

AI Acknowledgement

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1. Supporting research, finding sources, summarising, comparing, and questioning materials.
2. Checking text/creation for grammatical and syntactical errors.
3. Rephrasing within my own standards.

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Eyewitness decision-making is important in psychology and law because identifying a suspect in a police lineup can mean the difference between justice and a wrongful conviction. In a lineup, a witness must decide whether the perpetrator is present and, if so, identify them and state how confident they are in their choice. This process, known as eyewitness identification, has been widely studied in cognitive psychology. Memory for an event and the decisions based on that memory can be shaped by many cognitive factors before, during, and after the identification. There is ongoing debate about how eyewitnesses make these decisions. Two main theories have been proposed: absolute-judgment models, in which witnesses compare each person in the line-up to their memory of the perpetrator, and relative-judgment models, in which witnesses compare the people in the line-up to each other and pick the one who looks most like their memory. Recent studies show that absolute-judgment models better explain how eyewitnesses make decisions, especially when distinguishing between fair and biased line-ups, whereas relative-judgment models do not always fit observed behavior (Smith, Ying, Goldstein, & Fitzgerald, 2024). Research also shows that eyewitnesses sometimes misidentify innocent people, which has led to wrongful convictions in the past. This highlights the need for psychological research to help improve police procedures (Wells et al., 1998). Many cognitive factors can affect eyewitness memory and decision-making, such as stress or focus during the event, information or feedback received after the event, and the judgments made during the line-up itself. Because the literature is so broad, this essay will not cover every possible factor. Instead, it will focus on three cognitive factors that play a role during identification: metacognition, Signal Detection Theory (SDT), and the confidence–accuracy relationship. These three perspectives were chosen because together they help explain how witnesses check their own memory, how they make decisions when unsure, and how their confidence relates to their

accuracy. Each will be discussed in turn, including their theories, supporting evidence, and their strengths and weaknesses.

The first cognitive factor considered in this essay is metacognition, broadly defined as "thinking about thinking," that is, an individual's awareness and regulation of their own cognitive processes. Metacognition is relevant to eyewitness decision-making because it governs how a witness monitors, evaluates, and reports on the reliability of their own memory during a lineup. Schraw and Moshman (1995) identify three kinds of metacognitive theories: tacit, informal, and formal. Tacit metacognitive theories are unconscious, unarticulated assumptions that guide how a person thinks about their own thinking without their being aware that such a "theory" exists; informal metacognitive theories are partially explicit and incomplete beliefs that allow a person some capacity for reflection and self-correction, although they remain unsystematic; and formal metacognitive theories are highly explicit, well-organised frameworks, often resembling scientific models, that integrate knowledge and control of thinking in a structured way, typically found among experts in a domain. These distinctions are useful because they illustrate a progression from a basic, largely unconscious awareness of one's own thought processes toward more deliberate and sophisticated management of them, and they help explain how an eyewitness might plan memory checks, evaluate their own confidence, and ultimately arrive at an identification decision.

Metacognition plays a particularly important role in shaping both the accuracy and the confidence of eyewitness decisions. According to Thompson et al. (2009), dual-process theories of reasoning are mediated by metacognitive judgments, such as the Feeling of Rightness (FOR),

which determine whether an individual accepts a fast, intuitive response (System 1) or instead engages in slower, more deliberate analysis (System 2). Applied to eyewitness identification, this suggests that a witness's confidence may depend not only on the objective strength of their memory for the event but also on a subjective metacognitive experience of a judgment simply "feeling correct." This produces what might be described as a double-edged quality to metacognition: a strong Feeling of Rightness can promote high certainty even when an identification is incorrect, whereas a weaker metacognitive signal may prompt more careful, deliberate reflection that can, in some circumstances, improve accuracy (Thompson et al., 2009). A clear strength of the metacognitive perspective is that it accounts for why witness confidence does not always track accuracy; confidence can be shaped by fluency and subjective certainty rather than by memory strength alone. However, a key limitation is that metacognitive research relies heavily on self-report methods, which can restrict its validity because witnesses may not fully understand or accurately describe their own thought processes (Thompson et al., 2009). Metacognitive experiences are also highly personal and may be shaped by external influences, such as feedback from a line-up administrator or the way a line-up is constructed, meaning that high confidence cannot be taken as straightforward evidence of accuracy.

The second cognitive factor considered here is Signal Detection Theory (SDT), a quantitative model of decision-making under uncertainty. SDT distinguishes between sensitivity, a witness's underlying ability to discriminate a genuine memory signal from background noise, and response bias (or criterion), which reflects a witness's general tendency to respond one way or another regardless of memory strength (Stanislaw & Todorov, 1999). This distinction is directly relevant to eyewitness identification because a witness viewing a line-up must decide

whether a given individual's face is familiar enough to warrant an identification. Within this framework, four outcomes are possible: a **"hit"** occurs when the perpetrator is present and correctly identified; a **"miss"** occurs when the perpetrator is present but not identified; a **"false alarm"** occurs when an innocent line-up member is incorrectly identified as the perpetrator; and a **"correct rejection"** occurs when the perpetrator is absent and no identification is made.

Studies using Signal Detection Theory (SDT) in eyewitness lineups show that changing procedures, like presenting suspects one at a time instead of all at once, usually shifts how strict a witness is when making a decision, but does not always affect their ability to tell suspects apart. Sequential line-ups make witnesses more cautious, which means fewer false identifications but also fewer correct ones compared to simultaneous line-ups (Meissner et al., 2005). This balance has real-world and ethical consequences: by prioritizing protecting innocent people over catching more guilty ones, sequential line-ups reflect a clear choice about fairness in the justice system. One advantage of SDT is that it separates a witness's ability to distinguish suspects from their decision-making strategy, giving researchers a way to test whether mistakes come from weak memory or from how witnesses make decisions (Smith et al., 2024). This helps clarify which theory best explains how eyewitnesses behave. Still, SDT has some important limits. The model assumes that a witness uses the same decision rule throughout the line-up, but in reality, people might become more careful after several non-matches in a row. This gap between the model and actual thinking shows why it is important to consider other factors, like social pressure, feedback from administrators, and stress, which can affect how confident and accurate witnesses are in ways the model does not fully explain.

The third cognitive factor considered in this essay is the relationship between eyewitness confidence and accuracy, a relationship that has been extensively researched because courts and juries often treat a witness's confidence as an indicator of their credibility. Historically, confidence has been regarded as a poor predictor of accuracy; however, calibration research shows that confidence assessed immediately after an identification can predict accuracy under certain conditions, such as when line-up instructions are unbiased and the foils are appropriately similar to the suspect (Brewer & Wells, 2006). When examining this relationship, it is important to distinguish between different types of judgments, including false identifications, false rejections, and correct identifications and rejections because, as Wells and Lindsay (1985) demonstrate, confidence in a correct suspect identification can be informative, whereas confidence expressed in a foil identification or a false rejection carries little diagnostic value in court.

Empirical evidence further suggests that confidence is best measured immediately following an identification, before witnesses are exposed to external influences. Witnesses tend to be better calibrated, meaning their stated confidence more closely matches their actual accuracy when their judgments are recorded quickly, whereas delays, repeated questioning, or briefings from attorneys can inflate confidence without any corresponding increase in accuracy (Wells & Lindsay, 1985). The principal strength of the confidence–accuracy model is its practical utility: it offers law enforcement and courts a means of interpreting eyewitness confidence meaningfully, provided that identification procedures are carefully controlled. Its central limitation, however, is that confidence is highly susceptible to distortion by post-identification feedback and social pressure, which can inflate a witness's stated confidence well beyond what

their underlying memory strength would justify. This makes the uncritical use of confidence in court ethically problematic, even though confidence ratings, when captured immediately and under controlled conditions, can provide some genuinely useful information about the reliability of an identification.

Taken together, these three perspectives offer complementary, rather than competing, insights into eyewitness reliability. Metacognitive theories focus on the mechanisms by which witnesses monitor and reflect on their own memory and the thought processes underlying their confidence judgments (Schraw & Moshman, 1995; Thompson et al., 2009). Confidence–accuracy models overlap with this focus by directly examining whether confidence can predict accuracy, but metacognition extends this by explaining the cognitive processes that generate confidence in the first place. SDT, by contrast, adopts an explicitly quantitative approach, modeling eyewitness decisions in terms of sensitivity and response bias (Stanislaw & Todorov, 1999; Meissner et al., 2005), and offers precise insight into the balance of hits, misses, false alarms, and correct rejections, though it does not directly address the subjective confidence emphasized by the other two perspectives.

Each approach also carries distinct methodological strengths and weaknesses. SDT-based studies are typically conducted with large samples under controlled laboratory conditions, which allow sensitivity and criterion shifts to be measured with considerable precision and support the validity and repeatability of the findings (Meissner et al., 2005). However, these controlled studies do not always adequately replicate the psychological experience of a genuine police lineup, in which stress, social pressure, and administrator feedback play a substantial role;

laboratory participants, for instance, know that a staged crime is not real and consequently do not experience the same level of threat as genuine witnesses (Murray & Wells, 1982). Metacognitive research is valuable for explaining why confidence and accuracy are not always directly related, but because it relies heavily on self-report, it may be biased or incomplete, since witnesses may not have full insight into their own thought processes and may also be influenced by courtroom or police interactions (Thompson et al., 2009). Similarly, confidence–accuracy research (Wells & Lindsay, 1985) highlights the importance of distinguishing between suspect and foil identifications, yet many such studies rely on relatively small samples and artificial laboratory settings, raising questions about how well these findings generalize to real-world police line-ups, where feedback from administrators or attorneys can inflate a witness's confidence without any corresponding increase in accuracy.

Together, these three perspectives demonstrate that eyewitness identification decisions are shaped by multiple, interacting cognitive processes rather than by memory strength alone. There is evidence that absolute-judgment models predict eyewitness accuracy more effectively than relative-judgment models (Smith et al., 2024); metacognitive theories explain how witnesses monitor their own thought processes during identification (Schraw & Moshman, 1995; Thompson et al., 2009); SDT provides a precise account of how memory signals and decision criteria combine to produce hits, misses, false alarms, and correct rejections (Stanislaw & Todorov, 1999; Meissner et al., 2005); and confidence–accuracy research cautions against the uncritical use of eyewitness confidence as an indicator of reliability (Wells & Lindsay, 1985). This range of complementary perspectives illustrates why eyewitness decision-making must be examined from multiple theoretical viewpoints rather than through a single lens, and suggests

that combining quantitative models with insight into witnesses' subjective judgments offers the most complete account of eyewitness reliability.

In conclusion, this essay has focused on three cognitive factors relevant to eyewitness decision-making at the point of identification: metacognition, Signal Detection Theory, and the confidence–accuracy relationship, while acknowledging that other cognitive factors operating at other stages of the eyewitness process also warrant consideration. Understanding how confidence, feedback, and decision criteria interact to influence accuracy has clear practical implications: it can help police services design fairer line-up procedures and reduce the risk of wrongful conviction. For example, eyewitness testimony tends to be more reliable when confidence is recorded immediately after an identification and when line-up instructions are unbiased (Brewer & Wells, 2006). Insights of this kind have informed procedural reforms such as double-blind line-up administration, sequential rather than simultaneous presentation of suspects, and the standardized recording of confidence at the point of identification. These reforms carry important ethical, as well as practical, implications: mistaken eyewitness testimony is a serious failure of the justice system that can cause profound harm to both the wrongly accused and the victims of crime. Metacognitive research reminds us that overconfidence can mislead courts even when a witness sincerely believes their identification to be accurate; SDT highlights the risk that procedural choices, rather than memory strength alone, can distort outcomes; and confidence–accuracy research demonstrates how social and procedural feedback can distort the perceived reliability of a witness. Ethical safeguards such as double-blind line-ups, immediate confidence recording, and procedurally fair line-up construction are therefore essential to protect both suspects and victims. Ultimately, justice depends on more than

memory alone, and the continued application of psychological research to police procedure is essential to maintaining the integrity of the judicial process.

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