who form an initial impression, often seek hypothesis-confirming information (Snyder & Swann, 1978; Zadney & Gerard, 1974). When nonconfirmatory information is later brought to their attention, people pay relatively little attention to it (Belmore, 1987), discount it (Kulik, 1983; Lord, Ross, & Lepper, 1979), assimilate it (Hamilton & Zanna, 1974; Hayden & Mischel, 1976), or recall the information in ways that fit their a priori beliefs (Cohen, 1981; Swann & Read, 1981). In the final analysis, these biases lead people to find support in ambiguous evidence.

Darley and Gross (1983), for example, had subjects evaluate a child's academic potential after being informed that she came from a high or low socioeconomic background. In the absence of actual performance data, subjects were not significantly influenced by the stereotypic expectancy information. Among subjects who watched a videotape of the child as she took an academic test, however,
a significant stereotype effect was obtained. Even though all subjects observed the same tape, those in the high-expectancy condition rated the child more highly than did those in the low-expectancy condition. Moreover, both groups cited evidence from the child's moderate test performance in support of their conflicting evaluations.

Considerable research has documented the impact of prior expectancies on evaluations of a stimulus. Although not as robust (Zadney & Gerard, 1974), such effects have been obtained even when expectancies are manipulated after the stimulus—presumably by leading perceivers to reinterpret the events previously observed (Anderson & Pichert, 1978; Snyder & Uranowitz, 1978). But what is to be expected when adversaries present conflicting views, as they do in court, one before the presentation of evidence, and the other after? To our knowledge, this particular question has not previously been addressed.

Our second question is concerned with individual differences among social perceivers. We know that primacy effects can be diminished by temporal factors (Miller & Campbell, 1959) and by situations that motivate perceivers to keep from tuning out (Anderson & Hubert, 1963; Benassi, 1982; Kruglanski & Freund, 1983; Luchins, 1957; Tetlock, 1983). Are there also enduring personality characteristics that make some people more susceptible to schematic biases than others? One construct that seems particularly relevant is the need for cognition (NC). According to Cacioppo and Petty (1982; also see Tanaka, Panter, & Winborne, 1988), people differ in the extent to which they enjoy effortful cognitive activities. To measure these differences, they developed the Need for Cognition Scale (e.g., "I really enjoy a task that involves coming up with new solutions to problems"; "I only think as hard as I have to"). To date, research has shown that people who are high in their NC think carefully about persuasive messages and, as such, are influenced by the strength and quality of information contained in those messages. Cacioppo, Petty, and Morris (1983), for example, had subjects read an essay that consisted of either a strong or weak set of arguments. As predicted, those who were high rather than low in their NC engaged in more message-relevant thinking and were affected more by the arguments' manipulation. In contrast, people who are relatively low in their NC are influenced by such peripheral cues as a speaker's physical appearance (Petty & Cacioppo, 1986), the number of arguments the speaker claims to have made (Chaiken, 1987), and the reactions of others in the audience (Axsom, Yates, & Chaiken, 1987). In short, because low-NC people engage in relatively little message-relevant thinking, there is reason to believe that the anticipated advantages of introducing ambiguous evidence would be more pronounced among them than among those who are high in their NC.

The present research was designed to address the foregoing questions in the context of a mock jury study. Subjects watched the videotape of a criminal interrogation in which the suspect emphatically denied the charges but told an imperfect story. For half the subjects, the tape was introduced by the prosecuting attorney and rebutted by the defense; for the other half, it was the other way around. Our predictions were twofold. First, in light of research indicating that expectations are more impactful when presented before rather than after the stimulus information is encoded (Zadney & Gerard, 1974), we expected subjects
to interpret the interrogation tape according to the perspective with which it was introduced (i.e., a main effect for presentation order). Second, we expected this primacy bias to be stronger among subjects who are low rather than high in their need for cognition (i.e., an interaction between presentation order and the need for cognition).

**METHOD**

**Subjects and Design**

Forty-one Williams College undergraduates (19 male, 22 female) were randomly assigned to watch an interrogation—denial tape that was introduced either by the prosecution (P) or the defense (D). In each case, the tape was followed by arguments from the opposing party (D and P, respectively). At the conclusion of each session, subjects filled out the Need for Cognition Scale (Cacioppo, Petty, & Kao, 1984). Through a median split on these scores (median = 109), subjects were then classified as high or low in their need for cognition (n = 20 and 21, respectively). In short, the data were analyzed within a 2 (presentation order) × 2 (need for cognition) factorial design.

**The Stimulus Tape**

The stimulus tape used in this study depicted the 45-min interrogation of a New York City Caucasian woman accused of first-degree murder. The suspect had been apprehended inside the apartment of the deceased victim, a woman whom the suspect had known. When two police officers arrived at the scene of the crime, the door to the apartment was locked. After several minutes of pounding on it, the suspect finally opened the door. She was cut on the hands and face, bruised, and had blood stains on her clothing. The police also found the victim, a knife identified by the suspect as the murder weapon, and the suspect’s jacket on the roof of the building.

Throughout the session, the suspect denied the charges, complained about having been detained for a prolonged period of time, and emphatically asserted her innocence. According to her videotaped statements, a large black man attacked the victim with a knife while she—the suspect—struggled to fight him off. She managed to grab the knife but, in doing so, cut her hands and was knocked unconscious. According to the suspect, she was in such shock and was so preoccupied trying to save her friend when the police arrived, that she ignored their calls. Although the suspect maintained the same story throughout the interrogation, several details in her account of the events seemed somewhat implausible.

**Procedure**

The experiment was conducted in small groups and lasted for approximately an hour. As soon as subjects arrived, they read a partial summary of the case that included judge’s instructions and either the prosecution (P) or defense (D) law-
yer’s introduction to the tape that was about to follow. Within each session, they received either P or D’s introduction to the tape on a random basis. Following the tape, subjects read a second summary that contained the opposing lawyer’s arguments. In short, everyone read both the P and D arguments—one before the videotape, the other after. Without deliberating, individual subjects then answered a series of case-related questions and filled out the Need for Cognition Scale.

Arguments

Either before or after the tape, the prosecuting attorney argued that the defendant’s story was seriously flawed. He noted, for example, that the only fingerprints found on the murder weapon were hers; that her jacket was found on the roof probably because she had tried to escape when the police arrived; and that although she said she had been knocked unconscious, she also claimed to have heard the attacker slam the door on his way out. In addition to challenging the defendant’s account of the murder itself, the prosecuting attorney argued that she was motivated by jealousy; the defendant, he said, believed that the victim was sexually involved with her boyfriend.

In contrast, the defense attorney’s argument was focused on two aspects of the interrogation tape. First, he reiterated the defendant’s story of how she and the victim had been attacked. Second, he emphasized how the defendant continued to maintain her innocence in the face of heavy pressure to confess. Prior to her interrogation, the attorney noted, the defendant was forced to wait in the police station for more than 15 hours—without food, in blood-stained clothing, exhausted, and traumatized by the death of her friend.

Dependent Measures

Three kinds of measures were obtained on our questionnaire. First, subjects rendered a guilty or not guilty verdict and indicated their confidence in that decision on a 1- to 10-point scale. Since verdicts are thought to be a dual function of the perceived probability that the defendant committed the crime and the standard of proof deemed necessary for conviction, both of these variables were also assessed. Thus, subjects were asked, “What do you think is the likelihood that ____ (the defendant’s name) committed the crime?” to which they responded by circling a number from 0 to 100 (in multiples of 5), and “The defendant should be found guilty if there is at least a _% chance that she committed the crime.”

Second, subjects answered a series of questions concerning their impressions of the interrogation tape. To measure the extent to which they were influenced by the prosecuting and defense attorneys’ arguments, subjects rated how plausible, consistent, and coherent they found the defendant’s story. They also rated how much sympathy they felt for the defendant, how much pressure the police had exerted on her to confess, and the coerciveness in general of her experience in custody. All ratings were made on 10-point scales.

Third, an effort was made to determine the extent to which subjects remem-
bered information revealed on the interrogation tape and the factors they thought were the most important to their decision. Subjects were asked eight forced-choice and short-answer questions (scores could thus range from 0 to 8), after which they were asked to indicate—in an open-ended response format—the reasons for their verdicts. On this latter measure, the written responses were coded for whether subjects supported their guilty verdicts by citing one or more of P’s arguments (the jealousy motive, the implausibility of the defendant’s story), or whether they supported their not guilty verdicts by citing D’s arguments (the defendant’s emphatic denials despite fatigue and pressure).

RESULTS

Overall, 15 subjects voted guilty and 26 voted not guilty. This relatively low conviction rate (37%) indicated that the case against the defendant was weak. On the average, subjects said they would vote guilty only if there was an 85.8% chance that the defendant had committed the crime—a result that closely parallels previous efforts to quantify the term “beyond a reasonable doubt” (Kagehiro & Stanton, 1985). And yet, across subjects, the mean subjective probability that the defendant actually committed the crime was only 63%.

To examine the effects of presentation order and the need for cognition on subjects’ decisions, verdicts and confidence ratings were combined for analysis. By assigning positive confidence values to guilty verdicts, and negative values to verdicts of not guilty, scores could range from −10 (maximum confidence in a not guilty verdict) to +10 (maximum confidence in a guilty verdict). A 2 × 2 analysis of variance on this measure yielded no main effects and a nonsignificant interaction, $F(1,37) = 2.02, p < .20$.1 As illustrated in Figure 1, however, the interaction term on the more sensitive probability-of-commission estimates was highly significant, $F(1,37) = 8.96, p < .005$. Contrary to our predictions, pairwise comparisons indicated that high-NC subjects tended to favor the prosecution more (i.e., indicated a higher subjective probability of commission) in the P–D condition than in the D–P condition ($M = 68.33$ and 50.63, respectively; $p < .15$). For the low-NC subjects, however, a significant pattern in exactly the opposite direction was found ($M = 48.89$ and 77.08, respectively; $p < .05$).

To assess the specific impact of P’s argument, subjects rated how plausible, coherent, and consistent the suspect’s statements were, all on 10-point scales. A series of $2 \times 2$ ANOVAs on these ratings corroborated the above pattern of results. Overall, the defendant was viewed as less coherent by high- than by low-NC subjects [respective $M = 5.30$ and 4.05; $F(1,37) = 4.01, p < .05$]. More important, however, a significant crossover interaction was obtained on the plausibility measure, $F(1,37) = 8.59, p < .01$. As shown in Figure 2, pairwise comparisons indicated that for high-NC subjects, plausibility ratings were signif-

1 Although this interaction was not significant, the pattern of results was consistent with those obtained for the more variable probability-of-commission measure.
Fig. 1. Probability-of-commission estimates as a function of presentation order and the need for cognition.

significantly lower when P’s argument to that effect preceded the tape ($p < .05$); among low-NC subjects, these ratings tended to be lower when P’s argument followed the tape ($p < .15$). Although the same pattern appeared for ratings of coherence, the interaction term was not significant ($p < .25$).

To assess the impact of the defense attorney’s arguments, subjects indicated their feelings of sympathy for the suspect, the coerciveness of her experience in custody, and the amount of pressure exerted on her to confess. On the sympathy measure, a significant interaction was obtained, $F (1,37) = 8.33$, $p < .005$. As illustrated in Figure 3, pairwise comparisons indicated that high-NC subjects expressed more sympathy for the suspect when the defense attorney’s arguments to that effect preceded the tape ($p < .005$); in contrast, low-NC subjects expressed somewhat more sympathy when the defense arguments followed the tape ($p < .20$). Although ratings of coerciveness and the pressure to confess seemed to follow the same pattern, these interaction terms were not significant ($p < .20$ and .30, respectively).

To summarize, individual differences in the need for cognition moderated the
effects of presentation order: high-NC subjects were influenced primarily by P and D arguments that preceded the evidence, whereas low-NC subjects were influenced by arguments that followed the evidence.

An analysis of subjects’ performance on the eight-question recall test revealed only an unexpected main effect for presentation order, as subjects in the P-D condition scored higher than those in the D-P condition, $M = 6.90$ and 6.20, respectively; $F(1,37) = 6.99$, $p < .05$. No significant main effects or interactions were obtained on subjects’ listing of the factors that influenced their decision. Although there was a nonsignificant tendency for high-NC subjects to provide longer lists than the lows, mean number of words = 53.65 and 39.14, respectively; $F(1,37) = 3.04$, $p < .10$, there were no differences on whether subjects supported their verdicts by citing arguments from the prosecution or defense.

**DISCUSSION**

This study offers interesting insights into the process of social judgment in general, and its implications for jury trials in particular. Ever since Asch’s (1946)
initial study of impression formation, numerous efforts have been made to identify situational factors associated with primacy and recency effects (Jones & Goe-thals, 1971; Anderson, 1981). The present results suggest that individual differences in the need for cognition may moderate the effects of presentation order.

**Theoretical Implications**

Contrary to our predictions, high-NC subjects were more influenced by arguments that preceded rather than followed the evidence; in contrast, the low-NC subjects were influenced more by arguments that followed rather than preceded the evidence. Why should the need for cognition have produced this effect? Based on research conducted within Petty and Cacioppo's (1986) Elaboration Likelihood Model (ELM) of persuasion, and Chaiken's (1987) distinction between systematic and heuristic processing, we had expected that only low-NC subjects—those who are relatively unmotivated to attend carefully to the evidence—would fall prey to a first-impression bias. Subjects who were high in their NC, we thought, would attend more carefully to the complete package of information (the interrogation tape, P's argument, and D's argument) and would thus be less susceptible to the effects of order on their judgments (Cacioppo et al., 1983). Indeed, such a result was obtained with an earlier measure of the need for cognition (Cohen, 1957). Apparently, this expectation was misguided. Instead our results suggest that the
NC Scale measures an individual’s information-processing style. Perhaps it is precisely because high-NC people are relatively active processors of information that they form opinions early, engage in confirmatory hypothesis-testing, and find support in ambiguous evidence. In contrast, perhaps because low-NC people are relatively passive processors of information, they do not form opinions early, and do not assimilate mixed evidence. In fact, they appear to base their decisions on the most newly acquired, most salient and accessible arguments.

In contrast to previous research, we found considerable evidence of a bias among subjects who were high rather than low in their need for cognition. Perhaps once they receive a strong initial argument, high-NC subjects become overactive processors of subsequent information (i.e., finding support in ambiguous evidence, as in Darley & Gross, 1983). Further research is needed to explore this notion in greater detail. It remains to be seen, for example, whether high-NC subjects would exhibit the belief perseverance bias that is so common when people are confronted with evidence that discredits their initial theories (Anderson, Lepper, & Ross, 1980). To test this hypothesis, one would have to independently vary both the order of arguments and the strength of the evidence.

Taken at face value, our findings seem difficult to reconcile with the fact that NC scores are negatively correlated with dispositional measures of closed-mindedness (Cacioppo & Petty, 1982). If the latter were defined simply as a resistance to inconsistent information, the two sets of results would be incompatible. But closed-mindedness, or resistance, can occur for two entirely different reasons. An individual might form an impression, fail to attend further, and then ignore or reject subsequent information; or, on the basis of an initial impression, the individual might actively engage in hypothesis-testing, searching selectively for corroborative evidence. The first scenario describes the passive discounting process we expected to find among low-NC subjects. The second describes the process of assimilation that presumably characterizes our high-NC subjects. Although we have no direct evidence to support this assimilation hypothesis, it is consistent with recent research indicating that message processing can be both systematic and biased at the same time. In one study, for example, Howard-Pitney, Borgida, and Omoto (1986) employed a situational manipulation of subject involvement and found that although subjects who were high in their involvement exhibited more systematic processing of message-related cues, they also were more partisan in their evaluation of that information (i.e., they generated more unfavorable thoughts about the position with which they disagreed). In another study, Leippe and Elkin (1987) distinguished between issue involvement (i.e., when the message itself has personal relevance to the recipient) and response involvement (i.e., when the recipient expects to discuss the message with others) and found that although both manipulations elicited high levels of attention, they also led subjects to process the message in ways that were biased by their personal concerns.

Practical Implications

Practically speaking, this study has interesting implications for how lawyers present ambiguous evidence to a jury. With an increase in the use of videotaped
confession evidence, we wondered whether nonconfessions—or denials—would benefit the prosecution or the defense, or whether the advantage resides with the party who introduces the ambiguous tape. In the absence of a main effect for presentation order, the results suggest that the answer depends on whether jurors are high or low in their need for cognition. Paradoxically, it may be the high-NC jurors—those who are eager (perhaps overeager) to discern the truth—who prove the most vulnerable to the effect.

Although one should be cautious about generalizing these results to the courtroom, it makes conceptual sense to predict that the primacy bias exhibited by the high-NC subjects in the present study would predominate in the context of a real trial. Certainly, it could be argued that compared to a representative sample of eligible jurors, our subjects—all of whom were college students—were probably high in their NC levels. Far more important, however, is to keep in mind that the need for cognition is a dispositional measure of people’s motivation or involvement, not their ability to engage in effortful cognitive activities. Moreover, that motivation can be profoundly affected by situational factors. Under circumstances that are inherently involving, low-NC individuals—despite their predispositions—are expected to process information as actively as their high-NC counterparts (Petty & Cacioppo, 1986). Recent research supports that prediction (e.g., Axsom et al., 1987). Thus, assuming that real criminal trials engender naturally high levels of involvement, it is likely that, as jurors, most people would resemble our high-NC subjects. Assuming some trials are more engaging than others, it is also possible that the effects of presentation order depend on trial factors as well.

It is also interesting to speculate on the generalizability of these results to deliberating juries. As a general rule, through a combination of informational and normative influences (Kaplan & Miller, 1983), jury verdicts are predictable by the distribution of the individual members’ initial voting preferences (Kalven & Zeisel, 1966; Stasser & Davis, 1981; Tanford & Penrod, 1986). As predicted by Petty and Cacioppo’s (1986) ELM, however, individuals who actively process the information contained in a message (e.g., the evidence) will develop attitudes that are more resistant to counterpersuasion than those who are persuaded without the same thoughtful consideration or “elaboration” of the evidence. If it turns out that the need for cognition predicts the extent to which jurors elaborate upon the evidence, then it is conceivable that high-NC jurors would be more difficult to persuade and perhaps more influential themselves during the deliberations.

Although further research is needed, it is possible that the present results extend in their implications well beyond the question of how lawyers should present interrogation tapes in court. Specifically, they suggest a paradox in the psychology of juror decision making. Ideally, jurors are supposed to absorb a good deal of information and yet, at the same time, suspend their judgments until all the evidence has been presented (see Kassin & Wrightsman, 1988). It is possible, however, that those jurors who are characteristically high in their NC, or who are actively engaged because of a heightened sense of responsibility, are also the most vulnerable to the effects of pretrial publicity (Carroll et al., 1986), opening statements (Pyszczynski & Wrightsman, 1981), preliminary instructions (Kassin & Wrightsman, 1979), and other influences occurring early in the life of a trial. Further research is needed to test this hypothesis in greater detail.
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