

Unspringing The Witness Memory and Demeanor Trap:
What Every Judge And Juror Needs to Know About Cognitive Psychology
And Witness Credibility

By: Mark W. Bennett

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The soul of America's civil and criminal justice systems is the ability of jurors and judges to accurately determine the facts of a dispute. This invariably implicates the credibility of witnesses. In making credibility determinations, jurors and judges necessarily decide the accuracy of witnesses' memories and the effect of the witnesses' demeanor on their credibility.

Almost all jurisdictions' pattern jury instructions about witness credibility explain nothing about how a witness's memories for events and conversations work—and how startlingly fallible memories actually are. They simply instruct the jurors to consider the witness's "memory"—with no additional guidance. Similarly, the same pattern jury instructions on demeanor seldom do more than ask jurors to speculate about a witness's demeanor by instructing them to merely observe "the manner of the witness" while testifying. Yet, thousands of cognitive psychological studies have provided major insights into witness memory and demeanor. The resulting cognitive psychological principles that are now widely accepted as the gold standard about witness memory and demeanor are often contrary to what jurors intuitively, but wrongly, believe.

Most jurors believe that memory works like a video camera that can perfectly recall the details of past events. Rather, memory is more like a Wikipedia page where you can go in and change it, but so can others. Memories are so malleable, numerous, diverse, and innocuous post-event information alters them, at times in very dramatic ways. Memories can be distorted, contaminated, and even, with modest cues, falsely imagined, even in good faith. For example, an extremely small universe of people have highly superior autobiographical memory (HSAM). They can recall past details (like the color of the shirt they were wearing on August 1, 1995) from memory almost as well as a video camera. Yet, in one study, HSAM

¹ Mark W. Bennett is in his twenty-first year as a U.S. district judge for the Northern District of Iowa.

participants falsely remembered seeing news film clips of United Flight 93 crashing in a field in Pennsylvania on September, 11, 2001. No such film exists. Thus, no group has ever been discovered that is free from memory distortions. In one interesting study, students on a college campus were asked to either perform or imagine certain normal and bizarre actions: (1) check the Pepsi machine for change; (2) propose marriage to the Pepsi machine. Two weeks later, the students were tested and demonstrated substantial imagination inflation leading to false recognition of whether they performed or imagined the actions.

Few legal principles are more deeply embedded in American jurisprudence than the importance of demeanor evidence in deciding witness credibility. Historically, demeanor evidence is one of the premises for the need for live testimony, the hearsay rule, and the right of confrontation under the Sixth Amendment to the U.S. Constitution. Yet, cognitive psychological studies have consistently established that the typical cultural cues that jurors rely on, averting eye contact, a furrowed brow, a trembling hand, and stammering speech, for example, have little or nothing to do with a witness's truthfulness. Also, jurors all too often wrongly assume that there is a strong correlation between a witness's confidence and the accuracy of that witness's testimony. Studies have determined that jurors' perceptions of witness confidence are more important in determining credibility than the witness's consistency or inconsistency. Another series of studies indicate that demeanor evidence predicts witness truthfulness about as accurately as a coin flip.

Once credibility determinations are made by the fact-finder, it is nearly impossible to overturn those decisions on post-trial motions or appeal. While the secrecy in which credibility determinations are made promotes the legitimacy of fact-finding, it also shrouds its countless failings. Despite years of overwhelming consensus among cognitive psychology scholars and numerous warnings from thoughtful members of the legal academy—judges have done virtually nothing to identify or begin to try and solve this serious problem. The one exception is eyewitness identification of suspects in criminal cases where several state supreme courts have relied heavily on cognitive psychological research to craft better science-based specialized jury instructions.

This article examines in detail and analyzes the often amazing and illuminating cognitive psychological research on memory and demeanor. It concludes with a Proposed Model Plain English Witness Credibility Instruction that synthesizes and incorporates much of this remarkable research.

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“Remembrance of things past is not necessarily the remembrance of things as they were.” — Marcel Proust

I. Introduction

The soul of the civil and criminal justice systems in the United States is the ability of jurors (and judges) to ferret out truth from falsehood. At bottom, trials are simply an attempt to recreate past events through exhibits and witnesses’ memories. The stark reality is that jurors, like the rest of us (including judges), are not very good at determining witness credibility based on a witness’s memory and demeanor—the two most important historical and current guides. This is certainly not the fault of jurors. It is, however, the fault of the legal systems’ inability to adapt the overwhelming and growing body of cognitive psychological and neuroscience research into better science-based jury instructions. Because this issue goes to the core of our justice system, judges are long past due unveiling this problem and doing something about it.² Over two decades ago, Professor H. Richard Uviller phrased it this way: “[t]he central question, vital to our adjudicative model, is: How well can we expect a jury to determine credibility through the ordinary adversary processes of live testimony and vigorous impeachment? The answer, from all I have been able to see is: not very well.”³ Jurors’ judgments about the credibility of witness memory and demeanor are virtually unreviewable.⁴ Thus, the jury’s secrecy promotes its legitimacy and in doing so shrouds its failings. Unfortunately, other than in the limited but critical area of eyewitness identification of suspects in criminal cases,⁵ which is beyond the

² Over a hundred years ago, Sigmund Freud, in a lecture to a law class at the University of Vienna, entitled *Psycho-Analysis and the Ascertaining of Truth in Courts of Law*, stated: “There is a growing recognition of the untrustworthiness of statements made by witnesses, at present the basis for so many judgments in Courts of Law . . .” Sigmund Freud, *Psycho-Analysis and the Ascertaining of Truth in Courts of Law*, in 2 COLLECTED PAPERS 13 (E. Jones ed. 1948).

³ H. Richard Uviller, *Credence, Character, and the Rules of Evidence: Seeing Through the Liar’s Tale*, 42 DUKE L. J. 776, 827 (1993).

⁴ See *infra* p. 22 and note 101.

⁵ No other aspect of witness memory has received more attention from cognitive psychologists, neuroscientists, lawyers, and judges. This is, of course, most

scope of this article, little has been done to assist jurors in accurately determining witness credibility.

I have tried hundreds of criminal and civil jury trials and many bench trials. Not surprisingly, fact disputes created by witnesses have been at the epicenter of virtually every trial. Was defendant, Mr. Gill, the person that robbed the bank? Was the traffic light red or green when Ms. Sadden drove through the intersection? Did supervisor, Mr. Meis, repeatedly grope his secretary, Ms. Wrenn? How was Ms. McFarland using the product when she was severely injured? Did Mr. Zoss know the package he delivered contained methamphetamine? The triers of fact are tasked with answering such questions by ferreting out truth from witnesses and exhibits. Indeed, civil and criminal trials are “among other things, an attempt to reconstruct a past event to aid the trier of fact as to what happened.”⁶ But, the “truth” of what actually happened in the past is a more elusive concept than what it might seem at first blush. There is often a huge gap between perceived truth and objective truth. Witnesses can be truthful, but for many reasons mistaken. For example, witnesses may be sure that: Mr. Gill robbed the bank when in fact

appropriate because of the growing awareness of wrongful convictions and the fact that inaccurate eyewitness identification is the major culprit. “The Innocence Project, a ‘national litigation and public policy organization dedicated to exonerating wrongfully convicted people,’ estimates that eyewitness identification was a factor in seventy-five percent of convictions overturned through DNA testing, making it the ‘single greatest cause of wrongful convictions’ in the United States.” Matthew J. Reedy, Note, *Witnessing the Witness: The Case for Exclusion of Eyewitness Expert Testimony*, 86 *NORTE DAME L. REV.* 905, 906-07 (2011) (footnotes omitted). Others estimate that “[m]ore than 4500 Americans per year are wrongfully convicted due to sincere, yet inaccurate eyewitness identifications.” *Id.* at 906-07 (footnote omitted). *See also* *State v. Henderson*, 27 A.3d 872 (N.J. 2011) (comprehensive opinion adopting most of a special master’s report following an evidentiary hearing involving seven experts on memory and eyewitness identification; 2000 pages of transcript; more than 360 exhibits containing more than 200 published scientific studies on human memory and eyewitness identification; and ordering major revisions to jury instructions on eyewitness identification based on the court’s adoption of the scientific evidence presented). The court in *Henderson* also noted that “more than two thousand studies related to eyewitness identification have been published in the past thirty years.” *Id.* at 892).

⁶ GARY L. WELLS & ELIZABETH LOFTUS, *Eyewitness Memory For People and Events*, *HANDBOOK OF PSYCHOLOGY, FORENSIC PSYCHOLOGY*, 617 (2013).

Mr. Gill was 1500 miles away in Cabo San Lucas; Mrs. Sadden had the green light when in fact she ran a red light according to the video from the “red” light camera; that they saw Mr. Meis grope Ms. Wrenn when in fact they only heard about it second-hand; they thought Mr. Zoss admitted his involvement in the conspiracy when it was actually a statement by another person.

It has long been known that “[w]e have limited computational skills and seriously flawed memories.... To deal with limited brain power and time we use mental shortcuts and rules of thumb. But even with these remedies, and in some cases because of these remedies use of mental shortcuts can produce predictable mistakes.”⁷ Thus, the human mind, as a processor of information “falls far short of its own ideal.”⁸ A great myth of human memory is that the human brain is a living filing cabinet, storing fully intact memories in ways that they can be pulled out of the filing cabinet exactly as put into it. “The act of remembering, says eminent memory researcher, psychologist Elizabeth F. Loftus of the University of California, Irvine, is ‘more akin to putting puzzle pieces together than retrieving a video recording.’”⁹ As Professor Jennifer Baird has written: “So long as we conceive of the brain as a digital camera where information from the senses are stored intact for future retrieval, we will continue to overvalue the role of memory.”¹⁰ In a similar vein, the former chair of the Department of Psychology at Harvard, Daniel L. Schacter, has written “we tend to think of memories as snapshots from family albums, that, if stored properly, could be retrieved in

⁷ Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1477 (1980).

⁸ Chris William Snachirico, *Evidence, Procedure, and the Upside of Cognitive Error*, 57 STAN. L. REV. 291, 292 (2004).

⁹ Hal Arkowitz & Scott O. Lilienfeld, *Why Science Tells Us Not to Rely on Eyewitness Accounts*, SCIENTIFIC AMERICAN (January-February 2010); “Professor Loftus is one of the leading experts on memory. She is credited with developing the misinformation effect theory, which supports the concept that the memories of eyewitnesses are revised by being exposed to incorrect information, and that memory is not static or unchangeable.” Robert A. Creo, *Memory is Not a Video*, 31 ALTERNATIVES TO THE HIGH COST OF LITIG. 51, 51 (2013).

¹⁰ Jennifer S. Bard, “*Oh Yes, I Remember it Well*,”: *Why the Inherent Unreliability of Human Memory Makes Brain Imaging Technology a Poor Measure of Truth-Telling in the Courtroom*, SSRN <http://ssrn.com/abstract=1813425>, p. 3. This article presents a terrific deconstruction of why MRI brain imaging technology is not currently capable of determining a truth-teller from a liar despite some private software companies’ claims to the contrary.

precisely the same condition in which they were put away.”¹¹ Schacter notes that “[o]ur memories work differently.”¹² He describes a process where our brain extracts “key elements from experiences and stores them.”¹³ Our brains then either “recreate or reconstruct our experiences rather than receive copies of them.”¹⁴ However, in this process of recreating or reconstructing “we add on feelings, beliefs, or even knowledge we obtained after the experience.”¹⁵ Thus, “we bias our memories of the past by attributing to them emotions or knowledge we acquired after the event.”¹⁶ Because memory is not like a video camera that can perfectly recall images of past events, it is fraught with potential mischief.

How “accurately do we remember the details of a complex event, like a traffic accident, that has happened in our presence?”¹⁷ Apparently not very well.¹⁸ “It is well documented that most people are markedly inaccurate in reporting such numerical details as time, speed, and distance.”¹⁹ For example, in one test of Air Force personnel who knew in advance they would be questioned about the speed of a vehicle, participants estimated ranges from 10 to 50 miles per hour when the vehicle they had watched was actually going only 12 miles per hour.²⁰ The way information about speed and details of an accident are reported are influenced by the type of questions asked.²¹ The difference between being asked about the speed of vehicles observed in a film of an accident using the verb “smashed” as compared to “hit, contacted, or collided” resulted in a higher estimate of speed.²²

¹¹ DANIEL L. SCHACTER, *THE SEVEN SINS OF MEMORY {HOW THE MIND FORGETS AND REMEMBERS}* 9 (2001) [hereinafter SCHACTER, *HOW THE MIND FORGETS AND REMEMBERS*].

¹² *Id.*

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ Elizabeth F. Loftus & John C. Palmer, *Reconstruction of Automobile Destruction: An Example of the Interaction Between Language and Memory*, 13 J. OF VERBAL LEARNING AND VERBAL BEHAV. 585, 585 (1974).

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

²² *Id.* at 586. Loftus and Palmer found that “two interpretations of this finding are possible.” *Id.* First, they hypothesized “that the differential speed estimates result merely from response-bias factors. A subject is uncertain whether to say 30 mph or

Notably, in a related experiment, one week after watching the video of a vehicle accident, the subjects were asked if they saw any broken glass in the video (there was none).²³ The subjects asked about the “smashing” a week earlier claimed they saw broken glass at a higher rate than the ones asked about how fast the vehicles were going when they “hit” each other.²⁴ Loftus and Palmer explained the results this way:

As a framework for discussing these results, we would like to propose that two kinds of information go into one’s memory for some complex occurrence. The first is information gleaned during the perception of the original event; the second is external information supplied after the fact. Over time, information from these two sources may be integrated in such a way that we are unable to tell from which source some specific detail is recalled. All we have is one “memory.”²⁵

Thus, the person’s recollection of the accident combined with the external term “smashed” become integrated into the person’s memory.²⁶ This causes the subject to both remember “an accident that was more severe than in fact it was” **and** “to think that broken glass was present” when in fact it was not.²⁷ This is but one example of how memory of witnesses is so fallible. “Memory like liberty is a fragile thing.”²⁸ Professor Loftus described memory as being like a Wikipedia page “You can go in and change it but so can others.”²⁹

If witness memories are not as accurate as we think, are jurors at least good at determining witness credibility based on demeanor? The American justice systems’ longstanding “belief in the utility of observing a witness’ demeanor in assessing his or her credibility at trial—“demeanor evidence”—has roots deep in the history of

40 mph, for example, and the verb *smashed* biases his response towards the higher estimate.” *Id.* Second, the authors hypothesized “that the question form causes a change in the subject’s memory representation of the accident. The verb *smashed* may change a subject’s memory such that he “sees” the accident as being more severe than it actually was.” *Id.* at 586-87.

²³ *Id.* at 587-88.

²⁴ *Id.*

²⁵ *Id.* at 588.

²⁶ *Id.*

²⁷ *Id.*

²⁸ Elizabeth Loftus, *The Fiction of Memory*, TED TALK, http://www.ted.com/talks/elizabeth_loftus_the_fiction_of_memory (filmed June 2013).

²⁹ *Id.*

jurisprudence.”³⁰ Thus, psychology professor Jeremy Blumenthal wrote:

Relying on a principle almost three thousand years old, the legal community has instilled in its judicial framework the fundamental premise that “the opportunity . . . to view the demeanor of a witness is of great value” in deciding whether that witness is telling the truth. Since ascertaining truth is the very function of the trial, the deliberate perpetuation of any such device which reputedly enhances “the accuracy of the truth-determining process” is hardly surprising. The principle can be traced as a juridical axiom from the times of the early Roman *judex* to the thirteenth and fourteenth-century Postglossators, through the earliest English common law to the foundations of this country’s early legal reasoning.³¹

Demeanor evidence refers in part to alleged cues of a witness while testifying, including facial expressions, eye contact, attitude, body language, length of pauses, hesitation, sincerity, gestures, candor, tone of voice, expression, dress, grooming habits, and level of confidence. Demeanor evidence is so ingrained in American jurisprudence, that it has been used to provide “historical and modern justification for public trials,” “crucial for determining whether a witness is telling the truth or a falsehood,” and “has been considered part of the right to confront witnesses since before the adoption of the U.S. constitution.”³²

Based on their assessment of witnesses’ demeanor, jurors may believe: Mr. Gill’s failure to look them in the eye is strong evidence he was lying and reject his alibi that he was in Cabo San Lucas; Ms. Sadden was not truthful in testifying she had the green light because she testified haltingly; Mr. Meis was untruthful in his denial of groping because of perceived nervous hand gestures; Mr. Zoss was guilty because he lacked the perceived confidence of a truly innocent person. Yet, the literature casts serious doubt as to whether such demeanor-based assessments are reliable.

A hefty body of cognitive psychological research, virtually without dissent, “casts significant doubt on the core assumption behind the weight to be given demeanor

³⁰ Jeremy A. Blumenthal, *A Wipe of the Hands, A Lick of the Lips: The Validity of Demeanor Evidence in Assessing Witness Credibility*, 72 NEB. L. REV. 1157, 1158 (1993).

³¹ *Id.*

³² Gregory L. Ogden, *The Role of Demeanor Evidence in Determining Credibility of Witness in Fact Finding: The Views of ALJS*, 20 J. NAT’L ASS’N ADMIN. L. JUDGES 1, 3 (2000) (footnotes omitted).

evidence in making credibility determinations.”³³ This research establishes that the cues of credibility long considered the core of demeanor evidence do nothing to enhance jurors’ ability to tell if a witness is lying, telling the truth, or in assessing the credibility of a witness that is sincere, but misremembers or is completely mistaken in their testimony.³⁴ In sum, “we put jurors to the intractable task of searching the faces and gestures of strangers for the signs of deceit. Our unguarded confidence that jurors are up to this task is the more remarkable for being so probably wrong.”³⁵

What can we learn about the memory of fact witnesses and their demeanor and credibility based on the staggering quantity of cognitive psychological research generated over the last quarter century? Should this knowledge alter the standard instructions used in courts across the nation on how jurors judge witness recollection and credibility? Should courts informed by this established science take a different approach in educating jurors on witness credibility? The next section of this article provides an overview on memory research and how witnesses’ memories work or don’t work. Section III provides an overview of demeanor evidence. Section IV discusses how judges instruct jurors on witness memory and demeanor. The penultimate and core section, Section V, discusses and analyzes research on juror misunderstanding of jury instructions and surveys principles of cognitive psychology relevant to memory and demeanor. Section VI, the final section, proposes a plain English model jury instruction on witness credibility incorporating the teachings of cognitive psychology on memory and demeanor.

II. An Overview of Memory Research

The arc of thinking and writing about human memory reaches back at least 2,000 years to Aristotle’s treatise on the nature of living things, *On the Soul*.³⁶ Aristotle

³³ *Id.* at 3-4 (citation omitted).

³⁴ *Id.* at 4. *But see*, Max Minzner, *Detecting Lies Using Demeanor, Bias and Context*, 29 CARDOZO L. REV. 2557, 2259-2264 (2008). (Suggesting that “[L]egal critics deride demeanor evidence and conclude lie detection is essentially impossible; courts depend on it,” but “neither view is right.” *Id.* at 2564. Minzner concludes that “context” in lie detection is important and that not enough is known yet to support “the currently skeptical view on legal lie detection.” *Id.* at 2578.

³⁵ George Fisher, *The Jury’s Rise as Lie Detection*, 107 YALE L.J. 575, 578 (1997).

³⁶ ARISTOTLE, ON THE SOUL (J.A. Smith, trans., Univ. of Adelaide 2014) (350 B.C.E.).

compared the human brain “to a blank slate and theorized that all humans are born free of any knowledge and are merely the sum of their experiences.”³⁷ Aristotle compared memory to making impressions in wax, sometimes referred to as the ‘storehouse metaphor,’ a theory of memory which held sway for many centuries.”³⁸ Aristotle’s blank slate or “tabula rasa” theory favored the nurture side of the nature versus nurture debate. But, his theory “lay dormant for over a thousand years until developed by the 11th Century Persian philosopher Avicenna, and then John Locke’s classic statement of the theory in the 17th Century.”³⁹

Research testing the ancient theories on memory and forgetting is of more recent vintage. Professor Loftus has observed memory and “[f]orgetting is one of the oldest topics in the field of psychological science, dating back at least to Ebbinghaus (1885). . . .”⁴⁰ Hermann Ebbinghaus is credited with the discovery of the “forgetting curve,” an early psychological term describing that the brain’s ability to retain information decreases over time.⁴¹ Ebbinghaus is credited as the first “to study the forgetting behavior in an experimental, scientific way.”⁴² He used himself as a subject to create groundbreaking research on the memorization and forgetting of nonsense three letter words. Examples of such words are KAF or WID. He created over 2300 of these three letter words each with a vowel between two consonants.⁴³ Ebbinghaus performed a series of tests on himself in two periods, 1879-80 and 1883-84, and extended each over more than a year.⁴⁴ He then analyzed

³⁷ http://www.human-memory.net/intro_study.html

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ Elizabeth Loftus, Maryanne Garry & Harlene Hayne, *Repressed and Recovered Memory*, Eugene Borgida & Susan T. Fiske, *BEYOND COMMON SENSE: PSYCHOLOGICAL SCIENCE IN THE COURTROOM*, eds., 2007.

⁴¹ <http://www.flashcardlearner.com/articles/the-forgetting-curve/>

⁴² *Id.*

⁴³ HERMANN EBBINGHAUS, *ÜBER DAS GEDÄCHTNIS, MEMORY: A CONTRIBUTION TO EXPERIMENTAL PSYCHOLOGY* (1885) Translated by Henry A. Ruger & Clara E. Bussenius (1913).

⁴⁴ *Id.* In a 2012 article presenting a current fictional conversation with Hermann Ebbinghaus (he died in 1909), a current preeminent memory scholar, Professor Elizabeth Loftus and her co-author, discussed with Ebbinghaus how subjects for memory studies are recruited today:

It seemed appropriate to talk about the matter of how many subjects one typically sees in a memory study, so this was the first issue on

all of his recorded data to determine the shape of the forgetting curve, finding that forgetting is exponential in nature (memory decreases at a geometric rather than an arithmetic rate).⁴⁵ Ebbinghaus tested his recollection of the data at six time intervals ranging from one hour to one month.⁴⁶ He clearly noted “a rapid drop-off in retention on the first few tests; nine hours after he studied a list of nonsense syllables, he had forgotten 60 percent of the list.”⁴⁷ The rate of forgetting then slowed down considerably hence establishing the shape of the forgetting curve. One month later, Ebbinghaus had forgotten seventy-five percent of the nonsense syllables—not much of a drop-off from the nine hour test.⁴⁸

Interestingly Ebbinghaus was skeptical about the future of memory research, writing:

It remains to be proved whether, in spite of the clearest insight into the inadequacy of our knowledge, we shall ever make any actual progress.

which we updated Ebbinghaus (who said we could call him Hermann). We told him that we run experiments not on ourselves but with groups of subjects, and sometimes the groups are quite large. In fact, one recent study involved over 2000 subjects whose memories of the events of September 11th were tested. We added that subjects are often diverse; students of psychology and members of the public, young children, older adults and clinical populations including people suffering from depression and anxiety. “How do you find such diverse groups to study?” he asked. We explained that you can find them in train stations and shopping malls (we had to explain that one), and other public places. But a great new source is to find the subjects online. “Online?, is that in Europe?” he wondered. After explaining to him, the best we could, what the internet was all about, we told him about one of its big advantages; researchers don’t even have to be in proximity of their research subjects in order to run studies; they can be sitting at their offices writing manuscripts and preparing teaching material and the study marches on. “That seems like a more efficient route to tenure,” he quipped.

Eryn J. Newman & Elizabeth F. Loftus, *Updating Ebbinghaus on the Science of Memory*, 209 EUROPE’S J. OF PSYCH. 209, 210 (2012) (citation omitted).

⁴⁵ *Id.*

⁴⁶ SCHACTER, HOW THE MIND FORGETS AND REMEMBERS, *supra* note 11, at 13.

⁴⁷ *Id.*

⁴⁸ *Id.* at 13-14.

Perhaps we shall always have to be resigned to this. . . . If by any chance a way to deeper penetration into this matter should present itself, surely, considering the significance of memory for all mental phenomena, it should be our wish to enter that path at once. For at the very worst we should prefer to see resignation arise from the failure of earnest investigations rather than persistent, helpless astonishment in the face of their difficulties.⁴⁹

If Ebbinghaus - the founding pioneer in memory research, were alive today, he would no doubt be astounded by the progress of cognitive psychological research on memory and forgetting.

Ninety years after the death of Ebbinghaus in 1999, Daniel L. Schacter published a scholarly article, *The Seven Sins of Memory*,⁵⁰ followed by a book of the same title two years later.⁵¹ Schacter posited that while scores of articles had been published by psychologists and neuroscientists on “specific aspects of forgetting or memory distortions . . . no unified framework has conceptualized the various ways in which memory sometimes leads us astray.”⁵² The article and book proposed to fix this by asserting “that memory’s malfunctions can be divided into seven fundamental transgressions or ‘sins[.]’”⁵³ They are:

- Transience—“a weakening or loss of memory over time.”⁵⁴
- Absent-mindedness—“a breakdown at the interface between attention and memory. Absent-minded memory errors—misplacing keys or eyeglasses, or forgetting a lunch appointment—typically occur because we are preoccupied with distracting issues or concerns, and don’t focus attention on what we need to remember. The desired information isn’t lost over time; it is either never registered in memory to begin with, or not sought after at

⁴⁹ HERMANN EBBINGHAUS, ÜBER DAS GEDÄCHTNIS, *MEMORY: A CONTRIBUTION TO EXPERIMENTAL PSYCHOLOGY* (1885) Translated by Henry A. Ruger & Clara E. Bussenius 5-6 (1913).

⁵⁰ Daniel L. Schacter, *The Seven Sins of Memory - Insights from Psychology and Neuroscience*, 54 *AM. PSYCHOLOGIST* 182 (1999) [hereinafter Schacter, *Insights from Psychology and Neuroscience*].

⁵¹ SCHACTER, *HOW THE MIND FORGETS AND REMEMBERS*, *supra* note 11.

⁵² *Id.* at 4.

⁵³ ⁵³Schacter, *Insights from Psychology and Neuroscience*, *supra* note 50, at 182-83; SCHACTER, *HOW THE MIND FORGETS AND REMEMBERS*, *supra* note 11, at 4.

⁵⁴ SCHACTER, *HOW THE MIND FORGETS AND REMEMBERS*, *supra* note 11, at 4.

the moment it is needed, because attention is focused elsewhere.”⁵⁵

- Blocking—“a thwarted search for information that we may be desperately trying to retrieve. We’ve all failed to produce a name to accompany a familiar face. This frustrating experience happens even though we are attending carefully to the task at hand, and even though the desired name has not faded from our minds—as we become acutely aware when we unexpectedly retrieve the blocked name hours or days later.”⁵⁶
- Misattribution—“assigning a memory to the wrong source, mistaking fantasy for reality, or incorrectly remembering that a friend told you a bit of trivia that you actually read about in a newspaper. Misattribution is far more common than most people realize, and has potentially profound implications in legal settings.”⁵⁷
- Suggestibility—“memories that are implanted as a result of leading questions, comments, or suggestions when a person is trying to call up a past experience. Like misattribution, suggestibility is especially relevant to—and sometimes can wreak havoc within—the legal system.”⁵⁸
- Bias—“powerful influences of our current knowledge and beliefs on how we remember our pasts. We often edit or entirely rewrite our previous experiences—unknowingly and unconsciously—in light of what we now know or believe. The result can be a skewed rendering of a specific incident, or even of an extended period in our lives, which says more about how we feel now than about what happened *then*.”⁵⁹
- Persistence—“repeated recall of disturbing information or events that we would prefer to banish from our minds altogether: remembering what we cannot forget, even though we wish that we could.”⁶⁰

The first three of Schacter’s memory sins, transience, absent-mindedness, and blocking are sins of omission in the sense “we fail to bring to mind a desired fact, event, or idea.”⁶¹ In contrast to the first three, the last four sins of misattribution, suggestibility, bias, and persistence are sins of commission, in the sense “some

⁵⁵ *Id.*

⁵⁶ *Id.* at 5.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.* at 4.

form of memory is present, but it is either incorrect or unwanted.”⁶² Although it does not appear other memory researchers have embraced Schacter’s framework,⁶³ this comes as no surprise because it was conceived for lay folks—not cognitive psychologists and neuroscientists. Like Schacter’s framework, this article is not directed at psychologists and neuroscientists. Accordingly, our focus will be on transience and three of the four sins of commission: misattribution, suggestibility and bias.

The “misinformation effect” is a term incorporating many of the seven sins of memory.” It connotes that memory of an event is often altered by the receipt of post event misinformation.⁶⁴ This concept is discussed in greater detail in Section V(B)(2).

There are a very, very small number of people who have virtually total recall of the detailed moment-to moment events of their entire lives.⁶⁵ Three neuroscientists have proposed the term “hyperthymesia” to describe this phenomenon: an unparalleled superior memory to recall autobiographical life information.⁶⁶ These individuals “appear to be uniquely gifted in their ability to accurately remember even trivial details in their distant past.”⁶⁷ Professor Loftus and others refer to hyperthymesia as “highly superior autobiographical memory (HSAM).⁶⁸ Fascinatingly, HSAM individuals “can remember the day of the week a date fell on and details of what happened that day from every day of their life since mid-

⁶² *Id.* at 5.

⁶³ See e.g. *State v. Henderson*, 27 A.3d 872 (N.J. 2011) (citing a plethora of studies but not Schacter’s *Seven Sins*); 11 GARY L. WELLS & ELIZABETH LOFTUS, EYEWITNESS MEMORY FOR PEOPLE AND EVENTS, HANDBOOK OF PSYCHOLOGY, FORENSIC PSYCHOLOGY, 617 (2013) (same); Eryn J. Newman & Elizabeth F. Loftus, *Updating Ebbinghause on the Science of Memory*, 209 EUROPE’S J. OF PSYCH. 209, 210 (2012) (same).

⁶⁴ 11 GARY L. WELLS & ELIZABETH LOFTUS, EYEWITNESS MEMORY FOR PEOPLE AND EVENTS, HANDBOOK OF PSYCHOLOGY, FORENSIC PSYCHOLOGY, 617, 623 (2013).

⁶⁵ Elizabeth Parker, Larry Cahill & James L. McGaugh, *A Case of Unusual Autobiographical Remembering*, 12 NEUROCASE 35 (2006).

⁶⁶ *Id.* at 47.

⁶⁷ Lawrence Patihisa, Steven J. Frenda, Aurora K. R. LePort, Nicole Peterson, Rebecca M. Nichols, Craig E. L. Stark, James L. McGaugh & Elizabeth F. Loftus, *False Memories in Highly Superior Autobiographical Memory Individuals*, 110 PROC. NAT. ACAD. SCI. 20947, 20947 (2013).

⁶⁸ *Id.*

childhood.”⁶⁹ For details that have been verified, memories by HSAM individuals have been measured to be accurate ninety-seven percent of the time.⁷⁰ The rare capacity of such persons for recalling events conjures up the video tape recording analogy of memory that has been scientifically discarded for the rest of us. Are these rare individuals immune from or at least less likely to be affected by misattribution, suggestibility, bias and the misinformation effect, or other memory distortions? What can be learned from studying them?

Intriguingly, HSAM individuals are as susceptible to memory distortions and false memories like everyone else.⁷¹ For example, participants with HSAM falsely remembered seeing news film clips of the United Flight 93 crashing in a field in Pennsylvania on September, 11, 2001.⁷² No such film exists.⁷³ This seemingly paradoxical result lead researchers to conclude while it is “always possible that some group might be found to be immune from memory distortions, none has yet been discovered.”⁷⁴ Thus, there is not a scintilla of cognitive evidence suggesting witnesses in both civil and criminal trials are free from or less susceptible to memory distortions than anyone else.

It is important to briefly mention the processes of memory producing distortion and failure. Modern cognitive psychological and neuroscience research suggests “human memory systems operate in three general stages: (1) *acquisition* (or encoding), how information is first transferred into our memory system; (2) *storage*, how information is maintained over a period of time; and (3) *retrieval*, how information is located and retrieved from storage.”⁷⁵ At each of these three stages, or in any combination, memories may be distorted, contaminated, compromised, or falsely created.⁷⁶

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.* at 20949.

⁷² *Id.* at supporting information, 1314373110.

⁷³ *Id.*

⁷⁴ *Id.* at 20952.

⁷⁵ Deborah Davis, Markus Kemmelmeier, & William C. Follette, *Memory for Conversation on Trial*, IN Y. L. NOY & W. KAROWSKI, HANDBOOK OF HUMAN FACTORS IN LITIGATION, 12-1, 2 (2005); *see also*, State v. Henderson, 27 A.3d 872, 894 (N.J. 2010), citing ELIZABETH F. LOFTUS, EYEWITNESS TESTIMONY 21 (2d ed.1996).

⁷⁶ Davis, *supra* note 75, at 12-1, 2; Henderson, 27 A.3d at 894 (citing Loftus, *supra* note 75, at 21).

III. An Overview of Demeanor Evidence

Three thousand years ago, the demeanor of a liar was described: “He does not answer questions, or they are evasive answers, he speaks nonsense, rubs the great toe along the ground, and shivers; his face is discolored; he rubs the roots of the hair with his fingers.”⁷⁷ Relying on this ancient principle of demeanor and its “deep roots in the history of jurisprudence,” belief in the view that demeanor evidence is central to witness credibility is a fundamental principle of our contemporary judicial system.⁷⁸ Few legal principles in contemporary American jurisprudence are more entrenched than the notion that demeanor evidence is important in deciding witness credibility.⁷⁹ Nearly half a century ago, Judge Freedman wrote:

Demeanor is of the utmost importance in the determination of the credibility of a witness. The innumerable telltale indicators which fall from a witness during the course of his examination are often much more of an indication to judge or jury of his credibility and the reliability of his evidence than is the literal meaning of his words.⁸⁰

More recently, Professor Wellborn concluded that “[t]he notion that viewing the appearance and demeanor of a witness significantly assists a trier of fact to determine truthfulness of the witness’s testimony appears to be as ancient as testimony itself.”⁸¹ Indeed, the noted evidence scholar and former dean of the Northwestern Law School, John Henry Wigmore, has written that demeanor evidence “without any definite rules as to its significance, is always assumed to be

⁷⁷ Paul V. Trovillo, *A History of Lie Detection*, 29 J. CRIM. L. & CRIMINOLOGY 848, 849 (1939) (citing the papyrus Veda). For a comprehensive discussion of the expanding historical role of the jury as a detector of witness credibility see George Fisher, *The Jury’s Rise as Lie Detection*, 107 YALE L. J. 575 (1997).

⁷⁸ Jeremy A. Blumenthal, *A Wipe of the Hands, A Lick of the Lips: The Validity of Demeanor Evidence in Assessing Witness Credibility*, 72 NEB. L. REV. 1157, 1158 (1993).

⁷⁹ The jury’s role in deciphering witness demeanor is relatively new. Professor George Fisher traces this back to the Georgia Supreme Court decision *Humphries v. State*, 100 Ga. 260, 263 (1896). George Fisher, *The Jury’s Rise as Lie Detection*, 107 YALE L. J. 575, 638 n.276 (1997).

⁸⁰ *Government of the Virgin Islands v. Aquino*, 378 F.2d 540, 548 (3rd Cir. 1967).

⁸¹ Olin Guy Wellborn III, *Demeanor*, 76 CORNELL L. REV. 1075, 1104 (1991).

in evidence.”⁸² Wigmore also noted: “The appearance and manner, the voice, the gestures, . . . The passions which move or control—fear, love, hate, envy, or revenge—are all open to observation, noted and weighed by the jury.”⁸³ The Advisory Committee Notes to the Federal Rules of Evidence also note that “[t]he demeanor of the witness traditionally has been believed to furnish trier and opponent with valuable clues.”⁸⁴

Demeanor evidence has historically been deemed so important as to be a justification of the need for live testimony, the hearsay rule, and the right of confrontation under the Sixth Amendment to the U.S. Constitution.⁸⁵ “The rules’ strong preference for the testimony of live witnesses furthers the goal of allowing the jury to observe for itself the demeanor of the witness in order to determine the witness’s veracity.”⁸⁶ Similarly, a “traditional justification for the hearsay prohibition was that out-of-court statements were made ‘without [the] opportunity for the court, jury or parties to observe the [witnesses’] demeanor. . . .”⁸⁷ In a late nineteenth century decision, the U.S. Supreme Court noted the importance of witness demeanor as a feature of face-to face confrontation:

[T]he accused has an opportunity, not only of testing the recollection and sifting the conscience of the witness, but of compelling him to stand face to face with the jury in order that they may look at him, and

⁸² 5 JOHN HENRY WIGMORE, EVIDENCE § 1395 (James H. Chadborn rev. ed 1974).

⁸³ *Id.*

⁸⁴ Fed. R. Evid. Art. VIII (advisory committee’s notes, 1972 proposed rules) (citing *Universal Camera v. N.L.R.B.*, 340 U.S. 474, 495-96 (1951)).

⁸⁵ Olin Guy Wellborn III, *Demeanor*, 76 CORNELL L. REV. 1075, 1077 (1991).

⁸⁶ 8 JAMES WM. MOORE ET AL., MOORE’S FEDERAL PRACTICE ¶ 43.02[2] (3d ed. 2004). *See also*, Fed. R. Civ. P. 43(a) (“In every trial, the testimony of the witnesses shall be taken in open court unless. . . .”); Fed. R. Crim. P. 26 (“In every trial the testimony of witnesses must be taken in open court, unless. . . .”).

⁸⁷ Chet K.W. Pagar, *Blind Justice, Colored Truths and the Veil of Ignorance*, 41 WILLAMETTE L. REV. 373, 377 (2005). *See also* Gregory L. Ogden, *The Role of Demeanor Evidence in Determining Credibility of Witness in Fact Finding: The Views of ALJS*, 20 J. NAT’L ASS’N ADMIN. L. JUDGES 1, 3 (2000) (“The opportunity to observe the demeanor of a witness while testifying provides historical and modern justification for public trial in which the fact finder observes the witness testify in a face to face hearing. Demeanor evidence has been assumed to be crucial for determining whether a witness is telling the truth or a falsehood. The rules of law governing live testimony, confrontation rights, and hearsay rules have all been shaped by this assumption about demeanor evidence.” (footnote omitted)).

judge by his demeanor upon the stand and the manner in which he gives his testimony whether he is worthy of belief.⁸⁸

In 1988, Justice Scalia's majority opinion in *Coy v. Iowa* noted that the element of face-to-face confrontation was the "irreducible literal meaning of the clause" and that face-to-face confrontation reflects "there is something deep in human nature that regards face-to-face confrontation ... as 'essential to a fair trial in a criminal prosecution.'"⁸⁹

The following section describes the current way trial court judges (and I am one of them) inadequately instruct jurors on witness memory and demeanor.

IV. How Judges Instruct Jurors on Witness Memory and Demeanor

Written jury instructions are the current method for judges to inform jurors about the law in each case and how to apply the law to the facts of each case.⁹⁰ "In carrying out the instructional task, every trial judge seeks to ensure that the applicable law is stated accurately and completely, a goal that was specified as early as 1895 in *Sparf v. United States*.⁹¹ There are other goals as well. Pattern

⁸⁸ *Mattox v. United States*, 156 U.S. 237, 242-43 (1895).

⁸⁹ *Coy v. Iowa*, 487 U.S. 1012, 1021, 1017 (1988).

⁹⁰ As late as 1979, the predominate method of instructing juries was for the judge to give the instructions orally to the jury and "jurors rarely [had] access to a printed copy of the instructions...." Robert P. Charlow & Veda R. Charrow, *Making Legal Language Understandable: A Psycholinguistic Study of Jury Instructions*, 79 COLUM. L. REV. 1306, 1310 (1979) (the early classic study on plain English rewriting of standard instructions).

⁹¹ Bethany K. Dumas, *Jury Trials: Lay Jurors, Pattern Jury Instructions, and Comprehension Issues*, 67 TENN. L. REV. 701, 708 (2000) (footnotes omitted). Interestingly, in *Sparf*, 156 U.S. 51, 60 (1895) the court noted the charge to the jury included:

You are the exclusive judges of the credibility of the witnesses, and, in judging of their credibility, you have a right to take into consideration their prejudices, motives, or feelings of revenge, if any such have been proven or shown by the evidence in the case. If you believe from the evidence that any witness or witnesses have knowingly and willfully

instructions, a model set of instructions typically written by judicial or bar groups, have become increasingly popular in jurisdictions throughout the country for several reasons.”⁹² “Pattern instructions decrease the time lawyers spend on crafting jury instructions. They also increase the predictability of how the judge will instruct, assuming the judge uses available pattern instructions. At least in theory, pattern instructions “reduce the number of appeals and reversals.”⁹³

Turning to the pattern model instructions for the federal courts, one can summarize what they explain to jurors about memory and demeanor: not much.⁹⁴

testified falsely as to any material fact or point, you are at liberty to disregard entirely the testimony of such witness or witnesses.

Thus, very little has changed in instructing the jury on witness credibility in over a century.

⁹² Joel D. Lieberman & Bruce D. Sales, *What Social Science Teaches Us About the Jury Instruction Process*, 3 PSYCHOL. PUB. POL’Y & L. 589, 590-91 (1997) (citations omitted). Pattern instructions have become popular for the following reasons:

First, they are designed to save judges and lawyers time, by eliminating the need to write new instructions for every trial. Second, they should reduce the number of appeals due to the use of incorrect instructions. Third, pattern instructions ensure that jurors across similar cases hear the same instructions regardless of the judge’s feelings about the case.

Id. at 590-91. *See also* William W. Schwarzer, *Communicating With Juries: Problems and Remedies*, 69 CAL. L. REV. 731, 737(1981) (footnote omitted).

⁹³ William W. Schwarzer, *Communicating With Juries: Problems and Remedies*, 69 CAL. L. REV. 731, 737(1981) (footnote omitted).

⁹⁴ *See* PATTERN CRIMINAL JURY INSTRUCTIONS FOR THE DISTRICT COURTS OF THE FIRST CIRCUIT § 1.06, *available at* <http://www.rid.uscourts.gov/menu/judges/jurycharges/PJI.pdf> (“In deciding what to believe, you may consider a number of factors, including . . . the quality of the witness's memory . . . [and] the witness's manner while testifying”); THIRD CIRCUIT MODEL CIVIL JURY INSTRUCTIONS § 1.7, *available at* http://www.ca3.uscourts.gov/sites/ca3/files/1_Chaps_1_2_3_2014_spring.pdf (“In deciding what to believe, you may consider a number of factors, including . . . the quality of the witness's understanding and memory . . . [and] the witness's manner while testifying”); FIFTH CIRCUIT PATTERN JURY INSTRUCTIONS—CIVIL § 3.1, *available at* <http://www.lb5.uscourts.gov/jury>

instructions/fifth/2006civil.pdf (“You should keep in mind, of course, that a simple mistake by a witness does not necessarily mean that the witness was not telling the truth as he or she remembers it, because people may forget some things or remember other things inaccurately. So, if a witness has made a misstatement, you need to consider whether that misstatement was an intentional falsehood or simply an innocent lapse of memory”); SIXTH CIRCUIT PATTERN CRIMINAL JURY INSTRUCTIONS § 1.07, *available at* http://www.ca6.uscourts.gov/internet_crim_jury_insts/pdf/crmpattjur_full.pdf (“Ask yourself how good the witness's memory seemed to be. Did the witness seem able to accurately remember what happened? . . . Ask yourself how the witness acted while testifying. Did the witness appear honest? Or did the witness appear to be lying?”); PATTERN CRIMINAL FEDERAL JURY INSTRUCTIONS FOR THE SEVENTH CIRCUIT § 1.03, *available at* http://www.ca7.uscourts.gov/Pattern_Jury_Instr/pjury.pdf (“In evaluating the testimony of any witness, you may consider . . . the witness's memory . . . [and] the manner of the witness while testifying”); MANUAL OF MODEL CIVIL JURY INSTRUCTIONS FOR THE DISTRICT COURT OF THE EIGHTH CIRCUIT § 3.03, *available at* http://juryinstructions.ca8.uscourts.gov/Manual_Civil_Jury_Inst_FJPI8CIV_2013_ed.pdf (“You may consider . . . a witness's memory . . . [and] how a witness acted while testifying In deciding whether to believe a witness, remember that people sometimes hear or see things differently and sometimes forget things. You will have to decide whether a contradiction is an innocent misrecollection, or a lapse of memory, or an intentional falsehood; that may depend on whether it has to do with an important fact or only a small detail.”); NINTH CIRCUIT MANUAL OF MODEL JURY INSTRUCTIONS: CIVIL § 1.11, *available at* http://www.akd.uscourts.gov/docs/general/model_jury_civil.pdf (“In considering the testimony of any witness, you may take into account . . . the witness’s memory . . . [and] the witness’s manner while testifying”); TENTH CIRCUIT CRIMINAL PATTERN JURY INSTRUCTIONS § 1.08, *available at* <http://www.ca10.uscourts.gov/sites/default/files/clerk/pji10-cir-crim.pdf> (“I suggest that you ask yourself a few questions: . . . Did the witness seem to have a good memory? . . . And you should keep in mind that innocent misrecollection—like failure of recollection—is not uncommon.”); ELEVENTH CIRCUIT CIVIL PATTERN JURY INSTRUCTIONS § 3.4, *available at* <http://www.ca11.uscourts.gov/sites/default/files/courtdocs/clk/FormCivilPatternJuryInstruction.pdf> (“To decide whether you believe any witness I suggest that you ask yourself a few questions. Did the witness seem to have a good memory? . . . And you should keep in mind that innocent misrecollection—like failure of recollection—is not uncommon.”); ELEVENTH CIRCUIT CIVIL PATTERN JURY INSTRUCTIONS § 3.4, *available at* <http://www.ca11.uscourts.gov/sites/default/files/courtdocs/clk/FormCivilPatternJuryInstruction.pdf> (“To

When addressing the subject of memory, these instructions briefly mention “the quality of the witness’s memory” or direct jurors to ask themselves “how good the witness’s memory seemed to be.”⁹⁵ On the subject of demeanor, “pattern jury instructions in virtually every state authorize jurors’ use of demeanor evidence to detect prevarication.”⁹⁶ The preferred pattern instruction seems to be: “You may consider the manner of the witness while testifying.”⁹⁷ However, these “same instructions offer little to no guidance as to how jurors should undertake this task. Many jurisdictions simply tell jurors that a witness’s words and demeanor are relevant to credibility. Those that go further provide only a little more.”⁹⁸ Indeed, the Georgia pattern instruction is as humorous as it is circuitous, advising jurors to “believe the witnesses whom you think are the most believable.”⁹⁹ As one commentator recently wrote, “it is the jury’s use of demeanor evidence that is most flawed.”¹⁰⁰

Moreover, jury determinations of witness credibility are exceedingly deferential. Federal appellate courts overturn credibility determinations only where a witness’s testimony is impossible under the laws of nature or incredible as a matter of law—an extraordinarily high standard.¹⁰¹

decide whether you believe any witness I suggest that you ask yourself a few questions: . . . Did the witness seem to have a good memory?”).

⁹⁵ *Id.*

⁹⁶ Renee McDonald Hutchins, *You Can’t Handle the Truth: Trial Juries and Credibility*, 44 SETON HALL L. REV. 505, 522 (2014) (footnote omitted).

⁹⁷ *See supra*, note 94.

⁹⁸ Hutchins, *supra* note 96, at 523 (footnotes omitted).

⁹⁹ 2 GA. JURY INSTR., CRIM. §0.01.00 Preliminary Jury Instructions.

¹⁰⁰ Hutchins, *supra* note 96, at 518.

¹⁰¹ *See* *Borges v. Our Lady of the Sea Corp.*, 935 F.2d 436, 440 (1st Cir. 1991) (“We cannot overturn a jury’s credibility finding.”); *Auwood v. Harry Brandt Booking Office, Inc.*, 850 F.2d 884, 890 (2d Cir. 1988) (“[W]e are not entitled to overturn the jury’s credibility evaluations or the inferences it chose to draw.”); *United States v. Dent*, 149 F.3d 180, 187 (3d Cir. 1998) (“It is not for us to weigh the evidence or to determine the credibility of the witnesses.” (citation omitted)); *United States v. Cabrera-Beltran*, 660 F.3d 742, 754 (4th Cir. 2011) (“The jury has already assessed the credibility of the witnesses, and this court cannot do so on appeal.”); *United States v. Shoemaker*, 746 F.3d 614, 623 (5th Cir. 2014) (“Additionally, the jury is the ultimate arbiter of the credibility of a witness, and testimony generally should not be declared incredible as a matter of law unless it pertains to matters that the witness physically could not have observed or events

These pattern instructions have not kept pace with what science teaches about both memory and demeanor. Perhaps this is not surprising given that a 1991 article noted that “[empirical] research demonstrates that jurors have difficulty understanding traditional jury instructions and suggests two procedural reforms: giving important instructions at the beginning as well as the end of the trial, and providing jurors with written copies of their instructions.”¹⁰² The author then

that could not have occurred under the laws of nature.” (citation and internal quotation marks omitted)); *United States v. M/G Transp. Servs., Inc.*, 173 F.3d 584, 588-89 (6th Cir. 1999) (“[W]e do not weigh the evidence presented, [or] consider the credibility of witnesses”); *United States v. Hayes*, 236 F.3d 891, 896 (7th Cir. 2001) (“We will overturn a conviction based on a credibility determination only if the witness’ testimony was incredible as a matter of law. That is an exacting standard, and can be met, for instance, by showing that it would have been physically impossible for the witness to observe what he described, or it was impossible under the laws of nature for those events to have occurred at all.” (internal citations and quotation marks omitted)); *United States v. Jones*, 628 F.3d 1044, 1047 (8th Cir. 2011) (“A district court’s finding that a witness’s testimony is credible is only error in extreme circumstances, such as when the witness testified to facts that are physically impossible.” (citation omitted)); *United States v. Ramos-Rascon*, 8 F.3d 704, 709 n.3 (9th Cir. 1993) (“Although we normally must accept the jury’s implicit determinations of credibility, we are permitted to disregard inherently improbable testimony.” (internal citations omitted)); *United States v. Cardinas Garcia*, 596 F.3d 788, 794 (10th Cir. 2010) (“[W]e will overturn a jury’s credibility determination and disregard a witness’s testimony only if the testimony is inherently incredible—that is, only if the events recounted by the witness were impossible under the laws of nature or the witness physically could not have possibly observed the events at issue.” (citations and internal quotation marks omitted)); *United States v. Isaacson*, 752 F.3d 1291, 1304 (11th Cir. 2014) (“We will upset a jury’s decision to credit a witness’s testimony only in the rare circumstance that the testimony is incredible as a matter of law. Testimony is incredible as a matter of law only if it concerns facts that the witness physically could not have possibly observed or events that could not have occurred under the laws of nature.” (internal citations and quotation marks omitted)).

¹⁰² J. Alexander Tanford, *Law Reform by the Courts, Legislatures, and Commissions Following Empirical Research on Jury instructions*, 25 LAW & SOC’Y REV. 155, 156 (1991). For well over a decade I have given every juror in both civil and criminal cases, before opening statements, an individualized final set of jury instructions, in plain English, complete with a table of contents. Because of my plain English requirement, I almost always eschew the use of pattern

concluded: “Courts have not only ignored the new data but actually have moved the law in the direction *opposite* to the suggestions of social scientists.”¹⁰³ The author also noted that “[s]cattered studies indicate that empirical research has little or no impact on appellate courts.”¹⁰⁴

Pattern jury instructions signify an essential advance concerning consistency, efficiency, and reducing error in the instruction process. “However, their use fails to address the lack of juror comprehension of jury instructions, a problem explicitly identified as early as the 1970s.”¹⁰⁵ Thus, the daunting challenge of this article is to develop jury instructions that both incorporate what science teaches about memory and demeanor and what linguistics teaches about instructing juries in plain English.¹⁰⁶ This is especially important and challenging because evaluating witness credibility using boilerplate jury instructions “to evaluate witness credibility on the basis of witness demeanor, is probably counterproductive, since it has been established that demeanor evidence is worthless in determining whether

instructions, except when sitting by designation in the district courts of the Ninth Circuit where their pattern instructions are in plain English.

¹⁰³ *Id.* at 157.

¹⁰⁴ *Id.* at 156.

¹⁰⁵ Bethany K. Dumas, *Jury Trials: Lay Jurors, Pattern Jury Instructions, and Comprehension Issues*, 67 TENN. L. REV. 701, 709 (2000) (footnote omitted). *See also*, Robert P. Charrow & Veda R. Charrow, *Making Legal Language Understandable: A Psycholinguistic Study of Jury Instructions*, 79 COLUM. L. REV. 1306 (1979).

¹⁰⁶ The 1979 study of plain English jury instructions by Charlow & Charlow appears to be the first actual empirical study of comparison of standard pattern instructions with a re-write into plain English. Robert P. Charrow & Veda R. Charrow, *Making Legal Language Understandable: A Psycholinguistic Study of Jury Instructions*, 79 COLUM. L. REV. 1306, 1307 (1979).

We have not merely attempted here to demonstrate that jury instructions are inadequately understood; we have also attempted to isolate those linguistic features typical of this brand of legalese— aspects of legal grammar, semantics, vocabulary, and discourse structure—that cause the comprehension problems. We have then used this knowledge to rewrite jury instructions in a systematic fashion, and have empirically verified that such rewriting can yield positive results.

Id. at 1307-08.

a witness is lying or mistaken.”¹⁰⁷ This challenge helps guide the Proposed Model Plain English Witness Credibility Instruction in the final section of this article.

V. Juror Misunderstanding of Jury Instructions, Memory, and Demeanor

A. Generally

Social scientists, legal scholars, enlightened judges, and likely most citizens that have served on juries have understood for years that jurors often have substantial difficulty understanding jury instructions—and are frequently bewildered by them.¹⁰⁸ We know this from both case law and from various scientific empirical

¹⁰⁷ Steven B. Duke, Ann Seung-Eun Lee & Chet K. W. Pager, *A Picture's Worth a Thousand Words: Conversational Versus Eyewitness Testimony in Criminal Convictions*, 44 AM. CRIM. L. REV. 1, 38 (2007) (footnote omitted).

¹⁰⁸ See e.g. LAWRENCE M. FRIEDMAN, *A HISTORY OF AMERICAN LAW* 137 (1973) (observing that jury instructions are “stereotyped, antiseptic statements of abstract rules”); Walter M. Steele, Jr. & Elizabeth G. Thomburg, *Jury Instructions: A Persistent Failure to Communicate*, 67 N.C.L. REV. 77, 78 (1988) (“Lawyers and judges have suspected for some time, however, that many jurors do not understand their instructions. These suspicions are confirmed by numerous reported cases in which jury confusion peeks through. Recent social science research has demonstrated empirically that juror comprehension of instructions is appallingly low. Some of that research further demonstrates that rewriting instructions with clarity as the goal can dramatically improve comprehensibility. Despite these findings, and despite the existence of books and articles explaining how to write instructions more clearly, lawyers and judges continue to produce jury instructions that are incomprehensible to juries.”); Geoffrey P. Kramer & Dorean M. Koenig, *Do Jurors Understand Criminal Jury Instructions? Analyzing the Results of the Michigan Juror Comprehension Project*, 23 U. MICH. J. L. REFORM 401, 429 (1990) (“This research supports a growing body of literature suggesting that jury instructions are often lost on jurors, and can sometimes even backfire. The relatively low rate of comprehension for some concepts, both among more- and less-educated jurors, the apparent ineffectiveness of instructions to improve comprehension, and the negative effect of certain instructions, constitute the most striking findings in the present study.”); Mrs. Ben T. Head, *Confessions of a Juror*,

studies.¹⁰⁹ I know it from experience.¹¹⁰ Even jurors who are provided with a copy of the instructions before deliberating do not avoid confusion. In one study, where the judge had instructed on the elements of assault and the jurors had read the instruction and discussed it in deliberations, over sixty-seven percent of the jurors did not correctly understand that assault did not require a physical injury.¹¹¹

Over several decades, studies have repeatedly demonstrated that “juror’s comprehension of instructions is poor.”¹¹² Across the studies, social scientists have found “jurors do not understand a large portion of the instructions presented to them.”¹¹³ It is not uncommon to find “over half the instructions misunderstood, and even the most optimistic results indicate that roughly 30% of the instructions are not understood.”¹¹⁴

Yet, as the chart below establishes, federal and state court trial judges have been very slow in implementing recognized methods for enhancing juror

44 F.R.D. 330, 336 (1967) (“A number of years ago, I served in a state court where the Judge instructed us in language none of us understood. It was involved and tedious and long, and so full of whereases and therewiths that he lost us halfway through.”).

¹⁰⁹ “Information about juror confusion comes from several sources: case law reporting the contents of ‘notes sent by jurors to judges during deliberation,’ ‘cases from states that allow testimony about conversations among jurors during deliberations,’ and empirical evidence showing that rewritten instructions providing context, synonyms for difficult terms, and shorter sentences are much better understood than are pattern instructions.” Bethany K. Dumas, *Jury Trials: Lay Jurors, Pattern Jury Instructions, and Comprehension Issues*, 67 TENN.L. REV. 701, 702 (2000) (footnotes omitted).

¹¹⁰ Nearly a decade ago I “hired” (actual payment for expenses and time) former jurors from my prior civil and criminal trials to come to the courthouse for an all-day session with a facilitator to rewrite our stock instructions into plain English. Earlier, I found it was nearly impossible to do this with the highly skilled law clerks I hired. They were brilliant, but plain English was not their forte; rather, it was the legalese trappings of law school!

¹¹¹ Geoffrey P. Kramer & Dorean M. Koenig, *Do Jurors Understand Criminal Jury Instructions? Analyzing the Results of the Michigan Juror Comprehension Project*, 23 U. MICH. J. L. REFORM 401, 423 (1990).

¹¹² Joel D. Lieberman & Bruce D. Sales, *What Social Science Teaches Us About the Jury Instruction Process*, 3 PSYCHOL. PUB. POL’Y & L. 589, 589 (1997).

¹¹³ *Id.* at 596.

¹¹⁴ *Id.* at 596-97.

comprehension, like pre-instructing on substantive law, instructing before closing arguments, and providing the jurors with more than one copy of the written instructions:

Juror Instruction Methods (%) ¹¹⁵	State Courts	Federal Courts
Pre-instructed on substantive law	17.7	16.9
Instructed before closing arguments	41.2	35.5
Given guidance on deliberations	54.4	52.7
At least 1 copy of written instructions provided	68.5	79.4
All jurors received copy of written instructions	32.6	39.0

It has been empirically established that jury instructions before testimony “have been found to be more effective than those given afterwards.”¹¹⁶ It is troubling that so few trial court judges pre-instruct on the substantive law of the claims and defenses before opening statements.¹¹⁷

The problem of juror confusion is magnified by jury instructions commonly given on memory and demeanor. This is so because such instructions tend to reinforce common myths and often ignore or contradict cognitive psychological principles.

¹¹⁵ HON. Gregory E. Mize, National Center For State Courts, Paula Hannaford-Agor, & Nicole L. Waters, THE STATE-OF-THE-STATES SURVEY OF JURY IMPROVEMENT EFFORTS: A COMPENDIUM REPORT 32 TBL.24 (2007).

¹¹⁶ Steven Penrod & Brian Cutler, *Witness Confidence and Witness Accuracy: Assessing their Forensic Relation*, 1 PSYCHOL. PUB. POL’Y & L. 817, 833 (1995).

¹¹⁷ These are some of the reasons why, nearly fifteen years ago, I started instructing jurors *before* opening statements with a full final set of plain English written instructions. The instructions contain plenty of bullet points and white space, in contrast to the lengthy paragraphs of legalese that are so common in most sets of jury instructions.

B. Juror Misunderstanding of Memory—What Science Teaches About Memory

1. The Misunderstanding of How Memory Works

There is a consensus among memory experts that the ways in which memory and perception work and apply in the courtroom are “not within the knowledge of the average juror.”¹¹⁸ Indeed, memory is a far more intricate “phenomenon than may be understood by the average person.”¹¹⁹ Two of the leading experts in the world on eyewitness misidentification and memory have argued that the “justice system as a whole might have no theory” as to how memory works.¹²⁰

Rather than viewing memory as video or a TiVo playback system, as most jurors do, Professors Wells and Loftus have established that the “process of recollection is reconstructive.”¹²¹ Thus, recollection of an event is based on not only the perceptions of “the event itself but also from post-event information gleaned in various ways after the event occurred.”¹²² Memory can be so suggestive that even “mere imagination” in some cases “make[s] people believe that they witnessed or experienced an event that did not happen.”¹²³ Decades of cognitive psychological research has established that post-event information can alter memory of an event,

¹¹⁸ Derek Simonsen, Comment, *Teach Your Jurors Well: Using Jury Instructions to Educate Jurors About Factors Affecting the Accuracy of Eyewitness Testimony*, 70 MD. L. REV. 1044, 1054 (2011) (footnote omitted).

¹¹⁹ *Id.* at 1049.

¹²⁰ 11 GARY L. WELLS & ELIZABETH LOFTUS, EYEWITNESS MEMORY FOR PEOPLE AND EVENTS, HANDBOOK OF PSYCHOLOGY, FORENSIC PSYCHOLOGY, 617, 618 (2013).

¹²¹ *Id.*

¹²² *Id.* See also, Richard S. Schmechel, Timothy P. O’Toole, Catherine Easterly, & Elizabeth F. Loftus, *Beyond the Ken? Testing Jurors’ Understanding of Eyewitness Reliability Evidence*, 46 JURIMETRICS J. 177, 195 (2006). (“[M]emory can change in dramatic and unexpected ways because of the passage of time or ... exposure to ‘post-event’ information like conversations with other witnesses”).

¹²³ 11 GARY L. WELLS & ELIZABETH LOFTUS, EYEWITNESS MEMORY FOR PEOPLE AND EVENTS, HANDBOOK OF PSYCHOLOGY, FORENSIC PSYCHOLOGY, 617, 618 (2013).

even in very “dramatic ways.”¹²⁴ The simple act of witnesses being asked to reconstruct the experience “can cause the witness’ memory to change by unconsciously blending the actual fragments of memory of the event with information provided during the memory retrieval process.”¹²⁵

A study of potential jurors in the District of Columbia found significant “deficits of knowledge on the most basic level about how memory works.”¹²⁶ The potential jurors tended towards viewing memory as a video camera of witnesses testifying and strongly overstated their belief that their own memory was excellent.¹²⁷ The study suggested potential jurors likely started trials with an unwarranted confidence in memory.¹²⁸ In sum, current pattern jury instructions do not “counteract deep-seated cognitive processes that most jurors are unaware of and would adamantly deny are occurring.”¹²⁹

Courts have been aware of these problems for years. For example, the Utah Supreme Court noted nearly thirty years ago that “[r]esearch on human memory has consistently shown that failures may occur and inaccuracies creep in at any stage of what is broadly referred to as the “memory process.”¹³⁰ The court went on to observe that “[t]his process includes the acquisition of information, its storage, and its retrieval and communication to others. These stages have all been extensively studied in recent years, and a wide variety of factors influencing each stage have been identified.”¹³¹ The court also astutely acknowledged that “[p]eople simply do not accurately understand the deleterious effects that certain variables can have on the accuracy of the memory processes of an honest witness.”¹³²

¹²⁴ *Id.* at 621.

¹²⁵ Richard S. Schmechel, Timothy P. O’Toole, Catherine Easterly, & Elizabeth F. Loftus, *Beyond the Ken? Testing Jurors’ Understanding of Eyewitness Reliability Evidence*, 46 JURIMETRICS J. 177, 195 (2006).

¹²⁶ *Id.* at 196.

¹²⁷ *Id.*

¹²⁸ *Id.*

¹²⁹ Chet K.W. Pager, *Blind Justice, Colored Truths and the Veil of Ignorance*, 41 WILLAMETTE L. REV. 373, 377 (2005).

¹³⁰ *State v. Long*, 721 P.2d 483, 488 (Utah 1986).

¹³¹ *Id.* (citations omitted). (This case provides an excellent and detailed discussion of the problems at each of the three stages of the memory process that were known in scientific research almost thirty years ago. *Id.* at 488-91).

¹³² *Id.* at 490. (citations omitted).

2. The Misinformation Effect

Recalling broken glass from a film clip (where there was no broken glass) about an auto accident after being primed with the word ‘smashed’ is an example of the misinformation effect.¹³³ The ability to distort actual memories has been reported in “scores of studies, involving a wide variety of procedures.”¹³⁴ In addition to the nonexistent broken glass, people have recalled stop signs as yield signs, straight hair as curly, screwdrivers instead of hammers, a mustached man instead of a clean-shaved person. Even more surprising, study participants have reported recalling “something as large and conspicuous as a barn in a bucolic scene that contained no buildings at all.”¹³⁵

Numerous studies conducted throughout the world demonstrate the “misinformation effect” that memory is susceptible to human errors from exposure to post-event information including leading questions,¹³⁶ reports from others, contact with other people, suggestions, one’s own expectations or expectations of others, and even very small differences in language.¹³⁷ In one study, a fake narrative induced greater false memories about a non-existent childhood memory about a hot air balloon ride than a professionally doctored false family photograph of the family in the hot air balloon.¹³⁸ For each of the subjects in the study (ranging

¹³³ *Supra*, note 17 at 587-88.

¹³⁴ 11 Gary L. Wells & Elizabeth Loftus, EYEWITNESS MEMORY FOR PEOPLE AND EVENTS, HANDBOOK OF PSYCHOLOGY, FORENSIC PSYCHOLOGY, 617, 621 (2013).

¹³⁵ *Id.*

¹³⁶ Whether a leading question contains either a definite article “the” versus an indefinite article “a” can dramatically influence the memory of a witness. In a study, participants were asked about events that did and did not occur in a film about an automobile accident. Half the participants were asked: “Did you see *the*...” and the other half: “Did you see *a*” When the indefinite article “a” was used for an item that did not appear in the film, a “yes” response occurred 6% of the time. When the definite article “the” was used for the same question, a “yes” response occurred 20% of the time. Elizabeth F. Loftus & Guido Zanni, *Eyewitness Testimony: The Influence of the Wording of the Question*, 5 BULL. PSYCHOMETRIC SOC’Y 86, 88 (1975).

¹³⁷ Cara Laney & Elizabeth Loftus, *Recent Advances in False Memory Research*, 43 SOUTH AFRICAN J. PSYCHOL. 137, 138 (2013) (citations omitted).

¹³⁸ Maryanne Garry & Kimberley A. Wade, *Actually, A Picture is Worth Less Than 45 Words: Narratives Produce More False Memories Than Photographs Do*, 12

in age from 18-30), the researchers created a booklet from information from family confederates containing photographs and narratives of 4 childhood events—three real events (e.g. school functions, family trips) and a false event about a ride in a hot air balloon.¹³⁹ Both the real and fake photographs were digitized and gray-scaled and printed with identical resolution.¹⁴⁰ The hot air balloon photograph was created with Adobe Photoshop and included at least one family member.¹⁴¹ For the narrative subjects, a personalized but generic 45-word description of the balloon ride was created.¹⁴²

The media also plays an increasing role in the misinformation effect, especially in civil and criminal litigation.¹⁴³ Media coverage has been described as “perhaps among the most common sources of misinformation in witness memory.”¹⁴⁴ An excellent example is the massive media coverage of the TWA Flight 800 crash twelve minutes after takeoff from JFK International Airport on July 17, 1996. Within days of the crash, the media began hyping a theory that the plane had been shot down by a missile.¹⁴⁵ This included graphic illustrations of how a missile could have downed the plane.¹⁴⁶ The testimony of witnesses was altered overtime based on the extensive media coverage.¹⁴⁷ Thus, eventually 183 witnesses came forward supporting the missile theory.¹⁴⁸

A Dutch study of residents’ memories of the crash of an El Al Boeing 747 into an 11 story Amsterdam apartment building is equally illuminating on the misinformation effect.¹⁴⁹ In two combined studies, over 60% of the subjects

PSYCHONOMIC BULL. & REV. 359(2005).

¹³⁹ *Id.* at 360.

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.* This was the narrative: “When you were between [4-6] years old, you and your [dad] went up in a hot air balloon in [Wangai]. You didn’t go far because the ropes anchoring the balloon were still attached. It was around May/June; a colder season.” *Id.*

¹⁴³ Michael P. Troglia, J. Don Read, David F. Ross & R.C.L. Lindsay, 1 HANDBOOK OF EYEWITNESS PSYCHOLOGY- MEMORY FOR EVENTS 208 (2007).

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ *Id.* at 209.

¹⁴⁸ *Id.*

¹⁴⁹ H.F.M. Crombag, W.A. Wagenaar, & P.J. Van Koppen, *Crashing Memories and the Problem of Source Monitoring*, 10 APPLIED COGNITIVE PSYCHOL. 95

claimed they had seen the crash on TV, even though no TV film of the crash ever existed.¹⁵⁰ The authors reported that it is relatively easy in a real life situation to make reasonable, intelligent adults believe that they have witnessed something they actually have not seen themselves, but only heard reports about from others, and to elicit reports about particular details of an event.¹⁵¹ These so-called *crashing memory* studies have consistently produced vivid “memories” “of non-existent footages of a wide range of public events.”¹⁵² Thus, 38% of Swedish participants in one study and 55% in another claimed to have seen non-existent film of the sinking of the Estonia ferry where 900 lives were lost; and 63% of the participants claimed to have seen non-existent film of the assassination of Dutch politician Pim Fortuyn. A stunning number of the participants—23%—offered up details of the non-existent films.¹⁵³ This suggests “memory is more prone to error than most people realize. Our memory system can be infused with illusory memories of important events.”¹⁵⁴

At the end of the last century, researchers, not content with the mere distortion of memories—remembering a barn where none existed—took the cognitive research a step farther by planting memories of events that never occurred.¹⁵⁵ The first series of studies attempting implantation of false memories of “whole

(1996).

¹⁵⁰ *Id.* at 97-104.

¹⁵¹ *Id.*

¹⁵² Tom Smeets, Marko Jellicic, Maarten J.V. Peters, Ingrid Candel Robert Horselenberg & Harald Merckelbach, ‘Of Course I Remember Seeing That Film’- *How Ambiguous Questions Generate Crashing Memories*, 20 APPLIED COGNITIVE PSYCH. 779, 780 (2006) (citations omitted).

¹⁵³ *Id.* The authors’ study demonstrated that *crashing memories* of non-existent film footage depends in part on the ambiguous or suggestive nature of the questions asked in the interviews. *Id.* at 786-88.

¹⁵⁴ Marko Jellicic, Tom Smeets, Maarten J.V. Peters, Ingrid Candel, Robert Horselenberg & Harald Merckelbach, *Assassination of a Controversial Politician: Remembering Details from Another Non-Existent Film*, 20 APPLIED COGNITIVE PSYCHOL. 591, 595 (2006) quoting Elizabeth Loftus, *Our Changeable Memories: Legal and Practical Implications*, 4 NATURE NEUROSCIENCE REVIEWS 231, 233 (2003).

¹⁵⁵ 11 GARY L. WELLS & ELIZABETH LOFTUS, EYEWITNESS MEMORY FOR PEOPLE AND EVENTS, HANDBOOK OF PSYCHOLOGY, FORENSIC PSYCHOLOGY, 617, 621 (2013).

autobiographical events” became known as the “lost in the mall” studies.¹⁵⁶ In these studies, the participants were told their parents had provided researchers with some memorable events from their childhood.¹⁵⁷ This was true for some events but, in each study, one childhood manufactured event was included after the parents specifically disconfirmed the event (e.g. getting lost in a shopping mall, sustaining a serious accident).¹⁵⁸ Following a series of suggestive interviews, 20 to 25 % of the participants self-reported remembering the false event.¹⁵⁹ Over time, the percentage actually increased so that researchers found over the span of ten studies that a weighted mean of 37% had false memories of the planted event.¹⁶⁰ These “false memories produced in these studies were often detailed and even emotionally laden for those who acquired them.”¹⁶¹

Researchers, having established that they could induce false memories in laboratory settings, created new techniques to test false memories in the field.¹⁶² One creative study took the participants on a walk around their college campus rather than performing tasks in a laboratory.¹⁶³ As they walked, the participants were asked to both perform tasks and imagine others; and to observe the experimenter performing tasks and imagining others.¹⁶⁴ After a two week interval, the participants had difficulty differentiating between viewed, imagined, and experienced events.¹⁶⁵ Some “falsely remembered performing some tasks they had only imagined performing - including, rather absurdly, proposing marriage to a Pepsi machine.”¹⁶⁶ In a follow up study, an experimenter presented both bizarre and

¹⁵⁶ Cara Laney & Elizabeth Loftus, *Recent Advances in False Memory Research*, 43 SOUTH AFRICAN J. PSYCHOL. 137, 139 (2013) (citations omitted).

¹⁵⁷ *Id.* (citations omitted).

¹⁵⁸ *Id.*

¹⁵⁹ *Id.* (citations omitted).

¹⁶⁰ *Id.* (citations omitted).

¹⁶¹ *Id.* (citations omitted).

¹⁶² *Id.* at 140.

¹⁶³ *Id.* (citations omitted).

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ *Id.* See also, John G. Seamon, Morgan M. Philbin, & Liza G. Harrison, *Do You Remember Proposing to the Pepsi Machine? False Recollections From a Campus Walk*, 13 PSYCHONOMIC BULL. & REV. 752, 755 (2006) (“We found imagining familiar or bizarre actions during a campus walk can lead to the subsequent false recollection of having performed those actions . . . The present research extends previous work by demonstrating that these false recollections can sometimes occur

familiar action statements to the participants: e.g., “Shake hands with the fire hydrant” or “Rest on the fire hydrant.”¹⁶⁷ The study demonstrated that two weeks after simply imagining a person performing bizarre or familiar actions during a campus walk, the participants falsely remembered the person actually performed those actions.¹⁶⁸

Another example of the misinformation effect is how one witness’s recollection can influence another’s. There is direct evidence that this “witness memory conformity” can occur with diverse stimuli like identification of faces, motor vehicles, details from written stories, reports of criminal events, and various objects from a variety of scenes.¹⁶⁹ Witness memory conformity studies establish “that discussions between co-witnesses have great potential to influence the testimony of all witnesses, with far reaching consequences.”¹⁷⁰ Importantly, discussions among co-witnesses may not only pollute memory, but significantly boosts the confidence of a witness in information “confirmed” by others.¹⁷¹ This becomes critical because, as discussed later, jurors who determine that a witness is confident tend to find that witness more credible. This assumption occurs even though cognitive psychology teaches there is little relationship between witness confidence and accuracy. This insight is significant “because jurors will not understand the potential for witness collaboration to influence both memory and confidence.”¹⁷² Instead, jurors “assume that confidence strongly reflects accuracy.”¹⁷³

in a natural, real-life setting following just one imagining.”).

¹⁶⁷ John G. Seamon, Claire N. Blumenson, Sophie R. Karp, Jessie J. Perl, Laura A. Rindlaub, & Brittany B. Speisman, *Did We See Someone Shake Hands with a Fire Hydrant?: Collaborative Recall Affects False Recollections From a Campus Walk*, 122 AM. J. PSYCH. 235 (2009).

¹⁶⁸ *Id.* at 244.

¹⁶⁹ Michael P. Troglia, J. Don Read, David F. Ross & R.C.L. Lindsay, 1 HANDBOOK OF EYEWITNESS PSYCHOLOGY- MEMORY FOR EVENTS 209 (2007) (citations omitted).

¹⁷⁰ *Id.* at 210.

¹⁷¹ *Id.* at 211 (citation omitted).

¹⁷² *Id.*

¹⁷³ *Id.* (citations omitted).

3. Memory of Oral Conversation

Witness memories of oral conversations have been labeled “the orphan child of witness memory researchers” because they have not been studied as thoroughly as other memory issues.¹⁷⁴ From a legal perspective, this seems odd because testimony about recollections of oral conversations obviously plays a huge role in both civil and criminal litigation and trials. From the corporate boardroom, to an employee supervisor’s office, to telephone conversations about the formation of an oral contract, recollections of oral statements and conversations are often pivotal to jurors’ civil verdicts. In my experience, the vast majority of criminal drug cases in federal court are brought as conspiracy cases. Thus, Fed. R. Evid. 801(d)(2)(E), the co-conspiracy exception to the hearsay rule, opens the floodgates to a host of oral statements made during and in furtherance of the conspiracy by any of the co-conspirators.¹⁷⁵ For example, who said what about the location and operation of a drug stash house can be outcome determinative. It is hard to imagine a civil or criminal jury trial where who said what to whom, when, where, and under what circumstances, is not at issue. Just as witness memories for specific persons, locations, objects, and events are subject “to the same honest failures and distortions that plague witness memories” so too are witnesses’ memories of oral conversations and statements.¹⁷⁶ Moreover, witnesses to conversations “are more common, more likely to be inaccurate, more likely to be believed by jurors, and more likely to produce irreversible errors than eyewitness testimony.”¹⁷⁷

Researchers have identified 10 kinds of “source memory” (refers to the context in

¹⁷⁴ *Id.* at 3.

¹⁷⁵ *Bourjaily v. United States*, 483 U.S. 171, 175 (1987) (“Before admitting a co-conspirator's statement over an objection that it does not qualify under Rule 801(d)(2)(E), a court must be satisfied that the statement actually falls within the definition of the Rule. There must be evidence that there was a conspiracy involving the declarant and the nonoffering party, and that the statement was made ‘during the course and in furtherance of the conspiracy.’”).

¹⁷⁶ Deborah Davis, Markus Kemmelmeier, & William C. Follette, *Memory for Conversation on Trial*, in Y. L. NOY & W. KAROWSKI, HANDBOOK OF HUMAN FACTORS IN LITIGATION, 12-1 (2005).

¹⁷⁷ Steven B. Duke, Ann Seung-Eun Lee & Chet K. W. Pager, *A Picture’s Worth a Thousand Words: Conversational Versus Eyewitness Testimony in Criminal Convictions*, 44 AM. CRIM. L. REV. 1, 6 (2007).

which the statement or conversation took place)¹⁷⁸ issues in the context of recalling oral statements or conversations:

- Who said what?
- To whom was something said?
- Did one actually say what one had considered, imagined, or planned to say?
- In which conversation (of a number of possible conversations) did a particular exchange take place?
- When or where did a particular exchange take place?
- In what order within a conversation or interaction did a particular exchange take place?
- What other participants or witnesses were present, if any?
- What other features of the context or previous utterances would alter the meaning of the target utterance?
- Was information acquired from a particular conversational source or from some other medium?
- When planning a particular conversational contribution, has one said these things to this person before?¹⁷⁹

The first nine of these issues “are relevant in legal settings.”¹⁸⁰ While a thorough discussion of these source memory issues is beyond the scope of this article,¹⁸¹ one interesting aspect of “who said what” has been dubbed “unconscious plagiarism” or cryptomnesia – the phenomenon of one remembering another’s statement as their own.¹⁸²

Studies have shown the frequency of cryptomnesia increases:

- With increasing delay between the original group interaction and the subsequent attempt to generate novel contributions

¹⁷⁸ Deborah Davis, Markus Kemmelmeier, & William C. Follette, *Memory for Conversation on Trial*, in Y. L. NOY & W. KAROWSKI, HANDBOOK OF HUMAN FACTORS IN LITIGATION, 12-11 (2005).

¹⁷⁹ *Id.* at 12-11, 12.

¹⁸⁰ *Id.* at 12-12.

¹⁸¹ For a thorough discussion *see Id.* at 12-11 to 12-23.

¹⁸² *Id.* at 12-15.

- When the original information comes from a high—rather than low-credibility source
- For contributions from a member of one's own sex (presumably a more similar and therefore more easily confused source)
- When participants are distracted during the original generation of ideas
- When retrieval occurs in a context different from that of the original task
- For older participants¹⁸³

While memory researchers have “largely neglected basic research in this area” of memories of conversations and statements . . . “it is clear that memory for conversation can and does fail for most, if not all, of the reasons that memory for other events fails.”¹⁸⁴ While there are few studies in this area, the studies conducted to date are revealing and have led three scholars to conclude conversational memory is of “astoundingly poor quality” yet greatly relied upon¹⁸⁵ In one study, trained interviewers were asked immediately after the interview to remember the questions they asked. They not only failed to recall over 80% of their own questions, they misremembered asking mostly open-ended questions when in fact over 80% were closed-ended and 13% were leading.¹⁸⁶ Finally, research establishes that “the already-less-than-perfect memory immediately after a conversation undergoes significant decay even after relatively short periods of time.”¹⁸⁷

4. Change Blindness and Metacognition: Overestimation of One’s Own Powers Of Observation

Change blindness refers to one’s inability to see changes in scenes—even large between view changes.¹⁸⁸ Metacognition, or “cognition about cognition” or

¹⁸³ *Id.*

¹⁸⁴ *Id.* at 12-22, 23.

¹⁸⁵ Steven B. Duke, Ann Seung-Eun Lee & Chet K. W. Pagar, *A Picture’s Worth a Thousand Words: Conversational Versus Eyewitness Testimony in Criminal Convictions*, 44 AM. CRIM. L. REV. 1, 16 (2007).

¹⁸⁶ *Id.* at 15-16.

¹⁸⁷ *Id.* at 31 (footnote omitted).

¹⁸⁸ Daniel T. Levin, Nausheen Momen & Sara H. Drivdahl, *Change Blindness Blindness: The Metacognitive Error of Overestimating Change-detection Ability*, 7

“knowing about knowing” comes into play in understanding that most people grossly overestimate their own ability to detect changes, even significant ones, to scenes they observe.¹⁸⁹ In a classic study involving four different change-detection scenarios,¹⁹⁰ (e.g. plates on table changed from red to white; an actual change in one of two actors in the scenario) only 11% of the subjects actually perceived the changes, yet in the earlier, identical studies, 83% predicted they would be able to detect the changes. In a related study, “ninety-seven percent of the respondents estimated they would succeed in an identification task in which fifty percent of the actual participants failed.”¹⁹¹ In yet another, study 80% of members of a Florida community that were jury eligible “overestimated the accuracy of identifications made by the store clerks who actually participated in the field study.”¹⁹² This phenomenon of failure to observe even significant changes “is a pervasive feature of our visual lives.”¹⁹³ Thus, the vast majority of subjects studied “thought they could detect changes that few people actually do.”¹⁹⁴ It appears that change blindness and metacognition give both witnesses and jurors a false sense of accuracy of memory and visual perception. Thus, change blindness suggests people do not retain as many details in memory as they think they do.¹⁹⁵ Moreover they have “grossly inaccurate insights into their own and others’ perceptual abilities.”¹⁹⁶

VISUAL COGNITION 397, 397 (2000).

¹⁸⁹ *Id.* at 398-99, 405-09.

¹⁹⁰ *Id.* at 399-401.

¹⁹¹ Dan Simon, *The Limited Diagnosticity of Criminal Trials*, 64 VAND. L. REV. 143 (2011).

¹⁹² *Id.* at 154-55.

¹⁹³ Alva Noe, *Is the Visual World a Grand Illusion*, 9 J. CONSCIOUSNESS STUDIES 5 (2002).

¹⁹⁴ Daniel T. Levin, Nausheen Momen & Sara H. Drivdahl, *Change Blindness Blindness: The Metacognitive Error of Overestimating Change-detection Ability*, 7 VISUAL COGNITION 397, 408 (2000).

¹⁹⁵ Erin M. Harley, Keri A. Carlsen & Geoffrey R. Loftus, *The “Saw-It-All-Along” Effect: Demonstrations of Visual Hindsight Bias*, 30 J. OF EXPERIMENTAL PSYCH. 960, 961 (2004).

¹⁹⁶ *Id.*

C. Juror Misunderstanding of Demeanor—What Science Teaches About Demeanor

5. Overview

The jury's role in judging the credibility of witnesses is one of the hallmarks of our state and federal civil and criminal judicial systems.¹⁹⁷ Demeanor evidence includes tone of voice, facial expressions, body language, gestures, glances, gazes, eye contact, attitude, zeal, confidence, and a host of other "cues,"¹⁹⁸ such as the mantra of pattern jury instructions: the "manner while testifying".¹⁹⁹ In his influential article tracing the rise of juries as lie detectors, Professor Fisher concluded: "We could perhaps regard the wonderful convenience of jury lie detecting with more equanimity if there were any sound evidence that juries are good at this task. But most of the evidence we have suggests that juries have no particular talent for spotting lies."²⁰⁰ In scientific studies, "not only do experimental subjects rarely perform much better than chance at distinguishing truth from falsehood, but they think they are better lie detectors than they are."²⁰¹ Professor Blumenthal has similarly explained: "the long-standing confidence in the principle of demeanor evidence is unfounded. . . ."²⁰² This is true because empirical research

¹⁹⁷ Joseph W. Rand, *The Demeanor Gap: Race, Lie Detection, and the Jury*, 33 CONN. L. REV. 1, 1 (2000). George Fisher, *The Jury's Rise as Lie Detection*, 107 YALE L.J. 575, 577 (1997) ("We say that lie detecting is what juries do best. In the liturgy of the trial, we name the jurors our sole judges of credibility and call on them to declare each witness truth-teller or liar.").

¹⁹⁸ *Id.* See also, Jeremy A. Blumenthal, *A Wipe of the Hands, A Lick of the Lips: The Validity of Demeanor Evidence in Assessing Witness Credibility*, 72 NEB. L. REV. 1157, 1164 (1993); Gregory L. Ogden, *The Role of Demeanor Evidence in Determining Credibility of Witness in Fact Finding: The Views of ALJS*, 20 J. NAT'L ASS'N ADMIN. L. JUDGES 1, 2 (2000).

¹⁹⁹ *Supra*, note 94.

²⁰⁰ George Fisher, *The Jury's Rise as Lie Detection*, 107 14 YALE L.J. 575, 707 (1997).

²⁰¹ *Id.* (citation omitted), citing Olin Guy Wellborn III, *Demeanor*, 76 CORNELL L. REV. 1075, 1182-88 (1991) (summarizing studies).

²⁰² Jeremy A. Blumenthal, *A Wipe of the Hands, A Lick of the Lips: The Validity of Demeanor Evidence in Assessing Witness Credibility*, 72 NEB. L. REV. 1157, 1159 (1993). See also, e.g. Gregory L. Ogden, *The Role of Demeanor Evidence in*

has established “ordinary subjects” cannot consistently detect deception in a speaker’s behavior, thus demonstrating the “fallacy” of demeanor evidence.²⁰³ In fact, cognitive psychological studies establish that “the cues jurors look to when assessing credibility are actually the wrong ones.”²⁰⁴

Professor Minzner has written about the divide between judges and members of the legal academy on this issue.²⁰⁵ “Judges have generally assumed juries make accurate credibility decisions and believe demeanor is the mechanism for deciding whether a witness is telling the truth.”²⁰⁶ On the other hand, “[s]tarting in the early 1990’s, . . . legal academics broke from this consensus based on a series of social science studies demonstrating that the test subjects in laboratory experiments correctly determined when a person was lying only slightly more than half the time.”²⁰⁷ Professor Bard has observed “[i]t has become something of a legal academic truism that jurors are not especially successful in distinguishing between truth-tellers and liars.”²⁰⁸ Thus, I wholeheartedly agree with Professor Hutchins that, not only has the time come to “lay bare the fiction that most firsthand observers are well-suited to make credibility determinations,”²⁰⁹ it is seriously well past time to do so.

6. The Common Sense Fallacy

While all state and federal court judges in their jury instructions likely implore jurors to use and rely on their common sense²¹⁰—is this supported by cognitive science? If not, should judges continue to do so? Because jurors’ use of common

Determining Credibility of Witness in Fact Finding: The Views of ALJS, 20 J. NAT’L ASS’N ADMIN. L. JUDGES 1, 3-4 (2000) (footnotes omitted) (“Social science research casts significant doubt on the core assumption behind the weight to be given to demeanor evidence in making credibility determinations.”) (footnote omitted).

²⁰³ *Id.* (footnote omitted).

²⁰⁴ Hutchins, *supra* note 96 at 508.

²⁰⁵ Max Minzner, *Detecting Lies Using Demeanor, Bias and Context*, 29 CARDOZO L. REV. 2557, 2559-64 (2008).

²⁰⁶ *Id.* at 2558.

²⁰⁷ *Id.*

²⁰⁸ Bard, *supra* note 10 at 85 (footnote omitted).

²⁰⁹ Hutchins, *supra* note 96 at 508.

²¹⁰ *Id.* at 522-523.

sense is almost always unguided, their “application of common sense to credibility may be an instinct, a hunch or an unarticulable gut reaction.”²¹¹ In addition to misinterpreting witness credibility, “common sense” is an unfortunate invitation that may increase the untoward role of implicit biases in judging witness credibility.

I am not the first to recognize that cognitive “psychological studies call into question the judicial system’s reliance on common sense to assess the credibility of witnesses.”²¹² These studies indicate that lay persons rely on inaccurate assumptions and misconceptions when they assess the credibility of others.²¹³ This renders “common sense” as a tool for accurately deciding credibility not only a “myth” but a tool for “erroneous assessments of credibility.”²¹⁴ However, by limiting or “restricting the accepted parameters of jury common sense”²¹⁵ common sense has less potential for mischief. This is precisely the goal of my implicit bias jury instructions.²¹⁶

7. The Witness Cue Fallacy

A common misconception of demeanor evidence is that a witness’s trembling hand, shifty eye contact, stammering speech, or furrowed brow will be a telltale sign of that witness’s credibility.²¹⁷ The problem is that cognitive psychological research has established over many decades that witnesses do not “give off many of these most cherished cultural stereotypes. . . .”²¹⁸ Even when they do, most of society’s “favorite cultural cues about liars do not withstand the test provided by empirical data.”²¹⁹ The cognitive studies simply do not support the cultural myths

²¹¹ Steven I. Friedland, *On Common Sense and the Evaluation of Witness Credibility*, 40 CASE W. RES. L. REV. 165, 178 (1989/1990).

²¹² *Id.* at 187.

²¹³ *Id.*

²¹⁴ *Id.*

²¹⁵ *Id.* at 204.

²¹⁶ Mark W. Bennett, *Unraveling the Gordian Knot of Implicit Bias in Jury Selection: The Problems of Judge-Dominated Voir Dire, the Failed Promise of Batson, and Proposed Solutions*, 4 HARV. L. & POL’Y REV. 149, 169 n.85 (2010).

²¹⁷ Joseph W. Rand, *The Demeanor Gap: Race, Lie Detection, and the Jury*, 33 CONN. L. REV. 1, 7 (2000).

²¹⁸ *Id.* at 8.

²¹⁹ Jeremy A. Blumenthal, *A Wipe of the Hands, A Lick of the Lips: The Validity of*

that liars have shifty eyes, grimaces, nervous blinking, furtive glances, nor even shifty bodies.²²⁰ Pattern “[J]ury instructions on ‘demeanor’ or ‘manner or conduct’ focus jurors’ full attention on what they see and obviate most, if not all, chances that they will accurately detect deception.”²²¹ This does not bode well for jurors’ abilities to detect truth-telling from fabrication. Reliance on this historically acceptable “demeanor evidence” allows jurors to conclude they are correctly ferreting out deception when exactly the opposite is occurring.

8. The Accuracy Fallacy

Another major fallacy of demeanor evidence is that most observers believe they are far better at determining witness deception than they actually are. A comprehensive study of deception perception through many experiments found accuracy is on average about the same as the 50% chance level.²²² Professor Blumenthal has argued that the fundamental problem of demeanor evidence “glorified by the judicial process” is that “social science has produced overwhelming evidence refuting the ability of people to identify that a witness is lying when the witness is actually being deceptive.”²²³ Indeed, false memories are often more consistent than true memories.²²⁴ This is because “false memories are more effectively reinforced by repetition than true memories.”²²⁵ Moreover, as a witness retells a false memory they become “more confident in [the] falsehood with each retelling.”²²⁶ As demonstrated in the next section, witnesses’ confidence in their memory and

Demeanor Evidence in Assessing Witness Credibility, 72 NEB. L. REV. 1157, 1192 (1993).

²²⁰ *Id.* at 1192-93.

²²¹ *Id.* at 1195.

²²² Miron Zukerman, Bella M. DePauto & Robert Rosenthal, *Verbal and Nonverbal Communication of Deception*, 14 ADVANCES IN EXPERIMENTAL SOC. PSYCH. 1, 26 (1981).

²²³ Jeremy A. Blumenthal, *A Wipe of the Hands, A Lick of the Lips: The Validity of Demeanor Evidence in Assessing Witness Credibility*, 72 NEB. L. REV. 1157, 1163 (1993).

²²⁴ Steven B. Duke, Ann Seung-Eun Lee & Chet K. W. Pager, *A Picture’s Worth a Thousand Words: Conversational Versus Eyewitness Testimony in Criminal Convictions*, 44 AM. CRIM. L. REV. 1, 21 (2007).

²²⁵ *Id.*

²²⁶ *Id.* (footnote omitted).

testimony “is the primary determinant of lay perceptions of [their] credibility.”²²⁷

9. The Confidence Fallacy: A Witness’s Confidence Does Not Correlate With Accuracy

Unfortunately, research confirms jurors too often confuse witness confidence with witness accuracy. “Our confidence in their [jurors] ability—our ability—to sort truth from fiction is largely misplaced.”²²⁸ In the area of eyewitness identification, witnesses’ confidence in their identifications provides jurors with a false sense of the reliability of the eyewitness identification.²²⁹ This assumption by lay people that a witness’s confidence correlates positively with eyewitness accuracy is suggested by psychologists as the most glaring misconception of witness demeanor.²³⁰

While most of the research on the confidence-accuracy relationship (“CA”) has been on eyewitness identification of alleged perpetrators of crimes, there is a growing body of related research in the civil law context.²³¹ This research attempts to simulate issues related to product identification in product liability litigation.²³² In one study, the participants were randomly paired as either the “actor” or “observer”²³³ in mixing six products for a cookie recipe: baking powder, baking

²²⁷ *Id.* at 24 (footnote omitted).

²²⁸ Hutchins, *supra* note 96 at 523.

²²⁹ Steven I. Friedland, *On Common Sense and the Evaluation of Witness Credibility*, 40 CASE W. RES. L. REV. 165, 185-86 (1989/1990). *See also*, Richard S. Schmechel, Timothy P. O’Toole, Catherine Easterly, & Elizabeth F. Loftus, *Beyond the Ken? Testing Jurors’ Understanding of Eyewitness Reliability Evidence*, 46 JURIMETRICS J. 177, 198-200 (2006) (collecting studies on the weak correlation between eyewitness confidence and accuracy).

²³⁰ Steven I. Friedland, *On Common Sense and the Evaluation of Witness Credibility*, 40 CASE W. RES. L. REV. 165, 185-86 (1989/1990).

²³¹ M. Amanda Earl Colby & Charles a. Weaver, III, *Comparing Eyewitness Memory and Confidence for Actors and Observers in Product Identification Situations: Extending Findings and Methodology From Criminal Justice*, 2 APPLIED PSYCH. CRIM. JUSTICE 145 (2006).

²³² *Id.* at 147-48.

²³³ The researchers used the actor/observer dichotomy because: “[m]uch of the testimony offered in product liability cases involves passive activity—that is, many individuals are bringing suit against manufacturers of products *they saw others use*,

soda, chocolate chips, flour, salt, and sugar.²³⁴ There were 4 brands used for each product spread randomly and equally among the participants, but not the most recognized brands, i.e., Gold Medal® flour or Arm and Hammer® baking soda.²³⁵ The participants were then tested on their memory of the actual brands used in the mixing either 5 minutes after or a week later.²³⁶ The actors and observers did not differ in their accuracy; observers displayed a higher CA correlation in both the 5 minute and 1 week groups; there was substantially poorer product recognition after one week.²³⁷ A strong “familiarity bias” was detected. After one week, the participants “were much more likely to identify the product with which they were familiar than the product they actually used.”²³⁸ This is a critical finding because it demonstrates “the reconstructive nature of eyewitness memory,” especially after even a short delay of one week.²³⁹ Witnesses often mistake “a sense of familiarity with true recollection.”²⁴⁰ Finally, the researchers found little evidence that confident witnesses were more accurate.²⁴¹ Interestingly, while accuracy declined significantly over the week delay “subjective confidence did not.”²⁴²

Witness confidence actually produces a “double-whammy” credibility determination by jurors. Jurors not only misread witness confidence as a false proxy for accuracy, but they overestimate their ability to determine whether witnesses are telling the truth.²⁴³

In a 2002 study, researchers for the first time explored the interaction between testimonial consistency/inconsistency and eyewitness confidence in mock juror judgments.²⁴⁴ The researchers found the jurors’ perceptions of a witness’s

as opposed to products they used themselves.” *Id.* at 148.

²³⁴ *Id.* at 151-52.

²³⁵ *Id.* at 152.

²³⁶ *Id.*

²³⁷ *Id.* at 154-56.

²³⁸ *Id.* at 156.

²³⁹ *Id.*

²⁴⁰ *Id.*

²⁴¹ *Id.* at 157.

²⁴² *Id.*

²⁴³ Hutchins, *supra* note 96 at 527 (footnotes omitted).

²⁴⁴ Neil Brewer & Anne Burke, *Effects of Testimonial Inconsistencies and Eyewitness confidence on Mock-Juror Judgments*, 26 LAW & HUM. BEHAV. 353, 600 (2002) (“Although previous research has explored interactions between confidence and other forensically relevant variables, the interaction between testimonial consistency and witness confidence—two variables which many

confidence were actually more important than the consistency and/or inconsistency of their testimony.²⁴⁵ Thus, the researchers' key findings were: "Although consistency is considered to be a key marker of accuracy, its impact on judgments was weak and nonsignificant. Witness confidence had a strong influence on judgments, whether testimony was consistent or inconsistent."²⁴⁶

However, growing cognitive research and re-examination of prior research in light of more sophisticated statistical analysis has drawn into question whether there is a stronger witness confidence-accuracy relationship, at least in terms of eyewitness identification, than previously thought.²⁴⁷ Notwithstanding this development, the consensus among confidence-accuracy relationship researchers is well summarized as follows:

Many outside of the research community consider an eyewitness' level of subjective confidence to be a valid indicator of his or her accuracy. This is typically evident in a courtroom setting where officials and jurors tend to give the most credence to witnesses who appear very confident. Contrary to this popular belief, a person's level of subjective confidence is not a valid indicator of his or her accuracy. Most scientific studies have found the CA relationship to be relatively weak or nonexistent; in fact, this is one of the most consistent findings in the memory research literature.²⁴⁸

The Georgia Supreme Court, in 2005, abandoned their pattern jury instruction that jurors may consider "the level of certainty shown by the witness" about their

sectors of the legal system consider to be most diagnostic of testimonial accuracy—has not previously been examined.”).

²⁴⁵ *Id.* at 360-63.

²⁴⁶ *Id.* at 353.

²⁴⁷ Matthew A. Palmer, Neil Brewer, Nathan Weber & Ambika Nagesh, *The Confidence-Accuracy Relationship for Eyewitness Identification Decisions: Effects of Exposure, Duration, Retention Interval, and Divided Attention*, 19 J. EXPERIMENTAL PSYCHOL: APPLIED 55 (2013). *But see*, Elizabeth R. Tenney, Robert J. MacCoun, Barbara A. Spellman, & Reid Hastie, *Calibration Trumps Confidence as a Basis for Witness Credibility*, 18 PSYCHOL. SCIENCE 46 (2007) (two experiments establish that testimonial errors hurt the credibility of more confident witnesses than less confident ones).

²⁴⁸ Kevin Krug, *The Relationship Between Confidence and Accuracy: Current Thoughts of the Literature and a New Area of Research*, 3 APPLIED PSYCH. CRIM. JUSTICE 1, 31 (2007) (citation omitted).

eyewitness identification.²⁴⁹ The Court noted that “a witness’s certainty in his or her identification . . . reflect[s] the witness’s accuracy has been ‘flatly contradicted by well-respected and essentially unchallenged empirical studies.’”²⁵⁰ Fifteen years earlier, in *Krist v. Eli Lilly Co.*,²⁵¹ the Seventh Circuit Court of Appeals observed: “An important body of psychological research undermines the lay intuition that confident memories of salient experiences . . . are accurate. . . [T]he mere fact that we remember something with great confidence is not a powerful warrant for thinking it true . . . [A]ccuracy of recollection is *not* highly correlated with the re-collector’s confidence . . .”

VI. Proposed Model Jury Instructions on Witness Credibility

Unfortunately, as this article establishes, the law’s recognition, and incorporation of cognitive psychological principles is extremely limited. The legal sensibilities required for properly guiding jurors in their ultimate task of determining witness credibility are often missing. The little jurors are told in jury instructions about determining the credibility of witnesses has remained markedly consistent over decades, if not longer. The standards for determining witness credibility have persisted as if literally frozen in time, based on myth and completely unconnected with current knowledge of cognitive psychology. Thus, there are compelling reasons to update current pattern jury instructions on the credibility of witnesses, or at a minimum, increase attention given to them and discussion about what such instructions should look like.

The Oregon Supreme Court has noted the compelling reasons supporting a new approach. Indeed, in the context of current cognitive psychological knowledge on eyewitness identification, that court recently observed: “Based on our extensive review of the current scientific research and literature, we conclude that the

²⁴⁹ *Brodes v. State*, 614 S.E.2d 766 (Ga. 2005). The Court also recognized that since a witness’s “level of certainty” had its roots in and had been recognized as a legitimate factor for the jury to consider in eyewitness identification cases thirty-two earlier in *Neil v. Biggers*, 409 U.S. 188, 199 (1972), cognitive psychology studies proved this clearly erroneous. *Id.* at 770.

²⁵⁰ *Brodes*, 614 S.E.2d at 770 (Ga. 2005) (citing *State v. Long*, 721 P.2d 483, 491 (Utah 1986)).

²⁵¹ 897 F.2d 293, 296,297 (7th Cir. 1990) (J. Posner).

scientific knowledge and empirical research concerning eyewitness perception and memory has progressed sufficiently to warrant taking judicial notice of the data contained in those various sources as legislative facts...”²⁵²

Nearly thirty years ago, the Utah Supreme Court mandated that a cautionary instruction should routinely be given (in the context of eyewitness identification).²⁵³ This mandate was to guide trial courts in giving an instruction sensitizing the jury “to the factors that empirical research have shown to be of importance in determining the accuracy of witness testimony, especially those that laypersons likely would not appreciate.”²⁵⁴

In *State v. Henderson*,²⁵⁵ the most significant eyewitness identification case in modern times, the New Jersey Supreme Court, relying in part on a Special Master’s lengthy and detailed report²⁵⁶ recognized that “[t]he science abundantly demonstrates the many vagaries of memory encoding, storage, and retrieval; the malleability of memory; the contaminating effects of extrinsic information . . . and the many other factors that bear on the reliability”²⁵⁷ of witnesses’ memories. The Court also recognized the need for better jury instructions reflecting the cognitive psychological evidence presented in the record and adopted by the Court in its sweeping decision.²⁵⁸ Finally, in furtherance of implementation its decision, the Court requested the state Criminal Practice Committee and the Supreme Court Committee on Model Criminal Jury Charges “to draft proposed revisions” to jury instructions.²⁵⁹ The Report of the Supreme Court Committee on Model Criminal

²⁵² *State v. Lawton*, 291 P.3d 673, 740 (Oregon 2012) (en banc).

²⁵³ *Id.* at 492. The court rejected as having “little merit” arguments that such a cautionary instruction would “constitute improper judicial comment on the evidence or suggest the weight that should be accorded certain testimony.” *Id.*

²⁵⁴ *Id.*

²⁵⁵ 27 A.3d. 872 (N.J. 2011).

²⁵⁶ This report contained more than 2000 pages of transcript based on seven experts’ testimony and over 200 published scientific studies of witness memory and eyewitness identification. *See, supra* note 5.

²⁵⁷ *Id.* at 916. The Court also found that the record of the Special Master’s Report represents the “gold standard in terms of the applicability of social science research to the law.” *Id.* The Court found that: “Experimental methods and findings have been tested and retested, subjected to scientific scrutiny through peer-reviewed journals, evaluated through the lens of meta-analyses, and replicated at times in real-world settings.” *Id.*

²⁵⁸ *Id.* at 925-26.

²⁵⁹ *Id.*

Jury Charges on the Revisions to the Identification Model Charges²⁶⁰ contains a discussion of the disagreement as to whether the new instructions should directly refer to “scientific research” in the language of the proposed instructions as the Court did in *Henderson*.²⁶¹ The Committee ultimately decided to excise specific references to “scientific research” in the language of the proposed instructions.²⁶² I disagree with this decision for many of the very same reasons stated in the *Henderson* opinion.

First, the Court observed that “the Special Master found ‘that laypersons are largely unfamiliar’ with scientific findings and ‘often hold beliefs to the contrary.’”²⁶³ Second, the Court held that while the research on what jurors know about scientific findings regarding witness memory is not “definitive” it does “reveal generally that people do not intuitively understand all of the relevant scientific findings.”²⁶⁴ In my opinion, using phrases like “scientific findings” helps “promote greater juror understanding of those issues.”²⁶⁵ Precisely because most potential jurors do not understand the cognitive science behind current scientific thinking about witness memory and demeanor—and often hold views that are totally contrary to these findings—overcoming these obstacles is best promoted by emphasizing the term “scientific findings” in the jury instructions. Because The Proposed Model Plain English Witness Credibility Instruction that follows asks jurors to overcome their intuition and common sense, which often run counter to the cognitive scientific principles supporting the instruction, special emphasis on “scientific research” is justified.

Based on the research in this article, I offer, for use by state and federal trial court judges and for further critique by them and members of the academy,²⁶⁶ the

²⁶⁰ SUPREME COURT COMM. ON MODEL CRIMINAL JURY CHARGES, REPORT OF THE SUPREME COURT COMMITTEE ON MODEL CRIMINAL JURY CHARGES ON THE REVISIONS TO THE IDENTIFICATION MODEL CHARGES (2012), *available at* <http://www.judiciary.state.nj.us/criminal/ModelCrimJuryChargeCommHENDERSONREPORT.pdf>.

²⁶¹ *Id.* at 5-6.

²⁶² *Id.*

²⁶³ *State v. Henderson*, 27 A.3d. 872, 910 (N.J. 2011).

²⁶⁴ *Id.* at 911.

²⁶⁵ *Id.*

²⁶⁶ In the only study of its kind, Professor Robinson and his colleagues attempted to measure the efficacy of the New Jersey’s new eyewitness identification instruction. Athan P. Papailiou, David V. Yokum & Christopher T. Robertson, *The Novel New Jersey Eyewitness Instruction Induces Skepticism But Not Sensitivity*,

following Proposed Model Plain English Witness Credibility Instruction:

No. ___— TESTIMONY OF WITNESSES²⁶⁷

You may believe all of what any witness says, only part of it, or none of it. In evaluating a witness’s testimony, consider the following:

- The witness’s:
 - Opportunity to have seen and heard what happened
 - Memory. Scientific research has established that human memory is not at all like video recordings that a witness can simply replay to remember precisely what happened. Memory is not an exact recording of past events and witnesses may misremember events and conversations. Scientific research has also established that when a witness has been exposed to statements, conversations, questions, writings, documents,

SSRN: <http://ssrn.com/abstract=2475217> (2014). Using a “2x2 between-subject design” 335 mock jurors viewed a 35 minute video of a murder trial where the “quality of the identification was either “weak” or “strong” and either the New Jersey or a “standard” jury instruction was delivered. *Id.* at 1. The New Jersey instruction substantially reduced juror reliance on weak eyewitness identification compared to the standard instruction. *Id.* at 17. However, the New Jersey instruction “equally reduced juror reliance on *strong* identification evidence.” *Id.* at 18. The authors note that “[Y]et it might still be an improvement over the ‘standard’ instruction, at least if one agrees with Blackstone’s argument that reducing false positives is more important than reducing false negatives (‘better that ten guilty persons escape than one innocent suffer.’). This is powerful evidence that either praise or problems with my proposed instruction can best be determined only after study by empirical research.

²⁶⁷ Much of this instruction, other than the text about memory and demeanor, comes from my longstanding stock plain English witness credibility instruction that I have used in all civil and criminal cases for many years. A previous iteration of the instruction included, as the first bullet point, the witness’s “intelligence”—a factor commonly found in pattern witness credibility instructions. Because I doubt there is any empirical evidence supporting the proposition that a witness’s “intelligence” has anything to do with credibility, I have removed it.

photographs, media reports, and opinions of others, the accuracy of their memory may be affected and distorted. Scientific research has also established that a witness's memory, even if testified to in good faith, and with a high degree of confidence in their testimony, may be inaccurate, unreliable, and falsely remembered. Thus, human memory can be distorted, contaminated, changed, and events and conversations even falsely imagined. Scientific research has further established that distortion, contamination, and falsely imagined memories may happen at each of the three stages of memory: acquisition (perception of event); storage (period of time between acquisition and retrieval); and retrieval (recalling stored information).

- Demeanor. Scientific research has established there is not necessarily a relationship between how confident witnesses are about their testimony and the accuracy of the testimony. Thus, less confident witnesses may be more accurate than confident witnesses. Scientific research has also established that common cultural cues like shifty eyes, shifty body language, the failure to look one in the eye, grimaces, stammering speech, and other mannerisms are not necessarily correlated to witness deception or false or inaccurate testimony.
- Motives for testifying
- Interest in the outcome of the case
- Drug or alcohol use or addiction, if any
- The reasonableness of the witness's testimony
- Any differences between what the witness says now and said earlier
- Any inconsistencies between the witness's testimony and any other evidence that you believe
- Whether any inconsistencies are the result of seeing or hearing things differently, actually forgetting things, or innocent mistakes or, are instead, the result of lies or phony memory lapses, and
- Any other factors that you find bear on believability or credibility²⁶⁸

²⁶⁸ I used this instruction for the first time in a criminal social security card fraud case, United States v. Oluwaseyi Ademola Sadipe, —without objection by the

VII. Conclusion

Judging witness credibility is the soul of our nation's criminal and civil justice systems. This article calls into serious question whether judges are currently giving jurors the necessary tools to perform this critical task to the best of their abilities. The overview of cognitive psychological studies on witness memory and demeanor establishes the significant attention social scientists have given to problems with witness memory and demeanor as tools for judging credibility. Unfortunately, judges still instruct on these issues the same way they have for a century and thus give jurors virtually no information on these important principles.

Thousands of studies establish solid cognitive psychological principles revealing memory can be distorted, contaminated, and even falsely imagined and recalled. Scientific research on witness demeanor clearly establishes common cultural cues used by jurors, including the confidence of witnesses in their own testimony, are not meaningful proxies for the accuracy or truthfulness of that testimony. Indeed, common juror misconceptions about witness memory and demeanor are often contrary to the now well-established cognitive psychological principles examined in this article. As a solution, this article offers a Proposed Model Plain English Witness Credibility Instruction incorporating contemporary cognitive psychological principles. As law and psychology inevitably continue to intersect, broader policy issues will need to be resolved.

Like the television infomercial tag line: "But wait, there's more!"²⁶⁹—there are big picture questions lurking as courts enhance jurors' determinations of witness credibility. Why has there been such a substantial lag time between acceptances of well-established cognitive psychological principles in the social science domain as

[parties. Instructions to the Jury at 15-16, United States v. Oluwaseyi Ademola Sadipe, No. CR14-3065MWB \(N.D. Iowa Feb.9, 2015\).](#)

²⁶⁹ Ronald M. "Ron" Popeil (/pou'pi:l/; born May 3, 1935) is an American inventor and marketing personality, best known for his direct response marketing company Ronco. He is well known for his appearances in infomercials for the Showtime Rotisserie ("Set it, and forget it!") and for using the phrase, "But wait, there's more!" on television as early as the mid-1950s. He is also well known for making a pocket fisherman casting toy." http://en.wikipedia.org/wiki/Ron_Popeil.

compared with the legal arena? What standard should courts use when relating cognitive psychological principles to legal doctrine? How settled must cognitive psychological principles be in social science before courts act on them? How can cognitive psychologists, lawyers, and judges promote more complete cross-discipline understanding for better informed solutions to problems at the intersection of law and psychology?

The expanding frontier of the intersection of law and cognitive psychology will engage lawyers, judges, members of the academy, and cognitive psychologists in discussions for years and years to come. There will be new and perplexing issues with uncertain resolutions. But, on the issue of enhancing current pattern jury instructions on witness memory and demeanor to assist jurors in ascertaining the credibility of witnesses, the time is ripe for judicial action. The time is now. My hope is this modest proposed plain English witness credibility instruction moves this issue forward. In doing so, greater faith in this mysterious process of assessing witness credibility might be achieved and the quest for justice could be advanced.