

Confirmation Bias

Commentators have identified bias as a serious problem in the forensic setting. (See Elizabeth F. Loftus & Simon A. Cole, *Contaminated Evidence*, 304 SCIENCE 959 (May 14, 2004) (“[F]orensic scientists remain stubbornly unwilling to confront and control the problem of bias, insisting that it can be overcome through sheer force of will and good intentions.”)) As one commentator noted: “To the extent that we are aware of our vulnerability to bias, we may be able to control it. In fact, a feature of good scientific practice is the institution of processes—such as blind testing, the use of precise measurements, standardized procedures, statistical analysis—that control for bias.” (MIKE REDMAYNE, EXPERT EVIDENCE AND CRIMINAL JUSTICE 16 (2001).) A National Academy of Science DNA Report recommended that laboratory procedures “be designed with safeguards to detect bias and to identify cases of true ambiguity. Potential ambiguities should be documented” (NATIONAL RESEARCH COUNCIL, THE EVALUATION OF FORENSIC DNA EVIDENCE 85 (1996).)

There are two different types of bias: motivational and cognitive. Cognitive bias occurs because people tend to see what they *expect* to see, and this typically affects their decisions in cases of ambiguity. Motivational bias arises when lab personnel’s often close association with the police influences their conclusions—often subconsciously.

Motivational bias

Commentators have argued for the establishment of crime laboratories that are independent of law enforcement in order to minimize police pressure that may bias lab results. A prominent forensic scientist has commented that it “is important to recognize that the police agency controls the formal and informal system of rewards and sanctions for the laboratory examiners. Many of these laboratories



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make their services available only to law enforcement agencies. All of these factors raise a legitimate issue regarding the objectivity of laboratory personnel.” (*Symposium on Science and the Rules of Legal Procedure*, 101 F.R.D. 599, 642 (1983) (statement of Professor Joseph Peterson).) A former lab director has noted: “Many forensic scientists at the state police labs . . . saw their role as members of the state’s attorney’s team. They thought they were prosecution witnesses.” (Steve Mills et al., *When Labs Falter, Defendants Pay: Bias Toward Prosecution Cited in Illinois Cases*, CHI. TRIB., Oct. 20, 2004.)

The problem is not unique to this country. According to a British court: “Forensic scientists may become partisan. The very fact that the police seek their assistance may create a relationship between the police and the forensic scientists. And the adversarial character of the proceedings tends to promote this process. Forensic scientists employed by the government may come to see their function as helping the police. They may lose their objectivity.” (*Regina v. Ward*, [1993] 1 WLR 619, 674.)

In 2002, the Illinois Governor’s Commission on Capital Punishment proposed creation of an independent state laboratory as a way to provide access to forensic services. (See REPORT OF THE GOVERNOR’S COMM’N ON CAPITAL PUNISHMENT (2002) (Recommendation 20: “An independent state forensic laboratory should be created, operated by civilian personnel, with its own budget, separate from any police agency or supervision.”).) See also Paul C. Giannelli, *The Abuse of Scientific Evidence in Criminal Cases: The Need for Independent Crime Laboratories*, 4 VA. J. SOC. POL’Y & L. 439, 457-62 (1997.)

Cognitive bias

Cognitive bias occurs because people tend to see what they *expect* to see, and this typically affects their decisions in cases of ambiguity. These include “observer effects.” A simple example illustrates the point. When a pharmaceutical company wants to introduce a new drug, test trials are conducted, and they are conducted double blind. Neither the patient nor the physician knows whether the patient is receiving the new drug or a placebo (the control). Numerous studies have demonstrated that

physicians who know that their patients are receiving a new drug tend to see positive results, even when there are none. In short, knowing (cognitive) something, affects our perceptions. It is simply human nature.

A slightly different type of cognitive bias is called “confirmation bias.” The psychological literature on lineups provides an illustration. Eyewitnesses with reservations about their identifications often become positive after learning that the person they identified is the prime suspect, in the police’s view. (See REPORT OF THE ABA CRIMINAL JUSTICE SECTION’S AD HOC INNOCENCE COMMITTEE TO ENSURE THE INTEGRITY OF THE CRIMINAL PROCESS, ACHIEVING JUSTICE: FREEING THE INNOCENT, CONVICTING THE GUILTY (Paul C. Giannelli & Myrna Raeder eds., 2006) (recommending double blind lineups).)

The same phenomenon may occur when external information is provided to lab analysts. For example, Professor Peter DeForest has described investigators who responded to inconclusive lab results by saying to forensic examiners: “Would it help if I told you we know he’s the guy who did it?” (D. Michael Risinger et al., *The Daubert/Kumho Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion*, 90 CAL. L. REV. 1, 39 (2002).) One crime lab examiner, “who has worked in the crime lab system since 1998, said she tried not to be swayed by detectives’ belief that they had a strong suspect. ‘We’re all human,’ she said. ‘I tried not to let it influence me. But I can’t say it never does.’” (Ruth Teichroeb, *Rare Look Inside State Crime Labs Reveals Recurring DNA Test Problems*, SEATTLE POST-INTELLIGENCER, July 22, 2004).)

The Mayfield affair

Confirmation bias also arose in the misidentification of fingerprints in the terrorist train bombing in Madrid on March 11, 2004. The FBI got it wrong, misidentifying Brandon Mayfield, a Portland lawyer, as the source of the crime scene prints. (See Sara Kershaw, *Spain and U.S. at Odds on Mistaken Terror Arrest*, N.Y. TIMES, June 5, 2004, at A1 (Spanish authorities cleared Brandon Mayfield and matched the fingerprints to an Algerian national).)

To its credit, the FBI initiated an investigation using outside experts. The resulting report raised a number of disquieting issues. (Robert B. Stacey, *A Report on the Erroneous Fingerprint*

Individualization in the Madrid Train Bombing Case, 54 J. FORENSIC IDENTIFICATION 707 (2004).) The mistake was attributed in part to “confirmation bias.”

In other words, once the examiner made up his mind, he saw what he expected to see during reexaminations. A second review by another examiner was not conducted blind—i.e., the reviewer knew that a positive identification had already been made—and thus was also subject to the influence of confirmation bias. Moreover, the culture at the laboratory was poorly suited to detecting mistakes. As the report noted, “To disagree was not an expected response.”

The experiment

As a result of the Mayfield case, several British researchers devised an experiment to test whether external influences can affect the identification process. (Itiel E. Dror et al., *Contextual Information Renders Experts Vulnerable to Making Erroneous Identifications*, 156 FORENSIC SCI. INT’L 74 (2006).) In particular, they were concerned with confirmation bias as occurred in the Mayfield misidentification. In the experiment, fingerprint examiners who were unfamiliar with the Mayfield prints were asked by colleagues to compare a crime scene and suspect print. “They were told that the pair of prints was the one that was erroneously matched by the FBI as the Madrid bomber, thus creating an extraneous context that the prints were a non-match.” The participants were then instructed to ignore this information. The prints, in fact, were from cases that each of the participants had previously matched. Of the five examiners, only one still judged the print to be a match. The other four changed their opinions; three directly contradicted their prior identifications, and the fourth concluded that there was insufficient data to reach a definite conclusion. “This is striking given that all five experts had seen the identical fingerprints previously and all had decided that the prints were a sound and definite match.”

Conclusion

Information from an investigation should not be given to the analyst interpreting the results—i.e., the examiner should generally be “blind” to the case’s circumstances and other evidence. ABA Standards for Criminal Justice, DNA Evidence, Standard 3.1 provides, in part, that testing laboratories should “follow procedures designed to minimize bias when interpreting test results.” ■