

# Where Law and Science (and Religion?) Meet

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## I. Introduction

In the relatively short span of human history, primarily three great disciplines have vied for dominance. These are law, science, and religion. Each, in its own manner, has something to say about both the descriptive world that *is* and the prescriptive world of what *ought* to be. Because these great professions cover much of the same ground, conflicts are inevitable. Indeed, from the time of Copernicus to modern debates about evolution, law, science, and religion have collided. To their great credit, the organizers of this Symposium included papers that explored the intersections of all three institutions, with most of the presenters' attention devoted to where law and science meet. In this Article, I offer some general observations regarding, in particular, the intersection of law and science but offer some tentative observations regarding where law and science have their roots—in religion.

Let me begin, however, with what I believe is the first principle in regard to the study of the respective intersections of law, science, and religion, a principle that guides all that follows. Each is a separate discipline, and each has its own decision rules and reasons for interacting with the others. The interactions of the three disciplines, of course, produce four basic territorial intersections, each with its own peculiarities and with relations potentially flowing in either direction.<sup>1</sup> Thus, for example, where law and science meet, law might use science to inform its processes or substance and, in reverse, science might use legal standards that inform its processes or substance. Each intersection represents a territorial boundary; there is no domain, at least in the United States, in which any of these disciplines truly share territory. To understand any particular intersection, therefore, one must examine it from one side of the fence or the other. My interest in the subject comes primarily from standing on the law's side of the fence, looking over at science and religion with the hope and

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1. A full study of how law, science, and religion interact, then, should have to explore nine possible interactions: (1) law's use of science, (2) law's use of religion, (3) science's use of law, (4) science's use of religion, (5) religion's use of law, (6) religion's use of science, (7) law's use of science and religion, (8) science's use of law and religion, and (9) religion's use of law and science.

expectation that they might help answer some of the questions the law asks. My concern, then, is how law can best employ science or religion to accomplish the needs, values, principles, and demands of the law.

## II. Religion Begets Science and Law

One way to understand science and law is to see them as the successors to religion. Religion, of course, has hardly disappeared from the scene. But where there was once only religion to define the empirical world, craft the legal order, and determine the fate of people's souls, science and law have joined these efforts. Science today is primarily associated with the defining-the-world part of the effort and law the legal—or normative—order. Religion continues to hold sway over souls. Indeed, it might be thought that the three great professions of law, science, and religion have largely divided the domains of the legal, empirical, and spiritual between them. This would be a mistake, however. Although the legal, factual, and empirical domains describe these professions' respective fields of focus, they each regularly trespass on the territory of the other two.

In an earlier work, *Legal Alchemy*, I explored one of the key transition points between religion and science. But, as I noted there, “[t]he transition from ancient sorcery to modern science . . . was not as smooth or as complete as we might like to believe.”<sup>2</sup> Indeed, Sir Isaac Newton

not only discovered gravity and charted the heavens using calculus, but he also experimented with alchemy and numerology. Many core insights of astrology remained integral and respected components of science until the late seventeenth century. However reputable science might be today, its roots lie deep in the mystical practices and superstitions of the past.

What we now consider to be within the province of science, previous centuries called the philosophy of nature or natural philosophy. Isaac Newton . . . entitled his masterwork *The Mathematical Principles of Natural Philosophy*. Although [he] understood his task as part of a broader philosophical investigation of why the world takes the shape humans confront, [Newton] shared the specific goal of contemporary scientists of describing how the world works. The move from a focus on the how and the why of nature to solely on the how is generally associated with the scientific revolution. The scientific revolution ushered in the modern view that science may study what can be tested and leave what cannot to priests,

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2. DAVID L. FAIGMAN, *LEGAL ALCHEMY: THE USE AND MISUSE OF SCIENCE IN THE LAW* 7 (1999).

philosophers, and sorcerers.<sup>3</sup>

So long as science and law were part of religion no conflicts would arise. All of the world's religions historically sought to explain the empirical world in ways that are consistent with their respective spiritual order and to construct legal norms that facilitate that order.<sup>4</sup> As science and law separated from religion, however, conflict became inevitable. Between religion and science, of course, some of the great dramas of the history of science took place, including such notable figures as Copernicus and Galileo.<sup>5</sup> But even in our own time, religion and science sometimes strain over the proper way to describe the empirical world. However, at least in the Western World religion has largely abdicated any substantial role over many core subject areas of science such as the origins of the universe or the etiology of diseases. Increasingly, the battles over the empirical world have not so much involved how the world works—the domain of science—but what should be done about it—the domain of the law.

Most modern debates that involve religion and science, from contraception to cloning, end up as issues that must be resolved by the law.<sup>6</sup> Very often these issues present a complex mixture of norms and empiricism that must be reconciled. Consider cloning, for example. Although this Article is not the place for exploring religious objections to cloning, it is probably fair to say that many religions—particularly the mainstream Christian denominations—would object to using this technology to create human life.<sup>7</sup> Moreover, outside of religious doctrine many basic ethical

3. *Id.* (citing MICHAEL WHITE, ISAAC NEWTON: THE LAST SORCERER (1997)). *See also* JAMES GLEICK, ISAAC NEWTON 110–11 (2003) (describing Newton's searches for truth in theology, alchemy, and mathematics, which he believed to be the language of God).

4. *Id.* at 8 (explaining that “[f]or most of human history law and science were largely unified within the corpus of religion” and that religion “supplied both a description of the natural world and the punishment for failing to conform to the rules mandated by that world”).

5. *See generally* RICHARD G. OLSON, SCIENCE & RELIGION, 1450–1900: FROM COPERNICUS TO DARWIN 7–18 (2006) (describing how Galileo and Copernicus's views conflicted with those of the Catholic Church, exemplifying the tensions between religion and science).

6. *See, e.g.*, Frank Pasquale, *Two Concepts of Immorality: Reframing Public Debate on Stem-Cell Research*, 14 YALE J.L. & HUMAN. 73, 76–78 (2002) (commenting on the role of scientific and religious perspectives in shaping policy on stem-cell research and cloning); Elizabeth Spahn & Barbara Andrade, *Mis-Conceptions: The Moment of Conception in Religion, Science, and Law*, 32 U.S.F. L. REV. 261, 261–62 (1998) (describing how the “scientific and religious bases” for understandings of conception affect American laws on reproductive rights).

7. *See, e.g.*, John H. Evans, *Religion and Human Cloning: An Exploratory Analysis of the First Available Opinion Data*, 41 J. FOR SCI. STUDY RELIGION 747, 748–50 (2002) (finding Roman Catholicism to possess the most “clear-cut” stance against cloning, but noting that the majority of mainline Protestant denominations have official stances against cloning as well). Perspectives of other religions and their adherents are less clear; Jewish, Hindu, and Muslim scholars have varied viewpoints that might turn on the precise scientific issue in question. *See generally* Elliot N. Dorff, *Human Cloning: A Jewish Perspective*, 8 S. CAL. INTERDISC. L.J. 117 (1998) (detailing a range of issues that might affect the Jewish perspective on cloning); Dena S.

principles might raise concerns in this area. From a scientific perspective, although cloning is well within the scientist's toolkit many empirical issues remain outstanding regarding its efficacy and health consequences. The law, whether as a policy matter or a constitutional concern, must integrate legitimate value-based objections with a well-founded understanding of the technology's empirical basis and its likely consequences for the organisms involved.

Alexis de Tocqueville famously observed that “[s]carcely any political question arises in the United States that is not resolved, sooner or later, into a judicial question.”<sup>8</sup> The same might be said about questions of science and perhaps less so of religion. Unlike political questions, however, which are often resolved with finality after they are resolved into judicial questions, questions of science and religion rarely achieve such finality. Religion and science, as largely separate institutions from that of law, typically pursue their aims and fulfill their agendas notwithstanding the law—unless, of course, specifically directed to act or refrain from acting pursuant to law. Thus religious objections to cloning and basic research that might lead to advancements in cloning continue despite any legal pronouncements on the subject. Over time each of these institutions will seek to make their respective cases in the marketplace of public opinion. No better illustration of this struggle exists than that of abortion, which has involved contentious issues arising out of both religion and science. As I have observed on this subject previously: “Whereas, in the past, religion dominated the field, the division of law, science, and religion into separate institutions has led to a competition among the three for the hearts, minds and souls of society.”<sup>9</sup>

Law, science, and religion thus have a rich past and a complicated and entangled present. Each is involved, to greater and lesser extents, in describing both a descriptive narrative of what is and a normative prescription of what ought to be. Religions tend to be more prescriptive than descriptive and the sciences just the opposite. Law is an amalgamation of both description and prescription. But each of these great disciplines pursues its course for reasons and purposes entirely its own. It would be no more appropriate to measure a religion's success by its conformity with the findings of cosmology than to measure cosmology's success by its conformity to the Old Testament. Neither religion nor science should expect to dictate the other's worldview. Similarly, the law operates independently of science and religion though it is an active borrower of insights and findings from

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Davis, *Religious Attitudes Toward Cloning: A Tale of Two Creatures*, 27 HOFSTRA L. REV. 509, 517 (1999) (commenting on the nuances of Hindu and Buddhist beliefs about cloning).

8. 1 ALEXIS DE TOCQUEVILLE, *DEMOCRACY IN AMERICA* 280 (Phillips Bradley ed., Henry Reeve et al. trans., Alfred A. Knopf, Inc. 1945) (1838).

9. FAIGMAN, *supra* note 2, at 9.

both. As a borrower, it must be highly sophisticated regarding what it is getting, although it is incorporating that knowledge for its own purposes.

Space does not permit a full exploration of the intersections of law, science, and religion. But such a comprehensive study would be well worth pursuing. In the following sections, I consider just one intersection—where law and science meet—and there only from the law’s side of the fence. But even from that vantage point, the challenges are great. If the law is to use science, truly the best engine for discovering “truth,”<sup>10</sup> it must understand what it is getting.

### III. Science in the Employ of the Law

The law defines the normative frameworks within which science becomes relevant for purposes of legal and policy decisions. This is true in every facet of law and ranging in every direction possible, including ordinary civil and criminal adjudications, constitutional cases, and matters within the realm of legislatures and administrative agencies. Ordinary civil and criminal cases, of course, are fact-driven enterprises. State and federal statutes, together with the common law, create webs of precepts that stretch across factual disputes ranging from whether the traffic light was yellow, as the defendant claims it was, to whether the available toxicological and epidemiological research is sufficient to permit a jury to conclude that the plaintiff’s leukemia was caused by benzene exposure.<sup>11</sup> Constitutional law is replete with empirical assertions, many of which appear in the most significant decisions in the nation’s history. In *Roe v. Wade*<sup>12</sup> for instance, the Supreme Court interpreted the Constitution to give *viability*

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10. My apologies to John Henry Wigmore, who wrote that cross-examination was the “greatest legal engine ever invented for the discovery of truth.” 5 JOHN HENRY WIGMORE, EVIDENCE IN TRIALS AT COMMON LAW § 1367 (James H. Chabourn ed., rev. vol. 1974). Science is a better engine yet.

11. For an interesting case study on this question, see *Milward v. Acuity Specialty Products Group, Inc.*, 664 F. Supp. 2d 137, 149 (D. Mass. 2009), which excluded expert testimony on the basis of failure to demonstrate general causation; *Milward v. Acuity Specialty Products Group, Inc.*, 639 F.3d 11, 20 (1st Cir. 2011), in which the First Circuit reversed on the basis that the district court abused its discretion and failed to use an appropriate “weight of the evidence” analysis to assess general causation; and *Milward v. Acuity Specialty Products Group, Inc.*, 969 F. Supp. 2d 101, 116 (D. Mass. 2013), which then excluded the expert testimony on the basis of failure to demonstrate specific causation and granting summary judgment for the defendant. See also DAVID H. KAYE, DAVID E. BERNSTEIN & JENNIFER L. MNOOKIN, THE NEW WIGMORE: A TREATISE ON EVIDENCE, EXPERT EVIDENCE § 10.5.1 (2d ed. Supp. 2015) (“In any event, the court’s comments on ‘weight of the evidence’ as a scientific ‘methodology’ must not be read to permit the phrase to become a blank check for admission. After all, plaintiffs’ experts in *General Electric Co. v. Joiner* and *Kumho Tire Co. v. Carmichael* also were using a weight-of-evidence, best-inference ‘method.’” (footnotes omitted)).

12. 410 U.S. 113 (1973).

constitutional relevance.<sup>13</sup> Viability is ostensibly a medical and scientific fact—however probabilistic—regarding the point in time when a fetus could survive on its own outside the womb.<sup>14</sup> That it was constitutionally relevant came from a leap of constitutional imagination. Administrative agencies, both in their rulemaking and adjudicatory capacities, are steeped in matters empirical, ranging from neighborhood concerns surrounding environmental impacts of a coal-burning plant to global concerns surrounding all coal-burning plants in the nation.<sup>15</sup> And since many of the legal webs that surround us begin in state legislatures and Congress, lawmakers are, or ought to be, deeply interested in empirical issues.

The process of defining legally relevant facts and eventually finding them is a rather more complicated matter than most lawyers, and possibly even many judges, likely appreciate. When these facts are or might be the subject of scientific study, important issues arise regarding how they are to be translated from science for legal use. This Part considers a host of issues that arise in the process of using scientific research to answer empirical questions raised by the law.

#### A. *Defining the Relevance of Empirical Findings*

One of the principal aspects of law definition, constitutional or otherwise, is to establish the facts that are relevant under applicable doctrine. Do death-qualified juries produce conviction-prone juries in capital cases?<sup>16</sup> Does a doubling of the risk meet the civil litigation preponderance standard?<sup>17</sup> Do violent video games cause children to be more

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13. *Id.* at 163. This is a theme nicely developed in John A. Robertson, *Science Disputes in Abortion Law*, 93 TEXAS L. REV. 1847, 1869–70 (2015).

14. *Roe*, 410 U.S. at 163.

15. See, e.g., Holly Doremus & W. Michael Hanemann, *Of Babies and Bathwater: Why the Clean Air Act's Cooperative Federalism Framework is Useful for Addressing Global Warming*, 50 ARIZ. L. REV. 799, 802–03 (2008) (discussing empirical standards and data used by the EPA in connection with the Clean Air Act).

16. See *Lockhart v. McCree*, 476 U.S. 162, 165 (1986); *Witherspoon v. Illinois*, 391 U.S. 510, 512 (1968).

17. For an example of a court requiring a doubling of the risk to meet the preponderance standard, see *Cano v. Everest Minerals Corp.*, 362 F. Supp. 2d 814, 820 (W.D. Tex. 2005), where the court noted:

The Texas Supreme Court has concluded that ‘properly designed and executed epidemiological studies may be part of the evidence supporting causation in a toxic tort case and that there is a rational basis for relating the requirement that there be more than a “doubling of the risk” to . . . the more likely than not burden of proof.’ Courts adopting such a requirement have found that the requirement of a more than 50% probability means that epidemiological evidence must show that the incidence of an injury or condition in the exposed population was more than double the incidence in the unexposed or control population.

*Id.* (quoting *Merrell Dow Pharm., Inc. v. Havner*, 953 S.W.2d 706, 717 (Tex. 1997)).

violent?<sup>18</sup> Is free expression chilled in the absence of “breathing space” for false speech?<sup>19</sup> Does unlimited corporate political spending create a perception of corruption?<sup>20</sup> Does benzene cause leukemia?<sup>21</sup> Did benzene cause the plaintiff’s leukemia?<sup>22</sup> When does death occur, or what is the likelihood that someone in a persistent vegetative state might regain normal functions?<sup>23</sup> These are principally empirical questions, the answers to which potentially impact both law definition and law application.

Whether a particular fact has legal relevance is a product of interpreting some text. In many areas this is a fairly straightforward affair, as might be the case regarding the permitted amount of perchlorate in a city’s water supply. To be sure, there may be many ancillary issues surrounding the process of measurement or the possible source of the perchlorate, but these follow naturally from the initial question presented. In other contexts, however, whether a particular fact is relevant to the decision at all might be a matter of significant disagreement. This is especially so in constitutional cases.

In *Witherspoon v. Illinois*<sup>24</sup> for instance, the Court considered the constitutionality of an Illinois statute that provided that “[i]n trials for murder it shall be a cause for challenge of any juror who . . . has conscientious scruples against capital punishment, or that he is opposed to the same.”<sup>25</sup> The petitioner argued that social-science research indicated that excluding jurors who oppose capital punishment (called “*Witherspoon*-excludable” jurors)<sup>26</sup> would result in a conviction-prone jury.<sup>27</sup> The *Witherspoon* Court agreed that this was a constitutionally relevant fact but found that the research was not yet conclusive on the issue:

The data . . . are too tentative and fragmentary to establish that jurors not opposed to the death penalty tend to favor the prosecution in the determination of guilt. We simply cannot conclude, either on the

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18. See *Brown v. Entm’t Merchs. Ass’n*, 131 S. Ct. 2729, 2738–39 (2011) (considering whether preventing violent tendencies in children caused by violent video games is a sufficiently compelling government interest to limit First Amendment rights).

19. See *N.Y. Times Co. v. Sullivan*, 376 U.S. 254, 271–73 (1964) (quoting *NAACP v. Button*, 371 U.S. 415, 433 (1963)) (internal quotation marks omitted) (discussing the circumstances under which expression is likely to be chilled).

20. *Citizens United v. Fed. Election Comm’n*, 130 S. Ct. 876, 909 (2010).

21. *Milward v. Acuity Specialty Prods. Grp., Inc.*, 639 F.3d 11, 13 (1st Cir. 2011).

22. *Id.*

23. See generally Robert D. Truog, *Defining Death: Getting it Wrong for All the Right Reasons*, 93 TEXAS L. REV. 1881 (2015) (identifying and resolving conflicts between the Uniform Determination of Death Act and organ-donation practices).

24. 391 U.S. 510 (1968).

25. *Id.* at 512 (internal quotation marks omitted).

26. *Lockhart v. McCree*, 476 U.S. 162, 167 (1986).

27. *Witherspoon*, 391 U.S. at 516–17.

basis of the record now before us or as a matter of judicial notice, that the exclusion of jurors opposed to capital punishment results in an unrepresentative jury on the issue of guilt or substantially increases the risk of conviction.<sup>28</sup>

The *Witherspoon* Court highlighted the need for data on this issue and specifically noted that “a defendant convicted by such a jury in some future case might still attempt to establish that the jury was less than neutral with respect to guilt.”<sup>29</sup> As the Court put it: “[w]hatever else might be said of capital punishment, it is at least clear that its imposition by a hanging jury cannot be squared with the Constitution.”<sup>30</sup> Not surprisingly, the Court’s call for research inspired a spate of studies on the subject of death qualification.<sup>31</sup> The issue returned to the Court in *Lockhart v. McCree*.<sup>32</sup>

In *Lockhart*, the Court rejected on two grounds McCree’s argument that the research supported his claim that excluding death-qualified jurors constituted a constitutional violation.<sup>33</sup> First of all, Justice Rehnquist (later Chief Justice) found the studies to be methodologically flawed and only marginally relevant to the question of McCree’s own conviction.<sup>34</sup> Second, Rehnquist stated that even if the research studies were valid, they still did not make out a constitutional violation.<sup>35</sup> The Court held that the empirical issue examined by researchers was not constitutionally relevant.<sup>36</sup> Rehnquist explained that the issue was not whether death-qualified juries as a class might result in higher conviction rates, as seemed to be the holding in *Witherspoon*.<sup>37</sup> Instead, the pertinent constitutional question was whether a particular jury consists of “jurors who will conscientiously apply the law and find the facts.”<sup>38</sup> This, of course, is a profoundly different empirical issue.

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28. *Id.* at 517–18 (citations omitted).

29. *Id.* at 520 n.18 (emphasis omitted).

30. *Id.* at 523.

31. Michael Finch & Mark Ferraro, *The Empirical Challenge to Death-Qualified Juries: On Further Examination*, 65 NEB. L. REV. 21, 24 (1986) (“In the seventeen years following *Witherspoon*, death qualification has been one of the most studied subjects in the area of sociological jurisprudence.”).

32. 476 U.S. 162 (1986).

33. *Id.* at 184.

34. *Id.* at 168–69.

35. *Id.* at 173 (“[W]e will assume for purposes of this opinion that the studies are both methodologically valid and adequate to establish that ‘death qualification’ in fact produces juries somewhat more ‘conviction-prone’ than ‘non-death-qualified’ juries.”).

36. *Id.* at 183–84.

37. *Id.* at 177–78.

38. *Id.* at 178 (emphasis omitted) (quoting *Wainwright v. Witt*, 469 U.S. 412, 423 (1985)) (internal quotation marks omitted).

*B. Defining the Applicable Frame of Reference*

The issue of defining the legal relevance of scientific facts is rather more complicated yet. It is not simply a question of whether some fact is relevant but how that fact is to be framed. In other words, what is the proper empirical frame of reference for decision making? This is a profound issue in constitutional cases. Indeed, one way to understand the move from *Witherspoon* to *Lockhart* was that the Court essentially reframed the question from a general statistical issue to a case-specific fact determination. In *Witherspoon*, the Court asked whether “the exclusion of jurors opposed to capital punishment results in an unrepresentative jury . . . or substantially increases the risk of conviction.”<sup>39</sup> This is a fact that scientific research might help answer. In *Lockhart*, the issue was reframed to whether “the jurors [in the particular case] can conscientiously and properly carry out their sworn duty to apply the law to the facts.”<sup>40</sup> Science was no longer relevant to the pertinent inquiry. This issue of framing is endemic to constitutional fact-finding.

In *Planned Parenthood of Southeastern Pennsylvania v. Casey*,<sup>41</sup> for example, the Court decided that the twenty-four-hour waiting provision did not create a substantial obstacle to the abortion right and was therefore constitutional.<sup>42</sup> Yet the Court decided this question on the “record before [it]” in 1992.<sup>43</sup> If future research challenges this conclusion, what is the proper frame of reference for deciding the constitutional question presented of whether the twenty-four-hour wait is a substantial obstacle?<sup>44</sup> Is it national—as was the case with the Court’s invalidation of the spousal-notification provision?<sup>45</sup> Or should it be statewide, or possibly local, or even on a case-by-case basis? After all, a twenty-four-hour waiting provision is likely to be a different sort of burden in Delaware than it might be in Wyoming.<sup>46</sup>

This question of the proper frame of reference has been posed in many of the most important decisions in the Court’s history, including possibly the best known, *Brown v. Board of Education*.<sup>47</sup> In *Brown*, the Court famously held that school segregation was unconstitutional in all cases,

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39. *Witherspoon v. Illinois*, 391 U.S. 510, 518 (1968).

40. *Lockhart*, 476 U.S. at 184.

41. 505 U.S. 833 (1992).

42. *Id.* at 886–87. See also Robertson, *supra* note 13, at 1856–57.

43. *Casey*, 505 U.S. at 887.

44. See, e.g., *A Woman’s Choice—E. Side Women’s Clinic v. Newman*, 305 F.3d 684, 687 (7th Cir. 2002).

45. *Casey*, 505 U.S. at 894–95.

46. DAVID L. FAIGMAN, CONSTITUTIONAL FICTIONS: A UNIFIED THEORY OF CONSTITUTIONAL FACTS 60 n.202 (2008).

47. 347 U.S. 483 (1954).

finding that segregation of white and black children in public schools “has a detrimental effect upon” the black children.<sup>48</sup> And, moreover, the Court observed: “[w]hatever may have been the extent of psychological knowledge at the time of *Plessy v. Ferguson*, this finding is amply supported by modern authority.”<sup>49</sup> The Court cited the famous—or infamous—Kenneth Clark doll studies to support this holding.<sup>50</sup>

But the Court did not require, as it well could have, litigants in different jurisdictions to prove that segregation has detrimental effects in those particular locales, much less on particular individuals. Indeed, at oral argument Justice Hugo Black inquired about this very issue.<sup>51</sup> During the argument, the NAACP’s Robert Carter asked the Court to abide by the Topeka case’s finding of fact that segregation had deleterious psychological consequences.<sup>52</sup> He told the Court that the district judge’s fact-finding makes a reversal “necessary.”<sup>53</sup> Carter argued, “[I]f there [are inequalities], in fact, . . . educational opportunities can not be equal in law.”<sup>54</sup> Justice Black asked him whether that was “a general finding or . . . state[d] . . . for the State of Kansas, City of Topeka?”<sup>55</sup> Carter responded: “I think that the findings were made in this specific case referring to this specific case.”<sup>56</sup> Justice Black seemed troubled by the ramifications of limiting the empirical lesson to the single case of Topeka. Justice Black asked, “then you would have different rulings with respect to the places to which this applies, is that true?”<sup>57</sup> Carter realized his mistake but backpedaled too far, stating: “Now, of course, under our theory, you do not have to reach the finding of fact or a fact at all in reaching the decision because of the fact that we maintain that this is an unconstitutional classification being based upon race and, therefore, it is arbitrary.”<sup>58</sup> Of course, if simply segregating on the basis of race had been sufficiently arbitrary to render segregation unconstitutional, none of the social science would have been needed in the first place.

Many other cases have presented similar challenges regarding the proper frame of reference for the legally relevant empirical claim. In *McCleskey v. Kemp*,<sup>59</sup> for example, McCleskey argued that defendants in

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48. *Brown*, 347 U.S. at 494 (internal quotation marks omitted).

49. *Id.*

50. *Id.* at 494 n.11.

51. REMOVING A BADGE OF SLAVERY: THE RECORD OF *BROWN V. BOARD OF EDUCATION* 131–32 (Mark Whitman ed., 1993).

52. *Id.*

53. *Id.* at 131.

54. *Id.* (second alteration in original).

55. *Id.*

56. *Id.*

57. *Id.* at 131–32.

58. *Id.* at 132.

59. 481 U.S. 279 (1987).

Georgia were 4.3 times more likely to get the death penalty if they had killed a white person than if they had killed a black person.<sup>60</sup> He challenged the Georgia capital-sentencing scheme on the basis of both the Eighth and Fourteenth Amendments.<sup>61</sup> Under the Eighth Amendment it had previously been the rule that system-wide discrimination constituted “cruel and unusual punishment.”<sup>62</sup> In *Godfrey v. Georgia*,<sup>63</sup> for example, the Court held that the death penalty could “not be imposed under sentencing procedures that create a substantial risk that the punishment will be inflicted in an arbitrary and capricious manner.”<sup>64</sup> Under such a rule, the defendant would not have to prove that race affected his sentencing decision. The Eighth Amendment’s concern is the “sentencing system as a whole.”<sup>65</sup>

The *McCleskey* Court, however, rejected the system-wide perspective of the case law and held that the proper constitutional fact question was case specific.<sup>66</sup> The Eighth Amendment, according to the Court, requires a challenger to demonstrate that his prosecutor, jury, or judge discriminated against him on the basis of race.<sup>67</sup> This rendered the statistical demonstration irrelevant. As the Court stated, “even Professor Baldus does not contend that his statistics *prove* . . . that race was a factor in McCleskey’s particular case.”<sup>68</sup> McCleskey would have to prove that discrimination had occurred in his case. Needless to say, perhaps, but the evidentiary burden of demonstrating that any particular prosecutor, jury, or judge discriminated is a nearly insurmountable task.

The Court effectively did the same thing in *Gonzales v. Carhart*,<sup>69</sup> when it held that a facial challenge failed and that empirical evidence on the general constitutional fact regarding whether a health exception was necessary to a ban on so-called partial-birth abortions did not demonstrate a substantial obstacle.<sup>70</sup> However, the Court stated that an individual woman might demonstrate such a burden in an as-applied challenge.<sup>71</sup> Once again,

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60. *Id.* at 321 (Brennan, J., dissenting).

61. *Id.* at 286.

62. *Id.* at 320, 322–24 (Brennan, J., dissenting).

63. 446 U.S. 420 (1980).

64. *Id.* at 427 (restating the Court’s holding in *Furman v. Georgia*, 408 U.S. 238, 239–40 (1972) (per curiam)).

65. *Gregg v. Georgia*, 428 U.S. 153, 200 (1976).

66. See *McCleskey*, 481 U.S. at 308 (finding lawful Georgia’s focus “on the particularized nature of the crime and the particularized characteristics of the individual defendant.” (quoting *Gregg*, 428 U.S. at 206) (internal quotation marks omitted)).

67. *Id.* at 308–10.

68. *Id.* at 308.

69. 550 U.S. 124 (2007).

70. *Id.* at 164–65.

71. *Id.* at 167 (“[T]he proper means to consider exceptions is by as-applied challenge. . . . This is the proper manner to protect the health of the woman if it can be shown that in discrete and

reframing the empirically relevant issue from the general to the specific effectively vacated an entire species of claim.<sup>72</sup>

C. *Operationally Defining Relevant Facts*

A closely related issue to the law's need to *define* the relevant fact and to *establish* the requisite level of analysis is that the law must also decide how to *operationalize* the legal construct in question. Concepts such as "competency," "intelligence," "volitional control," and "death" are not self-defining. Professor Tom McGarity provides a straightforward example in his article regarding the choice between "fixed air-quality monitors" versus "personal monitors" for the purpose of measuring air quality.<sup>73</sup> Which measure is adequate, sufficient, or both for policy decisions under the law is a matter of legal judgment. They are both reasonable scientific measures, but the law has to decide which one (or both) might be used under applicable doctrine.

A similar sort of issue is presented regarding the proper definition of "intellectual disability" for purposes of exempting certain defendants from capital punishment under the Eighth Amendment. In 2002 in *Atkins v. Virginia*,<sup>74</sup> the Court held that the execution of an intellectually disabled individual convicted of a capital offense constituted cruel and unusual punishment and was prohibited by the Eighth Amendment.<sup>75</sup> The *Atkins* Court, however, held that the issue of defining intellectual disability was reserved for the states.<sup>76</sup> But the states adopted widely varying threshold standards for intellectual disability.<sup>77</sup> This variability is inherently problematic, since the constitutional fact involved here (i.e., intellectual

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well-defined instances a particular condition has or is likely to occur in which the procedure prohibited by the Act must be used.").

72. See B. Jessie Hill, *A Radically Immodest Judicial Modesty: The End of Facial Challenges to Abortion Regulations and the Future of the Health Exception in the Roberts Era*, 59 CASE W. RES. L. REV. 997, 1013 (2009) ("[I]t is hard to imagine any individual woman who would have standing to bring such a challenge, much less the desire to do so. In order to have standing, the woman would presumably have to argue that she was going to become pregnant and face a health-threatening (but not life-threatening) condition that required use of the D&X procedure in particular.").

73. Thomas O. McGarity, *Science and Policy in Setting National Ambient Air Quality Standards: Resolving the Ozone Enigma*, 93 TEXAS L. REV. 1781, 1797 (2015).

74. 536 U.S. 304 (2002).

75. *Id.* at 321.

76. *Id.* at 317.

77. See John H. Blume et al., *An Empirical Look at Atkins v. Virginia and Its Application in Capital Cases*, 76 TENN. L. REV. 625, 639 (2009) ("*Atkins* . . . has not been applied uniformly among the states.").

disability) establishes a constitutional guarantee.<sup>78</sup> Variability across jurisdictions regarding what threshold qualifies for constitutional protection invariably means that defendants' constitutional rights will vary as well.

In *Hall v. Florida*,<sup>79</sup> the Court returned to the subject in regard to Florida's standard of requiring proof of IQ test scores of 70 or below before a defendant could present any additional evidence of his intellectual disability.<sup>80</sup> The *Hall* Court held that this rigid approach to defining intellectual disability was contrary to the basic principles of the Eighth Amendment.<sup>81</sup>

The Court, with Justice Kennedy writing for the majority, began the analysis with a statement of the basic principles underlying the Eighth Amendment in this context.<sup>82</sup> The Court explained that “[n]o legitimate penological purpose is served by executing a person with intellectual disability.”<sup>83</sup> According to the Court, “[P]unishment is justified under one or more of three principal rationales: rehabilitation, deterrence, and retribution.”<sup>84</sup> Rehabilitation does not apply in death penalty cases. Moreover, the Court held the two remaining principles justifying punishment do not apply to those who are intellectually disabled.<sup>85</sup> “As for deterrence,” the Court observed, “those with intellectual disability are, by reason of their condition, likely unable to make the calculated judgments that are the premise for the deterrence rationale.”<sup>86</sup> They have a “diminished ability” to “process information, to learn from experience, to engage in logical reasoning, or to control impulses . . . [which] make[s] it less likely that they can process the information of the possibility of execution as a penalty and, as a result, control their conduct based upon that information.”<sup>87</sup> The Court further found that “[r]etributive values are also ill-served by executing those with intellectual disability.”<sup>88</sup> The Court

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78. See FAIGMAN, *supra* note 46, at 93–96 (discussing the difficulty of defining “intellectual functioning” for constitutional purposes and how whatever definition is adopted inevitably impacts constitutional guarantees).

79. 134 S. Ct. 1986 (2014).

80. *Id.* at 1994.

81. *Id.* at 2001.

82. *Id.* at 1992–93.

83. *Id.* at 1992.

84. *Id.* (quoting *Kennedy v. Louisiana*, 554 U.S. 407, 420 (2008)) (internal quotation marks omitted).

85. *Id.* at 1993.

86. *Id.*

87. *Id.* (alteration in original) (quoting *Atkins v. Virginia*, 536 U.S. 304, 320 (2002)) (internal quotation marks omitted).

88. *Id.*

stated that “[t]he diminished capacity of the intellectually disabled lessens moral culpability and hence the retributive value of the punishment.”<sup>89</sup>

The Court, therefore, stated that “[t]he question this case presents is how intellectual disability must be *defined* in order to implement” the principles underlying the guarantees of the Eighth Amendment.<sup>90</sup> In answering this question, the Court ultimately adhered closely to the psychiatric profession’s definition and practice regarding this categorization.<sup>91</sup> Specifically, as the Court noted, “the medical community defines intellectual disability according to three criteria: significantly subaverage intellectual functioning, deficits in adaptive functioning (the inability to learn basic skills and adjust behavior to changing circumstances), and onset of these deficits during the developmental period.”<sup>92</sup>

In many areas of the law, however, courts and legislators employ psychological terms irrespective of medical or psychiatric meaning. Concepts such as “volitional control,” and “insanity,” for instance, have no direct corresponding meaning in science.<sup>93</sup> In *Hall*, in contrast, the Court tracked psychiatry’s categorization of intellectual disability virtually jot for jot.<sup>94</sup> Indeed, the Court seems to have been aware of this departure from ordinary practice since the majority, perhaps somewhat defensively, pointed out that although its determination that the Florida statute was unconstitutional was “informed by the views of medical experts,” these “views do not dictate the Court’s decision.”<sup>95</sup>

Justice Alito, dissenting, strongly criticized the majority’s reliance on current thinking in medicine.<sup>96</sup> He argued that the “views of professional associations often change,” that these changes require courts to follow along or “judge the validity of each new change,” that different organizations might disagree, that the Court provided no guidance on how to choose “which organizations’ views should govern,” and that a clinical diagnosis of intellectual disability has an unspecified fit with the principles

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89. *Id.*

90. *Id.* (emphasis added).

91. *Id.* at 2001.

92. *Id.* at 1994 (citing *Atkins*, 536 U.S. at 308 n.3).

93. See Joshua W. Buckholtz & David L. Faigman, *Promises, Promises for Neuroscience and Law*, 24 *CURRENT BIOLOGY* 861, 864 (2014) (“To a cognitive neuroscientist, legal standards like ‘volitional capacity’ . . . are inherently meaningless. They do not map on to specific mental processes or discrete brain circuits.”); Allen D. Spiegel & Peter B. Suskind, *A Paroxysmal Insanity Plea in an 1865 Murder Trial*, 16 *J. LEGAL MED.* 585, 586 (1995) (“Today, insanity is a legal concept; mental illness is a medical condition.”).

94. *Hall*, 134 S. Ct. at 2005 (Alito, J., dissenting) (“[T]he Court places heavy reliance on the views (some only recently announced) of professional organizations, but the Court attempts to downplay the degree to which its decision is dependent upon the views of these private groups.”).

95. *Id.* at 2000 (majority opinion).

96. *Id.* at 2005 (Alito, J., dissenting).

of the Eighth Amendment.<sup>97</sup> Justice Alito was thus arguing that the Court had failed to explain the fit between definitions of intellectual disability that are promulgated for therapeutic or placement purposes and “the decision whether the imposition of a death sentence in a particular case would serve a valid penological end.”<sup>98</sup>

By failing to relate the legal justification for capital punishment—deterrence and retribution—to the excusing nature of intellectual disability, the *Hall* Court essentially left this area of law entirely unmoored. This is a recipe for confusion and will most likely lead to divergent opinions in the courts below.<sup>99</sup> The DSM-V, from which the Court borrowed the criteria for intellectual disability, was compiled for the purposes of treatment and placement.<sup>100</sup> There was no consideration of how, if at all, the twin criteria of IQ score and adaptive functioning relate to deterrability or blameworthiness. Indeed, this question of fit is essentially a mixed question of fact and law. It should require the Court to operationally define the empirical concept in light of the purposes of the law.

#### D. *Translating Science into the Law*

A closely related challenge to the operationalization issue is the problem inherent in the *Hall* case and possibly most cases involving scientific evidence, that of translating between the two professions—not just culturally, but in terms of concepts and word choices. To take but the simplest of examples, in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*<sup>101</sup> the Court stated that the operative question is the “evidentiary reliability” of the proffered evidence,<sup>102</sup> a term the Court defined as “scientific validity.”<sup>103</sup> If legal reliability means scientific validity, what hope do we have for such concepts as volitional control, competency, differential etiology, or—for that matter—causation?

An even more fundamental disconnect arose out of *Daubert*, one that has sown confusion among lower courts regarding the extent of a judge’s

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97. *Id.* at 2006.

98. *Id.*

99. In *Mays v. Stephens*, 757 F.3d 211, 218–19 (5th Cir. 2014), the court upheld the Texas practice of buttressing the three criteria of intellectual functioning, adaptive functioning, and age of onset with an additional seven evidentiary factors outlined in *Ex Parte Briseno*, 135 S.W.3d 1, 7–8 (Tex. Crim. App. 2004). The court pointed out that “*Hall* does not address the constitutionality of considering additional ‘non-diagnostic’ factors in deciding mental retardation, nor does it require a wholesale adoption, without deviation, of . . . professional standards and definitions.” *Mays*, 757 F.3d at 218.

100. AM. PSYCHIATRIC ASS’N, DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS 19 (5th ed. 2013).

101. 509 U.S. 579 (1993).

102. *Id.* at 590.

103. *Id.* at 590 n.9.

gatekeeping responsibilities under Federal Rule of Evidence 702.<sup>104</sup> This confusion involves the classic division of responsibilities between the judge's job to determine admissibility and the jury's job to assess the weight of admitted evidence. In *Daubert*, the Court sought to draw this line by distinguishing between the underlying methods and principles of scientific inquiry and the application of those methods to the case at hand.<sup>105</sup> Ever since, this has been referred to as the methodology–conclusion distinction.<sup>106</sup> This dividing line, however, has turned out to neither have a principled basis in science nor be readily identifiable in law. Just four years after *Daubert*, the Court abandoned the distinction in *General Electric Co. v. Joiner*.<sup>107</sup> Despite *Joiner*'s unambiguous dismissal of the proposition that methodology and conclusions are “distinct from one another,” courts continue to use this shorthand to set the boundary between a judge's responsibility to determine admissibility and the jury's job to assess weight.<sup>108</sup>

The methodology–conclusion distinction is not useless because it occurs nowhere in scientific research; it is useless because it occurs everywhere in that research. Indeed, the conventional, virtually *required* scheme for organizing scientific articles is to divide them into sections according to background (i.e., introduction), methods, results, and discussion (i.e., conclusions).<sup>109</sup> But this division of sections does not align in any true respect to courts' conception of methodology and conclusions with regard to scientific evidence. Whereas in science the methods section informs the reader of the research design employed, the results and discussion sections describe the findings obtained using that design. This is distinct from the law's use of these terms. In the original conception of methodology–conclusion in *Daubert* and subsequent cases—so far as there was one—the distinction appeared to refer to the notion that “methods and principles” were limited to the research design used in the studies on which

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104. FED. R. EVID. 702.

105. *Daubert*, 509 U.S. at 596–97.

106. See KAYE, BERNSTEIN & MNOOKIN, *supra* note 11, § 10.5.1(b)(1)(iii) (noting several cases where the distinction is made between the scientific methodology used and the conclusions drawn for a particular case).

107. 522 U.S. 136, 146 (1997) (“But conclusions and methodology are not entirely distinct from one another. . . . [N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert.”).

108. *Id.* See also *City of Pomona v. SQM N. Am. Corp.*, 750 F.3d 1036, 1048 (9th Cir. 2014) (“[O]nly a faulty methodology or theory . . . is a valid basis to exclude expert testimony.”).

109. See, e.g., UCLA UNDERGRADUATE SCI. JOURNAL, GUIDE TO SCIENCE WRITING: RESEARCH MANUSCRIPTS AND REVIEW ARTICLES 1–2 (2010–2011), available at <http://www.ugresearchsci.ucla.edu/writingscience.htm>, archived at <http://perma.cc/N63S-JMD2> (showing the “basic overview of a scientific manuscript” to include an Abstract, Introduction, Methods, Results, and Discussion).

the expert relied. As regards what propositions qualified as “conclusions,” two possibilities emerged. “Conclusions” might include first the inferences an expert could reasonably draw from those studies as well as, second, whether those inferences could be applied to the case at hand. *Joiner*, however, made clear that the first proposition—the inferences permitted by the research basis—remained a preliminary gatekeeping responsibility; *Joiner* suggested, and Rule 702 later confirmed, that the second proposition—the applicability to the case at hand—also constituted a gatekeeping obligation.<sup>110</sup> But given the complex nature of scientific evidence, this legal standard did not point unambiguously to a dividing line in this form of proof that aligned with the respective functions of judge and jury.

The central principle that organizes these categories comes from the insight associated with what could be called “G2i,” that is, that scientists study phenomena at the group level, but the ultimate legal issue is typically whether an individual case is an instance of some relevant phenomenon. G2i essentially describes an inferential disconnect that occurs at the conventional intersection of science in the courtroom and constitutes a profound challenge to it. In a recent article, I along with Professors John Monahan and Christopher Slobogin described the G2i challenge as follows:

[A]ll applied science presents G2i issues. Indeed, all expert evidence, whether based on controlled experimental research or years of experience, presents G2i issues. Experts testify to such matters as the conditions likely to lead to false confessions, the indicia of schizophrenia, factors that contribute to eyewitness misidentification, the cancer-causing properties of benzene, and thousands more. These are all general—population-based—statements about the empirical world. They are the “G” of G2i and represent the ordinary perspective of most research and most expertise. However, in the courtroom, the operative questions pertain to the particular case at hand, the “i” of G2i: Did the suspect falsely confess? Does the defendant have schizophrenia? Was the witness’s eyewitness identification accurate? Did benzene cause the plaintiff’s leukemia?<sup>111</sup>

In that article, we sought to explore how admissibility standards applied differently depending on whether the expert was a “G” expert or an “i” expert, what the article describes as “framework experts” or “diagnostic experts,” respectively.<sup>112</sup> But the *Daubert* Court’s methodology—conclusion

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110. FED. R. EVID. 702(d) (“[T]he expert has reliably applied the principles and methods to the facts of the case.”). See also *supra* note 107.

111. David L. Faigman, John Monahan & Christopher Slobogin, *Group to Individual (G2i) Inference in Scientific Expert Testimony*, 81 U. CHI. L. REV. 417, 420 (2014) (footnote omitted).

112. *Id.* at 424.

distinction suggests an even more basic preliminary issue than that of G2i which must be resolved—that is, establishing the line between the judge’s admissibility decision and the jury’s duty to assess weight. The insights associated with G2i might assist in this though not along any simple lines of giving framework issues to judges and diagnostic issues to juries. As our article makes plain, too much of diagnosis depends on general scientific methods to simply permit it to go wholesale to the jury.<sup>113</sup> More needs to be done.

If a line is to be drawn between judge and jury, however, it ought to parallel the nature of scientific inference, and G2i should help inform that determination. The challenge, then, of scientific evidence is to identify a principled dividing line between the judge’s obligation to decide admissibility and the jury’s task to assess weight. Courts should seek to identify a “cut-line” that inheres in the nature of scientific evidence itself and that conforms to the respective obligations of judge and jury. Preliminarily, G2i does suggest a possible cut-line, though the details would need to be worked out at length. In brief, however, it could be that judges should be gatekeepers regarding all expert testimonial statements that are based on empirical propositions that transcend the particular case. In contrast, expert testimonial statements that are based on disputed empirical propositions that are specific to the particular case and which are otherwise admissible should be submitted to the trier of fact to determine their weight.

#### *E. Decision Rules and Burdens of Proof*

In having to decide the framework within which scientific evidence is used, the law must also determine the decision rule to be applied. Such rules, of course, establish the ultimate balancing of the two basic kinds of possible error: false positives and false negatives. The law, of course, has long used burdens of proof to manage the risk of error as is reflected in the very different burdens of proof used in civil and criminal cases.<sup>114</sup> In civil cases, there is no systemic preference between false-positive and false-negative errors, so the preponderance standard operates merely as a tie breaker.<sup>115</sup> In criminal cases, in contrast, false positives are considered

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113. *See id.* at 440–72 (applying five admissibility criteria to both framework and diagnostic evidence).

114. *See generally* DOUGLAS WALTON, BURDEN OF PROOF, PRESUMPTION AND ARGUMENTATION 57–64 (2014) (describing various explanations of the burdens of proof).

115. *See* Ronald J. Allen, *How Presumptions Should Be Allocated: Burdens of Proof, Uncertainty, and Ambiguity in Modern Legal Discourse*, 17 HARV. J.L. & PUB. POL’Y 627, 633–34 (1994) (explaining that civil litigants are treated equally because they are indistinguishable to the legal system); Neil Orloff & Jerry Stedinger, *A Framework for Evaluating the Preponderance-of-the-Evidence Standard*, 131 U. PA. L. REV. 1159, 1168 n.23 (1983) (stating that false negatives and false positives generally have equal weight).

highly problematic, which supports the high burden of proof of beyond a reasonable doubt.<sup>116</sup> As Sir William Blackstone wrote, “it is better that ten guilty persons escape, than that one innocent suffer.”<sup>117</sup>

This balancing of error through burdens of proof was clearly on display in *Addington v. Texas*.<sup>118</sup> The *Addington* Court held that the Constitution requires a “clear and convincing” standard of proof when a state seeks to involuntarily commit a person to a mental hospital for an indefinite period.<sup>119</sup> In so holding, the Court rejected the more lenient preponderance standard as well as the stricter standard applied in criminal cases of proof beyond a reasonable doubt.<sup>120</sup> The Court first explained that the function of a standard of proof “is to ‘instruct the factfinder concerning the degree of confidence our society thinks he should have in the correctness of factual conclusions for a particular type of adjudication.’”<sup>121</sup> The Court found that commitment hearings, which pose “a significant deprivation of liberty,” require a standard greater than a preponderance of the evidence, which is typically employed in “monetary dispute[s] between private parties.”<sup>122</sup> At the same time, however, the Court refused to require proof beyond a reasonable doubt.<sup>123</sup> The Court offered a variety of reasons for choosing this lighter burden. First, following an involuntary commitment, the continuing involvement of professionals, family, and friends in the person’s treatment provides opportunities for errors to be corrected.<sup>124</sup> Second, making an error that permits a mentally ill person to live in the general community is not necessarily good for that person: “[i]t cannot be said . . . that it is much better for a mentally ill person to ‘go free’ than for a mentally normal person to be committed.”<sup>125</sup> Finally, the Court observed, “[g]iven the lack of certainty and the fallibility of psychiatric

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116. See *In re Winship*, 397 U.S. 358, 363–64 (1970) (“The requirement of proof beyond a reasonable doubt has this vital role in our criminal procedure. . . . Where one party has at stake an interest of transcending value—as a criminal defendant his liberty—this margin of error is reduced as to him by the process of placing on the other party the burden of . . . persuading the factfinder at the conclusion of the trial of his guilt beyond a reasonable doubt.” (internal quotation marks omitted)); Ronald J. Allen, *On the Significance of Batting Averages and Strikeout Totals: A Clarification of the “Naked Statistical Evidence” Debate, the Meaning of “Evidence,” and the Requirement of Proof Beyond Reasonable Doubt*, 65 TUL. L. REV. 1093, 1104 (1991) (arguing that a higher standard is necessary for criminal cases because the utilitarian balance differs and the depth of moral questioning is increased).

117. 4 WILLIAM BLACKSTONE, COMMENTARIES \*358.

118. 441 U.S. 418 (1979).

119. *Id.* at 433.

120. *Id.* at 431.

121. *Id.* at 423 (quoting *Winship*, 397 U.S. at 370 (Harlan, J., concurring)).

122. *Id.* at 423, 425.

123. *Id.* at 431.

124. *Id.* at 428–29.

125. *Id.* at 429.

diagnosis, there is a serious question as to whether a state could ever prove beyond a reasonable doubt that an individual is both mentally ill and likely to be dangerous.”<sup>126</sup>

In one area of civil commitment, however, the clear and convincing evidence standard might be inappropriate given the reasoning of *Addington*. That area is the ever-expanding category of sexually violent offenders.<sup>127</sup> There are important differences between sexual offender commitments and ordinary commitments. Primary among these differences is that in the ordinary civil-commitment context treatment is a key component of the incarceration, whereas with sexual predators protection of society appears paramount.<sup>128</sup> In contrast, in the case of sexual offenders the role and even availability of treatment is much more ambiguous. While treatment is often cited as an avowed goal of sexual-offender civil commitments, it is not constitutionally mandated.<sup>129</sup> Compounding the lack of treatment for sexual offenders is the fact that many are held under what are essentially prison-like conditions and the vast majority are never released.<sup>130</sup> The decision rule in this, as is true in all other legal contexts, ought to reflect the costs of making an error either of the false-positive or false-negative variety.

#### IV. Conclusion

The law is a great borrower. It borrows from the findings in science and the values and insights in religion. It does so, however, exclusively for

126. *Id.*

127. See generally John Matthew Fabian, *To Catch a Predator, and Then Commit Him for Life: Sexual Offender Risk Assessment—Part Two*, CHAMPION, March 2009, at 32 (“Nearly 20 states have laws addressing the civil commitment of sexually violent predators.”); Eric S. Janus, *Closing Pandora’s Box: Sexual Predators and the Politics of Sexual Violence*, 34 SETON HALL L. REV. 1233, 1233–50 (2004) (discussing the public uproar against crimes of sexual violence and how it fuels the expansion of sexually violent-predator laws).

128. See *Aruanno v. Hayman*, 384 F. App’x 144, 152 (3d Cir. 2010) (“[The Act] serves a regulatory . . . purpose, because it seeks to protect the public from possible future harm . . .”).

129. For example, in *Hubbert v. Superior Court*, 969 P.2d 584, 601 (Cal. 1999), the court rejected the “suggestion that the Legislature cannot constitutionally provide for the civil commitment of dangerous mentally impaired sexual predators unless the statutory scheme guarantees and provides ‘effective’ treatment.” See generally Eric S. Janus & Wayne A. Logan, *Substantive Due Process and the Involuntary Confinement of Sexually Violent Predators*, 35 CONN. L. REV. 319, 342 (2003) (discussing a substantive due process right to treatment); Jeslyn A. Miller, *Sex Offender Civil Commitment: The Treatment Paradox*, 98 CALIF. L. REV. 2093, 2103 (2010) (“Although the Supreme Court has never confirmed a constitutional right to treatment, the right for individuals to participate meaningfully in treatment is implicit in the involuntary (implicating substantive due process concerns) and purportedly civil (implicating ex post facto and double jeopardy concerns) nature of the civil commitment system.” (footnotes omitted)).

130. See, e.g., *Karsjens v. Jesson*, 6 F. Supp. 3d 916, 916 (D. Minn. 2014) (noting that plaintiffs alleged “that commitment to [the Minnesota Sex Offender Treatment Program] essentially amount[s] to lifelong confinement, equivalent to [a] lifetime of criminal incarceration in [a] facility resembling, and run like, [a] medium to high security prison”).

reasons associated with its own objectives which are many and varied and include ideals of justice, fairness, and accuracy, as well as more mundane considerations such as efficiency and finality. When interacting with these disciplines it behooves the law to understand them. In regard to what science might offer, then, the law ought to be a sophisticated consumer.

In practice, this sophistication would mean that the law would understand science much as scientists understand their own discipline. This need not entail a highly developed knowledge of statistics or research methods, though a basic appreciation of hypothesis testing would help considerably. It should mean, however, that the law would come to understand both the power and the limitations of science. Moreover, it would mean that legal decision makers would understand and at times exert control over critical translation points between what scientists study and what the law needs to know.

In the end, science cannot dictate what is just. But science is now and will forever more be an essential tool to do justice.