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### Commentary

## Time to exonerate eyewitness memory

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#### ABSTRACT

Understandably enough, most people are under the impression that eyewitness memory is unreliable. For example, research shows that memory is malleable, so much so that people can come to confidently remember traumatic events that never actually happened. In addition, eyewitness misidentifications made with high confidence in a court of law are known to have played a role in more than 70% of the 358 wrongful convictions that have been overturned based on DNA evidence since 1989. However, recent research demonstrates that eyewitness confidence is highly indicative of accuracy on an initial, uncontaminated, properly administered photo lineup. In other words, low confidence indicates that the test result (i.e., the ID) is inconclusive, whereas high confidence indicates that the test result is far more conclusive. Critically, for the DNA exonerees who were misidentified by an eyewitness in a court of law, in every case where their initial confidence can be determined, the eyewitness appropriately expressed low confidence. For any other kind of evidence (e.g., DNA, fingerprints), an inconclusive test result like that would have been the end of it. By contrast, in the case of eyewitness evidence, investigators repeatedly tested (and therefore unwittingly contaminated) memory until a seemingly conclusive high-confidence ID could be presented to the jury. Blaming eyewitness memory for the failure of the criminal justice system to accept the inconclusive nature of the initial (uncontaminated) eyewitness evidence seems misguided. In addition to exonerating the innocent defendants who were wrongfully convicted, the time has come to exonerate eyewitness memory too.

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A layperson serving on jury who sees an eyewitness confidently identify the defendant as the person who committed the crime might consider that identification to be fairly damning evidence of guilt, perhaps even damning enough to warrant a conviction. By contrast, someone who is at least vaguely familiar with the relevant research literature would probably find the idea of convicting a defendant based largely on an eyewitness's confident identification to be entirely inappropriate, perhaps even reckless. In light of recent evidence, we have argued that neither of these views is quite right [1].

On the surface, the case in favor of the more research-based view – namely, that eyewitness memory is unreliable, regardless of confidence – seems strong. First, convincing research shows that memory is malleable, so much so that people can come to confidently remember traumatic events that never actually happened [2,3]. Second, lab-based research was long interpreted to mean that the confidence an eyewitness expresses upon identifying someone from a lineup is not particularly indicative of accuracy, not even under “pristine” testing conditions [4,5]. Third, and most compelling of all, eyewitness misidentifications

made with high confidence in a court of law are known to have played a role in more than 70% of the 358 wrongful convictions that have been overturned based on DNA evidence since 1989 [6]. The verdict seems clear: contrary to what the lay public believes, eyewitness memory is unreliable no matter how confident the eyewitness might be.

Against this blanket indictment, we have argued that eyewitness memory is highly reliable on the first test conducted early in a police investigation [1]. This is true of both recall (namely, a properly conducted police interview) and recognition (namely, a properly conducted police lineup). Critically, the very act of testing memory contaminates it, so the reliability of eyewitness memory is never higher than it is when first tested – and never lower than it is when ultimately tested in a court of law in front of a jury. On the initial test, eyewitness memory is highly reliable in the sense that low confidence implies low accuracy (often not much better than chance) whereas high confidence implies high accuracy (often 95% correct or better). This is true not only of mock-crime laboratory studies but also of studies involving actual eyewitnesses to serious crimes [7].

A key mistake in prior lab-based research on the usefulness of eyewitness confidence was its reliance on the *correlation coefficient* to quantify the confidence-accuracy relationship. As first noted

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more than 20 years ago [8], the correlation coefficient can be low even when confidence is as informative as it could possibly be. Instead of computing a correlation coefficient, when suspect ID accuracy is simply plotted as a function of confidence, nearly every study shows that confidence is a strong indicator of accuracy [7]. Even older studies in which the data were originally analyzed by computing a correlation coefficient, when reanalyzed, show that low confidence implies low accuracy and high confidence implies high accuracy.

There is more. Contrary to decades of thinking, not only is eyewitness memory highly reliable on an initial test, it remains reliable even when the crime in question was highly stressful (e.g., a robbery), when a weapon was present, and when the witness and perpetrator were of different races. To be sure, these “estimator variables” [9] do impair lineup performance because, when they prevail during a crime, the witness is less likely to form a clear memory of the perpetrator. Thus, because no one in the lineup will generate a strong memory-match signal, the witness will be unable to make a confident identification even when the perpetrator is present. What these factors do *not* do is implant a false memory of a random innocent suspect who the police might place in a lineup as part of their investigation. In other words, these general memory-harming factors do not induce high-confidence misidentifications of innocent suspects [10].

With respect to the estimator variable issue, the key mistake in interpreting the relevant evidence over the years has been to assume that the factors that impair memory of the perpetrator necessarily reduce the reliability of the (relatively few) high-confidence IDs that occur despite the poor learning conditions at the time of the crime. In truth, the evidence suggests that those factors make it less likely that a high-confidence ID will occur while having little effect on the reliability of high-confidence IDs that do occur.

Some researchers are willing to accept the possibility that, in principle, when first tested under perfect (“pristine”) testing conditions, eyewitness memory can be reliable. However, these same researchers worry that pristine conditions almost never occur in the real world [11,12]. If so, then it could be argued that although an initial test of eyewitness memory is theoretically reliable, in actual practice, it is unreliable, just as many have contended all along. However, the evidence weighs against this perspective. To be sure, the police should always use pristine testing procedures because there is no compelling reason not to [7]. Indeed, *certain* non-pristine testing conditions clearly do compromise the information-value of even a high-confidence initial identification (most notably, the use of an unfair lineup in which the suspect stands out). However, the evidence to date suggests that *those* non-pristine conditions tend to be rare and that the non-pristine conditions that more commonly prevail may not seriously degrade the reliability of eyewitness memory when it is first tested. What is that evidence?

Garrett [13] analyzed trial materials for 161 DNA exonerees who had been misidentified by one or more eyewitnesses in a court of law and found that for every case in which initial eyewitness confidence could be determined (91 of 161 cases examined), the eyewitness appropriately expressed low confidence. Indeed, some eyewitnesses did not even identify the suspect on the first test (e.g., they rejected the lineup). Thus, despite the non-pristine testing conditions that Garrett [13] also painstakingly documented for most of the DNA exoneration cases, the initial eyewitness test result still came back as *inconclusive*. Conspicuously missing were initial misidentifications made with high confidence, which fits with other research showing that, even for real eyewitnesses, initial identifications from a lineup made with high confidence tend to be highly accurate [14].

The importance of these facts cannot be overstated. For all other types of forensic evidence, an inconclusive test result would have been the end of it, but for eyewitness memory, the testing was repeated until the initially inconclusive low-confidence ID was transformed into a seemingly much more conclusive high-confidence ID by the time of the trial [15]. To appreciate just how misguided this practice is, consider an analogy involving DNA evidence. Imagine that a forensic DNA sample yielded an inconclusive test result (e.g., too few alleles were recovered from the forensic evidence to be of much use). Instead of accepting that outcome, imagine that law enforcement responded by (1) asking the suspect to handle the forensic evidence, thereby depositing copious amounts of his DNA on it, (2) re-testing the now-contaminated evidence and finding a conclusive match to the suspect, and then (3) using that conclusive DNA match to convince a jury to return a guilty verdict. If such practices often resulted in the wrongful conviction of innocent suspects, the problem would not be that DNA evidence is unreliable. Instead, the problem would be that police and prosecutors ignored the inconclusive test result from the uncontaminated evidence and then used evidence that they themselves contaminated to help convict an innocent person.

This story of how DNA evidence can be misused is fictitious, but it corresponds exactly to the real story of how eyewitness evidence is misused. As noted above, in the wrongful conviction cases that are usually blamed on the unreliability of eyewitness memory, the initial test result came back as *inconclusive*. Unfortunately, that was not the end of it. Instead, well-intentioned investigators tested the memory of the eyewitness again and again (each time further contaminating it and increasing confidence) until, ultimately, in front of a jury, the contaminated memory evidence seemed conclusive because the eyewitness identification of the innocent defendant was made with high confidence.

What sense does it make to blame the fallibility of eyewitness memory for these wrongful convictions? None whatsoever, in my view. If a problem is incorrectly diagnosed, as it has been in the case of eyewitness memory for many years, the proposed solutions (e.g., “ignore eyewitness confidence”) will be correspondingly off the mark. As it turns out, eyewitness memory was not especially problematic in *any* of the DNA exoneration cases for which the relevant information is available. The problem instead was that police and prosecutors did not accept the inconclusive result they obtained from the one and only uncontaminated test they conducted, as they would have had the forensic evidence involved DNA or fingerprints. Once appropriately diagnosed, the solution is simple: stop doing that. If a witness expresses low confidence in the initial ID, treat it as the weak evidence it is, no matter how confident they later become (no exceptions). Had that one simple rule been followed from the beginning, it is possible that none of the wrongful convictions ordinarily attributed to eyewitness misidentification would have occurred in the first place. In light of these considerations, a new verdict seems warranted: In addition to exonerating the innocent defendants who were wrongfully convicted, the time has come to exonerate eyewitness memory too.

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