Do Juries Let Some Defendants Get Away With Murder? Examining the Effect of Pre-Cognitive Decision Making on Insanity Defense Cases

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Do Juries Let Some Defendants Get Away with Murder?
Examining the Effect of Pre-Cognitive Decision Making on Insanity Defense Cases

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A Thesis in the Field of Legal Studies
for the Degree of Master of Liberal Arts in Extension Studies

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Abstract

This research examines the effect of bias on Insanity Defense cases, theorizing that juries treat Insanity Defense cases differently from other types of cases because they are ill equipped to contemplate them. Insanity Defense cases are statistically rare, yet the success rate of such defenses is surprisingly high. This thesis presents a qualitative argument examining reasons for the success of the Insanity Defense, explains the neuroscience, and effect of group dynamics on decision making, and contextualizes such decision making by examining instances of it in other venues, including business, social hysteria, and riotous reaction to art events. It proposes a finding that decision-making in these cases is affected by a newly identified phenomenon called “Pre-cognitive decision making” (PCDM). PCDM is an evolved decision-making protocol that is unconsciously relied upon in non-standard or stressful situations when people first make decisions. Building upon the research by others in Implicit Bias, and the neuroscience of decision making and group dynamics, the author explains how juries and legal professionals may reinforce PCDM through strategies – both unconscious and conscious – intended to reinforce rather than challenge their original, emotionally driven pre-cognitive decision. The author provides a research design for quantitative verification of the research.
Dedication

This thesis is dedicated to the teaching of Professor Ellsworth Lapham Fersch whose lectures inspired me to think critically about “out-of-the box” ideas, and to the memory of Professor Joseph Bond who guided the development of my academic writing so that I could express such ideas with academic rigor.
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Chapter I

Introduction

This research examines how people arrive at verdicts in Insanity Defense (ID) cases. People may struggle to arrive at an evidence-based verdict when considering an ID for various reasons. I propose that jurors and legal professionals make certain decisions about the defendant and the appropriateness of the defendant’s use of the ID without conscious volition or intent, in a process I call “pre-cognitive decision making.” Pre-cognitive decision making (PCDM) has a direct effect on the likelihood of a successful ID. Pre-cognitive decision making lies on the border between individual free will and determined neural response. No one in the decision making process is immune from the influence of pre-cognitive decision making – neither the relatively uninformed jurors, nor the relatively well-informed judicial professionals (judges, lawyers, and experts) – because pre-cognitive decision making is triggered before cognitive analysis of information can occur. This research shows how, why, and under what circumstances or conditions pre-cognitive decision making happens. The research examines pre-cognitive decision making in ID cases to show how jurors or other legal professionals rely upon it when considering the nature of the crime and identity of defendant. My research will show how pre-cognitive decision making works qualitatively. I will also present a model for quantitative, statistically based verification and measuring of the effect of pre-cognitive decision-making on ID case outcome.
Pre-cognitive decision-making is a ubiquitous aspect of human existence.¹ It is at the same time the result of evolutionary selection and people’s physiological limitations. Humankind has benefited from inherited subconscious reactions to stimuli, reactions that have developed and been refined over generations.² However, these subconscious responses are triggered by stimulus before the cognitive mind has time to evaluate the validity of the stimulus, thus “false-positives” occur: instances where the sub-conscious response to stimulus is not relevant to evaluating the true nature of the situation. Conscious human intelligence functions on a rational basis³ and situations in which one’s sub-conscious response is at odds with the reality of the situation cannot stand. Yet, at the same time, and without realizing it, cognitive analysis following the pre-cognitive stimulus reaction functions on the basis of “effect and cause,” where the conscious mind post-hoc searches for a way to justify


² Dan Ariely, *Predictably Irrational: The Hidden Forces That Shape Our Decisions* (New York: Harper Collins, 2009), 212. The ability to pre-cognitively recognize and label stimulus is an evolved strategy, upon which human perception is built. Ariely remarks: “The brain cannot start from scratch at every new situation. It must build upon what it has seen before. For that reason, stereotypes are not intrinsically malevolent. They provide shortcuts in our never-ending attempt to make sense of complicated surroundings.”

the effect of the sub-conscious reaction. Thus the cognitive mind will first interpret information with the objective of corroborating and affirming the pre-cognitive response, even when the pre-cognitive response is erroneous. Effect and cause are temporally related, and function in the opposite order to what people consciously expect. In reality, the consciously perceived cause follows what is perceived as effect, but is in fact the instigator of the search for a plausible cause. Cass Sunstein remarks that, “in the absence of sufficient information or knowledge to make an accurate assessment, people will default to a ‘highly salient or cognitively available’ belief.”

In other words, people subjectively interpret information they find in the world, pressing it into service to validate their previously held, uninformed, and reactive judgment.

How does this happen, and why don’t people realize it when it does? To reconcile “false positives” generated by pre-cognitive reactions, people rely upon what Michael Gazzaniga calls the “Interpreter.” The interpreter cognitively justifies pre-cognitive reactions. It does this by looking for evidence or reasons that confirm the pre-cognitive reaction, aligning conscious analysis to the pre-cognitive response and reconciling conscious understanding of the stimulus to the original pre-cognitive reaction. However, sometimes evidence that the pre-cognitive stimulus is wrong cannot be overcome. A fact-based cognitive analysis reveals the pre-cognitive

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4 Gazzaniga, *Who’s in Charge?*, 86. Explains experimentally how the conscious mind filters its analysis of pre-cognitive response to stimulus to reaffirm the pre-cognitive reaction.


response to be so far from reality that people will replace the unreasoned pre-cognitive response with a rationally reasoned one. Still, there are situations in which people will self-deceive, and reaffirm their inaccurate pre-cognitive response to stimulus - even when they have knowledge of countervailing information - rather than correct it.7

To demonstrate that pre-cognitive decision making is a common first step that happens before rational, conscious decision making occurs, I will examine how people make decisions and ask questions such as, “In decision making, when does one begin to think before acting or deciding?” and “In decision making, when and how does automatic, practically autonomic, neurological response give way to individual will-based thought and action?” amongst others. The considerable research on implicit bias shows that people often unconsciously react to pre-existing biases that condition conscious thought and deliberate action. I will use this evidence to show that when people, such as ID jurors and legal professionals, are confronted with information that disturbs on moral or ethical grounds, or that challenges commonly held beliefs of what it means to be human, make what they think are rational decisions, but are in fact responses to emotionally driven cues and reactions to stimulus8— colloquially called “hunches.”


My research shows that making decisions in matters that challenge the understanding of who we are as a species, or challenge our inherent moral limits, can be seen as walking on the narrow edge of a slope that, as it descends, curves off in two directions: on one side lies the domain of reason, deliberation and, ultimately, free-will of decision; and on the other side emotion, reaction, and ultimately the predictable response of determinism. While both modes are useful, and successfully employed every day to make countless decisions that are wonderfully balanced between logical reasoning and empathetic feeling, this research suggests that in cases when people must make decisions where the situation or information deeply challenges our fundamental sensibilities or definition of what it is to be human, the outcome of the decision making process will be less rational, and thus— in the field of jurisprudence— less just.

This happens because decision making is temporally organized. Specific neural paths that may harbor misplaced bias are activated before a rational, decision-making process can take place. Thus, when the mind is stimulated, pre-cognitive reaction exists before cognitive analysis of the stimulus. I will show that when people make decisions under circumstances of psychic duress and are exposed to information that triggers a subconscious reaction, they rely upon the result of their neural determined pre-cognitive reaction before they have time to cognitively consider the validity or reasonableness of the triggered response to the stimulus. As a consequence, in situations such as some capital crime jury trials, the decisions people make will be poorly adapted to the process of deliberation of evidence and determining a verdict on the basis of their deliberations. In addition to qualitatively cognitive understanding of stimulus.
demonstrating this effect, I will present a quantitative approach to show this effect through a comparative statistical analysis of the results of general criminal cases as compared to criminal cases in which the ID was used. The effect this analysis will show is the result of pre-cognitive reaction to stimulus, which is driven by a– or several– fundamental non-critical* beliefs commonly held by individuals. Banaji and Greenwald identify these as hidden, or implicit, biases that interact with cognitive thought. The quantitative approach of my research specifically examines the effect of bias on ID case outcome and is built upon the numerous studies of the effect of bias– whether of implicit or explicit origin– on criminal case outcome. Interestingly, the effect of bias on ID case outcome has not been studied, and I suggest reasons that might be elsewhere in my work.

This quantitative approach first establishes typical levels of bias using the six standard measures of age, education, gender, marital-status, race, and socio-economic statues (SES), and their effect on case outcome in criminal cases where the ID was not used by compiling the results of several relevant studies into a meta-study on the topic. Then ID case outcomes are added, using the same six bias indicators to see how they conform to the levels of bias shown by the meta-study. The variance in the effects of bias on case outcome between general criminal cases and cases using the ID will reveal the existence and effect of the pre-cognitive decision making model.

* In this use, “non-critical” means that the individual is not consciously aware of the belief and thus cannot critically evaluate it.

9 Mahzarin R. Banaji, and Anthony G. Greenwald, _Blindspot: Hidden Biases of Good People_ (New York: Delacourt Press, 2013), xii. Describing the process by which people are unaware of biases that affect their reactions consequent actions to stimulus.
Philosopher Paul Ricoeur wrote, “dread of the impure and rites of purification are in the background of all our feelings and all our behavior related to fault”.

My research employs a multidisciplinary approach to show the mechanics of and facts behind Ricoeur’s perceptive observation.

While the quantitative comparison of data will convince, I prepare the terrain by exploring how humans make difficult decisions, and the role of the conscious and unconscious mind in decision making. I will show that in difficult situations decision making operates as a consequence of the physiology of the brain and a result of archaic evolutionary coding in which the role of the rational cognitive mind is to justify the predetermined “feeling”, rather than establish a logically reasoned or rationally founded decision. This is not a new idea, and to show how fundamental pre-cognitive decision-making is in human experiences I examine evidence from an historical perspective as well as modern one to understand that the dichotomous nature of decision making is a deep and ancient human trait. To show how ubiquitous it remains today, I will present examples of pre-cognitive decision making resulting in irrational choices and behavior that are commonplace, and to which many of us fall victim. In this way, I will establish that none of us is immune from making incorrect pre-cognitive decisions– and then sticking to them in the face of contradictory objective analysis of information– when the conditions are right.

I will argue that physiological and evolutionary factors– and contemporary social conditioning– can cause jurors and legal professionals evaluating ID defendants and their crimes to make incorrect decisions about whether the defendant

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should be held criminally responsible for her/his act. Although idealists amongst us might prefer to believe that jury trials produce inherently fair, unbiased, and just verdicts, it has been amply shown that the reality is substantially different. Bias exists throughout American jurisprudence, and jury trials and verdicts are not immune. Whereas bias in many types of jury trials has been studied, the effect of bias on the Not Guilty by Reason of Insanity Defense (NGRI), or, more colloquially, the Insanity Defense (ID), has not been studied. Yet the infrequent use of the ID considering its relative success\(^\text{11}\) presents fertile ground for research on two fronts: first, to determine if the patterns of bias in other types of jury cases are also found in ID, and then to identify in what ways, if any, do they differ? The objective of this research is to compare jury bias in ID cases to jury bias in other types of criminal cases to ask whether juries function differently when confronted with the ID as compared with other types of defenses. I expect the data will confirm the presence of a variance in the levels of bias found in other criminal cases as compared with ID cases to show that pre-cognitive decision-making affects ID case outcome.

Chapter Outline

I present my argument in five chapters:

Chapter 1 asks why the ID is rarely used yet is unusually successful. I will examine what makes the ID different from the five other Affirmative Defenses allowed in American jurisprudence. I will examine how and why legal professionals...
determine when– and when not to– use an ID, and I will explore how this process of “self-selection” relates to the relatively high success rate of the ID.

The ID is the second most successful defense amongst Affirmative Defenses\textsuperscript{12} (AD). It is the only one of the six ADs that does not rely strictly upon a reading of the law, but also depends upon a jury or legal professional(s) subjectively evaluating evidence that is itself subjective in nature. Briefly, ADs challenge whether the State has standing to pursue prosecution of a defendant. For example, a defendant might challenge whether the statute of limitations for a crime with which s/he has been charged has expired or not. While the conditions surrounding the charge can be debated and subjectively evaluated, the central part of the defense cannot: the case will have been brought either before or after expiration of the relevant statute of limitations. Similarly, the AD against double jeopardy can be objectively resolved. However, although it is one of the six ADs, the ID requires jurors and legal professionals to evaluate subjectively the validity of its use as well as an objective determination of the merits of the defense. Examining the unique differences of the ID as compared to the five other ADs, and the role of self-selection determining when the ID is used - and when it is not - will show why pre-cognitive decision making is so much more a factor in ID case outcome than in the outcome of other ADs.

Chapter 2 focuses on the neuroscience of pre-cognitive decision making, examining how bias works, its persistence in modern society, the influence it exerts over conscious thought and human relations, and whether it can be overcome. I will show that pre-cognitive decision making is an evolved trait that contributes to the success of the human species. By exploring the relationship between pre-cognitive

\textsuperscript{12} Ibid.
decision making and implicit bias I will ask whether pre-cognitive decision making is well adapted to modern society, and I will argue that it can cause incorrect verdicts in ID cases. I will describe a temporal model of the relationship between unconscious triggers (which happen first) and cognitive thought (which follows). I will show how under normal circumstances conscious thought confirms unconscious bias, and I will explore the role of the “interpreter” in doing this.

Chapter 3 looks at examples of precognitive decision making (PCDM) in public reaction to art, literature, and history to show how ubiquitous and human is the tendency to PCDM. Although it may appear to be a humorous discursion to wonder “why people riot over art” (or flowers, or anything else not essential to our survival), I argue that this discursus reveals the role played by the interpreter in each of us. I will provide evidence of the power of the interpreter to rationalize the irrational unconscious triggers that exist within each of us, and push us to irrational acts. For, if we follow our pre-cognitive decision to riot over the ephemeral - a truly irrational act - why would we not do the same when contemplating matters of far more tangible and lasting effect, such as the danger posed by an accused societal predator?

Chapter 4 presents a design for quantitative research model that gives the researcher access to jury attitudes about the Insanity Defense. While direct examination of juries or jurors is not possible, one can determine how juries respond to ID cases by examining large numbers of case verdicts and measuring how jury bias in ID cases differs from typical degrees of jury bias other case verdicts. As is argued elsewhere in this thesis, bias can be understood as an outcome of PCDM. Thus, by examining the effect of bias on jury verdicts we not only reveal the role of PCDM, we can determine if its effect is regular or reactive to variables such as the type of
defense used, the defendant’s demeanor or the nature or description of acts committed by the defendant.

Chapter 5 presents conclusions drawn from research of my hypothesis that jurors and legal professionals treat ID cases differently from other criminal cases because of the role of pre-cognitive decision making.

The human brain is wired to prefer first impressions and decisions through a process called “anchoring”. Absent previous information or experience of a given stimulus whatever the first impression of it is becomes the one against which all subsequent impressions (or thoughts) are measured. If one’s subconscious first impression is that a person is insane, without realizing it, we do what we can to consciously confirm that first impression rather than challenge or overturn it, and the first thing we do is transform our impression into a decision. When our initial reaction to stimulus is erroneous, the erroneous impression is the anchor conditioning examination of new information. The anchor makes us not only more likely to hold to our erroneous impression, it conditions us to cognitively work to justify and strengthen it. In the legal arena, when contemplating an ID, injustice can happen when jurors or legal experts interpret information in ways that make it conform to their initial, pre-cognitive impression and decision.

As Dan Ariely observed, “Any question, in fact would have created the anchor. Does that seem rational? Of course not.” In the case of the ID first

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13 Ariely, Predictably Irrational, 27.
14 Ibid., 37-38.
15 Ibid., 31.
impressions are the anchors that often determine the outcome of the case. This research does not claim that all ID case outcomes are unjust. It does show that when injustice occurs it sometimes follows patterns that are predictable because they are instigated by pre-cognitive decision-making.
Chapter II

Why the Insanity Defense is Rarely Used Yet Unusually Successful

On March 30, 1981 John W. Hinkley, Jr. shot and wounded President Ronald Reagan and three others. The account by Douglas Linder of the Hinkley trial claims that Hinkley was motivated by an obsession with and desire to impress the actress Jodi Foster, and that Hinkley was inspired by the Martin Scorsese movie *Taxi Driver*. 16 Hinkley’s lawyers argued he was insane when the events took place 17 while the prosecution presented evidence that Hinkley was sane and criminally responsible for his actions. 18 On June 21, 1982 Hinkley was found Not Guilty by Reason of Insanity (NGRI) and confined to St. Elizabeth’s Hospital in Washington, DC.

Public response to the Hinkley NGRI verdict was overwhelmingly negative. An ABC News poll conducted shortly after the trial found that 83% of those surveyed thought justice had not been served. 19 The Hinkley verdict spurred “reform” (though not for the first time) of legislation governing the definition of the Insanity Defense (ID) both in the United States Congress, and in many state governments. The new

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16 Douglas Linder, “The Trial of John W. Hinckley, Jr.,” (The University of Missouri School of Law, 2007), 2, SSRN: http://dx.doi.org/10.2139/ssrn.1030556


19 Linder, “The Trial of John W. Hinckley, Jr.,” 1.
classification of “insane and criminally guilty” was created. The public was so incensed, feeling Hinkley had practically “gotten away” with the attempted assassination of President Ronald Reagan, that legislatures moved to redefine the circumstances under which a defendant could be found criminally culpable even when they were found to be mentally or psychologically deficient. Also, the burden of proving insanity moved to the defense, whereas before the burden had been for the prosecution to prove that the defendant was sane at the time of the act.

One way to understand the impulse to change legislation governing how the ID could be used is that it was motivated by the pre-cognitive triggers a large swath of society felt in the aftermath of John W. Hinkley Jr.’s trial (the feeling that Hinkley had “gotten away with it”). Public opinion on the matter was clear, and it was for government to translate that opinion into actionable law. Ira Kaufman, writing in the New York Times, observed that, “Numerous Government officials called for changes in the laws concerning the insanity defense.” The legislative response to the broad societal uproar over Hinkley’s successful use of the ID - tightening the conditions under which the ID could be used and shifting the burden of proof - reflects government officials acting as the societal “interpreter”, and the reforms they enacted as justifying the widely held pre-cognitive beliefs about the Hinckley case.

However, these changes in law and practice were not adapted to the reality of many defendants who legitimately pursue an ID, who are demonstrably mentally

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deficient, and who are, as a result of the changes provoked by the outcome of the Hinkley case, imprisoned when they should be medically treated.

Public reaction and governmental response to the Hinkley verdict is instructive. Michael Perlin cites it in his research explaining why the ID is rarely used yet unusually successful as a defense. Perlin observes: “Ours is a culture of punishment, a culture that grows out of our authoritarian spirit. Only when we acknowledge these psychic and physical realities and the anthropology of insanity defense attitudes can we expect to make sense of the underlying jurisprudence.”

Perlin then shows the connection between public reaction to the Hinkley verdict and the resulting reform of the use of ID that made it more punitive and harder to use. He draws the conclusion that society has both a fear of criminals “beating the rap” if allowed to falsely pursue an ID and also a common, yet erroneous, fear that no fundamental difference exists between people who are mentally ill and people who are not, and that thus there needs to be a way to define the abnormal behavior and transgressions that are evidence of mental deficiency. Perlin’s work reveals that the fear of recognizing similarities between the sane and insane is what animates the restrictive and punitive system of ID. The existence of this fear causes a pre-cognitive

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25 Ibid., 1390.

26 Ibid., 1402.
reaction when sane people are confronted by the acts of the insane.\textsuperscript{27} Thus, there is good motivation for society to “reform” the ID by making it harder to use, because by limiting the instances in which a defendant can use the ID society changes the identity of these individuals from “mentally ill” into “criminal”, and thus more infrequently confronts the fear they too could become mentally ill.

The ID triggers passions in jurors, legal professionals and the public in ways that few, if any, other criminal defenses do. This is meaningful, because it gives insight into where in the cognitive process people make decisions about the ID. It shows that, generally speaking, people act from pre-cognitive reactions to stimulus, and that the stimulus is triggered by the circumstances that give rise to the use of the ID. Evidence of this is found in the commonly held, yet incorrect, understanding people have of the ID, including how and when it is used, how successful it is when used, and the conditions that attach to its successful use.

Not only do people feel that the ID is too frequently used, they grossly overestimate both its frequency of use and success rate.\textsuperscript{28} Breheney, et al., note that the public holds strong negative feelings about the use of the ID and those who use it,\textsuperscript{29} yet it remains the second most successful Affirmative Defense (AD)\textsuperscript{30} while

\begin{footnotes}
\item[27] Ellsworth L. Fersch, \textit{Thinking about Insanity, Religion, and Terrorism} (New York: iUniverse, 2010), 40.
\end{footnotes}
being the only AD that requires jurors or legal professionals to subjectively evaluate a defendant. [It is commonly accepted there are six AD’s, five of which examine whether the State has standing to bring charges against the defendant. The evaluation of an ID requires deliberation and a subjective evaluation of evidence, whereas other ADs require a simple reading of applicable law.] And while it is true that the ID is unusually successful as compared to other Affirmative Defenses, in real numbers relatively few defendants benefit from it. Also, and although the public conception is that successful IDs walk free, in fact IDs that prevail do not free the defendant immediately. There is generally a period of detention for evaluation or treatment of the defendant during which the State determines whether s/he poses a risk to self or society if released.  

The period of detention is open ended, and the defendant may finally spend more time in detention than s/he would have if convicted.  

Still, and despite the longstanding tradition of not criminally penalizing the mentally ill or incompetent (see Sinclair v. State), the ID in American jurisprudence has been subject to repeated efforts to abolish or modify it.

Adam Benforado - examining the role of juvenile brain development on criminal behavior - helps us to understand that because of the societally reinforced


juror attitude that criminals are willfully responsible for their crime, it is difficult for jurors to think of criminals as not being responsible. Furthermore, because people discard information that does not agree with what their pre-conception expects to find, jurors either cannot or will not entertain the possibility the defendant is not responsible for her/his acts. Benforado points out that when the identity of the defendant is changed from possibly insane to definitely criminal, but maybe not guilty, the sense of moral justice that serves to make us feel safer in society is strengthened. Thus the pre-cognitive sense of disgust triggered when contemplating the actions of the presumably insane is transformed into the pre-cognitive sense of danger triggered by a criminal.

Amongst the reasons the ID may be criticized is the unevenness of outcomes when it is used. Substantial research confirms that while the ID is relatively infrequently used, when used it is successful to varying degrees. Mathews found the ID was used in 1.3% of felony cases in California courts in 1965, and resulted in acquittal about 55% of the time. Fukunaga determined that in Hawaii between 1969 and 1975 the ID was successful 18.5% of the time, while in Washington DC between the years 1954-1967 only 6.5% of the cases resulted in a finding of the defendant’s insanity. The absence of constancy in the rate of use, or success of the ID when used, indicates that the factors affecting the outcome of its use or success are not strictly objective.

36 Ibid., 18.

37 Ibid., 17.

Determining the effect non-objective evaluation of an ID plays in case outcome is complex for several reasons. To begin with, there is more than one definition of the ID and the conditions of its use,\textsuperscript{39} as well as jurisdictional differences in the way the definitions are applied.\textsuperscript{40} Therefore, to understand the effect of pre-cognitive decision making on ID case outcome, we must first explore how, or whether the way the ID is defined affects ID case outcome. Pasewark and Craig examined the effect of the language used to describe the ID to determine how defining the ID differently to jurors and legal professionals affected the outcome of ID cases. They were interested to see how the effect of the definition on ID case outcome. Presumably, the outcome would be related to how the ID was defined. Their research showed that although the effect was real, it was small,\textsuperscript{41} and that it was not at all definitive that language (how the ID was defined) was the overriding factor determining ID case outcome. Sauer and Mullins examined the effect of language defining the ID and discovered that while the M’Naughton definition was successful in 7.9\% of the cases where used, while the American Law Institute (ALI) definition was successful 19.2\% of the time.\textsuperscript{42} While the change in wording had only a small effect,\textsuperscript{43} that it had an effect at all points to the importance of the subjective

\textsuperscript{39} Fersch, \textit{Thinking about the Insanity Defense}, 28.

\textsuperscript{40} Ewing, \textit{Insanity: Murder, Madness, and the Law}, xviii-xx.

\textsuperscript{41} Pasewark and Craig, “Changing Insanity Plea Statutes,” 183.


\textsuperscript{43} Pasewark and Craig, “Changing Insanity Plea Statutes,” 181-183.
interpretation of jurors or legal professionals in determining ID case outcome. This point is further borne out by research by Arens, Granfield, and Susman showing that people are willing to deliberate ID verdicts even when they understand only 30% of either definition (M’Naughton or ALI).44 In a survey of the public on its feeling about the ID after the Hinkley verdict, Hans and Slater discovered both that people were both very strongly opposed to the ID (87.1% thought it was a “loophole that allows too many guilty people to go free”45), yet, at the same time, did not know what the legal definition of insanity was (“Only one of our 434 respondents gave a reasonably good approximation of the Model Penal Code definition…”46). The relative strength of opposition in the absence of knowledge argues in favor of a pre-cognitive reaction to stimulus determining what people thought about an ID they demonstrably did not know very much about. As further evidence of this, the Arens study also determined that “juries and judges tend to find certain people insane and the language of the relevant definition has little effect on this tendency.”47 And, indeed, success of the ID is not the same across different identities. For example, studies show that women fare better than men when using an ID, winning a much higher number of acquittals. Pasewark, Pantle, and Steadman found that


46 Ibid.,


“…Caucasians, females, the least and best educated, mothers who had committed infanticide, law enforcement officials, and a group (they) labeled the ‘I can feel sorry for you’ category”\footnote{Pasewark and Craig, “Changing Insanity Plea Statutes,” 186.} benefitted most from the ID.

Another way of measuring the success of the ID is to look at it as a strategy used by defense or prosecution attorneys benefitting the defendant. The possibility of the defendant using an ID can have an effect on the charges that may be brought, the plea to a lesser charge that is considered acceptable, or agreement on a sentence that is less than the possible maximum one for the case in question. In this manner, the mere suggestion that a defendant may be able to use the ID works to successfully diminish the penalty s/he suffers upon conviction.

It is interesting to ask why defense or prosecution attorneys use the “threat” of an ID to negotiate a plea. One possibility is that jurists recognize the unpredictability of the situation when jurors are asked to deliberate on an ID. Perhaps defense attorneys are unwilling to risk the “winner-take-all” aspect of the ID (in which the range of outcome goes from freedom to incarceration of an indefinite but probably lengthy duration), preferring the “safe-bet” of a reduced charge or sentence. Perhaps, similarly, in these instances prosecutors feel that the interests of society are better served by guaranteeing conviction of the defendant, even if not on the most serious potential charge. In either case, we can assume both parties are interested in arriving at an outcome that serves their ends.

Adding to the complexity of understanding why the ID is successful is that its rate of success is not the same throughout the trial process. Before an ID can be mounted comes the Insanity Plea (IP). The defense attorney’s use of the IP can be
very beneficial for defendants. However, the usefulness of the IP decreases as a case proceeds through the trial process. Blau and McGinley found that when the IP was used at the stage of preliminary hearing it benefited the defendant in roughly 50% of the cases. When used before arraignment it was beneficial to the defendant approximately 33% of the time it was used, whereas immediately before trial use of the IP benefited defendants less than 20% of the time. Research by Blau showed that when the IP became an ID and was actually used at trial it succeeded in 15% of the cases studied. Overall, Blau’s analysis showed that attorneys felt in 157 of 167 cases (94%) that use of the IP was beneficial to the defendant in the outcome of the case. Research by Pasewark and Craig found in a study of attorneys in Wyoming that 79% reported the IP generated the intended benefit to defendant that motivated its use. That is to say, the IP was used as a strategy to undermine the element of criminal intent, obtain a reduction of charges, plea bargain, lighter sentencing, treatment rather than punishment or some other beneficial outcome for the defendant.

Another approach to examine the “unusual success” of the ID is by analyzing cases that have successfully used it and ask if the defendant would have been found not guilty if s/he had used another defense. Of course the problem with this approach is that it requires us to speculate on an outcome we cannot know. However, we can

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51 Ibid., 521.

52 Ibid., 522.

53 Ibid., 523.

examine events concerning the defendant after the successful ID defense to, in conjunction with testimony relative to the defendant during the ID defense, establish the likelihood the defendant would have been found criminally guilty if a different defense had been used. This approach highlights the subjectivity inherent in evaluating ID defense, where “guilt beyond a reasonable doubt” is not the standard of measure.

Reasons Why the Insanity Defense Is Infrequently Used
There are many reasons why defense attorneys elect not to use an ID even when the circumstances of a case indicate it is warranted. Among these are the difficulty of the defendant satisfying the legal definition of insanity, and that the legal definition of insanity is different depending upon jurisdiction. Other reasons include the untrustworthiness of psychiatric evaluations conducted by State authorities, that by using an ID the defendant is essentially admitting to having committed acts for which s/he could be criminally charged (should the s/he not satisfy the legal definition of insanity, the fear of the defense attorney that should the defendant might not receive adequate care or treatment if judged insane and could thus be prematurely released from State custody to harm again.\textsuperscript{55} Another compelling reason not to use the ID is that when successful the defendant is likely to spend as much time in custody, if not more, than if found guilty.\textsuperscript{56} Furthermore, whereas a defendant found guilty of a crime is subject to a specified and duration-limited period of incarceration, a

\textsuperscript{55} Pasewark and Craig, “Insanity Plea: Defense Attorney’s Views,” 422.

defendant who is acquitted of a crime but remanded to state custody for treatment is can be held indefinitely, until such time as the State determines s/he is no longer presents a danger to society.  

Defendants (or more accurately counsel for the defendant) may pre-emptively disqualify the defendant from using the ID, both because of systemic biases and reasons that attached to the particular defendant. Systemic reasons are partially addressed above, but also relate to the defendant’s offense, and identity and whether case is adjudicated professionally - by a judge or other legal professional - or by a jury of laypeople.

Reasons Why the Insanity Defense Is Unusually Successful When Used
In some cases prosecutors and defense may agree that the defendant is insane, avoiding a jury trial and placing the matter before a judge who places the defendant in treatment. Because the standards of legal insanity are strict, many defendants are disqualified from using it, thus “quality” of those who do use the ID is high - that is to say that the defendants who actually satisfy the legal standards of insanity and use the insanity defense are likely to actually be insane. Data complied by Pasewark and Craig from several states can be used to conduct an examination of the ratio of frequency of usage of the ID as compared to its success. Adding the rate of usage of the states studied by Pasewark and Craig and dividing that number by the number of states for which there is data gives us the aggregated average rate of usage of the ID. Using this aggregated average rate of usage, an examination of Pasewark and Craig’s data confirms that in states where defendants use the ID more frequently than the

57 Ewing, Insanity: Murder, Madness, and the Law, xxiii.

58 Ewing, Insanity: Murder, Madness, and the Law, xv.
aggregated average the ratio of success of the ID is below the average of the aggregated average rate, a reflection of the effect of relatively poor quality ID claims.

“Sometimes we want our decisions to have a rational veneer when, in fact, they stem from a gut feeling - what we crave deep down. I suspect that in our attempts to make sure that we end up with decisions that seem well reasoned and thoughtful, we commonly undergo lot of unnecessary mental gymnastics and justifications, particularly when the choices are large and significant.”

Examining ID case outcomes, one might think Dan Ariely, James B. Duke Professor at the Duke University Fuqua School of Business, is writing about the way jurors and legal professionals arrive at verdicts in those cases. In a general sense, he is, as his field of research examines why humans make “predictably irrational” decisions in daily life. Ariely’s research, and the research of others, reveals that this observation is accurate. There is considerable evidence that the human decision-making process is influenced in ways that people are consciously unaware, and that frequently when people make decisions their belief in the reasoning they used or logic of the decision they made is falsely placed. Furthermore, research confirms that when people draw incorrect conclusions from available information they unconsciously reshape their conscious thinking to justify a pre-cognitive, irrationally made, decision (what Ariely refers to as “mental gymnastics”) in an effort to strengthen their belief in the correctness of the pre-cognitive decision so that they will not have to acknowledge that their thinking was irrational or otherwise flawed.

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60 Ariely, *Predictably Irrational*, 53.
This is important when considering how juries or jurists respond in ID cases because these cases, by definition, are about defendant state of mind, behavior or acts that are asserted to be abnormal, or outside the norms of what is generally considered sane human behavior. We will discover research shows that when confronted with events or information that is outside common or normal human experience (i.e., is morally abnormal or addresses morally abnormal behavior), the way people think and make decisions is different from how they do in normal circumstances.\(^{61}\) Generally speaking, when people think about the abnormal behavior of others, human decision-making has a higher error rate than it does when making decisions under normal circumstances about behavior that is considered normal. Humans have evolved to prefer the normal as compared to the abnormal, and this extends to how the human mind considers information. Ralph Holloway, Willem de Winter, and Charles Oxnard showed that the brain “rewires” itself based on external stimulus to create a similar pathway of understanding reality species-wide.\(^{62}\) Thus, as a species what we experience sub-consciously shapes our conception of reality by forming pathways in the brain that recognize it. Commonly shared experiences create similar neural pathways that are commonly shared, whereas rare or uncommon experiences do not. Importantly, this distinction is not cognitive - we do not as conscious individuals decide what constitutes acceptable human behavior nor what is “beyond the pale” of civilized behavior. Rather, it is sub-conscious cues that tell us when those limits have been met, or passed. These cues are felt as intuitions- that sense that we know something is wrong but we cannot say exactly why. Intuition can be defined as “a


form of cognition in which many variables are evaluated to yield a fast decision." Research by Haidt and Craig Joseph provide a more elaborate definition of what intuition is, and how it works as a universal moral guide. They found that moral intuition is an evolved trait that serves to promote behavior that is beneficial for species or cultural survival - or to warn people of behavior that puts it at risk. They found that while some morally based intuitions are universally shared, others are specific to particular cultures (reflecting historical difference in the evolution of people in different parts of the world). Because insanity is not a normal state of being and presents a risk to species survival, and because the circumstances under which sane people are asked to think about the behavior of the potentially insane in ID cases are rare, the possibility of errors of judgment increase.

The definition of insanity refers to a host of mental disorders, and means different things to different people depending upon their relationship to the “insane” (for example to pharmaceutical company an individual with a mental disorder may be a candidate for taking a particular medication, whereas for an attorney an individual with mental disorder may be someone whose legal responsibility is diminished). And whereas experts may be equipped to objectively evaluate a defendant’s degree or type of mental disorder as well as its bearing on a defendant’s criminal behavior, that

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64 Gazzaniga, *Who’s in Charge?*, 173.

a layperson could do this with accuracy is far less certain. The lack of detail of the approved Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)\textsuperscript{66} definition of mental disorder reveals how much latitude there is in identifying someone under the effect of a mental disorder. It states (in part):

A mental disorder is a syndrome characterized by clinically significant disturbance in an individual’s cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning… Socially deviant behavior (e.g., political, religious, or sexual) and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual, as described above.\textsuperscript{67}

The nature of this definition raises the question whether it equips jurors or jurists to adjudicate ID cases, in part because what is described as “socially deviant behavior” is easily confused by laypeople as being evidence of a mental illness or disorder. Steadman found that the public’s conception of the criminally insane to be “heavily stereotyped,” which, “generated high levels of fear.”\textsuperscript{68} Beginning from the proven premise that people who had been treated for mental disorders were perceived threatening by the general public, Steadman went on to see if the same perception of dangerousness existed in ID cases. He discovered it did. Steadman found that when


\textsuperscript{67} Singh and Walter Sinnott-Armstrong, “The DSM-5 Definition of Mental Disorder,” 10.

describing the criminally insane, the terms “most salient to the public’s conception of
the criminally insane” were “dangerous”, “harmful”, and “violent.” 69 Michael Perlin
observed that, as “the most despised and feared group in society,” the mentally
disabled are especially punished. 70 Perlin’s statement captures the nature of the
public’s reaction to the mentally ill as emotional, rather than a rationally based
reaction. Research shows that the imprinting of universal moral values begins as soon
as eighteen months after birth. 71 Echoing research by Haidt and Craig Joseph,
findings by Perlin revealed that people have a pre-formed attitude about the mentally
ill as “moral transgressors.” This attitude seems to form at about the same time as
when babies are acquiring language, and does not change as babies grow into adults.
Research by Stansilas Dehane showed that frightening words themselves trigger an
unconscious neural response, 72 serving as evidence that ideas about moral
transgressions are formed before humans have the linguistic or cognitive skills to
fully understand them. This “hard wired” response is the starting point from which
people parse the meaning of the acts of ID defendants in determining the defendant’s
mental state. It reveals that jurors or jurists may use less reliable - more error-prone -
decision-making processes to decide some ID cases.

Experiments by Dehane show the ease with which and how ubiquitous it is for
people to make decisions before consciously thinking them through. These

69 Ibid., 526.

70 M. L. Perlin, “The Borderline Which Separated You from Me”: the insanity
defense, the authoritarian spirit, the fear of faking, and the culture of punishment.

71 Gazzaniga, Who’s in Charge?, 209.

72 Stanislas Dehaene, Consciousness and the Brain. Deciphering How the
Brain Codes Our Thoughts (New York: Penguin Books), 72.
experiments are elegant confirmation of pre-cognitive decision making, demonstrating that people come to conclusions in unique situations by applying previously held information that is not specific to a given situation and which, therefore may not be accurate in that specific case. Furthermore, work by Dehanane shows that because we are unable to distinguish a difference in the decision making process between the pre-cognitive and cognitive, people defend inaccurate pre-cognitive decisions as if they are cognitive and deliberated. Pre-cognitive decisions are triggered by a sub-conscious negative emotional association to stimulus that results in a false understanding of the meaning of the stimulus. While people may be good at predicting the response to stimulus in a non-emotionally heightened state (through a process of rational, deliberate reflection and decision-making), we are very poor at recognizing when in an emotionally heightened state that our sub-conscious response is directing our conscious choice.\textsuperscript{73} The work of Dan Ariely demonstrates that because pre-cognitive decisions are formed in the sub-conscious it is even harder for us to recognize when that has happened. Joseph LeDoux, researching the effect subconscious emotional response has on conscious thinking, quotes Charles Darwin’s analysis of a passage by Charles Dickens of a crowd exhibiting the, “criminal-like behavior of the mentally ill,” noting that if the mad behave this way it is because madness is in a sense in all of us.\textsuperscript{74} Darwin observes that people respond instinctively to deeply seated emotional triggers, and that neither will nor reason can counteract this.\textsuperscript{75} Research by John Bourgh revealed that emotional responses are directed by

\textsuperscript{73} Ariely, \textit{Predictably Irrational}, 127.


\textsuperscript{75} Ibid., 112.
sub-conscious cues and attitudes, and that - for example - skin color and hair length trigger racial or gender stereotypes.\textsuperscript{76} Research on the “von Economo neuron” (VEN), common to only few species including humans and great apes, provides additional evidence that the human brain has evolved to make fast, intuitive decisions in social situations.\textsuperscript{77} The shape and connections of the VEN neuron is different and simpler, and is also four times larger than other neurons, favoring rapid transmission of information. Though shared with a common ancestor with the Great Apes, today humans have approximately twenty-eight times more VENs than do they. Work of Allman, et al., show that VENs (which are relatively young neurons that are comparatively un-evolved) provide a simple, reactive response to stimulus, the function of which is to form social bonds.\textsuperscript{78} While the work of Allman, et al., examines the role of abnormally formed VENs in autism, their conclusion that normally formed VENs are an essential part of the normal brain function of quick, intuitive responses to situations pertaining to social bonding and decision making\textsuperscript{79} is salient to this discussion of the ID. It explains how people rapidly make feeling-based decisions about others in the absence of adequate information, which reinforces IB.\textsuperscript{80} Indeed, emotions, attitudes, and goals activate sub-conscious processes automatically without conscious awareness.

\textsuperscript{76} Ibid., 61-63.


\textsuperscript{78} Allman, Watson, Tetreault, and Hakeem, “Intuition and Autism,” 368.

\textsuperscript{79} Ibid., 372.

\textsuperscript{80} Gazzaniga, \textit{Who’s in Charge?}, 40.
In the ensemble, this evolved pre-cognitive response to non-standard, emotionally stressful, situations describes how jurors or jurists respond at least in part from subconscious emotions when learning about the heinous acts justified by an ID. Banaji and Greenwald describe these as the “automatic” facet of the mind.\textsuperscript{81} Unless they are explicitly decoupled from bias hidden deep within the sub-conscious mind - implicit or otherwise – the resulting conscious decision is affected by that bias.\textsuperscript{82} The human propensity to respond to sub-conscious emotional cues supports the thesis that when faced with evidence the juror or jurist cannot or does not want to reflect upon, s/he will respond from the automatic mind, thus establishing a belief of the defendant’s mental state before thinking through the evidence. In his research, Michael Gazzaniga explains that the human brain has many layers of consciousness with processing happening ”locally” - and this very quickly, and that because these processes happen in the sub-conscious mind we are not aware of the bias they include (which is the result of evolutionary selection useful in archaic times to enhance our probability of survival as a species). Thus, we unwittingly fall prey to archaic, survival-oriented thinking at all times, and certainly when functioning under duress or in unnatural surroundings such as a courtroom.\textsuperscript{83} Gazzaniga describes the route stimulus takes through sensory brain before arriving at the conscious awareness of it. Rapid automatic responses to danger stimuli outpace conscious deliberation,\textsuperscript{84}

\textsuperscript{81} Ibid., 52.


\textsuperscript{83} Gazzaniga, \textit{Who’s in Charge?}, 68-69.

\textsuperscript{84} Ibid., 76-77.
explaining the concept of “snap decisions” (which are often described with an emotional rationale, i.e.: “something made me feel this was dangerous…”).

Gazzaniga cites the location of the “Interpreter” in the left hemisphere of the brain. It is here that the mind builds justification for its sub-conscious judgment. The Interpreter is not aware of the true reason for the decision; but it makes a logical, rational argument to support it.\textsuperscript{85} This model explains how people justify their sub-conscious responses by creating a rationale for them as something that is, presumably, less objectionable than bias.

The work of Dan Ariely goes on to demonstrate that even with repeated exposure to decision making in an emotionally heightened state we do not get better at controlling for or correcting the erroneous impressions and decisions that result. In simple terms this is because we are afraid to contemplate that we could similarly lose control of ourselves.\textsuperscript{86} It is this fear of self-knowledge that creates our inability to contemplate the horrible acts of others rationally (at least at first) – for if we can imagine the actor being in her “right mind” at the commission of the act we can imagine ourselves equally capable of committing the act. When the examined “unnatural act” (UA) runs counter to the fundamental, shared beliefs of civilized people the fact that these beliefs are shared defines civilized people as the “in-group”, and the perpetrator of the UA as the “out-group”. This description of social grouping is a common societal response.\textsuperscript{87} The person who committed the UA is no longer seen as an individual but as a member of the out-group. When an individual is identified as

\textsuperscript{85} Ibid., 82-83.

\textsuperscript{86} Ariely, \textit{Predictably Irrational}, 130.

\textsuperscript{87} Banaji and Greenwald, \textit{Blindspot: Hidden Biases of Good People}, 16.
a member of the “out-group”, it creates the conditions for the in-group to respond to
an automatically triggered pre-cognitive response rejecting the sanity of the out-
group, and thus of the person who committed the UA as member of that group.
Interestingly, when this happens the sanity or insanity of that person is not being
examined. It is their identification as a member of the out-group by the in-group that
is salient.

Daisy Grewal, reporting in *Scientific American* discussing prejudice in non-
human mammals88 (since withdrawn from publication because researchers had
difficulty replicating the study’s results), wrote that awareness of one’s mortality
triggers bias against those who are not part of the “in-group”. While the accuracy of
the studies findings are questionable, the observation by Grewel on the effect of one’s
awareness of mortality is based upon confirmed research and raise interesting
questions about the effect of awareness of mortality on participants in ID cases. Stein
and Cropanzano, in their excellent incubator on the topic,89 give several examples of
research showing individuals in varying circumstances harshening their attitude
toward others after they have been asked to contemplate their own mortality.
Stephens et al., researching the neural link between individuals during speech-based
communication - and echoing similar work of Dehane cited above - found that “extra-
linguistic areas (of the brain)...known to be involved in processing social information

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88 Daisy Grewal, “The Evolution of Prejudice,” *Scientific American* 16, no. 2

89 Jordan H. Stein and Russell Cropanzano, “Death Awareness and
Organizational Behavior,” *Journal of Organizational Behavior* 32, no. 8 (2011):
1189-1193.
crucial for successful communication”90 are activated, providing evidence that it is not just awareness of what is being said that is used by the listener to form an opinion of the speaker, but also subconscious processes - which happen faster than conscious thought - that can determine one’s opinion, attitude, or response to stimulus.

It should be noted that although the focus of this research is on erroneous jury or jurist verdicts in ID cases, such errors are not limited to ID cases only. Here I expand the discussion to demonstrate the fallibility of human decision-making in general to demonstrate not only the ease and frequency with which it happens but to lay the groundwork for understanding the processes that lead to decision making. In the judicial world, flawed (i.e., incorrect) verdicts based upon human decision making have become easier to identify in specific instances when challenged by objective forensic scientific methods that are objectively evaluated, and in particular the use of DNA testing to confirm - or refute - defendant guilt. This has increased with the improved accuracy of DNA testing. When DNA testing was first used in the late 1980s it examined eight commonly shared genetic markers and was capable of identifying an individual with the certainty s/he belonged to a small percentage of the population. Even though only eight genetic markers were analyzed, the data generated by these DNA tests were more accurate than blood tests, and often sufficient to exonerate falsely convicted defendants, but still not good enough to conclusively identify an individual to the exclusion of all others.91 Today, however,


DNA testing technology and techniques make it possible to retrieve and test DNA samples from crime scenes, crime evidence, or individuals (even years after the fact) and identify with an unimpeachable degree of certainty to whom the DNA belongs.\textsuperscript{92} DNA evidence is now routinely collected and entered into a national database. A weekly automatic search is conducted matching newly entered samples to existing ones, regularly resulting in the exoneration of wrongly convicted defendants or the closing of “cold cases”.\textsuperscript{93}

In a general sense, the frequency and success of DNA testing at identifying instances of faulty human decision-making calls into question the quality of human decision-making in court cases, and even more so when one considers the many ways faulty evidence or testimony can enter the trial record. Some verdicts based upon eyewitness testimony, expert opinion of physical evidence or state-of-mind of the defendant, and expert testimony - all of which depend upon the memory or opinion of the expert or witness – have been found faulty when confronted with the result of DNA testing. DNA testing has thrown into doubt the validity of staples of forensic evidence that rely upon expert analysis, including “serology testing, comparative bullet lead analysis, bite mark identification, handwriting analysis, hair and fiber analysis, and tool mark and ballistics testimony.”\textsuperscript{94}

The history of using forensic evidence to establish defendant guilt is lengthy. During most of it the method of asserting scientific legitimacy of evidence has been

\textsuperscript{92} Ibid., 220.

\textsuperscript{93} Ibid., 221.

expert testimony. The expert offers a presumably objectively determined opinion on the quality and relevance of the evidence to the case. However, and with an understanding of the pre-cognitive decision-making process, we see the possibility that an expert opinion may not be objective because it may not come into existence in a manner that is completely objective.\(^\text{95}\)

This is even more pernicious because, until the 1990s the admission of such evidence was largely based upon the past admission of similar evidence, creating, as Shelton points out, a self-perpetuated system of allowing potentially flawed evidence to be entered into the record (with the weight of scientific objectivity supporting it) on the basis that the same type of evidence had been admitted in the past in other cases.\(^\text{96}\)

The gravity of the situation becomes even greater when we understand that the way expert testimony is received by jurors or jurists also is subject to the pre-cognitive decision-making of the jurors or jurists. Research reveals that simply sitting on a jury, or adjudicating a case, skews one’s decision-making in a way that reveals implicit bias.\(^\text{97}\)

During the 1990s, the United States Supreme Court recognized the fallibility of expert testimony and scientifically based evidence that could be admitted under existing rules in a series of opinions (Daubert v. Merrell Dow Pharmaceuticals, Inc., General Electric Co. v. Joiner, and Kumho Tire Co. v. Carmichael - commonly


\(^{96}\) Shelton, *Criminal Adjudication*, 178.

referred to as the Daubert Trilogy.\textsuperscript{98} These Supreme Court decisions established more stringent tests for expert testimony or scientifically based evidence to be presented as evidence, including that the “proponent of the evidence (had to) establish the scientific validity of the evidence being offered.\textsuperscript{99} Yet in a subsequent decision the Supreme Court upheld the principle that a judge could accept expert testimony or scientific evidence even when the conditions of Daubert were not met.\textsuperscript{100} Courts recognize that expert testimony is not inherently objective, and can even be factually incorrect, and therefore judges have the power to allow or suppress expert testimony. But it has been shown a judge allowing or suppressing expert testimony has, in and of itself, an effect on how the jury deliberates evidence. Hosch found that because the effect of expert testimony supporting or refuting eyewitness testimony is salient\textsuperscript{101} whether a judge allows expert testimony about eyewitness testimony has a modifying effect on the supposed objectivity of the eyewitness account. Hosch goes on to observe that while the effect is quantifiable\textsuperscript{102} it is difficult to predict its outcome (whether it is in favor or against the defendant) because jurors are themselves eyewitnesses of a sort to the judicial proceeding, and have their own subjective appreciation of them.\textsuperscript{103}

\textsuperscript{98} Shelton, \textit{Criminal Adjudication}, 16.

\textsuperscript{99} Ibid., 184.

\textsuperscript{100} Ibid., 19-21.


\textsuperscript{102} Ibid., 300.

\textsuperscript{103} Ibid., 301.
It is not only expert witnesses who may unknowingly give testimony that turns out to be wrong because it was based upon their supposed objective analysis of the information before them, non-expert people may make the same errors. Studies confirm the lack of reliability of memory in eyewitness testimony, including identifying the wrong person, incorrectly remembering the order of events when testifying, and even incorrectly remembering or testifying to one’s personal experience. In fact, witness memory is so unreliable that fully fifty percent of the time a victim or eyewitness fails to recognize the culprit when s/he is presented in a line up.

Significant research shows the fallibility of human memory that results in witnesses - unknowingly - falsely testifying to the identity of a defendant, the events that occurred, the number of participants, their role, or other salient details essential to their producing an accurate account of events. Worse, it has been determined that the degree of confidence a witness has in her/his memory when identifying a person is not a reliable indicator of the accuracy of their memory. Accordingly, jury or

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106 Benforado, *Unfair: The New Science of Criminal Justice*, 111. Jennifer Thompson on three occasions incorrectly identified her attacker, even though the culprit was also presented in the line-up and photo-array of suspects.

107 Ibid., 112.


109 Ibid., 907.
jurist decision-making based upon falsely affirmed witness memory is common. In addition to this, research shows that the automatic tendency of witnesses whose recollection of their memory or reasoning is challenged is they are likely to unconsciously employ mental strategies that bolster their belief in and subsequent assertion of accuracy of their testimony.\textsuperscript{110} Polak showed the sources of false memory are multiple, not just limited to a lack of information or overt suggestion, and that even when the subject was aware of the inaccuracy of their memory in fully 25% of the instances it did not stop them from reasserting or compounding the false memory.\textsuperscript{111} Moreover, witnesses are not aware when the memory they think is accurate is not, and it turns out that in these instances when witnesses consciously examine the veracity of their memory rather than uncovering the accurate memory their belief in the false memory is strengthened. Research shows people are highly suggestible to false or planted memories and that they rely upon the false or planted memory to create certainty of the accuracy of their account. Pedzek et al., demonstrated how witnesses become more convinced of the correctness of a self-generated false memory through repeated questioning.\textsuperscript{112} Furthermore, Smith et al., found that inaccuracy of witness memory is higher in cross-race cases (where perpetrator and victim are not of the same race) than in same-race cases,\textsuperscript{113} and that

\textsuperscript{110} Gazzaniga, \textit{Who’s in Charge?}, 98.


\textsuperscript{113} S. M. Smith, V. Stinson, and M. A. Prosser, Do They All Look Alike? An Exploration of Decision-Making Strategies in Cross-Race Facial Identifications,
the factors that cause increased inaccuracy pertain to differences in expectation and identification strategy employed by the witness when identifying someone of a different race. The Eleventh Circuit Court, writing in United States v. Smith, acknowledged that in cross-racial identifications factors including the effect of stress on perception and memory formation, the influence of post-event information and witness self-confidence in their memory all reduce the accuracy of eyewitness identification. In allowing the testimony of experts on the accuracy of witness memory and eye-witness identification the Third Circuit Court wrote that such testimony was needed to educate jurors and thus reduce the error rate of convictions due to incorrect eye-witness identification.

All of this is evidence of a decision-making protocol that happens intuitively, automatically, in the parts of the brain that react faster than the areas responsible for cognitive-logical thinking, which I call “pre-cognitive decision-making” and that - when left uncorrected by the conscious mind - have an effect on much of our cognitive thinking. The design of the brain itself reveals that people rely upon sensory input as well as cognitive thinking to come to decisions: the number of neurons devoted to thought is about 17 billion, which seems a large number until compared to

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Smith found that in cross-race identification, witnesses have more difficulty identifying unique physical attributes of an individual as compared to someone of the same race as the witness. Witnesses also use a different decision-making strategy when identifying cross-race individuals as compared to same-race individuals that increased the error rate (i.e. a higher rate of false identifications than when witness and perpetrator are same-race).


115 Ibid., 919.
the 69 billion neurons devoted to motor-control (including visual and other sensory tasks).\textsuperscript{116} Clearly the brain is well equipped to respond to stimulus, and it has been shown that these responses happen faster than conscious thought, which means that what our senses are telling us is directing what we think about reality.

Precognitive decision-making happens because, as Dehaene has shown, the amount of time it takes for the brain to consciously think something through is longer than the amount of time it takes for the brain to respond to the information it receives.\textsuperscript{117} If the preceding sentence seems strange, perhaps that is because the reader’s conscious mind believes that to understand something one first has to think about it (and, to an extent know they are thinking about it). However, this is not the case: the brain comes to a sub-conscious conclusion about information received much more quickly than the conscious mind becomes aware of it (the information). If we are going to discuss the role of consciousness in decision-making do we need to know what is consciousness? The seemingly simple question of what consciousness is turns out not to be so simply answered (as is often the case when thinking about the mind).

In the 1989 \textit{International Dictionary of Psychology}, Stuart Sutherland defined consciousness as: “The having of perceptions, thoughts, and feelings: awareness. The term is impossible to define except in terms that are unintelligible without a grasp of what consciousness means. Consciousness is a fascinating but elusive phenomenon; it

\textsuperscript{116} Gazzaniga, \textit{Who’s in Charge?}, 32.

\textsuperscript{117} Dehaene, \textit{Consciousness and the Brain}, 10. As an example, the time delay between when the brain perceives visual stimulus (perceptual awareness) and when it become aware of that stimulus (conscious awareness) has been shown to be about ½ second.
is impossible to specify what it is, what it does, or why it evolved. Nothing worth reading has been written about it.”

The obviously subjective definition of consciousness by Sutherland holds a truth that consciousness is an ephemeral thing, something we all share, but the experience of which is unique for each person. Thus, rather than attempt to determine when the decision-making process shifts from unconscious to conscious, let us focus upon mechanisms that explain how and why pre-cognitive decision-making exists as it has been shown that pre-cognitive decision-making functions according to the same physiological and neural principles for all of us.

The Stimulus Bottleneck

Although our conscious experience is that the brain takes in multiple streams of stimulus (information) that can be presented in several forms (sound, image, touch, etc.) simultaneously this is in fact not the case. The conscious brain processes one stimulus at a time and creates integrated understanding of a situation by combining the information it processes. A complete picture of reality unfolds over time, but the picture of reality is not real in that the dislocation of time is suppressed (the conscious mind is unaware of the linear order in which stimulus was processed but believes it witnessed all stimuli simultaneously). Because the sequentially ordered processing of stimulus is masked to the conscious mind, the perception or memory the conscious mind has of traumatic events and insists is accurate, is in fact not. As Dehane writes, “when ever we are mentally preoccupied, our subjective perception of

118 Gazzaniga, Who’s in Charge?, 60.

119 Dehaene, Consciousness and the Brain, 33.
the timing of events can be systematically wrong."

Conscious access to stimulus creates a bottleneck, thus creating the conditions for pre-cognitive decision making wherein the automatic unconscious response to stimulus outpaces conscious awareness of it.

When people make pre-cognitive decisions they do not rely upon an objective analysis of externally provided information because, in essence, they do not have the time to perceive and process the externally furnished stimulus before their pre-cognitive mind has automatically arrived at a (necessarily) un-thought-through determination of the meaning of that external stimulus. Thus, in pre-cognitive decision making the subjective experience of the decision-maker is central to determining the decision that will be made.

Rivalry of Competing Stimuli

The discovery by Charles Wheatstone of the “Binocular Rivalry Illusion” in 1838 revealed that the brain pre-cognitively suppresses information that does not agree with information it thinks to be true. This helps explain how sub-conscious bias, such as Implicit Bias works, in which people respond to preferred interpretations

\[120\] Ibid., 34.

\[121\] Ibid., 33.

\[122\] Ibid., 29-30. Wheatstone created a visual illusion demonstrating that under specific viewing circumstances when two distinct images are presented such that only one eye can see either of the images, only one image is perceived by the brain at a time. To reconcile this, the brain constantly switches conscious awareness of each image. The result is that the viewer “sees” (perceives) first one image, then the other continuously alternating for as long as the specific viewing circumstances are maintained.
of information and suppress interpretations that contradict the preferred interpretation. Implicit bias is formed of a subjective compound of past information, belief, and reaction to events, and in the whole it helps to define the conscious beliefs of an individual.\textsuperscript{123} This compound of previously acquired knowledge and life-experience is used to generate an automatic reaction that is triggered before the slower cognitive process of thinking can form a response based upon cognitive analysis.\textsuperscript{124}

And lest we think that people who make decisions pre-cognitively are somehow of diminished capacity (moral or otherwise), Dehaene finds that we are all subject to episodes of “demonstrably wrong” introspection,\textsuperscript{125} and Le Doux observes, “Again, the emotional mind seems to be particularly susceptible to stimuli that its conscious counterpart does not have access to.”\textsuperscript{126}

Johansson’s “choice study” of attractiveness reveals a critical next step in how pre-cognitive decision-making causes people to defend their incorrect decisions. Johansson showed that even when people are given a limited set of options from which to choose (in this case two pictures of people of differing subjective attractiveness), when a substitute image that is designed to change the subjective ranking of the selected image is introduced after the choice has been made (for example, by being objectively more attractive than the previous number one choice), the subject will “readily invent explanations” to maintain the validity of their


\textsuperscript{124} Banaji, and Greenwald, \textit{Blindspot: Hidden Biases of Good People}, 69.

\textsuperscript{125} Dehaene, \textit{Consciousness and the Brain}, 43.

\textsuperscript{126} LeDoux, \textit{The Emotional Brain}, 61.
previous choice as still being the most attractive. In other words, people are so confident of what their pre-cognitive decision has told them that they will disregard new information that contradicts the pre-cognitive decision. Dehane writes, “human observers are neither random nor whimsical about their subject reports: when they report an honest-to-god feeling of seeing, such conscious access corresponds to a massive change in information processing, which almost always results in enhanced performance.” The pre-cognitive decision subsequently changes the way the subject thinks about the question. When the brain is stimulated it naturally reflects upon and corrects itself, and this is when Gazzaniga’s Interpreter intervenes to evaluate pertinent new information in a way that reinforces the pre-cognitive decision. The Interpreter essentially seizes upon the act of reflection to eliminate information that does not corroborate the brain’s pre-conscious and pre-cognitive response to the stimulus. The mind generates a strong belief or conviction of being correct even when all evidence contradicts the held belief.

The mind’s reception and awareness of stimulus is a vibrant competition in which the flow of information is so much greater than our capacity to receive - or process it - that salient information is lost. This loss of information happens because the brain is busy receiving other information at the same time, or because the quality of the information received is not clean (causing the brain to be unsure of what it is), or as a result of external conditions that incite the brain to privilege reception of one

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127 Dehaene, *Consciousness and the Brain*, 37.

128 Ibid., 42.

129 Dehaene, *Consciousness and the Brain*, 25.

130 Gazzaniga, *Who’s in Charge?*, 49.
type of stimulus over another. In the latter case other information is discarded as irrelevant and the brain focuses upon what it has (unconsciously) selected as relevant. Once this has happened, the brain switches its attention from receiving new information to amplifying the meaning and significance of the information it has selected.\textsuperscript{131} We are without awareness of selecting the information that most closely aligns with what we are hard-wired to believe. This is the moment the pre-cognitive decision is made. What follows that moment is conscious justification of the decision we did not know we made.

The Effects and the Efficiencies of Ignorance

Mathew Reedy cites several studies showing that the degree of confidence an eye-witness has in her/his identification of a perpetrator correlates negatively with the accuracy of the identification (the more certain the witness is they have correctly identified the right person, the more likely it is they are wrong),\textsuperscript{132} a result that is explained by the Dunning-Kruger Effect,\textsuperscript{133} which shows that poor introspection comes from people not knowing what they do not know they do not know, because of which they fill in gaps of missing knowledge with other information that may not be salient or is simply unreliable. It is important to clarify that the Dunning-Kruger Effect does not describe people failing at having all salient information in given situations, rather it describes an evolutionary advantage for living in community with

\textsuperscript{131} Dehaene, \textit{Consciousness and the Brain}, 21-22.

\textsuperscript{132} Reedy, “Witnessing the Witness,” 920.

\textsuperscript{133} David Dunning, “Chapter Five- The Dunning-Kruger Effect: On Being Ignorant of One’s Own Ignorance,” \textit{Advances in Experimental Social Psychology} 44 (2011): 248.
others. Dunning argues that – despite the pejorative societal understanding of ignorance as a sign of disinterest or stupidity of an individual in specific cases or fields of knowledge - personal ignorance is in fact pervasive in daily life,\(^{134}\) and - while one might often do better by being better informed - people generally do not suffer in daily life because of what they don’t know. Research by Kruger and Dunning (1999), Johansson, Hall, Sokstrom and Olson (2005), and Nisbett and Wilson (1977) confirm that everybody is subject to this type of ignorance. Thus we can understand how in daily life ignorance can actually be an advantage, making us more efficient at recognizing and responding correctly to typical situations.

Examination by Gazzaniga of the expectations of babies of the physical world provides further evidence of the evolutionary value of ignorance, finding that we are practically born with many pre-conceived ideas about reality,\(^ {135}\) and thus in some cases we are neither dependent upon accumulating additional specific knowledge to guarantee our viability, nor oriented toward questioning our assumptions about the things we think we know.

Yet, although ignorance may be non-costly for individuals in daily life, and in some instances advantageous because more efficient, Dunning observes that is not the case in situations that do not typically occur in daily life (such as evaluating an ID case), stating, “Instead, they (people) often believe they act with adequate if not excellent expertise, when instead they misstep out of misunderstanding and miscalculation that they fail to recognize as such. They may think that they are doing

\(^{134}\) Ibid., 249-250.

\(^{135}\) Gazzaniga, *Who’s in Charge?*, 22.
just fine when they are, instead, doing anything but.”¹³⁶ Work of Leon Festiger, Owen Lovejoy, and others demonstrates an evolutionary advantage of the human brain is its ability to copy the work product of the original thought of others,¹³⁷ but this also explains how people can make decisions about things about which they lack deep knowledge, and why they are not comfortable with the actions of others (for example, ID defendants) that does not easily fit into examples of past human behavior.

Dunning cites research that shows people commonly lack not only the specific knowledge or information necessary to making meaningful decisions in their lives, but that they are unconscious of their ignorance.¹³⁸ He goes on to define two common types of ignorance of which people are largely unaware, and which cause them to make poor decisions based upon faulty, non-fact-based or incomplete information. The first cause of ignorance Dunning explores is the result of not knowing what one does not know (the “Unknown-Unknowns Effect - which I will call the “U-UE” - and is colloquially recognized as Donald Rumsfeld’s famous “unknown unknowns”¹³⁹).

The U-UE effectively blinds people from recognizing when they are missing information necessary for making an informed decision. Falling prey to unknown unknowns turns out to be a universal problem, not limited to areas that require deep technical or specialized knowledge, but rather happens in any field where an individual does not have access to being informed of what they do not know they


¹³⁹ Ibid., 253.
need to know to be able to make good, fully fact-based decisions. Interestingly (or perhaps damningly), even when people have access to expert guidance, informing them what they need to know to make fully fact-based correct decisions, or when they have been informed they made wrong decisions because of what they did not know they needed to know to make a correct decision, people will tend to incorrectly evaluate their performance and believe they have performed better than they had in reality. Simply put, because the preceding language can be difficult to follow easily:

People who don’t know they don’t know enough about something to make correct decisions commonly rate their accuracy (i.e., correctness) more highly than do people who realize they don’t know enough to make a good decision. Dunning notes that when subjects in a study by Vnuk, Owen, and Plummer were asked how they thought they performed on an exercise designed to explore the U-UE, about 3% percent of the subjects correctly identified their failing performance (based upon ignorance of necessary information), while an expert examination revealed more than one-third of the group had failed. Kuklinski et al., determined that it is common that when people who are missing crucial information for good decision-making are confronted by their ignorance, they will insist on the completeness of their knowledge and correctness of their thinking and consequent decision, writing: “They show that, in general, citizens tend to resist facts. They can be induced to use correct

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140 Ibid., 254.


information, even in the context of a single-shot survey, but it takes an extraordinarily obtrusive presentation of that information.”

How Do People Make Decisions about Things They Don’t Know Much About?

“For most of what they believe they know, human beings lack personal or direct information; they must rely upon what people think. In some domains people suffer from a ‘crippled epistemology,’ in the sense that they know very few things, and what they know is wrong.”

Here Sunstein (building upon the work of Russell Hardin) explains the state of preparedness of a jury when considering the mental state of a defendant during the commission of a crime for which the defendant is using an ID. The juror, presumably, is neither mentally ill himself, nor an expert in mental illness nor in identifying those who suffer from one or more of the myriad types of mental illnesses that exist. Thus, s/he is obliged to rely upon an incomplete epistemological set of information to determine whether the defendant claiming ID is in fact (sufficiently) mentally ill to qualify, or not. So, what is this juror using to make a decision in the place of non-existent relevant knowledge? Sunstein identifies rumors and speculation, which, when combined tend to create or reinforce beliefs in the absence of information, and explaining that an individual will try to achieve an equilibrium in their mind in which their belief – though not founded in knowledge or


145 Ibid., 10.
fact – feels “right.” Research by Dehaene reveals that significant unconscious processing of information happens in the mind all of the time,\(^{146}\) while Niels Jerne suggests that decision-making is essentially wired in our brains, waiting to be triggered by a situation that calls the particular neural connections into action, or, as Michael S. Gazzaniga explains, “these capacities are genetically determined neural networks specialized for particular kinds of learning.”\(^{147}\) People invent reasoning to explain their preference – unaware both that they are inventing reasons after the fact to support their choice and that their true reason for their preference is unknown to them.\(^{148}\) The Interpreter is visually based and works to connect images in complete sets to tell a coherent story.\(^{149}\) When it responds to stimulus that has been rapidly subconsciously responded to as a threat, it receives a “picture” that it then contextually and coherently integrates into conscious understanding of the situation. The Interpreter system rationalizes the information it receives from the sub-conscious mind to explain and justify the false impression.\(^{150}\)

As Susan Sontag observed: “Something we hear about, but doubt, seems proven when we are shown a photograph,”\(^{151}\) aptly describing how Gazzaniga’s Interpreter uses cognitive analysis of visualization to confirm the pre-cognitive

\(^{146}\) Dehaene, *Consciousness and the Brain*, 13.

\(^{147}\) Gazzaniga, *Who’s in Charge?*, 19.

\(^{148}\) Dehaene, *Consciousness and the Brain*, 43.

\(^{149}\) Gazzaniga, *Who’s in Charge?*, 93-94.

\(^{150}\) Ibid., 96-98.

reaction generated by the non-visual stimulus. Furthermore, the sluggish speed of consciousness (as compared to unconscious mental stimulus response) causes people to miss information or incorrectly order their perception of the information they receive. The astonishing results of research by Olaf Blankes into out-of-body experiences of surgery patients demonstrates the sequential nature of stimulus processing and how when it is perturbed, the brain not only has a conscious experience that is not real, but even when it is shown to the patient that their experience is not real, the patient’s belief in the reality of their experience prevails.\textsuperscript{152} Dehaene explains that conscious awareness of this information is at best delayed, and more commonly lost as time passes\textsuperscript{153} because the more times it takes for people to register awareness of information the more information that simultaneously occurs is lost. Finally, our reality is determined by the limited information we receive, even when it is insufficient to form an accurate understanding.

The Role of Implicit Bias in Un-informed Decision Making

Implicit Bias (IB) is defined as “a term of art referring to relatively unconscious and relatively automatic features of prejudiced judgment and social behavior.”\textsuperscript{154} Its effects are seen throughout society. IB exists because the brain has favored pathways for responding rapidly to perceived threats. IB is less useful in the modern world where many of the threats that were once common have become rare,

\textsuperscript{152} Dehaene, \textit{Consciousness and the Brain}, 44.

\textsuperscript{153} Ibid., 34.

and society has become large and complex such that people interact with people not like them (racially, in terms of gender or gender identity, or socio-economically). As Gazzaniga points out, “Like the wallaby (which automatically responds to archaic and unneeded fear stimulus) we have thousands, if not millions, of wired-in predilections for various actions and choices. We humans think we are making all our decisions to act consciously and willfully. We all feel we are wonderfully unified, coherent mental machines and that our underlying brain structure must somehow reflect this overpowering sense we all possess. It doesn’t.”

Furthermore, as Burnstein’s work confirming an idea of Zajonc that “our emotions are more easily influenced when we are not aware that the influence is occurring,” we easily fall prey to the deeply ingrained emotional cues that are at the base of IB.

Julian Jaynes surmises that the rise of consciousness represents an evolutionary advantage as compared to those who, “lived impulsively by their unconscious habits,” and describes consciousness is a learned trait, formed by language, and shaped to best ensure the survival of the species. His assertion that the conscious mind arose to harness the impulses of the unconscious mind and that in its rise it reinforced impulsive reactions that served to protect species viability explains why bias exists. In this model bias is a tool to differentiate potentially lethal situations and people from those that pose no threat. The threat that is being

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155 Gazzaniga, Who’s in Charge?, 44.


subconsciously evaluated and consciously acted upon extends beyond an individual’s security to the security of the species. Thus it is here that bias and taboo is born.

Gazzaniga explains that the right side of brain is emotionally triggered and driven, while the left side is more analytical and seeks to create order (reason) from chaos. The Interpreter provides the bridge between them that translates subconscious reaction into conscious thought by inferring cause and effect.\textsuperscript{158} The subconsciously biased right-brain reaction to stimulus is “recoded” by the left-brain in a rational sense to uphold order. The unconscious mind is the fertile ground of IB while the conscious mind is optimized to promote the IB reaction, so long as it is within reason. IB leaves the realm of subconscious mind and has an effect on our interactions with others because, as Jaynes asserts, consciousness is not essential to judgment or reasoning.\textsuperscript{159} IB is, instead, ingrained in subconscious and automatic preferences typified by Banaji and Greenwald as “mind bugs”.\textsuperscript{160} Mind bugs affect what we see and what we remember, while more importantly for this thesis “social mind bugs” direct conscious thought about people on the basis of their identity;\textsuperscript{161} both are pervasive in human interactions.

Indeed, almost 75\% of American society has an automatic, subconscious white over black color preference that changes how they think about black people as compared to white people and triggers discriminatory behavior disfavoring blacks and

\begin{itemize}
  \item \textsuperscript{158} Gazzaniga, \textit{Who’s in Charge?}, 86.
  \item \textsuperscript{159} Julian Jaynes, \textit{The Origin of Consciousness}, 44.
  \item \textsuperscript{160} Banaji, and Greenwald, \textit{Blindspot: Hidden Biases of Good People}, 4.
  \item \textsuperscript{161} Ibid., 13.
\end{itemize}
benefitting whites. Meaningfully, most of these people are completely unaware of their bias.\textsuperscript{162}

The human brain is predisposed to respond automatically to create efficiency in decision-making,\textsuperscript{163} and when the underlying belief animating the automatic response is biased the first and fastest – pre-cognitive – response of the brain will also be biased. An explanation of how IB works is offered by LeDoux, who explains how Subconscious Priming, which is an unconscious cue, affects one’s feeling about something when it is linked in time.\textsuperscript{164} Jaynes demonstrates the extent to which conscious thought is not necessary for learning or thinking or reason.\textsuperscript{165} Thus, at its first exposure to a defendant, jury attitude could be partially informed by pre-existing subconsciously held cues that Jaynes has explained exist to signal friend from foe.\textsuperscript{166}

The brain responds to this stimulus before awareness of the stimulus reaches the conscious mind, which explains the mechanism by which people evaluate other people and their actions without conscious awareness.\textsuperscript{167} So, if the sub-conscious response is pejorative to the defendant there is nothing the juror or jurist can do about it until after their evaluation has already been made. Worse still, the effects of IB

\textsuperscript{162} Ibid., 47.

\textsuperscript{163} Gazzaniga, Who’s in Charge?, 81.

\textsuperscript{164} LeDoux, The Emotional Brain, 59.

\textsuperscript{165} Julian Jaynes, The Origin of Consciousness, 31-44.

\textsuperscript{166} Ibid., 120-122. Jaynes describes a facial recognition experiment he devised in which an identical representation of the same face is presented in mirror image. His experiment revealed a systematic pre-cognitive difference of interpretation of the image that favored one over the other. This showed a hard-wired visual preference irrespective of the factual identical nature of the image.

\textsuperscript{167} Gazzaniga, Who’s in Charge?, 81.
aggregate, increasing the effect of bias on the defendant as the trial process progresses to a conclusion. Breheney, et al., finds that case outcome and sentencing differ depending upon the gender of the offender and nature of crime showing that jurors and legal professionals are reacting to something other than evidence in determining verdicts and sentences. Further, examining the “evil woman theory” to account for some of these differences, they discover that gender bias affecting case outcome is an old phenomenon. Dehaene writes: “Once information is conscious, it can take a long series of arbitrary operations – it is no longer processed in a reflexive manner but can be pondered and re-oriented at will. And thanks to a connection to language areas, we can report it to others.” Thus, we pre-cognitively react to information, and then – driven by our Interpreter - pass our pre-cognitive reaction through arbitrary operations described by Dehaene which strengthen and justify our pre-cognitive response, and which we then communicate to others.

Where Does Bias Come From? Why Does It Exist?

Bias is a consequence of the diversity of the human race. It is rooted in archaic, deeply ingrained automatic brain processes that, in earlier times, served to warn humans of threats to their survival (from other species or environmental conditions), but which today – as the brain has evolved regions of higher cognitive

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170 Ibid., 103.

171 Dehaene, *Consciousness and the Brain*, 14.
ability - are of less use in modern society. These responses are deterministic - they happen before the conscious will can exert its will. The relevance of the discussion of where deterministic behavior ends and free will begins exists only because humans are numerous and we live in society with others. We seek to establish norms of free-will-based behavior to, in part, protect us from deterministic behavior that would not matter in the vacuum of solitude, but which when living amongst others was a key to our survival, and remains essential to it.¹⁷² This explains why bias - both explicit and implicit - is so difficult to extinguish.

Because the roots of bias are deep, ancient, and anchored in the part of the brain which functions outside conscious awareness, they are not always evident to the conscious mind. When bias is evident to the conscious mind people can self-correct for them. However, as has been shown earlier in the discussion on IB, we are usually not aware of the biases that reside in our unconscious mind. James Jones explains how automatic sensory responses in the brain signal danger when a person encounters another person of a different ethnicity or color. The immediate sensory response triggers higher-brain cognitive responses that reinforce the sense of danger. At this point even higher cognitive processes are triggered that contextualize and modify the danger response. However, how the danger response is modified or attenuated is not uniform, is determined by the culture or upbringing of the individual.¹⁷³ When the danger response is modified it generally falls into one of two response categories in


an individual: that of “threat” or that of “challenge”,\textsuperscript{174} which determines how we subsequently choose to manage the initial, automatic, threat response.

Gazzaniga points out that though as individuals in these instances we function deterministically, when in groups our reactions, our thoughts or actions will be influenced by others in unpredictable ways. The susceptibility to influence by others argues for the ability to correct for biases when working with others, as the deterministic “action pathway” that the brain uses to in response to stimulus when acting in isolation is weakened through social contact. This happens because social contact creates situations in which individuals work in concert, which means that their brains also work together. The results of group work become less deterministic and less predictable due to the multi-directional influences at play.\textsuperscript{175} However, when individuals in a group share the same IB, the individual’s deterministic response to the IB is reinforced by other members of the group. The group then collectively chooses what is essentially a deterministic response to stimulus. As Mario Bunge said, “the whole constrains the parts: just think of the… stress in a member of a social system, by virtue of their interactions with the constituents of the same system.”\textsuperscript{176}

It is possible to overcome the bias that affects our decision-making, even when bias exists in the pre-cognitive parts of the brain.\textsuperscript{177} Associative learning can be used to “reprogram” automatic pre-cognitive decisions that are biased and enable people to make decisions differently and presumably with greater free will. However,

\begin{itemize}
  \item \textsuperscript{174} Ibid., 180.
  \item \textsuperscript{175} Gazzaniga, \textit{Who’s in Charge?}, 136-137.
  \item \textsuperscript{176} Ibid.,
  \item \textsuperscript{177} Jones, \textit{The Psychology of Diversity}, 197.
\end{itemize}
it requires repeated positive stimulus to effect this change.\textsuperscript{178} Such techniques are not commonly used with juries or jurists to increase the probability of more objective or fair verdicts.

\textsuperscript{178} Gazzaniga, \textit{Who’s in Charge?}, 21.
Chapter IV

Why Riot over Art?

Pre-Cognitive Decision Making and Group-Dynamics

This thesis shows that pre-cognitive decision-making is a ubiquitous feature of human behavior. Emmanuel Kant wrote that the mind relies upon “pre-formed” structures that determine what we know automatically; what Kant asserts can today be understood as a description of pre-cognitive decision-making.\textsuperscript{179} Rather than evaluate the unique elements of a given situation, we have evolved to ignore these details and favor the gross, common identifying elements of a situation so as to rapidly draw conclusions on what it is or what it means.\textsuperscript{180} Furthermore, as Graziano explains, when the brain unconsciously selects and privileges certain information to build probabilistic models of outcomes, it includes assumptions about other people’s consciousness - in other words, predictions about what other people believe in given circumstances.\textsuperscript{181} The unconscious prediction of the beliefs of another person is driven, in part, by how we see our self in relation to other people. When we perceive commonalities with another person we are unconsciously predisposed to believe the

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\textsuperscript{181} Graziano, \textit{Consciousness and the Social Brain}, 8.
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same things as well, and we are more likely to unconsciously disagree with the viewpoint of those with whom we see no or few commonalities.

The act of identifying a person as a member of a group is a fundamental strategy people use to place themselves relative to others in society. Elias Canetti explains the perverse pleasure mankind obtains by identifying as a member of a group in opposition to others, writing: “In what does this pleasure consist? It consists in relegating something to an inferior group, while presupposing a higher group to which we ourselves belong.” Furthermore, the tendency of this ageless practice of identifying a person as a member of a group is to identify the other in terms of “us” or “them”. Moreover, even within this oppositional structure of “us” versus “them”, sub-groupings exist so that within an “us” group other “us” versus “them” groups exist. Our propensity to identify ourselves as a member of a group, or groups, explains both how individuals in a given group can sway the opinion of others and why members of groups readily adopt a decision made by one or many of the other members of their “us” group rather than follow their own thinking. Muzar Sharif, in a ground breaking yet ethically questionable experiment that probably could not be done today, demonstrated this by creating two fictive summer camps populated by

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groups of boys from similar socio-economic, educational, and racial backgrounds. After allowing the boys of each group to develop bonds within their group, he then brought the groups into contact with each other through a series of explicit athletic competitions and secretly engineered slights and insults that each group of boys was encouraged to blame on the other.\textsuperscript{187} He found that it was easy to pit the groups against each other, as- from the outset- the boys had self-identified as either “Rattlers” or “Eagles” (the names of the two camps) and naturally organized as “in” or “out” groups relative to the other, with clear internal social and decision-making hierarchy.\textsuperscript{188}

In the ensemble, this work by Sharif and Moldinow explains how, when evaluating insanity case defendants, people are more attuned to notice the details that confirm that the defendant fits into the group of “insanity case defendants,” and are less attentive to notice the details that individualize the insanity case defendant, separating that individual from the group. Juries are explicitly created “in-groups”, and although they are composed of peers of the defendant, they are grouped in opposition to her/him. Thus, jurors are more readily disposed to miss the details that could help them identify how the insanity case defendant in question is similar to them. Indeed, Moldinow writes: “Though your evaluation of another person may feel rational and deliberate, it is heavily informed by automatic, unconscious processes.”\textsuperscript{189} Jurors are clearly influenced by their own biases, many of which they

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\textsuperscript{188} Ibid., 208.

\textsuperscript{189} Moldinow, How Your Unconscious Mind Rules Your Behavior, 156.
\end{verbatim}
may be unaware. They are also influenced by the composition and group dynamic of the jury. The opinions of jurors are influenced by many extra-legal forces, which include prior relationships with other jurors, the appearance of the defendant and the likeability of counsel or the judge.

Robert Bobrow, in his article “Evidence for a Communal Consciousness,” offers his hypothesis as to why this may be, arguing that collective consciousness exists widely in nature (citing birds flocking and schools of fish swimming in unison are clear examples), and exists amongst humans as well. Indeed, he points out that the Jungian concept of “collective unconscious” is an explanation of the pre-cognitive connection between people, whether they be members of an explicit group or not.

Canetti, exploring the nature of crowds, finds the differences in identity that separate people under normal circumstances disappear when they respond to a common threat, causing them to band together in tight opposition to the “other”, which is the source of threat. The threat in question need not be physical. Graziano provides a candid

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190 Benforado, “Frames of Injustice,” 1334-1378.


194 Ibid., 247.

195 Canetti, Crowds and Power, 53.
example of how pervasive this behavior is, and that it is not limited to responding to a physical threat and can attach to the intangible realm of ideas, relating that even his scientific work when presented to his in-group peers triggers what he understands to be the “human way” of dealing with out-of-standard experiences. Graziano writes that in response to his novel hypothesis of what consciousness is, “I’ve discovered how easy it is for people to half-listen to an idea, pigeon-hole it, and thereby conveniently dismiss it.”

Humans are social animals; for human society to function successfully we not only un-critically adopt our own, flawed, pre-cognitive decisions, we also accept the flawed pre-cognitive decisions of those we accept as belonging to our group, and adopt them as our own so as to remain in contact with the group of individuals. Moldinow finds that this is, “especially true when our tendency to categorize affects our view of other humans – when we view the people of a given race or ethnic group as more alike than they really are.” From viewing others this way it is a short leap to stereotyping them – whether they are members of an “us” or “them” group. Damningly, stereotypes not only affect how we evaluate others, they prime those labeled with the stereotype to behave in ways that will meet the expectation of the stereotype that is imposed upon them. We are all subject to these unconscious processes directing our PCDM, and which subsequently conditions our conscious decision-making. Whole groups of people fall prey to this, and indeed my hypothesis is that the outcome of ID cases depends not only upon one juror deciding the fate of

196 Graziano, Consciousness and the Social Brain, 10.


198 Ariely, Predictably Irrational, 213.
the defendant pre-cognitively, but that many or enough other jurors do so, so as to affect the verdict in a given case. A brief look through history provides evidence that PCDM happens not only in individuals but in groups as well, and that PCDM in groups is influential enough to cause large groups of people to act irrationally, and even against their own interest. I contend that evidence people rely upon PCDM even when it is not in their interest shows that if we are to some degree powerless to behave differently when the outcome is harmful to our interest it must be even easier to fall prey to PCDM when we believe the outcome to which it attaches benefits us.

Bias results from pre-determined beliefs that lead to non-objective reasoning of evidence, and also of making decisions before conscious thought has occurred. As such, pre-cognitive decision-making is not outlier behavior. It has a strong effect our experience and on the experience of others. It is present when seemingly irrational choices are made. What may seem like a rational yet eccentric decision of an individual is more evidently understood as the result of PCDM when groups of people make similar irrational decisions and act similarly as a result.

Up to this point my examination has been focused and limited to the effect of an individuals’ pre-cognitive decision-making on insanity defense cases. Here I demonstrate that pre-cognitive decision-making is a common and long-standing aspect of human existence by showing the actions and effects of collective pre-cognitive decision-making outside the courtroom. I have selected three types of examples to explore not only because rational consideration of their facts makes it even more unbelievable they actually occurred, but because each represents a different group dynamic in matters of PCDM. Even a cursory examination of episodes of large groups of people acting irrationally throughout history bears out this
observation. Scott D. Mendelson observes that a difference between delusions that are bizarre and those that are not\(^{199}\) is that non-bizarre delusions are the province of reasonable people who are responding to a stressful situation (whereas bizarre delusions are most often symptomatic of a mental or psychological disease). Also, non-bizarre delusions can be widely held.\(^{200}\) Often determining whether a delusion is bizarre or not depends upon cultural norms. In societies where the delusion (no matter to what it pertains) is common, it is not considered bizarre, is less likely to be rejected, and can thus affect a greater number of the people who are exposed to it.\(^{201}\) This is meaningful because it explores the expectation of people when they are considering irrational or unfounded ideas. Indeed, our expectations condition our belief of what we are witnessing,\(^{202}\) therefore if you expect it is possible for genitalia to be absorbed into the body and that its disappearance will cause death it is easier to believe than is what is happening (read more about this below). Similarly, if you cannot identify with the identity or mental state of a defendant, and are therefore more likely to believe the common misperception that defendants fake insanity,\(^{203}\) it will be harder to move away from that belief irrespective of what the evidence indicates.


\(^{201}\) Mendelson, *The Great Singapore Penis Panic*, 120.

\(^{202}\) Ariely, *Predictably Irrational*, 203.

“Tulipomania” is an example of a popular delusion that overwhelmed people’s rational reason because it promised gain to those who believed in it. Public rioting in response to avant-garde, and in particular Dada, performance and art is an example of a popular delusion that the values of mainstream society were under attack and needed to be defended. “Epidemic Koro”, a phenomena most common in Asian culture in which masses of people believe their genitalia is “falling off” or being absorbed by the body, is an example of a popular delusion in response to generalized societal unease or anxiety. Robert E. Bartholomew comments that groups undergoing extreme stress fall prey to these types of delusions. We will touch on other examples of this.

The Phenomena of “Tulipomania” in Holland, 1634-1636

Charles Mackay, in his aptly titled collection, Extraordinary Popular Delusions, recounts how speculation by the general public in the value of tulip bulbs between 1634 and 1636 led to the financial ruin of many. MacKay’s book is a collection of similar examples of financial loss suffered by those who fall prey to mass hysteria. Fridson (editor of the 1996 Wiley imprint of MacKay’s book) writes: “By MacKay’s account, the crowd’s hysteria is easily detectable by individuals who rely on common sense. He (MacKay) portrays collective misjudgments so gross that

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204 Bartholomew and Hassall, A Colorful History of Popular Delusions, 68.
205 Rose Lee Goldberg, Performance Art: from Futurism to the Present (London: Thames and Hudson, 1979), 52.
206 Mendelson, The Great Singapore Penis Panic, 75.
207 Bartholomew and Hassall, A Colorful History of Popular Delusions, 137.
seemingly only a dullard could fail to perceive them.”\textsuperscript{208} And yet, the story of how speculation in tulip bulbs led to ruin serves as an example that even people other than MacKay’s “dullards” can fall prey to PCDM.

When tulips first arrived in Holland the wealthy collected them as a symbol directed toward peers of their wealth and taste. The more exotic or rare the tulip flower, the better. Later the middle-class, tradesmen and merchants, began to collect tulips as well, much for the same reason as the wealthy had, as a signal to their middle-class peers. Of note is the intrinsic worthlessness of tulips and that the only value of the bulb was that it produced tulip plants. (As evidence of the limited value of tulip bulbs is the famous story of a sailor who mistook a very valuable [at the time] bulb for an onion and ate it with his lunch.\textsuperscript{209})

Interestingly, as the price of tulip bulbs continued to rise, eventually beyond any reasonable valuation, the value of large assets such as houses, land and horses fell.\textsuperscript{210} It seems that people, rather than recognizing that the price of tulip bulbs was irrationally high lowered the value of these and other “big-ticket” necessities of life, perversely reducing the price-gap between the two and thus reducing the apparent imbalance of values. This behavior can be explained as an example of the Interpreter effect described by Gazzaniga in the following manner:

a) People (pre-cognitively) decide that the speculative value of tulip bulbs is greater than the established value of houses, land, horses or other valuable real assets.


\textsuperscript{209} Ibid., 116.

\textsuperscript{210} Ibid., 118
b) As the price of tulip bulbs continues to rise some people recognize it is becoming irrationally high; eventually many people believe this is the case. However, because they are now invested (literally as well as figuratively) in their belief that tulip bulbs are worth the high price they look for cognitive arguments to rationally support their belief.

c) In an effort to rationalize the inflated value of tulip bulbs, people modify their belief of the established value of houses, land, horses or other real assets, so as to bring them closer into line with the high value of tulip bulbs.

d) People deflate the value of real assets, such as houses, land, and horses to close the gap between their value and the inflated value of tulip bulbs.

e) Relative to other assets value of tulip bulbs no longer seems irrationally high.

In the case of Tulipomania, it is clear that once people had bought into the delusion of its value there was a perceived benefit in that belief persisting. It is easy to understand why this delusion persisted for as long as it did, the longer the delusion persisted the worse the consequences of changing course to objectively analyze the PCDM derived behavior became.

Art Riots in Europe, from the 19th to the 20th Centuries

What makes people riot over the ephemeral thing that is art? It can be fear and anxiety about large-scale societal change, with a dose of creative provocation.\textsuperscript{211} These ingredients were in place during the period from the late 19th century through the early 20th century in Europe. The destruction of the traditional social order that

was the result of decades of continent-wide armed conflict and advances in mechanical technology created a fertile terrain for artist to play the role of social agitators. Mechanization further depersonalized armed conflict, and chivalry - long a badge of honor - lost its meaning as combat shifted from close-quarters military battles to the carnage of poisonous gas bombs, targeted from afar and lobbed toward hordes of soldiers. Similarly, skilled labor that had previously been done by hand, producing similar goods each containing imperfections that revealed the humanity of the laborer, was supplanted by machines that required repetitive acts of human labor to keep them churning out nearly identical examples of goods. Thus, the stage was set for the work of artists who wanted to comment on the increasing inhumanity of society to provoke an irrational response.

“In setting out to describe this quest and this freedom, the people who made Dada, their day-to-day experiences, their life together, their enthusiasm, their independence of mind, their artistic discoveries, their joyous contempt for banality, the hostility, even hatred evoked by this contempt…”

(Italics added).

Hans Richter wrote this poem describing his history of Dadaism, and his approach to this artistic movement that came to be a response to and in revolt of social, political, and economic changes that were rapidly reshaping Europe in the early twentieth century. The final lines of the poem speak of how the audience

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responded to the artistic output of Dadism. Interestingly, the audience response
Richter depicts to Dadaism is not neutral - which one would expect if the art created
by this movement was meaningless. Rather it was emotional and strong.

The study of why people riot over art begins with asking why people riot for
anything at all. Rioting about art, or Art, seems irrational, when rioting for (or
against) other causes may not be. Riot can be a legitimate tactic for achieving social
good. That riot can be purposeful in changing society highlights how meaningless it is
in reaction to works of art, as art is a reflection of society with no tangible power or
effect. And yet, people have gone into a rioting fury by art when it is performed or
shown. Why?

Richter’s description of how audiences responded reveals a strong emotion,
and not particularly rational response to Dadaist art, which is interesting and
troubling. After all, art and art movements are not inherently destabilizing. Art exists
on the margin of what people need to survive (unless the person in question is an
artist) so it is hard to rationally justify why art would inspire a negative response
stronger than derision or dismissal. Yet Richter evokes the “hostility, even hatred”
that this art movement inspired. Where did this hostility come from, and why was it
not tempered by a rational interpretation of the emotion by those who were feeling it?
Perhaps it is because Dadaism intentionally sought to trigger pre-cognitive neural
paths in audiences (of which both artists and audience were unaware) that so revolted
or destabilized the sense of propriety, morality, or social-order that audiences were
forced to justify (interpret) their response after the fact. Interestingly, the musical
compositions of Erik Satie were known to provoke this type of response. 213 Sam

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Halliday, exploring the close relationship between music and what he calls “sociality”,\textsuperscript{214} explains that music stirs something in listeners causing them to feel connected and unified. The work of Halliday showing music triggers emotions in listeners that can inspire them to act is confirmed by the events at the Dadaist Cabaret Voltaire in Zurich of March 14, 1916.\textsuperscript{215}

Not all people responded negatively to Dadaism. If they had, Dadaism (which programmed its own demise) would not have lasted as long as it did, nor have influenced subsequent art movements (including Expressionism, Cubism, Futurism, Surrealism, and even Pop-Art). In fact, Dadaism left very few of those it touched neutral - one either loved or hated it.\textsuperscript{216}

While art historians and others can adeptly describe why people loved or hated Dadaism, often the rationale described by audience reaction was less articulate and more emotional. At the presentation of \textit{Murder, Hope of Women}, Kokoschka’s scandalous play written in response to the scathing criticism of his earlier work, the crowd reacted violently to his depiction of nerves on the outside of his characters’ bodies. He remembers that it was only the physical intervention of his partner, Adolf Loos, that kept the violent crowd from attacking him physically.\textsuperscript{217} Of interest here is the irrational response of the crowd to imagery that was unfamiliar and intended to disturb the senses - why did not those who were disturbed simply leave the


\textsuperscript{215} Goldberg, \textit{Performance Art}, 58.

\textsuperscript{216} Ibid., 58, 60.

\textsuperscript{217} Ibid., 52.
performance? Both Dadaism and Expressionism were dedicated to upending the relationship of complacency between Art and its consumers,\(^{218}\) and the consumers of Dada and Expressionist art knew it. The artists intentionally challenged the psychological comfort of their audiences by flaunting social convention and challenging the definition of acceptable behavior in society. In this context it is easier to understand why audiences did not simply ignore Dadaist and Expressionist art: they were provoked to respond. Still, it is fascinating that audiences responded as they did. For what happens when people are provoked? They shift from thought-mediated expression (i.e., criticism) to emotionally driven reaction (i.e., riot). The “voice of reason” is supplanted by the feeling of upset; the chemical physiology of the individual shifts to favor the immediate response to what feels like a threat; people respond from a decision that is made before thinking. An example of the result of this shift was the performance of DADA MESSE in Prague on March 1, 1919, when thousands of people massed in agitation to attack the creators of the piece, Huelsenbeck, Hausmann, and Baade (who, foretelling the outcome of this intentionally scandalous event, and thinking to save his skin, fled Prague before the show began).\(^{219}\)

The *History of Dada*, by Georges Ribemont-Dessaignes\(^{220}\) gives an account of the intent of Dada art, describing it as, “a permanent revolt of the individual against art, against morality, against society.”\(^{221}\) This thesis does not attempt to develop a fine

\(^{218}\) Motherwell, *The Dadaist Painters and Poets*, 202-203.


\(^{220}\) Ibid., 101-120.

\(^{221}\) Ibid., 102.
understanding of the motivation of Dadaists that led them to attack the values of mainstream society; it is sufficient to know as previously discussed that Dadaism was born of a general dissatisfaction with the increasing inequities incumbent in an era of technological advancement that led to social displacement and armed conflict. However, what is salient to this discussion is the reader understanding, first, that the public, art critics, and others were fully aware of the objective of Dadaists to outrage them and provoke reaction; and, second, that despite this awareness the public responded in ways that were clearly not rational. Ribemont-Dessaignes writes: “After the publication of Dada N°2 (December, 1917) and his book, 25 Poèmes, (Tristan) Tzara staged an evening performance during which a new Dadaist manifesto (of which Tzara ultimately published 7) brought on a riot.”

Ribemont-Dessaignes continues his account of Dada in Paris, noting that audiences always packed Dada spectacles, but with, “a strange mixture of willing sympathy and profound indignation.” At the Dada Festival (May 26, 1920) audience members were so incensed that they went, “to a butcher shop and bought some veal cutlets which they later hurled at the actors.” Hardly a rational act, this describes an irrational, emotionally based response of the audience to the feeling of being disturbed that has been rationalized into action (buying and throwing veal cutlets at actors) that is obviously irrational.

222 Ibid., 106.

223 Ibid., 110.

224 Ibid., 113.
“Koro” and Other Examples of Mass-hysteria, 600 to the Present

What rational thought could cause people to believe their sexual organs are disappearing, which could lead to their death? What rational thought could cause people to abandon whole swathes of a city on the false belief the air they breathe is poisoned even when it is empirically proven that it is not? Despite the irrationality of it, both of these beliefs took hold over large numbers of people living together in community. But there are many other equally hard-to-believe, well-documented irrationally based societal delusions. In fact, human history is rife with examples of irrational thinking and PCDM on a societal level causing large numbers of people to behave in ways over an extended period of time that make no sense. It has been scientifically shown that living with stress that is generalized in society for an extended period of time, or is generalized in groups, can cause people to collectively fall prey to strange medical beliefs. “Koro” is one such titillating example.

Episodes of Koro, which is the belief that one’s genitalia (or that of others) is being absorbed into the body or are otherwise disappearing – has periodically occurred in Asian society, throughout history and up to the present day. It is also known in Western society, although far less commonly. It has been shown that men more frequently believe the delusion than women, but women are both afflicted by it directly and are susceptible to believing it is happening to men around them.

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227 Ibid., 15.

228 Ibid., 38.
Typically the delusion is widespread, although individual cases of Koro have been reported in medical literature as well.\textsuperscript{229} Koro is rooted in the principles of ancient Chinese medicine,\textsuperscript{230} a holistic, observational approach to understanding human health and the diagnosis and treatment of illness.\textsuperscript{231} According to ancient Chinese medicine, illness or disease is the result of an imbalance of the patient’s energetic life force, known as “Chi”,\textsuperscript{232} which is composed of “yin” and “yang” energy. Yin and yang exist in opposition to each other; both are necessary for the organism to be healthy. For example, whereas Yin is considered “stationary” energy, Yang is moving energy. A period of sleep is Yin energy, during which time the body “rejuvenate(s) or regenerate(s) energies for the body,” while the organism uses “lighter” Yang energy during wakefulness.\textsuperscript{233} Proper balance of opposing energies creates health; improper balance creates illness or disease. Mendelson observes that ancient Chinese medicine does not distinguish between mental or physical illness; both are manifestations of imbalanced energy in the patient.\textsuperscript{234}

What is perhaps most interesting about Koro for the purposes of this discussion is how persistent belief in it remains despite the lack of objective evidence supporting the position that it is anything other than a societally normalized

\textsuperscript{229} Ibid., 20.

\textsuperscript{230} Ibid., 33.


\textsuperscript{232} Ibid., 85.

\textsuperscript{233} Ibid., 86.

\textsuperscript{234} Mendelson, \textit{The Great Singapore Penis Panic}, 32.
delusion. As such it provides insight into how people - from small groups to entire societies or cultures - rationalize the nonsensical so as to maintain culturally accepted, normalized delusions. Examining the problem of illness symptoms that appeared with no physical cause, Sigmund Freud recognized that underlying anxiety was the cause. Jean-Martin Charcot recognized hysteria as a dynamic state of mind as early as the late 19th century yet because it is not a physiological condition it was discounted as a true diagnosable condition. Gordon Holmes, examining the case of “shell-shocked” soldiers observed that one’s mental state is affected by contextual circumstances, commenting that, “even normal persons are suggestible, anyone can walk along a plank lying on firm ground, but may be unable to do so when it spans an abyss.”

Whereas many, if not most, hysteria syndromes can be related to diagnosable psychiatric conditions, not all are. In particular, Ganser Syndrome, resembles the outcome of PCDM, and – curiously, although scarcely scientifically documented across about only 100 cases, it is found to be “more frequent in men in detention or judicial/forensic settings.”

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235 Ibid., 125.


238 Ibid., 170.

239 Ibid., 175.
The preference to illogically uphold delusional societal beliefs through Interpreter-mediated justification, rather than overcome it, is seen in events like Tarantism, in medieval Italy, the late 17th-century Salem witch hunts, and the “Phantom Bus Terrorist Scare” (PBTS), in Vancouver, Canada in 2004. This last example deserves greater discussion - not only because of how recently it happened - but because the details of this case show many aspects of PCDM in action. Official reaction to the PBTS shows how our previously held expectations condition beliefs even when what we believe is challenged by new information that weakens or even contradicts the expectation driven belief. Despite the evidence, we will continue to want to hold on to our original (expectation derived) belief. It also shows the power of the in/out group dynamic in which authorities and the media consistently overlooked objective evidence proving the event to be a case of mass hysteria, and insisted it was a terrorist attack simply because, they claimed, “experienced paramedics could not be the victims of mass-hysteria.”

Robert Bartholomew and Peter Hassall explain that a “key factor driving most wish manias is the fallible nature of perception.” Carota concludes that certain forms of hysteria could be the result of pre-conscious motor planning (i.e.:

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240 Bartholomew and Hassall, A Colorful History of Popular Delusions, 161.

241 Ibid., 164.

242 Ibid., 152.

243 Ariely, Predictably Irrational, 206-208.

244 Ibid., 155.

245 Bartholomew and Hassall, A Colorful History of Popular Delusions, 86.
movement), or modality-specific attention\(^{246}\), which - on the face of it - sounds like plausible cause for hysteria induced PCDM for jurors deliberating ID cases. Indeed, Ariely observes that, “Our own behavior can be influenced by our stereotypes.”\(^{247}\)

In other words, our desire to believe that something impossible is real causes us to exploit the gaps in our perception and then imbue the flawed perception with the weight of truth. So, if one believes a sane mother could never knowingly or intentionally harm or kill her child before encountering the evidence of a filicide, that pre-existing expectation will influence the way one perceives and evaluates the evidence.\(^{248}\) This happens without conscious awareness, similarly to the pre-cognitive decision-making process elsewhere described in this paper. Also, like PCDM, it leads to people insisting on the correctness of what they believe even when it has been shown what they believe is the truth is wrong.

\(^{246}\) Carota and Calabrese, “Hysteria around the World,” 178.

\(^{247}\) Ariely, *Predictably Irrational*, 213.

\(^{248}\) Ibid., 211.
In this chapter I present a quantitative, statistics-based approach to verify the hypothesis that juries and jurists respond differently to the Insanity Defense as opposed to other types of cases. The objective of this approach is to confirm that juries and jurists make decisions in these cases differently from other cases by looking for results that do not confirm with typical levels of bias as found in other cases. The intent of this survey is to provide, “quantitative or numeric description of trends, attitudes, or opinions of a population… (and)…from sample results… (to) generalize or make claims about the population”, thereby providing an objective numerical analysis of this effect on the protected population of juries.

The American system of jurisprudence protects the jury and its deliberations from outside examination. Therefore, it might seem impossible or at least very difficult to obtain quantitative verification of the hypothesis that juries are biased in their evaluation of Insanity Defense cases. Access to jury deliberations is limited. Typically the only reports on deliberations come from jurors themselves after the jury has been dissolved. The reports are thus unscientific, based upon subjective account and hearsay. As a result one cannot use the reports to reliably establish understanding of the jury’s reasoning or decision-making process. In general, research on juries tends to be conducted in mock situations designed to test specific hypotheses about juries. As described elsewhere in this thesis no substantial research exists on jury

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deliberations in ID cases. The relative lack of frequency of such cases (as explored earlier in this paper) suggests it is not worth the trouble to investigate.

To overcome these difficulties this research uses a mathematical approach that renders verification of whether juries respond differently to ID cases possible by looking for differences in effect of bias on jury verdicts. This approach first establishes a baseline of standard levels of bias in jury-decided cases, using six standard measures of bias. By examining the result of an entire jury, rather than individual jurors, we eliminate the difficulty of establishing the individual demographic identity of each juror. Furthermore, this approach normalizes degrees of bias by comparing seated juries that, by definition, are reflective of society as a whole. Thus outlier effects are eliminated and, as we add more juries to the sample group, reliable degrees of bias are established. After establishing these values, I separate cases in which the Insanity Defense was used resulting in a verdict and compare these results against the pre-established baseline. Any variation from the baseline confirms the hypothesis; no variation shows that jurors do not respond differently to ID cases as compared to others.

Method

While considerable quantitative research exists showing the effect of jury bias on case outcome, none of it exists for NGRI cases. Therefore, I propose to combine the results of several studies or meta-studies of jury bias, establishing the mean effect of jury bias under controlled circumstances, with actual court data of NGRI cases to determine whether the mean effect of jury bias extends over cases in which the NGRI is used. Using experimental data, focusing on capital crimes cases, I will express the
mean effect of six aspects of defendant identity that result in demonstrable jury bias on case outcomes on a scale between $-1$ and $0$, where $-1$ shows the greatest effect and 0 shows none. I will examine the identity of defendants of actual NGRI cases using the same six aspects of defendant identity and examine how the outcomes of those cases correlate to the aggregated results of the experimental work examining jury bias.

This research has three parts:

- Collect data on jury bias research and data on NGRI jury trials
- Aggregate the data on collected jury bias research
- Plot and analyze the data of the aggregated jury bias research and data from NGRI trials.

This model uses five existing studies or meta-analyses to provide salient baseline data on levels of bias for this analysis; others can be found to enrich the aggregated data set to be used as the source of controlled experimental data. The studies are:

- The Effects of Physical Attractiveness, Race, Socioeconomic Status, and Gender of Defendants and Victims on Judgments of Mock Jurors: A Meta-Analysis

The six aspects of identity I use to study the effect of jury bias are:

- Gender
- Race
- SES
- Education
- Marital-status
- Physical Attractiveness

The investigation will be limited to shared data types, and, to test the model, I propose a small-scale examination focused on the cases of murder.

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The data of actual NGRI court cases exists and can be obtained through a records request or on restricted-access database. For this study, data will be obtained from the National Archive of Criminal Justice Data State Court Processing Statistics, 1990-2009: Felony Defendants in Large Urban Counties.255

Although not required for the successful conclusion of this research, and if it can be completed within the time scope of this thesis, I also recommend attempting to obtain NGRI case records covering a period of at least 10 years from at least one of the five most populous States in an effort to increase the size of my data set. I sort this empirical data on the basis of the six aspects of identity, previously described in this thesis, and use them as a control applied to a graph measuring the result.

Jury bias is not the only kind of bias. Identity type may influence whether a person will be arrested and brought to trial. This possibility lies beyond the scope of the thesis. We shall assume that all defendants were equally likely to be guilty of the crime for which they were tried. Under this assumption, if there were no jury bias, the fraction of guilty verdicts would be independent of the identity type of the defendant.

In an ideal society, one expects that arrests and prosecutions are based on reasonable evidence that the crime has been committed by the defendant. Therefore, the expected fraction of convictions should be large. Here, we are interested in the deviations from this rate, how it might depend on identity type, and particularly whether the deviations, if any, for NGRI convictions are different from the deviations for non-NGRI cases.

As an example, if the conviction rate in the absence of jury bias (call this the

unbiased conviction rate) were 60%, there would be 60 convictions for every 100 trial decisions. Suppose the identity type Gender is varied, and all the other types are held fixed. Continuing the example, suppose the data shows 75 convictions for trials of 100 males, and 50 convictions for trials of 100 females. That is, $75 - 60 = 15$ and $50 - 60 = -10$. In this case, there would be 15 more convictions of males than expected; of females 10 fewer than expected. One could infer that there is substantial jury bias favoring females.

While data exist for conviction rates, it does not exist, as far as I know, for the underlying unbiased conviction rate (which was taken to be 60/100 in the example). Unfortunately, the unbiased conviction rate is not known. One way to eliminate the dependence of the data on the fraction of convictions that corresponds to bias-free decisions is to examine differences. The difference between the number of convictions for males and females does not depend on the unbiased conviction rate, because the unbiased convictions cancel out in the difference. That is, $75 - 50 = 25$, whatever the unbiased conviction rate might be.

In the absence of jury bias, the conviction rates would be the same and the difference would be 0. If juries were totally biased - say convicting a male every time and rendering a “not guilty” verdict for every female, then, in our example, the difference would be $100 - 0 = 100$. The numerical statistic that would be used to estimate jury bias is the difference in conviction rate divided by the number of trials for the identity type. This will be a number between $-1$ and $1$. The farther this number is from 0, the greater the degree of bias. The sign of the number shows the direction of bias. In the example, positive numbers show bias against males; negative numbers show bias against females.
Some notation will make it easier to express this idea. Let $G$ (type) be the number of defendants of type convicted by a jury for every $N$ trials. Suppose that $N$ is the same for the identity types being compared. In our example, $G$ (male) = 75 and $G$ (female) = 50. The jury bias is:

$$B = (G(\text{type1}) - G(\text{type2})) / N$$

For the example, “type1” = “male” and “type2” = “female”, and the measure of jury bias is:

$$B = (75 - 50) / 100 = 1/4 = 0.25$$

Thus, $B$ can be calculated for NGRI cases and it can be compared with the non-NGRI data. If the numbers are similar, that can be interpreted as evidence that jury bias is independent of the plea of NGRI.

The reliability of this comparison, and of the measure $B$ (Bias) upon which it is based, will increase as more data is accumulated. The confidence level can be estimated using standard statistical procedures, based on the assumption that the error is normally distributed. The normal distribution is determined by the mean and standard deviation of the data. One would calculate these to determine the distribution. While confidence levels of 95% and 99% are not unusual in other fields, studies of juries (see above) have shown that juror’s threshold for determining the guilt or innocence of a defendant is at or below 90% probability, and thus equivalent to certainty.\textsuperscript{256} Therefore, I recommend evaluating confidence at the 90% level.

It would also be interesting to compare the jury bias estimator over a range of identity types and for situations where more than one type factor varies. For example:

(Male/Black/Poor/No HS degree) compared to: (Female/White/not Poor/HS degree).
In all, for the 6 identity types, there are 64 combinations.

I propose comparing ratio results and applying Standard Statistical sign analysis to determine their correlation ratio (at 90% agreement).

Finally, one would compare the distribution of both data sets to determine whether various types of NGRI defendants as a group fair better or worse due to jury bias. [For example, do white female child-killers (matricide) NGRI defenses succeed more frequently than white male child-killers (patricide) NGRI defenses.]

My research is designed to establish baseline results to which data from other States can be added. The purpose of this approach is to allow for refinement of the research model and also to either dilute any regional effects, or identify regional, geographic or other meaningful differentiators through subsequent research.

Research Limitations

Self-imposed limitations to this area of research: I recommend restricting the area of research to a limited data of NGRI case results available from the National Archive of Criminal Justice Data State Court Processing Statistics, selecting data from one State over a period of not less than 10 and not more than 50 years. Data should be analyzed according to standard definitions of jury bias. NGRI defendants will be identified by gender, race, and socio-economic identity (which may include salient sub-categories of identification such as level of education). The particulars of cases will not be considered and jurors or juries will not be specifically identified.
Conclusion

The intent of the design of this quantitative approach is to be able to discern the effect of bias by jurors on Insanity Defense cases so that the researcher can verify the qualitative data suggesting that in ID cases juror decision-making is strongly influenced by non-cognitive processes that take place before jurors cognitively deliberate upon evidence, and that the non-cognitive processes include one (the Interpreter) that predisposes jurors to cognitively confirm their pre-cognitive decision even when the decision is incorrect. Thus, this quantitative approach does not seek to verify whether jurors are more or less biased in ID cases, but rather it seeks to show a difference in bias as evidence of the effect of pre-cognitive decision-making.
Chapter VI

Guilt by Association on the Neuronal Level

Given the degree to which pre-cognitive neuronal processes direct the thinking and action of people, Simon Baron-Cohen’s investigation on the role of empathy\(^{257}\) in human relations and his finding that one’s degree of empathy (of which there are 7)\(^{258}\) correlates with cruelty is applicable to understanding why juries and jurists can have difficulty correctly evaluating or determining verdicts in Insanity Defense cases. Baron-Cohen argues that empathy occurs when one is successful at simultaneously holding in one’s awareness the mind (thoughts and feelings) of another, as well as one’s own mind.\(^{259}\) Here Graziano defines “awareness” as, “the process by which a subjective conscious experience, an awareness of something, can physically impact the information-processing systems of the brain.”\(^{260}\) However, when awareness of the other and self is held simultaneously not all of the available information will be brought into awareness for the simple reason of a lack of available “bandwidth.” Graziano describes the method by which that which is brought into awareness and treated by the conscious mind as a competition of signals, with the strongest signals directing cognitive attention to the stimulus,\(^{261}\) to the exclusion— or

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\(^{258}\) Ibid., 25-29.

\(^{259}\) Ibid., 18.


\(^{261}\) Ibid., 61.
at least diminished significance– of other signals. Thus, our ability for empathy makes sense of the idea that defendants have the right to a trial by a jury of her/his peers, and strong empathy signals enable jurors to determine a state of mens rea, motive, intent and ultimately verdict of criminal culpability of the defendant.

However, one’s degree of empathy turns out not to be a fixed value. Here Baron-Cohen’s description of the “empathy circuit”\textsuperscript{262} seems particularly pertinent to this discussion, as it shows not only how the upbringing, genetics\textsuperscript{263} or degree of socialization of an individual affects their empathy in all instances, it also reveals how the degree of one’s empathy is subject to temporary conditions. Baron-Cohen describes how one’s empathy (or identification with) another is contingent upon criteria that are subjectively evaluated by an individual. The subjective evaluation, Baron-Cohen explains, can be influenced by temporal transient emotions\textsuperscript{264} that are specific to a situation (such as listening to testimony of the acts of an ID defendant, or deliberating, subject to the forces of group-dynamics, in a closed jury-room), and as such can provoke one to act with less empathy than normal. The atypical, unnatural, and uncommon situation of serving on a jury certainly falls into the category of events that can change one’s degree of empathy, and the degree of empathy of jurors who are removed from their daily life condition, are charged to contemplate the anti-social behavior of a defendant, and must work under the pressure of group dynamics that form within a group of people not of their choosing can be expected to be different from their habitual level of empathy only for the duration of the trial. It is

\textsuperscript{262} Baron-Cohen, The Science of Evil, 171.

\textsuperscript{263} Ibid., 130-146.

\textsuperscript{264} Ibid., 7, 21-22.
this temporary change in empathy a skilled attorney addresses with the rhetorical presentation of the facts of a case.

The report by Kassin and Wrightsman of the attitude of a trial attorney that “There isn’t a trial lawyer in the country who wouldn’t tell you - if he were being honest - ‘I don’t want an impartial jury. I want one that’s going to find in my client’s favor’”265 reflects the observation that juries are not impartial, but are composed of biased individuals. Further, it suggests that among the criteria smart attorneys might use to select favorable jurors is that juror’s natural degree of empathy or resistance to condition-based changes in degree of empathy. The research presented in this paper bears out the truth of this observation by identifying the underlying condition of pre-cognitive decision making (PCDM) that jurors and jurists employ when evaluating ID cases. Furthermore, understanding the role of, and how ubiquitous is, PCDM in human relations adds a new dimension to understanding the design of the American adversarial trial system that encourages bias at every step: The prosecutor is biased toward the guilt of a defendant (or would not have brought the charge). The defense attorney is biased toward the innocence of his or her client (else would not be able to act effectively in her/his defense). This research shows a powerful reason why attorneys do not seek impartial juries is also because a juror’s first evaluation of evidence typically is affected by the juror’s degree of empathy and, thus, is not objective. It also shows that subsequent deliberation by the juror is unconsciously biased toward confirming the juror’s first (and potentially flawed) evaluation rather than challenging it. Therefore, the goal of the attorney is first to create a jury that is biased in favor of his client, and then to play to juror’s biases (to the extent possible)

to obtain a favorable outcome for her/his client. However, if the intent of American jurisprudence it to determine a just outcome, then, obviously, this approach to jurisprudence allows for fundamental injustices to occur by reinforcing a biased view of the defendant or her/his defense by jurors and jurists.

To be clear, bias is inherent in how people perceive others, and this bias allows for errors of judgment to occur. Leonard Moldinow reminds us that “Though your evaluation of a person may feel rational and deliberate, it is heavily informed by automatic, unconscious processes… The challenge is not how to stop categorizing but how to become aware of when we do it in ways that prevent us from being able to see individual people for who they really are.”

Graziano cites an accumulation of convincing research that human consciousness and decision-making is directed pre-cognitively, and that people confirm – rather than challenge – the incorrect ideas about reality that have entered their awareness, and then describes how and why when humans construct awareness of the attentional state of others, errors of understanding will be systematically introduced. Benforado points out that the societally reinforced juror attitude that criminals are willfully responsible for their acts creates a pre-conception of defendant guilt which jurors will not - or perhaps can not - easily overcome.


267 Graziano, Consciousness and the Social Brain, 121-123.

268 Ibid., 104-105.

Eliezer Sternberg cites research by Kreiman, Koch, and Fried in 2000\textsuperscript{270} that found specific neurons respond to specific highly associated information.\textsuperscript{271} While the research in question tested auditory, aural, and visually experienced stimulus (either the reading of a name or viewing an image of it) of specific people or things, it revealed that the neurons were actually responding to concepts. Words, sounds or images that referred to the same concept ignited the same neuron. This finding is meaningful in the understanding PCDM because it shows how people can make the wrong decision in a specific instance when the stimulus triggering the decision is associated with a particular concept – even when the concept has no particular relevance to the case at hand. In light of the work on Implicit Bias by Banaji and Greenwald (cited earlier in this work), Sternberg’s finding is damning, for it explains that people judge others pre-cognitively, automatically, and largely on the basis of associating an individual with other concepts. Thus, if we are conditioned to believe dark is “bad” (see Banaji and Greenwald), then - well before considering evidence pointing toward guilt or innocence - we readily associate dark-skinned individuals as “bad”. Similarly if we associate mothers with “good” (for their life-giving, nurturing, and societally stabilizing role) we less readily associate filicidal women as criminal (see the work of Perlin and Ricouer), and– well before considering evidence pointing toward guilt or innocence– more readily associate her behavior as that of an insane person.


This explains why pre-cognitive decision-making is problematic in challenging and atypical situations such as evaluating an ID– for if the jury is unaware it is acting with Baron-Cohen’s diminished empathy, it is more likely not accurately evaluating the culpability of the ID defendant. The jury is therefore more also more likely to arrive at a verdict that is automatically triggered by emotion or uncogitated “hunch”, rather than a cognitive and deliberated decision. Finally, the understanding the jury or jurists have of the degree or nature of awareness of the defendant is likely to be at least somewhat incorrect. As such, the likelihood of a flawed or an even unjust verdict is increased. While society might feel that the outcome of such cases is as well decided pre-cognitively, uncritically– and thus, arguably, without achieving the goal of serving justice, I argue that it is not only the outcome of the most extreme cases in American jurisprudence which are affected. Indeed, because PCDM is ubiquitous in human relations it can be presumed to have effect on the outcome of other– if not all– cases. Further study of the effect of pre-cognitive decision-making on justice seems warranted.

In closing, I note the troubling question proposed by the statement by Adam Benforado on the American system of jurisprudence in jury cases that consider the Insanity Defense (and perhaps other defenses as well) when he writes: “Our system of justice celebrates the talents of the amateur, giving him or her the vital role of determining the facts of the case and applying relevant law.”272 For, what if the very non-expert nature of juries means that they can not always function properly - by determining facts and applying law - when they are confronted with the most horrible

of crimes and an easy excuse: that the defendant is not sane? Could that mean that they, in effect, allow such defendants to get away with murder?
Bibliography

Works Cited


Works Consulted


Stephens, Greg J., Lauren J. Silbert, and Uri Hasson. “Speaker–listener Neural Coupling Underlies Successful Communication.” Proceedings of the National


