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## Evidence Law: Convictions Based on Circumstantial Evidence

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**Evidence Law:**  
*Convictions Based on Circumstantial Evidence*<sup>1</sup>

Binyamin Blum

*Introduction*

Does overreliance upon circumstantial evidence lead to wrongful convictions? Do fact-finders generally—and jurors in particular—tend to overvalue such forms of proof? The law tends to assume so, but recent behavioral studies suggest the contrary: The human tendency is to undervalue circumstantial evidence when compared to direct evidence, even when there is no rational reason to do so. Surveying three forms of cognitive biases—the anti-inference bias, gain-framed inference, and the source-content bias—this chapter demonstrates why the fear of overreliance upon circumstantial evidence by fact-finders may be exaggerated.

*Circumstantial Evidence*

The legal literature is divided on the precise distinction between circumstantial and direct evidence. Some have gone so far as to argue that there is no real difference between the two: with some effort and creativity, all evidence may be classified as circumstantial.<sup>2</sup> Nonetheless, the distinction between direct and circumstantial evidence is commonplace in both legal literature and in the public perception of proof. Dean John Henry Wigmore defined the distinction as follows:

When we speak of a fact as established by direct or positive evidence, we mean that it has been testified to by witnesses as having come under the cognizance of their senses, and of the truth of which there seems to be no reasonable doubt or question; and when we speak of a fact as established by circumstantial evidence, we mean that the existence of it is

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1. Summarized and excerpted from Binyamin Blum & Elisha Harlev, *Convicting Based on Circumstantial Evidence: Psychological Insights Regarding the Appropriate Decision-making Model in Light of the Kriaf Case*, 11 DIN UDVARIM 161 (2018).

2. See, e.g., Richard K. Greenstein, *Determining Facts: The Myth of Direct Evidence*, 45 HOUS. L. REV. 1801, 1806–07 (2009).

fairly and reasonably to be inferred from other facts proved in the case.<sup>3</sup>

Put differently, unlike direct evidence, which proves a material element of a legal action, circumstantial evidence proves other facts from which one may *infer* the existence of material elements. For example, a witness's testimony that he saw the defendant shoot the victim would be direct evidence of the actus reus of murder. By contrast, a different witness's testimony that she saw the defendant fleeing the crime scene shortly after she heard gunshots would be circumstantial evidence.

Though the distinction between direct and circumstantial evidence is widely accepted, the common law does not discriminate between the two in terms of their weight.<sup>4</sup> A criminal conviction may rely solely upon circumstantial evidence. As Wigmore observed, "circumstantial evidence may be as persuasive and as compelling as testimonial evidence, and sometimes more so."<sup>5</sup>

Indeed, there is no *a priori* reason to classify circumstantial evidence as probatively inferior, or to suspect that it leads to less accurate outcomes than direct evidence. On the contrary, some studies have demonstrated that certain kinds of circumstantial evidence are more accurate—and therefore lead to fewer wrongful convictions—than direct evidence. For instance, one study found that 68% of known wrongful convictions stemmed from direct evidence, whereas only 9% relied on circumstantial evidence.<sup>6</sup>

Still, the common law has traditionally displayed a fear that circumstantial evidence may lead juries astray and result in wrongful convictions. Chief Justice Lemuel Shaw famously observed:

The disadvantages [of circumstantial evidence] are, that a jury has not only to weigh the evidence of facts, but to draw just conclusions from them; in doing which, they may be led by prejudice or partiality, or by want of due deliberation and sobriety of judgment, to make hasty and false deductions; a

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3. 1A JOHN HENRY WIGMORE, EVIDENCE IN TRIALS AT COMMON LAW § 25, at 954 (1983).

4. *Id.* § 26, at 957.

5. *Id.* § 26, at 961.

6. Hugo Adam Bedau & Michael L. Radelet, *Miscarriages of Justice in Potentially Capital Cases*, 40 STAN. L. REV. 21, 56–58 (1987).

source of error not existing in the consideration of positive evidence.<sup>7</sup>

In his seminal work *Convicting the Innocent*, Edwin Borchard asserted that circumstantial evidence was one of the leading causes of wrongful convictions.<sup>8</sup> Though Borchard conceded that “[n]o one will suggest that circumstantial evidence should be excluded as a form of evidence,” he observed that it is “nevertheless, often misleading and unreliable.”<sup>9</sup> The California Supreme Court similarly observed over half a century ago that “Courts have a *sua sponte* duty to instruct on how to evaluate circumstantial evidence if the prosecution substantially relies on circumstantial evidence to establish any element of the case.”<sup>10</sup> No similar duty attaches when the prosecution relies on direct evidence. Fears of overreliance upon circumstantial evidence are reflected to this day in California’s jury instructions. Jurors are urged to exercise particular caution when relying solely upon circumstantial evidence: “Before you may rely on circumstantial evidence to conclude that a fact necessary to find the defendant guilty has been proved, you must be convinced that the People have proved each fact essential to that conclusion beyond a reasonable doubt.”<sup>11</sup> All these admonitions are based on the assumption that fact-finders are likely to overvalue circumstantial evidence.

Psychological research demonstrates, however, that fact-finders tend to attach lesser weight to circumstantial than to direct evidence.<sup>12</sup> Empirically, therefore, there seems to be little to justify the fear of excessive weight being given to circumstantial evidence. On the contrary, jurors tend to be categorically skeptical of such evidence—sometimes unjustifiably so. We now turn to three sources of cognitive bias that may help explain this phenomenon.

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7. *Commonwealth v. Webster*, 59 Mass. 295, 312 (1850).

8. EDWIN M. BORCHARD, *CONVICING THE INNOCENT: ERRORS OF CRIMINAL JUSTICE* xiv (1932).

9. *Id.*

10. *People v. Yrigoyen*, 45 Cal. 2d 46, 49 (1955).

11. Judicial Council of Cal., *CRIMINAL JURY INSTRUCTIONS* §§ 224, 225 (2006).

12. Kevin Jon Heller, *The Cognitive Psychology of Circumstantial Evidence*, 105 MICH. L. REV. 241, 241 (2006).

*Anti-Inference Bias*

A series of recent behavioral studies has demonstrated that decisionmakers avoid ascribing responsibility—civil or criminal—when evidence of wrongdoing is solely circumstantial. This finding has held true even when the objective weight of the circumstantial evidence was equal to or greater than that of direct evidence.<sup>13</sup> In one study, participants were asked whether they would convict a person of speeding based on two different speed-camera technologies: the one recorded the car’s speed in a single shot (direct evidence); the other was a system of two close cameras that recorded the car’s location with a precise time stamp, requiring an inference of the car’s average speed (circumstantial evidence). The error rate for both technologies was held constant and minimal (2%) in both groups. The speeding figures were also identical in both cases: 125 kilometers per hour (78 mph) on a stretch of road limited to 100 kilometers per hour (62 mph). Though there was no rational reason to prefer a conviction based on one technology over the other, the participants largely preferred the direct evidence: 81.4% would convict based on direct evidence, while only 60% would convict based on circumstantial evidence.<sup>14</sup>

Numerous explanations have been offered for this anti-inference bias, such as the ease of imagining alternative scenarios.<sup>15</sup> However, recent studies have shown that the reluctance to rely on circumstantial evidence is powerful even when an alternative, exculpatory scenario is virtually unimaginable.<sup>16</sup> In other words, the very demand to make a logical inference in the absence of direct evidence is what decreases the likelihood of conviction, regardless of the strength of the circumstantial evidence itself or the plausibility of alternative scenarios.

*Gain-Framed Inferences*

The fear of false convictions based on circumstantial evidence is further reduced by a phenomenon known as “gain-framed inference”: The anti-inference bias diminishes when a decision is framed as a gain

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13. See, e.g., Eyal Zamir et al., *Seeing is Believing: The Anti-Inference Bias*, 89 *IND. L.J.* 195, 204–15 (2014).

14. *Id.* at 204–07.

15. Keith E. Niedermeier et al., *Jurors’ Use of Naked Statistical Evidence: Exploring Bases and Implications of the Wells Effect*, 76 *J. PERSONALITY & SOC. PSYCH.* 533, 533 (1999).

16. See Zamir et al., *supra* n.13, at 195.

rather than as a loss.<sup>17</sup> A recent study included a scenario in which a dairy farmer supplied milk with an unusual percentage of protein. Some of the participants were told that the protein percentage was high—and that the milk was therefore of higher quality and more expensive (“gain condition”). Other participants were told that the protein percentage was low—and therefore entailed a price reduction (“loss condition”). Both groups were further divided by the kinds of evidence pointing to the milk’s protein content: some were given direct evidence while others were provided with circumstantial evidence. In this experiment too, the error rate was held constant, providing no rational basis for distinction. While the overall anti-inference bias displayed by participants was consistent with prior findings of anti-inference bias, participants displayed a stronger anti-interference bias in the “loss condition” than in the “gain condition.”<sup>18</sup>

The phenomenon of gain-framed inference seems applicable to criminal cases too. In a legal system that considers wrongful convictions to be far worse than wrongful acquittals, an inference leading to an acquittal of a potentially innocent defendant should be perceived as a gain. Therefore, at least theoretically, this should lead to greater willingness to rely on inferences that establish the *innocence* of the accused when compared to their conviction, thereby reducing the number of convictions based solely on circumstantial evidence.<sup>19</sup>

Still, the phenomenon of gain-framed inference has not yet been fully studied or understood. The existing studies warrant caution, not bold conclusions. Further, the assumption that acquittals are in fact perceived as a gain rather than a loss has not yet been substantiated. For these reasons, more research is needed to establish that the phenomenon of gain-framed inference helps explain why fact-finders are reluctant to find guilt based solely on circumstantial evidence.

#### *Negative Inferences: The Source-Content Bias*

When considering circumstantial evidence, fact-finders—whether lay adjudicators or professional judges—often consider the plausibility of alternative scenarios suggested by the defense. The relevant psychological phenomenon for evaluating this thought process is the

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17. Eyal Zamir et al., *New Evidence About Circumstantial Evidence*, 41 L. & PSYCH. REV. 107 (2017).

18. *Id.*

19. See, e.g., Eyal Zamir & Ilana Ritov, *Loss Aversion, Omission Bias, and the Burden of Proof in Civil Litigation*, 41 J. LEGAL STUD. 165, 171 (2012).

“source-content bias.”<sup>20</sup> In a recent experiment that tested this bias, participants proved reluctant to infer negative conclusions, i.e., that something did *not* happen. When relying on circumstantial evidence, the inference that a certain fact was *incorrect* was less likely than the inference that a fact was *correct*.

Participants in the experiment were asked to consider a scenario whereby a car was parked by its owner in the morning in a particular location. After being told that cars are occasionally stolen, one group of participants was asked whether the car was not stolen, and the other group was asked whether the car was still in its original location.

Surprisingly, the study found that participants were far more likely to infer that the car was in the same location than they were to infer that the car had not been stolen.<sup>21</sup> It is worth emphasizing that if the car had been stolen it would—by definition—no longer be parked in the same place. There was therefore no rational basis to agree with the statement that the car was still at the same place more than with the statement that it was not stolen. Moreover, the likelihood of the car remaining where it was parked was actually *lower* than the chance that it was not stolen, since there are other imaginable causes apart from theft (such as towing) that would relocate the car.

The source-content bias may cause fact-finders to exercise particular caution when asked to evaluate whether the defendant’s account is unimaginable. Still, much like the gain-framed inference bias, the source-content bias has not yet been thoroughly studied in the legal context. Extension to the legal context is therefore tentative. But although further research is necessary, the source-content bias may bear significance when considering fears of wrongful convictions based on circumstantial evidence.

### *Conclusion*

Recent behavioral studies suggest that fears of overreliance on circumstantial evidence may be overblown. The thoroughly studied anti-inference bias suggests that fact-finders are already highly reluctant to draw conclusions from circumstantial evidence. Though we are only beginning to fully appreciate the robustness of two other kinds of bias that may lead jurors to treat circumstantial evidence with circumspection—the source-content bias and gain-framed inferences—

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20. John Turri, *Skeptical Appeal: The Source-Content Bias*, 39 COGNITIVE SCI. 307 (2015).

21. *Id.* at 312–16.

initial findings suggest that these phenomena may also lead fact-finders to acquit. Findings from the *Innocence Project* confirm that it is often *direct* rather than circumstantial evidence that has led to wrongful convictions. The focus, therefore, on circumstantial evidence as a central cause of wrongful convictions appears to be misguided. The effort to combat wrongful convictions must therefore shift focus to the inherent flaws of direct forms of evidence—such as eyewitness misidentification and false confessions. It is there, rather than with circumstantial evidence, that jurors' intuitions tend to lead them astray.

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