

Confirmation Bias and Other Systemic Causes of Wrongful Convictions: A Sentinel Events Perspective*

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* This research was funded with a grant (2014-IJ-CX-0037) awarded by the National Institute of Justice (NIJ) through their Sentinel Events initiative. The findings and conclusions of this article are those of the author and do not necessarily reflect those of NIJ. The authors wish to acknowledge the research support of James Trainum, Shannon Cunningham, Jessica Marinez, Cheryl Rowden, and Lucia Summers, and the helpful comments of James Doyle, Marvin Zalman, and Lauren Kopec.

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Wrongful convictions are a form of criminal investigative failure. Such failures are sentinel events that signal underlying structural problems within a weak system environment. Similar to transportation or medical accidents, they are often the result of multiple and co-occurring causes. However, unlike the response to an airplane crash, the criminal justice system typically makes little effort to understand what went wrong. These failures tend to be ignored and systemic reviews are rare. As a consequence, important necessary procedural changes and policy improvements may not occur. In this article, we discuss a National Institute of Justice-funded research project that was designed to develop a more comprehensive understanding of how—as opposed to why—such failures occur. We deconstructed 50 wrongful convictions and other criminal investigative failures in order to identify the major causal factors, their characteristics and interrelationships, and the systemic nature of the overall failure. We focus on the central role played by confirmation bias and other thinking errors.

I. Introduction

Wrongful convictions are sentinel events—significant failures that can signal an underlying structural problem.¹ They are frequently the product of compound errors within a weak system environment. Like transportation and medical accidents, they typically have multiple and co-occurring causes; however, unlike an airplane crash, usually little effort is made to understand what went wrong. Such failures are too often ignored, and systemic reviews are rare. Consequently, necessary technical changes and policy improvements may not happen.

Research on wrongful convictions has been done by legal scholars, psychologists, criminologists, and others, each discipline focusing on slightly different issues.² The research approach described herein is systems-based, concerned with identifying how

1 U.S. DEPT OF JUSTICE, NCJ 247141, MENDING JUSTICE: SENTINEL EVENT REVIEWS 1 (2014).

2 See, e.g., BRANDON L. GARRETT, CONVICTING THE INNOCENT: WHERE CRIMINAL PROSECUTIONS GO WRONG (2011) (analyzing trial records to discuss the practices leading to wrongful convictions including the use of suggestive eyewitness identification procedures, flawed forensic analysis, coercive interrogations, shoddy investigative practices, cognitive bias, and poor lawyering); D. KIM ROSSMO, CRIMINAL INVESTIGATIVE FAILURES (2009) (focusing on law enforcement investigations and cognitive errors in investigators' practices); Jon B. Gould et al., *Predicting Erroneous Convictions*, 99 IOWA L. REV. 471, 478–79 (2014) (discussing the need for research methodologies other than the case study approach).

a number of causal factors intersect and interact. Previous research on wrongful convictions has discussed the problem of cognitive errors on the part of investigators and prosecutors.³ Cognitive bias can lead to the identification and prosecution of defendants who are factually innocent. Indeed, the numbers of exonerated continue to grow through DNA evidence and other means.⁴

In Section II, we first explain the National Institute of Justice sentinel event initiative encouraging research on the dynamics of multiple factor interactions underlying “failed” investigations. We then provide a brief description of the nature and scope of wrongful convictions and list the causes identified in the extant literature. Section III outlines the purpose and design of the research project, and Section IV presents our major findings. In Section V, we discuss these findings within the context of what we know about wrongful convictions and focus on the pivotal role of confirmation bias. We present three case studies from our research to illustrate its negative influence. We provide further detail on the inappropriate interference by the prosecutor during the early stages of the police investigation. We describe how prosecutors may be subject to their own cognitive biases and how these contribute to wrongful convictions. We also discuss issues with the current legal definition of probable cause. Finally, we offer recommendations to mitigate the risk of wrongful convictions that arise from this research.

II. Background

A. Sentinel Events Initiative

The sentinel event approach to systematic analysis of error in criminal justice originated with James Doyle, a visiting National Institute of Justice (NIJ) fellow.⁵ Doyle has explained

3 See, e.g., Katherine Judson, *Bias, Subjectivity, and Wrongful Conviction*, 50 U. MICH. J.L. REFORM 779 (2017) (examining the ways investigator bias and subjectivity can result in faulty forensic science).

4 The National Registry of Exonerations website listed 2,434 exonerations on May 5, 2019. NAT’L REGISTRY OF EXONERATIONS, www.law.umich.edu/special/exoneration/Pages/about.aspx (last visited May 5, 2019).

5 See James M. Doyle, *Learning from Error in American Criminal Justice*, 100 J. CRIM. L. & CRIMINOLOGY 109 (2010) [hereinafter Doyle, *Learning from Error*]; James M. Doyle, *Learning About Learning from Error*, IDEAS AM. POLICING, May 2012, at 1; James M. Doyle, *Wrongful Convictions and Other Sentinel Events: Learning from Organizational Accidents in the Criminal Justice System*, in THE SENTINEL EVENT INITIATIVE: PROCEEDINGS FROM AN EXPERT ROUNDTABLE 2–6 (Nat’l

that “linear” research identifying causal factors (e.g., mistaken eyewitness identifications) has led to prevention efforts that are then implemented and tested (e.g., police procedural changes to reduce eyewitness identification errors).⁶ However, Doyle argues that the fields of aviation and medicine, which follow a paradigm of multiple contributing causes, should be applied to the analysis of wrongful convictions.⁷ This paradigm assumes several separate mistakes, none on their own sufficient to generate a negative outcome, must come together to create a situation that facilitates the failure.⁸ This systematic, multi-causal approach focuses on mistakes of individuals as only one causal element amidst several operational and structural elements, and, therefore, seeks to identify the changes necessary to reduce error rather than to assess blame. For instance, “checklists” and adjustments in aviation and hospital procedures have dramatically reduced negative outcomes originating from oversight and human error.⁹ Contrast this with the approach seen in cases of wrongful convictions which often focus on a “rogue” detective or rabid prosecutor who is primarily responsible for the miscarriage of justice.¹⁰ While this tactic can uncover errors, it does little to prevent them. The effort to assign responsibility and blame to a particular person can also produce obfuscation and denial by those who attempt to deflect blame or defend themselves from sanctions.¹¹

Inst. of Justice 2013), <http://nij.gov/topics/justice-system/Pages/sentinel-event-roundtable.aspx#overview> [hereinafter Doyle, 2013 Remarks].

6 See Doyle, 2013 Remarks, *supra* note 5.

7 Doyle, *Learning from Error*, *supra* note 5, at 113, 125.

8 Doyle, 2013 Remarks, *supra* note 5; see, e.g., SIDNEY DEKKER, *THE FIELD GUIDE TO UNDERSTANDING HUMAN ERROR* 80 (2006) (explaining human error as an organizational problem); JAMES REASON, *HUMAN ERROR* 197 (1990) (discussing the relationship between human error mechanisms and hazardous technologies); DOUGLAS A. WIEGMANN & SCOTT A. SHAPPELL, *A HUMAN ERROR APPROACH TO AVIATION ACCIDENT ANALYSIS: THE HUMAN FACTORS ANALYSIS AND CLASSIFICATION SYSTEM* 45–50, 63, 70 (2003) (analyzing human factors and use of system safety frameworks in understanding and preventing accidents).

9 See ATUL GAWANDE, *THE CHECKLIST MANIFESTO: HOW TO GET THINGS RIGHT* 114–57 (2009) (describing the effectiveness of flight checklists and the positive results achieved from his experiment utilizing safety checklists during surgical procedures).

10 See, e.g., Frances Robles & Stephanie Clifford, *3 Exonerated in Cases Tied to a Detective*, N.Y. TIMES, May 6, 2014 at A1 (blaming a “now discredited” detective whose investigative tactics led to multiple wrongful convictions).

11 See Barbara O’Brien, *A Recipe for Bias: An Empirical Look at the Interplay Between Institutional Incentives and Bounded Rationality in Prosecutorial Decision Making*, 74

A more systemic approach is needed to determine how a detective introduces a false confession in court or a prosecutor withholds exculpatory evidence, either intentionally or unintentionally, without the intervention of other actors in the process.

Doyle proposes that the systems or sentinel event approach, which has seen great success in medicine and transportation, can be adopted to understand wrongful convictions or “near misses” (i.e., narrowly escaped wrongful convictions).¹² The sentinel event approach views accidents and mistakes as more organizational than individual events. The best-known example of the sentinel event approach is the after-action reviews by the National Transportation Safety Board (NTSB).¹³ In cases of airplane crashes or close calls, the review team investigates everything from aircraft hardware to weather to pilot decision-making in order to determine what happened.¹⁴ As a result, the aviation industry has experienced significant increases in safety.¹⁵ Medical reviews that emphasize patient safety instead of assessing blame also follow the sentinel event path.¹⁶

While some have suggested sentinel event analysis cannot be transferred to the wrongful conviction problem because of the greater emphasis on liability and culpability in the justice system,¹⁷ airlines and hospitals are also subject to the risk of negligence, malpractice, or wrongful death lawsuits. Another issue is timing—sentinel event reviews in aviation and medicine typically occur shortly after a negative event.¹⁸ Such immediacy is rarely possible in

MO. L. REV. 999, 1011–14, 1031–34 (2009) (discussing how accountability for a prosecutor’s decision’s ultimate outcome, for instance a wrongful conviction, can increase bias, but accountability for the decision-making process reduces bias by improving the systematic evaluation of alternatives).

12 See Doyle, 2013 Remarks, *supra* note 5, at 3 (suggesting that remedial success in other fields should prompt system-wide analysis of wrongful convictions).

13 WIEGMANN & SHAPPELL, *supra* note 8.

14 *Id.* at 1–19.

15 *See id.*

16 *See, e.g.,* Andrew Chang et al., *The JCAHO Patient Safety Event Taxonomy: A Standardized Terminology and Classification Schema for Near Misses and Adverse Events*, 17 INT’L J. FOR QUALITY HEALTH CARE 95 (2005) (explaining patient safety and adverse event information is needed to develop prevention strategies); Mark Graber et al., *Diagnostic Error in Internal Medicine*, 165 ARCHIVE INTERNAL MED. 1493 (2005) (reviewing one hundred cases of diagnostic error to determine the system-related and cognitive components).

17 *Cf.* Doyle, 2013 Remarks, *supra* note 5, at 2, 7 (discussing the utility of sentinel event reviews in strengthening the criminal justice system).

18 *See, e.g.,* *The Investigative Process*, NAT’L TRANSP. SAFETY BOARD, <https://www.nts.gov/investigations/process/Pages/default.aspx> (last visited Mar.

criminal justice; many cases of wrongful conviction emerging today occurred 15 to 20 years ago.¹⁹ Moreover, the uncertainty of innocence is an important difference between the justice system and the fields of aviation (with clear crashes and near misses) and medicine (with obvious deaths and other known negative outcomes).

B. Wrongful Convictions

Determining the extent of the wrongful conviction problem is difficult. Estimates, calculated from different methods, range from 0.03 to 15% of felony convictions.²⁰ The critical role of DNA in the discovery of wrongful convictions²¹ means their detection in crimes other than murder or sexual assault is much less likely, and estimates here are even more problematic.

It should be noted that there is a difference between wrongful

28, 2019).

19 See NAT'L REGISTRY OF EXONERATIONS, *supra* note 4.

20 See, e.g., C. RONALD HUFF ET AL., CONVICTED BUT INNOCENT: WRONGFUL CONVICTION AND PUBLIC POLICY xiv, 55, 61 (1996) (estimating a felony wrongful conviction rate of 0.5% from a perception survey of 229 criminal justice system personnel); JOHN ROMAN ET AL., POST-CONVICTION DNA TESTING AND WRONGFUL CONVICTION 5–6 (2012) (examining biological evidence from 634 sexual assault and homicide cases in Virginia between 1973 and 1987 and determining new DNA testing appeared to eliminate the convicted offenders in 5% of cases; for sexual assault convictions alone, the elimination rate was 8 to 15%); Paul G. Cassell, *Overstating America's Wrongful Conviction Rate? Reassessing the Conventional Wisdom About the Prevalence of Wrongful Convictions*, 60 ARIZ. L. REV. 815, 818 (2018) (using a component-parts methodology with weighted averages to estimate a wrongful conviction risk of 0.031% for violent crimes); Samuel Gross et al., *Rate of False Conviction of Criminal Defendants Who Are Sentenced to Death. Proceedings of the National Academy of Sciences*, 111 PROC. NAT'L ACAD. SCI. 7230, 7233–34 (2014) (applying survival analysis to death row exoneration data from 1973 through 2004 and conservatively estimating an overall false conviction rate of 4.1% among death sentences); Charles E. Loeffler et al., *Measuring Self-Reported Wrongful Convictions Among Prisoners*, J. QUANTITATIVE CRIMINOLOGY 1 (2018) (estimating a 6% wrongful conviction rate in the Pennsylvania prison population from a self-report survey of 2,678 state male prisoners; results varied by conviction type, ranging from 2% for impaired driving to 40% for rape); D. Michael Risinger, *Innocents Convicted: An Empirically Justified Factual Wrongful Conviction Rate*, 97 J. CRIM. L. & CRIMINOLOGY 761, 780 (2007) (reviewing wrongful capital rape-murder conviction data and extrapolating a wrongful conviction rate of between 3.3 and 5%); Marvin Zalman, *Qualitatively Estimating the Incidence of Wrongful Convictions*, 48 CRIM. L. BULL. 221, 230 (2012) (developing a qualitative felony wrongful conviction estimate of 0.5 to 1% by integrating multiple sources).

21 ROMAN ET AL., *supra* note 20, at 10.

and erroneous or unsafe convictions. Wrongful convictions are based on actual innocence.²² Erroneous convictions involve egregious legal errors or misconduct.²³ In these cases, the person may be factually guilty of the crime, but the criminal justice process was subverted to the extent that the conviction fails to meet required legal standards.²⁴ Throughout the remainder of this discussion, we refer only to wrongful convictions based on actual innocence.

C. Causes of Wrongful Convictions Identified in the Literature

Much effort has been made to understand why wrongful convictions happen²⁵ and previous research has identified several contributing factors.²⁶ The most commonly cited causes include eyewitness misidentification, improper forensic science, false confessions, deceitful informants, police and prosecutorial misconduct, and a poor defense.²⁷ Several scholars have observed that tunnel vision and confirmation bias are also major causes of wrongful convictions.²⁸ Others have analyzed the effects of race, age, and geographic region.²⁹ The nature and frequency of causal factors may depend on the type of crime involved—for example, perjury by lying witness and false confessions are more commonly found in murder cases, eyewitness mistakes in rape and robbery cases, and

22 BARRY SCHECK ET AL., ACTUAL INNOCENCE: FIVE DAYS TO EXECUTION AND OTHER DISPATCHES FROM THE WRONGLY CONVICTED (2000).

23 Samuel Gross et al., *Exonerations in the United States 1989 Through 2003*, 95 J. CRIM. L. & CRIMINOLOGY 523, 525, 542, 544 (2005).

24 *See id.* at 525, 551.

25 *See, e.g.*, Myriam Denov & Katherine Campbell, *Criminal Injustice: Understanding the Causes, Effects, and Responses to Wrongful Conviction in Canada*, 21 J. CONTEMP. CRIM. JUST. 224 (2005) (examining the causes and effects of as well as state responses to wrongful convictions in Canada).

26 Gould et al., *supra* note 2, at 479 (listing the eight major sources identified in previous research as “(1) mistaken eyewitness identification; (2) false incriminating statements or confessions; (3) tunnel vision; (4) perjured informant testimony; (5) forensic error; (6) police error; (7) prosecutorial error; and (8) inadequate defense representation”).

27 *The Causes*, INNOCENCE PROJECT, <https://www.innocenceproject.org/#causes> (last visited Apr. 19, 2019).

28 *See, e.g.*, Keith Findley & Michael Scott, *The Multiple Dimensions of Tunnel Vision in Criminal Cases*, 2 WIS. L. REV. 291 (2006); *see also* Barbara O’Brien, *Prime Suspect: An Examination of Factors that Aggravate and Counteract Confirmation Bias in Criminal Investigations*, 15 PSYCHOL. PUB. POL’Y & L. 315, 316, 328, 331 (2009); D. Kim Rossmo, *Failures in Criminal Investigation*, POLICE CHIEF, Oct. 2009, at 54.

29 Gross et al., *supra* note 23, at 541, 547–51.

fabricated crimes in child sex abuse cases.³⁰

Gould and his colleagues compared wrongful convictions to “near misses” (acquittals or dismissals of innocent defendants) and found 10 variables that were significantly related to the former: state death penalty culture (more executions per population); age of defendant (younger); criminal history of defendant; strength of prosecution’s case (weaker); intentional misidentification; forensic evidence error; evidence withheld by prosecution; lying by non-eyewitness; strength of defense; and a family witness offered by the defendant.³¹

III. Research Project

A. Purpose of Project

The goal of this project was to deconstruct criminal investigative failures, per the sentinel event initiative, in order to identify their systemic nature. Following the medical analogy, criminal investigative failures are defined as wrongful convictions (misdiagnoses), an unsolved crime that should have been solved (unsuccessful treatment), or an ignored crime (failure to diagnose). These different failure types often share similar etiologies.

Our purpose was to develop a more comprehensive understanding of how—as opposed to why—such failures occur:

Questions of why and how are logically inseparable, but they lead us in different directions. The question of how invites us to look closely at the sequences of interactions that produced certain outcomes. By contrast, the question of why invites us to go in search of remote and categorical causes³²

A sample of wrongful convictions and other types of criminal investigative failure were deconstructed in an effort to identify the major causal factors, their characteristics and interrelationships, and

30 See Samuel Gross & Michael Shaffer, *Exonerations in the United States, 1989–2012*, NAT’L REGISTRY OF EXONERATIONS 40–41 (June 2012), http://www.law.umich.edu/special/exoneration/Documents/exonerations_us_1989_2012_full_report.pdf.

31 Gould et al., *supra* note 2, at 494, 515.

32 CHRISTOPHER CLARK, *THE SLEEPWALKERS: HOW EUROPE WENT TO WAR IN 1914*, at xxix (2012).

the systemic nature of the overall failure.³³

B. Research Design

We first identified 275 criminal investigative failures as potential study cases using various literature searches and databases. Details on crime type, relevant dates, location, investigating agency, exoneration method (if applicable), information sources, and other relevant details were collected. Cases were scored from 0 to 5 on the basis of: (1) information availability; and (2) agreement level that the investigation was a failure. The average of these two scores was used for an overall case score. The top 50 cases were then selected for analysis.

Each case was carefully reviewed and the most important causal factors for the failure identified. Data sources included trial transcripts, government reports, public inquiries, commission investigations, scholarly studies, independent reviews, interviews, and media coverage. Every case was analyzed by two researchers, at least one of whom was an experienced major crime investigator.

The causes were then classified as: (1) personal issues; (2) organizational problems; and (3) situational features. Personal issues were individual-level problems, often involving poor decision-making or flawed judgment (e.g., confirmation bias, misfeasance). Organizational problems were those inherent in the structure, procedures, policies, training, or resources of the police agency or prosecutor's office (e.g., groupthink, poor supervision). Situational factors were environmental features or characteristics of the crime, external to the control of the police or government (e.g., media frenzy, stranger crime). Personal and organizational factors may overlap; if the error was within the control of the individual (i.e., a different detective could have done things properly), then the cause was coded as personal.

Causal factors were further grouped by their proximity to the failure. Primary factors were proximate causes that led directly

³³ While the original goal of the study was to examine all types of criminal investigative failure, our final sample was comprised almost entirely of wrongful convictions/arrests (92%). This resulted from our information requirements; while wrongful convictions typically receive considerable media and legal attention, other types of investigative failures tend to be ignored. Impressions from the limited data suggest that all failure types share similar causes, with the exception that unsolved and ignored crimes tend to involve more organizational problems; however, the numbers are too small for any reliable conclusions.

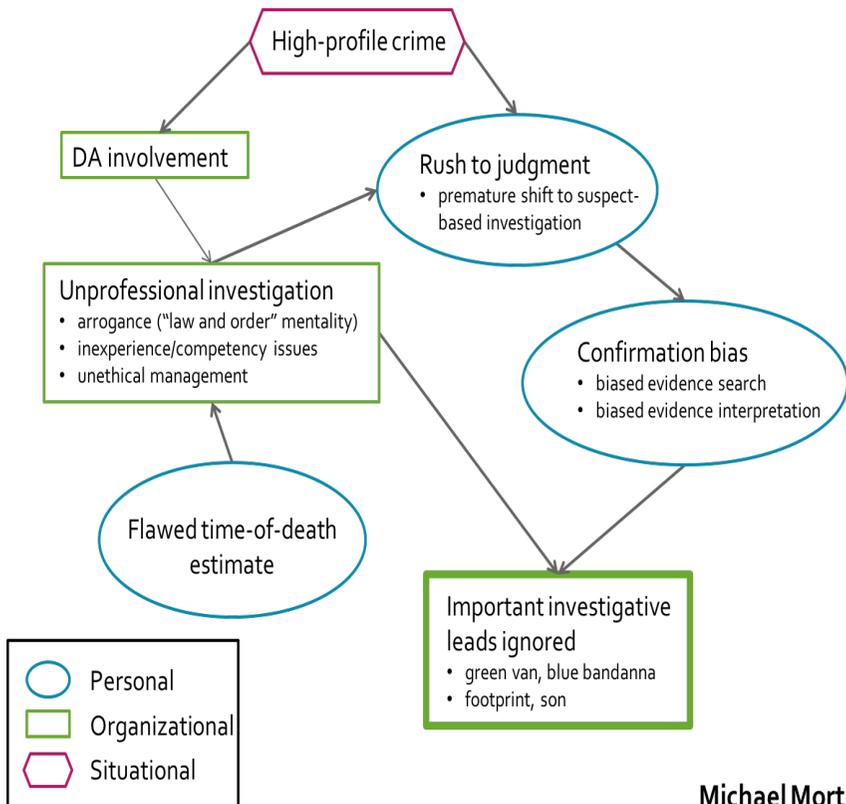
to the failure, while secondary, tertiary, and higher-level factors were contributing causes that produced, influenced, or enabled the primary causal factors.

The next step was to determine how the various causal factors related to each other, what factors facilitated what other factors, and the relative strength of each factor's contribution. We built concept maps and graphically displayed these interactions in causal factor networks in order to reveal and analyze the underlying structure of the case failure.

An example of a concept map, the Michael Morton case, is shown in Figure 1. The nodes in the network represent causal factors and the links influences; the former are shown as blue ovals, green rectangles, or purple hexagons, depending on their classification, and the latter as thick or thin arrows, depending on the direction and strength of their influence. The primary cause of Morton's wrongful conviction was coded as the failure to properly investigate a number of important evidentiary leads. The seven causal factors included:

- The murder was a high-profile crime in suburban community that prided itself on its safety.
- The high-profile nature of the murder resulted in the district attorney's office becoming inappropriately involved in the investigation.
- The sheriff's murder investigation involved inexperienced and incompetent investigators, unethical case management, and an arrogant "law and order" mentality.
- The medical examiner incorrectly estimated the victim's time-of-death, throwing off the timeline of the crime.
- Investigators rushed to judgment regarding Morton's guilt and prematurely shifted from an evidence-based to a suspect-based investigation. The high-profile nature of the crime and the unprofessional investigation contributed to the premature judgment.
- The rush to judgment regarding Morton's guilt led to confirmation bias, resulting in a biased search for and interpretation of evidence. Innocuous events were distorted to support Morton's guilt, while evidence pointing elsewhere was ignored.
- The sheriff's office failed to properly investigate a number of important evidentiary leads.

Figure 1: Concept Map



Michael Morton

The concept maps provide a graphic representation of failure causes and their relationships. Network and content analysis tools and methods were then used to help evaluate all the available information. After deconstructing the individual cases, larger systemic patterns were identified by reviewing the failures collectively.

IV. Research Findings

A. Case Characteristics

The characteristics of the 50 study cases were as follows:

- Failure type: 43 wrongful convictions; 3 wrongful

arrests;³⁴ 2 unsolved crimes; 1 failure to arrest; 1 ignored crime

- Crime type: 45 murders; 5 rapes/sexual assaults
- Location: 42 United States; 5 Canada; 3 Europe
- Mean scores: 4.8 information availability; 4.7 agreement level; 4.6 overall case score.

B. Causal Factors

We identified an average of 7.3 different causes per case (range 5 to 12). For coding purposes, these were grouped into 40 causal factors and 9 causal factor groups based on behavioral similarities. Table 1 shows the most frequent causal factors in rank order. The top 8 (25%) factors accounted for half of the total number of causes. Confirmation bias was present in 74% of all cases, and in 80% of wrongful convictions. Table 2 shows the causal groups in alphabetical order with their associated causal factors. Personal factors were the most common (61%), followed by organizational (21%) and then situational (18%).

Table 1: Causal Factors (≥ 10)

| Causal Factor | N |
|--------------------------------------|----|
| Confirmation bias | 37 |
| Tunnel vision | 24 |
| High-profile crime/media attention | 23 |
| Management/supervision issues | 22 |
| Careless/incompetent investigation | 20 |
| Improper interrogations | 20 |
| Rush to judgment | 19 |
| Flawed forensics | 15 |
| Problematic witness/informant | 14 |
| Evidence analysis/logic failure | 12 |
| Interagency conflict/DA interference | 10 |

³⁴ All three wrongful arrest cases involved extended incarceration of the innocent party. Nga Truong, arrested at the age of 16 for the murder of her baby, spent nearly three years in jail before the district attorney dismissed the charges.

Table 2: Causal Factor Groups

| Causal Factor Group | N | % | Causal Factor |
|---------------------|-----|-----|--|
| Cognitive biases | 101 | 28% | Confirmation bias |
| | | | Groupthink |
| | | | Intuition |
| | | | Investigator ego/stubbornness |
| | | | Premature shift to suspect-based investigation |
| | | | Rush to judgment |
| | | | Tunnel vision |
| Evidence failures | 35 | 10% | Acceptance of unreliable evidence |
| | | | Evidence analysis/logic failure |
| | | | Evidence collection and analysis failure |
| | | | Evidence collection failure |
| | | | Physical evidence not analyzed |
| | | | Probability errors |
| External issues | 52 | 14% | Coincidence |
| | | | Crime fears |
| | | | Difficult crime to investigate |
| | | | High-profile crime/media attention |
| | | | Outside pressures |
| | | | Suspect behavior |
| Forensics/experts | 21 | 6% | Failure to consult experts |
| | | | Flawed forensics |
| | | | Improper use of "experts" |

| Causal Factor Group | N | % | Causal Factor |
|-----------------------------------|------------|-------------|---------------------------------------|
| Misfeasance | 18 | 5% | Misfeasance/corruption |
| | | | Procedure/law problems |
| | | | Subculture issues |
| Organizational problems | 38 | 10% | Inattention/apathy |
| | | | Interagency conflict/DA interference |
| | | | Management/supervision issues |
| | | | Resource/budget problems |
| Other | 4 | 1% | Other |
| Poor investigation | 48 | 13% | Alibi not evaluated |
| | | | Alternative suspects not investigated |
| | | | Careless/incompetent investigation |
| | | | Demeanor/character evidence |
| | | | Knowledge/training issues |
| | | | Linkage blindness |
| Problematic witnesses/confessions | 46 | 13% | Improper interrogations |
| | | | Improper suspect identification |
| | | | Jailhouse informant |
| | | | Problematic witness/informant |
| Total | 363 | 100% | 40 |

A causal factor's proximity was measured by its distance from the failure. If a factor was determined to be a direct cause (proximate factor), it was assigned a proximity of 1; if a factor was a contributing cause of the proximate factor, it was assigned a proximity of 2 (and so on). The overall mean proximity, for all factors across all cases, was 2.0. The most frequent proximate causal factors (i.e., proximity = 1) included confirmation bias, careless/incompetent investigation, evidence analysis/logic failure, and improper interrogations.

While causal factors are nodes in the concept maps, the relationships between them are links. There was a total of 383 such connections between the 363 causal factors for the 50 cases (mean = 7.7 links per case). From the perspective of a particular causal factor, a link was either a cause or an effect, depending on whether it led from or to the factor (influence output or input). There were also five mutual cause-effect links (double-headed arrows), indicating a reciprocal relationship between the two factors.

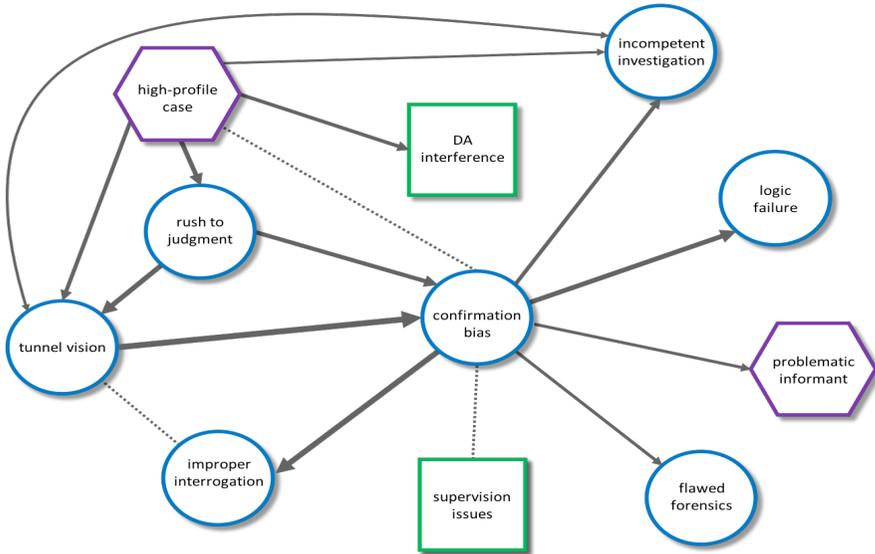
Confirmation bias was the most connected causal factor by a significant margin; it had the highest number of both cause and effect links. Other causal factors with high frequencies of cause links included high-profile crime/media attention, management/supervision issues, tunnel vision, careless/incompetent investigation, and rush to judgment. Causal factors with high frequencies of effect links included tunnel vision, rush to judgment, improper interrogations, evidence analysis/logic failure, and careless/incompetent investigation.

Particular combinations of factors tended to cluster together in the same case. For example, a common causal pattern consisted of a high-profile crime (such as a horrible murder) that led to a rush to judgment (and a premature shift to a suspect-based investigation), resulting in tunnel vision and confirmation bias—ultimately producing an evidence failure. Cluster patterns are likely the result of an underlying process connecting the different factors. In this example, production pressures (well documented in the safety literature³⁵), stemming from extensive media coverage of a sensational crime, lead to cognitive biases and then evidence failures.

Figure 2 shows commonly co-occurring causal factors; this image is a summary of the relationships across all cases and does not represent the specific links in a single investigative failure. The width of an arrow indicates how frequently the two connected factors were linked; dotted lines indicate co-occurrence in the same case but not a direct link. As can be clearly seen, confirmation bias plays a central role in this pattern.

35 Safety culture researchers study how managerial and organizational factors influence human performance to help minimize workplace risk. *See, e.g.,* SIDNEY DEKKER, *THE FIELD GUIDE TO UNDERSTANDING HUMAN ERROR* 164–68, 171 (2006).

Figure 2: Causal Factor Clusters



C. Evidence Failures

A wrongful conviction is fundamentally a failure of evidence.³⁶ A criminal investigation requires proper evidence collection, evaluation, and analysis. Errors in any of these tasks can lead to flawed decision-making by detectives. We found evidence failures were often the product of a rush to judgment, tunnel vision, confirmation bias, and/or groupthink.

For each case, an assessment was made to determine if any of the following problems occurred during the investigation:

1. Inadequate evidence collection—failure to collect all the relevant evidence necessary to thoroughly investigate the case (e.g., crime scene evidence, neighborhood canvass, witness and suspect interviews);
2. Improper evidence evaluation—failure to assess evidence reliability (the probability an item of evidence, such as a confession, witness statement, or lab analysis, is accurate or true); or
3. Illogical evidence analysis—failure to logically analyze the

³⁶ While some wrongful convictions have been the result of police corruption, most of the official misconduct cases we have encountered (in both our sample and experience) appear to involve a genuine but mistaken—or even reckless—belief on the part of the detective that the suspect was guilty.

evidence (e.g., significance, low reliability implications, connections, patterns).

Evidence collection problems were present in 58%, evidence evaluation problems in 92%, and evidence analysis problems in 78% of the cases. It is possible for a failed investigation to suffer from more than one type of evidence failure. The most common failure combinations were collection/evaluation/analysis (40%) and evaluation/analysis (34%); only 12% of the cases had a single evidence failure mode.

Table 3 shows the causal factors most frequently associated with the various evidence failure modes, arranged roughly in the chronological order in which they occur in an investigation. A comparison of Table 3 to Figure 2 reveals the anatomy of a criminal investigative failure by depicting causal factor relationships and their impact on specific types of evidence failure.

Table 3: Evidence Failure Causal Factors

| Evidence Collection | Evidence Evaluation | Evidence Analysis |
|---------------------------|-------------------------|--------------------|
| | High-profile case | |
| Rush to judgment | | |
| Tunnel vision | | |
| Confirmation bias | | |
| Incompetent investigation | | |
| | | Flawed forensics |
| | | Logic failure |
| | Improper interrogations | |
| | Problematic informant | |
| | | Supervision issues |

V. Discussion

A. Causes

1. Causality

Our approach was influenced by the root cause analysis (RCA) methods outlined in the safety literature.³⁷ A root cause is defined as the earliest (“deepest”) factor in a causal chain, the removal of which would prevent the failure from occurring—what Allison and Zelikow call the *but for which* test.³⁸ However, RCA usually assumes a single failure cause and adopts a reductionist view which leads to a linear analysis.³⁹ This approach is useful for straightforward cause-and-effect relationships, such as machine operations where defects are observable, measurable, and objective; however, social and behavioral influences are not mechanical processes, and RCA is less suitable in human-centered work environments.⁴⁰

Following this definition, most criminal investigative failures do not have a single root cause; rather, they are more commonly the product of a number of intersecting causal factors (or factor patterns). While it might be argued that wrongful convictions are ultimately the result of flawed decision-making, multiple wrong decisions by different parties are necessary—the decision by the police to arrest the wrong person, the decision by the prosecutor to charge the wrong person, the decision by a judge or jury to convict the wrong person.

Certain causal factors were identified as proximate in our study, but this did not mean they were a root cause or that they were even the most important. Proximity was only a measure of temporal causal order. Because of its direct impact on the failure, a proximate cause might be regarded as an essential step, but not as a factor of

37 See PAUL F. WILSON ET AL., *ROOT CAUSE ANALYSIS: A TOOL FOR TOTAL QUALITY MANAGEMENT* 5–17 (1993) (defining RCA and detailing advantages of performing an effective safety analysis utilizing this tool).

38 GRAHAM ALLISON & PHILIP ZELIKOW, *ESSENCE OF DECISION: EXPLAINING THE CUBAN MISSILE CRISIS* 383 (2d ed. 1999).

39 Mohammad Farhad Peerally et al., *The Problem with Root Cause Analysis*, 26 *BMJ QUALITY & SAFETY* 417, 417 (2017).

40 See Ivan Pupulidy, *Why Accident Reviews Should Focus on Conditions*, LINKEDIN (Mar. 7, 2017), <https://www.linkedin.com/pulse/why-accident-reviews-should-focus-conditions-ivan-pupulidy-phd> (noting the differences between mechanical systems, where things are measurable and objective, and the subjective nature of information obtained from people).

origin. In this sense, there may not always be a “causal bottom line;” as experimentation is infeasible, it is difficult to identify the specific major factors *but for which* the outcome would not have occurred.

While we used the term “causal factor” in our study, it would have been more precise to refer to “contributing” factor, as any particular factor may or may not have been necessary or sufficient to cause the failure in a given case. Moreover, their role in a future investigation is probabilistic, not deterministic, conditional on other influences and circumstances. Gould, Carrano, Leo, and Hail-Jares caution that much of the research on wrongful convictions has been done by law scholars and journalists using a legal cause-and-effect model,⁴¹ and it can be misleading to think of the related factors identified in this literature as “causing” wrongful convictions. It is perhaps best to think in terms of mapping a fuzzy network of influences rather than one of inevitable causes.⁴²

The basic logic of explanation involves the use of particular circumstances and laws (“causes”) to answer the question of why an event occurred.⁴³ Prediction is the converse of explanation. With its antecedents known, an event can be expected and therefore understandable. However, it has been argued that this philosophy of science paradigm does not apply to the philosophy of history⁴⁴—or criminology. While we might be able to identify plausible possibilities, we cannot establish definitive laws of human behavior. Our approach in this study fell between these two positions—deterministic laws were replaced by probabilistic patterns, predictions by risk assessments.

2. Causal Factors

Personal factors were the most frequent cause of wrongful convictions. They comprised 61% of all causes and dominated all three metrics of causal importance—frequency, proximity, and connectedness. They were also key factors in both causal clusters and evidence failures. Specifically, the study showed premature judgment

41 Gould et al., *supra* note 2, at 479.

42 See Ivan Pupulidy & Crista Vesel, *The Learning Review: Adding to the Accident Investigation Toolbox*, EUR. COMMISSION JOINT RES. CTR. (Nov. 15, 2017), <http://www.safetydifferently.com/wp-content/uploads/2018/08/171024TheLearningReview.pdf> (describing the benefits of creating a “network of influences” map as an accident investigation technique).

43 CARL G. HEMPEL, ASPECTS OF SCIENTIFIC EXPLANATION AND OTHER ESSAYS IN THE PHILOSOPHY OF SCIENCE 348–50 (1966).

44 See, e.g., Allison & Zelikow, *supra* note 38, at 11–12.

often led to tunnel vision and confirmation bias. Confirmation bias then produced problems of poor thinking, logic failures, misjudgment of witness reliability, and flawed evidence assessments.

The most frequent organizational problem was lack of proper supervision and management. This void enabled a number of errors, including confirmation bias and incompetent investigations. In certain cases, police management ignored (and perhaps unofficially encouraged) misfeasance and noble cause corruption.

Interagency conflict, most notably between police departments and the district attorney's office, played a role in a number of failures, particularly those involving high-profile crimes with much media attention. Linkage blindness, the failure by police to connect crimes committed by the same offender, was an issue for serial offenses as it prevented the development of a complete picture of the series and undermined potential alibis of innocent suspects.

A high-profile crime followed by excessive media attention was the most common situational factor found in our study. Problematic witnesses or informants who lied to investigators for their own purposes was another frequent situational cause. However, it was sometimes difficult to distinguish instances of legitimate deception from those of police gullibility. Police officers have a responsibility to carefully evaluate evidence reliability, including statements of witnesses. If a detective uncritically accepted the notoriously unreliable claims of a jailhouse informant (due to confirmation bias or perhaps through misfeasance), we coded the action as personal rather than situational.

Confirmation bias held a central role in the systemic causal structure of wrongful convictions. This problem, and the susceptibility of prosecutors to cognitive biases, are discussed in more detail in the following sections.

B. Confirmation Bias

In an ideal world, we would make the best possible decisions after a careful evaluation of all available evidence. Judgment, however, is often impaired by cognitive biases.⁴⁵ Within the context of a

45 David Stubbins & Nelson Stubbins, *On the Horns of a Narrative: Judgment, Heuristics, and Biases in Criminal Investigation*, in *CRIMINAL INVESTIGATIVE FAILURES*, 119, 125–26 (D. Kim Rossmo ed., 2009). The inquiry into cognitive bias extends far beyond criminal justice applications. See, e.g., Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 *SCIENCE* 453 (1981) (describing how decision preferences can shift

criminal investigation, such systematic errors in thinking can result in an unsolved crime or a wrongful conviction;⁴⁶ our study found confirmation bias, in particular, held a pivotal position in the causal structure of wrongful convictions. Faulty assumptions, probability errors, and groupthink often played supporting roles. Cognitive bias affects not just investigators, but also prosecutors, defense lawyers, scientists, military leaders, politicians—indeed, everyone.⁴⁷

Cognitive biases operate at a below-conscious level; they are the product of unintentional strategies, not deliberate decisions.⁴⁸ Explanatory mechanisms for confirmation bias include both cognitive processes (limited ability to handle complex tasks) and motivated processes (influence of desire on belief, consistency needs).⁴⁹ A rush to judgment⁵⁰ is often the triggering problem. If investigators

when problems are framed differently); JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (Daniel Kahneman et al. eds., 1982) (discussing various decision heuristics employed under conditions of uncertainty and their resulting biases).

- 46 Itiel Dror & Peter Fraser-Mackenzie, *Cognitive Biases in Human Perception, Judgment, and Decision Making: Bridging Theory and the Real World*, in CRIMINAL INVESTIGATIVE FAILURES 56, 59 (D. Kim Rossmo ed., 2009); D. Kim Rossmo, *Criminal Investigative Failures: Avoiding the Pitfalls*, 75 FBI L. ENF'T BULL. 1, 1–2 (2006); D. Kim Rossmo, *Criminal Investigative Failures: Avoiding the Pitfalls (Part Two)*, 75 FBI L. ENF'T BULL. 12 (2006).
- 47 For more scholarship on cognitive bias as it affects both police and legal professionals see, for example, Alafair Burke, *Neutralizing Cognitive Bias: An Invitation to Prosecutors*, 2 N.Y.U. J.L. & LIBERTY 512, 516–17 (2007) (analyzing the effects of cognitive bias on prosecutors); L. Song Richardson, *Police Efficiency and the Fourth Amendment*, 87 IND. L.J. 1143, 1145 (2012) (discussing the role of cognitive bias in the reasonable suspicion/Fourth Amendment context); Anna Roberts, *(Re)Forming the Jury: Detection and Disinfection of Implicit Juror Bias*, 44 CONN. L. REV. 827 (2012) (proposing solutions to mitigate juror bias); Melanie D. Wilson, *Quieting Cognitive Bias with Standards for Witness Communications*, 62 HASTINGS L.J. 1227, 1229 (2011) (discussing effect of cognitive bias on prosecutors and defense attorneys).
- 48 JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES, *supra* note 45, at xii.
- 49 Margit Oswald & Stefan Grosjean, *Confirmation Bias*, in COGNITIVE ILLUSIONS: A HANDBOOK ON FALLACIES AND BIASES IN THINKING, JUDGMENT AND MEMORY 81, 90–91 (Rudiger Pohl ed., 2004).
- 50 Premature judgment is frequently the product of intuition, or what detectives more commonly refer to as “gut instinct.” See Daniel Kahneman, *A Perspective on Judgment and Choice: Mapping Bounded Rationality*, 58 AM. PSYCHOLOGIST 697, 697 (2003). Humans employ two types of decision-making—the intuitive and the rational. *Id.* at 698. Intuition is automatic and effortless, fast and powerful, but slowly learned. *Id.* Because of its implicit nature, intuition is difficult to control or modify, can be influenced by emotion, and is often

jump to a conclusion before all the evidence has been collected and analyzed, tunnel vision and confirmation bias may result; evidence discovered later will likely then suffer from a biased evaluation.⁵¹ Public fear, intense media interest, pressure from politicians, organizational stress, personal ego, or a strong desire to arrest a dangerous offender can all lead to premature judgment. Shocking crimes—attacks on children or multiple murders—generate higher pressures⁵² and risk driving police from an evidence-based to a suspect-based investigation before they are ready.⁵³ The evidence-based stage of a criminal investigation involves searching for, gathering, and analyzing evidence in the effort to determine what happened and who might be a viable suspect.⁵⁴ The suspect-based stage of a criminal investigation occurs after detectives have decided who the perpetrator is and they shift to the prosecution mode.⁵⁵

Tunnel vision (also called incrementalism) has been identified as a major cause of wrongful convictions.⁵⁶ It typically occurs early

error-prone. *Id.* Intuition typically involves the use of heuristics (cognitive shortcuts). *Id.* at 697. See also D. Michael Risinger & Jeffrey L. Loop, *Three Card Monte, Monty Hall, Modus Operandi and “Offender Profiling”: Some Lessons of Modern Cognitive Science for the Law of Evidence*, 24 *CARDOZO L. REV.* 193, 197 (2002) (explaining that a particular heuristic does not have to be right most of the time; as long as it promotes survival, it will be passed on through natural selection); Thomas Stewart, *How to Think With Your Gut*, *BUSINESS 2.0*, Nov. 2002, at 98 (explaining that different situations require different types of judgment). Intuition is valuable when it is based on experience and expertise, and if it is used in a stable environment where the learned rules remain consistent. GARY KLEIN, *THE POWER OF INTUITION* at 5, 23 (2007). When the data are unreliable and incomplete, or when we need to make decisions quickly under chaotic and uncertain conditions, intuitive decision-making is preferable. *Id.* at 189. However, complex and rule-bound tasks, such as major crime investigations or courtroom prosecutions, require careful analysis and sound logic. See *id.* at 67.

51 D. Kim Rossmo, *Case Rethinking: A Protocol for Reviewing Criminal Investigations*, 17 *POLICE PRAC. AND RES.* 214 (2016).

52 O’Brien, *supra* note 28.

53 See ROSSMO, *supra* note 2, at 58, 61.

54 See *id.* at 59.

55 See *id.*

56 See, e.g., BRUCE MACFARLANE, *WRONGFUL CONVICTIONS: THE EFFECTS OF TUNNEL VISION AND PREDISPOSING CIRCUMSTANCES IN THE CRIMINAL JUSTICE SYSTEM* 29–30 (2010), https://www.attorneygeneral.jus.gov.on.ca/inquiries/goudge/policy_research/pdf/Macfarlane_Wrongful-Convictions.pdf; Dianne Martin, *Lessons About Justice from the “Laboratory” of Wrongful Convictions: Tunnel Vision, the Construction of Guilt and Informer Evidence*, 70 *UMKC L. REV.* 847, 848 (2002); ROSSMO, *supra* note 2, at 13–14.

in an investigation and results from a narrow focus on a particular theory; it can be the result of satisficing or the selection of the first identified alternative that appears “good enough.”⁵⁷ This emphasis results in the unconscious filtering of information and contributes to an inappropriate analysis of evidence:

An officer may be so convinced of an eyewitness’s identification that he ignores other case facts that point away from the suspect’s guilt; a forensic scientist may conduct a hair comparison and see such a close match between that of the perpetrator and a suspect that he overlooks fingerprint analysis that isn’t as compelling; a prosecutor may be so satisfied with a suspect’s confession that he discounts forensic evidence that inculpates others⁵⁸

The concept of sunk costs has been linked to tunnel vision to explain why belief perseverance occurs even when strong contradictory evidence has emerged. As more resources—money, time, and emotions—are devoted towards a suspect, police and prosecutors become less willing to consider challenges to their conclusions.⁵⁹

Tunnel vision, however, has not been defined in a manner that allows it to be meaningfully researched.⁶⁰ It is often used as

57 See FPT HEADS OF PROSECUTIONS COMMITTEE WORKING GROUP, REPORT ON THE PREVENTION OF MISCARRIAGES OF JUSTICE 38 (2004); Findley & Scott, *supra* note 28, at 295. In a report from a commission of inquiry into an infamous wrongful conviction case in Canada, tunnel vision was condemned as “insidious . . . [i]t results in the [police] officer becoming so focussed upon an individual or incident that no other person or incident registers in the officer’s thoughts. Thus, tunnel vision can result in the elimination of other suspects who should be investigated.” PETER DE C. CORY, THE INQUIRY REGARDING THOMAS SOPHONOW (2001), <https://digitalcollection.gov.mb.ca/awweb/pdfopener?smd=1&did=12713&md=1>.

58 JON B. GOULD ET AL., PREDICTING ERRONEOUS CONVICTIONS: A SOCIAL SCIENCE APPROACH TO MISCARRIAGES OF JUSTICE 15 (2013). This report’s findings are also described in Gould et al., *supra* note 2.

59 Gould et al., *supra* note 2, at 504. For further discussion of tunnel vision and how it affects the entire course of investigation and prosecution, see MacFarlane, *supra* note 56, at 29–56.

60 Brent Snook & Richard Cullen, *Bounded Rationality and Criminal Investigations: Has Tunnel Vision Been Wrongfully Convicted?*, in CRIMINAL INVESTIGATIVE FAILURES 73, 73 (D. Kim Rossmo ed., 2009).

a vague umbrella term for certain cognitive biases, including confirmation bias (which is operationally defined and thus easier to identify and study). References to tunnel vision are more commonly found in legal writings, where the term is employed as a metaphor for the reluctance to consider alternatives, than in the psychological literature.

Confirmation bias is a type of selective thinking.⁶¹ Once a hypothesis has been formed, our inclination is to confirm rather than refute it. We tend to look for supporting information, interpret ambiguous information as consistent with our beliefs, and minimize any inconsistent evidence. Types of confirmation bias include: (1) the biased search for evidence; (2) the biased interpretation of information; and (3) a biased memory (selective recall).

Confirmation bias can cause a detective to interpret information in a biased manner—evidence that supports the investigative theory is taken at face value, while contradicting evidence is skeptically scrutinized. Other manifestations of confirmation bias include the failure to search for evidence that might prove a suspect's alibi, not utilizing such evidence if found, and refusing to consider alternative hypotheses.

Confirmation bias often leads to logic failures, which are closely tied to probability errors (e.g., believing something is likely when it is not or vice versa). Beliefs need to be updated upon the discovery of new information. Logically, upon finding exculpatory evidence, police investigators should shift their focus and begin exploring alternative explanations. Unfortunately, there have been several cases where detectives refused to abandon the original suspect, justifying their intransigence through highly convoluted reasoning.⁶² Critical thinking requires effort, and an entrenched

61 E.g., O'Brien, *supra* note 28, at 318 (reporting that experienced investigators considered witnesses who exonerated a favored suspect less credible than those who incriminated that suspect). In another study, police trainees considered evidence in a mock homicide case less reliable if it invalidated their initial hypotheses. *Id.*; see generally Raymond Nickerson, *Confirmation Bias: A Ubiquitous Phenomenon in Many Guises*, 2 REV. GEN. PSYCHOL. 175, 175 (1998); Derek J. Koehler, *Explanation, Imagination, and Confidence in Judgment*, 110 PSYCHOL. BULL. 499, 499 (1991).

62 For example, the discovery that crime scene DNA does not match an arrested person should result in a careful re-examination of the investigative theory. Instead, some investigators have assumed a co-offender was responsible for the DNA. This persistence of belief can be highly resilient, as demonstrated by the Norfolk Four case. TOM WELLS & RICHARD A. LEO, *THE WRONG GUYS: MURDER, FALSE CONFESSIONS, AND THE NORFOLK FOUR* (2008).

position, even an untenable one, can persist through psychological lethargy and organizational momentum.⁶³

The logic of the investigative conclusions can be tested in a case involving confirmation bias by considering what would happen if the order of evidential discovery was altered; the conclusions reached by detectives should not depend on the particular sequence in which the evidence was discovered.⁶⁴ But premature judgment can lead to confirmation bias and distorted evidence interpretations. Inculpatory evidence uncovered early in an investigation may be unquestioningly accepted while exculpatory evidence found later is denigrated, irrespective of probative value. For example, in the David Camm wrongful conviction case (discussed below), unreliable bloodstain evidence recovered the day after the murders became critical to the prosecution's case, while later DNA results pointing to the real killer were seen as something to be explained away. If varying the evidential order changes the case conclusion, there is likely a problem with the investigative logic.

Groupthink exacerbates tunnel vision and confirmation bias. Groupthink is the reluctance to think critically and challenge the dominant theory.⁶⁵ It occurs in highly cohesive groups under

When DNA excluded the person investigators initially arrested for the sexual murder of a woman, they pressured him to give up his "accomplice." *See id.* at 54–55. Then, when DNA did not match that second person, they pressured both men to give up a third accomplice. *See id.* at 96. They continued with this strategy, eventually arresting seven different men, four of whom ended up being convicted (in total violation of Occam's razor). *Id.* at ix. While the multiple offenders-scenario is a possibility, it is certainly not a probability—and it becomes much less likely as the numbers increase. The probability of n multiple offenders is equal to the probability of the murder being committed by a group of size n , multiplied by the probability that all but one of the group members failed to leave behind any DNA evidence, multiplied by the probability that the one person who did leave DNA evidence behind was the last member of the group (i.e., the only one not yet apprehended). The final result of this sequence of probabilities quickly drops into the category of remotely unlikely.

63 Lee Ross and Craig Anderson observed, "it is clear that beliefs can survive potent logical or empirical challenges. They can survive and even be bolstered by evidence that most uncommitted observers would agree logically demands some weakening of such beliefs. They can even survive the total destruction of their original evidential bases." Lee Ross & Craig A. Anderson, *Shortcomings in the Attribution Process: On the Origins and Maintenance of Erroneous Social Assessments*, in *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* 129, 149 (Daniel Kahneman et al. eds., 1982).

64 *See* Rossmo, *supra* note 51, at 212, 217.

65 IRVING L. JANIS, *GROUPTHINK: PSYCHOLOGICAL STUDIES OF POLICY*

pressure to make important decisions. Symptoms include power overestimation and a belief in the group's morality, close-mindedness and rationalization, and uniformity pressures and self-censorship. Groupthink has several negative outcomes; members selectively gather information, do not seek expert opinions, and fail to critically assess their ideas.⁶⁶ Consequently, alternatives are not considered and the group does not develop contingency plans. Groupthink can be disastrous in a major crime investigation as it distorts evidence evaluation.

Determining if poor judgment originated from faulty thinking or misfeasance may be difficult in some situations (culpability decision trees⁶⁷ can help untangled complex cases). The error to misconduct ratio in police work is simply unknown, and there are likely instances of "negligent logic" or willful blindness on the part of investigators that blur the line.

1. Case Studies

The following wrongful conviction cases from our study sample illustrate the pernicious role of confirmation bias in wrongful convictions.⁶⁸

After the nude body of Angela Correa was found in a park in Peekskill, New York, detectives rushed to judgment and focused on one of her classmates. Jeffrey Deskovic, 15-years-old, became a suspect because of his unusual behavior, including tardiness for school the day after Angela's disappearance. Suffering from tunnel vision, detectives pursued a single-minded course of action designed to get Deskovic to confess. Police did not look for other suspects despite the presence of exculpatory physical evidence. In a classic confirmation bias pattern, detectives changed their theory of the case when the DNA test results came back excluding Deskovic. Instead of re-evaluating the conclusion that he raped and killed Angela, they

DECISIONS AND FIASCOES 3 (2d ed. 1982).

66 See FPT HEADS OF PROSECUTIONS COMMITTEE WORKING GROUP, *supra* note 57, at 35–41.

67 Culpability decision trees use a series of structured questions concerning an individual's motives, behavior, and actions to explore why an unsafe event occurred and to help establish the extent of personal culpability. See JAMES REASON, *MANAGING THE RISKS OF ORGANIZATIONAL ACCIDENTS* 208–09 (1997).

68 D. Kim Rossmo & Joycelyn Pollock, *Case Deconstruction of Criminal Investigative Failures* (2018) (unpublished study) (final summary overview submitted to the National Institute of Justice).

decided he did not rape her, but instead killed her in a rage after she had sex with someone else. They failed to try to identify the source of the DNA or run it through CODIS. Rather than examine the evidence objectively, they shaped the evidence to fit their own theory without considering the possibility that they might have the wrong suspect. This resulted in a negligent and flawed investigation. The real offender was identified years later when the district attorney finally agreed to test the seminal fluid recovered from the victim against known sex offenders.

When Bruce Lisker discovered his mother stabbed in her Sherman Oaks, California, home, he frantically called 9-1-1. He was high on methamphetamines and his hands were covered in blood when EMTs arrived. The first detective on the scene knew Bruce from prior interactions and considered him a “punk.” Investigators coerced a confession (quickly recanted) from the 17-year-old teenager through the offer of a plea bargain. A rush to judgment followed by tunnel vision led to confirmation bias. Exculpatory evidence was ignored, while the alibi of an alternative and viable suspect was never checked despite inconsistencies in his story. Within days of Lisker’s arrival in the county jail, three different inmates reported he had confessed to them. The prosecutor decided to use the evidence of a career criminal with a history of “overhearing” admissions by other inmates, even though the police detective did not believe him. Twenty-six years after Lisker’s arrest, a federal judge vacated his conviction, ruling he had been prosecuted with “false evidence.”

Judith Johnson was raped and murdered in her home in Barberton, Ohio, and her six-year-old granddaughter, Brooke Sutton, was raped, beaten, and left for dead. Brooke managed to walk to a neighbor’s place for help. She told this woman that someone who looked like “Uncle Clarence” had committed the crime. Upon hearing this, police rushed to judgment and Clarence Elkins, Sr., became their one and only suspect. After being interviewed by police detectives and a psychologist, Brooke, despite expressing initial uncertainty, positively identified Elkins as her attacker.

However, there was no physical evidence that connected Elkins to the murder scene, and two pubic hairs found on the murder victim’s body failed to match him. Elkins had no significant criminal record and there was nothing in his background to indicate he would rape and kill his mother-in-law or niece. Police did not compare DNA from the crime scene with known sex offenders in the area or attempt to match fingerprints or conduct hair comparisons.

They failed to analyze fingernail scrapings, and they ignored a bloody lampshade at the crime scene because “they had enough evidence.” The neighbor that Brooke had asked for help behaved very strangely (she left the blood-covered little girl on her porch for 45 minutes while she cooked breakfast, and she never did call the police); however, this failed to arouse the suspicions of detectives. This is a troubling example of the power of tunnel vision and confirmation bias.

It turned out this neighbor’s boyfriend, who had recently absconded from a halfway house, was inside her home. DNA from the crime scene was eventually found to be a match to this man. Despite literally having the real killer next door, police ignored inconsistent physical evidence and exclusively focused on Elkins.

These three cases illustrate the significant damage confirmation bias can wreak on a criminal investigation. In each investigation, the premature focus on a suspect resulted in evidence being distorted or ignored. The result was the convictions and lengthy imprisonments of three innocent men.

C. Prosecutors

Prosecutors are subject to the same thinking errors as detectives, including tunnel vision, confirmation bias, belief perseverance, and avoidance of cognitive dissonance.⁶⁹ Consider that the prosecutor’s role is to prosecute only if there is probable cause to believe in the guilt of the defendant. Indeed, prosecutors are invested in the belief that the defendant is guilty because it is inherent in their professional duty to do so.⁷⁰ There is also the argument that

69 See Burke, *supra* note 47, at 515–20 (discussing confirmation bias and selective information processing by prosecutors); Alafair S. Burke, *Improving Prosecutorial Decision Making: Some Lessons of Cognitive Science*, 47 WM. & MARY L. REV. 1587, 1590–91, 1613 (2006) (explaining prosecutorial errors and flawed decisions are the result of cognitive processes, specifically information-processing tendencies that depart from perfect rationality). For how research on prosecutorial misconduct has shifted to social science explanations, see the discussion in Bruce Green & Ellen Yaroshefsky, *Prosecutorial Accountability 2.0*, 92 NOTRE DAME L. REV. 51, 97–99 (2016). For examples of how bias affects prosecutors see also Robert Aronson & Jacqueline McMurtrie, *The Use and Misuse of High-Tech Evidence by Prosecutors: Ethical and Evidentiary Issues*, 76 FORDHAM L. REV. 1453, 1481–83 (2007).

70 See Susan Bandes, *Loyalty to One’s Convictions: The Prosecutor and Tunnel Vision*, 49 HOW. L.J. 475, 489, 491 (2006) (discussing prosecutor’s role vis-à-vis belief system regarding defendants); Sarah Anne Mourer, *Believe It or Not: Mitigating the Negative Effects Personal Belief and Bias Have on the Criminal Justice System*, 43

prosecutors have an even stronger emotional connection to victims than police detectives due to their close relationship during trial preparation. This can lead to an excessive zeal for conviction even when exculpatory evidence exists.⁷¹ While investigators purportedly are trained to objectively evaluate evidence, prosecutors are trained to prepare a case in such a way as to ensure conviction. Once a decision to prosecute has been made, their training prepares them to consider contrary evidence only for the purpose of responding to and attacking such evidence.⁷²

The most frequently discussed prosecutorial misconduct involves *Brady* violations, which occur when potentially exculpatory

HOFSTRA L. REV. 1087, 1089–90, 1113, 1120–21 (2015) (explaining that a prosecutor’s ethical code requires a belief in probable cause before prosecuting, which encourages cognitive errors and recommending a higher standard than probable cause before prosecuting). Probable cause is a complex standard that arguably means different things at different decision points; one might argue, for instance, that a police officer’s probable cause to arrest is different than a prosecutor’s probable cause to pursue prosecution. Cognitive bias is present at each decision point, but arguably is stronger the more invested the criminal justice actors become in the defendant’s guilt. For further discussion of probable cause, see Andrew E. Taslitz, *What Is Probable Cause, and Why Should We Care?: The Costs, Benefits, and Meaning of Individualized Suspicion*, 73 LAW & CONTEMP. PROBS. 145 (2010).

71 See Randall Grometstein, *Prosecutorial Misconduct and Noble Cause Corruption*, 43 CRIM. L. BULL. 63, 65 (2007); see also Daniel Medwed, *The Prosecutor as Minister of Justice: Preaching to the Unconverted from the Post-Conviction Pulpit*, 84 WASH. L. REV. 35, 46 n.41, 48 (2009).

72 See Mourer, *supra* note 70, at 1111 (discussing how prosecutors evaluate evidence differently after they conclude defendant is guilty). Speaking as a former prosecutor, Mark Godsey, describes how prosecutors contribute to wrongful convictions through “cognitive dissonance,” “administrative evil,” and “dehumanization.” MARK GODSEY, *BLIND JUSTICE: A FORMER PROSECUTOR EXPOSES THE PSYCHOLOGY AND POLITICS OF WRONGFUL CONVICTIONS* (2017). Cognitive dissonance refers to the concept that prosecutors must believe the defendant is guilty and, during and after the trial, will go to ridiculous lengths to argue they correctly targeted the guilty party. *Id.* at 18. Administrative evil refers to the concept that individuals sometimes lose their internal moral compass when they are “doing their job” as part of a larger organization. *Id.* at 34. Acts that are wrong are justified by the fact that everyone in the organization behaves similarly. *Id.* at 37–38. In a prosecutor’s office, these acts sometimes skirt the law to shape and shade the evidence to the “story” the prosecutor is presenting to the jury. *See id.* at 48–49. Dehumanization refers to prosecutors’ tendency to view criminal suspects as different from themselves, and, indeed, everyone else. *Id.* at 39–42. This can result in celebrating a death penalty or ignoring the toll a guilty verdict takes on the defendant’s family. *Id.* at 45.

evidence is not disclosed to the defense.⁷³ Failure to provide material evidence that might have changed the outcome of the trial can be a *Brady* violation if it stemmed from intentional misconduct or unintentional error.⁷⁴ It is the discretion of the prosecutor that initially determines whether the evidence is material and exculpatory.⁷⁵ Indeed, the defense of prosecutors when exposed for not sharing evidence is that such evidence was weak, unreliable, and not apt to change the outcome of the trial—the very definition of materiality.⁷⁶

73 This refers to the case of *Brady v. Maryland*, 373 U.S. 83 (1963), in which the Supreme Court ruled that the suppression of exculpatory evidence violated due process when the evidence was material—that is, likely to change the outcome of the proceeding—either to guilt or punishment. The exculpatory evidence in that case was a confession by Brady’s accomplice to the murder both were charged with. *Id.* at 86. This statement was withheld from his defense attorney. *Id.* at 84. If such evidence is determined to be material, then both intentional and unintentional failures to disclose are grounds for a reversal. *Id.* at 87. Supreme Court cases have established that the suppression of exculpatory evidence, including evidence that goes to the credibility of witnesses, could be grounds for reversal. *E.g.*, *United States v. Bagley*, 473 U.S. 667 (1985) (holding that when defense filed motion for prosecutor to disclose any potential impeachment evidence, and prosecutor either inadvertently or deliberately suppressed the fact that two witnesses had been paid for their testimony, it was reversible error if the disclosure failure had a reasonable probability of affecting the outcome of the case); *United States v. Agurs*, 427 U.S. 97 (1976) (holding that the proper standard of materiality for undisclosed evidence is whether it would have created a reasonable doubt of guilt that did not otherwise exist, and in this case, victim’s prior violent crimes were not material); *Giglio v. United States*, 405 U.S. 150 (1972) (holding that prosecutor should have disclosed that a major witness had been promised immunity in exchange for testimony because it was material evidence going to credibility).

74 *Brady*, 373 U.S. at 87. *See also* KATHLEEN M. RIDOLFI & MARUICE POSSLEY, PREVENTABLE ERROR: A REPORT ON PROSECUTORIAL MISCONDUCT IN CALIFORNIA 1997–2009 36–38 (2010) (discussing *Brady* violations in the context of prosecutorial misconduct).

75 *Brady*, 373 U.S. at 84, 87–88; *see also* RIDOLFI & POSSLEY, *supra* note 74, at 36 (“Under *Brady*, it is the prosecution’s responsibility to locate and disclose exculpatory information obtained by the police . . . [w]hen prosecutors make the decision as to whether evidence is *Brady* material, their belief that the defendant is guilty can create a distorting prism through which they tend to view the evidence inaccurately as a red herring or irrelevant.”).

76 Cynthia E. Jones, *A Reason to Doubt: The Suppression of Evidence and the Inference of Innocence*, 100 J. CRIM. L. & CRIMINOLOGY 439–40 (2010); *see* *Turner v. United States*, 137 S. Ct. 1885 (2017) (holding withheld evidence was favorable to the defense but would not have changed the trial outcome); *see also* Bennett L. Gershman, *The Prosecutor’s Contribution to Wrongful Convictions*, in EXAMINING WRONGFUL CONVICTIONS: STEPPING BACK, MOVING

If appellate judges agree, then there has been no *Brady* violation.⁷⁷ *Brady* evidence can include a jailhouse informant receiving a favorable deal in return for testifying, a lab report with information favorable to the defendant, a witness's statement contradicting the prosecutor's theory of the case, or prior disciplinary action against a police officer-witness questioning his or her credibility.⁷⁸ If a prosecutor does not take steps to avoid the effects of cognitive bias, then it is easy to see how such bias may taint his or her decision as to whether evidence is exculpatory or not.⁷⁹

Other prosecutorial violations that may contribute to wrongful convictions include coaching witnesses, mentioning inadmissible evidence in closing, eliciting inadmissible evidence from witnesses, badgering witnesses, utilizing perjured testimony, or committing other acts during trial that unfairly sway jurors and violate due process.⁸⁰ A common misconception is that law enforcement investigators are entirely in charge from the beginning of the investigation until they hand the case off for prosecution, at which time the prosecutor is solely responsible to see the case through to conviction. Sometimes, however, prosecutors are involved prior to an arrest. In fact, certain jurisdictions assign prosecutors to cases (at least serious cases) as soon as a crime has been identified.⁸¹

FORWARD 109 (Allison D. Redlich et al. eds., 2014) (discussing how prosecutors are responsible for ensuring only guilty parties are convicted); Jim Petro & Nancy Petro, *The Prosecutor and Wrongful Convictions*, in *WRONGFUL CONVICTIONS AND MISCARRIAGES OF JUSTICE* 91–109 (C. Ronald Huff & Martin Killias eds., 2013) (explaining the role and actions of prosecutors in producing wrongful convictions).

77 Some states, such as Texas, have gone further and passed “open file” legislation that requires prosecutors to share all evidence with defense attorneys without a *Brady* motion. Even with a prosecutorial violation, however, a conviction may not be overturned if it is ruled harmless error.

78 See, e.g., Garrett, *supra* note 2, at 110, 122–26 (discussing examples of prosecutorial failure to disclose *Brady* evidence).

79 Because of the difficulty of proving maliciousness on the part of prosecutors, partially because they may have been the victim of cognitive bias and thinking errors discussed herein, there has been discussion of how to change the standard of culpability to one of reasonableness. Sofia Yakren, *Removing the Malice from Federal “Malicious Prosecution”*: *What Cognitive Science Can Teach Lawyers About Reform*, 50 HARV. CIV. RTS.-CIV. LIBERTIES L. REV. 359 (2015).

80 See Green & Yaroshefsky, *supra* note 69, at 112 n.338. For a discussion of how the belief that prosecutorial misconduct was rare has changed to awareness of pervasive and systemic issues in abuse of prosecutorial discretion, see *id.* at 52–53.

81 For an overview on how some prosecutors are involved in police

Prosecutors can be pressured by police who prematurely identify a suspect and utilize the media to encourage the prosecutor to move forward even if there is weak or contradictory evidence. However, prosecutors themselves are sometimes involved in identifying suspects during early stages and prematurely building cases rather than letting the investigation take its course.⁸² Prosecutors may work with law enforcement investigators to develop leads and shape investigations by observing interrogations, offering plea bargains to co-defendants, determining charges, and negotiating with witnesses.

Media frenzy, ambition, ego, and office pressures for convictions can combine with cognitive bias and create the potential for a wrongful conviction.⁸³ The idea of a “conviction psychology” in a prosecutor’s office is the pervasive sense that all defendants are guilty, where racking up convictions is akin to “wins” for a sports team.⁸⁴ Only winning prosecutors will be successful in most prosecutors’ offices.

In the preliminary stages of an investigation, prosecutors may assist in obtaining search warrants for investigators. The probable cause standard of proof is required for a warrant to issue, so prosecutors are inclined to believe confidential informants or other

investigations see NATIONAL RESEARCH COUNCIL, *WHAT’S CHANGING IN PROSECUTION*, 8, 14–15, 45 (Philip Heymann & Carol Petrie eds., 2001).

- 82 Brian Reichart, *Symposium Innocence Network Conference: Tunnel Vision: Causes, Effects, and Mitigation Strategies*, 45 *HOFSTRA L. REV.* 451, 451, 455–56 (2016). Reichart also describes one such case where the police targeted a suspect early in the investigation and arrested her in a way designed to bring pressure on the prosecutor. *Id.* at 467.
- 83 Mourer, *supra* note 70, 1099–101 (discussing personal and organizational pressures to obtain convictions); see also Keith A. Findley, *Tunnel Vision, in CONVICTION OF THE INNOCENT: LESSONS FROM PSYCHOLOGICAL RESEARCH* 308–13 (Brian L. Cutler ed., 2012) (examining psychological research that helps explain the phenomenon of tunnel vision in criminal cases, and the effects of cognitive distortions such as confirmation and hindsight bias).
- 84 Stanley Z. Fisher, *In Search of the Virtuous Prosecutor: A Conceptual Framework*, 15 *AM. J. CRIM. L.* 197, 200–01, 205–06 (1988); see also Cyrus R. Vance, Jr., *The Conscience and Culture of a Prosecutor*, 50 *AM. CRIM. L. REV.* 629, 633–34 (2013) (discussing mentally disabled man’s confession to a high-profile brutal murder; despite pressure to obtain conviction, prosecutor continues investigation and eventually exonerates the man, illustrating duty to seek justice, not simply a conviction). *But cf.* Kay L. Levine & Ronald F. Wright, *Prosecutor Risk, Maturation, and Wrongful Conviction Practice*, 42 *LAW & SOC. INQUIRY* 648, 648–49 (2017) (discussing “conviction psychology,” origins of the phrase, and their findings that senior prosecutors do not necessarily develop such an outlook).

evidence presented to them as support for a warrant. Magistrates are supposed to be neutral, but they are inclined to believe the probable cause affidavits of police officers and there is no defense attorney at this point to inject any adversarial due process.⁸⁵ Other decision points vulnerable to prosecutor cognitive bias and a lack of system safeguards include plea-bargaining,⁸⁶ the use of informants (especially jailhouse informants),⁸⁷ and responding to requests for DNA testing or motions for new trials based on new evidence.⁸⁸ Prosecutors may resist DNA testing and otherwise block post-conviction reviews. They invent ridiculous scenarios to support their theory of the case when testing reveals that DNA does not match the person they have prosecuted. For example, the “unindicted co-ejaculator” syndrome is the tendency of prosecutors to reject the possibility that they convicted the wrong person when testing has shown the DNA recovered from a sexual assault victim came from someone other than the convicted person.⁸⁹ Prosecutors explain the finding by arguing there must have been a second offender, even when the victim stated there was only one assailant.⁹⁰ These irrational denials of prosecutors to DNA evidence that exonerates the wrongfully convicted indicate they are just as likely to be vulnerable to cognitive

85 Mary Nicol Bowman, *Full Disclosure: Cognitive Science, Informants, and Search Warrant Scrutiny*, 47 AKRON L. REV. 431, 436–40 (2014). For a full discussion of how cognitive bias affects search warrants, see generally *id.*

86 See generally Alafair Burke, *Prosecutorial Passion, Cognitive Bias, and Plea Bargaining*, 91 MARQ. L. REV. 183 (2007).

87 See Mourer, *supra* note 70, 1104 (discussing ethical issues in the use of jailhouse informants); see generally ALEXANDRA NATAPOFF, *SNITCHING: CRIMINAL INFORMANTS AND THE EROSION OF AMERICAN JUSTICE* (2009) (critiquing the widespread use of informants).

88 See GARRETT, *supra* note 2, at 11 (attributing lengthy exoneration times in part to judge and prosecutor opposition to requests for DNA testing); see also *id.* at 12 (referring to the capacity of multiple actors within the legal system to unconsciously discount evidence of innocence).

89 Godsey, *supra* note 72, at 14.

90 *Id.*; see also Steven A. Drizin & Richard A. Leo, *The Problem of False Confessions in the Post-DNA World*, 82 N.C. L. REV. 891, 898–900 (2004) (noting that during the infamous Central Park Jogger case, even after DNA testing confirmed the true rapist’s confession, former prosecutors and the New York Police Department criticized the district attorney’s office for moving to vacate and set aside the wrongful convictions). For other discussions of how prosecutors maintain beliefs about guilt in the face of contrary evidence, see O’Brien, *supra* note 11, at 1017 n.70, 1039–40; Daniel S. Medwed, *The Zeal Deal: Prosecutorial Resistance to Post-Conviction Claims of Innocence*, 84 B.U. L. REV. 125, 134–47 (2004) (discussing the professional incentives as well as the psychological and personal barriers to confronting claims of innocence).

bias as law enforcement investigators.

When prosecutors and investigators work together and quickly decide a suspect is guilty, they focus on constructing a case against this individual. In such situations, the prosecutor is not a separate step in the due process required by the system to prevent errors as he or she fails to act as a check on the investigators' actions. The misconduct of District Attorney Michael Nifong in Durham County, North Carolina, provides an example of what can happen when prosecutors become invested too early in a theory of the case.⁹¹ In this high-profile 2007 incident, a woman hired by members of the Duke University lacrosse team as a stripper alleged that she was raped by members of the team.⁹² Nifong made several public statements that the athletes were guilty.⁹³ At this very early stage, the prosecutor's office was invested in proving the guilt of the players rather than letting the investigation run its course to determine what happened.⁹⁴ The case began to fall apart because of the changing story from the victim, no physical evidence, and an ATM video that provided a solid alibi for one of the defendants.⁹⁵ Nifong stepped further over the line of ethical prosecution and instructed a lab technician to drop an exculpatory sentence from his report that stated none of the defendants' DNA was found on the victim.⁹⁶ The North Carolina state attorney general sent in two outside prosecutors who promptly dropped the charges and Nifong was eventually disbarred.⁹⁷ Other factors were at work; Nifong was in a hotly contested election and the case had created a media frenzy that he had to control.⁹⁸

When prosecutors work with detectives during the early stages of a criminal investigation, their zeal to obtain "justice" for the victim may result in them urging detectives to "get a confession," or

91 See generally Robert P. Mosteller, *Exculpatory Evidence, Ethics, and the Road to the Disbarment of Mike Nifong: The Critical Importance of Full Open-File Discovery*, 15 GEO. MASON L. REV. 257 (2008) (discussing the depth and consequences for Nifong's misconduct).

92 *Id.* at 257, 286.

93 *Id.* at 303.

94 See *id.*

95 *Id.* at 286, 288; see also Gina Pace, *Duke Defense Cites New ATM Alibi*, CBS NEWS (May 2, 2006, 7:17 AM), <https://www.cbsnews.com/news/duke-defense-cites-new-atm-alibi/>.

96 Mosteller, *supra* note 91, at 289.

97 *Id.* at 257, 305.

98 See *id.* at 298, 304.

threatening shaky witnesses with prosecution for unrelated charges if they do not testify for the state.⁹⁹ Witnesses who are cajoled, coerced, or pressured may create “false memories,” which harden over time.¹⁰⁰ When prosecutors are involved in collecting witness statements, they may find themselves, through leading questions, “correcting” any statements of witnesses that might be helpful to the defense, or repeatedly asking questions that challenge statements inconsistent with their theory of the case.¹⁰¹

In our research,¹⁰² we saw evidence of how prosecutors can subvert due process. One case we reviewed, while not technically a failed investigation (and therefore not included in our final sample), involved an unjustified prosecution that produced a wrongful conviction. In Charlottesville, Virginia, in 2012, Mark Weiner picked up a young female hitchhiker late at night; her boyfriend had made her walk home by herself in the dark. Weiner drove her to her mother’s house. Once there, she texted her boyfriend, writing in a manner that made it appear the messages were being sent by Weiner. The texts taunted the boyfriend, saying the woman had been abducted by Weiner, chloroformed, and was going to be raped. Then, the woman texted that she was being held in an abandoned house. She eventually said she had escaped by jumping out of a second-story window and running home. Her boyfriend and mother telephoned 9-1-1. When police officers interviewed her, she stuck to her story and Weiner was arrested. However, as investigators collected evidence, her version of what happened grew increasingly improbable. According to the timing of the texts, Weiner would have had to incapacitate the woman while driving, only seconds after picking her up. No chloroformed rag was found in his car and no physical evidence was found in the abandoned house. The woman did not exhibit signs of having jumped from a high window or running a mile to her mother’s house. One of the texts contained slang atypical for a 52-year-old (Weiner’s age). Most importantly, records showed she used her cell

99 Bennett L. Gershman, *Threats and Bullying by Prosecutors*, 46 LOY. U. CHI. L.J. 327, 334–35 (2014) (discussing prosecutors bullying defense and prosecution witnesses); see also DAN SIMON, IN DOUBT: THE PSYCHOLOGY OF THE CRIMINAL JUSTICE PROCESS 146–47 (2012) (discusses problems with witness preparation and biased testimony in adversarial proceedings).

100 DANIEL L. SCHACTER, THE SEVEN SINS OF MEMORY: HOW THE MIND FORGETS AND REMEMBERS 115 (2001).

101 See, e.g., GARRETT, *supra* note 2, at 33, 76 (providing examples of the leading and/or “correcting” questions invoked by prosecutors during interviews).

102 All case details and data are from Rossmo & Pollock, *supra* note 68.

phone many times that night, pinging cell towers near her mother's home, not the abandoned house she said she had been held in. Two officers independently arrived at the conclusion that she was lying. Yet the case still proceeded to trial.

The prosecutor interviewed one of these officers shortly before he was to testify; when she learned he had concluded the calls came from the vicinity of the alleged victim's mother's house, she excused him. She also refused to call the other officer to testify once she heard he also had come to the same conclusion. This information was not provided to defense counsel, a clear *Brady* violation.

One of the police officers then called the defense attorney and told him what they had found. When the defense attorney attempted to use this officer's testimony, the prosecutor argued the attorney had not laid the proper foundation and the judge ruled against allowing the admission of the cell phone records or the officer's testimony, despite its clear probative value. Weiner was convicted and sentenced to eight years in prison.

Evidence continued to mount that the woman had lied—she evidently admitted as much to her ex-husband, witnesses said she had been to drug parties in the abandoned house despite her statements to police that she had never been there before, and medical experts swore chloroform does not work in the manner she described. After two and a half years in prison, Weiner's conviction was vacated. The prosecutor only stopped fighting defense motions when the alleged victim was arrested for selling cocaine to two undercover officers. In addition to his loss of freedom, Weiner also lost his job, his home, and his retirement savings—but not because of a failed investigation by law enforcement. The investigators were ready to share evidence that cast doubt on Weiner's guilt. This wrongful conviction came about because of a prosecutor who believed the alleged victim over physical evidence and experienced police investigators and obtained a conviction despite an investigation that proved reasonable doubt.

In several of our reviewed cases, prosecutor actions were identified as important causal factors. In a triple murder case in Indiana, the district attorney's office contributed to a failed investigation and the wrongful conviction of David Camm. The DA and his investigators visited the murder scene, causing some confusion over the division of responsibility with police investigators. The DA also called in a private bloodstain pattern analysis expert instead of using the Indiana State Police expert. The police and prosecutor quickly decided Camm was guilty even though

much of the evidence in the investigation had yet to be collected and analyzed. Confirmation bias set in and critical DNA evidence was not submitted to CODIS. When the DNA and a handprint was eventually found to match a violent convicted felon, the prosecutor asserted this individual did the murders in conjunction with Camm. As we noted in that analysis, the “sunk costs” for the DA’s office and the police were high and influenced their inability to admit they had been mistaken in arresting David Camm.

The Michael Morton case also involved inappropriate district attorney involvement that steered the course of the murder investigation. The prosecutor in this case worked closely with inexperienced homicide investigators. The “law and order” mentality of both agencies resulted in a rush to judgment over Morton’s guilt. This led to confirmation bias; innocuous events were distorted, important investigative leads were overlooked, and critical evidence was ignored. The prosecutor was also guilty of *Brady* violations. Sources that described the investigation made it clear that the district attorney directed the actions of law enforcement investigators. Further, the DA’s office delayed Morton’s release for some years by resisting attempts to have the DNA evidence tested.

Juan Rivera was another case where prosecutor interference was identified as a contributing factor to the wrongful conviction. This case involved Lake County State’s Attorney Michael Waller who was highly influential in Lake County, a suburb of Chicago. Instead of critically exposing the inconsistencies and problems in Rivera’s first confession, he told detectives to go back and get a better one, despite the fact that Rivera was clearly suffering mental distress at this point. This early intervention marks Waller’s involvement as part of the investigative failure. The Rivera case is one of five known wrongful prosecutions from Lake County, Illinois. Murder cases against Jerry Hobbs and James Edwards, and rape convictions against Bennie Starks and Angel Gonzalez, were overturned as the result of DNA evidence. Rivera’s conviction was eventually vacated when an appellate court decided that no reasonable trier of fact could find him guilty.

In the JonBenét Ramsey case, two causal factors involved the district attorney’s office—“conflict between DA and police,” and “Ramseys’ relationship with DA.” There was conflict and rivalry between the DA’s office and the police department, which led to poor cooperation and communication. The case was hampered by the prosecutor’s relationship with the Ramseys; police investigators

felt the prosecutor was blocking their investigation, especially after the grand jury returned an indictment and the prosecutor still refused to pursue charges.

In the Glenn Tinney case, the “prosecutor’s agenda” and “interagency conflict” were identified as causal factors. The elected district attorney had made campaign promises to clear unsolved homicide cases, a political commitment which became more important than proper investigative practices. When an investigator from the prosecutor’s office received information about Tinney in connection to an unsolved murder, he and an assistant prosecutor began to build a case without collaborating with police detectives. When Tinney eventually pled guilty, the detectives only learned about it from the newspaper. They challenged the district attorney’s office over the validity of Tinney’s confession and proved he knew nothing about the crime independently from what he had been told. This paved the way for the court allowing Tinney to withdraw the guilty plea.

Prosecutorial interference was an issue in other cases even when it was not classified as a major causal factor. During the Michael Crowe investigation, the prosecutor seemingly influenced the report of the FBI’s Behavioral Analysis Unit profiler to support the police theory of the murder. In the Jonathan Fleming case, the conviction was overturned through the efforts of the Conviction Review Unit, but it was the actions of the original prosecutor that led to the conviction. The prosecutor committed *Brady* violations and pursued a conviction even while in possession of evidence that indicated Fleming could not have been involved.

When three-year-old Riley Fox was sexually assaulted and killed in Wilmington, Illinois, police investigators rushed to judgment and quickly focused on her father, Kevin Fox, as their prime suspect. They never seriously considered the stranger-intruder theory, made no attempt to investigate known sex offenders in the area, ignored the broken lock on the back door of the Fox house, and failed to connect a neighbor’s burglary to the murder. When Fox was indicted, the prosecutor, campaigning for re-election, quickly announced he would seek the death penalty. He made false public statements about the victim’s previous sexual abuse (there was none), and obtained an indictment before receiving all the physical evidence analysis. The newly elected prosecutor dropped the charges after a review. The true murderer was not discovered until some years later.

In the Dan and Fran Keller case, Travis County prosecutors were involved in the investigation to the point that they directed who the police should target and interrogate. A resulting (false) confession was then used to prosecute the Kellers. Finally, in the wrongful convictions of Michael Hash and Bruce Lisker, jailhouse informants were used to bolster weak cases. Unfortunately, confirmation bias prevented prosecutors from objectively evaluating their notoriously unreliable witnesses.

1. *Probable Cause*

While the road to a wrongful conviction begins with the police, it must pass through the district attorney's office before the case reaches trial. What the prosecutor sees is very much a function of what the detective investigates. As a consequence, as discussed above, prosecutors are vulnerable to the same cognitive biases as detectives.

A contributing problem is the low bar for probable cause for arrest; “[p]robable cause requires more than bare suspicion, but need not be based on evidence sufficient to support a conviction, nor even a showing that the officer’s belief is more likely true than false.”¹⁰³ The history of this definition is based in court cases that involved warrantless searches and detentions under circumstances in which events were moving quickly and police had to act immediately or risk the loss of evidence or the flight of a suspect.¹⁰⁴ Within this context, the court’s definition of probable cause makes sense.

However, this same probable cause definition is used for all arrests, including those with no exigent circumstances. Providing police the legal power to arrest someone who is more likely innocent than guilty is difficult to justify when evidence destruction or escape risks are not concerns. If there is time for a proper investigation, evidence can be collected and evaluated to more accurately determine the strength of any arrest grounds. A probable cause that is not probable is inconsistent with both language and mathematics.

The most certain way to prevent a wrongful conviction is to minimize wrongful arrests of innocent people. It is not safe to assume that a wrongful arrest will be later corrected by the district

103 *Hughes v. Meyer*, 880 F.2d 967, 970–71 (7th Cir. 1989) (citing *Brinegar v. United States*, 338 U.S. 160, 175–76 (1949)).

104 *See, e.g., Carroll v. United States*, 267 U.S. 132 (1925) (upholding the warrantless search of an automobile when there is probable cause and exigent circumstances).

attorney or that a judge or jury will come to the correct finding. Prosecutors may fail to act as an objective check and balance as they can suffer from the same cognitive biases as police investigators. Early mistakes may never be noticed; even if they are, much damage can still occur. The consequences of a wrongful arrest and criminal charge are more serious than for a warrantless search or temporary detention. They can involve loss of liberty for an extended period of time (months or even years if bail is an issue), damage to one's reputation, high costs of legal representation, and the risk of being wrongfully convicted and punished. This danger is all the greater for those accused parties who do not have competent defense counsel.

D. Recommendations

The sentinel events initiative can make a valuable contribution to the prevention of criminal justice failures. By unraveling the subtle psychological, sociological, and organizational influences that enable failures, the model provides an approach for analyzing systemic causation. The sentinel event perspective assumes errors are the product of multiple factors, both organizational and individual, none of which are necessarily sufficient on their own.¹⁰⁵ Human error is only one variable among other operational and structural elements, and a broader understanding of all failure causes and the relationships between them is necessary for effective prevention. The real value of the sentinel event approach lies in the ability to learn from the analysis of a particular failure and apply those lessons to future situations in order to reduce risk.

However, there are some intrinsic differences between criminal justice failures and transportation accidents that limit the generalizability of single-incident reviews. Mechanical breakdowns and machine operation usually involve deterministic relationships; wrongful convictions, on the other hand, are the product of numerous causal factors functioning within networks of probabilistic interactions. There is rarely a root cause, as such, because there is no single origin and only uncertain processes. The factors to blame in a given case may not produce a future failure. Conversely, there is no guarantee that behavior tolerable in one police investigation will not lead to a failure in the future. As we rarely study non-failures, we have little idea how often identical fact patterns do or do not result in problematic outcomes.

105 U.S. DEPT OF JUSTICE, *supra* note 1, at 1, 5, 8.

The primary importance of this study is in its analysis of systemic patterns of criminal investigative failures—the identification of the most rampant causal factors and the relationships between them—for a large number of different cases. This information allows us to generally outline dangerous scenarios and problematic police behaviors.

Five main recommendations arise from this research: (1) systemic awareness; (2) risk recipes; (3) evidence procedures; (4) cognitive de-biasing; and (5) organizational monitoring.

1. *Systemic Awareness*

Identifying the various causes and systemic nature underlying most criminal investigative failures is the first step to understanding and preventing them. The cases examined here involved multiple causal factors (from 5 to 12); the majority were personal in nature, though organizational and situational factors also played roles. “A wrongful conviction is an ‘organizational accident.’ Many small failures, no one of them independently sufficient to cause the event, combine and cascade, and only then produce a tragedy.”¹⁰⁶ The systemic nature of these failures suggests their incidence may be decreased by targeting the most virulent causes or causal clusters. Fixing only one problem may not be sufficient to prevent a failure, particularly if that issue is seen in isolation.

2. *Risk Recipes*

The systemic causes identified in this study provide a basis for developing “risk recipes”—causal profiles or typologies that can be used to assess the threat of a criminal investigative failure. Doyle has suggested failure causal data could also inform a triage system for prioritizing the investigation of innocence claims.¹⁰⁷ While most factors are not categorical indicators, their existence should be treated as a warning; the more causes present, the greater the risk, particularly if they form a cluster pattern (see Figure 2). Any evidence malfunctions, such as careless reliability assessments, are highly problematic. Risky investigations should be responded to with diligence by detectives, engagement by supervisors, and monitoring

¹⁰⁶ James Doyle, *Looking Beyond the ‘White Bears’ in Criminal Justice*, THE CRIME REP. (June 6, 2017), <https://thecrimereport.org/2017/06/06/looking-beyond-the-white-bears-in-criminal-justice/>.

¹⁰⁷ Posting of James M. Doyle, ljamesdoyle@gmail.com, to criminal-justice-sentinel-events@googlegroups.com (May 31, 2017) (on file with author).

by police management. They should also be carefully reviewed by prosecutor's offices.

3. Evidence Procedures

Wrongful convictions and other types of criminal investigative failure can be reduced by implementing proper procedures for evidence collection, evaluation, and analysis. A high proportion (88%) of the cases in our study suffered from multiple evidence failure types, the most frequent being biased evidence evaluation (such as not assessing the reliability of a witness).

The major problems underlying evidence failings were a rush to judgment and cognitive bias. Prematurely shifting from an evidence-based investigation to a suspect-based investigation can shut down evidence collection efforts. Confirmation bias distorts the evaluation of evidence reliability, alters probability assessments, and confuses logical evidence analysis. Awareness training and appropriate operational procedures can help mitigate these problems. Effective supervision and engaged management can also play an important role in making sure detectives properly understand the evidence in a criminal investigation.

4. Cognitive De-biasing

"The first principle is that you must not fool yourself—and you are the easiest person to fool."¹⁰⁸

Flawed decision-making and poor thinking were behind most of the failed investigations we studied. Intuition, rush to judgment, tunnel vision, and groupthink all pose risks to objective and accurate evidence evaluation and analysis, while probability errors and faulty logic led detectives to derive defective conclusions. Confirmation bias was the single most frequent problem in wrongful conviction cases. Biases, because they are implicit, are difficult to control. They function independently of one's intelligence, and awareness of their dangers makes them no easier to avoid.¹⁰⁹ However, research has shown that specialized training may help mitigate their influence.¹¹⁰

108 Richard P. Feynman, Commencement Address at California Technical Institute of Technology, *Cargo Cult Science: Some Remarks on Science, Pseudoscience, and Learning How to Not Fool Yourself* (June 14, 1974).

109 RICHARDS J. HEUER, JR., *PSYCHOLOGY OF INTELLIGENCE ANALYSIS* 122 (1999); Keith Stanovich & Richard F. West, *On the Relative Independence of Thinking Biases and Cognitive Ability*, 94 *J. PERSONALITY & SOC. PSYCHOL.* 672, 686–91 (2008).

110 Carey K. Morewedge et al., *Debiasing Decisions: Improved Decision Making with a*

The development and testing of de-biasing training should be an important focus of future efforts to improve criminal investigations and reduce the frequency of wrongful convictions.

Independent reviews may be the best method to effectively deal with cognitive biases as rethinking a case is difficult for detectives with prior involvement in the investigation.¹¹¹ External peer reviewers, for a variety of psychological and organizational reasons, are more apt to notice mistakes and omissions—and much more likely to point them out. In the United Kingdom, after a certain number of months, an unsolved murder is reviewed by a senior investigating officer with no involvement in the case; in high profile or complex cases, the officer is drawn from another police force.¹¹²

5. Organizational Monitoring

Ineffective supervision and disengaged management were identified as enabling factors in several of the failures in this study. A police agency should have the necessary procedures and regulations in place to make sure basic investigative steps regarding evidence are followed. Supervisors can control risky investigative practices and monitor illogical investigative conclusions, while managers can prevent the development of noble cause corruption. Police leaders should establish professional and independent relationships with district attorney's offices.

Cognitive biases, the most frequent cause of failure in our study, are exceptionally difficult to control; however, investigation supervisors are in a position to independently review cases, while police managers can establish operational procedures for internal devil's advocates and external reviews.¹¹³ The organization provides the best means for controlling personal error.

Police managers also need to understand how difficult it may be for those officers heavily invested in an investigation to be completely objective, particularly about missteps.¹¹⁴ Better results can be achieved through the use of investigators with no previous connection to the crime, as in the procedure followed by police

Single Training Intervention, 2 POL'Y INSIGHTS FROM BEHAV. AND BRAIN SCI. 129, 129, 131, 134, 136–37 (2015).

111 Rossmo, *supra* note 51, at 225.

112 See ASS'N OF CHIEF POLICE OFFICERS (ACPO), MURDER INVESTIGATION MANUAL 84–86 (2006) (recommending review by outside officer between 7 and 28 days after investigation commences).

113 See Rossmo, *supra* note 2, at 277, 289–90.

114 Rossmo, *supra* note 51, at 225.

agencies in the United Kingdom.¹¹⁵

An appreciation of the role of standard operating practices, routines, and bureaucratic inertia is essential for understanding organizational behavior.¹¹⁶ Police leaders and managers should carefully review and eliminate problematic practices and routines, both formal and informal, that support dangerous decision-making.

E. Study Limitations

People and organizations are not mechanical systems and efforts to deconstruct their failures are destined to be somewhat subjective;¹¹⁷ however, every case in this study was reviewed by two researchers, at least one of whom had prior police investigative experience, to increase reliability. We were limited by the availability of information and case documentation, and could only identify the most important known causes. Certain factors may have been missed, while others were likely undercounted (e.g., intuition, detective ego, groupthink, probability errors). All the cases in this study involved either a murder or a rape investigation (mostly the former). While many of the general findings probably apply to police investigations of other crime types, some of the identified causal factors and clusters will likely be different.

VI. Conclusion

Criminal investigative failures can have serious and far-reaching consequences for both individuals and their communities. Unsolved crimes allow criminals to avoid justice and erode the public's faith in their police departments. Wrongful convictions result in the punishment of an innocent person and the escape of the real offender. These failures undermine the deterrence of the law and may bring the entire criminal justice system into disrepute.

The media portrayal of some investigative failures has been oversimplified, leading to an incomplete understanding of how things go wrong and to a loss of subtlety in prevention efforts. Most mistakes have a systemic and multi-factored causal nature. A

115 See ACPO, *supra* note 112, at 86 ("In cases involving high profile, complex or sensitive issues affecting the investigation, consideration should be given to appointing a reviewing officer from another force.")

116 See ALLISON & ZELIKOW, *supra* note 38, at 5–6, 169–70 (discussing the significance of "organization theory" which emphasizes the "distinctive logic, capacities, culture and procedures" of government organizations).

117 Pupulidy, *supra* note 40.

few causes are situational and beyond the control of the criminal justice system. Others are organizational and amenable to effective supervision and engaged management. However, the most common causal factors are personal in type, and arguably within the control of the individual detective.

As discussed above, much previous research has focused on the legal and technical causes of wrongful convictions. A different approach to causality was followed by MacFarlane.¹¹⁸ He identified four predisposing circumstances, three of which were also found in our study: (1) media pressure to solve a horrific crime; (2) suspect from an unpopular/minority group linked to criminal activity; (3) noble cause corruption; and (4) investigative decision-making based on speculative/incomplete information.¹¹⁹ He cautions that these circumstances are difficult to manage as they fall below the criminal justice system's "radar screen."¹²⁰ This warning supports the use of risk recipes for identifying investigations requiring extra diligence.

Criminal justice failures are challenging, all the more so if they are embedded in a political context. Innovative and effective methodologies are necessary for both problem analysis and solution generation. Detectives must minimize the risk of error by accurately assessing evidence reliability and avoiding premature shifts to suspect-based investigations. Resolving issues of cognitive bias and avoiding logic/analytic mistakes are equally important. While debiasing training, engaged supervision, and external reviews can help, more research is needed to establish realistic and sustainable means of optimizing investigative thinking and reducing the incidence of failure.

118 MACFARLANE, *supra* note 56 (studying wrongful convictions as the product of predisposing conditions—i.e., environmental factors—and tunnel vision).

119 *Id.* at 5–6.

120 *Id.* at 5.