



Cognitive Bias in the Legal System: Police Officers Evaluate Ambiguous Evidence in a Belief-Consistent Manner



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Students' and forensic examiners' beliefs in a suspect's guilt can bias their evaluations of subsequent evidence. The current study examines whether experienced police officers also exhibit similar effects. Police officers ($n = 89$) and undergraduate students ($n = 227$) read a fictional criminal case and received incriminating, exonerating, or neutral initial evidence concerning a suspect before providing their initial beliefs in that suspect's guilt. Participants then evaluated the incriminating/exonerating value of four pieces of ambiguous evidence (an alibi, a facial composite, a handwriting sample, informant testimony), and subsequently provided their final beliefs in the suspect's guilt. Structural equation modeling indicated that (a) police officers' initial beliefs of guilt significantly predicted their evaluations of three types of ambiguous evidence, (b) these biased evaluations significantly predicted the officers' final beliefs of guilt, demonstrating a bias snowball effect, and (c) the pattern of effects were the same for police officers as for students.

General Audience Summary

The current study examines whether police officers' evaluations of different pieces of evidence are related to their beliefs in the suspect's guilt. In other words, will police officers who believe a suspect is guilty evaluate evidence more harshly than police officers who believe the same suspect is innocent? And will these biased evaluations further inflate their beliefs in the suspect's guilt, resulting in a bias snowball effect? Police officers ($n = 89$) read about a crime that contained either incriminating, exonerating, or neutral evidence against a suspect, provided their beliefs that the suspect was guilty, and then evaluated four pieces of evidence: the suspect's alibi, a comparison of handwriting samples, a comparison between a facial composite and the suspect, and an informant's testimony. Results indicated that the more likely the police officers believed the suspect to be guilty, the more harshly they tended to evaluate the evidence, which then further inflated their beliefs of guilt. These results suggest that one reason innocent people get convicted is because police officers form a belief in the innocent person's guilt, leading them to interpret further ambiguous evidence as being more incriminating than it actually is, further inflating their belief in the innocent person's guilt.

Keywords: Cognitive bias, Decision-making, Confirmation bias, Context effects

Traditionally, legal psychologists have approached the question of why innocent people become wrongfully convicted by examining the unique, independent contribution of a given piece of evidence (e.g., mistaken eyewitness identification, false confessions, poor forensic judgments). Recently, however, a more

sophisticated approach has begun to appreciate the interdependencies between pieces of evidence, examining how one piece of evidence may influence the evaluation of a subsequent piece of evidence via the evaluator's beliefs about the guilt of the suspect. For example, forensic experts who believe a suspect is

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guilty (based on their knowledge of other evidence) can come to interpret subsequent ambiguous evidence as being more incriminating than they otherwise would have. This process can then result in a self-sustaining positive feedback loop: Once evaluators obtain evidence pointing toward a suspect's guilt, they may then interpret subsequent ambiguous evidence as being particularly incriminating, further bolstering their belief in the suspect's guilt, further biasing the evaluation of additional evidence. In this fashion, bias can compound on itself, resulting in what [Dror \(2012\)](#) calls "a bias snowball effect."

Research on this type of contextual bias among legal decision-makers has recently come to the forefront of legal psychologists' awareness, partly as a result of a [National Academy of Sciences \(2009\)](#) publication that excoriated many forensic science disciplines for their unscientific basis and susceptibility to contextual bias, as well as real-world cases in which contextual biases have been officially implicated (e.g., the Brandon Mayfield "Madrid bomber" case; [U.S. Department of Justice, 2006](#)). Consequently, researchers have provided data showing that biasing effects exist when making decisions regarding the incriminating or exonerating value of evidence (see [Kassin, Dror, & Kukucka, 2013](#), for an overview). For instance, beliefs in a suspect's guilt have been shown to bias fingerprint examiners' determinations about whether two fingerprints match ([Dror, Charlton, & Péron, 2006](#)), similarity judgments between a composite of a perpetrator and a suspect ([Charman, Gregory, & Carlucci, 2009](#)), and eyewitness identification decisions (such that knowledge of a lineup member's confession can lead witnesses to identify the confessor; [Hasel & Kassin, 2009](#)). Even ostensibly more objective types of evidence, such as DNA—thought to be a gold standard of forensics—can be biased by initial beliefs ([Dror & Hampikian, 2011](#)). Furthermore, a real-world analysis of wrongful convictions suggests that false confessions may taint forensic examiners' evaluations of forensic evidence ([Kassin, Bogart, & Kerner, 2012](#)).

Researchers have developed numerous recommendations to minimize these effects (see [Kassin et al., 2013](#)). For example, keeping forensic experts (e.g., fingerprint examiners) blind to the existence of other evidence against a suspect should obviate the formation of beliefs regarding the suspect's guilt, reducing any potential bias on subsequent evidence evaluation. Similarly, [Dror et al. \(2015\)](#) recommend a sequential unveiling of information, keeping an evaluator unaware of extraneous case information for as long as possible. However, although these suggestions should reduce contextual bias among forensic scientists, it is impossible to keep certain legal decision-makers blind to this information. Police officers and detectives, for instance, must routinely make judgments about the likely guilt of a suspect based on various pieces of accumulating ambiguous and imperfect evidence, and are unable to do so in a contextual vacuum. Unfortunately, virtually all research on contextual biases within a forensic context has focused on either student-participants, forensic examiners, or police trainees (e.g., [Ask, Rebelius, & Granhag, 2008](#)); little research has focused specifically on experienced police officer decision-making (for exceptions using Swedish criminal investigators, see [Ask & Granhag, 2007](#); [Ask, Granhag, & Rebelius, 2011](#)).

Focusing on the decision-making of police officers expands the scope of judgments that may be biased by beliefs of guilt. Whereas forensic examiners' judgments are limited to forensic testing (e.g., fingerprints, DNA, firearms, hair analysis), police officers' judgments are much broader. For instance, throughout the investigative process, police officers may evaluate a suspect's alibi, an eyewitness's identification (or non-identification), an informant's claims, the similarity between a suspect and a composite of the perpetrator, and many other pieces of evidence, the evaluation of which will likely determine the amount of resources spent pursuing a given suspect. And notably, unlike forensic examiners who may produce official reports with their conclusions, police officers' judgments often leave no trail as to their occurrence, making their biased evaluations particularly difficult to diagnose after the fact. Consequently, it is crucial to determine whether, and to what extent, contextual biases influence decision-making among police officers.

These types of context effects are consistent with a variety of theoretical approaches to decision-making, such as confirmation bias ([Kassin et al., 2013](#); [Nickerson, 1998](#)), asymmetric skepticism ([Lord, Ross, & Lepper, 1979](#); [Marksteiner, Ask, Reinhard, & Granhag, 2011](#)), and cognitive coherence ([Holyoak & Simon, 1999](#)). Although these approaches are all related, we adopt a cognitive coherence theoretical perspective for the purposes of the current manuscript, which provides a particularly flexible framework in which to analyze situations in which people must evaluate multiple pieces of evidence to form a conclusion. Specifically, a defining feature of cognitive coherence models is that decision-making occurs in a bi-directional fashion: Not only does the evaluation of evidence affect an evaluator's emerging conclusion, but that emerging conclusion feeds back to influence the evaluation of evidence (e.g., [Simon, Pham, Le, & Holyoak, 2001](#); [Simon, Snow, & Read, 2004](#)). Thus, the evaluation of various pieces of evidence tends to cohere with the emerging conclusion (and with each other).

Cognitive coherence models thus emphasize the dynamically evolving nature of decision-making. But whereas the extant research on context effects on legal decision-making has shown that beliefs of guilt can affect the evaluation of evidence—at least among student-participants and forensic examiners—we are aware of no research that has examined the next step: whether these context effects can result in a bias snowball effect whereby biased evaluations of evidence further predict the extent to which evaluators update their beliefs in a suspect's guilt. Evidence for such a process would highlight a difficulty innocent suspects face in trying to escape suspicion: Once they are believed to be guilty, further ambiguous evidence will tend to be evaluated as overly incriminating, further increasing belief in the suspect's guilt. Thus, the current study has two main purposes: To examine (a) whether police officers exhibit contextual biases in their evaluations of various pieces of forensically relevant evidence; and (b) whether any observed biases in evidence evaluation further influence police officers' updated beliefs in the suspect's guilt. Furthermore, to provide a sense of whether the findings of studies using student samples can

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