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BRAIN SCIENCE AND THE THEORY OF JUVENILE MENS REA*

JENNY E. CARROLL**

The law has long recognized the distinction between adults and children. A legally designated age determines who can vote, exercise reproductive rights, voluntarily discontinue their education, buy alcohol or tobacco, marry, drive a car, or obtain a tattoo. The Supreme Court has repeatedly upheld such age-based restrictions, most recently constructing an Eighth Amendment jurisprudence that bars the application of certain penalties to juvenile offenders and a Fourth Amendment jurisprudence that contemplates an adolescent-based standard of reasonableness for the Miranda v. Arizona custody analysis. In the cases of Roper v. Simmons, Graham v. Florida, Miller v. Alabama, and J.D.B. v. North Carolina, the Court's jurisprudence of youth relies on emerging neuroscience to confirm what the parents of any teenager have long suspected: adolescents' cognitive abilities and thought processes differ from their adult counterparts. Children are different than adults.

In the cases of Roper, Graham, and Miller, the Court recognized that brain development affects the legal construct of culpability and should accordingly affect punishment. In the Roper case line, the Court reasoned that without mature thought processes and cognitive abilities, adolescents as a class fail to achieve the requisite level of culpability demonstrated in adult offenders. As such, juveniles were categorically spared the death penalty and, in some instances, a sentence of life in prison without the possibility of parole. Likewise, in J.D.B., the Court concluded that the reasonableness of a juvenile defendant's perception of custody under Miranda v. Arizona must be age appropriate. The

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Court concluded that as a class adolescents had a different understanding of custodial status than adults. Courts contemplating the validity of a perception of custody under Miranda had to account for this difference in their analysis.

To date, the Court has limited the application of this principle to punishment and consent analysis under Miranda. The logic of the Court's decisions, however, applies just as strongly to the application of substantive criminal law. Likewise, scholars writing in the field have limited the application of neuroscience to either the territory staked out by the Court or to objective mens rea standards alone. The science, however, does not support such limitations. Just as modern neuroscience counsels against the imposition of certain penalties on juvenile offenders and an adjustment of Miranda's reasonableness analysis, so it counsels toward a reconsideration of culpability as applied to juvenile offenders through the element of mens rea. The failure to extend this jurisprudence of youth to every mental state element undermines the very role of mens rea as a mechanism to determine guilt.

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INTRODUCTION

As an element, mens rea serves the critical purpose in criminal law of differentiating behavior by degrees of culpability. Through mens rea, acts and harms are placed on a continuum of fault that

gives accidental conduct the lowest level of fault and deliberate or premeditated conduct the highest and most blameworthy level of fault. Mens rea not only draws boundaries between criminal and noncriminal events, but it cabins those events and assigns punishment based on the degree of the actor's culpability.

Inevitably, the inquiry into the state of mind element often requires a fact finder to contemplate what a defendant was thinking. Absent a defendant's disclosure of his own thoughts, fact finders are often left to infer a mental state from the defendant's actions. Even if a defendant offers insights into his mental state, the fact finder must still weigh the credibility of the defendant's confession against the fact finder's own perception of the world. Whether by the defendant's confession or the fact finder's inference, the calibration of mental state is filtered through the fact finder's own thought process and life experience. This filtering is not without judicial and legal guidance. In most jurisdictions and in the Model Penal Code ("MPC"), the law defines mental states and judges offer jury instructions designed to provide guidance as to the meaning of the mens rea element. Each of these definitions, however, proceeds from the premise that mental states are uniform and adult referential. Under this approach, all thought and thought processes are adult, and the proper analytic baseline for mens rea is an adult's understanding of the world.

This Article argues that this one-size-fits-all approach to mens rea is not only inconsistent with scientific evidence that the cognitive processes of adolescents differ from those of adults, but also undermines the purpose of mens rea when applied to juvenile offenders. As a result, I argue that the mens rea standard as applied to juveniles should be recalibrated to account for what is now known about adolescent development.

Such an argument is consistent with the Supreme Court's recent decisions in *Roper v. Simmons*,¹ *Graham v. Florida*,² *Miller v. Alabama*,³ and *J.D.B. v. North Carolina*,⁴ as well as its long-established jurisprudence of youth. In the *Roper* trilogy and *J.D.B.*, the Supreme Court noted what many have long suspected: children and adolescents do not engage in the same decision-making processes as adults. As a result, the *Roper* line reasons, adolescents may not achieve the same level of culpability as their adult counterparts, and therefore are ineligible to receive the death penalty or, in some

1. 543 U.S. 551 (2005).

2. 560 U.S. 48 (2010).

3. 132 S. Ct. 2455 (2012).

4. 131 S. Ct. 2394 (2011).

circumstances, a sentence of life in prison without the possibility of parole. In this, the Court recognized the role of the mental state element in assessing culpability.⁵ The Court's refusal to subject juveniles to particular punishments was premised on the acknowledgement that immature thought processes rendered adolescents less culpable, at least as compared to their adult counterparts.

This assessment of culpability in the context of punishment certainly has some idiosyncrasies. Most notably, substantive criminal law purports not to share punishment theory's abiding interest in the potential for rehabilitation or even the probability of reoffense in its assignment of guilt.⁶ Despite this difference, the culpability analysis for punishment and the culpability analysis for substantive criminal law both purport to judge the defendant's level of guilt based on what is known of the defendant's actions and the harm he caused. In this calculation, whether in judgment of guilt or punishment, the defendant's state of mind matters as it signals a variance in the defendant's level of culpability.

The *Roper* line acknowledged this premise for punishment, and *J.D.B.* expanded this premise's application in the context of *Miranda*.⁷ In *J.D.B.*, the Court concluded that it is erroneous to use the same standard of reasonableness when assessing the juvenile defendant's perception of custody for *Miranda* purposes.⁸ While these decisions have been lauded as striking new ground in the context of Eighth Amendment jurisprudence by categorically prohibiting previously permissible sentences for juvenile offenders—and Fourth Amendment jurisprudence by creating an “age appropriate” standard of reasonableness—they all toed a well-worn path that the Court and the law more generally had constructed with regard to youth. This jurisprudence of youth was premised on the acknowledgment that children were different than adults, and therefore enjoyed a distinct legal status. Even in the context of sentencing, over a decade earlier, the Court remarked that the law must recognize that adolescents tend to be more impetuous, reckless, and immature than adults.⁹

The *Roper* line and *J.D.B.* will undoubtedly be recognized as watershed moments in the context of Eighth and Fourth Amendment jurisprudence, but their greatest significance may lie elsewhere. In

5. See *Roper*, 543 U.S. at 569–70.

6. See *id.* at 570–75.

7. *Miranda v. Arizona*, 384 U.S. 436 (1966).

8. See *J.D.B.*, 131 S. Ct. at 2404.

9. See *Johnson v. Texas*, 509 U.S. 350, 368 (1993).

these cases, the Court relied for the first time on scientific studies to support the doctrine of difference that it had previously staked out with regard to youth. Using these studies, the Court concluded with heightened conviction that children think differently than adults, and that this difference, at least in the context of punishment and perceptions of custody, signals a need for the application of a different legal standard to adolescents.

As significant as this pronouncement is, it has remained confined to punishment and *Miranda's* custody analysis. While the Court significantly expanded its consideration of adolescent thought processes in *J.D.B.* to encompass the perception of custodial status, thus far courts have declined to extend *Roper's* and *J.D.B.'s* analysis to culpability standards contained in the substantive criminal law concept of mens rea. This seems odd as the conceptual premise of these two lines holds equally true in the context of substantive criminal law. It therefore seems only logical that—just as the Court has developed a Fourth and Eighth Amendment jurisprudence that recognizes the differences between adult and adolescent thought processes—so must a parallel jurisprudence evolve around mens rea and the most basic question it seeks to answer: is the adolescent guilty in the first place? This Article makes the novel argument that applying current, adult-based mens rea standards to adolescent defendants is not only logically inconsistent with the Court's position in *Roper* and *J.D.B.* and its more global jurisprudence of youth but that such an application fundamentally undermines the very function of the mental state element.

The principal goal of this Article is to lay the foundation for the application of adolescent neuroscience in the sphere of substantive criminal law. This is an important first step, but it is only a first step and larger questions inevitably linger. What proof problems would a juvenile-centric mens rea approach create? How would substantive defenses be affected? Is such an approach likely to change outcomes? What does such an approach suggest about the juvenile criminal system itself? These and other questions are difficult ones, and I look forward to engaging these lingering questions in future work. While this Article does not address all of these important issues, it opens an avenue of discussion that previous scholarship in the area has yet to address: that what is known about adolescent brain development must inform our calculation of juvenile mens rea.

In order to achieve the purported function of mens rea, courts must recognize that an analysis of a state of mind element must encompass consideration of the distinct processes and capabilities of

adolescents. In short, the fact finder must view the factual narrative of the case from the defendant's perspective. Courts cannot accept on faith that an adult fact finder will faithfully remember or properly assign meaning to the actions of adolescent defendants. Instead, courts must both allow the presentation of evidence on the distinct thought processes that are the hallmark of *normal*¹⁰ adolescent development and offer instruction to fact finders to consider these distinctions in their calculation of the defendant's state of mind.

While proponents of juvenile neuroscience in the context of the Eighth Amendment in particular have cautioned against its premature use in substantive criminal law realms, such caution undervalues the relevance of the scientific evidence to mens rea and undermines the value of the mental state element itself. Such caution is premised on the notion that substantive criminal law's continued reliance on adult standards of mens rea remains an appropriate calibration of adolescent guilt. Whatever limitations the current state of science suffers, it provides sufficient insight to confirm that continued use of an adult-centric mens rea standard for juvenile offenders provides inaccurate insights into the adolescent's actual guilt under the law.

I make this argument in four parts. I begin with an examination of substantive criminal law's efforts to define culpability in terms of an actor's state of mind. In this discussion, mens rea emerges as a critical element whose articulated purpose is to distinguish and categorize levels of blameworthiness. In Part II, I turn to the Supreme Court's construction of the jurisprudence of youth. Just as the law classifies youth and assigns legal significance to this classification, so too has the Court constructed a doctrine around youth generally and adolescence specifically. In the fortification and expansion of this doctrine, the Court has increasingly relied on the science of human development to set the boundaries of juvenile culpability. In Part III, I consider the emerging scientific evidence surrounding juvenile brain development and its implications for executive function, in particular the willingness of adolescents to engage in risky behavior and their failure to understand the long-term consequences of decisions. Finally, in Part IV, I conclude that, given the critical role that substantive criminal law assigns mens rea as the arbitrator of

10. By "normal," I am referring to the typical range of physical and psychological development recognized by the scientific literature. See generally Ronald E. Dahl, *Adolescent Brain Development: A Period of Vulnerabilities and Opportunities*, 1021 ANNALS N.Y. ACAD. SCI. 1, 1-22 (2004) (describing typical developmental traits during adolescence).

culpability, the development of a jurisprudence surrounding youth, and the emerging body of scientific literature supporting the distinction between adult and adolescent decision-making processes and capabilities, the current application of an adult-based mens rea standard is not only based on a false premise, but undermines the purpose of the state of mind element itself.

I. MENS REA'S ROLE IN CRIMINAL LAW

At its core, criminal law links notions of culpability and blameworthiness.¹¹ Though intertwined, these are distinct concepts. At the most basic level, the actor's moral blameworthiness is a necessary prerequisite for state-imposed punishment, though alone it is insufficient.¹² If blameworthiness designates an act as morally wrong, culpability places that "wrongfulness" on a continuum of fault, defining and categorizing the actor's transgression. In this, the concept of mens rea is critical. Mens rea, or the requirement of a mental state, seeks to differentiate between acts that are blameworthy and those that are culpable and therefore deserve punishment.¹³ In this determination, the act or even the harm it may have caused is not enough. The presence or absence of a mental state is the difference between an accidental or unintentional act and one that deserves punishment.¹⁴ As Justice Holmes famously noted, criminal law pivots around this distinction: "[E]ven a dog distinguishes between being stumbled over and being kicked."¹⁵ Holmes's dog sensed what the drafters of MPC, and countless legislative bodies, have attempted to enshrine in statute: an act without a mental state is usually not a crime.¹⁶ The act may still cause harm and may even cross over into the wasteland of moral blameworthiness, but the absence of a mental

11. See JOSHUA DRESSLER, *UNDERSTANDING CRIMINAL LAW* §§ 10.01–.02 (5th ed. 2009); Arnold H. Loewy, *Culpability, Dangerousness, and Harm: Balancing the Factors on Which Our Criminal Law Is Predicated*, 66 N.C. L. REV. 283, 283 (1988).

12. See Stephen F. Smith, *Proportional Mens Rea*, 46 AM. CRIM. L. REV. 127, 127 (2009) (noting that moral blameworthiness is a necessary prerequisite for punishment).

13. See Peter Arenella, *Convicting the Morally Blameless: Reassessing the Relationship Between Legal and Moral Accountability*, 39 UCLA L. REV. 1511, 1527 (1992) (arguing that mens rea is the initial signifier of moral blameworthiness).

14. Even mental states such as recklessness or negligence, which are couched in terms of a disregard of risk as opposed to knowledge or intentionality, attribute a mental state to such disregard, rendering the act "more" than a mere accident.

15. OLIVER WENDELL HOLMES, *THE COMMON LAW* 3 (Dover Publ'g 1991) (1881).

16. See generally Jeremy M. Miller, *Mens Rea Quagmire: The Conscience or Consciousness of the Criminal Law?*, 29 W. ST. U. L. REV. 21 (2001) (discussing the role of mens rea given that "[g]enerally, all crimes contain a mens rea or mental state element").

state generally renders it nonculpable and thus unworthy of state-imposed punishment.¹⁷

While mens rea may be an imprecise caliper, it nonetheless establishes the threshold between concepts of moral blameworthiness and culpability.¹⁸ Mens rea seeks to sort acts into categories of culpability with the dual purposes of establishing sufficient culpability to justify a particular punishment¹⁹ while protecting against the imposition of disproportionate punishment.²⁰ While the Supreme Court has declined to designate mens rea as a constitutionally mandated element under the Due Process Clause, it does recognize that the concept is integral to notions of culpability, justice, and punishment.²¹ While strict liability crimes or crimes with no mens rea requirement certainly exist, they are both in the minority and generally disfavored.²² The MPC, in fact, requires readers to impose a mental state requirement in otherwise silent statutes unless the legislature clearly designates it as a strict liability offense.²³

Thus, while proof of all elements beyond a reasonable doubt is necessary for conviction and punishment, mens rea serves a unique role, seeking to separate acts that cause harm from those that both cause harm and implicate the actor as culpable. Mens rea is the difference between Holmes' stumble and kick. In this difference, a

17. Not all harm is punished with criminal sanctions. Some harms are treated as matters of civil liability and incur civil judgments. This Article does not address such civil punishments or the significance of adolescence with regard to civil judgments, though certainly one could make parallel arguments given the reliance on mental states to determine degrees of civil liability.

18. See Sanford H. Kadish, *Excusing Crime*, 75 CALIF. L. REV. 257, 260-61 (1987) (arguing that one cannot establish culpability without first linking blameworthiness to a mental state).

19. Stuart P. Green, *Why It's a Crime To Tear the Tag off a Mattress: Overcriminalization and the Moral Content of Regulatory Offenses*, 46 EMORY L.J. 1533, 1547-48 (1997) (contending that mens rea distinguishes degrees of blameworthiness or the extent to which offenders should be held responsible).

20. Smith, *supra* note 12, at 127 (discussing the federal mens rea doctrine that seeks to exempt morally blameless conduct from punishment and then seeks to establish culpability in an effort to prevent disproportionate punishment).

21. See *Morrisette v. United States*, 342 U.S. 246, 251 (1952) (observing that, while a mens rea element is not required under the Due Process Clause, the idea that a crime requires intent "is no provincial or transient notion").

22. Scholars in particular seem especially distrustful of strict liability offenses. See, e.g., Sanford H. Kadish, *Fifty Years of Criminal Law: An Opinionated Review*, 87 CALIF. L. REV. 943, 954-58 (1999) (lamenting the persistence of strict liability offenses); Laurie L. Levenson, *Good Faith Defenses: Reshaping Strict Liability Crimes*, 78 CORNELL L. REV. 401, 425-28 (1993) (arguing that strict liability offenses should be severely limited); Francis B. Sayre, *Public Welfare Offenses*, 33 COLUM. L. REV. 55, 56 n.5, 78-83 (1933) (same).

23. See MODEL PENAL CODE §§ 2.02(1), 2.05(1)(b) (AM. LAW INST. 1962).

line is crossed and the harm becomes the subject of state attention and condemnation.

But to unpack this concept is to enter into an amorphous realm in which ordinary fact finders are asked to engage in the hard task of discerning what any particular actor was actually thinking. It is to realize that the very concept of mens rea grows from a bedrock of assumptions. First, mens rea assumes a baseline understanding of social norms.²⁴ These social norms designate certain actions as “wrong” and, therefore, prohibited under the law.²⁵ This assumption is linked to the concept of “notice” in criminal law. Citizens are not required to know every law, but they are assumed to know and understand rules that dictate social interactions.²⁶ A citizen does not have to know which statute criminalizes homicide and which nuances distinguish murder from manslaughter, but it is assumed that all citizens know that they are not permitted to kill one another—at least not with legal impunity.²⁷

Not unrelated, the doctrine of mens rea further assumes that a citizen is capable of conceptualizing his actions in the context of these social norms and expectations. In terms of the distinction between blameworthiness and culpability, a citizen may well be blameworthy for a cognitive and volitional act that causes a harm, but the law may hesitate to attach culpability absent some evidence that the actor had some understanding that his actions were (or at least should be) prohibited by social norms.²⁸

This second assumption in turn leads to a third—that a citizen is a member of social networks that enforce and enhance her

24. LARRY ALEXANDER & KIMBERLY KESSLER FERZAN, *CRIME AND CULPABILITY: A THEORY OF CRIMINAL LAW* 17 (2009) (noting that mens rea requires an understanding of social norms that render actions “wrong”).

25. *See id.*

26. Paul H. Robinson, *A Brief History of Distinctions in Criminal Culpability*, 31 *HASTINGS L.J.* 815, 819–20 (1980).

27. There are exceptions, both in terms of defenses and statutory exclusions, which serve either to justify or mitigate homicide. Self-defense, defense of others or property, insanity, diminished capacity, and lack of capacity, among others, are all common defenses to murder that either reduce the actor’s liability or excuse it all together. *See generally* DRESSLER, *supra* note 11, at §§ 18, 19, 20, 25, 26 (providing an overview of defenses to criminal acts). Likewise, some jurisdictions provide that particular categories of killing are outside the scope of criminal statutes. Consider for example Oregon’s statute allowing for physician-assisted suicide, *see* OR. REV. STAT. ANN. § 127.885 (West, Westlaw through 2015 Reg. Sess.), or the designation of state-sanctioned executioners in states permitting the imposition of capital punishment, *see, e.g.*, FLA. STAT. ANN. § 922.10 (West, Westlaw through 2015 Spec. Sess. A).

28. *See* Theodore Y. Blumoff, *The Problems with Blaming*, in *LAW, MIND AND BRAIN* 127, 127–28 (Michael Freeman & Oliver R. Goodenough eds., 2009).

understandings of social norms.²⁹ One challenge that arises when the law is reduced to a static writing is that social norms may shift or outpace the law's prohibitions.³⁰ As a result, some laws may fail to reflect social norms in some or all communities, either over time or even at their inception.³¹ The law itself, in seeking to account for this disconnect, may undergo a series of interpretations either in its formal enforcement by government actors or in its informal enforcement by citizens themselves serving as voters and fact finders.³² By maintaining a connection with social networks, a citizen may come to understand not only what the law formally prohibits but also the degree of that prohibition, the culpability that attaches to violating the prohibition, and perhaps the community-specific exceptions to the prohibition. In this, the concept of mens rea would seem to assume that a citizen not only has a singular understanding of social norms and how her actions fit into the expectations of those norms, but also that a citizen has a fluid and evolving concept of such norms that allows her to weigh her own actions in any given situation against society's malleable notions of right and wrong.

Despite a citizen's membership in social networks that facilitate contextualization of actions, as a doctrine mens rea assumes both that a citizen is capable of understanding the consequences of his actions and that he does so in reasonable alignment with his community's understanding of such consequences.³³ In short, an actor must understand *before* he acts both that his action will cause a particular effect and that there are prohibitions surrounding them. Even if an actor does not fully understand the potential illegality of his act, he must understand the harm it may cause and the nature of the act as unacceptable or criminal in his community. This ability to grasp the cause-and-effect relationship for any given act is fundamental to theories of punishment. This in turn requires that defendants are rational, capable of understanding social norms and choosing to abide by them or not, and capable of self-reflection.³⁴

29. Paul H. Robinson, Geoffrey P. Goodwin & Michael D. Reising, *The Disutility of Injustice*, 85 N.Y.U. L. REV. 1940, 1996 (2010) (observing that social networks are necessary to transmit and reinforce norms and to establish concepts of right and wrong).

30. Jenny E. Carroll, *The Jury's Second Coming*, 100 GEO. L.J. 657, 706 (2012) (discussing examples of social norms forcing an evolution of statically constructed law).

31. Jenny E. Carroll, *Nullification as Law*, 103 GEO. L.J. 579, 588 (2014).

32. *Id.* at 588–89.

33. See ALEXANDER & FERZAN, *supra* note 24, at 17 (arguing that this ability to understand cause and effect must extend widely across a community).

34. *Id.* at 17 (“The criminal law presupposes that actors are rational . . . [and] capable of using reasons to guide their conduct. It also assumes that actors have the capacity for self-reflection.”).

Implicit in this assumption is the notion that any given citizen is capable of making independent choices to abide by or to disregard social norms and law³⁵ and that these choices will be driven by an analytic process that takes into account communal values and restrictions and the actor's own needs or desires.³⁶ In short, the concept of mens rea renders an act of disobedience an active one, a decision *not* to comply in a world where the norm is compliance.³⁷ Mens rea transforms the decision to break the law into an act of citizen defiance differentiated by the level of culpability the actor's thought processes reflect.

A. *Brief History of Mental States*

Despite its critical role in establishing culpability, efforts to define the state of mind requirement have, historically, been somewhat elusive. Early civilizations defined culpability broadly as the distinction between accidental and nonaccidental acts.³⁸ Even as criminal codes advanced and elements dwindled or acts were decriminalized, the mens rea requirement remained central to notions of culpability.³⁹ Within the broad rubric of the mental state, legal distinctions surfaced between degrees of culpability. Acts, and the crimes they implicated, were defined on a spectrum that spanned from carelessness to intentionality to premeditation. Along this spectrum, culpability was judged based on the degree of blameworthiness calibrated by the actor's state of mind.⁴⁰

35. JEROME HALL, *GENERAL PRINCIPLES OF CRIMINAL LAW* 281–86 (1947).

36. Green, *supra* note 19, at 1548 & n.29; Samuel H. Pillsbury, *The Meaning of Deserved Punishment: An Essay on Choice, Character, and Responsibility*, 67 *IND. L.J.* 719, 744 & n.95 (1992).

37. Jean Hampton, *Mens Rea*, in *CRIME, CULPABILITY AND REMEDY* 1, 1 (Ellen Frankel Paul et al. eds., 1990).

38. See Robinson, *supra* note 26, at 823–25 (describing the relative rarity of strict liability crimes historically, with most acts or harms requiring the designation of some mental state in order to merit state-sanctioned punishment).

39. See 4 WILLIAM BLACKSTONE, *COMMENTARIES* *21 (noting that “an unwarrantable act without a vicious will is no crime at all”); Francis Bowes Sayre, *Mens Rea*, 45 *HARV. L. REV.* 974, 988 (1932) (describing the evolution of mens rea).

40. See Robinson, *supra* note 26, at 821–22 (describing Roman and Anglo-Saxon-German common law, which sought to differentiate among mental states). These distinctions are not confined to Western or even Judeo-Christian-influenced codes and appear in a wide array of criminal law and procedure. See RALPH PIDDINGTON, *AN INTRODUCTION TO SOCIAL ANTHROPOLOGY* 345, 349 (1st ed. 1950) (describing non-European societies that differentiated among mental states in the construction of their criminal law and procedure prior to their contact with Europeans); Robinson, *supra* note 26, at 850 (noting that Bantu tribesman of South Africa ascertained the mental state of the accused to determine his culpability and subsequent penalty). *But see* Klaus-Friedrich Koch, *The Anthropology of Law and Order*, in *HORIZONS OF ANTHROPOLOGY* 300, 316

Most crimes required a mental state beyond mere negligence or carelessness. As governments and societies sought to define states of mind that exceeded negligence, categories proliferated and labels abounded.⁴¹ First, the law began to differentiate between a careless act and one that demonstrated a higher degree of culpability, but still hovered somewhere below a desire to cause harm.⁴² Regardless of the descriptive label, such actors were distinct from negligent actors—they harbored knowledge of the harm risked by their acts and elected to act anyway.⁴³ These “negligent plus” actors had some comprehension of the risk their behavior posed and yet took the risk anyway in the hopes of achieving some alternative, presumably desired, result. This distinction between mental states recognized that the actor who comprehended the risk and yet acted anyway was qualitatively distinct from her inattentive or negligent counterpart and therefore more deserving of punishment.⁴⁴

Within the canon of American criminal law, an additional distinction has developed on the continuum of accidental and nonaccidental acts with the differentiation of “intentional acts.”⁴⁵ This

(Sol Tax & Leslie G. Freeman eds., 2d ed. 1977) (describing the lack of mental states used by the Jalé of New Guinea to determine the appropriate punishment for criminalized acts).

41. For example, beyond the categories of “negligence” or “carelessness,” legal systems developed categories for “recklessness,” “gross negligence,” and “willful blindness”—to name a few—which signaled a mental state beyond a failure to recognize a risk but still below a mental state that intended the harm caused by the act. See Robinson, *supra* note 26, at 837–46.

42. See Francis X. Shen et al., *Sorting Guilty Minds*, 86 N.Y.U. L. REV. 1306, 1311–12 (2011) (describing the evolution of the “recklessness” mental state in pre-MPC criminal codes).

43. See ANCIENT LAWS AND INSTITUTES OF ENGLAND 22 (B. Thorpe ed., 1840) (describing early English law, which differentiated between behavior that exceeded carelessness but was judged “unintentional” nonetheless and the development of the notion of “negligence-plus”).

44. This distinction also signaled the adoption of a moral philosophy that recognized that, while it may be necessary or desirable to punish those who disregard known risks, this punishment should be less severe than punishment given to those who both understand the risk and intend the harm that accompanies that risk. See Fiery Cushman, Liane Young & Marc Hauser, *The Role of Conscious Reasoning and Intuition in Moral Judgment*, 17 PSYCHOL. SCI. 1082, 1082–83 (2006) (discussing the tendency to morally differentiate between harms that are intended and those that are unintended, though possibly anticipated, consequences of an act); John Finnis, *Object and Intention in Moral Judgments According to Aquinas*, 55 THOMIST 1, 1–2 (1991) (describing the development of moral philosophy that distinguished between unintended and intended acts and punished each accordingly).

45. See Shen et al., *supra* note 42, at 1312–13 (describing the development in American law of a category of culpability within desire-based intention as “recklessness-plus”).

distinction created a category of mental state acknowledging that an actor may consciously undertake an act knowing that a particular harm, though not desired, is virtually certain to occur if the actor acts.⁴⁶ This mental state hovers somewhere above recklessness but below intentionality, occupying a space of “recklessness-plus.”

Finally, in the context of homicide, common law recognized an additional level of mens rea—“premeditation,” which signals a heightened level of intentionality.⁴⁷ In nearly every state, a finding of deliberation or premeditation is a necessary prerequisite for the most serious punishment—mere intentional killings simply do not warrant the most severe category of punishment.⁴⁸

In addition to designing these degrees of culpability around particular mental states, the common law also generated defenses contingent on the establishment of a mental state or its absence.⁴⁹ Excuse and mitigation defenses offer varying degrees of shelter from liability, either because the offender is very different from ordinary actors or the offender is ordinary but acted in response to extraordinary or aberrant circumstances.⁵⁰ These defenses consider how the actor’s mental condition or circumstances affect his thought process and consequently shape his mental state.⁵¹ Some defenses expressly contemplate the offender’s state of mind or mental capacity in their construction.

Of these defenses, an insanity defense is the most extreme, excusing liability based on both the mental condition of the actor and

46. See *id.* (describing the difference between a reckless state of mind and one that both comprehends the risk and the virtual certainty of that risk being realized); see also WAYNE R. LAFAVE, *CRIMINAL LAW* § 14.4 (4th ed. 2003) (identifying a category of mental state that encompasses a heightened form of recklessness).

47. See Shen et al., *supra* note 42, at 1313 (describing the development of mental states in the context of homicide).

48. *Id.* at 1313 & n.2. Many states require some form of premeditation or deliberation as an element of first-degree murder, the highest of the homicide offenses in each jurisdiction. See, e.g., CAL. PENAL CODE §§ 187–188 (West 2015); GA. CODE ANN. § 16-5-1 (2015); IDAHO CODE §§ 18-4001 to -4002 (2015); IOWA CODE § 707.2 (2015); N.H. REV. STAT. ANN. § 630:1-a (West, Westlaw through 2015 Reg. Sess.); N.M. STAT. ANN. § 30-2-1 (2015); N.C. GEN. STAT. § 14-17 (2015); OKLA. STAT. ANN. tit. 21, § 701.7 (West, Westlaw through 2015 First Reg. Sess.); 18 PA. CONS. STAT. § 2502 (2015); 11 R.I. GEN. LAWS § 11-23-1 (2015) (LEXIS through 2015 legislation); VA. CODE ANN. § 18.2-31 (2015); W. VA. CODE ANN. § 61-2-1 (West, Westlaw through 2015 Sess.); WYO. STAT. ANN. § 6-2-101 (LEXIS through 2015 Sess.).

49. See generally Sayre, *supra* note 39, at 1104–16 (describing the historical development of defenses based on mens rea).

50. See Kadish, *supra* note 18, at 265 (categorizing excuse and mitigation defenses as based on either the circumstances the actor faced or the actor’s mental deficiencies or differences).

51. *Id.*

the effect of that condition on her understanding of the wrongfulness of her act.⁵² The defense of diminished capacity is similar to an insanity defense in that both expressly consider an actor's mental condition, including possible defects in the calculation of culpability. A diminished capacity defense, however, mitigates rather than excuses liability but still takes into account the offender's state of mind.⁵³ Likewise, the doctrines of extreme emotional disturbance, provocation, and heat of passion all recognize that particular circumstances may affect an actor's mental state and thereby mitigate culpability.⁵⁴ Unlike insanity, these defenses do not completely insulate the defendant from liability, but rather suggest that she acted under a different or diminished mental state that warrants consideration in an assessment of guilt and punishment.⁵⁵

These mitigation defenses are the most obvious mens rea-based defenses, but they are not the only ones. The doctrine of self-defense likewise relies on an assessment of the defendant's mens rea, though it does so in a less obvious way.⁵⁶ While the particulars of the self-defense doctrine have varied widely throughout its evolution, at its core the doctrine depends on the fact finder's determination that the defendant's use of force was a reasonable response to the threat he believed he faced.⁵⁷ Implicit in this assessment of the defendant's reasonableness is an evaluation of what the defendant believed the situation to be at the moment he calculated his response.⁵⁸ In short,

52. See *id.* at 262–63. Note that while states may define insanity defenses differently, each iteration of the defense relies on the underlying premise that the defendant's mental illness or defect precluded his comprehension of either the nature of his act or its wrongfulness. *Id.*

53. *Id.* at 262.

54. See Joshua Dressler, *Rethinking Heat of Passion: A Defense in Search of a Rationale*, 73 J. CRIM. L. & CRIMINOLOGY, 421, 447–48, 447 n.217 (1982) (explaining the importance of the justification-excuse dichotomy as it pertains to provocation, extreme emotional disturbance, and heat of passion).

55. See Stephen J. Morse, *Diminished Rationality, Diminished Responsibility*, 1 OHIO ST. J. CRIM. L. 289, 296 (2003) (discussing the effect of mens rea-based excuse defenses on culpability and punishment assessments).

56. See, e.g., George P. Fletcher, *The Right and the Reasonable*, 98 HARV. L. REV. 949, 971–80 (1985) (emphasizing the importance of mens rea in self-defense, specifically in instances where an actor mistakenly believes he is in danger).

57. See MODEL PENAL CODE § 3.04(1) (AM. LAW INST. 1962) (“[T]he use of force upon or toward another person is justifiable when the actor *believes* that such force is immediately necessary for the purpose of protecting himself . . .” (emphasis added)); see also DRESSLER, *supra* note 11, at § 18.01, .05.

58. See CYNTHIA LEE, *MURDER AND THE REASONABLE MAN* 10 (2003); V.F. Nourse, *Self-Defense and Subjectivity*, 68 U. CHI. L. REV. 1235, 1280–87 (2001) (describing the interplay of imminence and the duty to retreat in the unique context of battered woman syndrome).

the fact finder must determine the defendant's state of mind as it relates to the perceived threat.⁵⁹ Thus, while at first blush this defense would appear distinct from either the concept of mens rea itself or an excuse defense that relies on the absence of mens rea to mitigate culpability, in reality, the concept of self-defense is entwined with the same doctrinal principles used to define the defendant's state of mind.⁶⁰ In this sense, whatever other criticisms one might levy against this or any other defense, an examination of such defenses is an instrumental part of the analysis of mens rea's role as a tell of culpability.

This common-law evolution of mental states and the defenses they implicate was hardly linear or precise. As social norms and expectations shifted, so too did concepts of mens rea.⁶¹ Like many legal standards untethered to particular statutes or rules,⁶² the state of

59. See Cynthia K.Y. Lee, *The Act-Belief Distinction in Self-Defense Doctrine: A New Dual Requirement Theory of Justification*, 2 BUFF. CRIM. L. REV. 191, 195–96, 200 (1998). As many scholars have noted, this assessment of the defendant's state of mind is fraught and complex, frequently hinging on factors such as race, gender, and suspicion that may taint any analysis of the necessity of a forceful response. See LEE, *supra* note 58, at 138–46 (noting the effect of race on perceptions of dangerousness); Kevin Jon Heller, *Beyond the Reasonable Man? A Sympathetic but Critical Assessment of the Use of Subjective Standards of Reasonableness in Self-Defense and Provocation Cases*, 26 AM. J. CRIM. L. 1, 4 (1998) (“[C]ourts have slowly come to accept the widespread scholarly belief that the formal neutrality of the objective standard is systematically biased against the self-defense and provocation claims of individuals from groups that lack significant economic, political, and social power in American society—particularly women, the poor, and nonwhites.”); Cynthia Lee, *Making Race Salient: Trayvon Martin and Implicit Bias in a Not Yet Post-Racial Society*, 91 N.C. L. REV. 1555, 1580–86 (2013) [hereinafter Lee, *Making Race Salient*] (surveying social science studies that demonstrate the effect that implicit racial bias has on the perception of fear); Cynthia Kwei Yung Lee, *Race and Self-Defense: Toward a Normative Conception of Reasonableness*, 81 MINN. L. REV. 367, 402–23 (1996) (explicating the “Black-as-criminal” stereotype); Nourse, *supra* note 58, at 1279–80, 1280 n.215 (explaining the debate surrounding the role of subjectivity and gender in homicides resulting from battered woman syndrome); B. Keith Payne, *Prejudice and Perception: The Role of Automatic and Controlled Processes in Misperceiving a Weapon*, 81 J. PERSONALITY & SOC. PSYCHOL. 181, 190 (2001) (“[B]ecause the bias caused by race is largely automatic, it may be difficult to control directly, especially when cognitive resources are limited.”); B. Keith Payne, *Weapon Bias: Split-Second Decisions and Unintended Stereotyping*, 15 CURRENT DIRECTIONS PSYCHOL. SCI. 287, 290 (2006) (“Race can bias snap judgments of whether a gun is present, and that bias can coexist with fair-minded intentions.”); L. Song Richardson & Phillip Atiba Goff, *Self-Defense and the Suspicion Heuristic*, 98 IOWA L. REV. 293, 314–15 (2012) (observing that individuals rely on stereotypes when assessing the risk posed by other people).

60. See Nourse, *supra* note 58, at 1240–42 (exploring the subjective and objective approaches to self-defense).

61. See Robinson, *supra* note 26, at 825–30; Sayre, *supra* note 39, at 988–94.

62. See Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557, 621–22 (1992); Kathleen M. Sullivan, *The Supreme Court, 1991 Term—Foreword: The Justices of Rules and Standards*, 106 HARV. L. REV. 22, 67 (1992) (“On this view, standards

mind element became a mechanism for fact finders to approximate the justice of verdicts and punishments.⁶³ This may in fact be one of the great virtues of unattached standards: they demand interpretation in ways that rules—which cede this power to their drafters—do not.⁶⁴ In the process, however, definitions inevitably overlapped, conflicted, or even disappeared altogether.⁶⁵ Internal debates emerged over whether mens rea standards should be judged objectively or subjectively and, as will be discussed in greater detail below, whether such distinctions were even possible.⁶⁶

Sadly, the development of the criminal code in the United States did little to resolve these debates or identify with precision the meaning of the mens rea requirement.⁶⁷ The Supreme Court, in surveying the criminal code, lamented that the mens rea element produced “disparity and confusion” because it lacked a precise definition.⁶⁸ Despite this reality, there was no effort to establish

make visible and accountable the inevitable weighing process that rules obscure.”). For examples of the use of such legal standards with regard to critical elements of a prohibition or legal code, see John C. Coffee, Jr. & Hillary A. Sale, *Redesigning the SEC: Does the Treasury Have a Better Idea?*, 95 VA. L. REV. 707, 751 (2009) (“A rule, because it is certain, does not allow for flexibility or substantive equality. It can be over- or under-inclusive, and can encourage behavior that is socially irresponsible up to the line it draws.” (footnotes omitted)); Marc R. Poirier, *The Virtue of Vagueness in Takings Doctrine*, 24 CARDOZO L. REV. 93, 190 (2002) (“As an essentially contested concept, [regulatory takings doctrine] is fertile and generative precisely because it is inevitably, and perhaps quintessentially, vague and unresolvable. It does not and cannot give clear rules at the level of generality and simplicity demanded of it.”).

63. See Francis Bowes Sayre, *The Present Signification of Mens Rea in the Criminal Law*, in HARVARD LEGAL ESSAYS 399, 401–04 (1934) (illustrating how the concept of mens rea evolved over time with shifting conceptions of morality).

64. Seana Valentine Shiffrin, *Inducing Moral Deliberation: On the Occasional Virtues of Fog*, 123 HARV. L. REV. 1214, 1223–25 (2010).

65. See Robinson, *supra* note 26, at 825–30; Sayre, *supra* note 39, at 1016–17.

66. See DRESSLER, *supra* note 11, at § 10.05 (noting that historically, even when a crime specified a state of mind as objective or subjective, questions remained as to whether such a state of mind had to apply to every element using the same objective or subjective standard); John Shepard Wiley Jr., *Not Guilty by Reason of Blamelessness: Culpability in Federal Criminal Interpretation*, 85 VA. L. REV. 1021, 1064 (1999) (describing confusion even at the highest levels over whether mens rea standards were objective or subjective); see also *United States v. X-Citement Video, Inc.*, 513 U.S. 64, 77–78 (1994) (summarizing the debate over objective and subjective standards and whether or not these standards apply to all elements of the offense of trafficking in child pornography).

67. See Kadish, *supra* note 22, at 947 (calling the state of criminal codes in America “archaic, inconsistent, unfair, and unprincipled”); Herbert Wechsler, *The Challenge of a Model Penal Code*, 65 HARV. L. REV. 1097, 1100–01 (1952) (describing the failure of the judiciary or the legislature to adequately develop criminal law, including the failure to define mens rea in criminal statutes).

68. *Morissette v. United States*, 342 U.S. 246, 252 (1952).

general culpability definitions within criminal statutes⁶⁹—at least not until the American Law Institute (“ALI”) and Herbert Wechsler decided to offer uniform mens rea definitions in the MPC.⁷⁰

B. The Rise of the MPC and Defined Mens Rea

The MPC divides mens rea into four categories: purposely,⁷¹ knowingly,⁷² recklessly,⁷³ and negligently.⁷⁴ These categories were created in an attempt to resolve the conflicts that arose as a result of the common law’s failure to define mental states. First, while the ALI retained previous distinctions between purposeful and negligent acts, it limited the further division of culpability to two additional categories: knowingly and recklessly.⁷⁵ Within these categories of mens rea, culpability was defined either in terms of the actor’s desires or the risk she took, or both.⁷⁶ Second, the ALI embedded mens rea requirements into the definitions of crimes themselves, requiring that all crimes have, at minimum, both act and mental state requirements.⁷⁷ In doing so, the MPC created a methodology for categorizing and compartmentalizing the significance of the defendant’s conduct in relation to her understanding and appreciation of the social norms she was rejecting in the course of that conduct. As mental states were placed in a hierarchy, punishments were aligned to

69. See Shen et al., *supra* note 42, at 1315 & n.30 (observing that even as Congress federalized crime it made no effort to include general mens rea definitions, instead planting varying degrees of mens rea into specific offenses).

70. See Wechsler, *supra* note 67, at 1108–10 (identifying one of the fundamental aims of the MPC as developing a uniform system of culpability by regularizing mens rea categories).

71. MODEL PENAL CODE § 2.02(2)(a) (AM. LAW INST. 1962) (“A person acts purposely . . . when . . . it is his conscious object . . . to cause [a particular] result.”).

72. *Id.* § 2.02(2)(b) (“A person acts knowingly . . . when . . . he is aware that it is practically certain that his conduct will cause [a particular] result.”).

73. *Id.* § 2.02(2)(c) (“A person acts recklessly . . . when he consciously disregards a substantial and unjustifiable risk that . . . will result from his conduct.”).

74. *Id.* § 2.02(2)(d) (“A person acts negligently . . . when he should be aware of a substantial and unjustifiable risk that . . . will result from his conduct.”).

75. See Shen et al., *supra* note 42, at 1317.

76. For example, a purposeful mental state turns on the actor’s desire to cause a result or harm alone. In contrast, the subsequent, and lower, mental states of knowingly and recklessly consider the actor’s desire to achieve a particular result in relation to his understanding of the risk that achieving that desired result will entail. For these mental states, the risk taken and the desired result do not have to align; an actor can desire an alternative result while still understanding with varying degrees of certainty that he is taking a risk that another, harmful result will occur. Finally, negligence requires only a finding that the actor was unaware of a substantial risk of harm when he acted.

77. See Paul H. Robinson & Jane A. Grall, *Element Analysis in Defining Criminal Liability: The Model Penal Code and Beyond*, 35 STAN. L. REV. 681, 691–99 (1983) (noting that in defining culpability, the MPC attached a mental state to each element).

reflect the defendant's degree of culpability, as opposed to merely the damage she may have caused.⁷⁸

Whatever other failings the MPC may have suffered, which I will discuss below, these two innovations were critical. They sought to establish continuity among discussions of culpability by offering generalized definitions of mental states that could be applied across the code and could be definitively linked, albeit imperfectly, to notions of culpability as signaled through punishment. While the MPC has not been adopted by all states, it is influential and has helped to establish norms for culpability that reflect social understandings of blameworthiness.⁷⁹ Perhaps more importantly, studies suggest that jurors are able to apply some, though admittedly not all, of the MPC's categories of mens rea with relative accuracy and consistency.⁸⁰ This is important not only because the MPC's concept of mens rea creates the uniformity that common law mens rea lacked, but also because in that uniformity the citizen's faith in the system is maintained. As a result, the law is a known entity with reliable and discernable parameters.

The MPC makes an additional, critical distinction with its categorization of mens rea: it attempts to differentiate between subjective and objective mental states.⁸¹ Subjective mental states—such as intentionally and knowingly—ask the fact finder to consider what the defendant was actually thinking at the time of his action.⁸²

78. While the existence of strict liability offenses suggests that some harms require no analysis of the defendant's state of mind in order to warrant punishment, the default position of the MPC, as it is with most states, is to require a mens rea. In addition, those crimes designated as strict liability offenses tend to fall into narrow and relatively minor categories.

79. See Robinson & Grall, *supra* note 77, at 691–92 (noting that while a majority of states have adopted the MPC, many have adopted it with changes). Even in states where the MPC has not been adopted, judges often rely on the MPC's categorization and definitions of mental states in their assessments of common law and non-MPC state codes. See Dressler, *supra* note 11, at § 3.03. In addition, the MPC is “the principal text in criminal law teaching.” Sanford H. Kadish, *The Model Penal Code's Historical Antecedents*, 19 RUTGERS L.J. 521, 521 (1988).

80. Researchers conducting an empirical study found that “most of the *mens rea* assumptions embedded in the MPC are reasonably accurate as a behavioral matter . . . [and] subjects were able to distinguish regularly and accurately among purposeful, negligent, and blameless conduct.” Shen et al., *supra* note 42, at 1306. The authors went on to conclude that “subjects failed to distinguish reliably between knowing and reckless conduct.” *Id.* at 1306–07.

81. See John L. Diamond, *The Myth of Morality and Fault in Criminal Law Doctrine*, 34 AM. CRIM. L. REV. 111, 123 n.73 (1996).

82. See, e.g., MODEL PENAL CODE § 2.02(2)(b) (AM. LAW INST. 1962) (defining “knowingly” and emphasizing the actor's awareness of the circumstances as they exist or his near certainty of the results of his conduct).

Put another way, they require the state to prove that a defendant actually did intend or know with substantial certainty the harm he was causing at the time of his action. In contrast, the purely objective mental state of negligence asks the fact finder to consider what a like-situated “reasonable” person would have done in the defendant’s situation.⁸³ If the designated mental state is objective, the fact finder considers what the defendant was actually thinking only in relationship to whether or not this thinking accurately mirrors that expected from his reasonable fellow citizens. The mental state of recklessness seeks to meld the subjective and objective approaches, asking fact finders both to consider what the defendant actually understood his situation to be, and then to judge whether, based on this understanding, his actions comported with those of a reasonable man.⁸⁴ The MPC uses these mental state designations to differentiate the defendant’s degree of culpability and so his punishment. The higher levels of mens rea require a higher degree of proof—that is, a demonstration of the defendant’s actual state of mind, independent (in theory at least) of that expected from his fellow citizenry—to impose a higher punishment. The lower levels of mens rea require the state to prove less, but they also authorize lesser punishments.

C. *Problems with Mens Rea*

While superficially attractive, the MPC’s neat categorization of mens rea between subjective and objective considerations is problematic in that these categories belie the realities of the very process by which they are ultimately applied.⁸⁵ First, the approach

83. See *id.* § 2.02(2)(d) (defining “negligently”).

84. See *id.* § 2.02(2)(c) (defining “recklessly” subjectively as a conscious disregard of “a substantial and unjustifiable risk” and objectively as a “gross deviation from the standard of conduct” of a “law-abiding person”).

85. Commentators have focused on myriad other criticisms with regard to the MPC’s efforts to define mens rea that are less relevant to my own examination of the application of mens rea standards to juveniles. Having said this, they are worth noting here. Many have criticized the MPC’s definitions as overlapping so significantly as to be rendered nearly meaningless in their distinctions. See Kathleen F. Brickey, *The Rhetoric of Environmental Crime: Culpability, Discretion, and Structural Reform*, 84 IOWA L. REV. 115, 122 (1998) (noting extensive overlap between concepts of “purposeful” and “knowingly”); Michael T. Cahill, *Attempt, Reckless Homicide, and the Design of Criminal Law*, 78 U. COLO. L. REV. 879, 902 (2007) (noting overlap between categories of knowledge and recklessness); Shen et al., *supra* note 42, at 1306–07 (noting the inability of subjects to differentiate between knowing and reckless categories). Still other commentators have noted that while the MPC attaches mental states to all crimes, it fails to designate with any precision to which elements these mental states apply. See Robinson & Grall, *supra* note 77, at 714–15 (noting that the MPC indicates only that the state of

rests on a flawed assumption that mental states can be externally discerned. Second, and not unrelated, the law permits the state to prove mens rea through inference. Third, the application of the beyond-a-reasonable-doubt standard introduces a level of inescapable juror-dictated objectivity (or perhaps more accurately, juror-dictated subjectivity) into the calculation of the defendant's state of mind. I will discuss each of these problematic effects in turn.

Consider first the entwined dilemma of proof with regard to mens rea and the defendant's obscured state of mind. Even if the MPC's articulation of mental states accurately reflects social norms and behavioral expectations, this accuracy does little to inform the fact finder of what the defendant was actually thinking.⁸⁶ This, in turn, spawns a related dilemma: the need to allow proof of mental states by inference. Even in the face of high confession rates among defendants,⁸⁷ the state must frequently rely on circumstantial evidence and inference to establish the requisite elements, including the mens rea requirement.⁸⁸

On one level, such reliance on inference is not only logical but is necessary for a functioning justice system. Defendants do not always oblige the state with a confession. Even when a confession exists, the defendant's own words may themselves appear suspect to the fact

mind requirement attaches to each "material element" of a crime without noting which elements are material).

86. Other commentators have addressed this issue extensively, so I will note it as a dilemma but consider the remaining two reasons more extensively. For discussions of the problem with treating a mental state as a discoverable condition, see RICHARD A. POSNER, *THE PROBLEMS OF JURISPRUDENCE* 168 (1990) (lamenting that an issue with the mental state requirement is that it is impossible to read the minds of criminals); Kevin Jon Heller, *The Cognitive Psychology of Mens Rea*, 99 J. CRIM. L. & CRIMINOLOGY 317, 320–21 (2009); Bruce Ledewitz, *Mr. Carroll's Mental State or What Is Meant by Intent*, 38 AM. CRIM. L. REV. 71, 102–07 (2001); Justin D. Levinson, *Mentally Misguided: How State of Mind Inquiries Ignore Psychological Reality and Overlook Cultural Differences*, 49 HOW. L.J. 1, 3 (2005).

87. See Christopher Slobogin, *Comparative Empiricism and Police Investigative Practices*, 37 N.C. J. INT'L L. & COM. REG. 321, 336 (2011) (noting that, post-*Miranda*, an estimated forty-five to sixty-five percent of interrogated suspects still make incriminating statements).

88. See *United States v. Santos*, 553 U.S. 507, 521 (2008) (plurality opinion) (discussing how the knowledge requirement can be proved through circumstantial evidence; for example, receipts accepted during a long-term drug-dealing relationship can prove knowledge of profit in a money-laundering offense), *superseded by statute*, Fraud Enforcement and Recovery Act of 2009, Pub. L. No. 111-21, § 2(f)(1), 123 Stat. 1617, 1618 (2009), *as recognized in* *United States v. Grasso*, 724 F.3d 1077, 1091–92 (9th Cir. 2013); see also *Michalic v. Cleveland Tankers, Inc.*, 364 U.S. 325, 330 (1960) ("Circumstantial evidence is not only sufficient, but may also be more certain, satisfying and persuasive than direct evidence.") (citing *Rogers v. Mo. Pac. R.R. Co.*, 352 U.S. 500, 508 n.17 (1957)).

finder or may fail to provide insight into her mental state. Regardless, the state is still required either to prove a case beyond a reasonable doubt or to convince a defendant to plead guilty. Without being able to rely on inferences from circumstantial evidence, prosecutors would be asked to complete an insurmountable task in many cases, rendering enforcement of the law more dependent on the ability of the defendant to keep her mouth shut or, having confessed, to convince a jury that her words, once spoken, were faulty, than on any other factor. This in turn might produce an increased incentive for state actors to procure confessions and, having procured the confession, to obscure any suggestion of coercion in that procurement, particularly in high-profile or especially heinous cases. The specter of forced confessions and unscrupulous methodologies of police interrogation is sufficiently fresh in the collective memory—if not an ongoing concern—to suggest that there are social benefits to allowing such inferences from circumstantial evidence.⁸⁹

Beyond this, the acceptance of such inferences is also an acceptance of the very process the jury engages in when it renders a verdict. Whether or not a case actually goes to trial, an advocate, and so the defendant, must contemplate how a fact finder will interpret his actions when overlaid with the law's proscriptions. Inevitably, this interpretation will require the fact finder to judge what she believes the defendant thought based on what the defendant did. Although the potential inaccuracy of such judgment may temper the interpretation, it cannot stem it altogether.

Even if the prosecutor is able to produce a legally satisfactory confession in a case, or if the defendant elects to speak during colloquy or trial either to protest his innocence or to contest the state's account of his case, the fact finder must still apply a beyond-a-reasonable-doubt standard to reach a verdict.⁹⁰ The application of the reasonable doubt standard requires the fact finder to consider the evidence in the context of the fact finder's own knowledge and experience, to interpret the probability of each account, and to reconcile conflicting or incomplete narratives. In this moment of

89. See Yale Kamisar, *On the "Fruits" of Miranda Violations, Coerced Confessions, and Compelled Testimony*, 93 MICH. L. REV. 929, 949–51 (1995) (providing hypothetical variations on police interrogation tactics based on existing case law). For a more recent (and pop culture) discussion of this phenomena, see Spencer Ackerman, *How Chicago Police Condemned the Innocent: A Trail of Coerced Confessions*, GUARDIAN (Feb. 19, 2015, 12:33 PM), <http://www.theguardian.com/us-news/2015/feb/19/chicago-police-richard-zuley-abuse-innocent-man> [<http://perma.cc/A25K-EGLM>].

90. See, e.g., *In re Winship*, 397 U.S. 358, 364 (1970) (requiring proof of all elements beyond a reasonable doubt).

interpretation, the fact finder inevitably lays each account next to her own experiences and makes judgments about veracity based on what seems most likely given what the fact finder knows of, or maybe hopes for, the world. This moment of interpretation is a fraught intersection between the law's procedural and substantive possibilities.

On the one hand, this moment of interpretation is a communal reclaiming of the law's very meaning and identity. Most obviously in the context of jury trials—but also before appointed or elected judicial fact finders—the moment the law is applied to the citizen is a moment when the law ceases to be theoretical and static and becomes a living and active body in the lives of the citizenry. No matter the verdict, by going to a jury, the law is interpreted and enforced in a manner that strives simultaneously to shape and respond to social norms. The application of the reasonable doubt standard is a complex and real moment of democracy in which the acceptance or rejection of the law's province pivots around the doubt of the fact finder.

But if the procedural possibility of the fact finder's circumstantial inferences is great, the substantive possibility is equally complex and potentially more dire in outcome. As fact finders sift evidence through their own rubrics of experience and expectation to determine their level of doubt, they inevitably reduce even the most subjective of standards to an objective calculus or, perhaps more accurately, to a subjective calculus based on their *own* subjectivity rather than the defendant's. Acts are judged and minds are read based on each juror's expectations fueled by his or her own belief system and experiences. The purchase of a gun, the stalking of a victim, or the discussion of a murder will become evidence of premeditation—or not—because they appear to be so based on what the fact finder believes those same events would mean in the context of his own life. No matter how “truthful” a defendant's counternarrative may be, if it fails to comport with the fact finder's own perception of the world, it risks failing as a defense.⁹¹

91. By way of an admittedly anecdotal narrative, consider a case I worked on while a public defender. I represented a client who had followed a young woman around for weeks after he met her at a party during his freshman year in college. He sent the woman hundreds of instant messages and emails, left scores of voice messages for her, and left her notes on the whiteboard on her dorm room door. When my investigator interviewed the victim, the victim reported that while finding his behavior “annoying,” she also didn't see it as anything more than “a crush” and therefore “harmless.” After my client assaulted the victim, the State charged him with stalking in addition to the assault. The question was whether or not his behavior had crossed some line of the social norm of acceptable “crush” behavior to the level of criminality. To me, an adult who was nearly fifteen years

Even defenses that seek to explicitly account for the defendant's own experiences inevitably require fact finders to weigh that experience against their own sense of what seems true and what simply does not. In this, all mens rea is inevitably objective (or at least is subjective as to each juror) regardless of the standard articulated. This is surely problematic with respect to subjective mens rea standards; but even in the context of objective mens rea standards, it suggests that the notion of a "reasonable" or "neutral" standard jurors can apply is a myth. In fact, jurors merely overlay their own decision-making processes onto the defendant's actions. In the process, juror bias, fear, and ignorance are inevitably interwoven into an evaluation of reasonableness.⁹² The juror's calculation of the defendant's guilt becomes as much a story about what the defendant did as about the juror's deceptively complex calculus of what the juror imagines those actions signify. To find the requisite mens rea is to assign a meaning to the defendant's acts or words and to overlay that assignment with a vision of the law's own boundaries and prohibitions. It is to remove the law from the realm of the theoretical and to place it not only in the context of the defendant's life but in the juror's own life. It is to conceptualize the law in a single moment and

older than my client, the behavior appeared obsessive; but every witness I spoke to who was within my client's "age peer" group, including the victim, consistently first expressed shock that the assault had occurred and second characterized the behavior before the assault as consistent with "crush" behavior. Several witnesses who were friends of the victim indicated that this was what happened to "pretty girls" like the victim. When I obtained access to the victim's phone and email records, I found that my client had not in fact communicated with her more than her other friends, male and female. When choosing a jury for the case, it became important to me to find peers or relative peers for my client. I therefore asked many questions during voir dire about the use of social media and electronic communication. In talking to jurors after the case, no one wanted to see himself or herself as the type of person who would escalate a crush to an assault on a victim, but there was a divide between folks who were under twenty-five who saw my client's communication as within the norm, and folks over thirty-five who thought it was obsessive and signaled criminal intent. In many ways this case was an outlier in my career. It was the only time I ran a "just a crush" defense. But despite its admitted idiosyncrasies, the case highlights a more generalizable principle: the success of a defense hinges on the ability of a defendant's story to "ring true" to the fact finder. Put another way, if the defendant's narrative is inconsistent with the fact finder's own experience, then it is more likely to fail.

92. There is a rich and fascinating body of literature surrounding the effect of implicit and explicit biases on juror calculations of reasonableness. See, e.g., Jerry Kang et al., *Implicit Bias in the Courtroom*, 59 UCLA L. REV. 1124, 1133-34 (2012) (discussing the interplay between explicit and implicit biases); Lee, *Making Race Salient*, *supra* note 59, at 1584-85. See generally, e.g., David L. Faigman, Nilanjana Dasgupta & Cecilia L. Ridgeway, *A Matter of Fit: The Law of Discrimination and the Science of Implicit Bias*, 59 HASTINGS L.J. 1389 (2007) (reviewing social science research on implicit gender bias and arguing for the admissibility of expert testimony on implicit bias in Title VII employment discrimination litigation).

in all moments going forward, and in that conceptualization to decide if an action, regardless of the harm it may or may not have created, was criminal, or accidental, or permitted (or ought to be).

In this substantive application, the promise of mens rea as a precise and uniform mechanism to establish culpability inevitably disintegrates, implicating not only the proportionality of the punishment imposed, but also the question of guilt itself. Thus the element of mens rea remains an important tool for distinguishing culpability, but in a different way. Mens rea is recognized as a tool that benefits from fine-tuning,⁹³ and so a new possibility emerges for this calculation to embrace the realities of an individual actor's cognitive processes.

II. THE COURT, THE LAW, AND THE KIDS

With the general concept of mens rea in place, I now consider the Supreme Court's development of a jurisprudence of youth. In a trilogy of cases beginning with *Roper v. Simmons*, the Court has sought to create an Eighth Amendment jurisprudence informed by the age of the offender. The reasoning of this line of cases, while striking new ground in the context of the Eighth Amendment, draws on the Court's previous treatment of the condition of youth. I begin my examination with the Court's most recent cases, and then turn to other, frequently noncriminal contexts in which the Court has considered the actor's youth as a critical factor in its legal analysis. This jurisprudence of youth is premised on the fundamental notion that juveniles in general—and adolescents in particular—are a distinct class of actors, and that distinction carries a legal significance.

A. Youth and the Eighth Amendment

In several recent cases, the Supreme Court has considered the intersection of scientific studies of brain development and the law's effort to parse culpability in the context of sentencing.⁹⁴ The Court

93. See, e.g., Kenneth W. Simons, *Should the Model Penal Code's Mens Rea Provisions Be Amended?*, 1 OHIO ST. J. CRIM. L. 179, 179 (2003) (“[T]he MPC approach creates new problems, some rather significant. So a fine-tuning of the MPC approach, at least, would be worthwhile.”).

94. See *Miller v. Alabama*, 132 S. Ct. 2455, 2475 (2012) (prohibiting the imposition of mandatory life sentences without parole on juvenile offenders); *Graham v. Florida*, 560 U.S. 48, 82 (2010) (barring mandatory life sentences without parole for nonhomicide offenses committed by juvenile offenders); *Roper v. Simmons*, 543 U.S. 551, 578–79 (2005) (prohibiting the execution of juvenile offenders); *Atkins v. Virginia*, 536 U.S. 304, 320–21 (2002) (holding that the Eighth Amendment prohibits the execution of the mentally retarded).

examined questions of sentencing proportionality in light of data regarding the behavioral and cognitive development of particular categories of individuals. In each of these cases, the Court concluded that the Eighth Amendment's prohibition on cruel and unusual punishment shielded juveniles and the mentally retarded⁹⁵ from certain punishments because they lacked the requisite culpability.⁹⁶ The opinions explained that the identified classes of individuals suffered a failure or deficiency in decision-making processes so significant that it raised sufficient questions about their culpability to render death sentences for both juveniles and the mentally retarded—and sentences of life without the possibility of parole for most juvenile offenders—categorically disproportionate to the defendants' degrees of blameworthiness.⁹⁷

The Court's examination of culpability and maturity began in earnest in 1982, even before the proliferation of longitudinal brain studies that mapped juvenile brain development. In *Eddings v. Oklahoma*,⁹⁸ the Court noted what every parent has long suspected: juveniles do not engage in the same decision-making processes as adults.⁹⁹ The *Eddings* Court concluded that not only are juveniles less mature than adults, but that they are also more vulnerable to negative influences and outside pressures.¹⁰⁰ In reversing the defendant's death sentence, the Court reasoned that, from a moral standpoint, it was impossible to equate the failings of a child with those of an adult.¹⁰¹

Later, in *Thompson v. Oklahoma*,¹⁰² the Court held that the evolving standards of decency contemplated by Eighth Amendment jurisprudence barred the execution of defendants who were under the age of sixteen at the time they committed their offense.¹⁰³ The Court

95. In *Hall v. Florida*, the Court adopted a change in terminology from "mental retardation" to "intellectual disability." 134 S. Ct. 1986, 1990 (2014). Accordingly, this Article also employs the term "intellectual disability," except when quoting from or referring to the holdings of opinions that use the former terminology.

96. See *Miller*, 132 S. Ct. at 2469, 2475; *Graham*, 560 U.S. at 82; *Roper*, 543 U.S. at 571–73; *Atkins*, 536 U.S. at 321.

97. See *Miller*, 132 S. Ct. at 2464; *Graham*, 560 U.S. at 78; *Roper*, 543 U.S. at 569–70; *Atkins*, 536 U.S. at 320–21.

98. 455 U.S. 104 (1982).

99. *Id.* at 115–16 ("Even the normal 16-year-old customarily lacks the maturity of an adult.").

100. *Id.* at 115.

101. See *id.*

102. 487 U.S. 815 (1988).

103. *Id.* at 822–23 (noting that Eighth Amendment jurisprudence had long spoken in terms of evolving standards of decency); see also, e.g., *Gregg v. Georgia*, 428 U.S. 153, 171, 175–76 (1976) (noting that the evolving standards of decency that drive the Eighth Amendment analysis are evident from public attitudes, legislative judgments, and the

held that this category of juveniles should be spared this punishment, even though it could be constitutionally imposed on an adult, because these juveniles lacked the experience, education, and intelligence of adults.¹⁰⁴ It noted that juveniles were less capable of evaluating the consequences of their actions and also more apt to be motivated by their emotions and peer pressure.¹⁰⁵ As a result, the Court concluded that, even when they engaged in conduct that would otherwise qualify them to receive the death penalty, such juveniles were not as culpable as adults, and therefore evolving standards of decency meant that the Constitution barred their execution.¹⁰⁶ In short, according to the *Thompson* Court, “[t]he reasons why juveniles are not trusted with the privileges and responsibilities of an adult also explain why their irresponsible conduct is not as morally reprehensible as that of an adult.”¹⁰⁷

A year later, in *Stanford v. Kentucky*,¹⁰⁸ the Court seemed to back off the conclusion, though not the legal standard, that it had articulated in *Thompson*. In *Stanford*, the Court concluded that it was in fact permissible to execute sixteen-year-old offenders because state legislatures, not the Court, determined standards of decency.¹⁰⁹ The absence of a clear national consensus prohibiting the application of capital punishment to juveniles left it to the states to determine the minimum age for execution.¹¹⁰ Even in this retreat, the Court required the minimum execution age to be at least sixteen based on its conclusion in *Thompson* that the ultimate penalty of death required a correspondingly ultimate demonstration of culpability—one absent in those younger than sixteen.¹¹¹

In 1993, the Court again revisited the question of the effect of youth on culpability and proportionality of punishment. In *Johnson v. Texas*,¹¹² the Court concluded that the age of the offender was a relevant mitigator in sentencing determinations.¹¹³ The Court noted in particular that “[a] lack of maturity and an underdeveloped sense of

practices of other civilized nations); *Trop v. Dulles*, 356 U.S. 86, 101 (1958) (holding that all punishments must be subject to “evolving standards of decency that mark the progress of a maturing society”).

104. See *Thompson*, 487 U.S. at 835.

105. *Id.*

106. *Id.* at 836–38.

107. *Id.* at 835.

108. 492 U.S. 361 (1989).

109. *Id.* at 369–71.

110. *Id.* at 370–71.

111. *Id.* at 371–72.

112. 509 U.S. 350 (1993).

113. *Id.* at 368.

responsibility are found in youth more often than in adults and are more understandable among the young.”¹¹⁴ The Court continued, “These qualities often result in impetuous and ill-considered actions and decisions.”¹¹⁵ These traits, while rendering the child dangerous and his decision-making poor, are also transient—and likely to subside as the child matures.¹¹⁶ As a result, the offender’s youth should counsel toward leniency and diminish our concept of his culpability.¹¹⁷

While these early cases did not have the benefit of modern neuroscientific studies, discussed in greater detail in Part III, and did not categorically overturn punishments for juveniles over the age of sixteen, they laid the critical groundwork for the Court’s more recent decisions linking notions of culpability to cognitive development. These subsequent cases, and the studies they relied upon, are both a continuation and confirmation of the line of Eighth Amendment reasoning the Court began two decades ago: when we speak of criminal culpability, children are fundamentally different than adults.

In 2002, the Court returned to the question of cognitive development and culpability in a different context. In *Atkins v. Virginia*,¹¹⁸ the Court held that the Eighth and Fourteenth Amendments prohibited the execution of mentally retarded persons.¹¹⁹ *Atkins* overturned the Court’s previous ruling in *Penry v. Lynaugh*,¹²⁰ which had held that the Eighth Amendment did not mandate categorical exemption from the death penalty for mentally retarded offenders.¹²¹ *Penry* had held that it was improper to exclude mentally retarded individuals as a class from achieving the level of culpability necessary to justify the imposition of the death penalty.¹²² In *Atkins*, however, the Court did an about-face; evolving standards of decency had shifted, rendering the execution of the mentally retarded excessive punishment and thus in violation of the Eighth Amendment’s prohibition on cruel and unusual punishment.¹²³

114. *Id.* at 367.

115. *Id.*

116. *Id.* at 368.

117. *See id.* at 367.

118. 536 U.S. 304 (2002).

119. *Id.* at 320–21.

120. 492 U.S. 302 (1989).

121. *Id.* at 338–39.

122. In reaching its holding, the Court stated that “[i]n light of the diverse capacities and life experiences of mentally retarded persons, it cannot be said . . . that all mentally retarded people, by definition, can never act with the level of culpability associated with the death penalty.” *Id.*

123. *Atkins*, 536 U.S. at 321.

At first blush, *Atkins* may appear to be an outlier in a piece about culpability standards among juvenile offenders. After all, the *Atkins* Court considered the underlying culpability and resulting eligibility for execution of those with a diagnosis of a permanently (or near permanently) deficient intelligence. Unlike juveniles, the intellectually disabled do not age out of their immaturity or myopic decision-making processes. Despite this admitted—and from the perspective of punishment theory, significant—difference, *Atkins* nevertheless informed the Court's subsequent rulings with regard to juvenile culpability because of its reliance on scientific research.

In *Atkins*, the Court defined culpability in terms of the offender's state of mind, or his inability to achieve the requisite state of mind.¹²⁴ Intellectually disabled individuals were judged less culpable because they suffered from a deficient cognitive and behavioral development.¹²⁵ Beyond this, in terms of punishment theory, these mental deficiencies rendered the death penalty ineffective as a deterrent for the intellectually disabled and inappropriate as a means of achieving retribution.¹²⁶ While the Court admittedly did not reach the question of what an offender's mental retardation would signal with regard to his actual state of mind, the Court nonetheless relied heavily on cognitive and behavioral research to determine that, despite its early holding in *Penry*, the Eighth Amendment precluded the execution of the mentally retarded based on their reduced culpability as a class.¹²⁷ *Atkins* relied on scientific research to establish a constitutional standard determined not by an individualized analysis of actors' abilities or understandings, but by precluding particular categories of actors from achieving the mens rea necessary to achieve the highest levels of culpability. This reliance rendered the Court's decision in *Atkins* a critical precursor to the question it would confront three years later in *Roper v. Simmons*.

124. See *id.* at 318 (“[T]here is abundant evidence that [mentally retarded individuals] often act on impulse rather than pursuant to a premeditated plan, and that in group settings they are followers rather than leaders.”).

125. *Id.* at 316 (noting that mentally retarded individuals are categorically less culpable than their peers of average intelligence).

126. *Id.* at 320–21 (“The theory of deterrence in capital sentencing is predicated upon the notion that the increased severity of the punishment will inhibit criminal actors from carrying out murderous conduct. Yet, it is the same cognitive and behavioral impairments that make these defendants less morally culpable . . . that also make it less likely that they can process the information of the possibility of execution as a penalty and, as a result, control their conduct.”).

127. *Id.* at 320–21.

Like *Atkins*, the Court in *Roper* returned to the question of whether the Eighth Amendment precluded the execution of a category of individuals—this time, juvenile offenders.¹²⁸ In *Roper*, despite Justice O'Connor's protestations,¹²⁹ the Court concluded that there was no need for an individualized assessment of an offender to conclude that the death penalty for juveniles was cruel and unusual.¹³⁰ Citing scientific evidence, the Court stated that the differences between juvenile and adult offenders were "too marked" and "well understood" to require individual analysis.¹³¹ Juveniles were simply categorically less culpable than adult criminals.¹³² Their lack of fully formed identity,¹³³ their lack of control,¹³⁴ and their incomplete cognitive and behavioral development¹³⁵ all led the Court to conclude that the behavior of juveniles could not be equated to that of their adult counterparts.¹³⁶ And so, as in *Atkins*, the Court in *Roper* found that as a matter of punishment theory, the death penalty failed to serve its permissible purposes and was therefore constitutionally prohibited for juveniles.¹³⁷

In the subsequent cases of *Graham v. Florida* and *Miller v. Alabama*, the Court used similar evidence and logic to conclude that

128. *Roper v. Simmons*, 543 U.S. 551, 555 (2005).

129. *Id.* at 605–07 (O'Connor, J., dissenting). Justice O'Connor rejected the majority's bright-line rule and instead distinguished *Roper* from *Atkins*. *Id.* O'Connor deemed mental retardation and age classifications for minors incomparable, arguing that mental defects, unlike age, render attaining the requisite degree of culpability for the death penalty highly unlikely. *Id.* She instead urged that age be considered only as a mitigating factor. *Id.*

130. *Id.* at 572–73 (majority opinion).

131. *Id.*

132. *Id.* at 567.

133. *Id.* at 570 (citing ERIK H. ERIKSON, *IDENTITY: YOUTH AND CRISIS* (1968)).

134. *Id.* at 569 (citing Laurence Steinberg & Elizabeth S. Scott, *Less Guilty by Reason of Adolescence: Developmental Immaturity, Diminished Responsibility, and the Juvenile Death Penalty*, 58 AM. PSYCHOLOGIST 1009, 1014 (2003)).

135. *Id.* at 569.

136. *Id.* at 570.

137. *Id.* at 571–72. The Court engaged in an extensive analysis of whether the death penalty could serve a deterrent or retributive purpose for juveniles, reasoning that the Court had already concluded in *Atkins* that the death penalty could not serve a deterrent or retributive purpose for mentally retarded individuals. *Id.* While this discussion was admittedly critical to the Court's analysis in both cases, it is only tangentially relevant to my argument. Unlike the Court that wondered whether those with diminished cognitive and behavioral developments could achieve the level of culpability necessary to warrant a particular sentence, I am interested in whether one of those classes of individuals, juvenile offenders, can achieve the mens rea element necessary to commit the crime in the first place. As I will discuss in Part IV, these are distinct questions, but the Court's analysis with regard to culpability in the context of sentencing is helpful nonetheless in thinking about culpability and the concept of mental states.

sentencing juvenile offenders to life without parole for nonhomicide offenses after a sentencing hearing¹³⁸—and automatically for homicide offenses¹³⁹—violated the Eighth Amendment’s prohibition on cruel and unusual punishment. Like in *Roper*, the Court in both cases rejected the states’ arguments that sentencing courts adequately considered the individual juvenile’s culpability in imposing sentencing.¹⁴⁰ Instead, the Court concluded that the punishments were categorically inappropriate for juvenile offenders given scientific knowledge of juvenile decision-making processes and cognitive development. In *Graham*, the Court acknowledged that while “[c]ategorical rules tend to be imperfect, . . . one is necessary here.”¹⁴¹ The Court noted that juveniles suffer a “lack of maturity and an underdeveloped sense of responsibility” and that as a whole they “are more vulnerable or susceptible to negative influences and outside pressures, including peer pressure.”¹⁴² The Court went on to state that “developments in psychology and brain science continue to show fundamental differences between juvenile and adult minds.”¹⁴³ For example, the parts of the brain involved in behavioral control continue to mature through late adolescence.¹⁴⁴ In short, the Court concluded that certain punishments were inappropriate given the

138. 560 U.S. 48, 82 (2010).

139. 132 S. Ct. 2455, 2460 (2012). In *Miller*, the Court declined to reach the question of whether or not life without parole categorically violated the Eighth Amendment prohibition on cruel and unusual punishment, having decided that the system before it, which automatically sentenced juveniles to life without parole upon conviction of certain felonies, was unconstitutional. *Id.* at 2469. As a result, the two cases stand in odd contrast on some levels. *Graham* would seem to suggest that the sentence of life without parole fails to achieve the goals of punishment given what is known about the nature of juvenile brain development (as discussed below). See *Graham*, 560 U.S. at 71–72. Yet, *Miller* declines to hold the sentence to be categorically inappropriate, leaving open the possibility, as the dissent suggests, that some juvenile, despite the deficient level of culpability accompanying his status as a minor, might nonetheless “deserve” such a punishment. *Miller*, 132 S. Ct. at 2483 (Thomas, J., dissenting). Outside of the Court’s generalized reluctance to avoid reaching questions not before it, these holdings strike me as somewhat odd, if not inconsistent. While worth noting, this is beyond the scope of this paper. The Supreme Court heard arguments during the October 2015 term in a case addressing whether *Miller*’s prohibition on mandatory life without parole sentences for juveniles applies retroactively. See *Montgomery v. Louisiana*, 135 S. Ct. 1546, 1546 (2015).

140. *Miller*, 132 S. Ct. at 2468–69.

141. *Graham*, 560 U.S. at 75.

142. *Id.* at 68 (quoting *Roper v. Simmons*, 543 U.S. 551, 569–70 (2005)).

143. *Id.*

144. *Id.* (citing Brief for American Medical Ass’n & American Academy of Child & Adolescent Psychiatry as Amici Curiae in Support of Neither Party at 15, *Graham v. Florida*, 560 U.S. 48 (2009) (Nos. 08-7412, 08-7621); Brief for the American Psychological Ass’n et al. as Amici Curiae Supporting Petitioners at 22–27, *Graham v. Florida*, 560 U.S. 48 (2010) (Nos. 08-7412, 08-7621)).

inability of the juvenile defendant to achieve the requisite level of culpability because of the effect of his age upon his cognitive development.

B. The Jurisprudence of Youth

While these most recent Eighth Amendment cases struck down previous decisions, they hardly broke new ground. Each of these cases follows a doctrinal principle articulated in other areas of the law: that immaturity may trigger legal protections, restrictions, or both for children that the law does not impose on adults.¹⁴⁵ As the Court itself noted in *Roper*, juveniles cannot vote,¹⁴⁶ serve on juries,¹⁴⁷ or marry without parental consent.¹⁴⁸ Additionally, they cannot consent to sexual intercourse.¹⁴⁹ In many states, juveniles cannot terminate a pregnancy without parental or judicial consent.¹⁵⁰ And

145. See, e.g., *Eddings v. Oklahoma*, 455 U.S. 104, 115–16 (1982). Although the Court declined to categorically prohibit the execution of minors, it noted:

Youth is more than a chronological fact. It is a time and condition of life when a person may be most susceptible to influence and to psychological damage. Our history is replete with laws and judicial recognition that minors, especially in their earlier years, generally are less mature and responsible than adults.

Id.

146. See *Roper v. Simmons*, 543 U.S. 551, app. B at 581–83 (2005) (listing state statutes establishing a minimum age to vote).

147. See *id.* app. C at 583–85 (listing state statutes establishing a minimum age for jury service).

148. See *id.* app. D at 585–87 (listing state statutes establishing a minimum age for marriage without parental or judicial consent).

149. See *State v. Granier*, 99-3511, p. 6 (La. 7/6/00); 765 So. 2d 998, 1001 (explaining that statutory rape statutes are premised on the belief that juveniles are not mature enough to understand the consequences of their actions); see also *Michael M. v. Superior Court of Sonoma Cty.*, 450 U.S. 464, 470 (1981) (chronicling the interests of the state in deterring underage sexual activity); *Jones v. State*, 640 So. 2d 1084, 1087 (Fla. 1994) (noting that the state has an obligation to protect children from sexual activity); *People v. Dozier*, 424 N.Y.S.2d 1010, 1014 (N.Y. 1980) (listing concerns that include “[f]orced marriage, unwed motherhood, adoption, abortion, the need for medical treatment and precipitate withdrawal from school”); *State v. Barlow*, 630 A.2d 1299, 1300 (Vt. 1993) (finding similar interests to create a compelling state interest in protecting children from sexual activity). See generally LAFAVE, *supra* note 46, at § 17.4(c) (providing a discussion of the policies behind statutory rape as a means of protecting those incapable of consenting due to their youth); Catherine L. Carpenter, *On Statutory Rape, Strict Liability, and the Public Welfare Offense Model*, 53 AM. U. L. REV. 313, 334–57 (2003) (comparing statutory rape statutes and justifications across states).

150. See *Ayotte v. Planned Parenthood of N. New Eng.*, 546 U.S. 320, 326–28 (2006) (holding that parental notification requirements posed no undue burden on minor seeking an abortion so long as there was an exception for the health of the mother); *Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833, 899 (1992) (plurality opinion) (upholding as constitutional a judicial bypass option that required an unemancipated minor seeking to terminate a pregnancy to provide her own informed consent and the informed consent of

while judicial¹⁵¹ and legislative¹⁵² trends grant minors comparatively more access to contraception without parental consent than to abortion, in 2006 the Food and Drug Administration deviated from this trend and limited access to Plan B for minors.¹⁵³ Likewise, juveniles cannot obtain tattoos or ear piercings without their parents' permission, or, in some jurisdictions, at all.¹⁵⁴ They cannot buy tobacco products¹⁵⁵ or alcohol¹⁵⁶ or, in some jurisdictions, even be

one parent or guardian); *Ohio v. Akron Ctr. for Reprod. Health*, 497 U.S. 502, 506–09 (1990) (upholding significantly burdensome judicial bypass procedure for minor seeking an abortion without parental approval); *Bellotti v. Baird*, 443 U.S. 622, 643–44, 647–48 (1979) (holding that parental consent for abortion was permissible as long as the state provided a judicial bypass mechanism that would allow a minor to have an abortion without notifying her parents upon a showing that she was sufficiently mature to make such a decision and that the abortion was in her best interests).

151. See *Casey*, 505 U.S. at 851 (plurality opinion) (noting that the “law affords constitutional protection to personal decisions relating to . . . contraception”); *Carey v. Population Servs. Int’l*, 431 U.S. 678, 693–94 (1977) (plurality opinion) (striking down blanket parental consent requirement for minors to receive contraception); *Planned Parenthood of Cent. Mo. v. Danforth*, 428 U.S. 52, 74–75 (1972) (holding that while minors have a similar due process right to privacy, “the State has somewhat broader authority to regulate the activities of children than of adults” though there must be a “significant state interest . . . not present in the case of an adult” to justify increased state burdens on minors’ privacy rights).

152. See, e.g., 42 U.S.C. § 300(a) (2012) (authorizing the Secretary of the Department of Health and Human Services to establish programs to “offer a broad range of acceptable and effective family planning methods and services”); J. Shoshanna Ehrlich, *From Age of Consent Laws to the “Silver Ring Thing”: Regulating Adolescent Female Sexuality*, 16 HEALTH MATRIX 151, 163–65 (2006) (noting that in 1978 Congress specifically amended Title X to require recipients of federal family planning funds to provide services to minors and that repeated efforts to amend Title X to require parental consent for minors to receive contraception in federally funded clinics have failed).

153. Letter from Steven Galson, Dir., Ctr. Drug Evaluation & Research, FDA, to Joseph A. Carrado, Vice President Clinical Regulatory Affairs, Duramed Research, Inc. (Aug. 26, 2006), http://www.accessdata.fda.gov/drugsatfda_docs/applletter/2006/021045s011ltr.pdf [<http://perma.cc/H3BW-6S66>]; see also Stephanie Saul, *F.D.A. Shifts View on Next-Day Pill*, N.Y. TIMES, Aug. 1, 2006, at A1 (discussing FDA’s decision to lift restriction upon over-the-counter access to Plan B—known as the “day-after” or “next-day” pill—for those over eighteen). The decision represented a significant shift from FDA and federal legislative policies making contraception available to all women of childbearing age, including minors. See generally Anna Pikovsky Krishtul, *The FDA’s Recent About-Face: Plan B Age Restriction Is Unlawful Rulemaking and Violates Minors’ Due Process Rights*, 81 TEMP. L. REV. 303, 327–28 (2008) (discussing why the FDA’s initial age restriction for over-the-counter day-after pills should be struck down on due process grounds).

154. See Inna Volkova, *Body Art on Children’s Bodies: Should It Be Up to Parents To Decide?*, 23 HASTINGS WOMEN’S L.J. 109, 116–17 (2012) (describing laws that limit or restrict a minor’s ability to receive body piercings or tattoos).

155. See Jennifer McCullough, *Lighting Up the Battle Against the Tobacco Industry: New Regulations Prohibiting Cigarette Sales to Minors*, 28 RUTGERS L.J. 709, 710 n.7 (1997) (compiling a list of state regulations that criminalize the possession of tobacco products by minors). Likewise, it is illegal to sell tobacco products to minors. Prohibition

present in locations where alcohol is served.¹⁵⁷ Juveniles cannot join the military¹⁵⁸ or voluntarily discontinue their educations.¹⁵⁹ They cannot be elected to Congress¹⁶⁰ or the presidency.¹⁶¹

of Sale and Distribution to Persons Younger Than 18 Years of Age, 21 C.F.R. § 1140.14(a) (2015).

156. See National Minimum Drinking Age Act of 1984, Pub. L. No. 98-363, 98 Stat. 435 (1984) (codified as amended at 23 U.S.C. § 158 (2012)) (requiring that in order to receive highway funds, states must prohibit persons under twenty-one years of age from purchasing or publicly possessing alcoholic beverages); see also U.S. DEP'T OF HEALTH AND HUMAN SERVS., *THE LEGAL STATUS OF ADOLESCENTS* 1980, at 116-17 (1981) (summarizing the state trend of establishing a legal drinking age between eighteen and twenty-one prior to the passage of the National Minimum Drinking Age Act); FRANKLIN E. ZIMRING, *THE CHANGING LEGAL WORLD OF ADOLESCENCE* 3-6 (1982) (same).

157. See, e.g., FLA. STAT. ANN. § 562.48 (West, Westlaw through 2015 Spec. A Sess.) (prohibiting minors from entering establishments whose primary purpose is the sale of alcohol); MICH. COMP. LAWS ANN. § 750.141 (West, Westlaw through P.A. 2015, No. 130) (same); N.Y. PENAL LAW § 260.21(1) (McKinney 2008) (same). Some states even prohibit minors from entering establishments of "ill repute." See, e.g., MASS. GEN. LAWS ANN. ch. 140, § 179 (West, Westlaw through Chapter 68 of the 2015 1st Annual Sess.) (establishing eighteen as the legal age to enter pool halls that display scandalous images); MISS. CODE ANN. § 97-5-11 (LEXIS through 2015 Reg. Sess.) (prohibiting minors from entering a pool hall unless an individual municipality determines otherwise); 53 PA. CONS. STAT. § 15404 (West, Westlaw through 2015 Reg. Sess. Acts 1 to 39) (setting legal age "to play any game of billiards, pool, or bagatelle" at eighteen). For further discussion of this issue, see Lawrence A. Vanore, *The Decency of Capital Punishment for Minors: Contemporary Standards and the Dignity of Juveniles*, 61 IND. L.J. 757, 777-78 (1986).

158. 10 U.S.C. § 505(a) (2012) (setting the age of conscription without written consent of a parent or guardian at eighteen). It is worth noting that while minors may not join the military, they are nonetheless recruited for the military before reaching the age of majority. See Lila A. Hollman, *Children's Rights and Military Recruitment on High School Campuses*, 13 U.C. DAVIS J. INT'L L. & POL'Y 217, 222 (2007) (noting that Congress has set in place certain restrictions on the recruitment of minors, but that such recruiting is still an integral part of U.S. military policy).

159. See, e.g., IND. CODE § 20-33-2-6 (2015) (West, Westlaw through 2015 Reg. Sess.) (mandating school attendance for children between the ages of six and sixteen, though making provisions for nontraditional and nonpublic schools); N.Y. EDUC. LAW § 3205(1)(a), (3) (McKinney 2009) (requiring children to attend school until the age of sixteen, though a child who is seventeen and unemployed may still be required to attend school under the statute). See generally LAWRENCE KOTIN & WILLIAM F. AIKMAN, *LEGAL FOUNDATIONS OF COMPULSORY SCHOOL ATTENDANCE* (1980) (surveying state compulsory attendance laws). Such compulsory attendance laws are not without controversy. See, e.g., *Wisconsin v. Yoder*, 406 U.S. 205, 214 (1972) (striking down Wisconsin's compulsory attendance laws and noting that "a State's interest in universal education, however highly we rank it, is not totally free from a balancing process when it impinges on fundamental rights and interests"); *Pierce v. Soc'y of Sisters*, 268 U.S. 510, 534-35 (1925) (striking down an Oregon compulsory attendance statute on due process grounds).

160. U.S. CONST. art. I, § 2, cl. 2 (limiting the age of representatives to twenty-five years or older); *id.* art. I, § 3, cl. 3 (limiting the age of senators to thirty years or older).

161. *Id.* art. II, § 1, cl. 5 (restricting the age of the President to thirty-five years or older).

Minors are not prohibited from executing contracts, but as a general rule, contracts made by minors are voidable.¹⁶² Likewise, minors have a right to acquire and to own property, but the law presumes the minor incapable of managing the property himself; for that she must seek out the assistance of an adult, often court-appointed, guardian.¹⁶³ Minors cannot initiate or defend against lawsuits.¹⁶⁴ They cannot even declare themselves emancipated from their parents without first demonstrating to a court that they are the “exceptional juvenile,” or perhaps that their home situation is sufficiently dire that they should be allowed to deviate from the norm and remove themselves in the interests of their very survival.¹⁶⁵

In other contexts, the Court has acknowledged juveniles’ particular vulnerability by subjecting them to the patronizing

162. See *In re Bierman*, 271 F. Supp. 774, 775–76 (S.D. Ohio 1967) (recognizing that minors may execute contracts, but that such contracts are generally voidable); *Jones v. Dressel*, 623 P.2d 370, 373 (Colo. 1981) (same). Several courts have also held that upon breach the minor was responsible for damages under the contract only for the consideration she received, concluding that such a rule was necessary to protect minors from their own indiscretion and immaturity. *Nelson v. Browning*, 391 S.W.2d 873, 877–78 (Mo. 1965); *Hamrick v. Hosp. Serv. Corp. of R.I.*, 296 A.2d 15, 18 (R.I. 1972); *Halbman v. Lemke*, 298 N.W.2d 562, 564–65 (Wis. 1980).

163. See, e.g., *Baker v. United States*, 137 F. Supp. 651, 653 (M.D.N.C. 1955) (holding that while children have a right to acquire property, a guardian should be appointed by the court to manage the property, even over the child’s objection, absent a demonstration that the child is competent to manage the property on his own); *Bach v. Long Island Jewish Hosp.*, 267 N.Y.S.2d 289, 291 (N.Y. Sup. Ct. 1966) (noting that a minor may not alter the status of his property rights without guardian or court approval).

164. See *Roberts v. Ohio Cas. Ins. Co.*, 256 F.2d 35, 39 (5th Cir. 1958) (holding that a court may decline to appoint an adult representative or guardian to handle a child’s legal matters only if it makes a judicial determination that the child is protected without appointment). The Federal Rules of Civil Procedure outline the procedure for identifying the representative or for appointing a guardian to protect the interest the child is presumed incapable of preserving on her own. FED. R. CIV. P. 17(c).

165. Emancipation is the process by which children acquire legal responsibility and freedom for themselves, despite their continued biological reality as minors. See LAUREN KROHN ARNEST, *CHILDREN, YOUNG ADULTS, AND THE LAW: A DICTIONARY* 117 (1998) (defining emancipation as the “procedure by which a minor may become independent of his or her parents before reaching the age of majority” such that “[a] parent no longer has any right to control an emancipated child’s life or to receive the emancipated child’s earnings or services” and “the child no longer is entitled to parental support”); Jenny E. Carroll, *Rethinking the Constitutional Criminal Procedure of Juvenile Transfer Hearings: Apprendi, Adult Punishment, and Adult Process*, 61 HASTINGS L.J. 175, 177 n.4 (2009) (describing emancipation as the process by which children eschew their legal identity as minors and establish themselves as “adults” in the eyes of the law); see also Cheryl Dalby, *Gender Bias Toward Status Offenders: A Paternalistic Agenda Carried Out Through the JJDP*, 12 LAW & INEQ. 429, 453–54 (1994) (discussing various legal benefits provided by emancipation); Elisa Poncz, *Rethinking Child Advocacy After Roper v. Simmons: “Kids Are Just Different” and “Kids Are Like Adults” Advocacy Strategies*, 6 CARDOZO PUB. L. POL’Y & ETHICS J. 273, 315 (2008) (same).

ignominy of state-imposed curfews¹⁶⁶ and protecting them from state-imposed prayers at graduation ceremonies¹⁶⁷ or high school football games.¹⁶⁸

Recent decisions in the realm of substantive and procedural criminal law further expand the jurisprudence of youth. In 2011, a year after the Court's decision in *Graham* and the year before *Miller*, the Supreme Court once again considered brain science—this time in the context of the *Miranda*¹⁶⁹ custody analysis.¹⁷⁰ In *J.D.B. v. North Carolina*, the Court held that the test for determining whether or not a juvenile was in custody or was free to terminate contact with the police must be evaluated based on what was reasonable for a juvenile, rather than what was reasonable for an adult.¹⁷¹ The case concerned J.D.B., a thirteen-year-old middle school student who was removed from class and interrogated in a closed-door conference room by four adults, including a uniformed police officer and School Resource

166. See, e.g., *Bykofsky v. Borough of Middletown*, 401 F. Supp. 1242, 1256–57 (M.D. Pa. 1975) (holding no constitutional violation for a curfew ordinance affecting minors under the age of eighteen); *In re Nancy C.*, 105 Cal. Rptr. 113, 120 (Cal. Ct. App. 1972) (upholding curfew imposed on minors); *City of Eastlake v. Ruggiero*, 220 N.E.2d 126, 128 (Ohio Ct. App. 1966) (same); Note, *Assessing the Scope of Minors' Fundamental Rights: Juvenile Curfews and the Constitution*, 97 HARV. L. REV. 1163, 1163–64 (1984); Comment, *Juvenile Curfew Ordinances and the Constitution*, 76 MICH. L. REV. 109, 126, 129, 132, 137 (1977). But see James C. Howell, Barry C. Feld & Daniel P. Mears, *Young Offenders and an Effective Justice System Response: What Happens, What Should Happen, and What We Need To Know*, in FROM JUVENILE DELINQUENCY TO ADULT CRIME: CRIMINAL CAREERS, JUSTICE POLICY, AND PREVENTION 200, 219 (Rolf Loeber & David P. Farrington eds., 2012) (“Despite clear developmental differences between adolescents and adults, the Court and most states’ laws do not provide youths with additional procedural safeguards to protect them from their own immaturity and vulnerability.”).

167. See *Lee v. Weisman*, 505 U.S. 577, 599 (1991). In *Lee*, the Court noted that the First Amendment must be especially vigilant in separating church and state in the context of minors. See *id.* at 592. In disallowing a prayer delivered during a high school graduation ceremony, the Court cautioned that “adolescents are often susceptible to pressure from their peers towards conformity, and that . . . influence is strongest in matters of social convention.” *Id.* at 593.

168. See *Santa Fe Indep. Sch. Dist. v. Doe*, 530 U.S. 290, 312 (2000). In *Santa Fe*, the Court again noted the vulnerability of children to peer pressure as distinguished from adults. *Id.* at 311–12 (citing *Lee v. Weisman*, 505 U.S. 577, 593 (1991)). As a result, while prayers had been upheld in other contexts involving adult-only, or near-adult-only gatherings, see *Marsh v. Chambers*, 463 U.S. 783, 792 (1983), prayers offered at school events, even extracurricular ones, violated the First Amendment, *Santa Fe*, 530 U.S. at 312.

169. See *Miranda v. Arizona*, 384 U.S. 436, 444 (1966) (holding that prior to questioning, a suspect in police custody “must be warned that he has a right to remain silent, that any statement he does make may be used as evidence against him, and that he has the right to the presence of an attorney, either retained or appointed”).

170. See *J.D.B. v. North Carolina*, 131 S. Ct. 2394, 2398, 2402–05 (2011).

171. *Id.* at 2402–03.

Officer.¹⁷² At trial, J.D.B. moved to suppress statements made during the interrogation on the grounds that he had not been administered the *Miranda* warnings.¹⁷³ In response, the State successfully argued that J.D.B. was not in custody because a reasonable person would have felt free to leave the conference room; therefore no *Miranda* warnings were necessary.¹⁷⁴ Writing for the majority, Justice Sotomayor reasoned that a child suspect's age was relevant to determining whether or not he reasonably believed he was free to leave and so was relevant to the necessity of the *Miranda* warnings.¹⁷⁵ Citing brain science data similar to that discussed in *Graham*,¹⁷⁶ the Court noted that the risk of coercion is "all the more acute" during youth.¹⁷⁷ Accordingly, law enforcement officers and courts must take the suspect's youth into account in determining whether or not *Miranda* should be administered.¹⁷⁸

From prayers before high school football games, to the sale of alcohol, to the custody analysis for *Miranda*, the list goes on, in competing (and at times seemingly contradictory) iterations. But in the end all the restrictions and protections acknowledge a fundamental reality that we all seem to know and accept, and that the study of the brain has now confirmed: children are different than adults.

III. THE SCIENCE OF ADOLESCENCE AND WHAT IT MEANS FOR CULPABILITY

But what exactly does the scientific evidence show? In the last two decades a burgeoning body of scientific data has emerged that has bolstered the Court's recent decisions regarding adolescent culpability in the context of sentencing. This literature provides critical insights into the thought processes and cognitive abilities of adolescents.

I will begin the discussion of this scientific evidence with a brief overview of the juvenile justice system and its articulated and divergent goals. While not all juveniles are tried in the juvenile court system—indeed the continuing trend is to try juveniles in the adult court system—the creation of an independent juvenile system itself

172. *Id.* at 2399.

173. *Id.* at 2400.

174. *Id.*

175. *Id.* at 2406.

176. *Id.* at 2402–03.

177. *Id.* at 2401.

178. *Id.* at 2404, 2407.

signals a recognition that youthful offenders are categorically different from adult offenders. Juvenile systems have cabined the effect of this acknowledged difference primarily to the provision of pretrial services and modified sentencing regimes.¹⁷⁹

With some knowledge of the juvenile justice system in place, I turn from the system to the scientific literature. The studies vary widely, but, as a general principle, they conclude that adolescents as a class operate under a comparatively reduced capacity when it comes to higher executive function, including autonomous choice, risk perception, self-management, and calculation and comprehension of future consequences.¹⁸⁰ This deficiency not only renders adolescents more likely to engage in risky behavior than adults, but also to have a more myopic understanding of the external effect of that behavior than adults.¹⁸¹ Perhaps more significantly these studies conclude that this deficiency is the *norm*, not an aberration, in the adolescent population.¹⁸² In other words, unlike evidence of a mental defect or abnormality that supports a reduction in culpability because of its very deviation from the norm, evidence of adolescent thought processes establishes an appropriate mens rea baseline that differs significantly from the adult perspective criminal law has come to rely on. In Part IV, I will explore further what this suggests for a mens rea analysis.

Psycho-social literature explains that adolescence is a transitory period in which the individual's very identity and character develop and coalesce.¹⁸³ As a result, adolescents are more prone than adults to engage in explorative and experimental behavior that seeks to test or push previously established social boundaries—including legal ones.¹⁸⁴ The transitory nature of the development period, however, suggests that such behavior will usually dissipate as the adolescent ages and

179. Carroll, *supra* note 165, at 183–84, 187, 190 (discussing the development of the juvenile justice system as a means to address the needs and challenges of juvenile offenders).

180. See *infra* notes 203–49 and accompanying text for a description of these studies.

181. See sources cited *infra* note 215.

182. See B.J. Casey & Kristina Caudle, *The Teenage Brain: Self Control*, 22 CURRENT DIRECTIONS PSYCHOL. SCI. 82, 82–83 (2013); Elizabeth S. Scott & Laurence Steinberg, *Blaming Youth*, 81 TEX. L. REV. 799, 802 (2003).

183. See Peter Smith, *Social Development*, in PSYCHOLOGY: AN INTEGRATED APPROACH 310–12 (Michael Eysenck ed., 1998).

184. B.J. Casey, Rebecca M. Jones & Todd A. Hare, *The Adolescent Brain*, 1124 ANNALS N.Y. ACAD. SCI. 111, 119–21 (2008) (describing the period of adolescence as characterized by efforts to test and exceed previously created social and legal boundaries).

develops into an adult.¹⁸⁵ In short, youthful offenders do not always or necessarily become adult offenders.

A second, more recent body of scientific literature builds on these psycho-social conclusions, examining the biological and neurological realities of the adolescent development period.¹⁸⁶ Such studies suggest that there may be a biological explanation for the behavior described in the psycho-social literature, offering a more nuanced examination of how the physical maturation that occurs during adolescence may affect social maturation and executive function.¹⁸⁷

At the end of the day, the literature surrounding adolescent development reveals that teens engage in a different decision-making process than adults on a variety of levels. This difference is peculiar to adolescents and affects their understanding of choices and consequences, including those that may carry legal implications. As a result, these studies are relevant not only to a calculation of proportional punishment as it relates to the youthful actor's culpability, but also to calculations of mens rea as a signifier of culpability.

A. *The Juvenile Justice System*

In many ways, the creation of a separate system to adjudicate juvenile offenders at the turn of the twentieth century was the product of the reform movement that recognized the difference between adults and juveniles even before the scientific literature had begun to define the parameters and sources of that difference.¹⁸⁸ At

185. See Smith, *supra* note 183, at 313.

186. See *infra* notes 229–43 and accompanying text describing such studies in greater detail.

187. See, e.g., Laurence Steinberg, *Risk Taking in Adolescence: What Changes, and Why?*, 1021 ANNALS N.Y. ACAD. SCI. 51, 57 (2006) (“My argument is that heightened risk taking during this period is likely to be normative, biologically driven, and inevitable.”).

188. See generally JANE ADDAMS, *THE SPIRIT OF YOUTH AND THE CITY STREETS* (1910) (discussing the reform movement and its creation of a juvenile justice system distinct from the adult criminal court system); JACK M. HOLL, *JUVENILE REFORM IN THE PROGRESSIVE ERA: WILLIAM R. GEORGE AND THE JUNIOR REPUBLIC MOVEMENT* (1971) (same). The movement defined youth in narrower terms than we do today, setting the age of majority at fourteen or sixteen, as opposed to eighteen, and seeking to prevent seven- to fourteen-year-olds from being tried as adults. See Julian Mack, *The Juvenile Court*, 23 HARV. L. REV. 104, 108–09 (1909) (describing the jurisdiction of juvenile courts and noting that offenders aged out of the juvenile system at fourteen or sixteen depending on the state). This focus on relatively younger children may well have facilitated early reformers' arguments that juvenile offenders were not fully developed human beings and therefore should not be subjected to state-imposed punishment for bad acts in the same way as similarly situated adult offenders.

its inception, this new juvenile justice system was premised on the notion that children were different than adults, even when they engaged in “adult-like” criminal behavior. Early juvenile justice systems focused on rehabilitation rather than punishment and took the view that criminal conduct in children was a symptom of poverty and poor parental supervision.¹⁸⁹ The immaturity of the offender was important to the focus on rehabilitation. Not only did immaturity indicate a difference in capacity from adult defendants,¹⁹⁰ but it also signaled a corresponding reduction in the level of culpability that required alternative procedures for assessing guilt and sentences.¹⁹¹

As the procedures and purposes of the juvenile court system shifted with the Court’s decision in *In re Gault*,¹⁹² so too did the

189. See CHARLES LARSON, *THE GOOD FIGHT: THE LIFE AND TIMES OF BEN B. LINDSEY* 34 (1972) (describing the desire to “treat” juvenile offenders rather than punish them); MURRAY LEVINE & ADELIN LEVINE, *A SOCIAL HISTORY OF HELPING SERVICES: CLINIC, COURT, SCHOOL, AND COMMUNITY* 155–229 (1970) (noting that early juvenile justice systems were based on social help models designed to alleviate the harm of poverty that led to juvenile crime); BEN B. LINDSEY & HARVEY J. O’HIGGINS, *THE BEAST* 92, 97 (1909) (expressing the belief that juvenile offenders suffer a “condition” that requires treatment, not punishment); Mack, *supra* note 188, at 115, 119–20 (acknowledging rehabilitation, as opposed to punishment, as the main goal of budding juvenile justice systems). The early juvenile court system was viewed as a means of diverting youths from a criminal career through rehabilitation. See *id.* at 109–10. Without this intervention, it was believed that youthful offenders would continue towards increasing violence and heightening criminality. See *id.* (suggesting that without rehabilitative intervention, criminal conduct would continue as the child aged into adulthood).

190. See Barry C. Feld, *The Transformation of the Juvenile Court*, 75 MINN. L. REV. 691, 694 (1991) (“By the end of the nineteenth century, children increasingly were seen as vulnerable, innocent, passive, and dependent beings who needed extended preparation for life.”); Elizabeth S. Scott & Thomas Grisso, *The Evolution of Adolescence: A Developmental Perspective on Juvenile Justice Reform*, 88 J. CRIM. L. & CRIMINOLOGY 137, 142–43 (1997) (noting that under rehabilitative models “[j]uvenile offenders were assumed to have different capacities and needs from adults” and that this “warranted separate adjudicatory procedures and a differential correctional response”).

191. See ZIMRING, *supra* note 156, at 36 (“The child’s immaturity was viewed as outweighing crime control considerations in determining appropriate responses to young persons who violated the law.”); Martin R. Gardner, *The Right of Juvenile Offenders To Be Punished: Some Implications of Treating Kids as Persons*, 68 NEB. L. REV. 182, 191 (1989) (“The juvenile court movement assumed that young people under an articulated statutory age (sometimes as high as 21 years of age) are incapable of rational decision making and thus lack the capacity for moral accountability assumed by the punitive model.”).

192. See 387 U.S. 1, 74 (1967) (extending criminal procedural rights to juveniles in delinquency proceedings). In the process of extending some criminal procedural rights to juveniles the *Gault* Court and the later Court in *In re Winship*, 397 U.S. 358 (1970), undid some of the unique aspects of juvenile court. Mary Beth West, Note, *Juvenile Court Jurisdiction over “Immoral” Youth in California*, 24 STAN. L. REV. 568, 569 (1972) (describing what was only the beginning of the erosion of juvenile court jurisdiction following the *Gault* and *Winship* decisions). In the process, the focus of the juvenile justice

premise that the juvenile system should rehabilitate youthful offenders and thereby save them from a life a crime.¹⁹³ As the juvenile system increased its procedural resemblance to its adult counterpart, so too did it increase its reliance on punitive sentencing regimes that sought to hold young offenders accountable for their actions.¹⁹⁴ In short, during the “new,” post-*Gault* era of juvenile justice, while the offender’s youth and immaturity may still have factored into sentencing,¹⁹⁵ juveniles were viewed as having the requisite moral judgment and self-control to be held responsible for their criminal acts like their adult counterparts.¹⁹⁶ Minors were still viewed as less blameworthy than adults due to a variety of developmental factors,¹⁹⁷ but the focus of juvenile systems shifted toward public protection and the need for punishment.

In the past two decades, this trend produced a juvenile system less likely to assert jurisdiction over adolescents who commit violent

system shifted from that of a reform movement, towards a criminal proceeding not unlike its adult counterpart. *See id.*

193. *See* Scott & Grisso, *supra* note 190, at 145 (noting that post-*Gault* there was “mounting skepticism about the empirical premise that rehabilitation was effective with youthful offenders” and a “growing belief that juveniles are more like adults” than the juvenile system had previously recognized).

194. States altered juvenile codes to reflect a shift from a rehabilitative model for juvenile offenders towards one based on accountability and retribution. *See, e.g.*, OHIO REV. CODE ANN. § 2151.354 (LEXIS through 2015 legislation); WASH. REV. CODE ANN. § 13.40.010(2) (West, Westlaw through 2015 Reg. Sess.).

195. I do not mean to suggest that juveniles were treated entirely equally to their adult counterparts in the post-*Gault* juvenile justice system. Indeed, juveniles still received shorter sentences under the post-*Gault* juvenile justice system out of a recognition that children have “unique physical, psychological, and social features.” INST. OF JUDICIAL ADMIN., AM. BAR ASS’N, STANDARDS RELATING TO JUVENILE DELINQUENCY AND SANCTIONS § 1.1(d) (1980).

196. *See* FRANKLIN E. ZIMRING, CONFRONTING YOUTH CRIME: REPORT OF THE TWENTIETH CENTURY FUND TASK FORCE ON SENTENCING POLICY TOWARDS YOUNG OFFENDERS 7, 79–80 (1978). Zimring has also observed that punishing juveniles was used as a mechanism to force them to take responsibility for their choices and prepare them for adulthood. ZIMRING, *supra* note 156, at 89, 90, 95–96 (describing adolescents as having a “learning permit” for adult life and therefore requiring sanctions to instruct them as to the negative consequences of decisions).

197. The juvenile system still continued to view minors as more impulsive, less capable of self-control, inexperienced, and more subject to peer pressure. *See* ZIMRING, *supra* note 196, at 7 (noting that adolescents are “more vulnerable, more impulsive and less self-disciplined than adults” and “may have less capacity to control their conduct and to think in long-range terms than adults”). In addition, juvenile courts continued to recognize that youth were more prone towards risk taking, rebellion, and experimentation. *Id.* at 3. These developmental factors led courts, and the states, to conclude that adolescent behavior was generally less culpable than adult behavior, even as punitive models shifted away from rehabilitation and towards punishment. *Id.* at 80.

offenses or who are repeat offenders¹⁹⁸ and more likely to impose sentences commensurate to those imposed on adult offenders.¹⁹⁹ Until the Court's pronouncement in *Roper*, even as courts took youth into account as a mitigating factor, juveniles were still treated as nearly indistinguishable from their adult counterparts and sentenced accordingly.²⁰⁰ Even *Roper* and its progeny, while focusing on the documented differences between adult and juvenile offenders, confined the impact of this difference to an assessment of culpability for sentencing.²⁰¹ The designation of criminal culpability contained in the mens rea element of the offense remains untouched by the *Roper* line of cases. Whatever immaturity a youthful offender suffered and whatever corresponding sentencing mitigation this may warrant, his guilt was, and is, still determined using the same culpability standard applied to adults.

198. See Carroll, *supra* note 165, at 175 (discussing trends favoring transfer of juvenile offenders to the adult court system); Thomas Grisso, *Juvenile Competency To Stand Trial: Questions in an Era of Punitive Reform*, 12 CRIM. JUST. 4, 5–6 (1998) (noting increasing rates of automatic transfer from juvenile court to adult court as a result of charging juveniles with higher offenses to qualify them for automatic transfer).

199. See Thomas Grisso, *Society's Retributive Response to Juvenile Violence: A Developmental Perspective*, 20 LAW & HUM. BEHAV. 229, 231 (1996) (describing studies that find that children, some as young as eleven, are more likely than not to be tried as adults and to receive the same sentence as an adult).

200. As noted by Elizabeth Scott and Thomas Grisso, states not only transferred juveniles to the adult court system at younger ages and at higher rates, but they also put into place minimum sentencing requirements that ensured lengthy sentences, with no opportunity to offer mitigating evidence. See Scott & Grisso, *supra* note 190, at 150–51. Scott and Grisso conclude that this overly punitive approach to juvenile justice “seems to rest on an assumption of adolescent competence, implicitly holding that there are no psychological differences between adolescent and adult offenders that are important to criminal responsibility or to participation in an adult criminal proceeding.” *Id.* at 151.

201. See *supra* notes 128–44 and accompanying text. In *Roper*, and the cases that followed, the Court followed the suggestion of many juvenile court experts who argued that youthful immaturity or differences in cognitive function could be adequately accommodated in sentencing. See, e.g., Janet E. Ainsworth, *Re-Imagining Childhood and Reconstructing the Legal Order: The Case for Abolishing the Juvenile Court*, 69 N.C. L. REV. 1083, 1130–31 (1991); Feld, *supra* note 190, at 723–24; Gary B. Melton, *Taking Gault Seriously: Toward a New Juvenile Court*, 68 NEB. L. REV. 146, 152 (1989). Other scholars have argued that youth should also be considered in the context of competency itself, in particular how immaturity (and its corresponding cognitive deficiencies) might affect the defendant's ability to assist counsel. See Thomas Grisso et al., *Juveniles' Competence To Stand Trial: A Comparison of Adolescents' and Adults' Capacities as Trial Defendants*, 27 LAW & HUM. BEHAV. 333, 334, 359–60 (2003); Kristin Henning, *Loyalty, Paternalism, and Rights: Client Counseling Theory and the Role of Child's Counsel in Delinquency Cases*, 81 NOTRE DAME L. REV. 245, 247 (2005).

B. *The Scientific Literature*

Beginning in *Roper*, the Court began to rely—tentatively at first—on a burgeoning body of scientific literature to support the notion that children were different than adults.²⁰² By the time the Court rendered its opinions in *Graham* and *Miller*, scientific evidence had assumed a more central role in the Court's Eighth Amendment analysis; children were fundamentally different than adults, and this fundamental difference rendered them less culpable, at least for the purposes of punishment. As discussed above, such conclusions were hardly novel given the Court's overall jurisprudence of youth or, indeed, the states' construction of a distinct system of juvenile justice. What was unique was the Court's consideration of scientific data to support what the *Roper* Court suggested was an intuitive conclusion—children were different, and the difference carried legal significance.

This Section offers an overview of the scientific data that informed the Supreme Court's recent decisions, as well as new data that have developed since. This evidence, like all evidence, is not without its limitations and challenges. In Part IV, I will consider how these data can and should inform assessments of mens rea, as well as the proof problems such data may present as an evidentiary matter.

1. What We Know

Even the recognition of adolescence as a distinct period of development from childhood or adulthood is both recent and significant.²⁰³ As a developmental period, adolescence extends from

202. *Roper* was based on the Court's prior decisions, which did not rely on neuroscience, and concluded that children, including adolescents, were different than adults. See *Roper v. Simmons*, 543 U.S. 551, 569 (2005). The Court did acknowledge *amici* filings that offered a scientific basis for the differentiation, noting that scientific evidence confirmed the Court's conclusions and substantiated what "any parent knows"—that teenagers are immature. See *id.*

203. From the law's perspective, this separation of adolescence as a distinct period is a departure from theories of the nineteenth and early twentieth centuries that defined human development only in terms of childhood and adulthood. See Elizabeth S. Scott, *The Legal Construction of Adolescence*, 29 HOFSTRA L. REV. 547, 558–62 (2000) (noting that early juvenile justice models treated the boundaries between childhood and adulthood as binary, with little attention paid to the differences between infants and adolescents). This binary approach created incentives to correlate the boundary between childhood and adulthood with physical maturity. See *id.* at 555; Andrew Walkover, *The Infancy Defense in the New Juvenile Court*, 31 UCLA L. REV. 503, 510–13 (1984) (chronicling demarcations of adulthood in the criminal court system and noting that even under very progressive systems children were generally deemed responsible, and so adults, at fourteen). While early theories about adolescent development have been modified and discounted to some

puberty to the early twenties and is a critical and often volatile bridge between childhood and adulthood.²⁰⁴ During this period, teens are more likely both to underappreciate risk and engage in reckless behavior.²⁰⁵ As researchers attempt to answer the critical question of why adolescents engage in risky behavior, they map not only the psychological development of their subjects, but also their physical development.²⁰⁶ While such research is relatively nascent and leaves many questions unanswered, an important reality for criminal law emerges: the reckless behavior and curtailed decision-making processes of adolescence are the hallmarks of normal development, not a defect, and they distinguish adolescents from adults.²⁰⁷ This is not to say that adolescents lack free will, but it is to say that they engage in different decision-making processes than adults. In this light, the risky behavior of adolescence, including criminal behavior, is recast as an important stage of normal development that allows individuals to understand socially created boundaries and to live within them.²⁰⁸

Generally, and not surprisingly, studies of adolescence reveal that teens as a class are less competent decision makers than adults.²⁰⁹ To paraphrase the *Roper* Court, this hardly comes as a surprise to anyone who has ever had any contact with a teenager. What renders these studies more than mere prophecies of the obvious is that they provide tangible insight into *why* teens are less competent decision makers. Whatever question one may have about their usefulness in

extent, *see id.* at 512–13, the basic premise they assert remains constant—adolescence is a unique period of development.

204. *See* Scott & Steinberg, *supra* note 182, at 811.

205. *See* Sara B. Johnson, Robert W. Blum & Jay N. Giedd, *Adolescent Maturity and the Brain: The Promise and Pitfalls of Neuroscience Research in Adolescent Health Policy*, 45 J. ADOLESCENT HEALTH 216, 217–18 (2009); L.P. Spear, *The Adolescent Brain and Age-Related Behavioral Manifestations*, 24 NEUROSCIENCE & BIOBEHAVIORAL REV. 417, 421–22 (2000) (discussing the effect of adolescent brain development on appreciation of risk); Laurence Steinberg, *A Social Neuroscience Perspective on Adolescent Risk-Taking*, 28 DEVELOPMENTAL REV. 78, 83 (2008); Steinberg, *Risk Taking in Adolescence*, *supra* note 187, at 51, 57 (“My argument is that heightened risk taking during this period is likely to be normative, biologically driven, and inevitable.”). For a discussion of risk taking in the context of substance abuse among adolescents see Thomas Ashby Wills et al., *Novelty Seeking, Risk Taking, and Related Constructs as Predictors of Adolescent Substance Use: An Application of Cloninger’s Theory*, 6 J. SUBSTANCE ABUSE 1, 16–18 (1994).

206. *See* Scott & Steinberg, *supra* note 182, at 802 (describing adolescent decision-making as a product of normal developmental factors).

207. Casey & Caudle, *supra* note 182, at 82–83 (noting that while it may be understandable to characterize adolescent behavior as deviant given high rates of mental health issues and crime during this period, this over-generalization is inaccurate).

208. *Id.* at 82 (cautioning against pathologizing adolescent behavior).

209. Scott & Steinberg, *supra* note 182, at 801.

the legal realm,²¹⁰ there is no denying their increasing influence on the Court at least with regard to questions of law.

From these studies some salient themes emerge. Compared to adults, adolescents demonstrate deficiencies in their capacity for autonomous and consistent choice,²¹¹ self-management,²¹² risk perception,²¹³ and the calculation of future consequences.²¹⁴ They are

210. I will discuss, as others have, the potential limitations of brain science in the legal context in Section III.B.2, but for excellent additional critiques, see generally Richard J. Bonnie & Elizabeth S. Scott, *The Teenage Brain: Adolescent Brain Research and the Law*, 22 CURRENT DIRECTIONS PSYCHOL. SCI. 158 (2013) (arguing that “current research cannot contribute usefully to legal decisions about individual adolescents and should not be used in criminal trials at the present time, except to provide general developmental information”); Emily Buss, *What the Law Should (and Should Not) Learn from Child Development Research*, 38 HOFSTRA L. REV. 13 (2009) (arguing that “a more sophisticated understanding of child development counsels against an approach to children’s law that treats children’s capacities at certain ages as ascertainable and fixed. Instead, the law should recognize the contingent nature of children’s capacities”); Terry A. Maroney, *Adolescent Brain Science After Graham v. Florida*, 86 NOTRE DAME L. REV. 765 (2011) [hereinafter, Maroney, *Brain Science After Graham*] (expanding on the author’s previous article, *The False Promise of Adolescent Brain Science in Juvenile Justice*, 85 NOTRE DAME L. REV. 89 (2009), arguing that in light of the Court’s ruling in *Graham*, “undue focus on adolescent brain science threatens to obscure more important, and more treatable, reasons for juvenile offending”); Terry A. Maroney, *The False Promise of Adolescent Brain Science in Juvenile Justice*, 85 NOTRE DAME L. REV. 89 (2009) [hereinafter, Maroney, *False Promise*] (arguing that, “contrary to the high expectations many have placed on developmental neuroscience, it will—and should—have fairly modest effects on juvenile justice”); Christopher Slobogin & Mark R. Fondacaro, *Juvenile Justice: The Fourth Option*, 95 IOWA L. REV. 1, 1, 35 (2009) (arguing against a “diminished-retribution” model, and instead for a system that is “single-mindedly focused on the prevention of criminal behavior rather than retributive punishment”).

211. See Beatriz Luna et al., *The Teenage Brain: Cognitive Control and Motivation*, 22 CURRENT DIRECTIONS PSYCHOL. SCI. 94, 98–99 (2013) (noting that even when adolescents are capable of exercising control akin to adults, they show less consistency and less integration of brain processes in decision-making); Laurence Steinberg & Elizabeth Cauffman, *Maturity of Judgment in Adolescence: Psychosocial Factors in Adolescent Decision Making*, 20 LAW & HUM. BEHAV. 249, 253–54 (1996).

212. See Casey & Caudle, *supra* note 182, at 83, 86 (arguing that in emotional contexts akin to real world situations, impulse control of adolescents is severely taxed relative to adults or children).

213. See William Gardner & Janna Herman, *Adolescents’ AIDS Risk Taking: A Rational Choice Perspective*, in ADOLESCENTS IN THE AIDS EPIDEMIC 17, 25–26 (William Gardner et al. eds., 1990) (noting that adolescents tend to be less risk averse than adults and tend to weigh rewards more heavily than risks in making choices); Catherine C. Lewis, *How Adolescents Approach Decisions: Changes over Grades Seven to Twelve and Policy Implications*, 52 CHILD DEV. 538, 543 (1981). *But see* Marilyn Jacobs Quadrel, Baruch Fischhoff & Wendy Davis, *Adolescent (In)vulnerability*, 48 AM. PSYCHOLOGIST 102, 111–12 (1993) (noting that adolescents did not exhibit a greater feeling of invulnerability than adults).

214. See A. L. Greene, *Future-Time Perspective in Adolescence: The Present of Things Future Revisited*, 15 J. YOUTH & ADOLESCENCE 99, 108–09 (1986) (observing that as individuals age they are better able to project events into the future).

more likely to take risks²¹⁵ and to be sensation seeking.²¹⁶ They are more vulnerable to peer influence²¹⁷ and display heightened responses to rewards.²¹⁸ Their personalities and character are in flux.²¹⁹ Even in mid-adolescence, as teens' cognitive capacities approach those of adults, they are less skilled than their adult counterparts in using these capacities to make real-life decisions.²²⁰ These "deficiencies" in comparison to adults are not defects, but the products of normal physiological and psychological development during the adolescent period.²²¹ As one researcher concluded, the teen brain is not defective, but "sculpted by both biological and experiential factors to

215. See William Gardner, *A Life-Span Rational-Choice Theory of Risk Taking*, in ADOLESCENT RISK TAKING 66, 67 (Nancy J. Bell & Robert W. Bell eds., 1993) (presenting data on age differences in risk taking); Jeffrey Arnett, *Reckless Behavior in Adolescence: A Developmental Perspective*, 12 DEVELOPMENTAL REV. 339, 339 (1992); Elizabeth S. Scott, N. Dickon Reppucci & Jennifer L. Woolard, *Evaluating Adolescent Decision Making in Legal Contexts*, 19 LAW & HUM. BEHAV. 221, 230 (1995); Steinberg & Cauffman, *supra* note 211, at 258–59. Elizabeth Scott and Laurence Steinberg suggest that risk taking may be linked to adolescents' limited ability to think hypothetically and into the future, which causes them to value short-term gain or loss disproportionately. See Scott & Steinberg, *supra* note 182, at 814; *see also* Gardner, *supra*, at 78–79 (positing that a lack of life experience may account for a willingness to take risks in adolescents).

216. See Arnett, *supra* note 215, at 342–44. See generally Jeffrey Arnett, *Sensation Seeking: A New Conceptualization and a New Scale*, 16 PERSONALITY & INDIVIDUAL DIFFERENCES 289, 289 (1994) (analyzing a study finding that adolescents are more likely to engage in risk-taking behavior).

217. See Dustin Albert, Jason Chein & Laurence Steinberg, *The Teenage Brain: Peer Influences on Adolescent Decision Making*, 22 CURRENT DIRECTIONS PSYCHOL. SCI. 114, 114–15 (2013) (describing heightened susceptibility to peer influence and resulting increased risky behavior in adolescents); Leah H. Somerville, *The Teenage Brain: Sensitivity to Social Evaluation*, 22 CURRENT DIRECTIONS IN PSYCHOL. SCI. 121, 125 (2013) (noting disproportionate effect of peer reaction on juvenile decision-making compared to adults).

218. See Adriana Galván, *The Teenage Brain: Sensitivity to Rewards*, 22 CURRENT DIRECTIONS PSYCHOL. SCI. 88, 89–90 (2013) (noting that adolescents display a heightened sensitivity to reward as well as an increased dopamine response compared to adults); Luna et al., *supra* note 211, at 96–99 (describing studies cataloging adolescents heightened reward response that may contribute to their failure to properly access risk).

219. Scott & Steinberg, *supra* note 182, at 801.

220. Luna et al., *supra* note 211, at 96–99 (noting that even when adolescents show neural capacities on par with adults, other factors, including external factors such as susceptibility to peer influence and internal factors such as inefficient decision-making processes result in poorer decision-making capabilities); *see also* Shawn L. Ward & Willis F. Overton, *Semantic Familiarity, Relevance, and the Development of Deductive Reasoning*, 26 DEVELOPMENTAL PSYCHOL. 488, 488, 492 (1990) (concluding that while teens are capable of making decisions that approximate those of their adult counterparts in familiar settings, their inability to fully engage in deductive reasoning and their limited experiences render them comparatively poor decision makers in unfamiliar situations).

221. See Scott & Steinberg, *supra* note 182, at 802 (describing adolescent decision-making as comparatively compromised as a result of psycho-social immaturity, which is a product of normal developmental factors).

adapt to the unique social, physical, sexual, and intellectual challenges of adolescence.”²²² While the timing and the trajectory of development vary among individuals, the characteristics consistently manifest across the class.²²³ The Court in *Graham* and *Miller* found the characteristics to be sufficiently pervasive to justify categorically excluding one punishment and categorically forbidding mandating another.²²⁴ Likewise, individual variance notwithstanding, these characteristics are distinct and unique to this period of development, contributing to immature judgment²²⁵ and an increased process of exploration and experimentation that may include criminal activity.²²⁶ In short, if adolescence is characterized as a period of rapid change and development, what distinguishes it most obviously from childhood or adulthood is that it is also a time of boundary-pushing and reckless behavior.

This is hardly breaking news. The wild and thrilling ride of youth is a glorified and much-documented rite of passage that seems to defy cultural and geographic boundaries.²²⁷ Developmental psychologists

222. B.J. Casey, *The Teenage Brian: An Overview*, 22 CURRENT DIRECTIONS PSYCHOL. SCI. 80, 80 (2013).

223. See Laurence Steinberg & Robert G. Schwartz, *Developmental Psychology Goes to Court*, in YOUTH ON TRIAL 9, 24 (Thomas Grisso & Robert G. Schwartz eds., 2000) (“Within any given individual, the developmental timetable of different aspects of maturation may vary markedly [D]evelopment rarely follows a straight line during adolescence—periods of progress often alternate with periods of regression.”); Casey et al., *supra* note 184, at 119–21 (noting that while brain studies show structural maturity across a group, individual variance will still exist); Stephen J. Morse, *Brain Overclaim Syndrome and Criminal Responsibility: A Diagnostic Note*, 3 OHIO ST. J. CRIM. L. 397, 408 (2006). As Section III.B.2 will discuss, such variance may create proof problems in the context of a mens rea analysis, and some have argued such individual differences may limit the usefulness of neuroscience to legal determinations in general. See, e.g., Maroney, *False Promise*, *supra* note 210, at 146–48; Slobogin & Fondacaro, *supra* note 210, at 36–37.

224. See *supra* notes 138–44 and accompanying text.

225. See Scott et al., *supra* note 215, at 229–35 (describing the above-listed developmental factors as contributing to immature judgment).

226. See Arnett, *supra* note 215, at 341–44 (describing studies of reckless behavior in adolescents including drug use, speeding, driving while under the influence, unprotected sexual activity, and criminal behavior); Ronald E. Dahl, *Affect Regulation, Brain Development, and Behavioral/Emotional Health in Adolescence*, 6 CNS SPECTRUMS 60, 62 (2001) (noting that adolescents are three hundred percent more likely to die or become disabled than children primarily because they engage in risky behavior).

227. See Arnett, *supra* note 215, at 339 (noting that “[a]dolescence bears a heightened potential for recklessness compared to other developmental periods in every culture and in every time.”). For a less scientific approach to this reality, see generally *Amish in the City* (UPN television broadcast, 2004) (a television series documenting the Amish youth in a rite of passage known as *runspringa* which means “running around outside of boundaries”) or *Jersey Shore* (MTV television broadcast 2009–2012) (an equally compelling television series documenting New Jersey youths’ rites of passage in a rented beach house).

over the years have offered a variety of explanations for this tendency toward risky behavior,²²⁸ but recent advances in neuroimaging techniques have fueled a new wave of scientific exploration that builds on these existing adolescent development theories to suggest a biological basis for such behavior.²²⁹ In particular, longitudinal MRI studies have not only tracked the structural development of the brain, but have demonstrated that the brain continues developing well into early adulthood.²³⁰ In particular, researchers note that the frontal cortex—seat of the powers of executive decision-making, coordination of emotions and cognition, goal driven planning, forethought, and impulse control—is the last to achieve structural maturity.²³¹

MRI studies have also revealed that myelination, the insulation of neural axons with a fatty substance known as white matter, increases linearly from childhood to adulthood.²³² With this increase comes a corresponding progression of fast and efficient communication among brain systems.²³³ Adolescence also marks a period of pruning of grey matter—the uninsulated cell bodies and

228. See MARVIN ZUCKERMAN, *SENSATION SEEKING: BEYOND THE OPTIMAL LEVEL OF AROUSAL* 10, 122–23 (1979) (describing sensation seeking among teens as a dimension of their personality characterized by “the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience”); Marvin Zuckerman, Sybil Eysenck & H. J. Eysenck, *Sensation Seeking in England and America: Cross-Cultural, Age, and Sex Comparisons*, 46 *J. CONSULTING & CLINICAL PSYCHOL.* 139, 148 (1978) (concluding that adolescents between the ages of sixteen and nineteen score the highest on the sensation seeking scale with a steady decline with age).

229. In particular, longitudinal MRI studies enabled researchers to track the structural development of the brain. See Jay N. Giedd et al., *Brain Development During Childhood and Adolescence: A Longitudinal MRI Study*, 2 *NATURE NEUROSCIENCE* 861, 861–62 (1999); Elizabeth R. Sowell et al., *In Vivo Evidence for Post-Adolescent Brain Maturation in Frontal and Striatal Regions*, 2 *NATURE NEUROSCIENCE* 859, 860–61 (1999).

230. See B.J. Casey et al., *Imaging the Developing Brain: What Have We Learned About Cognitive Development?*, 9 *TRENDS COGNITIVE SCI.* 104, 104–05 (2005) (noting that *in vivo* MRI studies allow researchers to map brain activity and development).

231. See MICHAEL S. GAZZANIGA, RICHARD B. IVRY & GEORGE R. MANGUN, *COGNITIVE NEUROSCIENCE: THE BIOLOGY OF THE MIND* 75 (2d ed. 2002); Giedd et al., *supra* note 229, at 862; Nitin Gogtay et al., *Dynamic Mapping of Human Cortical Development During Childhood Through Early Adulthood*, 101 *PROC. NAT’L ACAD. SCI.* 8174, 8174 (2004).

232. See Charles A. Nelson III, Kathleen M. Thomas & Michelle de Haan, *Neural Bases of Cognitive Development*, in *CHILD & ADOLESCENT DEVELOPMENT* 19, 25 (William Damon & Richard M. Lerner eds., 2008); Giedd et al., *supra* note 229, at 861–62; Sowell et al., *supra* note 229, at 860.

233. See Tomáš Paus et al., *Structural Maturation of Neural Pathways in Children and Adolescents: In Vivo Study*, 283 *SCIENCE* 1908, 1908 (1999).

synapses of the brain.²³⁴ If the period of preadolescence is marked by a rapid development in the volume of grey matter, adolescence is notable as a period of change in which the volume and density of this matter decrease.²³⁵ This dual process of myelination and pruning of grey matter is critical to create more efficient communication between different parts of the brain.²³⁶ These combined processes allow the adult brain to function quickly and efficiently.²³⁷ It is clear that this development continues throughout adolescence.²³⁸ What is less clear is how this physical immaturity affects behavior or, from the perspective of criminal law, precisely what impact it has on decision-making processes.

It is also clear from the emerging research that the development from childhood to adulthood, including the period of adolescence, is transitory and continual.²³⁹ As children grow, so too does their cognitive control.²⁴⁰ An individual's basic elements of decision-making—including understanding and reasoning—increase throughout childhood and into adolescence.²⁴¹ Likewise, the development of connective circuitry through myelination from the prefrontal cortex and other parts of the brain continues through adulthood. This change not only facilitates effective decision-making, but it creates flexibility in the regulation of impulses and decisions.²⁴² Prefrontal connections that emerge in adolescence strengthen into adulthood.²⁴³ In short, as children mature, so too do their basic information-processing skills along a somewhat steady continuum to adulthood.

234. See Giedd et al., *supra* note 229, at 861; Sowell et al., *supra* note 229, at 860.

235. See Giedd et al., *supra* note 229, at 861; Sowell et al., *supra* note 229, at 860.

236. See Paus et al., *supra* note 233, at 1908.

237. *Id.*

238. See Nico U. F. Dosenbach, Steven E. Peterson & Bradley L. Schlaggar, *The Teenage Brain: Functional Connectivity*, 22 CURRENT DIRECTIONS PSYCHOL. SCI. 101, 104 (2013); Sowell et al., *supra* note 229, at 860.

239. See Smith, *supra* note 183, at 310–12; Casey, *supra* note 222, at 80.

240. See Steinberg & Cauffman, *supra* note 211, at 260 (noting that both impulsivity and sensation seeking increase between mid-adolescent years and early adulthood but decline thereafter).

241. See generally JOHN H. FLAVELL, PATRICIA H. MILLER & SCOTT A. MILLER, *COGNITIVE DEVELOPMENT* (3d ed. 1993) (discussing the advances in deductive reasoning that occur as children mature into adulthood including the ability to think hypothetically, abstractly, and multi-directionally as well as the development of metacognition); BARBEL INHELDER & JEAN PIAGET, *THE GROWTH OF LOGICAL THINKING FROM CHILDHOOD TO ADOLESCENCE* (1958) (same); JEAN PIAGET, *GENETIC EPISTEMOLOGY* (1970) (same); ROBERT S. SIEGLER, *CHILDREN'S THINKING 5* (2d ed. 1991) (same).

242. See Casey & Caudle, *supra* note 182, at 84–86; Luna et al., *supra* note 211, at 99.

243. See Nelson et al., *supra* note 232, at 19, 25.

But there are also some developmental findings that are specific to adolescents, and in the detail of that specificity may lie the devil of adolescent thought. Adolescents display heightened brain responses to socially relevant cues.²⁴⁴ Paradoxically, and perhaps cruelly, this heightened sensitivity to social cues does not render adolescents more capable of meeting new social challenges; instead it appears that this sensitivity makes them more subject to peer influences and pressures.²⁴⁵ In addition, adolescents exhibit a heightened response to rewards or sensations that seems to dissipate or at least diminish by adulthood but is also more pronounced than during childhood.²⁴⁶ The emerging image of adolescence as a period is one of competing neural and psychological tensions and interactions.²⁴⁷ As the identity and the brain develop, they do so on trajectories that may ultimately culminate in adulthood's mature thought processes and cognitive abilities, but along the way, distinct functions and paths of development may drive the brain and the neural systems.²⁴⁸

As the Court reconsidered its Eighth and Fourth Amendment jurisprudence with regard to youth, these studies painted a murky image of adolescence. Any discussion of teen behavior inevitably starts with the easily observable and well-documented reality that adolescents engage in riskier behavior than adults. The more difficult question, and from the perspective of criminal law the more relevant question, is why? Emerging research attempts to answer that question, at least in part, and offers a variety of competing and complimentary theories. Ultimately, what makes this scientific evidence important is that it suggests not only that there is a neurological and psychological explanation for this behavior but also that the behavior is transitory and a necessary component of development into adulthood. In short, to borrow from Patti Smith,

244. *Casey*, *supra* note 222, at 80.

245. *See* Albert et al., *supra* note 217, at 114–15.

246. *Id.*

247. *See* Casey & Caudle, *supra* note 182, at 82, 85 (noting that adolescent decisions and actions regarding self-control are caused by a “tension within the neural circuitry” between sections of the brain controlling reward processing and control processing); B.J. Casey, Sarah Getz & Adriana Galvan, *The Adolescent Brain*, 28 *DEVELOPMENTAL REV.* 62, 63 (2008) (“An accurate conceptualization of cognitive and neurobiological changes during adolescence must treat adolescence as a transitional developmental period, rather than a single snapshot in time.”); Dahl, *supra* note 226, at, 60–72 (2001) (arguing that adolescent puberty causes limbic system changes effecting responses such as stress vulnerability and enhanced risk-taking behaviors).

248. *See* Casey, *supra* note 222, at 80.

even the most unruly kids may be all right in the end; they are just kids.²⁴⁹

2. What We Don't Know (or the Limits of Science)

As many scholars have cautioned, there are limitations to the usefulness of neuroscience in criminal law, and courts have been quick to recognize those limitations.²⁵⁰ First, and perhaps most critically, while generalizations and trends can be recorded, neuroscience offers little insight into individual behavior.²⁵¹ At least in the context of Eighth Amendment jurisprudence, this lack of individualized accounting has not bothered the Court.²⁵² As the Court noted repeatedly in the *Roper* line, the noted behavior and developmental trends were sufficiently consistent and well documented to forgo an individualized analysis and to permit a categorical prohibition of the considered punishments.²⁵³

Nonetheless, the Court's acceptance of a category-based analysis may prove more challenging in the context of substantive criminal law for another reason. Studies not only note the variance among adolescents but also note that biological or neurological realities may not exclusively control behavior.²⁵⁴ For example, while functional imaging studies consistently revealed that adolescents lacked fully mature brains, others suggested that adolescents tended to employ different brain processes than adults in carrying out identical tasks.²⁵⁵ However, interpreting the behavioral implications of these studies

249. See generally PATTI SMITH, *JUST KIDS* (2010) (chronicling Smith's coming of age with photographer Robert Mappelthorpe and other young artists in the Chelsea Hotel in the 1960s and 1970s, ultimately concluding that their behavior, much of which was highly risky, was part of their development process as people and artists).

250. See, e.g., Bonnie & Scott, *supra* note 210, at 160–61; Buss, *supra* note 210, at 13, 34–49 (mapping the limitations of brain science in juvenile court); Slobogin & Fondacaro, *supra* note 210, at 137–38 (noting limitations on the use of brain science in juvenile advocacy); Maroney, *False Promise*, *supra* note 210, at 118–45 (describing unsuccessful attempts to use brain science on behalf of juvenile offenders). There are additional limitations that these critics evoke beyond what I discuss here. They note that brain science challenges the age limits established by the court and contradicts equality and autonomy arguments in other contexts. See *id.* at 152–60.

251. See Maroney, *False Promise*, *supra* note 210, at 146–48 (describing the Court's reluctance to credit brain studies because they fail to account for individual variations within the larger population).

252. See *supra* notes 125–44 and accompanying text.

253. See *supra* notes 128–44 and accompanying text.

254. See Jay N. Giedd, *Structural Magnetic Resonance Imaging of the Adolescent Brain*, 1021 ANNALS N.Y. ACAD. SCI. 77, 83 (2004); Spear, *supra* note 205, at 447.

255. See Maroney, *False Promise*, *supra* note 210, at 161–63.

does not always yield concrete conclusions about the juvenile brain.²⁵⁶ Not unrelatedly, studies have shown that while physical maturation of the brain extends well into early adulthood, by mid-adolescence the difference in decision-making between teens and adults in lab-like settings appears to diminish to the point of near irrelevance.²⁵⁷ Moreover, these findings may be discounted by more recent studies demonstrating that, when placed in settings in which adolescents are subject to peer pressure or requirements for rapid decisions, they appear to make riskier, less well-conceived choices than adults, but these studies also render any categorical conclusion more complex.²⁵⁸

Whether because of these inconsistencies, or perhaps some greater reluctance to use such category-based assessments to determine factual questions, courts have been reluctant to rely on neuroscience outside of sentencing mitigation.²⁵⁹ In those rare instances in which the courts have used neuroscience outside of sentencing, scholars have noted confirmation bias—the process by which the fact finder uses the evidence to confirm preconceptions about the defendant, rather than to acquire some new understanding.²⁶⁰

There is no denying the cataloged shortcomings and unanswered questions of the science. Likewise, time and time again, lower courts have remained unmoved in the face of scientific evidence challenging the transfer of juveniles to adult courts,²⁶¹ the imposition of adult sentences,²⁶² and the application of adult-calibrated mental states to juveniles.²⁶³ Others have argued that this rejection counsels against

256. *Id.*

257. See Scott & Steinberg, *supra* note 182, at 812–13, 812 n.55.

258. See Albert et al., *supra* note 217, at 114–15.

259. See Maroney, *False Promise*, *supra* note 210, at 117–59 (cataloging the Court's refusal to utilize brain research outside of sentencing mitigation).

260. See Maroney, *Brain Science After Graham*, *supra* note 210, at 790–92. As I will discuss further in Part IV, it may be possible to mitigate such confirmation bias through judicial instruction regarding adolescent thought processes.

261. See Maroney, *False Promise*, *supra* note 210, at 129–32 (listing cases in which lower courts have rejected neuroscience arguments in opposition to transfer).

262. See, e.g., *State v. Zebroski*, No. 9604017809, 2010 WL 2224646, at *8–12 (Del. Sup. Ct. May 14, 2010) (denying petition to overturn death penalty for an eighteen year old despite the presentation of neuroscience demonstrating his compromised cognitive skills).

263. See, e.g., *State v. Torres*, No. 2 CA-CR 2009-0302-PR, 2010 WL 715994, at *1 (Ariz. Ct. App. Mar. 1, 2010) (rejecting evidence that the defendant was “incapable of forming the requisite mens rea for first degree murder” and instead applying the adult-calibrated mental state). There has been some limited success in the use of neuroscience, particularly since the Court's decisions in *Graham* and *Miller*. See, e.g., *State v. Bruegger*, 773 N.W.2d 862, 883 (Iowa 2009) (setting aside a statutory rape conviction and stating that “the reasoning in *Roper*, namely, that psychosocial and neurological studies show that juvenile brains are less developed and that, as a result, they are less culpable than adult

the usefulness or relevance of neuroscience in an assessment of mens rea, and that it counsels a conservative and circumspect approach to scientific advocacy in the courtroom.²⁶⁴ As I will discuss in Part IV, however, logic and justice counsel otherwise.

IV. THE NEXUS OF NEUROSCIENCE AND MENS REA

As an element, mens rea distinguishes behavior and assigns culpability.²⁶⁵ To accomplish this goal, mens rea must contemplate the actor's state of mind at the time of her act—not in the abstract but in actuality. It must consider what the defendant thought or understood her actions to mean. Admittedly, this is a complex analysis requiring fact finders to infer and discern mental states from a defendant's actions. In this process, fact finders construct their notions of the defendant's mens rea as much from their own thought processes as from what they know of the defendant's behavior. They anchor their judgment of the defendant's culpability in their own adult decision-making processes.

From the perspective of juvenile offenders, this grounding of mens rea in an adult-referenced standard distorts the thought processes that adolescents actually engage in. Therefore, while an adolescent offender may not be deemed as culpable as an adult for purposes of punishment, he may nonetheless be judged culpable, or guilty, in the first place based on his ability (or more accurately his inability) to conform to adult expectations and understandings of the social norms that undergird criminal law generally and mens rea particularly.

This is problematic. If mens rea seeks to demarcate culpability with precision and consistency, then it must accurately reflect what the defendant understood and the cognitive methodology she engaged in when arriving at that understanding. The Court has acknowledged as much in its Eighth Amendment jurisprudence.²⁶⁶ Its

offenders, has applicability outside the death penalty context"); see also Maroney, *Brain Science after Graham*, *supra* note 210, at 770–73 (providing other examples).

264. See Bonnie & Scott, *supra* note 210, at 158, 160–61 (noting that current research cabins adolescents in group data to discuss brain maturation rates, yet this general information is less helpful in individualized settings that vary in age and development); see also Maroney, *False Promise*, *supra* note 210, at 144–45.

265. See DRESSLER, *supra* note 11, at § 10.02(c).

266. See *Miller v. Alabama*, 132 S. Ct. 2455, 2475 (2012) (barring the imposition of mandatory life sentences without parole for juvenile offenders); *Graham v. Florida*, 560 U.S. 48, 82 (2010) (barring mandatory life sentences for juveniles for nonhomicide offenses); *Roper v. Simmons*, 543 U.S. 551, 578 (2005) (prohibiting the execution of

failure to extend such logic to the element of mens rea creates a gap between the articulated goal of mens rea and the reality of its application to youthful offenders. For the mens rea element to serve its designated role in the criminal justice process as the measure of guilt, it must reflect the mental state, with all its comparative cognitive deficiencies, of the adolescent it considers.

To rely on an adult mens rea standard for youthful offenders in the face of scientific evidence demonstrating that such offenders do not possess the same cognitive abilities or engage in the same thought processes as an adult is to undermine mens rea's value. It effectively reduces mens rea to a wholly objective analysis that fails even to use a properly objective standard of comparison. Whatever shortcomings remain in the current state of scientific knowledge, one principle remains clear: children are different from adults, and so the calculation of their mens rea must be different.

In rejecting attempts to apply neuroscience as a basis to alter the mens rea analysis for juveniles, some courts have contended that such an alteration would require a legislative change to the criminal code and therefore exceeds the scope of judicial power.²⁶⁷ For example, in *State v. Heinemann*,²⁶⁸ the trial court declined to include a jury instruction on how adolescent decision-making might affect the reasonableness of the sixteen-year-old defendant's actions.²⁶⁹ *Heinemann* is interesting in that the defendant's requested instruction did not mention brain science, but did request that the jury "consider the age of the defendant, . . . specifically, the level of maturity, sense of responsibility, vulnerability and personality traits of a sixteen year old, when deciding his defense of duress."²⁷⁰ It appears that Heinemann did not present any scientific evidence to support these conclusions in his trial, though there is no indication as to whether or not he attempted to do so.²⁷¹

juvenile offenders); *Atkins v. Virginia*, 536 U.S. 304, 320–21 (2002) (holding that the Eighth Amendment prohibits the execution of the mentally retarded).

267. See Maroney, *False Promise*, *supra* note 210, at 138–40; Maroney, *Brain Science After Graham*, *supra* note 210, at 770–71.

268. 920 A.2d 278 (Conn. 2007). Heinemann raised what amounted to a duress defense, claiming that he felt he had little choice but to go along with the criminal activity initiated by his co-defendants who were older, larger, and armed. *Id.* at 289–91.

269. *Id.* at 296–97.

270. *Id.* at 283.

271. *Id.* at 284–89 (reciting the evidence presented in support of Heinemann's defense of duress and the requested instruction). Ironically, other courts have declined defendants' requests for an instruction, claiming that such information was common knowledge and the testimony that supported it only confirmed what anyone who had gone through

In upholding the lower court's decision, the Supreme Court of Connecticut "acknowledge[d] that juveniles often have more immature decision-making capabilities and recognize[d] the literature supporting the notion that juveniles are more vulnerable to all sorts of pressure, including but not limited to, duress."²⁷² However, the court reasoned that granting the defendant's requested instruction would "require this court to rewrite the entire Penal Code."²⁷³ In short, the court concluded that the legislature's decision to allow a sixteen-year-old defendant to be tried in adult court and its failure to indicate an alternative mens rea standard to be used for him during that trial signified that he should be treated as any other defendant and so be denied the instruction.²⁷⁴

It is hard to tell from *Heinemann* if the court would have been more willing to allow this instruction had the defendant not been tried in adult court or had he presented evidence—even some universal evidence—to support the claims asserted in his instruction. These difficulties aside, the logic of the court's deference to the legislature in denying the instruction reflects a more fundamental misunderstanding of the concept of mens rea itself. As discussed in Part I, mens rea serves a critical role in criminal law by defining and categorizing culpability according to a defendant's state of mind. Interwoven into the very concept of mens rea is an acknowledgement of the defendant's thought processes and cognitive function. Accordingly, the governing legislation has already constructed a legal standard that would encompass the proposed consideration of adolescent-specific cognitive processes.²⁷⁵ For courts to allow testimony regarding an adolescent defendant's development, therefore, would not contemplate a legislative modification, but simply the proper consideration of the existing element.

The U.S. Supreme Court's decision in *J.D.B.* supports this notion. In *J.D.B.* the Court noted that the suspect's age is a relevant component of the objective custody analysis, as it would affect "how a reasonable person in the suspect's position 'would perceive his or her freedom to leave.'"²⁷⁶ While the *Miranda* decision did not differentiate between adult and child suspects, in *J.D.B.* the Court

adolescence already knew. See, e.g., *State v. Alford*, No. A07-1025, 2008 WL 40006657, at *5-6 (Minn. Ct. App. Sept. 2, 2008).

272. *Heinemann*, 920 A.2d at 297.

273. *Id.* at 298-99.

274. *Id.* at 297-98.

275. MODEL PENAL CODE § 2.02 (AM. LAW INST. 1962).

276. *J.D.B. v. North Carolina*, 131 S. Ct. 2394, 2403 (2011) (citing *Stanbury v. California*, 511 U.S. 318, 325 (1994)).

found the cognitive attributes and characteristics of juveniles to be sufficiently distinct as to require a standard of reasonableness that acknowledged and accounted for this difference.²⁷⁷ In short, the silence of the standard itself did not undo the pervasive reality that teens process information and arrive at conclusions in ways that are not only dictated by their immaturity and their level of development, but in ways that are different than those of adults.²⁷⁸

In the context of juvenile offenders, neuroscience confirms that adolescents demonstrate cognitive processes that are distinct from adult cognitive processes. These studies reveal that teens consistently and almost routinely engage in behavior that increases their risk of death or harm,²⁷⁹ and that such risky behavior is a product of inefficient and underdeveloped cognitive processes that may decrease as the adolescent's prefrontal cortex matures and the child becomes an adult.²⁸⁰ The Supreme Court has repeatedly acknowledged that this immature development is sufficiently pervasive to justify treatment of adolescents as a class for purposes of both Eighth Amendment culpability²⁸¹ and *Miranda* custody analyses.²⁸² More broadly, this developmental immaturity suggests not only that a reasonable decision made by an adolescent may be patently unreasonable to an adult, but also that a given action may signal one state of mind if taken by an adult and quite another if taken by a child. For purposes of an objective state of mind analysis, as the Court concluded in *J.D.B.*,²⁸³ the reasonableness of any particular decision must be calculated from the perspective of the defendant—the one

277. *Id.*

278. For an excellent analysis of how the Court's decision in *J.D.B.* should affect application of the felony murder rule to juveniles and duress, justified use of force, and provocation defenses by juveniles, see generally Marsha L. Levick and Elizabeth-Ann Tierney, *The United States Supreme Court Adopts a Reasonable Juvenile Standard in J.D.B. v. North Carolina for Purposes of the Miranda Custody Analysis: Can a More Reasoned Justice System for Juveniles Be Far Behind?*, 47 HARV. C.R.-C.L. L. REV. 501 (2012) (arguing for the formulation of a "reasonable juvenile standard"). For a discussion of *J.D.B.*'s implications for the entrapment defense, see generally Lily N. Katz, *Tailoring Entrapment to the Adolescent Mind*, 18 U.C. DAVIS J. JUV. L. & POL'Y 94 (2014) (analyzing the entrapment defense's application to adolescents).

279. See Laura Kann et al., *Youth Risk Behavior Surveillance—United States, 2013*, MORBIDITY & MORTALITY WKLY. REP., June 13, 2014, at 5–7, 19–23, 28, <http://www.cdc.gov/mmwr/pdf/ss/ss6304.pdf> [<http://perma.cc/UNL6-B6GK>] (showing that adolescents drive after drinking and without seat belts, carry weapons, use illegal substances, and engage in unprotected sex at an alarming rate).

280. See *supra* note 235 and accompanying text.

281. See *supra* notes 128–44 and accompanying text.

282. See *supra* notes 170–78 and accompanying text.

283. *J.D.B. v. North Carolina*, 131 S. Ct. 2394, 2406 (2011) (holding that a child's age should be taken into account as part of the *Miranda* custody analysis).

who made the decision in the first place. For purposes of a subjective state of mind analysis, which will invariably require the fact finder to draw inferences, the defendant's decisions and actions must be judged in light of what the defendant understood them to signify.

Given the criminal law's treatment of mental state as a measure of culpability²⁸⁴ and our knowledge of the juvenile brain,²⁸⁵ it is insufficient to use such knowledge only to mitigate punishment or to adjust a Fourth Amendment standard of reasonableness. Such a limitation fails to address the underlying dilemma that the assessment of guilt was flawed in the first place through the use of an adult-based mens rea standard. Indeed, nothing in the Court's jurisprudence of youth or in the emerging neuroscience suggests that a one-size-fits-all mens rea standard is appropriate.

To recognize that adolescent brain science is relevant to mens rea, however, invites the practical question of what precise role such science should play in the litigation of a particular criminal case. This is a problem with no easy solution. The proof or disproof of elements in a criminal case is a choreographed display premised on the notion that the competing narratives of prosecution and defense should be tailored and confined to ever-narrowing circles of relevancy. In the context of brain science, as discussed above, additional limitations may present themselves.²⁸⁶

Despite these limitations, at a minimum, what is currently known from the scientific literature suggests two courses of action. First, to achieve an accurate assessment of mens rea for juvenile offenders, courts may not need to alter state of mind terminology, but they do need to alter the perspective through which that terminology is interpreted in order to account for differences between juvenile and adult thought processes. Second, while the Supreme Court is right that there is a fundamental and understood difference between adults and juveniles, the analysis offered in the *Roper* line and in *J.D.B.* should be extended to mens rea as this analysis is applicable but is, by itself, insufficient to support the mens rea element's full function.

At the most basic level, *J.D.B.* and the *Roper* line examined the significance of juvenile status as a matter of law with regard to whether or not the protections of the Fourth and Eighth Amendments required wholesale recalibration for adolescent

284. See *supra* Sections I.A–B.

285. See *supra* Section III.B.1.

286. See *supra* Section III.B.2.

offenders or suspects.²⁸⁷ To speak of a mens rea analysis, however, is to speak in terms of matters of fact and the interpretation of those facts in the face of what the law requires or prohibits. In this, while a fact finder may be able to recognize a difference between her behavior as an adult and her behavior as a juvenile, in assessing mens rea her task is more nuanced—she must not only recognize the difference, but also the basis of the difference and the significance of the offender’s behavior in light of those differences. Put another way, it is a different job to consider whether or not a child is different than an adult (either for punishment purposes or determination of custody status) than to consider how an adolescent’s actions should be interpreted given what is known about adolescent thought processes. An adult may be able to intuitively recognize that her adult self is different than her juvenile self, but she may not be able to remember or even be aware of the thought processes she engaged in as an adolescent. This requires a more nuanced understanding that may well defy ordinary knowledge and memory. Here lie the devilish details. This nuanced understanding of the state of mind is critical to the function of mens rea as articulated by substantive criminal law—to weigh the offender’s actual, as opposed to imagined, state of mind—and it may require guidance to achieve.

As a practical matter, different possibilities emerge to accomplish mens rea’s function as applied to youthful offenders. Most obviously, such a defendant could seek to present individualized evidence of his own thought processes and cognitive function. If a defendant can access the resources to support such an evaluation, and it supports his defense, this evidence would seem relevant to factual question of mens rea. Allowing a defendant to present such evidence, however, should not be confused with requiring a defendant to undergo a brain scan in order to successfully mount a science-based defense that challenges the state of mind element.²⁸⁸ Such a forced examination not only raises Orwellian-like privacy concerns, but seems odd given that such an examination would be used to demonstrate the utter normalcy of the adolescent defendant—as opposed to his deviation from the norm or any dangerousness or deficiency that may accompany such deviation.

287. See *supra* Part II.

288. Such a requirement would likely implicate Fourth and Fifth Amendment concerns against unreasonable searches and self-incrimination. See *Rochin v. California*, 342 U.S. 165, 172 (1952) (finding forced stomach pumping to be an illegal search and stating that government searches that “shock the conscience” are prohibited).

Given the Court's willingness in the *Roper* trilogy and *J.D.B.* to accept youthfulness as a universal category—a willingness supported by the scientific literature—another possibility is that juvenile defendants should be allowed to present universal neuroscientific evidence that would demonstrate the traits that “average” or most juveniles at a like stage of biological development would possess. This evidence would be akin to that considered by the Court in the *Roper* line (and with regard to intellectual disability in the *Atkins* line).²⁸⁹ While such universal evidence would admittedly provide limited insight into the particular defendant's thoughts, it would serve as a baseline from which fact finders could test the reasonableness of their own interpretations of the defendant's actions as it relates to her mens rea, while avoiding the constitutional and ethical concerns of a “forced” neuroscientific examination in order to demonstrate that the defendant was in fact an ordinary teenager (at least as far as his thought processes go). In addition, by providing the fact finder with an informed perspective with regard to juvenile thought processes and linking that perspective to the mens rea calculation specifically, the risk of confirmation bias may be reduced—although such bias is a risk even in ideal circumstances.²⁹⁰

Such a reliance on universal evidence to demonstrate inclusion in the norm may raise the question of relevance, or even necessity. Here the Court's own assessment of the fundamental difference between adults and juveniles is instructive. All fact finders, by legal definition, are adults.²⁹¹ They are older than the juvenile offender at the time of the offense in question. As a result, their own baseline differs from the relevant baseline of the adolescent they are tasked with judging. The adolescent's baseline therefore must be established and cannot be presumed to be understood or even remembered in ways that it might be for an adult offender.

As important as such universal evidence is, it is not without problems. It assumes both a uniformity of cognitive development that can be determined from the subject's age and that the presence of such uniformity will produce discernable and traceable conclusions

289. Compare *Graham v. Florida*, 560 U.S. 48, 68 (“As petitioner's *amici* point out, developments in psychology and brain science continue to show fundamental differences between juvenile and adult minds. For example, parts of the brain involved in behavior control continue to mature through late adolescence.”), with *supra* notes 231–51 and accompanying text (discussing the development of the brain during adolescence).

290. See Mark Seidenfeld, *Cognitive Loafing, Social Conformity and Judicial Review of Agency Rulemaking*, 87 CORNELL L. REV. 486, 534–38 (2002).

291. *Juror Qualifications*, U.S. COURTS, <http://www.uscourts.gov/services-forms/jury-service/juror-qualifications> [<http://perma.cc/Z6YA-YMMN>].

for the situation the fact finder must now contemplate.²⁹² It is simply not correct that all sixteen-year-olds who drive drunk universally understand some reality to be true or universally fail to appreciate some risk—every single time, all the time. While the literature suggests that some uniformity exists, it also demonstrates both developmental variance internal to any given juvenile and the significant impact that variances in external stimuli can have on juvenile subjects.²⁹³

These limitations do not counsel discarding this universal evidence, but may support the first proposal of allowing the juvenile to present evidence of his actual brain function based on his individual development. While questions regarding the causal link between the individual's development and his behavior might linger, those questions seem no more significant than questions that arise in the context of the subjective mental state analysis that already occurs for excuse defenses such as insanity or diminished capacity. This presentation of defendant-specific brain science not only overcomes many of the concerns articulated with regard to individualized versus class-wide development, but it provides an even more precisely delineated baseline against which the fact finder can judge the culpability of the defendant's actions.²⁹⁴ In this, courts would not necessarily need to alter state of mind terminology; rather, as suggested here, they may simply need to alter the perspective through which that terminology is interpreted in order to account for differences between juvenile and adult thought processes.

292. Some have argued that reliance on neuroscience may provide limited insights into the defendant's state of mind. They both point to individual differences in development and question the link between behavior and development itself. See, e.g., Teneille Brown & Emily Murphy, *Through a Scanner Darkly: Functional Neuroimaging as Evidence of a Criminal Defendant's Past Mental States*, 62 STAN. L. REV. 1119, 1119, 1150–51 (2010) (arguing that MRI technology “may present a particularly strong form of unfair prejudice in addition to its potential to mislead jurors and waste the court's resources”). But see Sally Terry Green, *The Admissibility of Expert Witness Testimony Based on Adolescent Brain Imaging Technology in the Prosecution of Juveniles: How Fairness and Neuroscience Overcome the Evidentiary Obstacles To Allow for Application of a Modified Common Law Infancy Defense*, 12 N.C. J. L. & TECH. 1, 1–2, 8, 21–22 (2010) (“Offering adolescent brain research as part of an Infancy Defense model provides juveniles with an opportunity to combat harsher penalties imposed by the states and facilitates imposition of legal standards that require consideration of the differences between children and adults.”).

293. See discussion *supra* Sections III.B.1–2.

294. The admission of either the universal or individualized evidence may present evidentiary challenges initially, both with regard to relevancy and qualification as sound science under *Daubert* or *Daubert*-equivalent threshold inquiries. While I acknowledge this, further discussion is beyond the scope of this paper. For a discussion of this issue, and proposed remedies, see generally Green, *supra* note 292 (examining the evidentiary standard for the admissibility of scientific data).

In each of these suggestions, I am not asserting either that adolescent offenders are categorically incapable of achieving any particular mens rea or should be rendered blameless by their immaturity. Quite the contrary—I am arguing that, like all offenders, adolescents should be held accountable for the mens rea they *actually* achieved. Or perhaps more accurately, they should be held accountable for the mens rea that the state can prove they achieved through the fact finding process. In this regard, the accuracy of the fact finder's calibration is critical.

Larger questions regarding how this evidence should be presented, what burdens for proof or persuasion should attach to it, and how defenses would be modified by it, admittedly linger. This Article cannot hope to address them all, at least not if it hopes to maintain any sort of fidelity to word count limitations. But it does aim to open a conversation that scholars, practitioners, and courts seem to have discouraged to date: that the current state of neuroscience on juvenile brain development renders the application of an adult-referenced standard inappropriate. Instead juvenile offenders' actions must be judged through the lens of their age-calibrated thought processes and cognitive abilities. This Article starts that conversation.

CONCLUSION

The neuroscientific advances described have a great deal to say about how the criminal justice system should treat juvenile offenders. The Supreme Court's embrace of this science in its Eighth Amendment jurisprudence is a very important step forward. In *Miller v. Alabama*, *Graham v. Florida*, and *Roper v. Simmons*, the Court has relied on evidence of juvenile brain development to conclude that life without the possibility of parole and death sentences violate the Eighth Amendment's prohibition against cruel and unusual punishment. Likewise in *Atkins v. Virginia*, the Court relied on neuroscience to hold that the imposition of the death penalty on mentally retarded defendants violated the Eighth Amendment. These cases confirm the Court's willingness to consider neuroscience when assessing the culpability of particular classes of defendants in determining appropriate and proportional punishment.

Despite this willingness, advocates have achieved little success in utilizing neuroscience outside the context of punishment mitigation. In the face of this judicial reluctance and the admitted limitations of the science itself, scholars have counseled towards curtailment and caution—suggesting a limited role for science in juvenile advocacy. But this conservative approach undermines the value of the science

and is logically inconsistent with criminal law's reliance on the defendant's mental state as a measure of guilt and blameworthiness.

The continued allegiance to adult-calibrated mens rea standards in the face of scientific confirmation that adolescents utilize different cognitive processes than adults perverts mens rea's essential purpose. The fact finder's subjective determination of the defendant's state of mind requires a careful calculation of what the defendant thought as he acted. The continued reliance on a one-size-fits-all categorization of mens rea and its corresponding rejection of scientific evidence assumes an adult-centric uniformity. The use of this adult standard of mens rea in assessing the guilt of adolescent offenders flies in the face of the most fundamental conclusion currently available from the study of adolescent development—that the thought processes and cognitive abilities of adults and teens are profoundly and qualitatively different. A just system of determining criminal culpability must account for these differences in assessing an adolescent's mens rea.

