Actus Reus, Mens Rea, and Brain Science: What Do Volition and Intent Really Mean?

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Actus Reus, Mens Rea, and Brain Science: What Do Volition and Intent Really Mean?

Erica Beecher-Monas
Edgar Garcia-Rill

ABSTRACT

The foundational elements of criminal law, actus reus and mens rea, are vague, imprecise, and indeterminate categories that are based on outdated notions about human behavior. These confused categories affect not only what legally constitutes choice, volition, and intent, but also the defendant's ability to present evidence (since the categories define the evidence that will be admissible), and ultimately, criminal liability. In this Article we explain how neuroscience allows us to reconsider these legal concepts and conceive a more informed view of human behavior (and therefore criminal liability). The Article explains how distortions in brain function affect the way people perceive reality and how that distortion affects their choices, volition, and intent. It proposes that a more expansive category, encompassing both foundational elements but with a more expanded definition of choice, volition, and intent, would enable judges to permit the mentally ill accused to present scientifically valid expert testimony about how their illness affects behavior so that the jury will be able to reach an informed decision.

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1 Editor's Note: Professor Erica Beecher-Monas was Professor of Law at Wayne State University until her untimely passing during the summer of 2017. KENTUCKY LAW JOURNAL is honored to have the opportunity to publish this Article as a tribute to her memory and to her contribution to the legal field. Additionally, we appreciate the assistance of co-author, Professor Edgar Garcia-Rill, throughout the publication process.

2 Professor of Neurobiology and Director of the Center for Translational Neuroscience, University of Arkansas for Medical Sciences.
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INTRODUCTION

Every law student is taught that criminal law is based on two concepts, actus reus and mens rea. Traditionally translated as twin requirements that the accused committed a guilty act with a guilty mind, the meaning of these concepts is far from clear. Each category is fuzzy, indeterminate, and overlaps the other. The boundaries of these categories may appear easy to define, but in reality they are fluid, changing, and very much a product of the culture in which the judge resides. As a result, the courts' definitions are ambiguous, inconsistent, and fail to reflect the real world in which people must make decisions. Most importantly, these dual categories ignore the way our decision-making organ, the brain, works.

The actus reus is defined as some prohibited act; the conduct must be both conscious and voluntary. So, for example, the Model Penal Code excludes from its definition of voluntary act: sleepwalking, reflexes, conduct under hypnosis or hypnotic suggestion, and bodily movement that is not a product of the effort or determination of the actor. But this leaves many questions unanswered. What is an act? What is volition? If volition implies choice, does volition occur before or after the actual muscle contractions that constitute an act?

Mens rea is the state of mind required for the voluntary act. Criminal law requires mens rea to limit responsibility to those people who choose to do wrong. The Model Penal Code entitles its mens rea section “General Requirements of Culpability” and defines mens rea by delineating levels of culpability. It defines “purposefully” as having the conscious object of engaging in conduct, “willfully” as being synonymous with “knowingly,” and “knowingly” as acting with “aware[ness]”

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3 The Supreme Court expressed this dual nature of criminal liability, explaining that “[c]rime[ is a compound concept, generally constituted only from concurrence of an evil-meaning mind with an evil-doing hand.” Morissette v. United States, 342 U.S. 246, 251 (1952).
4 See Frances Bowes Sayre, Mens Rea, 45 HARV. L. REV. 974, 974 (1934) (noting that “[f]or hundreds of years the books have repeated with unbroken cadence that Actus non facit reum nisi mens sit rea. . . [M]eaning[,] . . . [however], [is] in hopeless disagreement”).
6 See infra Section II.C.
7 See infra Section II.D.
8 See JOHN M. BRUMBAUGH, CRIMINAL LAW AND APPROACHES TO THE STUDY OF LAW 115 n.1 (Found. Press 3d ed. 2001) (discussing the necessity of a voluntary act).
9 MODEL PENAL CODE § 2.01(2) (AM. LAW INST., Official Draft 1985).
10 The experiments of Libet appear to cast doubt on when exactly the consciousness of choice to move a muscle occurs, contending that the choice to act is made unconsciously, before the person is aware of his choice. See infra notes 104–105 and accompanying text.
11 See Sayre, supra note 4, at 974, 985, 994.
12 See id. at 989–1004.
of engaging in the conduct under the defined circumstances of the offense and "practically certain" that the conduct will result in the proscribed act or "aware" that there is a high probability that it will. Crucially, however, it does not describe or limit the bounds of what knowingly, willfully, or awareness actually mean. These terms seem self-evident, but there is a lot of slippage. Knowing that you are pulling the trigger or knowing that you are killing a person? Willing to fire the gun or deciding to respond to your perceived reality? Were you aware before the act or as it was happening? Here the courts focus on ambivalent concepts like general and specific intent.

Although the Model Penal Code brought much-needed clarity to the concepts of actus reus and mens rea, it has by no means solved the conceptual problems of what kinds of things should fall into the categories of volition, intent, and choice. For one thing, the Model Penal Code continues to separate volition from intent. These are not really separable concepts. People with disturbed brain function may have neither volition nor intent. Moreover, both conscious, voluntary conduct (actus reus) and the various levels of intent (mens rea) require a reasoning process relating what the person perceives to be reality with the situation within which he must act (or not) and how. This reasoning, or imaginative process, may be greatly altered if the brain is not functioning correctly. For example, a smile may be perceived as a sneer or an innocuous conversation perceived as an existential threat. In other words, the law attempts to separate categories that are not really separable.

Moreover, the legal meaning of choice, intent, and volition originated, not from empirical studies about human brains and behavior, but from ungrounded beliefs about human nature. Despite a paradigm shift in understanding human behavior that has occurred through new developments in neurobiology, the law still operates on outdated nineteenth century assumptions about how human beings function. As a result, the categories into which some of these human actions belong are porous and indeterminate. The separate legal categories of actus reus and mens rea and their meanings reflect outdated assumptions about human nature and the objectives of criminal justice.

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14 MODEL PENAL CODE § 2.02 (AM. LAW INST., Official Draft 1985). Recklessly is defined as disregarding a "substantial and unjustifiable risk" that the conduct is prohibited or will result in a prohibited consequence. Id. § 2.02(2)(c). Criminal negligence exists when a reasonable person would or should be aware of a "substantial and unjustifiable risk" that the conduct or consequence is prohibited. Id. § 2.02(2)(d). Strict liability crimes, on the other hand, do not require mens rea. Id. § 2.05.

15 See id. § 2.02.

16 See infra Section II.D.


18 See infra Part I.

19 See infra Parts I & II.

20 See infra Parts I & II.

21 See infra Part II.

22 See infra Part II.
This creates a problem for the courts. Even though the Model Penal Code provides that "[e]vidence that the defendant suffered from a mental disease or defect is admissible whenever it is relevant to prove that the defendant did or did not have a state of mind that is an element of the offense," most courts exclude such evidence as irrelevant to mens rea. Only what was said and done—supposedly objective manifestations of the accused's mens rea are deemed to fall into the category; any explanation of how the accused's disease may have affected his manifest actions, and therefore his perceptions of reality—his illness—is excluded. Under the rubric of irrelevance, most courts exclude mental state evidence that would negate intent. Sometimes this is because the legislatures have eliminated the defense of diminished capacity. Sometimes it is because courts put state of mind testimony into the category of "mini-insanity defense," and sometimes it is because the courts (like most people) distrust psychiatric and psychological experts.

The Supreme Court certainly does, since it opined that:

[I]f the same evidence that affirmatively shows he was not guilty by reason of insanity . . . also shows it was at least doubtful that he could form mens rea, then he should not be found guilty in the first place; it thus violates due process when the State impedes him from using mental-disease and capacity evidence directly to rebut the prosecution's evidence that he did form mens rea.

In one significant case, the Supreme Court found that these risks were present in the "controversial character of some categories of mental disease, in the potential of mental-disease evidence to mislead, and in the danger of according greater certainty to capacity evidence than experts claim for it." The Court voiced concerns that psychiatric diagnoses could mask vigorous debate within the profession, mislead juries into thinking that diagnoses determine legal categories.

26 See discussion and cases infra Section II.D.
27 See discussion and cases infra Section II.D.
28 See discussion and cases infra Section II.D.
29 See, e.g., CAL. PENAL CODE § 28(b) (West 2018) ("As a matter of public policy there shall be no defense of diminished capacity, diminished responsibility, or irresistible impulse in a criminal action or juvenile adjudication hearing.").
31 See, e.g., State v. Bouwman, 328 N.W.2d 703, 706 (Minn. 1982) (citations omitted) ("To the psychiatrist mental cases are a series of imperceptible gradations from the mild psychopath to the extreme psychotic, whereas criminal law allows for no gradations. It requires a final decisive moral judgment of the culpability of the accused. For the purposes of conviction there is no twilight zone between abnormality and insanity. An offender is wholly sane or wholly insane.").
(explaining that the experts disagreed about the accused's capacity to tell right from wrong), and cause jury confusion through "impermissible leaps in logic made by expert witnesses."\(^{32}\)

Why the Supreme Court distinguished psychiatric diagnoses from all other medical diagnoses (which, although suffering from the same frailties, are routinely admissible in court\(^ {33}\)), the majority did not say.\(^ {34}\) Nor did it explain why the Supreme Court found the accused's diagnosis troubling when the prosecution expert did not.\(^ {35}\) Moreover, the majority's view seems a rather unwarranted disparagement of the entire psychiatric profession.\(^ {36}\) One would have thought that the Supreme Court would at least engage in the kind of validity inquiry they prescribed in Federal Rule of Evidence 702 and its own *Daubert* decision to evaluate expert testimony.\(^ {37}\)

Without any analysis of the validity of the proffered testimony or of the empirical support for the opinions of the defendant, Clark's, mental health expert, the Court simply castigated psychiatry as a whole, finding the risks of psychiatric diagnoses grave enough to overcome any due process concerns.\(^ {38}\) The Court also highlighted its fear that, if believed, the expert's testimony on *mens rea* could cause a defendant to be acquitted or convicted of a lesser offense, while if it were channeled into the insanity defense there would be an automatic commitment.\(^ {39}\)

But as Kennedy's dissent (joined by Stevens and Ginsburg and in part by Breyer) argues, this kind of categorical rejection of psychiatric testimony to negate the *mens rea* element of a crime prevents the defendant from presenting evidence relevant to his defense and impermissibly shifts the burden of proof on an element of the crime to the defendant.\(^ {40}\) Even the majority acknowledged that unless the risks of such testimony outweighed the benefits, if it was relevant to *mens rea*, it


\(^{34}\) See *Clark*, 548 U.S. at 744-45, 759-61.

\(^{35}\) See *id.* at 757-59, 773-77.

\(^{36}\) See *id.* 773-78.

\(^{37}\) In *Daubert*, the Supreme Court gave the courts guidance on evaluating the admissibility of expert testimony, suggesting that judges examine the qualified expert's theory for its testability, its error rate, whether it has been subjected to peer review and publication, and whether it has met with general acceptance in the scientific community. See *Daubert*, 509 U.S. at 593-94 (requiring judges to take a gatekeeping role with regard to scientific evidence). Rule 702 of the Federal Rules of Evidence was subsequently amended to require that judges examine whether "the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue." *Fed. R. Evid.* 702(a). In addition, the expert's testimony must be "based on sufficient facts or data" and be "the product of reliable principles and methods" which were "reliably applied . . . to the facts of the case." *Id.* 702(b)-(d).

\(^{38}\) See *Clark*, 548 U.S. at 773-78.

\(^{39}\) See *id.* at 767-71.

\(^{40}\) *Id.* at 794-97 (Kennedy, J., dissenting).
should come in. Instead, the Court focused solely on potential to mislead the jury—ignoring all the other factors that need to be addressed in a validity determination—and upheld the banned mental state testimony for negating mens rea as misleading. Consider three cases in which mental state testimony was proffered to negate mens rea. All three cases involve diagnoses of paranoid schizophrenia. Although people with paranoid schizophrenia are known to have distorted perceptions of reality and frequently suffer delusions and hallucinations, testimony about how this condition may have affected the accused’s conduct was excluded as irrelevant. The people involved are troubled people, paranoid schizophrenics, who did terrible things. But they are also stories about people with malfunctioning brains who were not allowed to present a complete defense to the jury because of evidentiary rulings that deemed their mental disease irrelevant to the element of intent.

A teenager who had been in and out of mental institutions since childhood, diagnosed with paranoid schizophrenia, acting bizarrely and convinced that aliens had invaded, drove around his neighborhood playing loud music until a policeman appeared in response to neighbors’ 911 calls. The young man shot the officer, believing him to be an alien. The murder statute under which the young man was charged required the knowing killing of a police officer. The court deemed that evidence about paranoid schizophrenia, proffered to negate mens rea, was irrelevant. This expert testimony was also excluded as irrelevant to the insanity defense because the statute limited that defense to the accused’s ability to know that his act was wrong.

A young mother, treated and hospitalized repeatedly for paranoid schizophrenia, drowned her young son in the bathtub because, as she told police, the social interactions and obligations of motherhood were too overwhelming. She thought about her actions for days and planned the murder in detail. That

41 Id. at 773–74 (acknowledging that “if the same evidence that affirmatively shows he was not guilty by reason of insanity... also shows it was at least doubtful that he could form mens rea, then he should not be found guilty in the first place;” but contending that there are “characteristics of mental-disease and capacity evidence giving rise to risks that may reasonably be hedged by channeling the consideration of such evidence to the insanity issue”).
42 See id. at 768–71, 773–78.
44 See Clark, 548 U.S. at 743, 745–46; Bethel, 66 P.3d at 843; Tempest, 437 A.2d at 954.
46 Clark, 548 U.S. at 744–45; Bethel, 66 P.3d at 844; Tempest, 437 A.2d at 954–55.
47 Clark, 548 U.S. at 742–44; Bethel, 66 P.3d at 842–43; Tempest, 437 A.2d at 953–54.
48 Clark, 548 U.S. at 742–45.
49 Id.
50 Id. at 743–44.
51 Id. at 743–45.
52 Id. at 743–46.
54 Id. at 955.
was sufficient, according to the court, to make any evidence about her mental illness irrelevant to negating *mens rea*.55 

Another young man killed his father, step-mother, and health aide because, he said, God commanded him to aid in their transition to reincarnation as younger, better versions of themselves.56 This young man had also been diagnosed as a paranoid schizophrenic.57 Mental state evidence of his mental illness was similarly excluded as irrelevant to the question of intent.58 

In each of these cases, the requisite element *mens rea* was found and the defendants were convicted.59 In each case, expert testimony that might have explained why the defendants could not have knowingly or purposefully acted as they did was excluded as irrelevant.60 This excluded evidence could have explained the distorted and delusional world that schizophrenics must navigate and how the schizophrenic state of dreaming while awake impairs choice and intent. 

In general, when judges find mental state evidence inadmissible, as they do with increasing frequency, it is not on the basis of unreliability.61 There are few, if any, *Daubert* or Rule 702 (or its state equivalents) hearings62 on the reliability of mental state testimony.63 Rather, the courts exclude such testimony as irrelevant to the legal question.64 But if these courts are really worried about the unreliability of mental health testimony, they should resort to the rules on expert testimony rather than the subterfuge of relevance. 

The Federal Rules of Evidence define relevance as having “any tendency to make a fact more or less probable than it would be without the evidence” as long as “the fact is of consequence in determining the action.”65 Although evidence about paranoid schizophrenia would appear to make the accused’s choice and intent to kill less probable, it was excluded in each of these cases, and in far too many cases

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55 Id.
57 Id.
58 Id. at 843–45.
60 Clark, 548 U.S. at 744–45; Bethel, 66 P.3d at 844–45; Tempest, 437 A.2d at 954–55.
63 See GARY B. MELTON ET AL., *PSYCHOLOGICAL EVALUATIONS FOR THE COURTS* 21–22 (4th ed. 2018) (explaining that about twenty states still adhere to some version of the *Frye* rule and that courts are hesitant about applying the *Daubert* standard rigidly when assessing admissibility of testimony from mental health professionals).
64 Clark v. Arizona, 548 U.S. 735 (2006), is an example of this kind of thinking, where the trial judge refused to consider expert psychological testimony of the accused's paranoid schizophrenia as irrelevant to the legal questions of both *mens rea* and Arizona's definition of insanity (ability to distinguish right from wrong).
65 FED. R. EVID. 401.
in which it is proffered to negate mens rea. Rule 702 and Daubert, on the other hand, require inquiry into the particular expert’s background, and the empirical support for the conclusion. These defendants did not get that particular inquiry.

This matters because the upshot is that the jury does not get to hear important facts to assess the meaning of the accused’s actions. Lawyers who proffer experts to explain how paranoid schizophrenia affects volition and intent frequently run into the formalism of judges who interpret legal definitions very narrowly. Purposely and knowingly, like willfully, have many definitions, and may mean one thing in a healthy person and something entirely different in a person with a diseased mind. Formalistic judges tend to find scientific explanations for how the brain works and how people think and act irrelevant to questions of volition and intent. But words like purposely and knowingly need to be interpreted in context and part of that context is the actor’s state of mind.

As the Supreme Court remarked, “Willful . . . is a word ‘of many meanings, its construction often being influenced by its context.” The same could be said about knowingly, purposefully, and awareness. Courts need not define mens rea as narrowly as they have been doing, and this Article attempts to provide a more realistic view of human decision making and how it is relevant to the issues of actus reus and mens rea.

Following this Introduction, in Part I we describe how distortions in brain function affect perceptions of reality and how that distortion affects volition and intent, as well as choice. In Part II, we examine how the courts have dealt with actus reus and mens rea to create a quagmire of ambiguous and inconsistent results. We also describe how nineteenth century assumptions about human behavior pervade the way the courts treat mental state testimony. In Part III, we explain why understanding how the brain works is indispensable to any decision about choice, volition, or rationality. In Part IV, we propose changes in the way courts address questions of volition, choice, and intent. In Part V, we conclude that knowledge of how people behave is inextricably bound to legal purposes, aims and goals, and that justice requires an up-to-date neuroscientific understanding of volition and intent.

66 See supra notes 43–47, 59–60 and accompany text.
68 See GRANT GILMORE, THE AGES OF AMERICAN LAW 60–67 (Yale Univ. Press 1977) (explaining the nineteenth century notion that law is a “closed, logical system,” which judges declare but do not create, and noting “the quality of abstraction which came to characterize most legal writing seems like the mirror image of the idealized model of the economists”).
69 See MCQUADE, supra note 45 (explaining that delusions, hallucinations, inappropriate stance and movement, loss of volitional drive, loss of ego boundaries, and dissociation from the social environment are typical findings in schizophrenic patients).
70 See, e.g., Steven K. Erickson, Blaming the Brain, 11 MINN. J.L. SCI. & TECH. 27, 27–30 (2010).
I. THE NEURAL UNDERPINNINGS OF VOLITION AND INTENT

Although the law assumes that all humans have the ability to choose their actions, it neither defines free will nor explains how it comes about. Nor does it allow for the context of the decision. The law mostly ignores the basic premise that decisions and choices are contextual—that they are responses to conditions in the social and physical (internal and external) environment. Far from being irrelevant, context is key to assessing what was done and why.

In creatures with a brain—like us—there is a continuous loop of signaling between body and the upper brain stem, which generates mental images and maps of the body. These signals provide a direct experience of the state of one's own living body. This recursive loop of signals results in primordial feelings, "broken only by brain disease or death." When the recursive loop is broken, a person's feelings, thoughts, and actions will be distorted—sick.

How does this happen? One metaphor is that the mind is to thought and action as the orchestra is to music; that is, an emergent property. Just as an orchestra is made up of sections of instruments with individual cooperating players generating music, the brain is made up of groups of cells, each with individual cooperating neurons that generate thought and action. Coloring and guiding the orchestra (like a conductor) is homeostasis—the recursive loop. If the conductor is absent or malfunctioning the music of the orchestra will tend toward cacophony.

A. What Is Consciousness?

Legal theorists tend to agree that one must be conscious in order to be criminally liable. Sleepwalking, epilepsy, and automatism have all been recognized as legal exemptions from criminal liability. In other words, people who are

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72 See Matthew Jones, Note, Overcoming the Myth of Free Will in Criminal Law: The True Impact of the Genetic Revolution, 52 DUKE L.J. 1031, 1032–39 (2003) (discussing free will as a philosophical foundation of criminal law and explaining that "[c]ourts have shown little indication that they are willing to undertake the difficult philosophical, biological, and psychological inquiry necessary to truly formulate an understanding regarding the causes of human behavior" in the context of free will).

73 See id.

74 See ANTONIO DAMASIO, SELF COMES TO MIND: CONSTRUCTING THE CONSCIOUS BRAIN 21 (2010) (addressing two questions: how does the brain construct a mind and how does the brain make the mind conscious).

75 Id. at 22.

76 See id. at 19–32.


78 See, e.g., Jones, supra note 72, at 1032–39.

unconscious lack the necessary element of *actus reus*. But what is consciousness? Waking and awareness are crucial to consciousness.

Our brains, and thus we, have three main living states: waking, sleep, and dreaming sleep. Thousands of neurons in the brain’s cortex send signals (measured by the electroencephalogram or EEG), whose frequencies depend on which of those states we are in. Two-thirds of our lives are conscious, where we are awake, thinking, developing ideas, creating objects, developing relationships, interacting with other people, earning a living, and doing the really important things in life.

But that does not mean sleep is unimportant. We spend a third of our lives asleep, about 80–85% of that in slow wave sleep (“SWS”) and the rest in rapid eye movement (“REM”) or dreaming sleep. Brain disturbances, however, may affect the formulation of our actions well before they have taken place. If we are dreaming while awake or acting while dreaming or asleep, these conditions will affect what we do.

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80 Edgar Garcia-Rill & Christen Simon, *The EEG and the Discovery of the RAS*, in *Waking and the Reticular Activating System in Health and Disease* 17, 19 (Edgar Garcia-Rill ed., 2015). These states are detected using the electroencephalogram (EEG). *Id.* at 17. The full range of waking EEG frequencies include alpha (10–20 Hertz, Hz or cycles per second), beta (20–30 Hz), and gamma (30–90 Hz). *Id.* at 20–21; Edgar Garcia-Rill, *The 10Hz Fulcrum*, in *Waking and the Reticular Activating System in Health and Disease*, supra at 157, 157–70.

81 The following explains how electrical signals in the brain are measured:

Gold cup electrodes with conducting paste are applied to the scalp in a designated [coordinate] system to record the EEG. The electrodes pick up electrical signals from the brain, which are somewhat distorted by the intervening bone and hair. . . [Because of the columnar organization of the cortex], most cells are oriented perpendicularly to the surface, making current flow calculations simple for the gyri, [the ridges on the surface of the cortex], although the presence of sulci, [the furrows of the cortex] creates a complex problem for calculating current flow. In general, the activity of as many as 500,000 neurons over a range of 3–5 square millimeters may be measured by a single [gold cup] electrode. EEG amplifiers, however, typically measure activity that is filtered. The typical high-pass filter settings [on the amplifiers] are at 1 Hz and in some cases 0.1 Hz. This eliminates very slow brain activity and drift in the electrodes, [making records more stable by cutting out very slow waveforms]. The typical low-pass settings are at 70 Hz and in some cases as high as 200 Hz. This [reduces “noise” by eliminate[ing] high-frequency activity. [The EEG amplifier thus looks only at a narrow window of frequencies.] That means that the EEG amplifier has inappropriate band-pass filters for detecting events as fast as the action potentials [of nerve cells], which occur in the 1–2 millisecond range (requiring band pass >1,000 Hz).

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84 See Hall, supra note 83, at 763–72.
i. Sleep

During SWS, the EEG frequencies are in lower frequency ranges below eight Hertz (Hz).\textsuperscript{85} EEG activity at ten Hz is at the transition between waking and sleep.\textsuperscript{86} If the frequency is lower, we are asleep, and if higher, we are awake (or asleep and dreaming).\textsuperscript{87} At low frequencies, we are not aware or conscious.\textsuperscript{88} When we fall asleep, are anesthetized, or comatose, our sense of self vanishes, we have no memory or personality.\textsuperscript{89} At high frequencies we are conscious (with the exception of REM sleep).\textsuperscript{90}

During sleep, every ninety minutes or so, we transition from SWS into REM sleep.\textsuperscript{91} It is during this time that we dream, a byproduct of brain activation without the benefit of external input.\textsuperscript{92} Our body is thankfully paralyzed, except for our extraocular (eye) muscles and diaphragm.\textsuperscript{93} This is the atonia (lack of muscle tone) of REM sleep.\textsuperscript{94}

Our frontal lobes have low blood flow during REM sleep, so we have little critical judgment while dreaming.\textsuperscript{95} Our dreams run the gamut of recalled and internally "manufactured" experiences.\textsuperscript{96} We believe the surrealistic collage of feelings and situations in dreams and accept them at face value no matter how crazy or unreal. While in REM sleep, we basically are suffering from a hallucination, but thankfully we cannot act out our dreams because of the atonia of REM sleep.\textsuperscript{97}

But in people with schizophrenia, their hallucinations have been likened to dreaming while awake.\textsuperscript{98} Low frontal lobe blood flow ensures that critical judgment

\textsuperscript{85} Garcia-Rill, supra note 80, at 158. The range of frequencies in SWS include theta (5–8 Hz) and delta (1–5 Hz). Id.

\textsuperscript{86} See id. 158–59.

\textsuperscript{87} Id.

\textsuperscript{88} Id.

\textsuperscript{89} Emery N. Brown et al., General Anesthesia, Sleep, and Coma, 363 NEW ENG. J. MED. 2638, 2638–50 (2010); see also Garcia-Rill, supra note 82, at 292.

\textsuperscript{90} See Garcia-Rill & Simon, supra note 80, at 17–19; Garcia-Rill, supra note 80, at 157–60, 162–64, 163 fig. 8.1.


\textsuperscript{92} Id.

\textsuperscript{93} Id.

\textsuperscript{94} See Garcia-Rill, supra note 82, at 292; see also Atony, DORLAND'S ILLUSTRATED MEDICAL DICTIONARY (28th ed., 1994) (defining "atony," or "atonia" plural, as "lack of normal tone or strength, such as in a muscle deprived of its innervation").


\textsuperscript{96} Garcia-Rill, supra note 82, at 292; see also, e.g., Erin J. Wamsley & Robert Stickgold, Memory, Sleep, and Dreaming: Experiencing Consolidation, 6 SLEEP MED. CLINIC 97 (2011).

\textsuperscript{97} See Garcia-Rill, supra note 82, at 292.

\textsuperscript{98} See, e.g., W.C. Dement et al., Studies on the Effect of REM Deprivation in Humans and Animals, 45 RES. PUBLICATIONS ASS`N RES. NERVOUS MENTAL DISORDERS 456 (1967); A.N. Mamelak, & J.A. Hobson, Dream Bizarreness as the Cognitive Correlate of Altered Neuronal Brain in
is absent in that condition. Dream content, in all its psychedelic form, is accepted and, worse yet—because there is no atonia—acted upon.

During sleepwalking, the cortex is in SWS and there is nobody home, yet locomotion is released. The sleeping individual goes walkabout without knowing where or why or having chosen to do so. Criminal law traditionally ascribes no culpability for sleepwalking because it lacks actus reus or volition. But what if you are awake but the brain shifts into dreaming?

ii. Free Will and Consciousness

A common definition of consciousness is awareness; if there is no awareness, there is no consciousness. Traditionally, choice to make a movement, for example, implied that we have a conscious will that decides to engage the motor system to then induce the movement. That is reflected in the law's requirement

REM Sleep, 1 J. COGNITIVE NEUROSCI. 201, 221–22 (1989); see also Stasia D’Onofrio et al., Psychiatric Disorders and the RAS, in WAKING AND THE RETICULAR ACTIVATING SYSTEM IN HEALTH AND DISEASE, supra note 80, at 227, 228–33.

99 See Garcia-Rill, supra note 82, at 292–93.

100 See, e.g., Delphine Oudiette et al., Dreamlike Mentations During Sleepwalking and Sleep Terrors in Adults, 32 SLEEP 1621, 1621–27 (2009).

101 See, for example, Bradley v. State, 277 S.W. 147, 148 (Tex. Crim. App. 1925), where the defendant shot his girlfriend with a gun he had kept under his pillow. Because the trial judged refused to give a charge of sleepwalking to the jury, his conviction was reversed. Id. at 148–50. The appellate court noted that because a "somnambulist does not enjoy the free and rational exercise of his understandings, and is more or less unconscious of his outward relations, none of his acts during the paroxysms can rightfully be imputed to him as crimes." Id. at 148 (citations omitted). Similarly, the conviction of Richard Overton, for endangering the welfare of a child, was reversed and remanded because the trial court excluded sleepwalking evidence. State v. Overton, 815 A.2d 517, 519, 522 (N.J. Super. Ct. App. Div. 2003). The rationale: "To support criminal liability, that act had to be voluntary. If the act was committed by the defendant in a sleepwalking state, it was not voluntary, and cannot underpin convictions of these offenses." Id. at 522. Of course, the jury does not always believe that the accused was sleepwalking. See, for example, State v. Falater, where the defendant claimed to have been sleepwalking when he stabbed his wife forty-four times, put on gloves, and dragged the body to the swimming pool, giving the dog orders to be quiet. See Sleepwalking Given as Defense by Man in Killing of Wife, N.Y. TIMES (June 7, 1999), http://www.nytimes.com/1999/06/07/us/sleepwalking-given-as-defense-by-man-in-killing-of-wife.html [https://perma.cc/9MV2-CVQT]. Although two defense experts claimed that habitual sleepwalkers can perform complex tasks, the prosecution expert said that forty-five minutes was too long for a sleep walking episode because such episodes generally last ten to twenty minutes. See Rebecca Reisner, Scott Falater: Sleepwalking Killer Gets a Wakeup Call, TRUE CRIME TRUANT (July 20, 2017), http://truecrimetruant.com/index.php/2017/07/20/scott-falater-sleepwalking-killer-gets-a-wakeup-call/ [https://perma.cc/J8LU-P8VU]; Sleepwalking Given as Defense by Man in Killing of Wife, supra; 'Sleepwalker' Guilty of Murder, CBS NEWS (June 23, 1999, 12:56 PM), https://www.cbsnews.com/news/sleepwalker-guilty-of-murder/ [https://perma.cc/922V-6APJ]. The jury believed the prosecution, Falater was convicted, and his conviction upheld on appeal. Reisner, supra.


103 Hallett, supra note 102, at 1180.
that there be a voluntary act. Libet, however, demonstrated that the brain initiates a movement before there is conscious awareness of volition.\footnote{See id. at 1180–81.}

Libet's studies showed that when people consciously set a goal to engage in a behavior, their will to act begins what he termed "unconsciously," before there is any subjective "conscious" awareness of a decision to act.\footnote{See generally Benjamin Libet et al., Time of Conscious Intention to Act in Relation to Onset of Cerebral Activity (Readiness-Potential): The Unconscious Initiation of a Freely Voluntary Act, 106 BRAIN 623 (1983). Libet's subjects were asked to move voluntarily and were also asked to subjectively time the moment at which they felt the "will" to move, as well as the onset of the actual "movement." Id. at 624–29. Both the early and late phases of the readiness-potential (RP) preceded the "consciously" determined "will" to move by hundreds of milliseconds. Id. at 632–36.} This finding caused a flurry of concern in the legal literature about intent, extrapolating this conclusion to suggest that there is no free will.\footnote{There is a great deal of legal literature on Libet's experiments. See, e.g., Deborah W. Denno, Criminal Law in a Post-Freudian World, 2005 U. ILL. L. REV. 601 (2005) (discussing Libet's research); Betsy J. Grey, Implications of Neuroscience Advances in Tort Law: A General Overview, 12 IND. HEALTH L. REV. 671 (2015) (discussing the implications of Libet's experiments for tort law); Andrew E. Lelling, Eliminative Materialism, Neuroscience and the Criminal Law, 141 U. PA. L. REV. 1471 (1993). Libet employed the concept of the RP, a negative shift recorded from the cortex long before the execution of a voluntary movement. See Libet et al., supra note 105, at 624.}

Libet's conclusion, however, is based on a misinterpretation of the findings.\footnote{See Edgar Garcia-Rill, Preconscious Awareness, in WAKING AND THE RETICULAR ACTIVATING SYSTEM IN HEALTH AND DISEASE, supra note 80, at 209, 214–18.} Rather than an unconscious decision to act, we would say that the decision to act was "preconscious" because the subjects of the experiment were not unconscious but conscious and awake.\footnote{See Francisco J. Urbano et al., Pedunculopontine Nucleus Gamma Band Activity–Preconscious Awareness, Waking, and REM Sleep, FRONTIERS NEUROLOGY, Oct. 2014, at 1, 2–3.} The conclusion should have been: "voluntary acts begin preconsciously, before there is subjective conscious awareness that a decision to act was initiated by the brain."\footnote{Id.}

In other words, we are well aware of our world, but are just not paying attention to any particular sensory or motor event, that is preconscious awareness. When driving, for example, there are cars driving in other lanes, airplanes and clouds in the sky, pedestrians walking in both directions on the sidewalks, drivers changing lanes, and even without subjective conscious awareness, you manage to avoid collisions because you are preconsciously aware of your surroundings without actively thinking about it. We are aware of our intended actions—driving along avoiding obstacles—long before we subjectively decide to perform an action, like changing lanes. As long as that preconscious information corresponds to the real world we can choose to act (or not), but only if the brain is working properly. If reality is distorted by hallucinations and delusions, the preconscious will be different from what the rest of us see as reality, it will provide an altered "context." This will inevitably affect the actions of those people suffering from this distorted reality.
B. The Reticular Activating System ("RAS")

Under normal waking circumstances, we are continuously receiving sensory information that is superimposed on ongoing brain activity. Sensory input triggers the RAS that is designed for survival, for detecting predator or prey, and for responding with "fight" or "flight." When a sensory stimulus occurs (for example, an alarm clock rings), the information travels through what is known as the "primary" sensory pathway (in this example, from the ear), which carries the "content" of the sensory event through the "specific" thalamic system to the cortex. This is the "what is it?"

The same information (the ringing alarm clock) also activates a parallel "reticular" pathway through the RAS to the "non-specific" thalamic system to the cortex. This is the "wake up, something is happening" arousal information, the "context." The coincidence of the "specific" content and the "non-specific" context reverberates in the thalamocortical system to provide sensory perception and awareness. The two inputs provide the necessary elements for perception.

Normally, the RAS activates the cortex to alert us to an arousing stimulus, but it also resets the postural and motor systems to allow us to fight-or-flee. Thus, the RAS simultaneously modulates cortical arousal as well as motor control centers. We seamlessly (and preconsciously) assess the world around us for threats as well as sensory events. The RAS is the purveyor of our most critical survival process, including preconscious awareness.

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10 See Charlotte Yates & Edgar Garcia-Rill, Descending Projections of the RAS, in WAKING AND THE RETICULAR ACTIVATING SYSTEM IN HEALTH AND DISEASE, supra note 80, at 129, 140-41.
12 See id.; James Hyde & Edgar Garcia-Rill, Ascending Projections of the RAS, in WAKING AND THE RETICULAR ACTIVATING SYSTEM IN HEALTH AND DISEASE, supra note 80, at 107, 107-09, 111-13.
14 When the arousal information initially reaches RAS cells, the input arrives at the dendrites of RAS neurons and activates what are called high threshold calcium channels. Edgar Garcia-Rill et al., Coherence and Frequency in the Reticular Activating System (RAS), 17 SLEEP MED. REV. 227, 231 (2013). These channels set up an oscillation, kind of like a hammer hitting a bell to make it ring. See id. at 231-32. The oscillations along the dendrites add up and ensure that the cell body fires action potentials at the natural frequency of these oscillations, in the gamma band range (~40 Hz). See id. at 231-32, 235-36. These oscillations are relayed to the "non-specific" thalamic system and then to the cortex, providing the "context" of sensory experience, the "wake up, something is happening" arousal information. See id. at 232, 235-36. This arousal summates with the sensory content, the "what is it?" the "content" signal provided by parallel sensory pathways. See id. at 235-36.
15 See Edgar Garcia-Rill et al., Arousal and the Control of Perception and Movement, 10 CURRENT TRENDS NEUROLOGY, 2016, at 53, 53-64.
16 Urbano et al., supra note 108, at 2.
C. What Happens When the Survival System Is Disrupted?

The two inputs of the "specific" and "nonspecific" pathways through the RAS to the thalamic system and then to the cortex provide the necessary elements for perception—but only when they are in synchrony.\(^{117}\) In a number of diseases, the timing of the "content" and the "context" is disturbed.\(^{118}\) These diseases collectively are called "thalamocortical dysrhythmia" and account for disturbances in perception.\(^{119}\) These disorders include psychosis, depression, pain, and tinnitus (ringing in the ear) among others.\(^{120}\) Basically, the mistiming of sensory inputs produces false perceptions such as "seeing things," "hearing things," and "phantom" sensations.\(^{121}\)

The RAS, while critical to survival, malfunctions in most mental disease.\(^{122}\) We need a fully working brain to keep this important homeostatic system under control. If we do not have a healthy brain, our appreciation of the sensory world is distorted, and our responses are exaggerated or absent, risking our survival. Without the normal background of activity that provides for the process of preconscious awareness, our picture of the world becomes frightening, and we feel we must aggressively fight or flee. In all of these disorders, the timing between the arrival of the "content" of sensory experience and the "context" of level of arousal is affected.\(^{123}\) That is why perception is distorted, leading to "seeing things" that are not there (hallucinations) or having premonitions or feelings (irrational delusions) that control our behavior.\(^{124}\)

Any disruption of the process that controls waking, sleep, and dreaming, that alerts us to sensory events, that signals predator versus prey, and that is the basis of fight-or-flight responses, can result in serious sleep-wake dysregulation, misperception of environmental cues, exaggerated or blunted fight-or-flight responses, intense nightmares, hallucinations while awake, knife-edge sensations, and hair-trigger responses.\(^{125}\) None of these effects are what one could categorize as rational choice.

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\(^{118}\) See, e.g., id. at 240–43.

\(^{119}\) Id.


\(^{121}\) See *Thalamocortical Dysrhythmia*, supra note 120.

\(^{122}\) See generally D‘Onofrio et al., supra note 98 (discussing the impact of psychiatric disorders on the RAS).

\(^{123}\) See id.


\(^{125}\) See id.
Almost every psychiatric and neurological disorder includes abnormalities in sleep–wake control as well as distorted fight-or-flight responses. Most of these disorders also exhibit decreased frontal lobe blood flow. For example, schizophrenia is a heterogeneous disorder marked by psychotic symptoms (a distorted or nonexistent sense of objective reality) such as delusions (false beliefs held firmly despite being contradicted by reality or rational argument) and hallucinations, as well as attentional impairment, emotional withdrawal, apathy, and cognitive impairment. More specifically, the symptoms of schizophrenia include hallucinations, delusions, disorganized thinking, and agitation, lack of affect (absence of feeling or emotion), anhedonia (inability to experience pleasure), and withdrawal. Cognitive symptoms include poor executive function, lack of attention, and disturbed working memory. Abnormal movements also have been described.

Not only is the brain cortex affected in schizophrenia, but there is also thalamocortical dysrhythmia. If the timing between “content” and “context” is off, as it is in thalamocortical dysrhythmia, perceptions are skewed, a smile can be perceived as a sneer, words are misunderstood, and actions are misinterpreted. The “context” of our world is distorted. The consequences of such dissonance are considerable. The same mechanism that is responsible for consciousness can generate abnormal neurological and psychiatric events when timing is disrupted. Psychosis and delusions are a result.

A schizophrenic person experiences excessive arousal (called hyper-vigilance), and excessive responses to sensory inputs because the RAS is overactive in schizophrenia. The schizophrenic patient is overwhelmed by the sensory inputs bombarding the senses. This is like turning up the volume on all of the sounds around us, increasing the brightness of all we see, increasing the sensation of anything touching us, including our clothing. This is the overwhelming world of the schizophrenic. In addition, the hyper-vigilance leads to hair-trigger fight-or-flight responses. This condition, coupled with decreased frontal lobe blood flow, renders the patient incapable of inhibiting excessive “fight,” which may result in striking out if suddenly startled, or excessive “flight,” which may result in collapsing

126 See generally D’Onofrio et al., supra note 98; Brennan Luster et al., Neurological Disorders and the RAS, in WAKING AND THE RETICULAR ACTIVATING SYSTEM IN HEALTH AND DISEASE, supra note 80, at 255.
127 See D’Onofrio et al., supra note 98, at 228; Luster et al., supra note 126, at 256.
128 D’Onofrio et al., supra note 98, at 228–29. Many explanations have been advanced for the disease of schizophrenia, including cortical atrophy, neurotransmitter abnormalities, and early brain injury (such as abnormal development, birth trauma, or postnatal trauma). Nancy C. Andreasen & Michael Flaum, Schizophrenia: The Characteristic Symptoms, 17 SCHIZOPHRENIA BULL. 27, 28, 31–32 (1991).
129 D’Onofrio et al., supra note 98, at 228–29.
130 Id.
131 Id.
132 See generally Llinàs et al., supra note 117.
133 See D’Onofrio et al., supra note 98, at 227–31.
134 See id.
into a catatonic stupor.\textsuperscript{135} The disease also includes excessive vigilance in the form of too much waking (too little sleep or insomnia) and, as previously described, intense nightmares while asleep and hallucinations while awake.\textsuperscript{136}

Most importantly for criminal law, nearly every mental illness is accompanied by abnormal sleep-wake control, disrupted arousal (misperceived “context”), absence of synchrony between context and content, leading to misperception of reality and distorted fight-or-flight responses. This affects perceptions and exaggerates responses to those perceptions. None of this is a matter of rational choice. Schizophrenia, post-traumatic stress disorder, and some cases of frontal lobe damage or decreased blood flow all exhibit these characteristics.\textsuperscript{137} It is as though these people were dreamwalking through their own distorted dream world. Knowing that a person with schizophrenia has a distorted and frightening sense of the world, is likely to respond inappropriately to his surroundings and has little chance of reaching a rational decision about acting, should help judges determine that evidence of mental illness is not only relevant, but also essential, to determining criminality.

\textbf{D. Human Beings Are Complex}

Is ours a deterministic view of human beings?\textsuperscript{138} Not at all. In contrast to Newtonian ideas of causation, modern scientists see fluctuations, instability, multiple choices, and limited predictability at all levels of observation. Causality in biological systems—like ourselves—is understood to be “probable” rather than determined.\textsuperscript{139} Complex systems can only be considered in a statistical manner because they are probabilistic, not certain. The more factors added, the less likely it

\textsuperscript{135} See id.

\textsuperscript{136} See id.

\textsuperscript{137} See generally D’Onofrio et al., supra note 98.

\textsuperscript{138} The idea of determinism arose from the description of Sir Isaac Newton’s laws relating to force and acceleration, basically trajectories, which became the “laws of nature.” See generally Ronald J. Rychlak & Joseph F. Rychlak, Mental Health Experts on Trial: Free Will and Determinism in the Courtroom, 100 W. VA. L. REV. 193 (1997); see also Nita A. Farahany, A Neurological Foundation for Freedom, STAN. TECH. L. REV., 2012, at 1, 4–5. These laws implied that, once the initial conditions are known, it is possible to calculate what would happen next and also what happened before. See Rychlak & Rychlak, supra, at 205–06. These laws were “deterministic” in that the past could dictate the future. In terms of causality, the laws of motion boiled down to the collision of particles (which changed the direction or degree of motion of other particles). See id. at 205–06. The Newtonian concept of cause stated that because the collision could be expressed in mathematical terms, so could the cause. Id. The concept of cause was reduced to a mechanical event, which could then be expressed as a mathematical formula. These “laws” also implied that, given enough information, if enough factors were considered, every situation or state could be calculated with certainty. See id. Newtonian determinism was the foundation for much scientific—and legal—thinking up until the early part of this century. See id. 215–16. But it is a limited vision and can only take us so far. As a result, it has been replaced by a new understanding of how things work. See id. at 215–19.

\textsuperscript{139} For a discussion of the probability theory of causation, see E. T. JAYNES, PROBABILITY THEORY: THE LOGIC OF SCIENCE (G. Larry Bretthorst ed., 2003); Andreas Wagner, Causality in Complex Systems, 14 BIOLOGY & PHIL. 83 (1999).
is that one can predict the ultimate position or state of an object. Complex systems have a "life of their own," they are "indeterminate." Complexity theory describes the effects of billions of particles, of forces, of repetitive interactions, that generate change, growth, movement, evolution, and patterns.40 The simple repetitive process of one atom bumping into another, of those two bumping into many others, leads, not to random activity, but to coherence, to concerted action, to organization, to a pattern.41

The brain is the epitome of a complex system, with many interacting parts (nerve cells), which shape themselves into highly organized patterns of activity and are in constant "non-equilibrium."42 The normal function of the brain, therefore, has great variety and flexibility, making it difficult to determine the boundaries of its capacity. While the basic structure of our brains, for example, cortical columns, is laid down genetically, the connectivity pattern begins with exposure to the environment at critical stages in development and beyond.43

This connectivity is plastic, molded through life by our ubiquitous culture.144 Not only is the brain maintaining the internal environment and reacting to the external environment, people (and some other social animals) build their external environment through culture. Peoples' interactions with each other are a crucial facet of consciousness.145 Culture is an intrinsic component of the human mind.46 Culture is also important because what counts as violence and aggression differs among cultures.147 While the basic structure of our brain is genetically determined, it continues to evolve from outside influences, and one of those influences is

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141 Id.


143 See id. at E4187 ("The neural networks are often under fluctuations from intrinsic source and external environments."); see also Beecher-Monas & Edgar Garcia-Rill, supra note 140, at 1887–88.


145 In his book, A Mind So Rare, Merlin Donald argues that consciousness is much more than sensation and attention. Merlin Donald, A Mind So Rare: The Evolution of Human Consciousness xiii–xiv (2001). Donald's argument is that just as our minds possess the biological basis for generating culture, so does culture provide the fuel for the modern mind, for reprogramming conscious experience. Id. Our brains coevolved with culture and are specifically adapted for living in culture. Id. We never had to evolve an innate brain module for language or for mathematics; on the contrary, these circuits emerged as by-products of our symbiosis with culture. See id.


147 See, e.g., Amanda C. Pustilnik, Violence on the Brain: A Critique of Neuroscience in Criminal Law, 44 Wake Forest L. Rev. 183, 226–28 (2009) (contending that "[v]iolence takes its meaning from the law, social norms, and the particular context in which the violent acts take place").
culture. Part of the environment to which we are continuously adapting is each other.

Moreover, in considering these facts about brain processes, we must remember that we have an infinite number of behavioral options at every point along a waveform.\textsuperscript{148} Crazy people do not act that way all the time. Neuroscientists understand that the brain is non-linear at both the visible level and at the microscopic level.\textsuperscript{149} For example, the membrane potential of a single neuron changes in a non-linear fashion, as graded synaptic inputs all over its surface interact to create background noise, complexity arising even in individual brain cells.\textsuperscript{150} The membrane of the neuron has a threshold that represents a critical point at which action potentials fire away.\textsuperscript{151} The interactions between the membrane potential and the arriving graded synaptic inputs represent a complex system in non-equilibrium.\textsuperscript{152} The pattern of graded action potentials generated by a population of neurons, in turn, may represent an even more complex system in non-equilibrium, leading to wavefronts of activity.

Wavefronts of activity are self-organized entities, coherent forms of activity, ordered patterns emerging from elements in disequilibrium.\textsuperscript{153} This is known as coherence in brain activity, or mental order.\textsuperscript{154} We are not simply “on” or “off,” we are variable signals along a spectrum, we are a “work in progress” with many possibilities.\textsuperscript{155} This makes prediction of human behavior a highly tentative proposition. As biological organisms, under ideal circumstances, we fall somewhere along a normal, bell-shaped distribution of brain function. That means that some of us are “average,” in the middle of the curve, but many of us are at either end of the spectrum, and wildly different.

Moreover, because the brain is a complex system—non-linear, probabilistic, at the transition between equilibrium and non-equilibrium, sanity is not an all-or-nothing proposition; it is a probabilistic statement. Mental disorder is brain activity beyond the normal range of probabilities. But, a mentally ill individual may transition in and out of the normal range.


James Glanz, Mastering the Nonlinear Brain, 277 SCI. 1758 (1997).


\textsuperscript{151} See id.

\textsuperscript{152} See id.

\textsuperscript{153} Beecher-Monas & Garcia-Rill, supra note 149, at 163–64.

\textsuperscript{154} Id. at 263.

\textsuperscript{155} See id. at 264–65; Smaldino & Richerson, supra note 148, at 1–3.
II. VOLITION, INTENT, AND CHOICE IN COURT

Because these legal categories are not based on a firm grasp of the brain and human behavior, there is a great deal of slippage among the various jurisdictions about just which behavior should fit in which category and why. Behavior that sometimes is put into the *actus reus* category is, at other times, placed into the *mens rea* or insanity categories.

**A. Homo Legalis**

The law pervasively relies on the reasonable person standard, the law’s attempt at objectivity. The reasonable person who populates the law, however, like the reasonable person of economics, is not only a myth, but it is a myth that is informed by cultural norms about what ordinary people do. It is an abstract objectification of normative judgment. Although it is the law’s attempt at objectivity, its effect is the imposition of a standardized and aspirational model of human behavior. As a result, facts about how the brain works and how illness affects behavior, rarely reaches the jury outside affirmative defenses.

Neither criminal statutes nor model jury instructions mention a reasonable person standard, other than in excuses like self-defense. But it creeps in anyway, in notions like “a person intends the natural and probable consequences of his acts.” Although this presumption was deemed unconstitutional after *Sandstrom*, it often gets included in jury instructions as a permissive inference. The reasonable person standard (the inference that a person intends the normal and natural consequences of his acts) gives judges rationale to find the mental state of the accused irrelevant. The Holmesian aspiration for objectivity that “[a]cts should be judged by their . . . known circumstances, not by the actual intent which accompanies them,” has been understood by the judiciary to mean that intent is

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160 See, e.g., Heyman, supra note 158, at 396–401 (discussing the use of the natural and probable consequences doctrine in Illinois and other jurisdictions post-*Sandstrom*); see also infra note 345 and accompanying text.


inferred from the facts of the crime itself, making the accused's state of mind irrelevant to intent.163

But part of the "known circumstances" of the crime must include the accused's state of mind. When the accused's state of mind is an element of the crime, the accused must be able to demonstrate what that mental state was, which is why expert mental health testimony is necessary in these cases. The acts of someone whose reality is manifestly not that of a reasonable person because of hallucinations and delusions need to be assessed under a different standard than that of a reasonable person, that is, the instruction that the jury may infer the defendant intended the natural consequences of his acts may no longer apply. The facts and circumstances of the crime in the case of a mentally ill person include the accused's distorted view of reality. Instead of assessing intent from the perspective of a normal person, the standard should be that of a person under the mentally ill accused's viewpoint, which would have to include an expert discussion of what that mental state was and how such a mental state may affect behavior. It is a helpful fact, for example, that someone bitten by a malaria mosquito may have recurring fevers and chills. Because the issue of intent is fact-based, the facts of the accused's behavior ought to bear on the issue.

The view of human behavior that permeates criminal law as a result is highly compartmentalized and dualistic, separating mind and body, thought from action, the guilty act from the guilty mind. Actus reus, the requirement of a voluntary act, depends on distinguishing a consciously willed bodily movement from one that is not willed.165 Mens rea—the mental state of intent—had almost as many definitions as courts that addressed it until the Model Penal Code stepped in to clarify various levels of intent.166 The way these levels are interpreted, however, remains mired in nineteenth century conceptions of human behavior.167 This affects the evidence admissible for these issues.

H.L.A. Hart famously defined a person as a "choosing being," who can rationally evaluate the social norms and the costs and benefits of violating them, deliberately choosing his actions.168 Under this view, human behavior is a matter of deliberate choice, and social norms are universal and apparent. But mentally ill people cannot conform to this standard. Rather, this view reflects nineteenth century insistence on character building through individual choice, will power, and assuming responsibility.169 As one legal historian noted:

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163 See id. at 50–51, 53–56.
164 Id. at 56.
165 See Larry Alexander, Criminal and Moral Responsibility and the Libet Experiments, in CONSCIOUS WILL AND RESPONSIBILITY 204 (Walter Sinnott-Armstrong & Lynn Nadel eds., 2011) (observing that criminal law is based on a "consciously willed bodily movement").
166 See infra Section II.C.ii.
167 See infra Section II.C.ii.
[C]ulture of moral earnestness and self-control in which the self-conscious cultivation of moral character and purpose was the serious business of every well led life. Standards of right and wrong were assumed to be clear and timeless. Good behavior was the product of one’s cultivated moral character and individual choice . . . . Bad behavior was equally the product of one’s failure to cultivate one’s character with adequate moral seriousness, and one’s consequently bad choices were appropriately condemned by the institutions of civilization.\textsuperscript{170}

Failures to adhere to cultural norms of behavior are seen as failures in self-control.\textsuperscript{171} These failures were, and continue to be, imputed to choice and to failure of character.\textsuperscript{172} Because character could be improved through willpower and acting according to social norms, failure to do so meant that an individual was personally, morally responsible for—in charge of—the choices he made.\textsuperscript{173} Under this view of humanity, if the choices an individual made were consonant with timeless and non-contingent social norms they were considered moral choices.\textsuperscript{174} Ever since Holmes asserted that the law’s “indifference to a man’s particular temperament, faculties and so forth” meant that “[a]cts should be judged by their . . . known circumstances, not by the actual intent which accompanies them,”\textsuperscript{175} the assessment of individual responsibility has been context-free, making the concept of intent a rather generic enterprise. The circumstances in which the person made a decision become wholly irrelevant to the inquiry.\textsuperscript{176}

These views still predominate. Moral blameworthiness continues to be the touchstone of criminal law. Good behavior is still seen as the product of individual moral choice and moral character, both of which are under the individual’s control. But note that definitions of morality, character, and rationality are not neutral—they are all imbued with social norms. None of these Victorian views about choice, voluntariness, rationality, and morality, not to mention character and control, are based on any empirical support. Rather, these views are based on very moral responsibility that posited without question the rightness and utility of individual consequences for individual choice”).

\textsuperscript{170} Id. at 745–46.
\textsuperscript{171} Id. at 746–47.
\textsuperscript{172} Id. at 746.
\textsuperscript{173} Id. at 746–47.
\textsuperscript{175} HOLMES, \textit{supra} note 162, at 48, 66.
\textsuperscript{176} Currently, context is taken into consideration primarily at the sentencing stage. There are some situations where the context of the decision becomes admissible, for example, battered woman syndrome testimony, but these are rare.
old suppositions, beliefs, and assumptions. Surely, we can do better in the twenty-first century.

Moreover, even in the Victorian era, disquieting exceptions to the notion of moral rationality and freedom of choice kept cropping up.\(^{177}\) The foundation of criminal liability, a responsible moral agent freely and voluntarily doing an act for evil purposes, obviously (even in the nineteenth century) did not apply in some instances.\(^{178}\) Coerced defendants were not exercising their own will.\(^{179}\) Infants and the insane did not have the power of reason, and so could not be held to have made reasoned choices about their actions.\(^{180}\) Sleepwalkers could not be said to be acting voluntarily and so were excused.\(^{181}\) Heat of passion defenses rested on the idea that passion had overcome reason, at least temporarily.\(^{182}\) If there were obvious impingements on rationality, some accommodations had to be made. Insanity, duress, and infancy were all excused, although there were (and still are) lots of debates about what these terms mean.

### B. Theories of Criminal Law

Justifications for criminal conviction and punishment fall into two camps, although there are many variations.\(^{183}\) Consequentialists argue that the social benefits (of prevention, through deterrence, incapacitation, or rehabilitation) must outweigh the costs of enforcement (through policing, trials, and punishment).\(^{184}\) A second set of philosophical justifications for criminal law is a rights-based theory.\(^{185}\) Under this theory, the political community has a duty to punish wrongdoers.\(^{186}\) Either theory, however, requires that the individual accused be permitted to offer

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\(^{177}\) See, e.g., Jessica Harrison, *Idaho's Abolition of the Insanity Defense—An Ineffective, Costly, and Unconstitutional Eradication*, 51 IDAHO L. REV. 575, 580 (2015) (noting that the earliest recording of an acquittal for insanity was in 1505); \(\text{id.}\) at 580 (quoting William Lombarde, who wrote in 1581, "If a madman or natural fool, or a lunatic in the time of his lunacy . . . [kills someone], this is no felonious act for they cannot be said to have any understanding will").

\(^{178}\) See \(\text{id.}\) at 579–80.

\(^{179}\) See, e.g., DREW D. GRAY, *CRIME, POLICING AND PUNISHMENT IN ENGLAND, 1660–1914*, at 141–42 (2016) (noting that women were sometimes able to escape liability for certain crimes by proving they were coerced).


\(^{181}\) See supra note 101 and accompanying text.

\(^{182}\) See, e.g., Maher v. People, 10 Mich. 212, 218–19 (1862) (killing during heat of passion was manslaughter rather than murder because of "temporary excitement, by which the control of reason was disturbed").

\(^{183}\) See, e.g., PAUL ROBERTS & ADRIAN ZUCKERMAN, *CRIMINAL EVIDENCE 9–11* (2d ed. Oxford Univ. Press 2010) (discussing theories of criminal conviction and punishment). Roberts & Zuckerman note that "[a] pithy way of summarizing the difference is to say that, whilst consequentialism is 'no respecter of persons' in always prioritizing aggregate social welfare over individuals' personal interests, only deontological theories 'take rights seriously.'" \(\text{id.}\) at 11.

\(^{184}\) \(\text{id.}\) at 9.

\(^{185}\) \(\text{id.}\) at 10.

Evidence negating actus reus and mens rea, volition and intent. And with outdated understandings of human behavior, neither justification will work very well.

i. Consequentialist Utilitarian Theory

The idea behind utilitarian deterrence theory is that rational human beings will weigh the costs and benefits of wrongdoing and refrain if the costs outweigh the benefits. Under this theory, people are punished to maintain social order (by deterring future wrongdoing) and to incapacitate those who willfully fail to control their behavior. This theory also presumes that people can assess the outcome of their actions and choose to either act or not.

Putting a person who has a brain disease in prison will serve none of these purposes. While prison may temporarily prevent the offender from committing further crimes, once the prisoner is released, chances of recidivism are quite high. In a fifteen-state study, two-thirds of released prisoners reoffended or were rearrested within three years. Since many of those prisoners suffer from mental illness, this poses a problem. A systematic review of mental illness in U.S. state prisons concluded that “the prevalence of mental illness within prisons and the policies that contribute to it” continue to be a major concern. Overall, there are

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187 Or, as Dressler explains it, "the premise of utilitarianism is that people are generally hedonistic and rational calculators." Joshua Dressler, Understanding Criminal Law 16 (6th ed. 2012).
188 See Steven Shavell, Foundations of Economic Analysis of Law 552, 562 (2004); (noting that "in many cases where a person is not legally responsible for his act, he will be no less dangerous to society than if he were responsible")
192 For example, in 2006, the Department of Justice reported that nationally, sixty-four percent of local jail inmates and forty-five percent of federal prisoners demonstrated a recent history or current symptoms of mental disease. Doris J. James & Lauren E. Glaze, Dept of Justice, Mental Health Problems of Prison and Jail Inmates 1, 1 (Sept. 2006), https://www.bjs.gov/content/pub/pdf/mhppji.pdf [https://perma.cc/MK42-VEB5]; see also Seth J. Prins, Prevalence of Mental Illnesses in U.S. State Prisons: A Systematic Review, 65 Psychiatric Services 862, 862 (2014). It is not clear that all of these are the kind of serious mental illness that would impact volition, choice, or intent. In a Michigan study, 20.1% of males and 24.8% of females in the Michigan prison system had severe psychiatric symptoms. Brant E. Fries et al., Symptoms and Treatment of Mental Illness Among Prisoners: A Study of Michigan State Prisons, 36 INTL J.L. & PSYCHIATRY 316, 320 (2013).
193 Prins, supra note 192, at 870.
three times as many seriously mentally ill people in jails and prisons as there are in hospitals.\textsuperscript{194} Prison, with its crowding and violence, tends to exacerbate the symptoms of mental disease.\textsuperscript{195} This poses a high risk of violent, delusional schizophrenics who are released from prison only to recidivate.\textsuperscript{196}

Correction of the behavior of untreated schizophrenics is highly unlikely,\textsuperscript{197} as is deterrence.\textsuperscript{198} As for rehabilitation, jails and prisons are singularly unequipped to handle the mentally ill.\textsuperscript{199} Mentally ill prisoners rarely receive the treatment they need.\textsuperscript{200} Although around half of inmates have a mental health problem, compared to eleven percent of the general population,\textsuperscript{201} few receive any form of mental health treatment (despite its being constitutionally mandated), and that which is offered tends to be outdated and inefficient.\textsuperscript{202} Generally accepted scientific methods of treatment rarely are found in prison.\textsuperscript{203}

Collisions of schizophrenic people with reality can be extreme and others need to be protected from such collisions.\textsuperscript{204} We do not mean to suggest that all mentally ill people pose a violent threat to society. On the contrary, most people with mental illness manifest no criminal behavior.\textsuperscript{205} But a significant proportion of those who do intersect with the criminal law pose a recurring threat to others.\textsuperscript{206} After serving their terms, the convicted will return to society, generally without treatment or social support.\textsuperscript{207} Surely, this is not a sensible result.

\textsuperscript{194} E. FULLER TORREY ET AL., TREATMENT ADVOCACY CTR. & NAT'L SHERIFFS' ASS'N, MORE MENTALLY ILL PERSONS ARE IN JAILS AND PRISONS THAN HOSPITALS: A SURVEY OF THE STATES 1, 8 (May 2010), http://www.treatmentadvocacycenter.org/storage/documents/final_jails_v_hospitals_study.pdf [https://perma.cc/YV7P-PU4H]. These numbers were reported as of 2004-2005. Id. at 8.


\textsuperscript{196} Sheilagh Hodgins, Among Untreated Violent Offenders with Schizophrenia, Persecutory Delusions Are Associated with Violent Recidivism, 17 EVIDENCE-BASED MENTAL HEALTH 75 (2014).

\textsuperscript{197} See id.

\textsuperscript{198} See Bureau of Justice Statistics, supra note 191.

\textsuperscript{199} See Hoke, supra note 190; Mental Health and Prisons, supra note 195.

\textsuperscript{200} See, e.g., Anasseril E. Daniel, Editorial, Cure of the Mentally Ill in Prisons: Challenges and Solutions, 35 J. AM. ACAD. PSYCHIATRY L. 406 (2007) (concluding that comprehensive treatment programs are necessary to prevent a high rate of recidivism and morbidity and to facilitate reentry into the community).

\textsuperscript{201} JAMES & GLAZE, supra note 192, at 1, 3.

\textsuperscript{202} Daniel, supra note 200, at 406, 408 (discussing cost-saving measures that preclude the use of newer, more effective (and more expensive) medications).

\textsuperscript{203} See Mental Health and Prisons, supra note 195.


\textsuperscript{206} Sinclair, supra note 204.

\textsuperscript{207} See World Health Organization, supra note 195.
ii. Retribution or Moral Theory

Under the retributivist or moral theory, the idea is that the law should punish behaviors that society sees as morally wrong and that punishment should be commensurate with the intended wrong.\(^{208}\) This follows the Kantian (and Victorian) idea of moral duty. Indeed, Kant went so far as to claim that, in order to preserve moral order, society has a duty to punish those who have done wrong.\(^{209}\) The retributive theory requires the offender to have acted with volition and intent, and to have chosen to engage in the criminal act.\(^{210}\) The theory also depends on the actor's rationality.\(^{211}\) All of these factors are highly questionable for offenders with mental illness.

Both retributivists and utilitarians thus require some measure of rationality, volition, or intent to impose criminal liability. But neither of these theories elucidates the kind of evidence that ought to be considered in deciding these issues. For one thing, the meaning of rationality has been endlessly debated.\(^{212}\) For another, the meaning of choice and the existence of free will is still up for grabs.\(^{213}\) Brain science can shed light on these inquiries.

iii. The Model Penal Code

Originally, the Model Penal Code, embracing "a multiplicity of values,"\(^{214}\) emphasized rehabilitation, while acknowledging the importance of crime

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\(^{208}\) See, e.g., John Rawls, *Two Concepts of Rules*, 64 PHIL. REV. 3, 4–5 (1955) ("It is morally fitting that a person who does wrong should suffer in proportion to his wrongdoing.")

\(^{209}\) See IMMANUEL KANT, *THE PHILOSOPHY OF LAW: AN EXPOSITION OF THE FUNDAMENTAL PRINCIPLES OF JURISPRUDENCE AS THE SCIENCE OF RIGHT* 198 (Augustus M. Kelley 1974) (1887) (claiming that even if a society were about to disband, it should still execute its murderers).


\(^{211}\) See Kent Greenawalt, *Punishment, in 4 ENCYCLOPEDIA OF CRIME AND JUSTICE* 1336, 1339 (Sanford H. Kadish ed., 1983) (retributive theory "requires some notion of free will that attributes to humans responsibility for doing wrong in a way that is not attributed to other animals").


\(^{213}\) See, e.g., Joshua Greene & Jonathan Cohen, *For the Law, Neuroscience Changes Nothing and Everything*, 359 PHIL. TRANSACTIONS ROYAL SOC'Y 1775, 1776 (2004) (arguing that free will does not exist, therefore we should reject retributivist principles of responsibility).

prevention through deterrence, incapacitation, and correction. Section 1.02(2) lists among its purposes:

(a) to prevent the commission of offenses;
(b) to promote the correction and rehabilitation of offenders . . .
(g) to advance the use of generally accepted scientific methods and knowledge in the sentencing and treatment of offenders . . .

In an about-face from its original position, the Model Penal Code: Sentencing amended the purpose of the Model Penal Code's criminal law section in 2007 to adopt desert as the primary principle underlying criminal liability. The Model Penal Code now puts blameworthiness as the core concern in criminal liability and punishment. After the amendment, "deterrence, incapacitation, or rehabilitation may be pursued only to the extent that they remain within the bounds of desert." This is important because the Model Penal Code has been the model for the codification of criminal law in three-quarters of the states. So under the retributive theory, only those who have made a rational decision to do wrong should be punished; and they should be punished only in proportion to the wrongdoing. As we have seen in Part I, the question of whether the accused was choosing to do wrong entails a thorough understanding of whether the accused suffered from a mental illness that could significantly affect that choice. Far too often, however, this is precisely the evidence that is excluded from trial.

C. What Do Actus Reus and Mens Rea Mean?

States are free, within constitutional limits, to define crimes and defenses, to specify the level of voluntariness and intent that must be proved, and to allocate the burdens of persuasion. The categories of actus reus and mens rea appear to be sensible: requiring both an "evil-doing hand" and "evil-meaning mind" seems logical, but this masks a reductive view of human behavior. The law treats volition

215 See id. at 468–69 & 469 n.5 (noting the multiple objectives set out in the Model Penal Code's purposes section).
216 MODEL PENAL CODE § 1.02(2) (AM. LAW INST., Official Draft 1985).
217 MODEL PENAL CODE: SENTENCING § 1.02(2) (AM. LAW INST., Tentative Draft No. 1, 2007); see also MODEL PENAL CODE: SENTENCING § 1.02(2) (AM. LAW INST., Proposed Final Draft 2017) (noting § 1.02(2) was originally approved in 2007); Paul H. Robinson, Geoffrey P. Goodwin & Michael D. Reisig, The Disturbing of Injustice, 85 N.Y.U. L. REV. 1940, 1943–44 (2010). While the earlier version emphasized deterrence, the amendment emphasizes desert. Robinson, Goodwin & Reisig, supra at 1944.
218 Robinson, Goodwin & Reisig, supra note 217, at 1943.
219 See id. at 1944 (discussing the significance of the amendment to § 1.02 of the Model Penal Code).
221 See Hollander-Blumoff, supra note 210, at 509.
and intent as though they were well-defined categories, but the brain does not work that way. Moreover, courts vary widely in their approach to the admissibility of mental health evidence and to what must be proved and who must prove it, with regard to these important elements, frequently conflating them with each other, and with the insanity defense.

i. Actus Reus

Traditionally defined as the "evil act" requirement, actus reus is based on twin concepts: that thoughts without action should not be punished; and that the act should be voluntary.\(^2\)\(^2\)\(^3\) The Model Penal Code does not use the term actus reus.\(^2\)\(^4\) Instead it has a "Voluntary Act Requirement" and defines a voluntary act as one being under the control of the actor, discarding free will entirely.\(^2\)\(^5\) While the Model Penal Code excludes reflexes, convulsions, unconscious movements, sleep, and hypnotic suggestion from the definition of voluntary act, it does not provide a definition for voluntary act.\(^2\)\(^6\) Rather, it refers to "a voluntary act or the omission to perform an act of which he is physically capable."\(^2\)\(^2\)\(^7\)

Colorado defines a voluntary act as "an act performed consciously as a result of effort or determination . . . ."\(^2\)\(^2\)\(^8\) Ohio simply states that a "person's liability is based on conduct that includes either a voluntary act, or an omission to perform an act or duty that the person is capable of performing . . . ."\(^2\)\(^2\)\(^9\) But there is no universal definition of voluntary act.

The courts appear to have reached a consensus that actus reus is a foundational requirement of criminal law.\(^2\)\(^3\)\(^0\) This surface agreement, however, masks a "deep disagreement about the meaning, scope, and application" of this requirement.\(^2\)\(^3\)\(^1\) For one thing, the courts are often at odds about whether actus reus is an element of every crime or an affirmative defense\(^2\)\(^3\)\(^2\) and whether the prosecution must prove only the prohibited conduct or also voluntariness.\(^2\)\(^3\)\(^3\)

\(^2\)\(^3\)\(^2\) ROBINSON & CAHILL, supra note 220, at 115.

\(^2\)\(^3\)\(^3\) ROBINSON & CAHILL, supra note 220, at 137-39 (explaining that the conduct must include a voluntary act).

\(^2\)\(^3\)\(^4\) See JOSHUA DRESSLER, CASES AND MATERIALS ON CRIMINAL LAW 127 (Thomson Reuters 5th ed. 2009) (1999) (highlighting the importance of the voluntary act requirement); SANFORD H. KADISH ET AL., CRIMINAL LAW AND ITS PROCESSES: CASES AND MATERIALS 221-34 (Wolters Kluwer 10th ed. 2017) (demonstrating that leading casebooks highlight the foundational requirement of a voluntary act); ROBINSON & CAHILL, supra note 220, at 137-39 (explaining that the conduct must include a voluntary act).

\(^2\)\(^3\)\(^5\) See, e.g., State v. Jones, 527 S.E.2d 700, 706 (N.C. Ct. App. 2000) (unconsciousness is an affirmative defense that must be proved by the defense); State v. Deer, 287 P.3d 539, 542-43 (Wash.
There are two basic ways in which courts approach *actus reus*. Either it is a defense (in the sense of requiring the defendant to rebut any inference of voluntariness), with the burden of proving voluntariness of the act remaining with the prosecution. Under this view, the defendant must raise the issue, but the prosecution must then prove the voluntary conduct. The second major approach requires the burden of proof (of the act's voluntary nature) be placed on the defendant. This approach means that the burden of proof of an element of the crime be placed on the defendant, which would appear to be unconstitutional, but which a large number of courts nonetheless require. In addition, as mentioned above, courts sometimes confuse the voluntary act with *mens rea* or the insanity defense.

States are also divided on whether voluntariness applies to a single act or to the conduct as a whole. Some courts ascribe liability if any part of the conduct was voluntary. Others require that the conduct as a whole be voluntary.

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234 See, e.g., Baird v. State, 604 N.E.2d 1170, 1176 (Ind. 1992) (explaining that the state must prove the defendant acted voluntarily beyond a reasonable doubt, but only if the defendant raises an issue of voluntariness).


236 See, e.g., Powell v. Texas, 392 U.S. 514, 540 n.1 (1968) (Black, J., concurring) (opining that "[i]f an intoxicated person is actually carried into the street by someone else, he'd does not do the act at all, and of course he is entitled to [an] acquittal" with respect to public drunkenness (citation omitted)).
The Model Penal Code discards the idea of free will, concentrating instead on the actor’s control. But the concept of free will is not so easily discarded. Roscoe Pound premises criminal law on a concept of free will, so that “the starting point of the criminal law [is]...that a criminal was a person possessed of free will who, having before him a choice between right and wrong, had freely and deliberately chosen to go wrong ...” Therefore, “if mental disease inhibited or destroyed the will element or precluded the choice of right and wrong, there was no crime.” Criminal legal theory thus rests on the concept of free will. But what is free will? Although philosophical tomes have been written about it, in terms of how the brain works, free will means using the environmental information reaching the brain combined with the intrinsic activity of the brain to make a decision. If a person’s brain is dysfunctional, these perceptions will be skewed, as will any decisions that person makes. Such a person cannot be said to have the choice of action.

Nita Farahany contends that free will is irrelevant in assessing actus reus and mens rea. Freedom of action rather than free will is at stake. Freedom of action consists of a person’s acting “in the manner he desires[] [and] mov[ing] with a will that is his own,” making free will irrelevant. Farahany argues that people should be held accountable for their decision to act, their act, and their identification with the action. She contends that because free will means something more than freedom to act; it also encompasses freedom to choose preferences, desires, and disposition. While preferences, desires, and disposition are not under a person’s control, she contends that they can still control their actions. As long as a person identifies with his actions, he can, according to Farahany, control them and should be held accountable for them. Therefore, for Farahany, free will is irrelevant to criminal liability, but freedom to act is a key question.

The problem with this position is that people suffering from delusions, hallucinations, and the like, do not have the freedom to act. Under this conception

241 See MODEL PENAL CODE § 2.01 cmt. 1 at 215 (AM. LAW INST., Official Draft & Revised Comments 1985) (noting that focusing on what is voluntary need not “inject into the criminal law questions about determinism and free will”).
242 ROSCOE POUND, CRIMINAL JUSTICE IN AMERICA 126–27 (1930).
243 Id. at 27.
244 See Morissette v. United States, 342 U.S. 246, 250 (1952) (noting the “universal and persistent... belief in freedom of the human will and a consequent ability and duty of the normal individual to choose between good and evil”); Smith v. Armontrout, 865 F.2d 1502, 1506 (8th Cir. 1988) (en banc) (“The whole presupposition of the criminal law is that most people, most of the time, have free will within broad limits.”).
245 See generally Farahany, supra note 138.
246 See id. at 8–14.
247 See id. at 9.
248 Id. at 9–10, 12–15.
249 Id. at 9–11.
250 Id. at 9–15.
251 Id. at 11–14.
252 Id. at 14–15.
the paranoid schizophrenic, Tempest, who drowned her six-year-old in the bath, decided to do it, knew she was the actor, and acted, would be criminally accountable. But this overlooks the fact that delusionary actions are founded on irrational conditions, generated by erroneous perceptions, and uncontrolled by critical judgment. People with delusions may know that the delusion is irrational, but they feel compelled to perform it anyway. People with hallucinations are conscious and are aware that the action took place, but like those with delusions, they are convinced that this is the only course of action, that they are the only ones who hear the voices, and that the voices must be attended to. This cannot be defined as having freedom of action (or will either).

Choosing to do wrong is the foundation of criminal liability. As H.L.A. Hart explained, "[A] man's fate should depend upon his choice and this is to foster the prime social virtue of self-restraint." Of course, it is this ability to choose to act that is the crux of both the actus reus and the mens rea confusion.

ii. Mens Rea

As with actus reus, the prosecution must prove the crime's specified level of intent, beyond a reasonable doubt. If an accused does not actively and consciously choose to engage in criminal conduct, he cannot have mens rea. The importance of mens rea to criminal liability is well accepted. As Justice Jackson explained in Morissette:

The contention that an injury can amount to a crime only when inflicted by intention is no provincial or transient notion. It is as universal and persistent in mature systems of law as belief in freedom of the human will and a consequent ability and duty of the normal individual to choose between good and evil.

But what mens rea means is as confused as the meaning of a voluntary act. In Powell, that the Supreme Court noted it "ha[d] never articulated a general

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254 HART, supra note 168, at 182.
255 See Farahany, supra note 138, at 5–9 (explaining the law's preference for social regulation whether or not determinism is correct).
256 Morissette v. United States, 342 U.S. 246, 250–51 (1952); see also id. at 263 (holding that mens rea is required for criminal liability). Notice that Justice Jackson transformed Blackstone's definition of a vicious will from awareness connected to public harm to intent. See id. at 250 & n.4.
257 See, e.g., Reed v. State, 693 N.E.2d 988, 989–90, 992 (Ind. Ct. App. 1998) (where the trial court refused to admit evidence that the shoplifting defendant suffered from a transient ischemic attack, causing periods of disorientation resulting inaphasia, to explain that she did not voluntarily or knowingly commit theft because she did not give notice of an insanity defense; but the appellate court reversed because evidence that her "unconscious, involuntary behavior prevented her from forming the requisite intent to commit theft" was relevant to show lack of mens rea); People v. Freeman, 142 P.2d 435, 439 (Cal. Dist. Ct. App. 1943) (holding that the trial court erred in instructing the jury to find the defendant guilty of reckless disregard in negligent homicide by automobile regardless of the fact that
constitutional doctrine of *mens rea.*" Instead, "[t]he doctrines of . . . *mens rea* [and] *insanity* . . . have historically provided the tools for a constantly shifting adjustment of the tension between the evolving aims of the criminal law and changing religious, moral, philosophical, and medical views of the nature of man." The result is that neither category quite fits the messy facts of human behavior to which it is applied, and therefore courts routinely push *actus reus* facts into *mens rea* categories and vice-versa. Thus, the categorization of *mens rea* is as incoherent and dysfunctional as that of *actus reus.*

In addition to the category confusion, courts also wrestle with the doctrine of diminished capacity. Diminished capacity can be either a legislative or a court imposed doctrine. It means that the accused lacks the capacity to form intent, and thus the defense requires expert testimony about the defendant's mental state. A finding of diminished capacity can result in either an acquittal or a conviction of a lesser crime. It is sometimes used as a form of excuse, but it is also used to exclude expert mental health testimony from the consideration of intent. Both states and courts have been active in abolishing diminished capacity as a defense to crime, reflecting a general distrust of mental health testimony.

For example, in Metrish v. Lancaster, the Supreme Court unanimously reaffirmed the first degree reconviction for murder of a man with a long history of mental illness. The Michigan Supreme Court had eliminated the diminished capacity defense in the time between the defendant's trial and retrial, and so Lancaster was not permitted to introduce evidence of his mental illness to negate *mens rea* at retrial. The Supreme Court upheld the retroactive application of Michigan's rule excluding testimony of mental illness to negate intent.

Similarly, in Jackson v. United States, the appellate court upheld the exclusion of expert testimony about the accused's delusions that his brother, whom he had killed, was possessed by demons, and that the accused had difficulty maintaining cogent thought. The appellate court had previously rejected diminished capacity defendant was unconscious during an epileptic seizure at the time of the accident, thus confusing *actus reus* (voluntary act requirement) with *mens rea* (intent requirement, or recklessness)).

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259 Id. at 536.
260 See, e.g., Haas v. Abrahamson, 910 F.2d 384, 392 n.9 (7th Cir. 1990) (noting that courts rejecting expert evidence of medical abnormalities often use the shorthand of diminished capacity).
262 See Shank, 367 S.E.2d at 641-44.
263 See DRESSLER, supra note 230, at 656–58 (discussing courts’ approaches to diminished capacity as either partial responsibility or as negating an element of the crime).
264 See, for example, United States v. Pohlot, 827 F.2d 889, 897 (3d Cir. 1987) the court categorized diminished capacity as "not a defense at all but merely a rule of evidence."
266 Id. at 1785–86, 1790–91.
267 Id. at 1791–92.
evidence, which it defined as "expert evidence of the accused’s mental abnormalities for the specific purpose of negating the required mens rea."\(^{269}\)

Even where a statute is clear that evidence of mental disease or defect is admissible to "negate a state of mind which is an element of the offense,"\(^{270}\) many courts may still exclude mental health testimony that is offered to negate intent as barred by the doctrine of diminished capacity.\(^{271}\) Courts, however, often wrongly believe that when an accused attempts to negate mens rea by mental state evidence, it is a "mini" insanity defense.\(^{272}\) A prime example of this confusion is the Supreme Court’s decision in Clark v. Arizona,\(^{273}\) which we discuss below. Unfortunately, the courts, including the Supreme Court, have thoroughly muddled the separate inquiries of whether an accused had the requisite intent with the issue of whether the accused, although having the requisite intent, should be excused.\(^{274}\) Naming the various kinds of intent (purpose or knowledge, for example) does not solve this problem. Intent is an element that must be proved by the prosecution. Insanity is an affirmative defense which must be proved by the defense.\(^{275}\) This conflation by the courts of voluntariness and intent with insanity has untoward consequences, including the exclusion of evidence, shifting the burden of proof, and sentencing decisions.

iii. Insanity

Even if the accused had volition and the requisite intent, he may still be able to establish an affirmative defense of insanity or other excuse.\(^{276}\) Since ancient times,

\(^{269}\) Id. at 933 (citing Bethea v. United States, 365 A.2d 64, 83 n.41 (D.C. 1976).

\(^{270}\) See, e.g., N.J. STAT. ANN. § 2C:4-2 (West 2017) (noting that "[i]n the absence of such evidence, it may be presumed that the defendant had no mental disease or defect which would negate" mens rea).

\(^{271}\) See, e.g., Samha v. Lagana, No. 11-4943, 2013 WL 2949547, at *3-4 (D.N.J. June 14, 2013) (finding no due process violation in trial court’s exclusion of expert testimony).

\(^{272}\) See, e.g., Bethea, 365 A.2d at 83-92; State v. Mort, 931 P.2d 1046, 1050-51 (Ariz. 1997), the Arizona case considered by the Supreme Court in Clark made this error.


\(^{275}\) Julie E. Grachek, Note, The Insanity Defense in the Twenty-First Century: How Recent United States Supreme Court Case Law Can Improve the System, 81 IND. L.J. 1479, 1480 (2006) ("Even when the prosecution has met this burden of proof, the insanity defense serves as an affirmative defense for the defendant."); Ira Mickenberg, A Pleasant Surprise: The Guilty but Mentally Ill Verdict Has Both Succeeded in its Own Right and Successfully Preserved the Traditional Role of the Insanity Defense, 55 U.CIN. L. REV. 943, 953-55 (1987) (discussing the purposes of using a criminal defense in general).

\(^{276}\) See Morse & Hoffman supra note 274, at 1075 (noting that mens rea is sometimes used to mean blameworthiness, which encompasses not only proof of each element of the crime but also failure to establish an affirmative defense).
legal systems have recognized insanity as some form of excuse. Unlike mens rea, which the prosecution must prove, insanity is an affirmative defense. It is, however, rarely used, and even more rarely is it successful. The Model Penal Code test exculpates an accused "if[,] at the time of such conduct[,] as a result of mental disease or defect[,] he lacks substantial capacity either to appreciate the criminality . . . of his conduct or to conform his conduct to the requirements of law." An accused who succeeds in proving insanity will be acquitted of the crime, but committed to a mental hospital for treatment.

In response to the now infamous John Hinckley case, where the accused was found not guilty (of attempting to assassinate President Reagan) by reason of insanity under the Model Penal Code test, many states and the federal government narrowed their insanity statutes. The Insanity Defense Reform Act of 1984 reinstated the Nineteenth Century M'Naghten test in federal courts and many states followed suit. The M'Naghten test provides for an insanity excuse if "at the time of . . . committing the act, the party accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or, if he did know it, that he did not know he was doing what was wrong." Notably, this test was developed in the absence of any information about how the brain works.

Most current insanity statutes consist of asking whether, at the time of the crime, mental disorder prevented the accused from knowing or understanding the nature of his conduct or that it was wrong. Alternatively (or conjointly) some insanity statutes ask whether the mental disease prevented the accused from

277 See MICHAEL S. MOORE, LAW AND PSYCHIATRY: RETHINKING THE RELATIONSHIP 65-66 (1984) (noting that ancient Roman, Muslim, and Hebraic law all absolved the insane from criminal responsibility); see also supra notes 177-178, 180 and accompanying text.

278 See sources cited supra note 275.

279 Henry F. Fradella, From Insanity to Beyond Diminished Capacity: Mental Illness and Criminal Excuse in the Post-Clark Era, 18 U. FLA. J.L. & PUB. POLY 7, 12 (2007) (observing that insanity is raised as a defense in fewer than one percent of felony cases and when it is raised, it is unsuccessful three-quarters of the time).


281 Id. § 4.08.


284 18 U.S.C. § 17(a) (2012) (providing that only an accused who can prove that he is "unable to appreciate the nature and quality or the wrongfulness of his acts" because of a severe mental disease or defect, may be found insane).

285 See infra notes 290-292 and accompanying text.


controlling his conduct and/or conforming his conduct to the requirements of law.\textsuperscript{288}

Not all states recognize an insanity defense; four states have abandoned the insanity defense altogether.\textsuperscript{289} Seventeen states and the federal government use the M'Naghten rule.\textsuperscript{290} Eleven states have adopted only one part of the M'Naghten rule.\textsuperscript{291} Eighteen other states have amalgams of the M'Naghten rule and other formulations.\textsuperscript{292} The wording of the insanity statute will determine what kind of mental health testimony will be available for the affirmative defense.

\section{D. The Supreme Court's Interpretations of Actus Reus and Mens Rea}

Both volition and intent are crucial elements of a criminal trial. By failing to understand how the brain works, however, the courts, including the Supreme Court, have adopted unwarranted, outdated, and confused views of what these terms mean. Conflating volition and intent and permitting the exclusion of expert testimony that could help the jury understand these crucial issues, the courts have circumvented the accused's ability to present a complete defense and the jury's ability to evaluate a human act.

i. Pre-\textit{Clark} Explanations of \textit{Actus Reus} and \textit{Mens Rea}

The Supreme Court's pronouncements on the constitutional limits of \textit{actus reus} and statutory \textit{mens rea} definitions have become increasingly inscrutable.\textsuperscript{293} Moreover, the Supreme Court has actually had very little to say about brain science. In \textit{Sandstrom v. Montana}, the Court held that the jury may not be instructed that "the law presumes that a person intends the ordinary consequences of his voluntary acts."\textsuperscript{294} Such an instruction violates due process because the jury may have interpreted the presumption as conclusive or as shifting the burden of persuasion.\textsuperscript{295} Because either interpretation would have violated the Fourteenth

\footnotesize{\textsuperscript{288}This is the M'Naughten test for insanity. See supra note 286 and accompanying text.  
\textsuperscript{289}See Clark v. Arizona, 548 U.S. 735, 752 & n.20 (2006). Four states have abandoned an insanity defense: (1) Kansas, KAN. STAT. ANN. § 22-3220 (repealed 2011); (2) Montana, MONT. CODE ANN. § 46-14-201(1) (1978) (amended 1979); (3) Idaho, IDAHO CODE ANN. § 18-207 (West 2018); (4) Utah, UTAH CODE ANN. § 76-2-305 (2017). There is some question about whether abandoning such a defense is constitutional. But, in dicta, the Supreme Court in \textit{Clark v. Arizona} opined that there is no constitutional right to an insanity defense. 548 U.S. at 749–53.  
\textsuperscript{290}See Clark, 548 U.S. at 750 & n.12; \textit{M'Naghten's Case}, 8 Eng. Rep. at 722.  
\textsuperscript{291}Clark, 548 U.S. at 750–51, 751 nn.13–14.  
\textsuperscript{292}Id. at 751 & nn.15–18.  
\textsuperscript{293}The question for the Supreme Court is whether fundamental fairness requires states' criminal laws to include some recognition of mental state under the Due Process Clause. See \textit{Leading Cases: Required Scope of Insanity Defense}, 120 HARV. L. REV. 223 (2006) (discussing \textit{Clark}).  
\textsuperscript{295}See id. at 521–24.}
Amendment’s requirement that the state prove every element of a criminal offense beyond a reasonable doubt, the instruction given was unconstitutional.296

Two cases that importantly involved the concept of mens rea but were decided on the basis of the Eighth Amendment’s prohibition against cruel and unusual punishment were Atkins v. Virginia, which held that executing the mentally retarded violated the Constitution,297 and Roper v. Simmons, which held that execution of a person who committed capital murder prior to reaching eighteen is unconstitutional.298 Both of these cases discussed the evolving capacities of the brain.299 These cases are important because they are the first in which the Supreme Court actually acknowledged that the brain and its development and function are important in assessing the accused’s behavior, and therefore criminal liability.300

ii. Clark v. Arizona

The Supreme Court’s most opaque mens rea decision involved the scenario set out in the Introduction to this Article, involving a delusional young man shooting a police officer, convinced that the officer was an alien.301 Clark had been charged with first-degree murder under an Arizona statute prohibiting intentionally or knowingly killing a law enforcement officer who was in the line of duty, and found guilty in a bench trial.302

The defendant, Eric Clark, had a history of psychotic paranoid schizophrenia and had to be medicated for two years before he could even stand trial.303 At the bench trial, the prosecution’s mens rea theory was that Clark had deliberately lured a policeman to the neighborhood, by repeatedly driving around the neighborhood in his truck, playing loud music, for the express purpose of shooting a policeman.304 Clark attempted to undermine this theory through expert testimony about symptoms of paranoid schizophrenia.305 Because it was a bench trial, the judge permitted Clark’s expert to testify, although he explicitly disregarded this testimony in his opinion.306

296 Id. at 524.
298 Roper v. Simmons, 543 U.S. 551, 568–75 (2005) (holding that such executions violate the Eighth Amendment).
299 See Atkins, 536 U.S. at 317–21; Simmons, 551 U.S. at 569–71.
302 ARIZ. REV. STAT. ANN. § 13-1105 (A)(3) (2017); see also Clark, 548 U.S. at 743–46.
303 Clark, 548 U.S. at 742–45.
304 Id.
305 Id. at 743–45.
306 Id. This was a bench trial, and the trial judge permitted the defense expert to testify, although the judge said that he would not consider the testimony on the issue of mens rea. See Clark v. Arnold,
Clark's expert proffered testimony that common symptoms of schizophrenia include the need to play music loudly to drown out internal auditory hallucinations and delusions about aliens. Clark's evidence also included lay testimony about his increasingly bizarre behavior, including his belief that aliens were masquerading as government officials, that aliens were trying to kill him, and that bullets were the only way to stop them. The judge explicitly disregarded the expert testimony explaining the behavior and beliefs as common symptoms of paranoid schizophrenia. Inexplicably relying on State v. Mott, which held that psychiatric expert testimony about battered women's syndrome (which is not recognized as a diagnostic criterion) was inadmissible to negate mens rea, Clark's trial judge refused to consider the defendant's proffered expert mental health diagnostic testimony to negate mens rea.

Clark also raised the insanity defense, which, in Arizona, is limited to the defendant's ability to appreciate whether the charged conduct was wrong, a defense that Arizona requires defendants to prove by clear and convincing evidence. Clark's expert testified that because of Clark's illness, he was suffering from delusions about aliens when he killed the officer and could not tell right from wrong.

The prosecution expert did not contest the defense diagnosis of paranoid schizophrenia, but testified that Clark's actions before and after the shooting (stuffing the gun he used into a knit cap, discarding it, and fleeing the scene) demonstrated that he knew his conduct was wrong. Clark was convicted, his conviction was appealed and affirmed, and the U.S. Supreme Court granted certiorari to decide two questions: whether the Arizona courts violated due process by barring evidence of mental illness to negate mens rea, and whether the Arizona insanity statute violated due process in defining insanity so narrowly.

The Supreme Court upheld Arizona's rule excluding evidence of mental illness in determining mens rea, as well as Arizona's abbreviated form of the M'Naghten standard.
test for insanity.\textsuperscript{318} By a 5–4 margin, the Court opined that states could choose to bar expert testimony about mental illness or capacity if it related to negating \textit{mens rea}.\textsuperscript{319} In doing so, however, it further complicated the meaning of \textit{mens rea} by dividing the evidence that could be considered into three novel categories.\textsuperscript{320} Writing for the majority, Justice Souter identified these three categories as observation evidence, mental disease evidence, and capacity evidence.\textsuperscript{321}  

First, the Court defined observation evidence as testimony "relevant to show what in fact was on Clark's mind when he fired the gun."\textsuperscript{322} The majority defined observation evidence as Clark's actions, words, and tendency to think and behave in certain ways, which could be proffered by both lay and expert testimony.\textsuperscript{323} Second, mental disease evidence would include expert diagnostic testimony about whether Clark suffered from psychotic paranoid schizophrenia at the time of the shooting.\textsuperscript{324} Third, capacity evidence is "about a defendant's capacity for cognition and moral judgment (and ultimately also his capacity to form \textit{mens rea})."\textsuperscript{325} Capacity evidence would include expert testimony about whether Clark's illness left him incapable of knowing that his conduct was wrong.\textsuperscript{326}  

Because the Arizona courts had limited mental disease evidence and capacity evidence to the insanity defense but had not (and constitutionally could not have) limited observation evidence, the majority opined that observation evidence was all that could be admitted in Clark's \textit{mens rea} defense.\textsuperscript{327} As the Court explained:

\begin{quote}
Nothing -that we hold here is authority for restricting a factfinder's consideration of observation evidence indicating state of mind at the time of a criminal offense (conventional \textit{mens rea} evidence) as distinct from professional mental-disease or capacity evidence going to ability to form a certain state of mind during a period that includes the time of the offense charged.\textsuperscript{328}
\end{quote}

Clark's expert had proffered just such testimony.\textsuperscript{329} But, since Clark had not specifically objected to the court's barring his observation evidence from consideration of \textit{mens rea} (which he would have had no reason to do, since these

\begin{footnotes}
\textsuperscript{318} \textit{Id.} at 747–49, 756. Arizona permits an insanity defense if the defendant "was afflicted with a mental disease or defect of such severity that [he] did not know the criminal act was wrong." ARIZ. REV. STAT. ANN. § 13-502(A).

\textsuperscript{319} \textit{Clark}, 548 U.S. at 742, 779.

\textsuperscript{320} \textit{Id.} at 756–59.

\textsuperscript{321} \textit{Id.}

\textsuperscript{322} \textit{Id.} at 757.

\textsuperscript{323} \textit{Id.} at 757–58.

\textsuperscript{324} \textit{Id.} at 758.

\textsuperscript{325} \textit{Id.} at 758 & n.30 (noting that while Arizona permits testimony on the ultimate issue of insanity, \textit{FED. R. EVID.} 704(b) is interpreted by some states to prohibit such testimony).

\textsuperscript{326} \textit{Id.} at 758–59.

\textsuperscript{327} \textit{Id.} at 760–65.

\textsuperscript{328} \textit{Id.} at 765 n.34.

\textsuperscript{329} \textit{Id.} at 745.
\end{footnotes}
three novel evidentiary categories were without precedent), it was not before the Court. So the majority saw Clark’s challenge as limited to restrictions on mental disease and capacity evidence. This was evidence the Court found to be permissibly channeled into the affirmative insanity defense, which Arizona had limited to knowing right from wrong.

The effect of the majority’s odd separation of mens rea testimony into three types, observation, mental disease, and capacity, is weirdly incoherent. As the dissent explained, evidence does not come so neatly packaged. For example, although the majority was willing to permit into evidence testimony about Clark’s increasingly bizarre behavior and his expressed belief that aliens were posing as government officials, it would have excluded testimony that explained that common symptoms of schizophrenia include delusions (not uncommonly involving aliens) and hallucinations (often causing the afflicted to play music loudly to drown out the voices in their heads).

As the dissent noted, the fact that schizophrenics play music loudly is a fact regarding behavior, but it is relevant (and admissible) only if Clark is a schizophrenic. Expert testimony was essential to understanding how Clark processed information and what was on his mind at the time of the shooting. Clark’s diagnosis therefore should not have been cabined into the insanity defense. This expert testimony also was crucial to giving credence to lay testimony that Clark thought aliens were trying to kill him.

Thus, the Supreme Court channeled mental disease and capacity evidence relevant to mens rea—which the prosecution must prove beyond a reasonable doubt—into an affirmative defense presenting a completely different question (telling right from wrong rather than intent or knowledge)–which the defendant must prove by clear and convincing evidence. In doing so, it conflated mens rea (a factual inquiry about knowledge and intent) with insanity (a question of moral responsibility). As the Kennedy dissent observed, the effect of this transmogrification is to impermissibly shift the burden of proof to the defendant. This result does not make the expert testimony any more reliable, and the Clark decision tramples on the fundamental principle of American jurisprudence that the prosecution must establish all elements of a crime beyond reasonable doubt. It

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330 Id. at 760–65. On appeal, the court declined to find that this was reversible error. See Clark v. Arnold, 769 F.3d 711, 726–28 (9th Cir. 2014).
331 Clark, 548 U.S. at 760–65.
332 Id. at 760, 770–73.
333 Id. at 782–84 (Kennedy, J., dissenting).
334 Id.
335 Id.
336 Id. at 766–73.
337 Id. at 794–97 (Kennedy, J., dissenting).
338 Id.
339 Peter Westen argues that the Supreme Court missed the real issue in Clark, and that the real question should have been whether Arizona could require Clark to bear the burden of proving that, because of mental illness, he thought he was killing an alien rather than a policeman. Peter Westen, The Supreme Court’s Bout with Insanity: Clark v. Arizona, 4 OHIO ST. J. CRIM. L. 143, 151–52 (2006).
undermines the defendant's right to present evidence, and it circumvents the judge's role of ensuring that evidence put before the jury is relevant and reliable. The majority's rationale was that because Arizona was entitled to define insanity to preclude a cognitive element, permitting only a moral blameworthiness inquiry, it could also preclude testimony that would bring the same evidence in through what it characterized as the back door of mens rea. As the Court explained, "if a jury were free to decide how much evidence of mental disease and incapacity was enough to counter evidence of mens rea to the point of creating a reasonable doubt," that would permit defendants to reestablish what the legislature had defined out of its insanity defense: diminished capacity. And since all that it takes to negate mens rea is evidence casting a reasonable doubt on the prosecution's evidence, the majority feared that would emasculate the clear and convincing standard of the Arizona insanity defense. A state should be able to prevent that result, the majority opined, by confining mental disease and capacity evidence to insanity defenses. The Court does not explain why the expert testimony in Clark was so risky. Admitting evidence of paranoid schizophrenia and its effect on behavior by a person qualified to testify about the brain science, who presents well performed studies to back her opinion, would seem to enlighten rather than confuse the jury.

### iii. Evidentiary Approaches Post-Clark

Many courts continue to exclude expert testimony about mens rea after the Clark decision. Nearly thirty percent of states bar evidence of mental illness

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340 Ronald Allen argues that although Clark is a case about evidence (contra Westen), the Supreme Court got it right because "mental health professionals often talk gibberish, and the evidence they provide is often lousy, both being true enough so that the state's limitation of the use of this type of evidence entirely is permissible under the due process clause." Ronald J. Allen, Clark v. Arizona: Much (Confused) Ado About Nothing, 4 OHIO ST. J. CRIM. L. 135, 140 (2006). Notably, Professor Allen offers no support for his assessment of psychological testimony, nor any discussion of the reliability of the expert testimony involved in Clark.

341 Clark, 548 U.S. at 771–73.

342 Id. at 772–73.

343 See id.

344 See id. at 773 n.42.

relevant to *mens rea.* Generally, these courts find that mental state testimony is irrelevant to negating the required *mens rea.* Curiously, although these exclusions reflect skepticism about expert mental state testimony, these courts do not engage in any Daubert or Rule 702 analysis for empirical basis. Instead, they simply find that the testimony is outside the legal definition of volition or intent.

In addition, although after Sandstrom courts no longer give instructions that the law presumes that a person intends the natural and ordinary consequences of his voluntary acts, courts pervasively instruct juries that they may infer that a person intends the natural and ordinary consequences of his acts. The effect of this instruction, if coupled with the exclusion of expert mental health testimony, limits the jury to deciding what a reasonable person would have intended by her actions. Of course, the crux of the problem is that the expert testimony is necessary to show that the accused is manifestly not a reasonable person, but a person afflicted with mental illness. The jury is thus prevented from assessing both the voluntariness of the act and the intention that accompanied it.

### III. How Neuroscience Can Help

Some scholars say that because criminal law is a question of social control, neuroscience is irrelevant to criminal responsibility. Stephen Morse, for example, argues that neuroscience is wholly irrelevant to law. Law's primary concern, he

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348 Daubert places the responsibility of evaluating expert testimony squarely on the trial judge and provides some tips on how to go about this task. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 592–93 (1993).

349 Federal Rule of Evidence 702 now provides that expert testimony must be based on "sufficient facts or data" reliably applied to the facts in the case. *Fed. R. Evid. 702.*

350 See, e.g., United States v. Thomas, 728 F.2d 313, 320–21 (6th Cir. 1984); United States v. Guyon, 717 F.2d 1536, 1539 (6th Cir. 1983); United States v. Bohlin, 625 F.2d 751, 752–53 (6th Cir. 1980); United States v. Reeves, 549 F.2d 536, 541.

351 See, e.g., Nita A. Farahany & James E. Coleman, Jr., *Genetics, Neuroscience, and Criminal Responsibility, in The Impact of Behavioral Sciences on Criminal Law* 183, 185 (Nita A. Farahany ed., 2009) (arguing that "as a matter of criminal law theory, [behavioral genetics and neuroscience] . . . evidence should not inform the assessment of criminal responsibility in . . . any meaningful way").

352 See Stephen J. Morse, *The Non-Problem of Free Will in Forensic Psychiatry and Psychology, 25 Behav. Psychol. & L. 203, 205, 216 (2007) [hereinafter Morse, The Non-Problem of Free Will]. Professor Morse appears to have moderated his views somewhat, as he now contends that "mental disorder may explain why a requisite men rea was not formed," and that Clark may have had a mental
Actus Reus, Mens Rea, and Brain Science

contends, is social control, and neuroscience cannot answer the basic question of whether the law is efficient.\textsuperscript{353} The real question, according to Morse, is whether a functional, utilitarian purpose is served by ascribing criminal liability, and this is not a question that neuroscience can answer.\textsuperscript{354} We think that this is an incomplete analysis, because achieving social control—assuming that is the goal—requires an understanding of human cognition and behavior, and for that, neuroscience is crucial. Moreover, questions of utility and function ought to be empirically demonstrated rather than tautologically asserted. There does not seem to be anything efficient about filling our prisons with the mentally ill.

According to Professor Morse, “At nearly all times, humans are conscious of themselves [and] perceive and are aware of what they are doing.”\textsuperscript{355} This is categorically wrong. People with mental illness do not experience consciousness, perceptions, and awareness as most of us do; rather they may be experiencing the kind of altered consciousness of a dream state. Sometimes the mentally ill may perceive reality the way healthy people do, but sometimes they do not. Therefore, Morse’s contention that almost all mentally disordered defendants have \textit{mens rea} is simply false.\textsuperscript{356} Nor can his analysis stand of Tempest. Morse argues that Tempest, a schizophrenic woman, who had been in and out of mental institutions for most of her life, had the requisite \textit{mens rea} for murder, because she planned for three days to drown her six-year-old son in the bathtub in order to be rid of the socializing that motherhood entailed.\textsuperscript{357} Even though Professor Morse acknowledges that what he calls psychotics (like Tempest, the mother in the case) are grossly out of touch with reality, he argues that mental illness diagnoses are irrelevant—all that counts is what the accused thought, perceived, and believed.\textsuperscript{358} Since the mother thought about killing her son, believed that drowning him would kill him, and perceived him drowning, she was guilty of murder.\textsuperscript{359}

This narrow view of “purpose” does not reflect what we know about human behavior.\textsuperscript{360} As we discussed in Part I, saying a schizophrenic intends her actions is like saying a dreamer “intends” her dream actions and holding a dreamer responsible for the content of her dreams.\textsuperscript{361} Professor Morse castigates Tempest’s mental health experts because they failed to fit their testimony into the correct narrow legal categories. Those legal categories, however, reflect nineteenth century ideals of agency and choice rather than the reality of human nature. This legal disorder that produced “an irrational belief that is inconsistent with the formation of \textit{mens rea}.” Stephen J. Morse, \textit{Mental Disorder and Criminal Law}, 101 J. CRIM. L. & CRIMINOLOGY 885, 920–21 (2011) [hereinafter, Morse, \textit{Mental Disorder and Criminal Law}].

\begin{itemize}
  \item \textsuperscript{353} See Morse, The Non-Problem of Free Will, supra note 352, at 205.
  \item \textsuperscript{354} Id. at 214–16.
  \item \textsuperscript{355} Morse, Undiminished Confusion, supra note 28, at 46.
  \item \textsuperscript{356} See id. at 53.
  \item \textsuperscript{357} Id. at 2–5, 33, 36–37 (citing Commonwealth v. Tempest, 437 A.2d 952 (Pa. 1981)).
  \item \textsuperscript{358} See id. at 29–30, 50–55.
  \item \textsuperscript{359} See id. at 36–37, 49.
  \item \textsuperscript{360} See supra Part I.
  \item \textsuperscript{361} See supra Part I.
\end{itemize}
Curiously, Professor Morse would excuse a seven-year-old for shooting his sibling even if he thought about and planned the killing for days, because no moral blameworthiness attaches.\textsuperscript{362} Why not? If planning and purpose is all that is needed for intent, the seven-year-old surely had it. Professor Morse does not explain what he means by moral blameworthiness and why it would attach in one instance (Tempest) and not the other (the seven-year-old).

Infancy and insanity have always been excuses, though the parameters of each have varied. Professor Morse’s analysis appears to reflect Holmesian ideas that blameworthiness is whatever society determines it to be,\textsuperscript{363} but that makes for a rather circular argument. The real question is why a seven-year-old who has purpose and plan is exempt from criminal charges while a paranoid schizophrenic with a purpose and plan is not. Presumably, that is because a seven-year-old’s consciousness is not yet developed. But then why not exempt a schizophrenic, whose consciousness is sick? We are not suggesting that the seven-year-old should be criminally liable, only that the reason he is not liable is that his brain is not yet fully functional—it has nothing to do with morality.

Even some people who are quite sophisticated about the brain would exclude, as irrelevant to criminal trials, evidence about how the brain works.\textsuperscript{364} Michael Gazzaniga, for example, contends that “[a]n abnormal brain does not mean that the person cannot follow rules.”\textsuperscript{365} But this is, empirically speaking, not true. Notably, even in the highly regulated context of prison, with its explicit rules, prisoners with mental health issues are far more likely to have conduct infractions than the normal prison population and tend to serve five months longer on average than those without mental illness, often because of an inability to follow rules.\textsuperscript{366}

In Dr. Gazzaniga’s opinion, responsibility emerges from the social context and even schizophrenics can “stop at traffic lights and pay cashiers.”\textsuperscript{367} Well, some can follow (some) rules some of the time. Some sleepwalkers (or sleep-drivers) do stop at traffic lights and pay cashiers. That does not mean that there was volition or choice involved. Similarly, although schizophrenics sometimes may be able to follow some rules, the intent question is an inquiry into what the probabilities are that a particular schizophrenic knowingly or purposefully failed to do so.

Understanding neuroscience is critical to criminal law and jurisprudence because a system of just social control, which is what the law purports to be, ought to be based on an understanding of how those under such control function. Legal

\textsuperscript{362} See Morse, \textit{Undiminished Confusion}, supra note 28, at 5–6; \textit{id.} 20–21 ("[S]mall children, who lack reasonable cognitive or volitional capacity through no fault of their own . . . are not considered fully responsible as moral agents.").

\textsuperscript{363} See HOLMES, \textit{supra} note 162, at 50, 66, 70.

\textsuperscript{364} See generally GAZZANIGA, \textit{supra} note 77.

\textsuperscript{365} \textit{Id.} at 193.

\textsuperscript{366} JAMES & GLAZE, \textit{supra} note 192, at 8 (observing that fifty-eight percent of state prisoners with mental illness, compared to forty-three percent without, had been charged with rule violations).

\textsuperscript{367} GAZZANIGA, \textit{supra} note 77, at 194.
categories ought to conform to the real world, but that does not mean that everyone with a mental disease should be exempt from criminal liability. Rather, what is required is expert evaluation of the accused person's particular mental illness and the probabilities that this illness would affect the accused's behavior under the circumstances that the accused was experiencing.

IV. UNPACKING THE MEANING OF VOLITION, CHOICE, AND INTENT

A. Complexity Theory and Mental State

Complexity theory predominates in biological systems, including us. People with disturbed brains may or may not make disturbed decisions. As complex human beings, with many interacting parts (internal and external) people have many possibilities. At the same time, for some people, in some situations, choice is an illusion, bringing the voluntariness of the proscribed act into question. An expert ought to be able to testify about the context in which the accused was acting, how schizophrenics may hallucinate, have delusions, and how thalamocortical dysrhythmia distorts their perceptions and their choices. In addition, in order to understand the mental state of the accused, careful diagnosis is key.

Intent and volition are unquestionably mental states, as is insanity. These separate categories, however, do not really correspond to what is going on in the brain. The key questions ought to be whether there is a brain disorder and how that affects the decision process that led to the act in question. Not every mental illness prevents a person from forming mens rea. The mental illness must in some way affect a person's ability to choose a course of action to be relevant to volition and intent. An obsessive-compulsive person, for example, may well be able to form the intent to commit a robbery. Some scholars, like Morse and Hoffman, take this idea even further, and believe that "even the most delusional or hallucinating person can form the requisite mental state." Perhaps some can, at times, but not always.

A number of mental disorders alter the brain mechanisms under which we make decisions. For example, a person with a mental disorder may have a delusion, that is, a held belief in the absence of a rational basis. But such a mentally ill person may not have delusions all the time. The legal question ought to be whether at the time of the event, the delusion is so intense—so at odds with reality—that it affected the accused's ability to make a choice consistent with reality.

Hallucinations can also affect a person's ability to choose a course of action. A person who suffers from hallucinations may not suffer from them all the time, any more than a person with delusions does. Sometimes an accused may hallucinate that the people he is seeing are aliens, but sometimes he will just see people. Here, the legal question is, when the accused shot the gun, did he think he was shooting

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368 See supra p. 280.
369 See Morse & Hoffman, supra note 274, at 1089.
an alien or a person? The jury ought to hear the evidence about the accused's mental state before answering that question.

The key here is that when someone has thalamocortical dysrhythmia (resulting in a mismatch of context and content), perception may be abnormal. A stimulus may be misperceived, and the person may respond to that stimulus abnormally. Unless the jury can hear expert testimony about this condition, it will not be able to evaluate whether the accused had volition or intent. The jury ought to be able to hear that disease may impair perception before the decision to act was made or the act committed. Someone under the delusion that aliens have invaded, hallucinating that the policeman approaching him is an alien, may well misperceive the policeman's approach as an existential threat, for example.

In addition, as we noted in Part I, many of the mentally ill suffer from post-traumatic stress disorder (PTSD), which manifests in hyper-arousal. This means that the affected individual may over-react under conditions in which a normal individual would not because in this condition, the brain is hyper-reactive to sensory inputs. Especially under stress, the (normal) fight-or-flight response will be exaggerated because of the disease. Further, because all of these disorders involve impairment to the frontal lobes, a person suffering from these symptoms will be even less able to inhibit his primordial (fight-or-flight) reaction. He may not be able to activate what Gazzaniga calls "free won't." This is the symptom of hypo-frontality (decreased function of the frontal lobes) that is observed in many mental disorders and is also present after trauma to the frontal lobes. All or only some of these symptoms may be present in a mentally ill individual. Not all of them will be present all the time. The evidence of an accused's abnormality therefore is crucial to casting doubt on volition and intent.

For example, in the Andrea Yates case, the accused's delusion was that if she did not kill her children while they were still innocent, Satan would torture them forever.\(^{371}\) Did she, as Morse & Hoffman contend,\(^{372}\) have the intent to kill her children? We would say no. Yates's mental illness disrupted her rationality so that she was helpless to respond to her delusions about the after-life. She thought that in order to save her children, she had to kill them. Thus, evidence of her clinically established mental illness was relevant to her intent. It was also relevant to her delusions, which interfered with her ability to live in her culture. Thus, in addition to not having the requisite intent to kill (\textit{mens rea}) for her actions, she also was not blameworthy because her reality did not coincide with the social norm (she was insane).

In \textit{Clark}, the accused's symptoms included delusions (that aliens were taking over the bodies of human beings, particularly government officials) and a


\(^{372}\) See Morse & Hoffman, supra note 274, at 1089–90.
hallucination that Clark was shooting an alien, rather than a policeman.\textsuperscript{373} Because his delusions and hallucinations impeded rational thought as well as choice about his actions, the fact finder should have considered facts from which to conclude whether Clark could have formed the requisite intent to kill a policeman.

Knowing that a person with schizophrenia has a distorted and frightening sense of the world, is likely to respond inappropriately to his/her surroundings, and has little chance of reaching a rational decision about acting, should help judges determine that evidence of mental illness is not only relevant, but also essential, to determining whether the elements of \textit{actus reus} and \textit{mens rea} can be met. Moreover, such evidence should not be relegated to the insanity defense. Whether in terms of intent, volition or insanity, the courts are concerned about the ability to choose. The ability to make choices is linked to consciousness and more specifically to the preconscious, where voluntary acts begin. Preconscious awareness can be thought of as what is going on around us that we are not paying attention to, that is, life.\textsuperscript{374} Preconscious awareness keeps us alive and functioning, and when it is disrupted, our very survival is at risk. Unless someone is fully conscious—awake and functioning normally—they are not engaging in voluntary acts.

\textbf{B. Why Evidence of Mental Illness Matters}

The separate categories of \textit{actus reus} and \textit{mens rea} are fictions that may once have been useful, but no longer fit with what we know about human behavior. Most importantly for criminal law, nearly every mental illness is accompanied by abnormal sleep-wake control, disrupted arousal (misperceived “context”), and distorted fight-or-flight responses.\textsuperscript{375} This distorts perceptions and exaggerates responses to those perceptions. Schizophrenia, post-traumatic stress disorder, and some cases of frontal lobe damage or decreased blood flow all exhibit these characteristics.\textsuperscript{376} It is as though these people were dreamwalking through their own distorted dream world. Collisions with reality can be extreme and others need to be protected from such collisions. But if our goal is to protect society, we ought to be sure that what we are doing accomplishes that goal. Throwing people with mental illness into prison accomplishes neither utilitarian nor retributive goals. Sick people need to be in a therapeutic setting and treated until they can be safely returned to the “real world.” Even then, they will need monitoring.

Given this state of affairs, neuroscience is critical to the formation and implementation of rational and just laws. The consequences of judges employing

\textsuperscript{375} See \textit{supra} Section I.C.
\textsuperscript{376} See \textit{supra} Section I.C.
the outdated concepts of *mens rea* and *actus reus* and their lack of understanding about how the brain works have filled our jails and prisons with the mentally ill.\(^{377}\)

So, what should we do? The separate categories of *actus reus* and *mens rea* simply do not conform to what we know about human behavior. Instead of trying to force what happened into these inappropriate and inaccurate categories, there should be a single category that encompasses a sort of sliding scale of probabilities regarding how the accused’s mental illness may have affected his behavior.

Far from abandoning the requirements of a voluntary act, choice, or intentional, purposeful, or knowing acts, we think they should be effectuated by admitting expert evidence that explains the meaning of voluntariness and intentionality in the context of mental illness. Like any other words, voluntariness and intent need to be interpreted in context. Rather than interpreting terms like “knowingly” and “purposefully” (and even whether the defendant could tell right from wrong) in the context of a reasonable person, when evidence of mental illness exists, expert testimony by a qualified expert who bases her opinion on solid data should be set before the jury, along with probability estimates about the likelihood of the illness affecting the accused’s behavior at the time of the crime. This evidence should come in to allow the jury to determine whether the accused was a person whose reality was distorted by mental illness at the time of the crime so that purpose and knowledge take on a different meaning.

The reasonable person who pervades the law is the law’s attempt to achieve an objective rather than a subjective standard for addressing questions of volition and intent. Everyone has a reason for acting. The courts worry about being inundated by twinkie defenses and abuse excuses without some limitations.

That is where the *Daubert* standard and the requirements of Rule 702 become important. *Daubert* asks judges to examine proffered expert testimony for its empirical support, in the form of inquiries into testability, methodology and error rate, peer review and publication, and general consensus.\(^{378}\) Rule 702 requires judges to assess whether the expert testimony is based on “sufficient facts or data[,] . . . is the product of reliable principles and methods[,] . . . and . . . reliably applied . . . to the facts of the case.”\(^{379}\) Unless expert testimony can meet these standards it should not be admitted.

Expert testimony about how a particular mental state, from which the accused suffers, distorts reality and impacts volition and intent, must be screened for validity. Bogus information should not be admitted. But that does not mean that experts need to agree, nor does it mean that the judge needs to agree with the expert. Judges should require a solid diagnosis and testimony about the effects of paranoid schizophrenia, for example, based on studies with sound methodology and acceptable error rates.

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\(^{377}\) See, e.g., Hoke, *supra* note 190 (noting that half of all incarcerated prisoners suffer from mental illness compared to eleven percent of the general population, that forty percent of the incarcerated recidivate, and that prisons fall short of providing acceptable health care).


\(^{379}\) *FED. R. EVID.* 702.
Collisions with reality can be extreme and others need to be protected from such collisions. But by refusing to admit testimony about mental illness in determining volition or intent, judges are contributing to the morass of mental illness in our prisons and failing to protect society when the convicted are released. Instead of excluding expert testimony about mental state, judges should instead admit expert testimony so the jury can perform its interpretive and evaluative functions. Does that mean that many criminals who “did the deed” would be acquitted? Perhaps, but that does not leave the judicial system without resources to control crime. Civil commitment is still an option, even if the accused is acquitted of the crime due to mental illness. Just as civil commitment is widely used after the sentence of convicted sexual offenders has been served, if the offender is a danger to self or others, civil commitment could (and should) be available for those acquitted on the basis of mental illness testimony negating mens rea.

**CONCLUSION**

Well, you may say, this is all very interesting, but so what? The law—a product of our brains, minds, and culture—has created a paradigm of human behavior that has worked well enough, even if not grounded in reality. But it has not worked so well. Excluding testimony that explains the accused’s mental state while purporting to require proof of mental state is incoherent and diminishes the credibility of the legal system. Moreover, it undermines the defendant’s right to present his case, as well as the jury’s ability to evaluate and interpret a human act.\(^3\) The law is replete with discussion about volition, intent, and rationality. But by defining these terms without any information about how the brain actually works, how distorted perceptions may affect behavior, and instead relying on paradigms of human behavior that bear little resemblance to reality, the courts have created one of the highest rates of imprisonment on earth.\(^3\) And although that may serve to get some of the mentally ill off the streets, it does not keep them off the streets, nor does it get them the treatment they need to coexist in our society. The costs are enormous, to society and to the individuals involved.

As Grant Gilmore observed, “We have, I suggest, been living for a long time—too long a time—within the mainstream of nineteenth century thought. Our current malaise may reflect the obscure realization that the nineteenth century

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\(^3\) See Robert P. Burns, *Some Limitations of Experimental Psychologists’ Criticisms of the American Trial*, 90 CHI.-KENT L. REV. 899, 902 (2015) (contending that “[t]here are threats to justice that come from failing to deploy all the resources our common sense morality contains to fairly (‘accurately?’) interpret and evaluate a human act”).

ended some time ago.382 A new paradigm for human behavior must take into account the functioning of the brain. Sick people cannot necessarily control their thoughts (and therefore) their actions. Moreover, the context in which people act is an inextricable part of their thoughts and their actions. Diagnoses and evidence of what and how people like the accused are likely to think and do must be part of the consideration of criminal liability. Concepts like thought and act, intent and choice, must be understood as interconnected, rather than separate, narrow, context-free categories.

The outdated views under which judges are currently operating are based on suppositions, beliefs, and assumptions that do not correspond to reality. Surely, we can do better in the twenty-first century. Karl Llewellyn explained that “a first essential to any understanding at all [is] making the study of law a study in first instance of particularized situations and what happens in or can be done about them.”383 What we need now is a new paradigm of human behavior based on empirical studies, individual context, and an understanding of how brain malfunctions can affect behavior, rather than blind assertions about character and morality.