

REMAKING LAW: MOVING BEYOND ENLIGHTENMENT JURISPRUDENCE

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INTRODUCTION

“Judges are like umpires. Umpires don’t make the rules, they apply them. The role of an umpire and a judge is critical. They make sure everybody plays by the rules, but it is a limited role. Nobody ever went to a ball game to see the umpire.”

- John Roberts (2005)¹

Then-judge John Roberts invoked this analogy in his prepared opening statement during his confirmation hearings before the Senate Judiciary Committee. As an expression of “judicial restraint,”² the umpire analogy was likely calculated to assuage or deflect Senatorial concern that Roberts, if confirmed, might eventually vote to overturn *Roe v. Wade*.³ For more than a generation, the issue of abortion, and the scope and validity of *Roe v. Wade* as precedent, dominated Supreme Court confirmation hearings and the surrounding public debates over potential nominees.⁴

Commentators on the political Left have since derided Roberts’ umpire analogy, particularly in light of what they view as a conservative-activist

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1. *Confirmation Hearing on the Nomination of John G. Roberts, Jr. to be Chief Justice of the United States: Hearing Before the S. Committee on the Judiciary*, 109th Cong. 55 (2005) (statement of John G., Roberts, Jr., nominee to be Chief Justice of the United States) [hereinafter *Roberts Hearing*].

2. Contraposed to traditional conservative hostility to ‘judicial activism.’ See JOHN HART ELY, *DEMOCRACY AND DISTRUST* 73 (1980).

3. *Roberts Hearing*, *supra* note 1. The remainder of his statement, laced with words like “modesty” and “humility,” supports this insight. See *id.*

4. See JEFFREY TOOBIN, *THE NINE* 281 (2007) (noting that *Roe v. Wade* dominated public discourse).

voting record on the Court.⁵ Other commentators, including those on the political Right, take issue with the apparent simplicity of the umpire metaphor, which suggests constitutional adjudication is as mechanical as calculating the “circumference of a circle.”⁶ These criticisms reached a crescendo during the confirmation hearings of then-judge Sonia Sotomayor. Senators’ statements and oral testimony referenced the phrase “balls and strikes” eleven times and the term “umpire” or “umpires” sixteen times.⁷ Despite the volume of ridicule, criticism of the umpire analogy has generally focused on whether the Chief Justice Roberts’ record is consistent with the judicial philosophy embodied in the umpire analogy or with the methodological simplicity of “umpiring” as a metaphor for Supreme Court adjudication.⁸

Upon closer inspection, the umpire analogy is more than a symbol of judicial restraint or a metaphor for judicial method. The analogy contains a constellation of generally unquestioned assumptions and tacit beliefs about the role of the judge and the nature of law that flow from the Enlightenment period into contemporary jurisprudence. The analogy reflects particular ways of knowing and being, epistemological and ontological commitments that are deeply embedded in our law and our culture. In Part I, we will unpack these assumptions and, in the process, specify the grammar of the Enlightenment Project.

The religious and cultural crisis in Western Europe during the early seventeenth century triggered an epistemological crisis. Methodology became

5. For example, Marjorie Cohn, President of the National Lawyers Guild, told us, “Since he was confirmed to the Court, Roberts has behaved more like a radical right fielder than an umpire. He routinely favors corporations over individuals, and prosecutors over criminal defendants. Roberts is doing his best—quite effectively—to shape the Court into a reliable tool to further the right-wing agenda.” William Fisher, *Sotomayor: The Umpire Strikes Out!*, (Aug. 10, 2009), <http://pubrecord.org/law/3438/sotomayor-umpire-strike-out/>; see also Kristina Moore, *Box Score: Calling “Balls and Strikes” at Sotomayor’s Confirmation Hearing* (July 13, 2009), <http://www.scotusblog.com/wp/box-score-calling-balls-and-strikes-at-sotomayors-confirmation-hearing/>.

6. Fisher, *supra* note 5 (“[A] Justice who believes that the makers intended the constitutional amendment process to be employed to overcome oversights or unexpected changes in the political landscape as opposed to enlightened and independent judges will naturally be loath to read anything more into the Constitution’s text than the bare minimum.”). To the extent that Roberts’s analogy suggests that “when objectively applied by a neutral judge,” the law “gives correct answers in specific cases” has been described as so farfetched that it constitutes a straw man of the critical legal studies universe and, furthermore, that “[f]ew American lawyers today” would subscribe to such a view of law. Joan Williams, *Critical Legal Studies: The Death of Transcendence and the Rise of the New Langdells*, 62 N.Y.U. L. REV. 429, 486 (1987).

7. See Moore, *supra* note 5.

8. For one example of critique in this mode, see Neil S. Siegel, *Umpires at Bat: On Integration and Legitimation*, 24 CONST. COMMENT. 701 (2007); see also Erwin Chemerinsky, *Seeing the Emperor’s Clothes: Recognizing the Reality of Constitutional Decision Making*, 86 B.U. L. REV. 1069 (2006).

an issue of great importance. Two schools of thought emerged with competing formulas for the “proper” method of knowing: Baconian experimentalism and Cartesian rationalism. Isaac Newton synthesized both the rationalist and experimentalist traditions into a conception of science that is now considered by most as orthodoxy.

Enlightenment thinkers sought to develop systemic principles for understanding the social and moral realm using an epistemology of the new science. Just as Newton formulated fundamental laws of physics, Enlightenment thinkers sought to extend that paradigm—one of universal laws derived from proper method—into the social sciences. Although the efforts to borrow from the natural sciences failed to produce the kind of mathematical rigor embodied in Newton’s laws of motion, the cultural influence of this new paradigm was profound. We will describe the assumptions and practices within this worldview in Part I.

In Part II we will show how these assumptions and practices have been an enduring force in shaping Anglo-American law and American constitutional law. Modern jurisprudence sprang from an attempt to make law more scientific. Enlightenment thinkers such as Grotius and Leibniz developed the doctrine of Natural Law in an attempt to discover the universal principles of morality that would inform law. The American declarations were drafted under the prevailing influence of Natural Law theorists. At the time of the colonial rebellion in North America, the Enlightenment was at the height of its influence. Leading Enlightenment thinkers hoped that the American Revolution might put into practice the ideas that had evolved and emerged over the previous century in Europe. Not only the founding documents but also the common law was caught in the Enlightenment’s sweep. The legacy of Newtonian science, and the Enlightenment philosophy it bore, pervades American jurisprudence.

In Part III we will present modern developments in the physical and mind sciences that challenge the assumptions of the Enlightenment Project. Niels Bohr’s philosophy physics not only calls into question Newtonian physics, but also Cartesian epistemology and a host of Enlightenment notions. There is a deep indeterminacy that is not just present in postmodernism or hermeneutics, but also in what we think of as physical reality. The development of systems thinking and complexity theory is a response to the linear and reductionist science of the eighteenth century. The principles of this new science suggest divergent models of causality and project a different view of our relationship to the world. The new science of the mind provides insight into the ways in which the mind interacts with the world, even below conscious awareness.

In Part IV we will explore the implications of these developments for our jurisprudence. We will confront the ramifications of the Enlightenment paradigm in our law, applying the insights derived from systems science, mind

sciences, and quantum physics. We contest the objective, neutral judicial actor and explore the relationship between adjudication and legal meaning.

In Part VI, we will sketch out ways of formulating and practicing law that will take account of these revised ways of knowing and being. We lift up models of law that account for post-Newtonian insights, including prophylactic regimes and anti-reductionist approaches in law.

The Enlightenment is the language and grammar of modernity, not just law.⁹ Consequently, although our focus will be law, the challenge to the Enlightenment Project has very broad implications which we can only begin to explore.¹⁰ Our efforts here are not entirely novel. For several decades, anomalies in the Enlightenment paradigm have been exposed with increasing frequency. The challenge to the separate self and objective knowledge has been made from many quarters, including critical race theory,¹¹ feminist studies,¹² and post modernism.¹³ Robin West observed that if to be human is to be separate, rational, and objective, then “women are not human beings.”¹⁴ Such a self is not only male, but also white. This aspirational, disembodied self within the Enlightenment Project, while a fiction for all, exists as an assault on particular populations.¹⁵

What makes our effort different? While building on the work of others, we take a more deliberate look at the Enlightenment and science. We do so, not because we believe science is “objective” in some narrow sense, but because it has become our public language and the basis for legitimating claims in the world. While this is obviously true in science itself, we believe it is also true in the social sciences and law. Much of the reliance on the methodology of science is rooted in the seventeenth and eighteenth centuries and has not been

9. See IMMANUEL WALLERSTEIN, *THE END OF WHAT MODERNITY?* 129 (1995); IMMANUEL WALLERSTEIN, *WORLD-SYSTEMS ANALYSIS: AN INTRODUCTION* 18 (2004).

10. Our aim here is not to develop a moral critique of the Enlightenment; rather, we elaborate a “grammar” of the period in order to demonstrate that its concepts have been discredited by contemporary developments in the social and natural sciences and, therefore, should be revised accordingly. For one such critique of the Enlightenment, see MAX HORKHEIMER & THEODOR W. ADORNO, *DIALECTIC OF ENLIGHTENMENT* 3–42 (1972) (identifying a key Enlightenment impulse as the tendency for humans to have a purely instrumental relationship with nature that tends toward domination).

11. See generally john a. powell, *The Multiple Self: Exploring Between Modernity and Postmodernity*, 81 MINN L. REV. 1481 (1996) [hereinafter powell, *The Multiple Self*].

12. See GENEVIEVE LLOYD, *THE MAN OF REASON: “MALE” AND “FEMALE” IN WESTERN PHILOSOPHY* 103 (1984); KAREN BARAD, *MEETING THE UNIVERSE HALFWAY* 87 (2007); MARTHA MINOW, *MAKING ALL THE DIFFERENCE: INCLUSION, EXCLUSION, AND AMERICAN LAW* (1990) (providing a feminist critique of objective knowledge).

13. See Stephen M. Feldman, *An Arrow to the Heart: The Love and Death of Postmodern Legal Scholarship*, 54 VAND. L. REV. 2351, 2367 (2001).

14. Robin West, *Jurisprudence and Gender*, 55 U. CHI. L. REV. 1, 3 (1988).

15. DAVID T. GOLDBERG, *THE RACIAL STATE* 80 (2002).

informed as much by more recent scientific insight. At a minimum, our law must be informed by developments in the last 100 years.¹⁶

Some jurists appear to believe that they can avoid reliance on science or its methods altogether, and advance a deontological claim.¹⁷ Instead, they are unreflectively mimicking the transcendental rationalism of Descartes and Kant. However, our position is not that jurists or anyone else should rely on science, even more recent science, but that we need a greater awareness of what we are, in fact, doing.¹⁸ Widespread and generally unquestioned assumptions regarding causality, objectivity, the nature of the self and knowledge each have deep roots in both the Enlightenment Project and the science and philosophy of that time. Others have drawn upon the insights of early twentieth-century developments of special relativity and quantum physics,¹⁹ the development in the mind sciences in the last two decades,²⁰ and the implications of systems dynamics and complexity theory.²¹ We synthesize these often disparate efforts. Together, these insights constitute a sustained paradigm assault on the Enlightenment Project.

I. THE ENLIGHTENMENT PROJECT

Now the serpent was more crafty than any other wild animal that the LORD God had made. He said to the woman, "Did God say, 'You shall not eat from any tree of the garden'?" [. . .] "For God knows that when you eat of it your eyes will be opened, and you will be like God, knowing good and evil." So when the woman saw that the tree was good for food, and that it was a delight to the eyes, and that the tree was something to be desired to make one wise, she took of its fruit and ate; and she also gave to her husband with her, who

16. *Id.* (noting that feminists, CRT, and others are asserting that the Enlightenment Project was a gendered and racist project). While we agree, we hope to be more granular in our examination and suggest how new science can help as we develop a new worldview.

17. See *Foucha v. Louisiana*, 504 U.S. 71, 109 (1991) (Thomas, J., concurring) ("I believe that it is unwise, given our present understanding of the human mind, to suggest that a determination that a person has 'regained sanity' is precise. 'Psychiatry is not . . . an exact science, and psychiatrists disagree widely and frequently on what constitutes mental illness.'" (quoting *Ake v. Oklahoma*, 470 U.S. 68, 81 (1985)).

18. Consider, for example, the procedures for a trial or judgment during the time of magic or religious dominance of thought and knowledge. The way of adjudicating or knowing necessarily drew on magical or religious ways of knowing. Yet the current Court is no freer from drawing on some situated body of knowledge, however different in substance it may be than the age of magic or religious dominance. The problem is that many of the justices erroneously assume they have access to a God's eye view that is not situated but timeless and context free.

19. See generally Laurence H. Tribe, *The Curvature of Constitutional Space: What Lawyers Can Learn from Modern Physics*, 103 HARV. L. REV. (1989).

20. GEORGE LAKOFF, *THE POLITICAL MIND* 8 (2008); DREW WESTEN, *THE POLITICAL BRAIN* at ix (2007).

21. J.B. Ruhl, *Law's Complexity: A Primer*, 24 GA. ST. U. L. REV. 885 (2008).

was with her, and he ate. Then the eyes of both were opened, and they knew

- *Genesis 3:1-7*²²

For much of European civilization from antiquity until the seventeenth century, knowledge was ultimately a product of divine revelation. The story of the Garden of Eden in the Judeo-Christian Bible is illustrative.²³ Consumption of the forbidden fruit would make Adam and Even “like God” in the sense of knowing what God knows. The Quran contains a similar passage.²⁴ This story not only illustrates the idea that knowledge is divine, but that such knowledge is transmitted through sacred texts. Consequently, sacred texts were considered divine authority, and claims to truth or knowledge inconsistent with sacred texts were dismissed or suppressed.

During that time, Roman Catholic papal authority had united Western Europe under a single Christian conception of religio-political authority and transcendental truth.²⁵ The Protestant Reformation disrupted that order, generating cleavages between different versions of Christianity and between religious and secular political authority.²⁶ The consequence was a full-scale political, religious, and cultural crisis that culminated in the Thirty-Years War (1618–48). This devastating conflict reordered the European continent under the authority of nation-states rather than religions.²⁷

With the traditional institutional controls of the Church weakened, competing answers to profound questions about truth and knowledge were proffered and debated.²⁸ Both Catholics and Protestants believed that knowledge and truth were “fixed and revealed to man from supernatural sources.”²⁹ However, the Protestant Reformation stressed direct engagement with the Bible,³⁰ unmediated by clerics or institutionalized authority.³¹ The

22. *Genesis* 3:1–7 (King James).

23. God forbid Adam and Eve from eating the fruit from the Tree of Knowledge. *Id.* at 3. The serpent told Eve that if she did, she would “be like God, knowing good and evil.” *Id.* at 3:5. Hoping to acquire wisdom, Adam and Eve ate the forbidden fruit. *Id.* 3:6. “Then the eyes of both were opened, and they *knew*” *Id.* 3:7. (emphasis added).

24. Surah 2:35–39.

25. See STEVEN SHAPIN, *THE SCIENTIFIC REVOLUTION* 124 (1996).

26. See ROY PORTER, *THE ENLIGHTENMENT* 15 (1st ed. 1990).

27. See, e.g., C. V. WEDGWOOD, *THE THIRTY YEARS WAR* 124, 126 (1938).

28. See *id.* at 124; PORTER, *supra* note 26, at 15.

29. FREEMAN R. BUTTS, *A CULTURAL HISTORY OF WESTERN EDUCATION* 217 (1955).

30. For Protestants, the Bible was the ultimate basis of religious and moral authority. Protestants emphasized the need for each person to establish the grounds of his or her belief by reading the Bible directly. Some Protestant sects would allow individuals to interpret the Bible. *Id.* at 214–17.

31. See MARTIN LUTHER, *To the Christian Nobility of the German Nation Concerning the Reform of the Christian Estate*, in *SELECTED WRITINGS OF MARTIN LUTHER* 253, 256 (Theodore

individual acquisition of religious truth posed questions of interpretation that had once been resolved by clerical authority. Leading thinkers in the Counter-Reformation argued that Protestant theology was unable to reconcile alternative conceptions of religious truth.³² Against this backdrop, skepticism flourished.³³ Critics worried that knowledge that is purely personal and not subject to verification is hardly knowledge at all. Method—the means by which knowledge is secured—acquired great significance for the first time in many centuries.³⁴ This epistemological crisis made possible and served as the impetus for both the Scientific Revolution³⁵ and the Enlightenment.³⁶

Two schools of thought emerged in opposition to skepticism. Together, they constitute the twin pillars of the still-popular conception of the scientific method. The first is empiricism (or experimentalism): the view that “proper knowledge is and ought to be derived from direct sense experience.”³⁷ The modern era father of this approach, Francis Bacon, believed that universal principles could be uncovered through experimental observation.³⁸ While not a scientist himself (Bacon was a lawyer), Bacon was one of the leading proponents of science during the Reformation.³⁹ Bacon, and others empiricists, such as Galileo and Boyle, believed that the book of nature was

G. Tappert ed., Fortress Press 2007) (1520) (questioning various forms of Papal authority, including the sole authority of the Pope to interpret scripture).

32. See JAMES R. HACKNEY, JR., *UNDER COVER OF SCIENCE* 2 (2006).

33. See, e.g., DAVID HUME, *ENQUIRIES CONCERNING HUMAN UNDERSTANDING AND CONCERNING THE PRINCIPLES OF MORALS* 5 (L.A. Selby-Bigge & P.A. Nidditch eds., 3rd ed., Oxford Univ. Press 1999) (1777); see generally ROBERT J. FOGELIN, *HUME'S SKEPTICAL CRISIS: A TEXTUAL STUDY* 11–20 (2009).

34. See SHAPIN, *supra* note 25 at 124–25. This is also consistent with the Kuhnian sense in which a paradigm breakdown results in many competing schools of thought. See THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* 12 (3d ed., Univ. Chicago Press 1996) (1962).

35. This term, attributed to Alexandre Koyré in 1939, is contested, although widely used. See SHAPIN, *supra* note 25, at 2. While there were undoubtedly profound conceptual shifts, some question whether it is appropriate to refer to a ‘revolution,’ or a singular period of time as particularly pivotal. See *id.* at 65–69.

36. *Id.* at 69.

37. *Id.*

38. FRANCIS BACON, *THE NEW ORGANON* at XX (Lisa Jardine & Michael Silverthorne eds., 2000) (1620) (“For in the first place, the information of the senses themselves is defective and deceiving; observation is lazy, uneven and casual; teaching is empty and based on hearsay; practice is slavishly bent on results; experimental initiative is blind, unintelligent, hasty and erratic; and natural history is shallow and superficial.”); see also BUTTS, *supra* note 29, at 219 (noting Bacon published *Novum Organum*, or “New Organon,” as a new method to replace the traditional “organon,” Aristotle’s body of logical writings.).

39. BUTTS, *supra* note 29, at 218. Part of Bacon’s influence lay in his eloquent and persuasive writing style and his political influence as Lord Chancellor and Attorney General of England. *Id.*

laid open for them to read, if only they employed the proper method to decipher its text.

To guard against the dangers of undisciplined empiricism, Bacon stressed the need for the careful accumulation of observational and experimental facts in drawing causal inferences and general principles.⁴⁰ He proposed a systematic methodology of experimentation and hoped that theories would be tested against facts. This methodology was inductive, but empirically grounded.

The second school of thought, rationalism, is the view that reason alone was the source of universal and certain knowledge.⁴¹ Rationalism is associated with philosophers like Spinoza and Leibnitz, but is epitomized by Rene Descartes. Like the skeptics, Descartes distrusted observation. Having studied optical perspective, Descartes understood that the senses were apt to deceive,⁴² that “[s]ense perceptions [were] sense deceptions.”⁴³ Nonetheless, Descartes fiercely opposed skepticism. He was committed wholeheartedly to the project of acquiring reliable knowledge of the world through reason, particularly mathematical reasoning.⁴⁴

In his writings, Descartes conveyed a deep sense of foreboding, that unless he could know something with absolute certainty, his world would fall into chaos. The fear of being unable to tether existence to a foundation, to find the Archimedean point, is known as the “Cartesian Anxiety.”⁴⁵ Descartes resolved this anxiety by discovering something that he could not doubt, and would therefore know with certainty.⁴⁶

40. SHAPIN, *supra* note 25, at 92.

41. BUTTS, *supra* note 29, at 221. Rationalists believed that only human reason could attain the “real knowledge” that lies beyond everyday experience. *Id.*

42. *Id.* Chief Justice Roberts claim that he “calls balls and strikes” as he sees it would not be a cause for comfort, but without the proper foundation, a cause for concern. *See id.*

43. *See* MORRIS KLINE, *MATHEMATICS AND THE SEARCH FOR KNOWLEDGE* 21 (1986).

44. *See id.* at 7; *see also* JERROLD SEIGEL, *THE IDEA OF THE SELF* 63–64 (2005). Descartes was first and foremost a mathematician. Prefiguring Newton, Descartes believes that all “natural phenomena” could be described using mathematics of algebra and geometry, since all matter was form in motion. *Id.* at 64. Newton’s *Principia* was an attempt to express these patterns and relationships in the form of mathematical equations. *See generally* Isaac Newton, *The Principia: Mathematical Principles of Natural Philosophy* (I. Bernard Cohen & Anne Whitman trans., 1999) (1726). The difference was that Descartes did not have access to calculus, a tool that Newton had. WILLIAM DUNHAM, *THE CALCULUS GALLERY: MASTERPIECES FROM NEWTON TO LEBESGUE* 5 (2008) (“Isaac Newton is revered as the creator of calculus, . . . [H]e absorbed the work of such predecessors as René Descartes . . .”). Descartes believed that mathematical reasoning could produce certain knowledge. He hoped that all sciences could achieve the degree of certitude. HACKNEY, *supra* note 32, at 6.

45. *See* RICHARD J. BERNSTEIN, *BEYOND OBJECTIVISM AND RELATIVISM: SCIENCE, HERMENEUTICS, AND PRAXIS* 16–20 (1983).

46. Note that Descartes’ proposition was not just about how one can know, it was instead about who one is. It is both an epistemological claim and an ontological claim. *Id.*

Descartes' solution began with the claim that he could not doubt the fact that he thinks (because each doubt was also a thought). From there he formulated the famous *cogito, dubito, ergo cogito, ergo sum*: "I doubt, therefore I think, therefore I am."⁴⁷ Descartes staked his project of reliable knowledge to his certainty of his own conscious self-existence.⁴⁸ His self-existence as a thinking being became the basis of knowledge and reason. "[C]lear and distinct ideas, purified by the filter by our intellect" was knowledge that could be trusted.⁴⁹ For Descartes, mathematics was an enterprise that produced such knowledge.

The naturalistic philosophers of the Scientific Revolution widely agreed that mathematics was the most certain form of knowledge.⁵⁰ They disagreed on the scope of its application. As a young man Descartes became convinced that mathematics provided the basis for a science built on certainty, a "universal mathematics."⁵¹ If matter was simply form in motion, then the principles of algebra and geometry could describe it. In contrast to Baconian experimentalism, Cartesian rationalism is primarily deductive.⁵² In search of certain knowledge, only conclusions drawn from unquestionable premises provide confidence in their reliability. Descartes believed that mathematics provided the most reliable (or "clear and distinct") ideas from which reasoned inferences about the world might be drawn.⁵³ Accordingly, Descartes championed a mathematical view of the universe.⁵⁴ Descartes, like Hobbes and Gassendi, believed that the entire physical universe was a great machine—the clockwork universe—operating according to laws that may be discovered by human reason, particularly through mathematical reasoning.⁵⁵ This mechanical worldview, and the mathematics supporting it, applied to all physical bodies, including human beings, which might be treated as "an

47. René Descartes, *First Set of Objections*, in THE PHILOSOPHICAL WRITINGS OF DESCARTES: VOLUME II 68 (John Cottingham, William Stoothoff & Dugald Murdoch trans., Cambridge 1984) (1641).

48. In so doing, rationality claimed freedom from authority, either of traditional or political or military authority. This was a completely new ground of knowledge, and it is marked by Hegel as the beginning of modern philosophy. See SEIGEL, *supra* note 44, at 55. Seigel describes the cogito as the "sheet anchor" for Descartes' project. *Id.* at 56.

49. *Id.* at 58.

50. See SHAPIN, *supra* note 25, at 58.

51. SEIGEL, *supra* note 44, at 63–65.

52. *Id.* at 57.

53. *Id.* at 65.

54. See HACKNEY, *supra* note 32, at 6. Kepler and Galileo believed that nature was mathematical in structure—that God was a mathematician. See SHAPIN, *supra* note 25, at 58, 60.

55. KLINE, *supra* note 43, at 7; see also BUTTS, *supra* note 29, at 220.

earthen machine.”⁵⁶ Importantly, however, Descartes believed that the mind was independent of matter and free from these mechanical laws.⁵⁷

The natural philosophers of the Scientific Revolution set themselves against the ancients and their authority. They believed that one should consult the authority of “individual reason” and the evidence of “natural reality.”⁵⁸ They rejected the use of a few particulars to arrive hastily at general principles. This method began to chip away at the edifice of the Aristotelian cosmos. The discoveries of Copernicus, Kepler, and Galileo displaced the geocentric Ptolemaic model of the universe. In 1543, Nicolaus Copernicus called into question the idea that the Earth formed the immobile center of the universe.⁵⁹ Galileo’s telescopic observations, including the identification of sunspots and the moons orbiting Jupiter, in conjunction with Kepler’s description of planetary motion, lent credibility to the Copernican model while improving upon it.⁶⁰

Isaac Newton synthesized both the rationalist and experimentalist traditions into a conception of science that is now considered by most as orthodoxy.⁶¹ Although the experimentalists were fundamentally cautious, Newton fused Baconian empiricism with a newfound universal, mathematical certainty. The mechanical and mathematical view of nature fully arrived with Isaac Newton’s *Principia: Mathematical Principles of Natural Philosophy*.⁶² In its wake, the Aristotelian cosmos crumbled, and a new worldview emerged.⁶³ The product is the methodological cornerstone of the Enlightenment.

Today’s social sciences—sociology, economics, political science, psychology, anthropology—are the fruit of the Enlightenment.⁶⁴ Just as

56. SHAPIN, *supra* note 25, at 47.

57. BUTTS, *supra* note 29, at 220 (“Mind is a free agent, but matter is a machine.”).

58. SHAPIN, *supra* note 25, at 68.

59. See NICHOLAUS COPERNICUS, *ON THE REVOLUTIONS OF THE HEAVENLY SPHERES* (Charles Glenn Wallace trans., Running Press 2004) (1543).

60. See SHAPIN, *supra* note 25, at 15, 26, 59.

61. See Isaac Newton, *Rules of Reasoning in Philosophy*, in SIR ISAAC NEWTON’S *MATHEMATICAL PRINCIPLES OF NATURAL PHILOSOPHY AND HIS SYSTEM OF THE WORLD* 398–400 (Andrew Mott trans., 2003) (1686); BERNSTEIN, *supra* note 45, at 21.

62. Isaac Newton, *Principia*, in SIR ISAAC NEWTON’S *MATHEMATICAL PRINCIPLES OF NATURAL PHILOSOPHY AND HIS SYSTEM OF THE WORLD*, *supra* note 61, at 1–28.

63. It was not just the model of the solar system that had been replaced, in fact, the edifice of Greek thought, including causality, the four elements, Aristotelian forms, and their view of nature were also called into question. See SEIGEL, *supra* note 44, at 54–55.

64. See PORTER, *supra* note 26, at 21; see also I. BERNARD COHEN, *INTERACTIONS: SOME CONTACTS BETWEEN THE NATURAL SCIENCES AND THE SOCIAL SCIENCES* 19–21 (1994). Cohen, former President of the History of Science Society, suggests it was believed that social science could operate in ways comparable to the newly hegemonic natural sciences, and he explores the ways in which that borrowing occurred. *Id.*

Newton formulated fundamental laws of physics, drawing upon the work of Kepler and Galileo, Enlightenment thinkers sought to extend that paradigm—one of universal laws—into the social sciences. Confident that knowledge could improve society, these thinkers carried this formula to all of the arts and sciences.⁶⁵ This was the thrust of the Enlightenment: to craft a “science of man.”⁶⁶ David Hume, for example, was regarded as the “Newton of the moral sciences.”⁶⁷ Inspired by Newtonian ideas, John Locke sought to elaborate the laws of human nature in a scientific manner.⁶⁸ Hobbes’ *Leviathan* modeled a science of society (politics) on the new science of motion, mechanics, and new physiology.⁶⁹ Enlightenment thinkers sought to develop systemic principles for understanding the world using an epistemology of the new science.⁷⁰ Although efforts to borrow from the natural sciences failed to produce the kind of mathematical laws that Newton announced for matter in motion, the methodology and its cultural impact was profound.⁷¹ This methodological approach characterizes much of eighteenth century thought, not simply the new science of physics,⁷² became the paradigm for all to mimic.⁷³ Thus, Newton’s

65. BUTTS, *supra* note 29, at 286.

66. PORTER, *supra* note 26, at 12.

67. *Id.* at 12. Indeed, in the first sentence of Hume’s work, *An Enquiry Concerning Human Understanding*, Hume described moral philosophy as the “science of human nature.” DAVID HUME, *ENQUIRIES CONCERNING HUMAN UNDERSTANDING AND CONCERNING THE PRINCIPLES OF MORALS* 5 (L.A. Selby-Bigge & P.A. Niddich ed., 3rd ed., Oxford Univ. Press 1999) (1777). Hume wrote that historical records could function like a collection of experiments by which to deduce the principles of his science, just as a natural philosopher “becomes acquainted with the nature of plants, minerals, and other external objects, by the experiments which he forms concerning them.” *Id.* at 83–84; *see also* COHEN, *supra* note 64, at 19 (“Hume’s goal was to produce a new science of individual human moral behavior that would be equivalent to Newton’s natural philosophy.”). Hume was not alone; Hobbes, Adam Smith, Marshall, Pareto, Jevons, among others, all borrowed from classical physics in their thinking about society. Wendt, 35 (Dec. 2009) (unpublished manuscript, on file with the authors).

68. BUTTS, *supra* note 29, at 282.

69. *See* COHEN, *supra* note 64, at 118. Thus, the *Leviathan* begins with a discussion of motion and optics and proceeds to a discussion of society. *See* THOMAS HOBBS, *LEVIATHAN* (Richard Tuck ed., Oxford Univ. Press 1997) (1651).

70. Frederick Mark Gedicks, *Conservatives, Liberals, Romantics: The Persistent Quest for Certainty in Constitutional Interpretation*, 50 VAND. L. REV. 613, 625 (1997); *see also* COHEN, *supra* note 64, at 1–99, 107 (arguing that this borrowing took the forms of analogy, homologies, metaphors, and identities).

71. COHEN, *supra* note 64, at 101, 108; *see also* Wendt, *supra* note 67, at 35. Wendt argues that almost all of the metaphysical assumptions of the classical worldview, such as materialism, determinism, and atomism, were deeply ingrained in the minds of social scientists. *Id.* Importantly, Wendt suggests that social science remains ensconced in a classical worldview, and variety of reasons, never adopted the quantum shift. *Id.* at 36–37.

72. *See* ERNST CASSIRER, *THE PHILOSOPHY OF THE ENLIGHTENMENT* 7 (Fritz C. A. Koelln & James P. Pettegrove trans., Princeton Univ. Press 1951).

73. *See* HACKNEY, *supra* note 32, at 1.

epistemology is found in Voltaire's *Treatise on Metaphysics*,⁷⁴ d'Alembert's *Preliminary Discourse*,⁷⁵ and Kant's *Inquiry Concerning the Distinctness of Principles of Natural Theology and Morality*.⁷⁶ Through this methodology was erected an epistemological and ontological edifice that framed not simply the new science of the Enlightenment but the modern worldview.⁷⁷

What are these epistemological and ontological assumptions? We now turn to the grammar of the Enlightenment. Although we present these principles sequentially and as distinct assumptions or values, they should not be understood as such. Some derive from each other, but not all, and not in a consistently hierarchical or linear manner. They are better understood as nodes in a network of ideas that support and mutually reinforce each other. Additionally, we do not wish to suggest that every Enlightenment thinker subscribed to each principle or conceptualized them in exactly the same way. But on the whole, they were widely shared. Read as a set, these ideas constitute the grammar of the Enlightenment Project.

The first assumption that underpins the Enlightenment Project is the subject-object duality.⁷⁸ The scientific method was premised on the intrinsic separation of the observer and the observed, the subject and the object, the "knower" and the "known."⁷⁹ Scientists believed they could stand at a distance and observe nature, from the microscopic to the celestial.

Second, it was assumed that objectivity is possible. The "book of nature" was open for the willing and disciplined observer to read. An experiment conducted using proper method could be replicated by anyone, and the results would be the same. Thus, the objective inquirer could deduce objective truths, since those truths were independent of the scientific subject.

74. See WAYNE ANDREWS, VOLTAIRE 32-33 (1981) (discussing Voltaire's pamphlet, *Treatise on Metaphysics*).

75. See JEAN LE ROND D'ALEMBERT, PRELIMINARY DISCOURSE TO THE ENCYCLOPEDIA OF DIDEROT (Richard N. Schwab trans., Univ. Chicago Press 1995) (1751).

76. See Immanuel Kant, *Inquiry Concerning the Distinctness of the Principles of Natural Theology and Morality*, in THE CAMBRIDGE EDITION OF THE WORKS OF IMMANUEL KANT, THEORETICAL PHILOSOPHY 1775-70 243, 243-75 (David Walford & Ralf Meerbote eds., 1992).

77. The consensus was that the best route to a new science of society was to "jettison the traditional reliance on established authorities, such as Plato, Aristotle, and the scholastic 'doctors,'" just as the natural philosophers of the Scientific Revolution had done. COHEN, *supra* note 64, at 135.

78. It might be accurate to say that this dualism instantiates or structures of a host of other dualisms, which entail or follow from it. These include: fact/value, mind/body, internal/external, public/private, freedom/constraint, reason/passion, among others. Steven L. Winter, *Indeterminacy and Incommensurability in Constitutional Law*, 78 CAL. L. REV. 1441, 1450 (1990).

79. See Daniel S. Goldberg, Comment, *And the Walls Came Tumbling Down: How Classical Scientific Fallacies Undermine the Validity of Textualism and Originalism*, 39 HOUS. L. REV. 463, 468-69 (2002).

Third, it was assumed that neutrality is possible. It was believed that the act of observing, the subject's investigation of the object, does not inherently change either the object or the subject. As the metaphor of the book of nature suggests, reading the book does not change its text or meaning. The intrinsic separation between the subject and object makes neutrality possible.

Moreover, the scientific observer is presumed capable of adopting a neutral orientation to the object of investigation, meaning that they are able to render judgments impartially on the basis of a fair reading of the data. The norm of disinterestedness, that the scientist is "psychically ready to accept any truth that emerges" from their investigation gives us confidence in their findings.⁸⁰

If the production of scientific knowledge is tainted with human bias, then it cannot be said to be objective. The objective character of science can only be "secured by a method that disciplines practitioners to set aside their passions and interests in the making of scientific knowledge."⁸¹ The validity of the results of a scientific investigation depends upon the method or the procedure used to obtain them. Only the methodologically disciplined reading of the book of nature, untainted by the Baconian habits of mind, human emotions, or the "passions," allowed the discovery of such truth.⁸² By some accounts, this broad understanding of science is the major reason that the Scientific Revolution has been a critical turning point, or an "epoch that made the world modern."⁸³ Enlightenment thought viewed emotion as a threat to reason, an obstacle to logical, methodologically sound thinking. Objectivity was only possible if the observer and object of observation were separate, if emotions could be checked, and, furthermore, if the observer was neutral and disinterested.

Fourth, Enlightenment thinkers sought certainty, especially mathematical certainty. The methodology of the Scientific Revolution inspired confidence in the production of scientific knowledge. Enlightenment thinkers hoped to accommodate the new social science to this methodology, and particularly mathematics, which they viewed as the most elevated form known to science.⁸⁴ Consequently, they hoped that their experiments and critical observations would be quantifiable. For example, the economist Léon Walras sought to devise a Newtonian law of price, i.e., "the price of things is in inverse ratio to the quantity offered and in direct ratio to the quantity demanded."⁸⁵ By

80. IMMANUEL WALLERSTEIN, *THE UNCERTAINTIES OF KNOWLEDGE (POLITICS, HISTORY, AND SOCIAL CHANGE)* 11 (2004).

81. *Id.* at 162.

82. See HACKNEY, *supra* note 32, at 7–8 (listing the idols that afflict the human mind to prevent understanding).

83. SHAPIN, *supra* note 25, at 162.

84. See COHEN, *supra* note 64, at 101, 108.

85. *Id.* at 17–18.

mathematizing the relationships of man and society, Enlightenment thinkers aspired to scientific certainty.

Fifth, the Enlightenment was universalist and sought to discover laws that were universally true. Although the early experimentalists of the Scientific Revolution were more cautious and tentative in advancing universal truth claims, the deductive tradition of the Cartesians had no such apprehensions. The deductive formula depended upon universal axioms. Newtonian science fused both traditions but elevated the idea of universal laws and objective truth in the process.⁸⁶ The principles of objectivity and certainty entail universality. Enlightenment thinkers set upon a quest to discover the universal laws of man with enthusiasm using the epistemology of the Scientific Revolution.

Sixth, the Enlightenment projected a mechanical worldview and employed a reductionist logic. Reductionism is the idea that things can be understood by breaking them down into component parts.⁸⁷ For example, matter can be reduced to atoms. The mechanical universe can be reduced to motion and objects. This view of the world was inspired by the prevalent imagery of a clock. Since the fourteenth century, clocks of varying sizes and complexity were commonplace in Europe. The increasing complexity of these machines provided a perfect metaphor for explaining natural processes.⁸⁸ Not only was the universe supposed to be like a machine, operating according to discernible principles and defined relationships, and the creator the great clockmaker, but physical bodies, including living organisms, were frequently described in mechanical terms.

The mechanistic metaphor, and the reductionist logic that accompanied it, was readily applied by Enlightenment thinkers to the state and society. In *Leviathan*, Hobbes describes the state as “an Artificial Animal.”⁸⁹ While analogizing the human body to a machine,⁹⁰ Hobbes then assumes that the social aggregate of human bodies, the body politic, can also be described in mechanical terms.⁹¹

86. Even still, the idea of objective truths through observation was not new. Epicurus held that there is an ultimate reality that our sense may guide us to understanding. See KLINE, *supra* note 43, at 4. The Greek writer Parmenides also popularized the subject-object duality as a way of discovering truths about the world, untainted by human biases or traditions. See Goldberg, *supra* note 79, at 468.

87. See generally RICHARD H. JONES, REDUCTIONISM: ANALYSIS AND FULLNESS OF REALITY 13–36 (2000) (describing the theory of reductionism and distinguishing its primary types).

88. See SHAPIN, *supra* note 25, at 32–33.

89. *Id.*; see COHEN, *supra* note 64, at 122.

90. HOBBS, *supra* note 69, at 7; see COHEN, *supra* note 64, at 120.

91. HOBBS, *supra* note 69, at 7.

Seventh, the Enlightenment put its “faith in reason.”⁹² It assumed that reason would unlock the secrets of the universe, and that its scope of application was limitless. The universe and all reality were merely “virgin territory” awaiting the penetrating mind of the enlightened observer, whose ultimate product—knowledge—would give “mankind command over that territory.”⁹³ It was through reason, particularly mathematical reasoning, that certainty—confidence regarding that knowledge—was attainable.

Understandably, the early Enlightenment is sometimes known as the Age of Reason.⁹⁴ Reason was the force that produced certainty, or perfect knowledge, because reason contained the capacity for knowing and ordering the world.⁹⁵ Some, like Descartes and Kant, believed this ordering could be done a priori, before or prior to experience.⁹⁶ For most of the eighteenth century Enlightenment *philosophes*, however, reason was the tool that made sense of empirical data. In view of those thinkers, as well as those who believed “pure reason” was separate and independent of reality, reason was a dynamic force, an “energy” that analyzes and synthesizes.⁹⁷ In contrast, the “passions” were regarded as a distinct, opposing force that blinded and concealed. Regardless of the extent to which the Enlightenment may be described as the “Age of Reason,”⁹⁸ Enlightenment thinkers sharply distinguished between rationality and emotion, privileging the former and disparaging the latter.

Eighth, Enlightenment philosophers, beginning with Descartes, instantiated a mind–body dualism. Enlightenment thought distinguished between mind and matter: we enjoy direct access to the internal, the content of our thoughts, that we lack for the external, prompting investigation and experimentation as a way of knowing the latter. Building upon this insight, Descartes divided the world unconditionally between mind and body, arguing that the world contains two qualitatively different realms, that of matter and that of mind.⁹⁹ According to Descartes, the mind that thinks is “an immaterial substance, and has nothing bodily to do with it.” The separability of reason from emotions, and the elevation of reason over the “passions,” corresponded to the separation of the mind and the body, and the mind’s hierarchical position over matter.

92. GEORGE SOROS, *THE AGE OF FALLIBILITY: THE CONSEQUENCES OF THE WAR ON TERROR* 93–94 (2006).

93. *Id.* at 94.

94. DAVID E. COOPER, *WORLD PHILOSOPHIES: A HISTORICAL INTRODUCTION* 247 (2002).

95. powell, *The Multiple Self*, *supra* note 11, at 1487.

96. Kant believed that there existed categories in the mind which all rational beings have. See BUTTS, *supra* note 29, at 285. These are transcendental categories. *Id.*

97. CASSIRER, *supra* note 72, at 13.

98. Porter suggests that the label “Age of Reason” is deeply misleading. PORTER, *supra* note 26, at 2–3.

99. SEIGEL, *supra* note 44, at 57.

Ninth, Enlightenment thinkers conceptually distinguished between man and nature in several important ways. Aristotelian teleology did not distinguish between human ends and natural ends, but was an integrated understanding of both human and natural processes.¹⁰⁰ The rejection of teleology by seventeenth-century mechanical philosophers reflected the view that human ends differed fundamentally from natural processes. First, the separation of man and nature was a logical corollary to the subject-object dualism (and the mind-body dualism). From this perspective, man is the scientific observer, and nature is the object of scientific investigation, to be revealed through human experimentation and observation.¹⁰¹ Nature is not only independent of experimental practices, it is also conceptually distinct. Second, as the object of scientific investigation, nature is not only the object of our inquiry, but of our control.¹⁰² Near the end of his *Discourse*, Descartes wrote of making men “masters and possessors of nature.”¹⁰³ Enlightenment writers lauded the goal of knowledge for its own sake, but also for the practical ends such knowledge might serve.¹⁰⁴ Third, Enlightenment writers repeatedly posited the idea of a ‘state of nature,’ in which they described the “natural condition” of man in a pre-political condition.¹⁰⁵ Enlightenment thinkers differed in their view of what defined the “natural condition,” but they all proceeded from the assumption that there was one.

Finally, the Enlightenment Project is grounded in a particular conception of the self: the rational, separate autonomous individual. This conception of the self is perhaps the most enduring legacy of the Enlightenment Project. Virtually all of the assumptions of Enlightenment epistemology and ontology converge toward it. The subject-object duality marks a separation between things, human and “natural.”¹⁰⁶ As this division is inscribed, the Cartesian ego—the immaterial, reflective self embodied in the *cogito*—arrives, which separates and then privileges mind over body, and then reason over emotion.¹⁰⁷ The fundamental impetus for the scientific method is the lack of privileged

100. See SHAPIN, *supra* note 25, at 163; MONTE RANSOME JOHNSON, ARISTOTLE ON TELEOLOGY 4 (“Aristotle’s teleology can change the way we view and relate to other natural entities. Aristotle define nature as an internal principle of change, and as an end. He shows us how ends and goods can and must enter into scientific explanations. Every natural substance is an end, and is identified as the beneficiary of its own parts and motions.”).

101. See BARAD, *supra* note 12, at 41. Hence, the ‘book of nature’ metaphor.

102. This feature of enlightenment thought is among the main criticisms that Adorno and Horkheimer level at the enlightenment. See *supra* note 13 and accompanying text.

103. RENÉ DESCARTES, DISCOURSE ON THE METHOD 35 (Donald A. Cress trans., 3d ed. Hacking Publishing Co. 1998) (1637).

104. One example is the development of new technologies or superior methods.

105. This concept was used by Locke, Montesquieu, Rousseau, Hobbes, and Hume, but most notably by Hobbes and Locke.

106. See *supra* notes 73–75 and accompanying text.

107. See *supra* notes 73–80 and accompanying text.

access to the external world, as compared to the special access we have to our own internal space, which supposedly provides transparent insight into our intentions, motives, and thoughts.

John Locke is one of the most influential Enlightenment philosophers, and his *tabula rasa* is perhaps as consequential as the Cartesian split for birthing the modern, autonomous self. Like his compatriots Bacon and Hooke, Locke was fundamentally an experimentalist, devoted to the empirical approach of the Royal Society, and firmly opposed to scholasticism and teleology.¹⁰⁸ Like Descartes and Newton, Locke embodied the rationalist tradition; he believed that people might use reason to examine their beliefs and opinions.¹⁰⁹ The foundation of Locke's view of the self was his conception of the *tabula rasa*, the premise that the mind is a blank slate and, therefore, that there are no "innate ideas."¹¹⁰ Consequently, the self is stripped of essence and is now a product of one's own making.¹¹¹ Not only does this autonomous, rational self emerge from the Enlightenment; importantly, it emerges at a moment in which its anxiety is most acute. The pre-modern self was embedded in the cosmic structure.¹¹² The Ptolemaic worldview, particularly as it was constructed through Aristotelian physics and medieval Scholasticism,¹¹³ posited a cosmos organized according to principles of moral and anthropomorphic significance.¹¹⁴ The Copernican revolution did more than simply discredit Ptolemy's map of the solar system; it toppled Aristotelian teleology and Platonic theory.¹¹⁵ The mechanical universe, particularly the one described by Deists, suggested a different universal order.

According to Deism, popular among many Enlightenment thinkers, including Thomas Jefferson, the universe is a great machine operating according to natural laws conceived and put in place by God, the great

108. See SEIGEL, *supra* note 44, at 88.

109. *Id.* at 109 ("That there is something in us, that has a Power to think: But whether that Substance perpetually thinks, or no, we can be no farther assured, than Experience informs us. For to say, that actual thinking is essential to the Soul, and inseperable from it, is to beg, what is in Question, and not to prove it by Reason; which is necessary to be done, if it be not a self-evident Proposition.").

110. The first Book of Locke's *Essay* is dedicated to dispelling the notion of "innate ideas." See JOHN LOCKE, AN ESSAY CONCERNING HUMAN UNDERSTANDING 43–104 (Peter H. Nidditch ed., Oxford Univ. Press 1975) (1689).

111. Another element of the modern self is a unity of consciousness. The defining feature of the self, for Locke, was consciousness, which established both personal continuity and separation from others. See SEIGEL, *supra* note 44, at 95.

112. See *infra* notes 326–404 and accompanying text.

113. Scholasticism was a revival of Aristotelian philosophy developed by Saint Thomas Aquinas and taught in medieval universities. See SHAPIN, *supra* note 25, at 17 n.1.

114. Shapin, *supra* note 25, at 20–24; Siegel, *supra* note 9, at 52.

115. See SEIGEL, *supra* note 44, at 46–52; SHAPIN, *supra* note 25, at 20–30.

clockmaker.¹¹⁶ But once in operation, the clockmaker no longer interferes.¹¹⁷ This universe distanced the creator from humanity, and removed God from everyday life so that God became less relevant to social or scientific knowledge.¹¹⁸ It produced a “disenchanted world,” a cold, lonely, and remote place, where magic, myth and God were replaced by reason and science.¹¹⁹ In that sense, the “Cartesian ego,” or the modern reflective self, arrives precisely at the moment when “its subjection to worldly confusion and uncertainty seems most complete.”¹²⁰ With a few notable exceptions, little attention has been paid to the anxiety and fear generated by the self in the world.¹²¹

The Enlightenment Project’s aspiration of perfect knowledge suggests the possibility of light without darkness. Other contend that the brighter the light, the darker the shadow.¹²² Through enlightenment we became strangers in a strange land. Mankind moved out a state of nature to a cool, hostile world. This engendered the Hobbesian fear of others, which, in a war of all against all, is the basis for the *Leviathan* state. Nature needed to be conquered and bent to man’s will so that a home could be safely made.¹²³ Enlightenment birthed a radical separation of the self from God, the cosmos, other men and even one’s

116. BUTTS, *supra* note 29, at 282.

117. *Id.*

118. *See id.* (noting deists only accepted what scientific investigation, mathematical description, and human reason could accept and describe as the cause of something that interfered with nature).

119. MAX WEBER, *THE PROTESTANT ETHIC AND THE SPIRIT OF CAPITALISM* 60, 95 (Stephen Kalberg trans., 2002) (1930). It is little wonder that both the Catholic and Protestant churches in large part opposed the implications of the new science. This worldview also forecloses man’s return to Eden because there was no Eden, just a cool universe without man at the center.

120. SEIGEL, *supra* note 44, at 9.

121. *See* DAVID LOY, *A BUDDHIST HISTORY OF THE WEST* 20 (2002); *see generally* ERNST BECKER, *THE DENIAL OF DEATH* (First Free Press 1997) (1973). There are certainly other projects that challenge the Enlightenment Project and goal. Much of the work about the anxiety and fear associated with the modern self is from Freud and his progeny. *See* BECKER, *supra*, at 101–05. The role of the unconscious and repressed would be a serious challenge to the enlightenment aspiration of certainty, unity, and transparency. In fact, it is the work of Freud that has laid the foundation for neuropsychology and the work related to implicit bias that will be discussed below. But much of society, and certainly law, has largely ignored the teaching of Freud, or bracketed it. Consider, for example, the role of intent in law. *See* Charles Lawrence III, *The Id, The Ego, and Equal Protection: Reckoning with Unconscious Racism*, 39 STAN. L. REV. 317 (1987).

122. C.G. JUNG, *THE SYMBOLIC LIFE: MISCELLANEOUS WRITINGS* 318 (R.F.C. Hull trans., Princeton U. Press 1976) (1953).

123. Of course, not everyone embraced this separate worldview. But those who rejected it were dismissed as irrational or suspect members of the political community.

own body. The Enlightenment Project then not only put humanity at war with nature and each other, but also with oneself.¹²⁴

II. ENLIGHTENMENT JURISPRUDENCE

When in the Course of human events it becomes necessary for one people to dissolve the political bands which have connected them with another and to assume among the powers of the earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

- The Declaration of Independence.¹²⁵

We live in a world shaped by the ambitious Enlightenment Project. It is the foundation of modern, western society. It concerns how we know and who we are. The epistemological and ontological assumptions and practices of the Enlightenment affect what counts as knowledge, the way we think, and how we organize ourselves in society. We will now explore how this project has manifested in law.

In this section we will connect Anglo-American law, and American constitutional law in particular, to the Enlightenment. Part A will discuss the development of natural law theories by Bacon, Grotius, and Leibniz, as attempt to create a scientific basis for law. Part B will attempt to demonstrate how these principles were put into practice in constitutional law and other areas. Specifically, we will discuss the influence of Montesquieu, Locke and other Enlightenment thinkers on the American Revolution. Part C will examine the extent to which Enlightenment assumptions remain embedded in contemporary law.

A. *Anglo-American Law and the Enlightenment*

Many of the naturalistic philosophers of the scientific revolution and early Enlightenment were leading jurists. Sir Francis Bacon was not only a luminary and popularizer of the new science, he was the Attorney General and Lord Chancellor of England.¹²⁶ His ideas were influential in English legal theory and, by extension, American legal theory.¹²⁷ Bacon argued that employing empirical approaches to derive particular laws would make it more

124. This is an important insight. To the extent it is accurate it means that Enlightenment Project is not just hostile to nature, to women, or "the other," but especially those who are not independent, but oneself. john a. powell, *Dreaming of a Self Beyond Whiteness and Isolation*, 18 WASH. U. J.L. & POL'Y 13, 36 (2005).

125. THE DECLARATION OF INDEPENDENCE para. 1 (U.S. 1776).

126. *Id.*

127. HACKNEY, *supra* note 32, at 14.

scientific.¹²⁸ Bacon and other Enlightenment jurists believed that legal theory, the intellectual underpinning of law, is a scientific pursuit, and that law should be framed in scientific terms.¹²⁹ Modern jurisprudence may be understood as an attempt to make the law more scientific.¹³⁰ By scientific, it is supposed that the law may possess objectivity, universality, and logical rigor, even deductive entailment.¹³¹

Another influential thinker was the great Dutch jurist, Hugo Grotius. By some accounts, Grotius achieved similar feats in the law as Galileo had accomplished in natural science. Grotius argued that the problem of law arises from a correlation between ethics and logic, and therefore mathematics.¹³² He believed that you could begin with fundamental, universal principles and reason outward.¹³³ In his treatise, *De Jure Belli ac Pacis*, or, *Law of War and Peace*, Grotius borrowed Galilean mathematical physics.¹³⁴ The mathematical treatment of law as a system of universal principles becomes fully realized in the doctrine of natural law.¹³⁵

The doctrine of natural law, which originates with Grotius, underwent systemic justification and elaboration, especially in the philosophy of law of German idealism in the works of Leibniz and Wolff.¹³⁶ Leibniz, another major

128. *Id.* at xiii.

129. *Id.*

130. Goldberg, *supra* note 79, at 467.

131. See John Veillieux, Note, *The Scientific Model in Law*, 75 GEO. L.J. 1967, 1967 n.1 (1987). "Objectivity in legal theory implies the existence of non-controversial, consensus-based norms that . . . can be articulated by neutral observers, be they jurists or theorists." HACKNEY, *supra* note 32, at xiii–xiv.

132. CASSIRER, *supra* note 72, at 236.

133. See COHEN, *supra* note 64, at 109.

134. See HUGO GROTIUS, *THE RIGHTS OF WAR AND PEACE* (A. C. Campbell trans., M. Walter Dunne 1901) (1625), available at http://books.google.com/books/download/The_rights_of_war_and_peace.pdf?id=bOwuAAAAMAAJ&output=pdf&sig=ACfU3U17gRLOEkxz5SD0L04OzuCB-F98LQ&source=gbs_v2_summary_r&cad=0. Grotius greatly admired Galileo, and he expressed as much in letters to the astronomer. COHEN, *supra* note 64, at 108.

135. In his view, much like science and the social sciences, law had to overcome two obstacles. First, it had to extricate itself intellectually from theology. Grotius famously stated, "[T]he propositions of natural law would retain their validity even if one were to assume that there was no God or that the Deity was not concerned with human things." CASSIRER, *supra* note 72, at 240 (citing HUGO GROTIUS, *DE JURE BELLI AC PACIS*, Prolegomena, sect. XI). Second, law must be protected from state absolutism, the *Leviathan* State. See *id.* at 238. This is prefigured the idea of "division of powers," articulated by Montesquieu's *The Spirit of Laws*, see *id.* at 21, and later embodied in the American Constitution. The "separation of powers" notion is somewhat overstated in the American context, especially in the division of the judiciary, executive, and legislative, since the founders did not intend the judiciary to function as a check on the other two branches of government. See *THE FEDERALIST* NOS. 47, 51 (James Madison). Nonetheless, the separation of powers is visible in the U.S. Constitution.

136. CASSIRER, *supra* note 72, at 237.

Enlightenment thinker, was trained as a lawyer and authored legal texts.¹³⁷ He argued that the law must also mimic mathematics and follow the deductive method.¹³⁸ But what are the first principles of deduction? In view of these thinkers, they included natural law rights, among which were security, property, equality, and participation in government. According to the French mathematician and polymath Condorcet, the free states of America were the first to bring these ideas to action.¹³⁹

Interestingly, even the empiricists of the Enlightenment held fast to the belief in universally valid legal norms.¹⁴⁰ Against Locke's proof that there are no innate ideas, Voltaire contended that this does not mean that there are no universal principles of morality:¹⁴¹ "Nature is always in harmony with itself."¹⁴² The laws of nature reveal fundamental principles, and so there are fundamental laws of morality."¹⁴³ Rather, these principles, much like the laws of nature that Newton advanced, were to be discovered and articulated. From this perspective, Natural Law was formulated as an objective and scientific basis of law.

B. *Enlightenment and the American Revolution*

America was built in the eighteenth century on grand Enlightenment principles, especially that of Natural Law.¹⁴⁴ At the time of the colonial rebellion in North America, the Enlightenment was at the height of its influence.¹⁴⁵ The leading thinkers of the Enlightenment hoped that the American Revolution might put into practice the ideas that had evolved and emerged over the previous century in Europe.¹⁴⁶ In fact, Enlightenment was the "idiom of the rebellion."¹⁴⁷ Its leaders were either students or colonial contemporaries of the European *philosophes*.¹⁴⁸ Benjamin Franklin was not

137. See HACKNEY, *supra* note 32, at 15.

138. *Id.*

139. CASSIRER, *supra* note 73, at 236.

140. See CASSIRER, *supra* note 72, at 235.

141. See *id.* at 244.

142. *Id.* at 245.

143. See *id.*

144. LAKOFF *supra* note 20, at 6. Lakoff sketches out how these principles were put to practice, starting with the capacity for reason. See *id.* at 6–7. If we can reason, then we can govern ourselves. *Id.* And therefore, the best form of government is democracy. *Id.* This is also the basis for the separation between church and state. *Id.*

145. See PETER GAY, *THE ENLIGHTENMENT: AN INTERPRETATION: THE SCIENCE OF FREEDOM* 555 (1969). Peter Gay points out that the "philosophes" (the leading thinkers of the enlightenment) had high hopes that the "science of freedom" would be applied during and after the American Revolution, although these thinkers were in their golden years. *Id.*

146. LAKOFF, *supra* note 20, at 6.

147. See PORTER, *supra* note 26, at 58.

148. See GAY, *supra* note 145, at 555.

only heralded by Enlightenment thinkers as a great philosopher of the age and praised in the world of the European salon, but he was an Enlightenment *philosophe* in his own right.¹⁴⁹ David Hume wrote of Benjamin Franklin: “I am very sorry . . . that you intend soon to leave our hemisphere. America has sent us many good things, gold, silver, sugar, tobacco, indigo, etc.; but you are the first philosopher, and indeed the first great man of letters, for whom we are beholden to her.”¹⁵⁰ Franklin was also a practical scientist, an experimentalist, and a “man of the laboratory who did his duty as a citizen.”¹⁵¹ European voices such as Voltaire, Hume, Condorcet, and Diderot believed the Enlightenment could be put into practice through Franklin.¹⁵² The hopes of these aging philosophers would soon come to pass.

The American Revolution transformed America from an importer of Enlightenment ideas to an exporter of Enlightenment practice.¹⁵³ Thomas Jefferson, no less, was a great student of the Enlightenment.¹⁵⁴ Jefferson “worshipped” Bacon, Newton and Locke.¹⁵⁵ The Declaration of Independence, authored by Jefferson, is imbued with Enlightenment ideas and principles of Natural Law.¹⁵⁶ In its opening sentence, the Declaration draws its authority from the “Laws of Nature and of Nature’s God”¹⁵⁷ and asserts the ideal of “life, liberty, and the pursuit of happiness.”¹⁵⁸ Moreover, these laws

149. GAY, *supra* note 145, at 555. David Hume wrote of Benjamin Franklin: “I am very sorry . . . that you intend soon to leave our hemisphere. America has sent us many good things, gold, silver, sugar, tobacco, indigo, etc.; but you are the first philosopher, and indeed the first great man of letters, for whom we are beholden to her.” *Id.* at 556 (quoting letter from David Hume to Benjamin Franklin (May 10, 1762)).

150. *Id.* at 556 (quoting letter from David Hume to Benjamin Franklin (May 10, 1762)).

151. *Id.* at 557–58.

152. *Id.* at 556–57 (“The elevation of Benjamin Franklin to mythical status was eminently useful to those who wished the Enlightenment well, for it supported their claim to a practicality that its critics had often refused to grant.”).

153. *Id.* at 558.

154. *See id.* at 559–60; *see also* John D. Bessler, *Revisiting Beccaria’s Vision: The Enlightenment, America’s Death Penalty, and the Abolition Movement*, 4 N.W. J. L. & SOC. POL. 195, 321 (2009) (including Jefferson as an Enlightenment thinker); BUTTS *supra* note 30, at 268 (“The middle-class constitutionalism of Locke and Montesquieu was taken up by such men as Hamilton in America and the democratic humanitarianism of Rousseau by such men as Jefferson.”).

155. GAY, *supra* note 145, at 560.

156. Geoffrey R. Stone, *The World of the Framers: A Christian Nation?*, 56 U.C.L.A. L. REV. 1, 13 (2008).

157. *Id.* This is not just a reference to natural law theory, but also a reference to the Newtonian clockmaker.

158. THE DECLARATION OF INDEPENDENCE paras. 1–2 (U.S. 1776).

are set against the laws of man, even Kings.¹⁵⁹ In the next sentence, the Declaration describes these rights as “unalienable.”¹⁶⁰ James Madison and Alexander Hamilton were also students and adherents to the European Enlightenment.¹⁶¹ Even George Washington extolled the application of Enlightenment principles in June 1783, declaring that they constituted “the foundation of our Empire”¹⁶² The founding fathers of the United States, many of whom were leaders or students of the Enlightenment, had a “unique opportunity to set up an enlightened polity from scratch.”¹⁶³

But it was not simply American political elites who celebrated the “new science of man.” Enlightenment ideas also entered mainstream of American thought.¹⁶⁴ Pamphleteers, preachers, and authors frequently invoked Enlightenment ideas and referenced Enlightenment writings from Locke to Montesquieu expecting the audience would be familiar with the source.¹⁶⁵ Addressed to the public, the *Federalist Papers* are considered a classic work of the Enlightenment, on par with Rousseau’s *The Social Contract*.¹⁶⁶ For the writers of the *Federalist Papers*, the “science of man” is “the systematic explanation of history and experience together, and the science of politics [is] their systematic utilization.”¹⁶⁷ From this perspective, government is the institutional arrangement that mediates man’s nature and encourages service for the common good.¹⁶⁸ To this end, government must rest on scientific principles to control man’s vices and bring out his virtues. The solution was a “vigorous government not to stifle, but to protect liberty[:]” a system “that will guard the passions of individuals for the sake of order and guard the guardians for the sake of freedom.”¹⁶⁹ That the new “science of man” embedded in the American Revolution was rooted in the science of Bacon and Newton is evident not just from its intellectual origins, but from its rhetoric as well. The author “Publius” repeatedly used the word “experiment” to describe the new American government—and not merely as a description of the unprecedented nature of the endeavor, but as “self-praise” and as boast.¹⁷⁰

159. *Id.* para. 1 (“The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute tyranny over these states.”).

160. *Id.* para. 1.

161. *Id.*

162. *Id.* at 560–61.

163. PORTER, *supra* note 26, at 58.

164. *See* GAY, *supra* note 145, at 562–63.

165. *Id.*

166. *Id.* at 563.

167. *Id.* at 564. For an elaboration of how the *Federalist Papers* are a great Enlightenment tract see *id.* at 563–65.

168. *Id.* at 564–66.

169. GAY, *supra* note 145, at 566.

170. *Id.*

Against this backdrop, it is hardly surprising that the Constitution of 1787 was frequently described in Newtonian terms, with “carefully counterpoised forces and counterforces . . . checks and balances.”¹⁷¹ Montesquieu believed that “mixed government” was a safeguard against despotism.¹⁷² As practiced by Enlightenment thinkers, the mixed government safeguard rested on the Newtonian paradigm of “clockwork precision” and oppositional forces.

It was not simply the founding documents that were drafted under the influence of the Enlightenment. The common law was caught in its sweep as well, primarily through the work of the famous English jurist Sir William Blackstone. Blackstone’s *Commentaries* are an “[Anglo-]American application of Leibniz’s scientific method.”¹⁷³ *Commentaries* are a four-volume set of legal treatises written in the late eighteenth century that aim “to systematize English common law.”¹⁷⁴ It is “the first attempt to distill English common law in a comprehensive way.”¹⁷⁵ In the words of one commentator, Blackstone was “‘doing for the English legal system what Newton had done for the physical world.’”¹⁷⁶ The “natural laws” Blackstone set out were “analogous to Newton’s laws of motion.”¹⁷⁷ From these principles, particular legal rules were deduced.¹⁷⁸ “In antebellum America, Blackstone’s *Commentaries* were akin to a legal bible.”¹⁷⁹ It inspired “Americanized” versions of the same approach, and subsequent jurists, such as Kent and Story, modeled their own treatises on *Commentaries*.¹⁸⁰ Today, treatises, restatements, and encyclopedias are the modern form of this systematic classification. In the nineteenth century, legal theorist and philosopher Jeremy Bentham “attempted to create comprehensive systems of law[.]” even offering to codify the law of the United States.¹⁸¹

171. Tribe, *supra* note 19, at 3. Note that the checks and balances idea frequently used today is overstated: “‘classical constitutional thought was strongly influenced by Newtonian paradigms of clockwork precision.’” Goldberg, *supra* note 79, at 470 n. 41 (quoting Glenn Harlan Reynolds, *Chaos and the Court*, 91 COLUM. L. REV. 110, 110 (1991)).

172. Martin S. Flaherty, *Relearning Founding Lessons: The Removal Power and Joint Accountability*, 47 CASE W. RES. L. REV. 1563, 1583 (1997).

173. See HACKNEY, *supra* note 32, at 15 (analogizing Blackstone’s work to Leibniz’s deductive scientific method).

174. *Id.* at 16.

175. *Id.*

176. *Id.* (quoting DANIEL J. BOORSTIN, *THE MYSTERIOUS SCIENCE OF THE LAW* 12 (1941)).

177. *Id.*

178. See HACKNEY, *supra* note 32, at 15.

179. *Id.* at 19.

180. *Id.* at 20.

181. See Veillieux, *supra* note 131, at 1973–74. President James Madison turned him down. *Id.* at n. 40.

C. *Enlightenment Assumptions in Contemporary Law*

The legacy of Newtonian science and the Enlightenment philosophy borne out of it pervade American jurisprudence.¹⁸² It is beyond our capacity and the space provided here to fully demonstrate the operation of Enlightenment assumptions in law. Instead, we will highlight substantive areas and modes of law in which these assumptions are salient.

Both the common law and the case law method are examples of Enlightenment epistemology. The common law, by reasoning and deriving rules from consensual principles based on a methodology of analogy and inference, deductive or inductive, is viewed as “conforming to scientific dictates.”¹⁸³ It is understood to be objective, neutral, and universalist. “Objectivity in legal theory implies the existence of non-controversial, consensus-based norms that . . . can be articulated by neutral observers, be they jurists or theorists.”¹⁸⁴ In the 1870s, Harvard Law School Dean Christopher Langdell built the paradigmatic legal educational program around this model of science.¹⁸⁵

Like Francis Bacon, it was Langdell’s premise that the law was, ultimately, a scientific search for truth in the same way that physics was a search for universal truths.¹⁸⁶ To Langdell, legal truth was a subcategory of scientific truth. He believed that these truths could be derived through deduction.¹⁸⁷ For this reason, Langdell sought to develop a law curriculum based upon a chronological series of English common law cases from which students and professors could collectively discover the true legal rules.¹⁸⁸ For him, “there existed a handful of permanent, unchanging, indispensable principles of law imperfectly embodied in the many thousands of published judicial opinions, and . . . the goal of legal reasoning was to penetrate the opinions to the principles.”¹⁸⁹ In other words, the cases collected in Langdell’s revolutionary casebooks were data points from which legal–scientific principles could be derived by apprentice lawyers. Grant Gilmore writes: “The Langdellians sought, with considerable success, to formulate theories which would cover

182. See Morton J. Horwitz, *Law and Economics: Science or Politics?*, 8 HOFSTRA L. REV. 905, 905 (1980) (“For more than one hundred and fifty years, the slogan, ‘law is a science’ has dominated American legal thought.”).

183. HACKNEY, *supra* note 32, at xvii.

184. *Id.* at xiii–xiv.

185. See Joan C. Williams, *supra* note 6, at 429–30; see also Winter, *supra* note 78, at 1455.

186. GRANT GILMORE, *THE AGES OF AMERICAN LAW* 42 (1977) (“[A]ll the available materials of [the law] are contained in printed books [T]he library is . . . to us all that the laboratories of the university are to the chemists and physicists” (quoting Professor Langell, Harvard Celebration Speech (Nov. 5, 1887), in 3 L. Q. REV. 118, 124 (1887))).

187. *Id.* at 42.

188. *Id.* at 47–48.

189. RICHARD A. POSNER, *THE PROBLEMS OF JURISPRUDENCE* 15 (1990).

broad areas of the common law and reduce an unruly diversity to a manageable unity.”¹⁹⁰ The Langdellian case method is the dominant mode of instruction in contemporary law schools.¹⁹¹

American administrative law is strongly influenced by the Enlightenment logic of reductionism, of atomizing wholes into smaller and smaller parts.¹⁹² The fragmentation of decision-making authority is an Enlightenment feature of the U.S. Constitution, and the federalist structure fosters further division of power. The growth of the administrative state produced a manifold increase in the reductionist tendency, as Congress delegates more and more decision-making authority to federal agencies.¹⁹³ These agencies are atomized into discrete units with specific missions, such that we have “agencies to handle ‘environmental’ issues, some for ‘housing’ issues, others for ‘civil rights,’ and so on”¹⁹⁴ The authority of these agencies has been insulated by the standards of review set by Congress and the Courts.¹⁹⁵ The reductionist tendency is deeply entrenched in American law.

Few substantive areas of law are free from Enlightenment thought. For instance, despite the various attempts at reform—such as the Model Penal Code—criminal law remains embedded in its common law origins and, therefore, deeply informed by Enlightenment precepts.¹⁹⁶ In particular, the Enlightenment brought mens rea into criminal jurisprudence. Beyond merely causing harm by a bad act, the commission of a crime requires a guilty state of mind.¹⁹⁷ As early as 1644, Sir Edward Coke’s *Institutes of the Laws of*

190. GILMORE, *supra* note 186, at 43.

191. See Ruta K. Stropus, *Mend It, Bend It, and Extend It: The Fate of the Traditional Law School Methodology in the 21st Century*, 27 LOY. U. CHI. L.J. 449, 456 (1996).

192. J. B. Ruhl, *Complexity Theory as a Paradigm for the Dynamical Law-and-Society System: A Wake-Up Call for Legal Reductionism and the Modern Administrative State*, 45 DUKE L.J. 849, 896 (1996).

(American legal theory has evolved along the same reductionist path that characterizes classical science. The fixation of legal theorists on predictable and “correct” static outcomes has led naturally to a way of thinking that mirrors classical scientific thought. Legal theorists for a long time have pursued a Theory of Everything to explain the law-and-society system and, like classical science, have produced theories of law relying on voluminous, abstract, general principles that pull the theory ever deeper into the fallacies of reductionism).

193. See Gary Lawson, *The Rise and Rise of the Administrative State*, 107 HARV. L. REV. 1231 (1994).

194. Ruhl, *supra* note 192, at 909.

195. The Administrative Procedures Act and the Chevron doctrine are constraints that limit the ability of Courts or the Congress to reverse agency action. See *id.* at 910; *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837 (1983).

196. See, e.g., *Carter v. United States*, 530 U.S. 255, 277 (2000) (Ginsburg, J., dissenting) (noting the common law origin of American criminal law).

197. Wayne R. LaFare, *Criminal Law* (4th ed. 2008).

England included the maxim *actus reum non facit nisi men sit rea*,¹⁹⁸ which means “an individual cannot be convicted of a criminal offense unless he had a guilty mind.”¹⁹⁹ Likewise, Blackstone recorded the need for a “vi[c]ious will” before a crime was recognized.²⁰⁰ Today, criminal theorists channel the work of Blackstone, Beccaria, and Coke through the “personhood” or “autonomy” theory of culpability, such that the defendant must have “the substantial capacity and fair opportunity to: (1) understand the pertinent facts relating to his conduct; (2) appreciate that his conduct violates society’s moral or legal norms; and (3) conform his conduct to the law.”²⁰¹ This is because the theory of blame and punishment continues to rest on notions of free choice by autonomous, rational actors.²⁰² The heat of the passion “defense” is another application of this theory of culpability, and it reflects the Enlightenment ordering of reason over the “passions.”²⁰³

Criminal law’s common law sibling, tort law, is no less enthralled with Enlightenment precepts. Torts that fall under the negligence scheme have an elemental structure similar to that of criminal law.²⁰⁴ When analyzing the duty of care, most negligence schemes hold the duty to be that of the “reasonably prudent person,” a fictitious person embodying an idealized version of the careful everyman.²⁰⁵ Ostensibly, the hypothetical reasonably prudent person aids the fact finder in determining where the defendant stands in relation to an objective norm.²⁰⁶ In many ways, this standard is the legal embodiment of the Cartesian ego, a disembodied, reflective self, whose capacity to reason exists *a priori*, unaffected by the particularities of experience.²⁰⁷ Consequently, it is a standard that aspires to the universality independent of experience, a central goal of Enlightenment thought. At a minimum, it reflects the Enlightenment’s

198. See EDWARD COKE, THE THIRD PART OF THE INSTITUTES OF THE LAWS OF ENGLAND 107 (E & R Brooke 1797) (1644).

199. Hisham M. Ramadan, *Reconstructing Reasonableness in Criminal Law: Moderate Jury Instructions Proposal*, 29 J. LEGIS. 233, 234 (2003).

200. 4 WILLIAM BLACKSTONE, COMMENTARIES *21 (1769).

201. Joshua Dressler, *Reflections on Excusing Wrongdoers: Moral Theory, New Excuses and the Model Penal Code*, 19 RUTGERS L. J. 671, 701 (1988).

202. JODY DAVID ARMOUR, NEGROPHOBIA AND REASONABLE RACISM: THE HIDDEN COSTS OF BEING BLACK IN AMERICA 84 (1997).

203. JOSHUA DRESSLER, UNDERSTANDING CRIMINAL LAW 535–46 (5th ed. 2009).

204. Intentional torts, in particular, have a similar elemental structure. See Brianne Ogilvie, Note, *Is Life Unfair? What’s Next for Juveniles After Roper v. Simmons*, 60 BAYLOR L. REV. 293, 300 (2008). To prove negligence, the plaintiff must show the defendant had (1) a duty of care to the plaintiff; (2) breached the duty of care; (3) causing the harm to the plaintiff; (4) that resulted in damages to be redressed by the defendant.

205. KENNETH S. ABRAHAM, THE FORMS AND FUNCTIONS OF TORT LAW 55–56 (3d ed. 2007).

206. *Id.* at 56–57.

207. powell, *The Multiple Self*, *supra* note 11, at 1481.

emphasis on reason embodied in the rationalism tradition of Locke and Kant.²⁰⁸

Moving from the common law to modern statutory law, antidiscrimination law is preoccupied with the intent of the defendant in assigning liability. The classic form of unlawful discrimination is known as disparate treatment. Disparate treatment occurs when a defendant “simply treats some people less favorably than others because of their race, color, religion,” or other protected characteristics.²⁰⁹ To show disparate treatment, a plaintiff must show that he or she was the subject of adverse action *because of*, not merely in spite of, his or her protected trait.²¹⁰ Consequently, a plaintiff must prove that the defendant was motivated, at least in part, by intent to discriminate.²¹¹ Antidiscrimination law’s enjoinder ‘not to discriminate’ relies upon the Enlightenment assumption that decision-makers possess ‘transparency of mind.’²¹² This is the Cartesian notion that a person has privileged access to the content of their thought processes and direct knowledge to the workings of his or her own mind.²¹³ Possessing such awareness, well-intentioned, rational actors are—it is supposed—able to comply with the requirements of law. Rational actors would not, therefore, discriminate unless they were motivated by a discriminatory intent.

The influence of Enlightenment thought and practice in law goes beyond its role in defining or shaping our formative institutions, modes of legal reasoning or elements of a tort. Consider once more the umpire analogy suggested by Chief Justice Roberts during his confirmation hearing. Despite withering criticism,²¹⁴ it is a vivid metaphor for judicial restraint. But more

208. Feminist legal scholars have critiqued both the objectivity and universality of such a standard, arguing that such a standard conceals gendered norms, and fails to reflect the ways in which women may employ different standards of reasonableness in judging the offensiveness of behavior. Leslie Bender, *Teaching Torts As If Gender Matters: Intentional Torts*, 2 VA. J. SOC. POL’Y & L., Fall 1994, at 142, Martha Chamallas, *Feminist Constructions of Objectivity: Multiple Perspectives in Sexual and Racial Harassment Litigation*, 1 TEX. J. WOMEN & LAW 95 (1990), Martha Minow *Making All the Difference* (1990).

209. *Int’l Bhd. of Teamsters v. United States*, 431 U.S. 324, 335 n.15 (1977).

210. *See Hazen Paper Co. v. Biggins*, 507 U.S. 604, 610 (1993).

211. Civil Rights Act of 1991, 42 U.S.C. § 2000e-2 (2006).

212. Linda Hamilton Krieger, *The Content of Our Categories: A Cognitive Bias Approach to Discrimination and Equal Employment Opportunity*, 47 STAN. L. REV. 1161, 1185 (1995) [hereinafter Krieger, *Content of Our Categories*].

213. *Id.*

214. *See supra* text accompanying notes 7–10; *see also* Caprice L. Roberts, *In Search of Judicial Activism: Dangers in Quantifying the Qualitative*, 74 TENN. L. REV. 567, 569–70, 574–80 (2007) (examining the various meanings of “judicial activism,” and arguing for a normative, rather than empirical, approach to the term). Chief Justice Roberts was not the first to use the umpire analogy, but he is by far the most important to invoke both because of his position and influence in our legal system and because of the recent vintage of his remarks. Michael P. Allen,

than circumscribing the scope of judicial behavior by suggesting a particular method of adjudication, the metaphor carries with it a constellation of commonplace assumptions about the nature and practice of law. These assumptions are many of the epistemological and ontological commitments of the Enlightenment grammar explicated in Part I.

Focusing on the symbolic meaning of the umpire analogy and its message of judicial restraint allows the more obvious assumptions contained within it to slip into the background. Yet, these assumptions are what interest us.²¹⁵ First, according to the analogy, the judges are neutral and disinterested.²¹⁶ An umpire favors neither team (party), but rather calls plays as he or she sees them—impartially. Second, judges observe the evidence presented by the parties. The judge's neutrality gives us confidence in the objectivity of his or her perspective. Third, the primary role of a judge is to apply the law to the facts, just as umpires 'call the game' by applying the rules to the facts. Fourth, judges do not create or change law. The umpire's application of the rules to the facts does not change the rules of the game or create new rules. In other words, rule determination is a distinct step from rule application. The process of determining the meaning of a rule is separate from the application of that rule. Fifth, the process of adjudication is not influenced by the broader society. As Chief Justice Roberts put it, "[N]obody ever went to a ball game to see the umpire."²¹⁷ Fans and umpires do not interact. The law and those who enforce law are present, but partitioned from the society in which this law operates.

Each of these presumptions reflects an intrinsic separation between the subject and object, the foundational premise of the Enlightenment grammar. The umpire (judge) is separate from the rules of the game (the law), the facts (the evidence they observe), the players (the parties), the field of play (the courtroom and the court rules), and even the fans and spectators (the nation).²¹⁸ The neutrality and objectivity of the umpire is preconditioned upon these divisions.

The intrinsic separation between the judge and the law, and idea that judges merely apply law to the facts, but do not create law, garners the most

A Limited Defense of (at Least Some of) the Umpire Analogy, 32 SEATTLE U. L. REV. 525, 526 n.2 (2009) ("Of course, John Roberts was not the first person to compare the roles of judges and umpires."). Michael J. Gerhardt, *The New Religion*, 40 CREIGHTON L. REV. 399, 401 (2007).

215. We do not wish to suggest that each and every assumption embedded in the metaphor is problematic, nor do we wish to overstate the worldview conveyed by the metaphor. Rather, we are attempting to show the ways in which enlightenment ontology manifests in law by highlighting many non-controversial background assumptions of jurisprudence.

216. See *Roberts Hearing*, *supra* note 1, at 55.

217. See *id.*

218. *Id.*

attention and criticism because of its message of judicial restraint.²¹⁹ But the other four assumptions are equally important, and perhaps more so because they are generally uncontested.²²⁰ Collectively, these assumptions illustrate the tacit operation of Enlightenment thought in contemporary law and the depth of that influence.

III. MODERN DEVELOPMENTS IN THE NATURAL SCIENCES

Quantum mechanics is certainly imposing. But an inner voice tells me that it is not yet the real thing. The theory says a lot, but does not really bring us any closer to the secret of the 'old one'. I, at any rate, am convinced that *He* does not throw dice.

- Albert Einstein²²¹

We have argued that the Newtonian or classical model grounded the social sciences of the Enlightenment. Modern science—from physics and chemistry to biology and psychology—has jettisoned Newtonian concepts and models in favor of more relational approaches. This section surveys these sciences and explains selected developments. First, we describe the twin physics revolutions of relativity and quantum mechanics. Next, we identify complexity or systems approaches at work across a broad spectrum of sciences. Finally, we survey novel developments in the mind sciences which have brought new attention to the unconscious and Freud. Collectively, these developments challenge the epistemological and ontological principles of Enlightenment thought.

A. *Special Relativity and Quantum Mechanics*

The natural philosophers of the Scientific Revolution believed they could observe the world from a neutral perspective and produce an objective account. The neutrality of that perspective and objectivity of that account gave scientific researchers confidence in their findings. Relativity and the quantum physics shake that confidence. Relativity calls into question the objectivity of the researchers' account of "what happened,"²²² and quantum physics undermines

219. See *supra* text accompanying notes 1, 4, 7; see also Siegel, *supra* note 8, at 701 ("Judges, however, cannot 'just' decide constitutional cases according to 'the rules' because they cannot agree on what the rules are in the vast majority of the most important cases.").

220. See Siegel, *supra* note 9, at 704 ("[A]lmost all would agree that judges should not render decisions according to their first-order partisan commitments or personal policy preferences.") (quotation omitted).

221. MANJIT KUMAR, QUANTUM: EINSTEIN, BOHR, AND THE GREAT DEBATE ABOUT THE NATURE OF REALITY 224 (2010) (quoting Letter from Einstein to Schrödinger (May 31, 1928)).

222. Although Einstein still believed that there could be "an 'objective' observer, the physicist, because the laws of physics were applicable in all reference frames." HACKNEY, *supra* note 32, at 84.

the assumption that the researchers' observations were neutral, and does not meaningfully change the object of investigation. Moreover, quantum physics illustrates the limits of our knowledge, challenging the goal of certainty and the possibility of attaining perfect knowledge.

The twin revolutions of relativity and quantum mechanics in the early twentieth century shattered Newtonian certainty.²²³ Newton's laws of causation operated upon the twin assumptions of absolute linear time and absolute space.²²⁴ The universality of these absolute constructs produced both an objective account and mathematical certainty.

Newton identified the force of gravity but was unable to explain it. Einstein suggested that "space itself is bent," warped by the objects within it.²²⁵ Einstein's theory of relativity posits that what we observe as gravity is as warped space around objects.²²⁶ According to Einstein, space is not three-dimensional, and time is not separate from space.²²⁷ Rather, time and space form a four-dimensional continuum, and neither is absolute.²²⁸ Consequently, observers would order events differently in time if they moved with different velocities relative to the events observed.²²⁹

The classical claim of certainty of deterministic properties to physical reality and confidence in our capacity to know these properties, was put in doubt. Those doubts multiplied with the advent of quantum physics. According to quantum theory, observation is in fact an interaction.²³⁰ It is an interaction between the observer and the object of inquiry.²³¹ This interaction produces effects, and these effects matter.²³² In measuring any characteristic of an object, in observing, we disturb its pre-measurement state.²³³ Newtonian physicists were not concerned with this disturbance. They argued that the experimental/observation disturbance is negligible.²³⁴ And when it is not, measurement-independent values can be found because the effect of the disturbance can be determined and subtracted out.²³⁵ Quantum physicists contested both claims. First, they argued that there is a limit to how

223. Williams, *supra* note 6, at 436–37.

224. KLINE, *supra* note 43, at 165.

225. Tribe, *supra* note 19, at 6.

226. *Id.* at 175 (explaining curved space-time).

227. *See id.* at 175.

228. *Id.*

229. *Id.* at 165.

230. Tribe, *supra* note 19, at 107–08.

231. This view may be contrasted with the classical idea that the observer could "stand at a distance" from nature and observe reality. *See supra* note 86 and accompanying text.

232. *Id.*

233. *Id.*

234. *Id.* at 108.

235. BARAD, *supra* note 12, at 108.

‘negligible’ a measurement-disturbance might be. Because of the discontinuity of reality (Planck’s constant), there is a lower bound to the size of the measurement-disturbance.²³⁶ When measuring very small objects, the measurement disturbance could be quite significant. Second, they argued that for certain properties it is not possible to simultaneously measure both object of investigation and the effects of the measurement interaction/disturbance.²³⁷ To do so would require mutually exclusive measuring apparatuses.²³⁸ Consequently, the measurement disturbance cannot be subtracted out.

This is the idea behind Werner Heisenberg’s uncertainty principle. This principle expresses a limit to our knowledge: we cannot know the exact position and the momentum of an electron simultaneously.²³⁹ The more we know about a particle’s position, the less we know about its momentum, and vice versa.²⁴⁰ The uncertainty principle is a fundamental challenge to Newtonian physics, which assumed that all objects have position and momentum, and that these properties are simultaneously knowable. In addition, it is a challenge to classical determinism, which assumed that the

236. *Id.*

237. *Id.* at 108–09.

238. Measuring simultaneously the position and momentum of a particle is a classic example of the measurement interaction problem. This account is taken from BARAD, *supra* note 12 at 110–13 & fig.12. The set-up for such a measurement is deceptively simple; one needs a camera, a tripod, and a dark room. The camera’s flash briefly illuminates the particle so that its position can be determined, the tripod ensures that the camera remains fixed so that the image isn’t blurred, and the dark room minimizes the amount of momentum that light imparts on the particle being measured. The first problem is the fixed photographic plate mounted on the tripod. The plate must be fixed in order to determine position, because if the plate moves during the experiment, the picture of the particle would be blurry. But, in contrast, to determine the particle’s momentum, the plate must be moveable, because there must be some way to measure how much the platform moves when the plate absorbs the momentum transfer. *See id.* at 112 fig.12. In short, then, “the position and momentum are not simultaneously determinate because they require mutually exclusive experimental circumstances.” *Id.* at 111 (emphasis removed). The second, related, problem is that the experiment requires at least one photon to move the particle so that it will register on the photographic plate. This single photon, however, is sufficient to disturb the particle’s position. The task, then, is to determine the effect of the measurement interaction. Here one faces the same problem described above: It is impossible to determine simultaneously both the position and momentum of the photon; doing so requires mutually exclusive experimental apparatuses. The upshot of this is “Bohr’s conclusion [that] observation is only possible on the condition that the effect of the measurement is indeterminable.” *Id.* at 113 (emphasis removed). In other words, an object doesn’t have some abstract property called “position;” rather, an accurate depiction of an object’s position must always be tethered to the experimental apparatus that made its measurement possible.

239. For complementary variables (variables that require mutually exclusive apparatuses to detect), such as position and momentum, certainty in one of the variables “implies complete uncertainty in the other.” HANS C. OHANIAN, *PRINCIPLES OF QUANTUM MECHANICS* 348 (1990).

240. BARAD, *supra* note 12, at 19.

initial values of the position and momentum can be used to predict future position and momentum.²⁴¹

Whereas Heisenberg suggested a tradeoff in our ability to know given the uncertainty in our measurements, Heisenberg's mentor, Niels Bohr, suggested a slightly different account of the problem. According to Bohr's Copenhagen interpretation of quantum mechanics, the problem is not simply that we cannot acquire precise information regarding both the position and momentum of an electron. Rather, objects do not *have* determinate or well-defined positions and momenta simultaneously.²⁴² The kind of objective knowledge emanating from the Newtonian science is not merely unobtainable; it does not exist.²⁴³

Under the Copenhagen interpretation, reality is *probabilistic*, not determinate, and composed of "diffuse potentialities."²⁴⁴ According to Bohr, "the reality of the electron is neither known nor knowable to us as a classical 'object'" of scientific investigation.²⁴⁵ Instead, the properties of an object or phenomena become determinate only in relationship to a measuring apparatus.²⁴⁶ According to the orthodox interpretation, the quantum

241. OHANIAN, *supra* note 239, at 349; John C. Sommerer, *The End of Classical Determinism*, 16 JOHNS HOPKINS TECH. DIGEST 333, 333 (1995).

242. Regarding objects and their momenta,

[T]he quantum-mechanical probability distribution does not reflect our ignorance of the instantaneous position and momentum, but rather the non-existence of any well-defined position and momentum. The quantum-mechanical system does not consist of particles with well-defined albeit unknown positions and momenta, but of "particles" with intrinsically indeterminate positions and momenta.

OHANIAN, *supra* note 239, at 346. See also BARAD, *supra* note 12, at 19. For more on the Copenhagen interpretation, see OHANIAN, *supra* note 239 at 342–50.

243. There is a deep indeterminacy that is not just present in postmodernism or hermeneutics, but also in what we think of as physical reality.

244. OHANIAN, *supra* note 239, at 351. As Ohanian notes:

In contrast to the classical characterization of the state of a system, where the instantaneous coordinates [position] and momenta give us a detailed picture of the ...configuration of the system, the quantum-mechanical characterization by means of the state vector gives us merely the probabilities for the outcome of measurements that we can perform on the system.

OHANIAN, *supra* note 239, at 344. The wave function is the probability distribution of the phenomena. See *id.* It determines all possible observables. *Id.* But more than that, it also "determines the expectation values of all observables." *Id.*

245. JEREMY W. HAYWARD, *SHIFTING WORLDS, CHANGING MINDS: WHERE THE SCIENCES AND BUDDHISM MEET* 19 (1987).

246. *Id.* at 109. The question of the true nature of light is a classic example of the problem: is light a particle, or is it a wave? Evidence that emerged in the early twentieth century suggested that light behaved like a particle in certain circumstances but like a wave in others. *Id.* at 99. Amidst this debate, Bohr conceived of a thought experiment involving two experimental apparatuses. The first apparatus consists of a partition with two slits in front of a screen. See *id.* at 101 fig.8. When particles are fired through the partition, the resulting pattern "shows that the bulk of particles are found directly across from the slits," as would be consistent with a particle.

mechanical probability distribution of phenomena suffers a “collapse” or “reduction” into a determinate position or property at the moment of measurement, brought on by the measuring apparatus.²⁴⁷

This account suggests a relationship between the properties of an object or phenomenon and the experimenter that is not present in the classical paradigm. Newtonian physics assumed that objects and observers were physically and conceptually distinct.²⁴⁸ It assumed the existence of individual objects with determinate properties, and that these properties are independent of

Id. at 102. In contrast, when waves are directed at the same partition, they emerge on the other side, and spread out while interfering with each other, in a wave pattern. *Id.* For graphical representations, see *id.* at 103 fig.9. These results are consistent with classical physics: particles behave like particles, and waves behave like waves. But what happens when the two-slit experiment is performed with *electrons*? Although the electrons that pass through the slits leave individual marks on the screen, the overall pattern is that of wavelike. *Id.* at 104 fig.10. This result is inconsistent with classical physics, which predicts that electrons would behave like particles. Furthermore, the result obtains even if the electrons are fired one at a time, eliminating the possibility of mutual interference. *Id.* at 102. To address this apparent conundrum, Bohr imagined a second apparatus: a two-slit apparatus modified to determine which slit an individual electron passes through before hitting the screen. *Id.* at 102–03; see also *id.* at 105 fig.11. Any particle or electron must pass through one slit or the other. *Id.* at 104. In doing so, Bohr hoped that he would be able to catch the electron behaving either like a particle or a wave. See *id.* The surprising result of firing electrons into a which-path device is the destruction of the wave pattern. “That is, if a measurement is made that identifies the electron as a particle . . . then the result will be a particle pattern, not the wave pattern” produced earlier by the plain two-slit device. *Id.* Bohr’s interpretation of the situation is that the two mutually exclusive apparatuses produce two different kinds of electron behavior (wave and particle). Either we can obtain which-path information and particle patterns with one apparatus, or we can obtain the wave pattern with the other, but not both at the same time. In respect, the nature of phenomenon is apparatus-dependent. This notion is absolutely opposed to classical physics, which understood light (or matter) to be either a wave or a particle.

247. OHANIAN, *supra* note 239, at 350. The popular alternative to the orthodox Copenhagen interpretation suggests that the waveform does not collapse; rather, the measuring apparatus is treated in quantum terms as fully as the object of system of investigation. See *id.* at 362. From this perspective, the apparatus is treated as a “state vector” or waveform, and that waveform interacts with the waveform of the object of investigation. *Id.* The measurement is simply the “joint state vector” of those two waves. *Id.* The wave does not collapse, but the results for the expectation values are the same as though it had. *Id.* at 362–63. This account could be viewed as even more holistic than the Copenhagen perspective, since the apparatus is fully part of the quantum system (some interpretations even suggest that the mind of the observer is responsible for the wave collapse). *Id.* at 365. It also follows that reality is even less deterministic from this perspective, since it may suggest that we only know something by the probabilistic wave distributions’ interaction with another.

248. See *id.* (characterizing Bohr’s theory of the relationship of physicist and subject as a challenge to the Newtonian assumption that physicist and subject are completely independent). Recall the metaphor of the book of nature, and the attendant notion that reading a book does not change its text. *Supra* text accompanying note 87.

experimental investigations.²⁴⁹ From a quantum mechanical perspective, the attributes of the phenomena under investigation only exist, in precise terms, in relation to the apparatus used to measure them.²⁵⁰ Since the experimenter necessarily contributes to the phenomena he or she is observing, we might characterize this relationship as an interaction. Through this relationship, however, the subject and object become reconstituted as parts of the same system. The experimental observation and measurement disturbance is not unidirectional, but affects the entire system.²⁵¹ In that sense, this interaction is really an *intra*-action within that system.²⁵²

The observer and the observed are not just affected in their respective movement or position, but in their constitution, and the subject and object duality dissolves. In other words, we become a part of the nature that we seek to understand. The shift, then, from the classical to the quantum model is more than a shift in how we know or what we know, but who we are. When we look at the universe, we change the universe, and the universe looks back and changes us. The advent of quantum physics not only calls into question the first four Enlightenment assumptions explicated in Part II, the assumption of subject–object duality, of observation neutrality, of objectivity, of certainty and determinism, but it also calls into question the general metaphysics of individualism that sustains the models of the individual, autonomous self.

B. General Systems Thinking and Complexity Theory

The classical model of science was a reductionist paradigm. The clockwork metaphor of the universe was a mechanical model of the universe,²⁵³ whose parts could be analyzed, and whose relationships could be discovered, yielding deterministic answers. Even biological entities were

249. See BARAD, *supra* note 12, at 106 (discussing the implications of Bohr's discovery on Newtonian physics).

250. OHANIAN, *supra* note 239, at 351.

According to the Copenhagen interpretation, quantum systems in themselves do not have sharply defined attributes, only diffuse potentialities, which are capable of becoming sharply defined when we perform suitable measurements. The attributes of a quantum system depend on the apparatus used to measure them, and they exist only in relation to this apparatus. Thus, the attributes are a joint property of the system and the apparatus. This intimate symbiotic relationship between system and apparatus implies a break with naive [sic] realism, according to which the attributes of a physical system belong to the system in itself, and they are supposed to exist independently of the environment surrounding the system.

Id.

251. BARAD, *supra* note 12, at 107–08. For example, the wave function collapses. OHANIAN, *supra* note 239, at 350.

252. BARAD, *supra* note 12, at 128 (emphasis added).

253. See *supra* text accompanying notes 22–116.

understood using a similar logic, through dissection.²⁵⁴ The limitations of the linear, reductionist model spurred new paradigms in biology, medicine and epidemiology, engineering, organizational management, and a host of other sciences and social sciences.²⁵⁵ In epidemiology, the spread of disease did not seem to yield single-factor explanations, nor was it reducible to its component parts.²⁵⁶ An understanding of the production of disease could not be accomplished by thorough knowledge of component causes.²⁵⁷ Rather, various component causes were sometimes present and sometimes not, often interacting in context-specific ways.²⁵⁸ Multi-factor etiology of disease transmission began to reorient medical research.²⁵⁹

Systems thinking and related approaches, such as chaos theory, developed in the mid-twentieth century to broadly challenge the mechanical worldview and its reductionist logic, and to describe these new paradigms.²⁶⁰ A system is defined as an interdependent group of agents working together as a whole.²⁶¹ The biologist Ludwig von Bertalanffy coined the term “general system theory” to suggest that there are general properties that can be used to describe all systems.²⁶² It was later popularized by Lotfi Zadeh, an electrical engineer at Columbia University.²⁶³

254. See *supra* text accompanying notes 86–116 (discussing Descartes automata). The mechanical metaphor remains embedded in notions of science. Even reference to classical philosophy is sometimes described as “mechanical philosophy.” SHAPIN, *supra* note 26, at 30.

255. See, e.g., Erik Luna, *System Failure*, 42 AM. CRIM. L. REV. 1201, 1203 (2005) (noting application of systems theory to biology, ecology, astrophysics); Ian L.G. Wadley, *U.S. and Them: Hubs, Spokes, & Integration with Reference to Transboundary Environment and Resource Issues*, 21 BERKELEY J. INT’L L. 572, 574 (2003) (ecology, computer science, engineering, epidemiology, sociology); Mariel Rodak, Comment, *It’s About Time: A Systems Thinking Analysis of the Litigation Finance Industry and Its Effect on Settlement*, 155 U. PA. L. REV. 503, 525 (2006) (business management).

256. Nancy Krieger, *Epidemiology and the Web of Causation: Has Anyone Seen the Spider?*, 39 Soc. Sci. & Med. 887, 890–91 (1994).

257. *Id.*

258. See *id.* fig. 2.

259. See *id.* at 891 (discussing the role of “web of causation” theory in the development of the “multifactorial etiology of disease”).

260. With respect to chaos theory, see Robert E. Scott, *Chaos Theory and the Justice Paradox*, 35 WM. & MARY L. REV. 329, 331, 348 (1993).

261. Lynn M. LoPucki, *The Systems Approach to Law*, 82 CORNELL L. REV. 479, 482 (1997). The definition of a system varies from author to author. We adopt a comparatively simple definition here since we feel that many of the additional definitional elements often given are insights of systems behavior rather than being definitional in nature. The agents “might be the atoms that interact to form a molecule; the bones, organs, and tissues that constitute the human body; the sun and planets that together form the solar system; or the police, lawyers, judges, courts, prisons, and computer programs that together make up the ‘criminal justice system.’” *Id.*

262. LUDWIG VON BERTALANFFY, *GENERAL SYSTEM THEORY: FOUNDATIONS, DEVELOPMENT, APPLICATIONS* 32 (1968). As he pointed out, “There are many instances where identical principles were discovered several times because the workers in one field were unaware

In addition to a rejection of reductionism prevalent in the mechanical view of the world, systems approaches brought into view a different understanding of causality.²⁶⁴ A prevalent feature of classical approaches to causality is what Joanna Macy calls the “linear unidirectional [causal] paradigm.”²⁶⁵ Until the development of systems theory and later complexity theory in the 1980s as an outgrowth of systems approaches, linear causality was the standard account of change.²⁶⁶ But in many dynamic systems, this notion of linear causality is incapable of explaining what actually happens.

The problem is not simply the claim that A causes B, but the assumption that all causal factors are organized into linear causal chains, such that we can only understand the role of other causes through their relationship to the proximate cause.²⁶⁷ Thus, A causes B causes C, and A’s causal relationship to C is mediated by the intervening cause B along the causal chain. Even as science recognizes the reality of multiple causes, these causes are forced into linear chains.²⁶⁸ For example, the seemingly non-linear metaphor of a food web, which superseded the metaphor of a food chain, is merely an aggregation of possible chains. Any given path along the web is a chain. This form of complexity is merely the sum of, and reducible to, a set of linear relationships.

In contrast, systems approaches are fundamentally non-linear. As Ludwig von Bertalanffy wrote, “[T]his scheme of isolable units acting in one-way causality has proved to be insufficient [W]e must think in terms of systems of elements in mutual interaction.”²⁶⁹ Mutual causation is the recognition that outcomes are the result of many causes acting in concert to produce an effect, rather than multiple causes operating through linear chains or a single, proximate cause. In a system, there is no identifiable [single or

that the theoretical structure required was already well developed in some other field. General system theory will go a long way towards avoiding such unnecessary duplication of labor.” *Id.* at 33–34.

263. See DANIEL MCNEILL & PAUL FREIBERGER, *FUZZY LOGIC* 22 (1993) (explaining that Zadeh’s conception of system theory—distinct from Von Bertalanffy’s—is now the dominant understanding of system theory).

264. See generally, e.g., JOANNA MACY, *MUTUAL CAUSALITY IN BUDDHISM AND GENERAL SYSTEMS THEORY: THE DHARMA OF NATURAL SYSTEMS* (1991) (discussing the similar approaches of Buddhism and general systems theory to understanding causation).

265. *Id.* at 9–14.

266. RICHARD OGLE, *SMART WORLD: BREAKTHROUGH CREATIVITY AND THE SCIENCE OF NEW IDEAS* 21 (2007).

267. This is the linear model of causation that flows most powerfully from the Enlightenment. The idea of a “root cause” or an “active ingredient” belies this understanding.

268. See *id.* at 23 (“[Analytical reasoning’s] unbreakable commitment to continuity . . . forces it to proceed one step at a time, instead of making long-distance leaps typical of imaginative thinking [and of which network-oriented thinking is well-suited].”).

269. BERTALANFFY, *supra* note 262, at 45.

proximate] cause of change.²⁷⁰ Instead, the dynamic properties of the system as a whole “guide and shape the system’s parts into their resultant state.”²⁷¹ From that perspective, the language of causality itself is somewhat misleading. A particular “input does not ‘cause,’ in a proximate or ultimate sense, an outcome in a system; it only modifies existing processes which produce those outcomes.”²⁷² As the sociologist Gunnar Myrdal wrote over half a century ago, “In an interdependent system of dynamic causation there is no ‘primary cause’ but everything is cause *to* everything else.”²⁷³ Effects produce feedback loops that, in turn, shape and affect the initial inputs.²⁷⁴ A feedback loop is an effect generated by the system that, in turn, affects system behavior. In other words, feedback loops are causal factors that are produced by the system itself.

The ubiquity of systems demonstrates that the Newtonian viewpoint—and its assumption of linear unidirectional causality—is too simple. Consider the stock market. Our inability to predict and manage the market is because of our connection to it.²⁷⁵ Our attitudes, our analysis, and our thinking about the market affect the market. And when the market changes, it in turn affects our assumptions.²⁷⁶ The feedback loops within the market exist between the elements of the system, but we inhabit those loops ourselves. In that sense, we are really studying the relationships within a process or between processes. There are no independently existing things in the way Newtonian science

270. OGLE, *supra* note 266, at 21.

271. *Id.* at 21.

272. Stephen Menendian & Caitlin Watt, Systems Thinking and Race Primer 5 (Dec. 2008) (unpublished manuscript) (on file with author), available at http://4909e99d35cada63e7f757471b7243be73e53e14.gripelements.com/publications/systems_thinking_and_race_primer_july2009.pdf.

273. GUNNAR MYRDAL, AN AMERICAN DILEMMA: THE NEGRO PROBLEM AND MODERN DEMOCRACY 78 (1962).

274. An article about the 2008 financial crisis contains a succinct and helpful explanation of feedback loops:

A positive feedback loop is a system that responds to a stimulus by producing additional stimuli in the same direction. In contrast, a system that responds to stimulus in the opposite direction is called a negative feedback system. Positive feedback loops lead to exponential growth and dramatic movement away from the point of origin, often with explosive and destabilizing results. Negative feedback loops are self-correcting and self-stabilizing.

Michael Simkovic, *Secret Liens and the Financial Crisis of 2008*, 83 AM. BANKR. L.J. 253, 288 n.173 (2009).

275. See GEORGE SOROS, *supra* note 92, at 7.

276. See generally GEORGE A. AKERLOF & ROBERT J. SHILLER, ANIMAL SPIRITS: HOW HUMAN PSYCHOLOGY DRIVES THE ECONOMY, AND WHY IT MATTERS FOR GLOBAL CAPITALISM (2009) (explaining that human psychology influences the financial markets and that the financial markets influence human psychology).

suggests. Things are interconnected processes without clear boundaries.²⁷⁷ A systems model shifts focus from studying things to studying the relationships between things. These relationships are dynamic and constantly evolving, rather than static.²⁷⁸ In addition, in studying the relationship, much like the quantum model, we become a part of the relationship. We are not studying the relationship or the system from a distance, but our act of observing itself becomes a feedback loop.

The idea of emergence, of outcomes produced without either a calculating mind or a primary or proximate cause, of “‘a web without a spider,’ built without anyone at the center directing things” runs against our modern intuitions.²⁷⁹ Steven Johnson refers to the inference that there must be some kind of centralized authority behind collective behavior as the “myth of the ant queen.”²⁸⁰ It is a product of our Enlightenment epistemology, a model of causality oriented by a search for root or primary causes, and impelled forward by the Cartesian anxiety, a compulsion to create order out of chaos.

C. *The Mind Sciences*

Like other sciences of Enlightenment pedigree, “psychologists mimicked . . . physicists, by looking for equally compact solutions to questions about mental processes.”²⁸¹ The analytic strategy of reductionism, according to MIT Professor Marvin Minsky, failed to discover any set of laws that could account for “any large realms of human thought.”²⁸² In his view, the sciences of the mind failed to make significant progress for nearly three centuries.²⁸³ In the last two decades, there has been an explosion of research into the brain and mind sciences, and Congress dubbed the 1990s the “Decade of the Brain.”²⁸⁴ Research in neuroscience, cognitive psychology, and artificial intelligence, among other fields, has produced new understandings about the mind that directly contest Enlightenment assumptions.

277. See MACY, *supra* note 264, at 149 (explaining that the body and mind are inseparable parts of a single whole).

278. This carries an important implication for researchers: one cannot hold other variables static while changing the variable one wishes to investigate; changing the variable under investigation *necessarily* changes the other variables.

279. OGLE, *supra* note 266, at 112. But this is exactly what emergence is: a self-organizing dynamic of systems as a whole. Systems reach a tipping point, where a higher-level pattern emerges from the activity of lower-level elements. STEVEN JOHNSON, EMERGENCE 29, 33 (2001).

280. JOHNSON, *supra* note 279, at 33.

281. MARVIN MINSKY, THE EMOTION MACHINE: COMMONSENSE THINKING, ARTIFICIAL INTELLIGENCE, AND THE FUTURE OF THE HUMAN MIND 14 (2006).

282. *Id.*

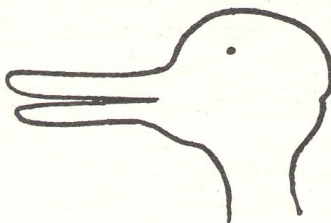
283. *Id.*

284. Library of Congress, *Project on the Decade of the Brain*, <http://www.loc.gov/loc/brain> (last visited Aug. 10, 2010).

Contrary to the Enlightenment assumption, the mind does not and cannot observe and reflect either the world or itself as it is. The body of research described in this section illustrates how our experience of the world, both the raw sensory input of experience and our interpretation, or processing, of that input, is filtered or preconditioned. The mechanisms by which this filtering occurs are described in various ways, but they all operate, at least in part, beyond conscious awareness, and are only indirectly accessible or measurable. Moreover, the Enlightenment conception of the mind—the consciousness of the rational, unitary self—is no longer tenable.

Research into the mind sciences and related fields has identified mechanisms by which our experience of the world is filtered and preconditioned. These mechanisms are described in several ways, and their particular conceptualization varies depending on the discipline from which they emerge and the author, but they each share similar features. They each suggest the ways in which both the raw sensory input of experience and the interpretation of that input is conditioned upon prior experience.

Consider Wittgenstein's famous duck/rabbit image:²⁸⁵



Some people perceive the image to represent a duck, and others perceive the image to represent a rabbit. Generally, only after further study, or after being told by others of the other image, do they come to 'see' the other one.²⁸⁶ The point is that a person's experience of this image is more than mere sensory input. The image itself is merely a curved line and dot. That input is interpreted in a particular way depending upon that individual's experience. "What a man sees depends both upon what he looks at and also upon what his previous visual-conceptual experience has taught him to see."²⁸⁷ As a scientist, there can be no data, nothing to measure or report, without a framework for conceptualizing what it is that is being observed.²⁸⁸ In that context, Thomas

285. LUDWIG WITTGENSTEIN, *PHILOSOPHICAL INVESTIGATIONS* 204 (P. M. S. Hacker & Joachim Schulte eds., 2010).

286. The principle applies to many optical 'illusions.'

287. KUHN, *supra* note 34, at 113. Some people can look at an object and perceive it in one way, while others will perceive it in another way, depending on their respective beliefs about the object. *Id.* at 111.

288. For example, in measuring air, one needs a conception of what air is. According to Kuhn, paradigms mediate not just our immediate sensory perception, but they construct our world in the process. *Id.* at 45–46.

Kuhn called such a framework a ‘paradigm.’²⁸⁹ Cognitive psychologists call them ‘schemas.’²⁹⁰ Others describe the mechanism in which sensory input is filtered by cognitive information as ‘framing.’

In his classic text *Frame Analysis*, sociologist Erving Goffman suggested that all experience is organized through conceptual frames.²⁹¹ Frames may “consist of values, metaphors, symbols, language, messages, and messengers.”²⁹² Conceptual frames actually mediate our perceptions of reality by sorting information into pre-existing categories.²⁹³ When looking into a field of view, we see a constellation of objects, but to the mind, these objects are neither undifferentiated or completely differentiated matter; instead, this information is quickly assimilated and sorted into categories, which in turn have been created and organized by prior experience. If we were to see everything in its particularity, we would become quickly overwhelmed. The world might appear to us as a Jackson Pollack painting. These filters are therefore helpful shortcuts, and probably necessary to survival.²⁹⁴

They also help us create meaning, since various frames have different constellations of associations.²⁹⁵ Indeed, how we make sense of the world is affected by frames at every stage from perception to conscious understanding.²⁹⁶ The way an issue is framed matters, therefore, because it affects the way in which the brain processes information. Suppose a magician presents a table with two hats and asks an audience which hat a rabbit is concealed within. The question prompts the brain to analyze the situation and consider possible answers in a particular way.²⁹⁷

Metaphors are particularly powerful frames because they not only help us sort information into existing categories, but actually create and organize the

289. *Id.*

290. Krieger, *Content of Our Categories*, *supra* note 212, at 1199.

291. See ERVING GOFFMAN, *FRAME ANALYSIS: AN ESSAY ON THE ORGANIZATION OF EXPERIENCE* 21 (1974). All perception is linked to frames about some object. Wittgenstein’s duck/rabbit image appears to the viewer as either a duck or a rabbit depending upon which frame is activated.

292. The Center for Social Inclusion: A Project of the Tides Center, *Thinking Change: Race Framing and the Public Conversation on Diversity: What Social Science Tells Advocates About Winning Support for Racial Justice Policies*, 2 (Aug. 2005), available at <http://www.centerfor-socialinclusion.org/publications/?url=the-diversity-advancement-project-thinking-change>.

293. *Id.* at 18.

294. See Krieger, *Content of Our Categories*, *supra* note 212, at 1199.

295. Consequently, we find ourselves in a world of meaning “in just the same way that [we] find [our]selves in a world of space and time.” Winter, *supra* note 78, at 1485 (quoting Paul W. Kahn, *Community in Contemporary Constitutional Theory*, 99 YALE L.J. 1, 57–58 (1989)).

296. *Id.* at 1496.

297. Because questions are often posed in this way, we have a number of sharp false dichotomies. For example, the nature/culture question poses the same problem.

categories themselves.²⁹⁸ They can force us to make new associations and provide new insights and new meanings.²⁹⁹ As such, metaphors have often been instrumental in the development scientific thought.³⁰⁰ For example, the metaphor of a chain to describe predator–prey relationships has been used to map out observations and organize taxonomic relationships. We saw earlier how the metaphor of a clock spurred research into physical sciences, including Newton’s laws of motion. Another example is the metaphor of war, such as the war of drugs or the war on poverty. President Reagan’s reorienting the issue of drug abuse in the frame of war changed attitudes about drugs and rebranded it a criminal justice rather than a health issue.³⁰¹ In that way, frames reorganize information and influence how information is perceived or understood by others.³⁰²

It is not just that our interpretation of sensory input is filtered through cognitive frames, schemas or conceptual paradigms. Sensory perception itself is conditioned by and depends upon prior beliefs and experience.³⁰³ Put another way, sensory perception is not a distinct step from the interpretation of that input. The belief contexts, cognitive frames, or paradigms that filter our experience of the world also influence what we perceive.³⁰⁴ It affects what we look at, not just how we understand what we experience, because it suggests

298. *Id.*; see also LAKOFF, *supra* note 20, at 96–98 (listing some organizational metaphors); DREW WESTEN, *THE POLITICAL BRAIN: THE ROLE OF EMOTION IN DECIDING THE FATE OF THE NATION*, 96–98 (2007) (discussing the use and impact of metaphors in politics). We conceptualize the idea of ‘sorting’ as placing an object into a preexisting category. For example, putting a particular piece of paper into either Pile A or Pile B. Organizing information also dictates the categories in the first place. The Center for Social Inclusion, *supra* note 292, at 2. Thus, organizing information does not only sort; it creates. Nor is it a matter of getting to the world behind our perspective: the world is constantly being co-created. See *supra* Sections III.B–C (discussing the inseparability of the observer and the thing observed).

299. Nancy Krieger, *Epidemiology and the Web of Causation: Has Anyone Seen the Spider?*, 39 Soc. Sci. & Med. 887 (1994).

300. See *id.*

301. Julian Buchanan & Lee Young, *The War on Drugs—A War on Drug Users?*, 7 DRUGS: EDUCATION, PREVENTION & POL’Y 409, 411–12 (2000).

302. As a verb, framing refers to the way in which an idea is presented and subsequently interpreted. See RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE* 36–37 (2008) (explaining framing). The supporting details, context, and other cues can change the presentation of an idea and consequently affect the way in which the audience perceives the idea. *Id.* Frames can be used to encourage some interpretations while discouraging others. *Id.*

303. See *id.* at 112. In fact, the framework and incident filtering process is a “prerequisite to perception itself.” KUHN, *supra* note 34, at 113.

304. HAYWARD, *supra* note 245, at 8. A belief context is broader than the idea of a ‘paradigm’ advanced by Kuhn. *Id.* at 7 (“[B]elief context’ points beyond the narrower idea of ‘paradigm.’”). A paradigm is merely a set of beliefs, but a belief context “refers to the deepest levels of perceptual readiness.” *Id.* at 8.

what is relevant and what is to be filtered out.³⁰⁵ The alternative is not some theoretical, objective, fixed vision, but perception through an alternative paradigm or a different belief context.³⁰⁶ Thus, the idea of an objective, neutral stance must be called into question. Whether through Kuhnian “paradigms,” Goffmanian “frames,” or belief contexts, none of us is a neutral observer of the world, even at the level of everyday sensory perception. Our various acts of making sense of the world are unavoidably shaped by our prior beliefs and expectations.

The mechanisms that mediate our experience—both our perception of sensory input and our interpretation of that input—demonstrate the degree of interaction of the mind with the world. Cognitive scientists, researchers in artificial intelligence, psychologists, and philosophers are all exploring the ways in which the mind “extends out into the world.”³⁰⁷ According to Andy Clark, “[T]he human mind was never contained in the head.”³⁰⁸ Synthesizing research in the mind sciences, Clark explains that given the level of information we process, the mind “could barely function at all without *external* help of some kind.”³⁰⁹ This “extended mind” engages and interacts closely with us, “shaping and organizing our thinking.”³¹⁰ The extended mind is a challenge to the traditional Cartesian conception of the mind’s internal self-sufficiency. Moreover, the Cartesian split itself must also be called into question.³¹¹

Enlightenment thinkers gave special priority to the mind and internal processes.³¹² It was this domain that we could know best of all: the external world might be imperfectly knowable, but our internal world was fully

305. This is also called ‘perceptual readiness’ by the psychology Jerome Bruner:

Perceptual readiness is the tendency of the organism, human or animal, to be set to perceive in a certain way, that is to have expectancies about its environment that predetermine to some extent what it perceives. Bruner showed many years ago that not only do we tend to perceive something in our environment more readily if we already expect to perceive it, but also that we have much more difficulty than usual perceiving something that we are preset not to perceive.

Id. at 8.

306. *See id.* at 14 (explaining that what we consider objective reality is merely one more paradigm influenced by medieval Christianity).

307. OGLE, *supra* note 266, at 2.

308. *Id.* at 10.

309. *Id.*

310. *Id.* at 13. As part of the mind’s engagement with the world, we each have recourse to a “vast array of culturally and socially embodied *idea-spaces* that populate the extended mind.” *Id.*

311. Gila Stopler, *Gender Construction and the Limits of Liberal Equality*, 15 TEX. J. WOMAN & L. 43, 63 (2005) (explaining the Cartesian split).

312. J.M. Balkin, *What is a Postmodern Constitutionalism?*, 90 MICH. L. REV. 1966, 1976 (“The Cartesian *cogito* becomes transformed: Instead of ‘I think therefore I am,’ we have ‘I think as I am.’”).

accessible to us. Enlightenment thinkers assumed that a person can have complete self-knowledge, that we can observe our selves, that we can know our thoughts, and that we can know what motivates us. Contrary to the Enlightenment assumption, some parts of the brain perform work that the other parts are sometimes unable to observe.³¹³ The mechanisms that mediate our experience—both our sensory perception and our interpretation of that input—all operate, at least in part, beyond conscious awareness, and are only indirectly accessible or measurable. Nearly a century after Freud’s ‘discovery’ of the unconscious, modern science has shown that there are mental processes at work of which we are not aware and cannot consciously control.³¹⁴ Neuroscientists are investigating the shifting boundary between conscious and unconscious cognitive processes. Recent estimates suggest that as much as 98% of what the brain does is outside of conscious awareness.³¹⁵ That means that as little as 2% of ‘thinking’ that the brain does is conscious. Others suggest that cognition is actually an aggregate of nearly twenty concurrent processes, only some of which are conscious.³¹⁶

Much of the mind operates, makes decisions, organizes, and processes information at a level below consciousness. It turns out that these processes are necessary for both survival³¹⁷ and intelligence.³¹⁸ Our ancestors had to make split-second decisions to survive predation, just as our modern-day counterparts must make split-second, unconscious decisions to avoid being hit by a car or to strike letters quickly on a keyboard. These automatic decisions are not a result of the reflective, conscious mind. If you had to consider the

313. *See id.* at 105.

314. Although subject to withering criticism for the better part of the twentieth century, aspects of Freud’s theory of the subject have been confirmed by contemporary neuroscience and social psychology, namely, research on cognitive and implicit bias, which shows that human cognition is pervasively shaped by factors that are outside conscious control. *See* Avital Mentovich & John T. Jost, *The Ideological “Id”? System Justification and the Unconscious Perpetuation of Inequality*, 40 CONN. L. REV. 1095, 1102–04 (2008) (explaining the acceptance of Freudian elements in Gordon Allport’s work). Scientists have begun to probe the murky depths of the mind, including the mind’s “adaptive unconscious.” *See* MALCOLM GLADWELL, *BLINK* 11–12 (2005) (defining “adaptive unconscious”).

315. *See* LAKOFF, *supra* note 20, at 3.

316. *See* MINSKY, *supra* note 281, at 94–129 (discussing the complexity of consciousness).

317. *See* Krieger, *Content of Our Categories*, *supra* note 212 at 1188 (“If our species were ‘programmed’ to refrain from drawing inferences or taking action until we had complete, situation-specific data about each person or object we encountered, we would have died out long ago. To function at all, we must design strategies for simplifying the perceptual environment and acting on less-than-perfect information. A major way we accomplish both goals is by creating categories.”).

318. *Id.* (“Every person, and perhaps even every object that we encounter in the world, is unique, but to treat each as such would be disastrous. Were we to perceive each object *sui generis*, we would rapidly be inundated by an unmanageable complexity that would quickly overwhelm our cognitive processing and storage capabilities.”).

placement of each letter on a keyboard before making the keystroke, typing would be grossly inefficient.

Both the organizing of information and the filtering out of other information described above are often unconscious. One of the unconscious ways that information is organized is through frames.³¹⁹ Frames, as meanings and assumptions that “build up within [a] subject” and become internalized, “operate without conscious awareness.”³²⁰ These frames become invisible to us, just as “water is proverbially invisible to fish that swim in it.”³²¹ A similar mechanism is described as ‘difference-networks.’³²² The networks of associations, or implicit associations, in the mind can be gauged and observed, but only indirectly.³²³ These associations can be uncovered through speed tests that, for example, gauge our ability to read words like “beautiful” in concert with visual objects like a butterfly or tarantula.³²⁴

In one such test, known as the Implicit Association Test (IAT), researchers asked test subjects to press a button when presented with a pleasant word or a different button when presented with an unpleasant word.³²⁵ Then, researchers presented words along with images of “European American” faces and “African American” faces. Participants responded more slowly when European American faces appeared with unpleasant words than they did when European American faces appeared with pleasant words.³²⁶ Likewise, participants responded more slowly when African American faces paired with pleasant words than with unpleasant words.³²⁷ The researchers attributed this difference to the time it took the participants’ conscious minds to recover from the participants’ unconscious biases.³²⁸ The participants’ minds did not make the association, and so they actually interfered with the participants’ ability to process this information.

The importance of implicit associations is not just that we have them, but that we make judgments on the basis of them. The biases observed in studying

319. See *supra* text accompanying notes 252–57.

320. See Winter, *supra* note 78, at 1487.

321. Ogle, *supra* note 266, at 63.

322. MINSKY, *supra* note 281, at 200. See also DREW WESTEN, *THE POLITICAL BRAIN* 3 (2007) (introducing the “network” concept).

323. Anthony G. Greenwald & Linda Hamilton Krieger, *Implicit Bias: Scientific Foundations*, 94 CAL. L. REV. 945, 946 (2006). Our conscious mind cannot directly observe them. See *id.* at 952 (stating that people are not aware of their implicit biases and, in turn, their implicit associations).

324. See MALCOLM GLADWELL, *supra* note 315, 189–245.

325. Greenwald & Krieger, *supra* note 323, at 952–53; see also Elise Porter, Note, *The Player and the Dice: Physics and Critical Legal Theory*, 52 OHIO ST. L.J. 1571 (1991) (critiquing implicit bias).

326. Greenwald & Krieger, *supra* note 323, at 952–53.

327. *Id.*

328. See *id.* (treating the difference in response times as evidence of implicit bias).

these implicit beliefs, associations and preferences are referred to as “implicit biases.”³²⁹ What makes implicit attitudes so intriguing and troubling is that they often produce behavior that diverges from a person’s explicit beliefs or attitudes.³³⁰ The Implicit Association Test is a test that measures implicit bias.³³¹ The speed of the responses registered by the keystrokes “allows an inference about attitudes . . . because it is easier to give the same response to items from two categories when those two categories are cognitively associated with each other.”³³² The responses are more accurate and faster when closely associated categories are paired than when they are not paired.³³³ For example, a person with negative implicit attitudes towards Blacks would be expected to go more quickly when “Black” and “bad” share one key, and “White” and “good” the other, than when the pairings of good and bad are switched.³³⁴

We acquire these associations through cultural priming.³³⁵ Socially produced “tacit understandings” and “cultural stereotypes” become deposits in the unconscious.³³⁶ In short, children are socialized from an early age to understand race and its meanings in particular ways, and these understandings are so deeply ingrained that they are not always consciously experienced.³³⁷ Information is not neutrally or objectively observed; information is rather filtered through the complex, mostly unconscious, associations we harbor. Not only are many objects imbued with meaning or significance through our unconscious associations, but we are primed to observe some things and not others.³³⁸ Those things that we see tend to confirm or track our initial prime,

329. See, e.g., Kristin A. Lane et al., *Implicit Social Cognition and Law*, 3 ANN. REV. L. & SOC. SCI. 427, 429 (2007). Implicit bias is an aspect of social cognition science that has to do with these unconscious mental processes. Social cognition is “a field concerned with the content and mechanisms of beliefs and preferences about oneself, other social beings, and social groups[.]” *Id.* at 428. Implicit social cognition is the body of research capturing discoveries about automatic, nonconscious, or implicit beliefs (stereotypes) and preferences (attitudes). Anthony G. Greenwald & Mahzarin R. Banaji, *Implicit Social Cognition: Attitudes, Self-Esteem, and Stereotypes*, 102 PSYCHOL. REV. 4, 4–5 (1995). Implicit attitudes are a separate construct from explicit attitudes. *Id.* at 5.

330. Greenwald & Banaji, *supra* note 329 at 15.

331. Greenwald & Krieger, *supra* note 323, at 952; see also Porter, *supra* note 325, at 1571 (critiquing implicit bias).

332. Greenwald & Krieger, *supra* note 323, at 952.

333. *Id.*

334. See *id.* at 952–53.

335. Lawrence, *supra* note 121 at 323; but see Greenwald & Krieger, *supra* note 323, at 960 (critiquing the “cultural beliefs” interpretation of IAT results).

336. Lawrence, *supra* note 121, at 323.

337. See *id.* at 323, 338.

338. See Anders Kaye, *Does Situationist Psychology Have Radical Implications for Criminal Responsibility?*, 59 ALA. L. REV. 611, 637–38 (2008) (explaining “confirmation bias”).

and reject or forget information that challenges these associations.³³⁹ Both the organizing of information and the filtering out of other information in this way is very close to stereotyping. Results from an implicit association test show that in this country, most people—whites as well as Latinos, blacks, and others—are more likely to misidentify a picture of a tool as a picture of a weapon when primed with a picture of a black face rather than one of a white face.³⁴⁰ This is because of the largely unconscious cultural associations regarding black men.³⁴¹ Does that make us racist? The answer is emphatically “no.” It means that we harbor unconscious or implicit associations that become activated by the stimuli in our environment. Malcolm Gladwell thinks that these processes may also explain the shooting of Amadou Diallo.³⁴² As we said above, bias and stereotyping are not inherently pejorative; they are pervasive—even necessary—human characteristics. Some of these biases are problematic and some are not. But in each case, they affect our behavior. This is very different from Newton or Descartes, who demand the objective perspective of the rational mind, which is no longer tenable.³⁴³

Even beyond those unconscious processes that are directly observable through conscious effort and sometimes great difficulty, and those processes which are not directly observable, consciousness itself has been misconceived.³⁴⁴ Consciousness is not a unitary “thing.”³⁴⁵ According to Aaron Sloman, consciousness is actually a “very large collection of very different things.”³⁴⁶ Others, who reject the “thing” or “object” label, consider it a process.³⁴⁷

339. HOWARD GARDNER, *CHANGING MINDS: THE ART AND SCIENCE OF CHANGING OUR OWN AND OTHER PEOPLE’S MINDS (LEADERSHIP FOR THE COMMON GOOD)* 47 (2006) (noting that information that does not ‘fit the frame’ is rejected).

340. B. Keith Payne, *Weapon Bias: Split-Second Decisions and Unintended Stereotyping*, 15 *CURRENT DIRECTIONS PSYCH. SCI.*, 287, 287–88 (2006).

341. *Id.* at 288–89.

342. See MALCOLM GLADWELL, *supra* note 314, at 189–245 (attributing the shooting to a “mind reading failure” by the police rather than to conscious racism). For more information on the Diallo shooting, see Jane Fritsch, *The Diallo Verdict: The Overview*, N.Y. TIMES, Feb. 26, 2000, at A1, available at <http://www.nytimes.com/2000/02/26/nyregion/diallo-verdict-overview-4-officers-diallo-shooting-are-acquitted-all-charges.html>.

343. See *supra* notes 40–54; see generally *supra* Part II.A.–B.

344. Consciousness has been classically called the ‘hard problem,’ and many attempts have been made to explain and understand it. See David J. Chalmers, *Facing up to the Problem of Consciousness*, 2 J. CONSCIOUSNESS STUD. 200, 200 (1995). We do not attempt to advance an explanation here, although we note that there are promising possibilities, in particular the notion that consciousness may be a quantum state. See Wendt, *supra* note 67, at 33.

345. See Chalmers, *supra* note 344, at 1.

346. MINSKY, *supra* note 281, at 107.

347. Wendt, *supra* note 67, at 33.

The unitary nature of consciousness is fostered by perception:

[A]s soon as you enter a room, you have the sense that you instantly see everything that is in your view. However, this is far from true: it is an illusion that comes because your eyes so quickly turn to focus upon whatever has attracted your attention. Similarly, this also applies to consciousness, because we make the same sorts of mistakes about how much we can “see” inside our own minds.³⁴⁸

In turn, the sense of a unitary perceptual field fosters the illusion of a single, unitary self. The perception of a unified consciousness and a unified ‘experience’ all aid in that illusion, often described as the “reflective” self.³⁴⁹ According to traditional western views, this self is innate, located in space, “authentic,”³⁵⁰ and durable over time.³⁵¹

According to Professor Minsky, one of the key fairy tales exposed by the mind sciences is the “single-self concept.”³⁵² While this idea may serve us well in day-to-day life, it hinders our ability to understand how our minds really work.³⁵³ According to Professor Minsky, the “self” is actually a facet of a “huge network of models,” constantly rotating, each of which tries to represent some particular aspect of the mind.³⁵⁴ In that way, we actually have multiple selves.³⁵⁵ It is not simply that these selves emerge when dealing with different issues; rather different selves emerge in different environments.³⁵⁶ We are a different person with a spouse or significant other than we are with our boss or a parent. Our selves are both contextual and relational.³⁵⁷

The identity of the self as a rational being is also quite false.³⁵⁸ Emotions are not distinct from rationality or inferior ways of being. On the contrary, emotional states are simply a certain way to think “that we use to increase our

348. MINSKY, *supra* note 281, at 107.

349. *See generally* SEIGEL, *supra* note 44, at 5–6. Seigel argues that since Descartes and Locke, the Western ‘self’ has typically been constituted along one of three dimensions: bodily or material, the relational, and the reflective self. *See id.* at 5. The reflective self is most visible in the Cartesian cogito.

350. *See* MINSKY, *supra* note 281, at 300 (listing traits of the self).

351. But it should be noted that not all Enlightenment thinkers thought in this way. David Hume is notable for his “bundle theory” of the self, which viewed the self as a series of intricate perceptions. DAVID HUME, A TREATISE OF HUMAN NATURE 350–51 (Philip Wheelwright ed., Doubleday, Doran, & Co., Inc., 1935) (1739); *see also* Harlan M. Goulett, *God Hath Created the Mind Free: Toward a Jeffersonian Theory of Rights*, 37 SUFFOLK U. L. REV. 983, 1002 n.103 (2004).

352. *See* MINSKY, *supra* note 281, at 14–15.

353. *Id.* at 14.

354. *Id.* at 16.

355. *See generally* powell, *The Multiple Self*, *supra* note 11.

356. *See id.* at 306.

357. *See* powell, *The Multiple Self*, *supra* note 11.

358. *See supra* Part I.

resourcefulness.”³⁵⁹ Emotions are not separate from thinking; they are a product of thinking.³⁶⁰ The Enlightenment conception of the mind—the consciousness of the rational, unitary self—is no longer tenable.

IV. IMPLICATIONS OF MODERN DEVELOPMENTS FOR THE PRACTICE, TEACHING AND THEORY OF LAW

The intellectual struggle that produced the scientific revolution led to the Enlightenment, which borrowed its methodology, grammar, and habits of thought and practice. As demonstrated in Part II, American jurisprudence, across the spectrum of public and private law, despite evolving conceptions of justice and radical shifts in constitutional meaning, remains grounded in the methods, principles, and precepts of Enlightenment philosophy. Yet, these philosophical assumptions and scientific concepts have been undermined by recent developments in the very disciplines in which they originated. In this part of the essay, we take seriously the insights of relativity, quantum physics, systems science, and the mind sciences described in Part II, and confront the ramifications of these developments for our practice and conceptions of law.

In challenging the assumptions associated with the umpire metaphor, we argue that the judicial role is far more interactive than the metaphor suggests. We call into question the assumptions of an intrinsic severability of the judge and the law, of the law and society, and of rules and their application. At the same time, we raise doubts about the neutrality and objectivity of the judicial perspective or of law itself, and the certainty that such a perspective may entail.

If, as quantum theory suggests, the subject and object are not intrinsically separable, if we are not separate from the world in the way that classical science assumed, then judges and jurists are not separate from cases they adjudicate. They are not separate from the law they announce or purport to interpret, the facts they deem relevant, or the players they identify as parties. Judges do more than merely call the game, they constitute the game itself.

The power to settle rules for calling the game entails the power to prescribe what constitutes a relevant fact, meaning, both legal and factual, and who counts as a player.³⁶¹ Different epistemic practices and assumptions regarding those practices determines what is required for different sorts of knowledge. Judges, and Justices in particular, play a critical role in deciding meta-level questions that affect what counts as knowledge by providing analytical

359. MINSKY, *supra* note 281, at 6.

360. *Id.* at 18 (“[T]his book . . . think[s] of each mental condition [generally considered an emotion] as based on the use of many small [mental] processes.”).

361. The selection or description of facts itself is a constitutive act.

frameworks,³⁶² standing limits, and evidentiary requirements. These “rules” of the game critically affect outcomes.

In a trio of far-reaching racial justice cases, *Bakke*,³⁶³ *Milliken*,³⁶⁴ and *McCleskey*,³⁶⁵ the issue of what counts as knowledge is decisive. These cases are decided at the epistemic level. In each case, the Court sharply circumscribes what it is willing to credit as relevant knowledge. By imposing such limits, it constitutes the rules of the game. And in each case, the limitations of what counts as relevant knowledge is determined with a clear concern over potential remedies. There is an implicit cost/benefit balancing—that what counts as sufficient causal evidence may depend upon the remedy being sought.

In *Bakke*, petitioners sought to justify the use of race-conscious admissions criteria on several grounds, including the ground of “countering the effects of societal discrimination.”³⁶⁶ Justice Powell rejected this justification, saying that it was too “amorphous [a] concept of injury.”³⁶⁷ Justice Powell did not deny the existence of societal discrimination against racially and ethnically marginalized groups, or the undue advantages that have accrued to the racial majority as a result.³⁶⁸ Rather, the problem was causation. Using the “but-for” test, Justice Powell suggests that “but for this discrimination by society at large, Bakke ‘would have failed to qualify for admission’” is a “speculative leap.”³⁶⁹

Justice Powell claims that “[n]ot one word in the record supports” the conclusion that societal discrimination was a “but-for” cause of the inability of minorities to qualify for admission.³⁷⁰ Yet, much of this record that Justice Powell dismisses demonstrated how societal discrimination disadvantaged

362. Notable examples of judicially provided frameworks which have a severe impact upon outcomes are the “strict scrutiny” framework common to the Supreme Court’s Equal Protection jurisprudence, and *United States v. Carolene Products, Co.* See, e.g., *Grutter v. Bollinger*, 539 U.S. 306, 326 (2003) (“We have held that all racial classifications imposed by government ‘must be analyzed by a reviewing court under strict scrutiny.’ This means that such classifications are constitutional only if they are narrowly tailored to further compelling governmental interests.”) (citation omitted); *United States v. Carolene Prods., Co.*, 304 U.S. 144, 152, 152 n.4 (1937) (abandoning strict scrutiny of economic regulation, and instead applying rationale basis, but reserving strict scrutiny for infringements of certain rights in the famous footnote 4).

363. *Regents of Univ. of Cal. v. Bakke*, 438 U.S. 265 (1978).

364. *Milliken v. Bradley*, 418 U.S. 717 (1974).

365. *McCleskey v. Kemp*, 481 U.S. 279 (1987).

366. *Bakke*, 438 U.S. at 306 (plurality opinion).

367. *Id.* at 307.

368. See *id.* at 296 n.36 (“No one denies the regrettable fact that there has been societal discrimination in this country against various racial and ethnic groups.”).

369. *Id.*

370. *Id.*

potential minority candidates, a fact he acknowledged.³⁷¹ Petitioners established that societal discrimination made it more difficult for minorities to qualify for admission and that societal discrimination made it more likely that Bakke would be rejected. Yet Justice Powell does not explain why this showing is insufficient to establish a causal link between societal discrimination and Bakke's rejection.³⁷²

Justice Powell's standard in *Bakke* for what may count as a 'cause'—but-for causation—is a high bar for knowledge of causation, and inconsistent with modern science. Justice Powell does not explicitly explain his standard of causation and why he is unwilling to credit causal forces that do not rise to the level of a but-for cause. But Justice Powell raises two prudential concerns that appear to bear on his evidentiary standards.³⁷³ First, he is concerned that such a program would unfairly disadvantage individuals like Bakke who “bear no responsibility for whatever harm the beneficiaries of the special admissions program are thought to have suffered.”³⁷⁴ In doing so, Powell is engaging in “methodological individualism,” a reductionist approach to justice.³⁷⁵ Second, he is concerned that without such a showing of causation, the potential remedy would lack clear limits.³⁷⁶ The scope of the remedy, it is thought, must be tethered to the degree of responsibility. That idea is also present in *Milliken v. Bradley*.³⁷⁷

In *Milliken*, the issue was whether a metropolitan-wide remedy is legally permissible to redress *de jure* segregation within the Detroit school system.³⁷⁸ In reasoning against a metropolitan-wide remedy, consider Justice Potter Stewart's opinion:

371. *Bakke*, 438 U.S. at 362, 370–71.

372. *See id.* at 296 n.36.

373. For a critique of Justice Powell's causal reasoning, see generally Goodwin Liu, *The Causation Fallacy: Bakke and the Basic Arithmetic of Selective Admissions*, 100 MICH. L. REV. 1045 (2002).

374. *Bakke*, 438 U.S. at 310.

375. *See* CHARLES TAYLOR, PHILOSOPHICAL ARGUMENTS 130–34 (1995). Joseph Schumpeter is attributed with coining this term. *See id.* at 300–02.

376. “To hold otherwise would be to convert a remedy heretofore reserved for violations of legal rights into a privilege that all institutions throughout the Nation could grant at their pleasure to whatever groups are perceived as victims of societal discrimination.” *Id.* Further, “[Petitioners] offer no standard for courts to use in applying such a presumption of causation This failure is a grave one, since if it may be concluded *on this record* that each of the minority groups preferred by the petitioner's special program is entitled to the benefit of the presumption, it would seem difficult to determine that . . . the dozens of minority groups that have suffered ‘societal discrimination’ cannot also claim it, in any area of social intercourse.” *Id.* at 296 n.36 (citation omitted).

377. *Milliken v. Bradley*, 418 U.S. 717, 754 (1974) (Stewart, J., concurring).

378. *Id.* at 721 (plurality opinion).

It is this essential fact of a predominantly Negro school population in Detroit—caused by unknown and perhaps unknowable factors such as in-migration, birth rates, economic changes, or cumulative acts of private racial fears—that accounts for the ‘growing core of Negro schools,’ a ‘core’ that has grown to include virtually the entire city.³⁷⁹

Justice Stewart acknowledges that blacks are heavily segregated in the Detroit area, but the cause? For him, it’s unknown, though not for want of explanations.³⁸⁰ He lists a number of contributory factors, and his brethren list many.³⁸¹ Moreover, Justice Stewart not only said that these factors were unknown, but that they were perhaps *unknowable*.³⁸² And because we cannot know, and not simply that we do not know, no remedy can be enforced. Justice Stewart is thus unwilling to impose a metropolitan-wide desegregation plan involving many districts without a more detailed, perhaps impossible, showing that they were directly responsible for the Detroit school district’s racial isolation. What Justice Stewart is really arguing is what counts as acceptable knowledge. Information that does not adhere to the way in which “causation” is typically understood in the law, as but-for or proximate causation, is insufficient.³⁸³ Some things are knowable because they adhere to the way we think of knowledge from a Newtonian perspective, while other information is not.

In law, the two predominant forms of causality are cause-in-fact, or but-for causation, and legal causation, known as proximate cause. Cause-in-fact is a necessary conditionality.³⁸⁴ The antecedent must have occurred in order that

379. *Id.* at 756 n.2 (Stewart, J., concurring).

380. *Id.*

381. *Id.* (Douglas, J., dissenting):

The creation of the school districts in Metropolitan Detroit either maintained existing segregation or caused additional segregation. Restrictive covenants maintained by state action or inaction build black ghettos. It is state action when public funds are dispensed by housing agencies to build racial ghettos. Where a community is racially mixed and school authorities segregate schools, or assign black teachers to black schools or close schools in fringe areas and build new schools in black areas and in more distant white areas, the State creates and nurtures a segregated school system, just as did those States involved in *Brown v. Board of Education* . . . when they maintained dual school systems. . . . All these conditions and more were found by the District Court to exist.

Id. at 761. Justice Marshall noted that the effects of residential segregation, coupled with the conscious actions of the school board, were also factors that contributed to an expanding core of all black schools surrounding by a band of all white schools. *Id.* at 716–17 (plurality opinion).

382. *Id.* at 756 n.2 (Stewart, J., concurring).

383. It is one thing to say that the cause of racial segregation in Detroit is unknown; it is another to say that it is perhaps unknowable. As excerpted above, Justice Stewart made reference to a few contributory factors that could produce such an outcome, suggesting that these factors are neither unknown nor unknowable.

384. Allan Beever, *Cause in Fact: Two Steps out of the Mire*, 51 U. TORONTO L.J. 327, 330 (2001).

the consequence might follow. Propositional logic and formal logic make great use of both sufficient and necessary conditionality, which are causal statements.³⁸⁵ In fact, however, there are many causes of outcomes that are neither sufficient nor necessary.³⁸⁶ Outcomes produced by complex systems are rarely the product of sufficient causes.³⁸⁷ And to the extent that necessary causes are present, they are often trivial from an analytical perspective.³⁸⁸ Rather, outcomes in complex systems are produced by contributory causes.³⁸⁹ A contributory cause is any cause, no matter how remote, that ultimately helps produce an outcome.³⁹⁰ It does not have to be a sufficient or a necessary condition. In *Milliken*, the record demonstrated that the proliferation of suburban districts contributed to Detroit's segregative trends.³⁹¹ Nonetheless, in terms of imposing a metropolitan-wide remedy, the Court is unwilling to credit this evidence.³⁹² A similar unwillingness leads to grim results in *McCleskey*.

In *McCleskey*, an African American defendant challenged his death sentence based on detailed sociological evidence demonstrating that juries were harsher to African American defendants, especially when the alleged victim was white.³⁹³ The Court in *McCleskey* found that, although the

385. Note that statements of conditionality are not always causal statements. It is generally accepted that causal statements require that cause precedes effect in time, but conditional statements do not. Vern R. Walker, *Restoring the Individual Plaintiff to Tort Law by Rejecting "Junk Logic" About Specific Causation*, 56 ALA. L. REV. 381, 432 (2004).

386. See Martin J. Katz, *The Fundamental Incoherence of Title VII: Making Sense of Causation in Disparate Treatment Law*, 94 GEO. L.J. 489, 498–99 (2006). Katz uses the term "minimal causation," to describe causes that help produce outcomes but are neither necessary nor sufficient. *Id.* at 499. We use the term 'contributory' causes to describe all causes, whether necessary, sufficient or both. But a contributory cause also encompasses Katz's notion of 'minimal' causes.

387. See generally Chauncey D. Smith, Note, *Deconstructing the Pipeline: Evaluating School-to-Prison Pipeline Equal Protection Cases Through a Structural Racism Framework*, 36 FORDHAM URB. L.J. 1009, 1024 (2009). For example, there is no single factor that can produce an economic depression or a hurricane. These outcomes are the product of many causes interacting. If sufficient causes were present, then a complex systems perspective would not be necessary.

388. See, e.g., Katz, *supra* note 386, at 498 (analogizing necessary, but not sufficient, causes to the straw that broke the camel's back). For example, while global warming is a product of many causes, the presence of a globe to warm is a necessary condition to that outcome. This necessary cause is analytically insignificant because it is a given.

389. See Smith, *supra* note 387, at 1024 ("[T]he dynamic nature of [complex systems] . . . occur as a result of multiple causes.").

390. BLACK'S LAW DICTIONARY 297 (8th ed. 1999) (defining "contributing cause" as "[a] factor that—though not the primary cause—plays a part in producing a result").

391. *Milliken v. Bradley*, 418 U.S. 717, 756 n.2 (1973).

392. See *id.* at 752.

393. *McCleskey v. Kemp*, 481 U.S. 279, 291 (1987).

statistical evidence overwhelmingly demonstrated that discrimination existed in the Georgia criminal system, there was no evidence of intentional discrimination against McCleskey.³⁹⁴ The Court found the idea of state responsibility for a discriminatory system unconvincing, stating that the defendant “appears to argue that the State has violated the Equal Protection Clause by adopting the capital punishment statute and allowing it to remain in force despite its allegedly discriminatory application.”³⁹⁵ Without evidence of intentional discrimination, the Court held,

As legislatures necessarily have wide discretion in the choice of criminal laws and penalties, and as there were legitimate reasons for the Georgia Legislature to adopt and maintain capital punishment . . . we will not infer a discriminatory purpose on the part of the State of Georgia. Accordingly, we reject McCleskey’s equal protection claims.³⁹⁶

Again, the Court is fashioning the rules of the game by defining what counts as knowledge.³⁹⁷ And, once again, it appears that the Court is constraining what it will count as knowledge based, at least in part, upon a concern with the potential remedy. In another example of methodological individualism and its reductionist logic, examination of McCleskey’s case is atomized to the point where it obscures the government’s responsibility—based on its acts and omissions—for racially disparate effects of the criminal justice system.³⁹⁸ This has the result of enabling particular instances of discrimination, which can be explained in racially neutral terms, to be dismissed in isolation. Just as the Court ignored the numerous “unknown and unknowable” causes of residential segregation in *Milliken*, the Court in *McCleskey* turns a blind eye to the obvious and well documented history (and present state of) discrimination in Georgia’s criminal justice system, in part, for what Justice Brennan famously called “a fear of too much justice.”³⁹⁹ One scholar compared the Court’s claim

394. Specifically, the court said “to prevail under the Equal Protection Clause, McCleskey must prove that the decisionmakers in *his* case acted with discriminatory purpose. He offers no evidence specific to his own case that would support an inference that racial considerations played a part in his sentence.” *Id.* at 292–93.

395. *Id.* at 297–98.

396. *Id.* at 298–99.

397. The intent doctrine created by the Court in *Washington v. Davis* is extremely problematic when considering the mind sciences and implicit bias. *See generally* Krieger, *Content of Our Categories*, *supra* note 212; *see also* Lawrence, *supra* note 121.

398. Randall L. Kennedy, *McCleskey v. Kemp: Race, Capital Punishment, and the Supreme Court*, 101 HARV. L. REV. 1388, 1420 (1988).

399. *Id.* at 339 (Brennan, J., dissenting). Brennan responded to the part of the majority opinion that stated that, besides the ‘lack’ of intentional discrimination on the part of the state, if the court were to recognize the overwhelming statistical evidence of discrimination, it “could soon be faced with similar claims as to other types of penalty.” *Id.* at 315.

that the Baldus study only shows ‘correlation,’ rather than sufficient causation, to the tobacco companies’ claims that cigarettes may not cause cancer.⁴⁰⁰

The epistemic practices the Court employed in *Bakke*, *Milliken*, and *McClesky* are quite limiting. The standards for what counts as relevant knowledge prove decisive. The Court is acting like the atmosphere, filtering out all but one wavelength, so it “sees” only blue. Although some legal scholars have called this “Newtonian judicial blindness,”⁴⁰¹ the use of the law in this way turns out to be an epistemic practice of ignorance. The “cognitive norms that produce ignorance as an effect of substantive epistemic practices are those that naturalize and dehistoricize both the process and product of knowing.”⁴⁰² Thus, Justice Brown in *Plessy* said that if the separation of races by rail carriages denotes inferiority, it is solely because “the colored race chooses to put that construction upon it.”⁴⁰³ That is more than a neglectful or inaccurate epistemic practice; it’s a practice of ignorance. It uses the formalism of law to make certain facts irrelevant or even unintelligible.⁴⁰⁴ For example, in *Parents Involved*, Chief Justice Roberts did not even address the considerably and impressive body of social science evidence gathered in support of a compelling government interest in diversity.⁴⁰⁵ He said that this evidence was irrelevant because the plans at issue were not narrowly tailored.⁴⁰⁶ The narrow-tailoring requirements, a feature of the strict scrutiny framework, serve to preclude consideration of the merits of the issue in Chief Justice Roberts’ opinion.⁴⁰⁷ Thus, in each of these cases, the Justices are not simply failing to credit certain forms of knowledge, but in fact they are determining what counts as knowledge—they are fashioning the rules of the game. They are much more than mere referees. They are determining the

400. Kennedy, *supra* note 398, at 1415–16.

401. Tribe, *supra* note 19, at 34.

402. Linda Martin Alcoff, *Epistemologies of Ignorance: Three Types*, in RACE AND EPISTEMOLOGIES OF IGNORANCE 39, 39 (Shannon Sullivan & Nancy Tuana eds., 2007). Note this is not merely a lack of knowledge, but it is active and deliberate ignorance and repression.

403. *Plessy v. Ferguson*, 163 U.S. 537, 551 (1896). The full quotation reads:

We consider the underlying fallacy of the plaintiff’s argument to consist in the assumption that the enforced separation of the two races stamps the colored race with a badge of inferiority. If this be so, it is not by reason of anything found in the act, but solely because the colored race chooses to put that construction upon it.

Id.

404. This is a very important distinction. As we have seen, some facts are made irrelevant, such as the migration patterns of persons in metro Detroit. Others are made unintelligible, as seen in the Court’s attempt in *McClesky* to identify which forms of intentional discrimination are entitled to a remedy.

405. *Parents Involved in Cmty. Sch. v. Seattle Sch. Dist. No. 1*, 551 U.S. 701, 725–26 (2007).

406. *Id.*

407. The tiered scrutiny framework readily lends itself to judicial determinations regarding what counts as relevant knowledge.

strike zone. In that way, while claiming to be neutral, predictable, and objective, formalism in the law can serve quite pernicious ends.⁴⁰⁸

The umpire analogy projects a method of adjudication in two distinct steps. First, the law has to be known or discovered. Depending on the methodological approach, this step usually begins with an inspection of relevant text or precedent. Second, this meaning has to be applied to the facts at hand. What is important for our immediate purposes is that the step of rule determination and rule application are assumed to be distinct. Challenging the Enlightenment assumption of objectivity, and therefore neutrality, we suggest that the attempt to separate the subject and object, the observer and the observed, the judge and the law, is not possible.⁴⁰⁹ That also means that the assumption that rule determination and rule application is distinct must also be called into question. There is a unity between interpretation and application. The concerns with the remedies in *Bakke*, *Millikin*, and *McClesky* in determining the prior question of what counts as knowledge illustrates the relationship between the two steps.

The umpire analogy further assumes that judges can objectively observe both the law and the facts. The first step, determining textual meaning, is the “objective” turn, to read a text and understand its import and significance. Originalists seek to do this by looking at how the text was originally understood.⁴¹⁰ Textualists do this by restricting the possible range of textual interpretations through reference only to the language of the document itself.⁴¹¹

The desire to discover objective textual meaning is an Enlightenment legacy. The concern is that so long as subjectivity is present, objectivity cannot be. And, under Enlightenment epistemology, meaning resulting from subjectivity is insecure in its legitimacy. Methodology, no matter how refined, cannot resolve this insecurity.⁴¹² In our attempt to understand something, we cannot help but bring to bear certain “interpretative possibilities” which are a product of our prior experience.⁴¹³ The possibilities are thereby conditioned by meanings provided in the past.⁴¹⁴ The meaning of a

408. See generally Porter *supra* note 330 at 1571.

409. See Gedicks, *supra* note 70, at 625–29. Heidegger suggests that subject and object are always inseparably intertwined in relationships. *Id.* at 644. This is consistent with quantum theory and systems thinking. Quantum theory suggests that the process of observation alters the thing being observed, as well as the observer. Tribe, *supra* note 19, at 4–5.

410. Gedicks, *supra* note 70, at 634.

411. Jonathan R. Seigel, *What Statutory Drafting Errors Teach Us About Statutory Interpretation*, 69 GEO. WASH. L. REV. 309, 319 (2001).

412. See HANS-GEORG GADAMER, *TRUTH AND METHOD* at xx-xxi (Joel Weinsheimer & Donald G. Marshall trans., Continuum 2004) (1975).

413. See Gedicks, *supra* note 70, at 626; see also GADAMER, *supra* note 412, at 300; see also *infra* Part IV (discussing the mind sciences).

414. See Gedicks, *supra* note 70, at 626.

text is “always already shaped by the tradition in which it is embedded—those situations in which the text has previously been applied.”⁴¹⁵ It may appear that this is consistent with the originalist approach, which uses prior interpretation to govern present questions. The shift from *Plessy* to *Brown* belies such a conclusion. Neither the text of the Equal Protection Clause nor the facts of the cases changed. What changed was the meaning attributed to the text and the facts.⁴¹⁶ Prior understanding of the text was viewed in light of the issue at hand in a “fusion of horizons.”⁴¹⁷ Thus, the “meaning of the constitutional text is . . . neither merely what the Framers and their contemporaries understood it to mean, nor merely what we in the present understand it to mean, but both.”⁴¹⁸

The first assumption embedded in the umpire analogy is the assumption of neutrality. As we noted in Part I, an essential ingredient of the Enlightenment Project was the assumption of neutrality. This assumption was derived from the science that preceded it, and the belief that there was a neutral stance, and an objective world.⁴¹⁹ The idea is that, in terms of observing the world (or the mind) through reason, we want to be neutral, dispassionate, and disinterested, keeping our emotions in check.⁴²⁰ In that sense, neutrality became a goal of science. This assumption is deeply grounded in our jurisprudence. We seek neutrality in our law and demand it from our judges.

In the confirmation hearings for Justice Sonia Sotomayor, the issue was raised whether jurists are neutral, or *can* be neutral. Many of the questions posed to Sotomayor during her confirmation process questioned her impartiality—her ability to render justice neutrally.⁴²¹ Exhibit A, calling into

415. *Id.* at 627.

416. Justice Souter made this challenge to originalism in his remarks at the 2010 Harvard commencement ceremonies:

The meaning of facts arises elsewhere, and its judicial perception turns on the experience of the judges, and on their ability to think from a point of view different from their own. Meaning comes from the capacity to see what is not in some simple, objective sense there on the printed page. And when the judges in 1954 read the record of enforced segregation it carried only one possible meaning: It expressed a judgment of inherent inferiority on the part of the minority race. The judges who understood the meaning that was apparent in 1954 would have violated their oaths to uphold the Constitution if they had not held the segregation mandate unconstitutional.

Justice David Souter, Commencement Remarks at Harvard University (May 27, 2010), *available at* <http://news.harvard.edu/gazette/story/2010/05/text-of-justice-david-souters-speech/> [hereinafter Souter, Commencement Remarks].

417. GADAMER, *supra* note 412, at 367.

418. *See* Gedicks, *supra* note 70, at 635.

419. *See supra* Part I.

420. This capacity, in turn, depends upon the inherent severability of emotions and other cognitive processes. *See supra* Part III.D.

421. *See generally* Transcript—Sotomayor Confirmation Hearings, Day 2, N.Y. TIMES.COM, July 14, 2009, <http://www.nytimes.com/2009/07/14/us/politics/14confirm-text.html?pagewanted=all>.

question her neutrality, was her 2001 statement, “I would hope that a wise Latina woman with the richness of her experiences would more often than not reach a better conclusion than a white male who hasn’t lived that life.”⁴²² If the life experiences of a Latina woman influence the decision-making process, if not the outcomes themselves, then does that call into question Justice Sotomayor’s ability to render objective judgments of law? Moreover, if life experience matters in general, then does that call into question whether neutrality is possible at all?

What we have seen in both the physical sciences and in the more recent mind sciences is that the idea of neutrality from the Newtonian perspective is not possible. Our observation of the world—our experience—is never neutral. And yet, this idea, that sensory experience is both fixed (objective) and neutral is one of the most enduring ideas of both seventeenth century science and the eighteenth century Enlightenment Project. The possibility of an objective perspective is similarly unattainable. The act of seeing, of observing, is simultaneously an act of perceiving, of constructing knowledge, including the self. Roberts’ position that he merely ‘calls it like he sees’ it assumes that observation is a neutral, passive process, and not an active one that is constructing the experience itself. The research in the mind sciences described in Part III.C substantiates these insights and describes these processes.⁴²³

We demand neutrality, not merely in our judges, but in the law as well. It was in these terms that Herbert Wechsler launched one of the most searing critiques of *Brown*. Wechsler argued that *Brown* was illegitimate because it was not decided on the basis of neutral principles.⁴²⁴ Consequently, Wechsler’s critique was used by Southerners to justify resistance to the *Brown* mandate.⁴²⁵ Wechsler argued that the interest of whites, who wished to avoid association with blacks and students of color, could not be neutrally reconciled against the interests of blacks, who expressed an interest in integration.⁴²⁶ There were two interests and two rights of association being implicated. The issue for Wechsler was how the Court might neutrally decide which to support.⁴²⁷ Siding with the black students was, in some abstract sense, a violation of neutral principles.⁴²⁸ The influence of this debate on

422. See Sonia Sotomayor, *A Latina Judge’s Voice*, 13 BERKELEY LA RAZA L.J. 87 (2002).

423. See *supra* Part III.C.

424. Herbert Wechsler, *Toward Neutral Principles of Constitutional Law*, 73 HARV. L. REV. 1, 26 (1959).

425. See Reva Siegel, *Equality Talks: Antisubordination and Anticlassification Values in Constitutional Struggles Over Brown*, 117 HARV. L. REV. 1470, 1495 (2004).

426. Wechsler, *supra* note 424, at 34.

427. See *id.*

428. Goodwin Liu has shown that *Plessy* also presumed neutrality. See Goodwin Liu, “History Will Be Heard”: An Appraisal of the Seattle/Louisville Decision, 2 HARV. L. & POL’Y REV. 53, 65 n.75 (2008).

contemporary interpretation of the equal protection clause and the meaning of the *Brown* decision is evident.⁴²⁹

In contemporary equal protection jurisprudence, particularly on the Roberts' court, the trappings of neutrality are very strong.⁴³⁰ The anticlassification principle has been adopted recently by a majority of the Court as the test for applying the equal protection clause.⁴³¹ This principle suggests that Linda Brown and *Parents Involved* plaintiff Joshua McDonald were subjected to the same harm: the harm of racial classification.⁴³² In turn, *Brown* has been reinterpreted as a case of impermissible racial classification rather than the judicial condemnation of a caste system of racial subordination. This new reading is ultimately derivative of Wechsler and the idea that the jurists and the law should be neutral. Consequently, equal protection jurisprudence is in large measure derivative of Newtonian neutral principles.⁴³³

Not only is neutrality not possible, it is not something to which we should aspire. The Declaration of Independence is not neutral. The Constitution is not a neutral document. Equality is not a neutral concept. These documents and the ideas they express are grounded in values and intended to achieve often partisan ends. What Wechsler noticed, but left unstated, was that to transform the societal arrangement and secure the rights of blacks, you have to impact those arrangements for whites. Wechsler was obliquely recognizing that rights are relational. In spite of this, he tried, as does the anticlassification advocate, to develop jurisprudence that is not relational. It is not possible.⁴³⁴ This is not only true of Jim Crow or contemporary racial arrangements, but it is also true of contract law, property law, and so on.⁴³⁵ Insistent on an Enlightenment paradigm, there has been much effort devoted to developing an approach to avoid this claim or to misunderstand it. Granted, a relational jurisprudence will make law less than neutral, even political.⁴³⁶ It is this that triggers a new Cartesian anxiety. If the law is not neutral or objective, then it follows that it must be farce and chaos. Once we reject the idea of neutrality as a goal, the

429. See Siegel, *supra* note 425, at 1547.

430. See John A. Powell & Stephen Menendian, *Little Rock and the Legacy of Dred Scott*, 52 ST. LOUIS U. L.J. 1153, 1178 (2008).

431. See *Parents Involved in Cmty. Sch. v. Seattle Sch. Dist. No. 1*, 551 U.S. 701, 742 (2007); see also John A. Powell & Stephen Menendian, *Parents Involved: The Mantle of Brown, the Shadow of Plessy*, 46 U. LOUISVILLE L. REV. 631, 684 (2008).

432. *Id.*

433. See Siegel, *supra* note 425, at 1472. The rejection of Newtonian neutrality and objectivity does not entail chaos, but it requires a different understanding of both. See generally BERNSTEIN *supra* note 45.

434. GEORGE LIPSITZ, *THE POSSESSIVE INVESTMENT IN WHITENESS: HOW WHITE PEOPLE PROFIT FROM IDENTITY POLITICS* 24–25 (1998).

435. ROBERTO MANGABEIRA UNGER, *THE CRITICAL LEGAL STUDIES MOVEMENT* 8 (1986).

436. See Winter, *supra* note 78, 1450.

issue shifts focus to address which values are being served, how do we think about those values, and how are they to be effectuated? Those are very different questions than those posed by a claim of neutrality.⁴³⁷

The power to settle rules for calling the game entails the power to prescribe what constitutes a fact and who counts as a player. In turn, judicial responsibility is much greater and more profound than simply observing and calling balls or strikes, or pretending to respond to the natural world. If we reject the idea that there is a “natural” world that we can know, then we necessarily do more than respond to it or observe it. We interact with it, co-creating it through our interaction. In turn, the world is co-creating us. Law acts as a context for society, and society is a context for law.⁴³⁸ As a context for each other, they interact and evolve together, in mutual co-constitution.⁴³⁹

Contrary to the assumption that law and society are intrinsically separable, there is a powerful reciprocal interaction between law and society. Judgments of law warp the epistemological space in which society moves.⁴⁴⁰ “Each legal decision restructures the law itself, as well as the social setting in which law operates.”⁴⁴¹ The meaning of the issues at stake may change as soon as an issue is adjudicated. The very act of adjudication, particularly by the Supreme Court, transmutes the importance of the issues at stake.⁴⁴²

437. One could argue that a fundamental societal and legal value is fairness. However, while equality and fairness are often conflated, in practice they are very different concepts. See Kent Greenawalt, *How Empty is the Idea of Equality?*, 83 COLUM. L. REV. 1167, 1168 (1983).

438. See Ruhl, *supra* note 192, at 851.

439. *Id.*; see Winter, *supra* note 78, at 1452, 1475.

440. Tribe, *supra* note 19, at 22.

441. *Id.* at 8. Professor Tribe observes that law has a “pervasive and profound” role in shaping our society and our lives. *Id.* at 2. The relationship between law and society is a dialectical one. Tribe uses the analogy of ‘curved’ space propounded by Einstein to critique worldview that understands state power, including judicial power, as neutral or apart from society. *Id.* at 7–8. More deeply, Professor Tribe suggests that state action, even when not directed at a particular individual, shapes the rules of the game in a way that can interact with private decisions to produce harmful outcomes. See *id.* at 8–11. But courts sometimes have difficulty recognizing as much. The contributory causation of law thus goes unnoticed by judges. See, e.g., *id.* at 15–16 (discussing cases where the Court ignores contributory causation by defining the “natural” social order).

442. Professor Tribe discusses the case of *Wooley v. Maynard*, a case in which two Jehovah’s witnesses objected, on First Amendment grounds, to being forced to display the state motto, “Live Free or Die,” on their license plate. *Id.* at 20–21 (citing *Wooley v. Maynard*, 430 U.S. 705 (1977)). Passing on the symbolic speech issue—in which the Maynards requested a license plate with no motto—the Court focused instead on the right to speak or to not speak, ruling that a state may not force individuals to publicly display its message on their private property. *Id.* at 21. Tribe makes the brilliant point that the very meaning of the decision changes as a result of this decision. *Id.* at 23. After all, not displaying the motto becomes conspicuous, and, thereby, a message in itself. *Id.* at 22. Before the Court’s decision—or perhaps before the case was brought to court—the Maynards’s display of a plate without the motto would not necessarily be speech in

The Court frames and often heightens the meaning of the issues, as private conflicts acquire political significance. For example, *Dred Scott* was a simple lawsuit for freedom that became a national concern. Conversely, the public response to a judicial decision can in turn shape the meaning of those decisions. The debate over neutral principles and the massive resistance to *Brown* shaped *Brown's* future.⁴⁴³ At the same time, even though the enunciation of rights in *Brown* did not bring about the change the legal team had hoped, it did change the national discourse and gave moral legitimacy to the Civil Rights movement.⁴⁴⁴ “An adequate constitutional analysis cannot ignore the impact on social meaning of the Court’s own action.”⁴⁴⁵ Nor can such an analysis ignore the legal impact of the societal response.

[W]hen the Court observes and describes legal phenomena . . . we sense, among other things, that it is not simply taking measurements and making a record of something that is already ‘out there.’ Rather, it is bending and changing the legal and social landscape so that, after such cases are decided, people will be guided by assumptions and premises and patterns that differ from those that shaped their behavior before those cases were decided.⁴⁴⁶

For example, the expectation that school boards, rather than state or municipalities, would be the remedial agent in desegregation cases later affected the perceived utility of judicial efforts to stem white flight. In that sense, *Milliken* is an outgrowth of prior decisions, which have been taken as a given and naturalized. At the same time, *Milliken* sanctioned white flight by shielding suburban districts from the *Brown* mandate. In doing so, it altered the “gravitational pull,” which was not to accept racial integration, but to resist it. The Court’s decision in *Milliken* legitimated minority ghettoization by failing to recognize the role of law and state action in creating that situation, and making it more likely that people will think nothing is wrong.⁴⁴⁷

and of itself. After the Court ruled on the case, the Maynards—who originally sought to present *no speech at all* on their plate, were in fact forced into symbolic speech by the decision, which said that they must cover or not cover the plate, each action sending a message. *Id.*

443. See generally Siegel, *supra* note 425 (discussing early resistance to *Brown* and how those arguments shaped the development of equal protection law).

444. Professor Tribe points out that the direct force of *Brown* was anemic and less than two percent of southern schools were desegregated. Tribe, *supra* note 19, at 29. However, the declaration of rights in *Brown* transformed the political reality. *Id.* “[T]his declaration of rights had in itself dramatically altered the country’s perspective as to which group had law and order on its side. During the Montgomery bus boycotts and throughout the civil rights movement, *Brown* put the force of legal morality behind the demonstrators.” *Id.* This helped fuel the political discontent and propel passage of civil rights legislation. *Id.*

445. *Id.* at 22.

446. *Id.* at 23.

447. Tribe, *supra* note 19, at at 30.

Similarly, the ramifications of judicial tinkering with the rules of the game in cases like *Bakke* or *McCleskey* shape societal expectations in other ways. Randall Kennedy criticized *McCleskey* on the grounds that, in fashioning a decision that flows backward from the consequences of the remedy, the Court actually distorts and warps the legal landscape to justify its decision.⁴⁴⁸

The Court itself suggested that McCleskey should have taken his complaint to legislative bodies, not the federal courts. But by allowing concerns over remedy to determine its assessment of the social reality at issue, the Court's opinion miseducates the executives, legislators, constituents, and other possible participants in the controversy. By suggesting that there exists no real racial problem in Georgia's administration of the death penalty, the Court makes discussion of any remedy far more difficult: in the wake of *McCleskey*, those seeking reform must attempt to change a popular but unfairly administered institution on the basis, in part, of racial disparities the Supreme Court of the United States appears to have found completely untroubling.⁴⁴⁹

Legal formalism is not the only practice of epistemological ignorance. The construction of text, the metaphysics of the Enlightenment itself, helps to usher in these practices. Consider the discrimination model under the Equal Protection Clause. It is deeply grounded in "methodological individualism."⁴⁵⁰ This is a form of reductionism, where the focus is the individual. As Chief Justice Roberts reiterated, "[T]he Equal Protection Clause 'protect[s] *persons*, not *groups*.'"⁴⁵¹

But it is not just individuals; there is a focus on the individual's state of mind. While it may be true that we are individuals, none of us are just an individual—the individual is always embedded.⁴⁵² The question is posed: What did the individual intend to do? It is this information that tells us whether we have discrimination. We are looking for bad actors that consciously have animus toward some group or person and then act on it.⁴⁵³ It is assumed that it was the intent that caused the outcome. Outcomes that appear discriminatory or have been caused because of the person's race are not considered discrimination when they lack this intentionality. In a sense, it falls

448. Kennedy, *supra* note 398, at 1416.

449. *Id.*

450. See TAYLOR, *supra* note 375, at 133–34.

451. Parents Involved in Cmty. Sch. v. Seattle Sch. Dist. No. 1, 551 U.S. 701, 743 (2007) (quoting Adarand Constructors v. Peña, 515 U.S. 200, 227 (1995)). "Liberal social and political theories and theories of scientific knowledge alike owe much to the idea that the world is composed of individuals—presumed to exist before the law, or the discovery of the law." BARAD, *supra* note 12, at 46.

452. Winter, *supra* note 78, at 1531.

453. See, e.g., Washington v. Davis, 426 U.S. 229, 239 (1976) (explaining that a finding of discrimination requires an express or implied discriminatory purpose). Title VII has been similarly interpreted. See Krieger, *Content of our Categories*, *supra* note 212, at 1168.

back to Justices Stewart's and Powell's positions that something may be going on, though it is not known to a sufficient legal standard, and it is perhaps unknowable.

In addition to neutrality, objectivity, and certainty, the conception of the natural state or natural position embedded within Enlightenment thought has wound its way into law. Nineteenth century jurists, often educated in the philosophy of natural law, expressed this idea in several ways. First, jurists would justify certain arrangements in society on the basis of the 'naturalness' of them. Perhaps most infamously is *Plessy v. Ferguson*,⁴⁵⁴ where the Court acquiesces to the "natural" social division and social inferiority of blacks in relationship to whites.⁴⁵⁵ As Justice Brown said on behalf of the Court, "If one race be inferior to the other socially, the Constitution of the United States cannot put them upon the same plane."⁴⁵⁶ But it is not just that the social order is impermeable by law, because it is imprudent to attempt to do so.⁴⁵⁷ There is an underlying view that there is a limit to law's reach, and that limit is nature:

[Plaintiff's] argument . . . assumes that social prejudices may be overcome by legislation, and that equal rights cannot be secured to the negro except by an enforced commingling of the two races. We cannot accept this proposition. If the two races are to meet upon terms of social equality, it must be the result of *natural* affinities, a mutual appreciation of each other's merits, and a voluntary consent of individuals Legislation is powerless to eradicate racial instincts.⁴⁵⁸

If we go back further still, we find the same approach in *Dred Scott v. Sanford*,⁴⁵⁹ where Chief Justice Taney catalogued the history of race relations in law as well as social relations as justification for denying blacks citizenship. In view of the Chief Justice, speaking on behalf of the Court:

[These laws and customs] show that a perpetual and impassable barrier was intended to be erected between the white race and the one which they had reduced to slavery, and governed as subjects with absolute and despotic power, and which they then looked upon as so far below them in the scale of created beings, that intermarriages between white persons and negroes or mulattoes were regarded as unnatural and immoral, and punished as crimes, not only in the parties, but in the person who joined them in marriage.⁴⁶⁰

454. 163 U.S. 537 (1896).

455. *Id.* at 551.

456. *Id.* at 552.

457. Justice Brown cites *People v. Gallagher*, 93 N.Y. 438, 448 (1883), which says that this end cannot be accomplished or promoted by laws which conflict with the community upon whom they are designed to operate. *Plessy*, 163 U.S. at 551.

458. *Id.* at 551 (emphasis added).

459. 60 U.S. (19 How.) 393 (1857).

460. *Id.* at 409.

In short, the Chief Justice sketched a natural order, a “scale of being,” or chain, and a conflation of natural with morality. He continued,

They had for more than a century before been regarded as beings of an inferior order, and altogether unfit to associate with the white race, either in social or political relations; and so far inferior, that they had no rights which the white man was bound to respect; and that the negro might justly and lawfully be reduced to slavery for his benefit. He was bought and sold, and treated as an ordinary article of merchandise and traffic, whenever a profit could be made by it. This opinion was at that time fixed and universal in the civilized portion of the white race. It was regarded as an axiom in morals as well as in politics, which no one thought of disputing, or supposed to be open to dispute; and men in every grade and position in society daily and habitually acted upon it in their private pursuits, as well as in matters of public concern, without doubting for a moment the correctness of this opinion.⁴⁶¹

Chief Justice Taney’s conclusion was grounded in his inspection of the laws and constitutions of the states, the colonies, and Great Britain, as well as the custom of the time.⁴⁶² In its cataloging of the laws of the time, the Court acted as if it was just “observing” nature, as if the Court was a scientist investigating a particular phenomenon, empirical in its methodology, and basing its adjudication on nothing more than the facts.⁴⁶³ In doing so, the Court was either denying or unaware of its role in creating these norms, of building them into not only the Constitution, but the fabric of the nation.

Even if ‘natural position’ reasoning no longer explicitly drives the Court’s race equality jurisprudence, it persisted longer in other areas, especially gay rights. In terms of invidious use of natural law reasoning, *Plessy* is to race as *Bowers v. Hardwick*⁴⁶⁴ is to sexual orientation. In that case, several justices invoked natural law in support of their claim that the Fourteenth Amendment does not protect the right to engage in “homosexual sodomy.”⁴⁶⁵ Writing for the majority, Justice White asserted, “No connection between family, marriage, or procreation on the one hand and homosexual activity on the other has been demonstrated”⁴⁶⁶ Because same-sex sexual intercourse deviates from the order of nature—that is, male–female vaginal intercourse that results in procreation—it is prohibited. Going further, Justice White observed,

Proscriptions against that conduct have ancient roots. Sodomy was a criminal offense at common law and was forbidden by the laws of the original thirteen

461. *Id.* at 407.

462. DON FEHRENBACHER, THE DRED SCOTT CASE: ITS SIGNIFICANCE IN AMERICAN LAW AND POLITICS 6–7, 349–51, 360–61 (1978).

463. And yet, it is curious how selective Taney was. *See id.* at 360 (in discussing citizenship of African Americans, Taney “cited three laws, ignoring others that did not suit his purpose”).

464. 478 U.S. 186, 190 (1986).

465. *See id.*

466. *Id.* at 191.

States when they ratified the Bill of Rights Against this background, to claim that a right to engage in such conduct is “deeply rooted in this Nation’s history and tradition” or “implicit in the concept of ordered liberty” is, at best, facetious.⁴⁶⁷

In his superfluous concurrence, Chief Justice Burger offered much the same rationale:

[T]he proscriptions against sodomy have very “ancient roots.” Decisions of individuals relating to homosexual conduct have been subject to state intervention throughout the history of Western civilization. Condemnation of those practices is firmly rooted in Judeo-Christian moral and ethical standards.⁴⁶⁸

Although these arguments sound in traditional morality more than natural law *per se*, the two are inextricably linked.⁴⁶⁹

These jurists often carved the world up into the political, civil, and social—a trichotomy that is often unfamiliar and frequently misunderstood by modern practitioners—and used these distinctions to justify certain outcomes.⁴⁷⁰ In the view of these jurists, laws aiming at protecting civil and political rights cannot be used to interfere with social relations. The laws of civil society or the political community cannot intrude into the domain of the private. Thus, in 1883, the U.S. Supreme Court struck down the Civil Rights Act of 1875 as unconstitutional.⁴⁷¹ The Act prohibited racial discrimination in public accommodation and transportation.⁴⁷² The Court held that the Act, in reaching beyond state action to prohibit action taken by private individuals, exceeded the scope of the Fourteenth Amendment.⁴⁷³ The Court fretted that such a law would “establish a code of municipal law regulative of all private

467. *Id.* at 192–94 (internal citations and footnote omitted).

468. *Id.* at 196 (Burger, C.J., concurring).

469. See generally MARK D. JORDAN, *THE INVENTION OF SODOMY IN CHRISTIAN THEOLOGY* (1997); Andreas Roth, *Crimen contra naturam*, in *NATURAL LAW AND LAWS OF NATURE IN EARLY MODERN EUROPE* 89, 91 (Lorraine Daston & Michael Stolleis eds., 2008) (“Deviations from nature are to be found most often in the case of morality offences.”); see also *supra* Part 1 (discussing natural law).

470. See Powell & Menendian, *supra* note 431, at 680.

471. *The Civil Rights Cases*, 109 U.S. 3 (1883).

472. *The Civil Rights Act of 1875*, ch. 114, § 1, 18 Stat. 335 (1875) ([A]ll persons within the jurisdiction of the United States shall be entitled to the full and equal enjoyment of the accommodations, advantages, facilities, and privileges of inns, public conveyances on land or water, theatres, and other places of public amusement; subject only to the conditions and limitations established by law, and applicable alike to citizens of every race and color, regardless of any previous condition of servitude.”). Although these basic protections were enshrined in the Civil Rights Acts of 1964 and 1968, they were passed pursuant to Congress’s authority under the Commerce Clause, not the Reconstruction Amendments.

473. *The Civil Rights Cases*, 109 U.S. at 13.

rights between man and man in society.”⁴⁷⁴ In that way, the legal/social divide manifests onto the private/public. The Court continued,

In this connection, it is proper to state that civil rights, such as are guaranteed by the Constitution against State aggression, cannot be impaired by the wrongful acts of individuals, unsupported by State authority in the shape of laws, customs, or judicial or executive proceedings. The wrongful act of an individual, unsupported by any such authority, is simply a private wrong, or a crime of that individual⁴⁷⁵

For the Court in *Plessy*, the domain of civil and political rights was wholly distinct from the sphere of social prejudice:

The object of the [Fourteenth] amendment was undoubtedly to enforce the absolute equality of the two races before the law, but, in the *nature* of things, it could not have been intended to abolish distinctions based upon color, or to enforce social, as distinguished from political, equality, or a commingling of the two races upon terms unsatisfactory to either.⁴⁷⁶

Furthermore, the Court went on to state:

The distinction between laws interfering with the political equality of the negro and those requiring the separation of two races in schools, theatres, and railway carriages has been frequently drawn by this court.⁴⁷⁷

Of course, we look back now and say that the Court was wrong. But these distinctions persist. In *Freeman v. Pitts*,⁴⁷⁸ the state action/private choice was inscribed deeply. The Court said, “Where resegregation is a product not of state action but of private choices, it does not have constitutional implications.”⁴⁷⁹

More recently, in his concurrence in *Parents Involved*,⁴⁸⁰ Justice Thomas wrote: “racial imbalance [in schools] can also result from any number of innocent private decisions, including voluntary housing choices. . . . Individuals schools fall in and out of balance in the natural course, and the appropriate balance will shift with a school district’s changing demographics.”⁴⁸¹ Justice Thomas, as the other Justices before him had done, is suggesting that there is a natural order to the world,⁴⁸² and the law either

474. *Id.*

475. *Id.* at 17.

476. *Plessy v. Ferguson*, 163 U.S. 537, 544 (1896) (emphasis added).

477. *Id.* at 546 (citing *Strauder v. West Virginia*, 100 U.S. 303 (1879)).

478. 503 U.S. 467 (1992).

479. *Id.* at 498.

480. *Parents Involved in Cmty. Sch. v. Seattle Sch. Dist. No. 1*, 551 U.S. 701 (2007).

481. *Id.* at 750 (Thomas, J., concurring) (citations omitted).

482. Note that in doing so, Justice Thomas advances the idea of a separation between state and private action, a separation between state and nature. This is based on a particular way of

cannot or should not disrupt that order, just as Justice Henry Billings Brown did in *Plessy*. Instead, as Chief Justice Roberts suggests, judges are merely referees in a game. Their role, in that view, is to call plays. Justice Thomas is suggesting that segregation is natural or happens “outside” of the law, or that the law has very little direct impact on segregation. This is something we must call into question. Justice Kennedy, in his concurrence in *Parents Involved*, strongly suggested that the divide between historical policies and private action is far from clear, and it is impossible to untangle one from the other.⁴⁸³

Given these claims, one might say that the Court simply misinterpreted the natural position, just as Rousseau argued that Hobbes and Grotius, and Aristotle before them, had incorrectly assumed that men were not naturally equal.⁴⁸⁴ This was the essence of Justice Harlan’s dissent in the *Civil Rights Cases*. He claimed,

In every material sense applicable to the practical enforcement of the fourteenth amendment, railroad corporations, keepers of inns, and managers of places of public amusement are agents or instrumentalities of the State, because amenable, in respect of their public duties and functions, to public regulation.⁴⁸⁵

In other words, the majority was arguing that public accommodations are not state action, whereas Harlan was asserting that they were. The debate is over what is part of the state, and what is part of nature.⁴⁸⁶ This is the wrong debate. The issue is not what properly counts as natural. The problem is the way we think of “natural.” The idea of a natural position is itself problematic. It is the continuation of the theory of the state, where the Constitution defines the public, political sphere, which acts upon the “pre-political, natural order of

knowing, an epistemic practice that divides the world thus, and sees individuals as already constituted and not through their relationship.

483. *Parents Involved*, 551 U.S. at 701 (Kennedy, J., concurring) (“The distinction between government and private action, furthermore, can be amorphous both as a historical matter and as a matter of present-day finding of fact. Laws arise from a culture and vice versa. Neither can assign to the other all responsibility for persisting injustices.”).

484. JEAN JACQUES ROUSSEAU, *THE SOCIAL CONTRACT AND OTHER LATER POLITICAL WRITINGS* 43 (Victor Gourevitch ed., Cambridge Univ. Press 1997) (1762) (“Caligula’s reasoning amounts to that of Hobbes and Grotius. Aristotle before all of them had also said that men are not naturally equal, but that some were born for slavery and others for domination.”). On the contrary, Rousseau believed that the natural position is freedom, that “man is born free,” but is “everywhere . . . in chains” on account of society. *Id.* at xvii.

485. *The Civil Rights Cases*, 109 U.S. at 58–59 (Harlan, J., dissenting).

486. Professor Tribe describes a similar debate in the Court in *DeShaney v. Winnebago County Dep’t of Soc. Servs.*, where the Court, although moved by “natural sympathy,” was “compelled by existing legal doctrine” to find no violation of the Fourteenth Amendment. Tribe, *supra* note 19, at 9 (quoting 489 U.S. 189, 212 (1989) (Blackmun, J., dissenting)).

public life.”⁴⁸⁷ The idea of a natural position needs to be much more closely interrogated, and our own role in terms of creating that needs to be considered.

The umpire analogy embodies legal formalism, including its more naïve claims.⁴⁸⁸ The umpire analogy suggests that there are known or knowable, meaningful rules of law to be applied as specified by law to the facts at hand. In other words, judges simply apply law, but they do not create it. Consequently, law is largely, if not completely, determinant. The umpire plays no role in creating the rules of baseball while acting as a referee. This view has been staunchly refuted by legal realists, whose jurisprudential philosophy holds, at its extreme, that legal doctrine is “infinitely manipulable, used only to rationalize decisions that are actually motivated by other forces—notably by judges’ ‘hunches’ about how a case should be decided.”⁴⁸⁹ Critical Legal Studies theorists have long challenged the objectivity of law on the ground that its principles are indeterminate.⁴⁹⁰

In response, Justice Scalia, for example, has acknowledged that while there may not always be one “correct” answer, the text of the provision at issue or the applicable precedent proscribes a range of possible meanings.⁴⁹¹

487. *Id.* at 10.

488. Lawrence B. Solum, *The Supreme Court in Bondage: Constitutional Stare Decisis, Legal Formalism, and the Future of Enumerated Rights*, 9 U. PA. J. CONST. L. 155, 166, 169 (2006).

489. Williams, *supra* note 6, at 443. More recently, scholars have developed a more textured view of so-called neutral jurists. Moving away from the scientism located at the heart of legal realist claims, these scholars have developed a rejection of neutrality based not on science itself, but on paradigm shifts that uproot the law from its Newtonian scientific moorings. In a fascinating article discussing the *DeShaney* case, Professor Laurence Tribe argues that the umpire approach to neutrality is akin to the Newtonian view of neutral space in relation to the Einsteinian concept of curved space. Of the “neutral” judge, Tribe writes:

[J]ust as space cannot extricate itself from the unfolding story of physical reality, so also the law cannot extract itself from social structures; it cannot “step back,” establish an “Archimedean” reference point of detached neutrality, and selectively reach in, as though from the outside, to make fine-tuned adjustments to highly particularized conflicts. Each legal decision restructures the law itself, as well as the social setting in which law operates, because, like all human activity, the law is inevitably embroiled in the dialectical process whereby society is constantly recreating itself.

Tribe, *supra* note 19 at 7–8.

490. Veillieux, *supra* note 131, at 1984; see Mark Tushnet, *Survey Article: Critical Legal Theory (without Modifiers) in the United States*, 13 J. POL. PHIL. 99, 108 (2005) (discussing the argument advanced by critical legal scholars that “the purely legal materials at hand (statutes, precedents, ‘policies,’ whatever) underdetermined results in actual cases”); Mark V. Tushnet, *Defending the Indeterminacy Thesis*, in ANALYZING LAW: NEW ESSAYS IN LEGAL THEORY 197, 225 (Brian Bix ed., 1998) (“The indeterminacy thesis asserts that no matter how hard one tries, or how skilled one is as a lawyer, legal propositions in the relevant range are indeterminate.”).

491. See Tribe, *supra* note 19, at 424 (interpreting a 1989 lecture by Justice Scalia as standing for the proposition that “arriving at a clear and uniformly applied rule of law is often more important than ‘getting it right’”); Thomas W. Merrill, *Textualism and the Future of the Chevron*

Formalism need not mean that the rules of law are mechanical, determinant, or that there is a “correct” answer to a legal question.⁴⁹² We could be accused of reading more into the umpire analogy than is there, or of reading it too far, if we were to suggest as much. In fact, some scholars cite these as misconceptions associated with legal formalism.⁴⁹³ However, there is some indication that the Chief Justice subscribes to the more mechanical view of law.

In *Kenny A. v. Perdue*,⁴⁹⁴ a federal district judge awarded an additional \$4.5 million in attorney’s fees for the lead attorney’s performance, which was described as “superb,” and “truly exceptional.”⁴⁹⁵ The award was under Supreme Court review, and in an exchange with the lead attorney, Chief Justice Roberts objected, “I don’t understand the concept of extraordinary success or results obtained. The results that are obtained are presumably the results that are dictated or command [sic] or required under the law.”⁴⁹⁶ The Chief Justice said the outcome of a case “should be what the law requires, and not different results because you have different lawyers.”⁴⁹⁷ Could a district judge really suppose, he wondered, that “if it weren’t for how good you are, I would have made a mistake?”⁴⁹⁸

V. ALTERNATIVES

As we have seen, American jurisprudence, across the spectrum of public and private law, remains grounded in the past—in principles and precepts of the Enlightenment philosophy, classical mechanics, and Newtonian physics. And while many of these assumptions have been radically challenged or outright rejected, there is a sense in which the practice, teaching, and evolution of law are not simply slow to adapt to these new developments—they actively resist them.

Doctrine, 72 WASH. U. L.Q. 351, 370 (1994) (stating that Justice Scalia, in effect, argues that “the text of statutes and associated conventions of ordinary meaning generate a fairly narrow range of permissible outcomes”).

492. *Id.* at 174.

493. *Id.* at 170 (“Even if it turns out that the formal constraint of law is quite powerful and pervasive, no one who is familiar with contemporary American legal practice could reasonably believe that every outcome in every legal dispute is, in fact, determined by the formal constraints of the law.”).

494. 454 F. Supp. 2d 1260 (N.D. Ga. 2006).

495. Linda Greenhouse, *What the Law Demands*, N.Y. TIMES.COM, Nov. 19, 2009, <http://opinionator.blogs.nytimes.com/2009/11/19/what-the-law-commands> (quoting *Perdue v. Kenny A.* 454 F. Supp. 2d 1260, 1288–89 (N.D. Ga. 2006)).

496. *Id.* (quoting Transcript of Oral Argument at 30, *Perdue v. Kenny A.*, (No. 08-970), available at http://www.supremecourt.gov/oral_arguments/argument_transcripts/08-970.pdf).

497. *Id.*

498. *Id.*

Remaking law in light of the insights derived from the physical and mind sciences of the last century may seem daunting.⁴⁹⁹ It is all the more so given the incorrigibility of dominant paradigms by ‘normal science.’⁵⁰⁰ From a Kuhnian perspective, the Enlightenment assumptions constitute a legal paradigm.⁵⁰¹ Within a paradigm, there is no way effectively to replace it. This explains the failure of the critical theorists or the realists, whose critiques of the Enlightenment paradigm failed to transform it.⁵⁰² Even today, progressives wonder why their constitutional arguments have failed to persuade conservative Justices. The Democratic Senators who heaped scorn upon Chief Justice Roberts’s umpire metaphor during the Sotomayor hearings failed to apprehend the assumptions that have produced the judgments they take issue with, and they instead quibble within the dominant paradigm.⁵⁰³ Paradigms do not become accepted in linear steps, or through reason.⁵⁰⁴ Those operating within the paradigm work hard to protect it by reconciling anomalies and protecting the paradigms fundamental assumptions. Moreover, reason is defined within a particular paradigm. That is, rationality itself is paradigm-dependent.⁵⁰⁵ Logical argumentation or persuasive reasoning cannot produce a paradigm shift. Good-faith normative argument is insufficient because “we

499. 2 THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* 121 (1962).

500. *Id.* at 1469.

501. This constitutes what Steven Winter calls a “stabilized matrix.” Winter, *supra* note 78, at 1453.

502. Steven Winter expounds on their failure in the present moment:

I hazarded the claim that we are now in the throes of a full-blown crisis. If this claim is right, then we should expect a paradigm shift within the next few decades. In the context of this cycle of crisis-to-paradigm shift, there are two basic strategies: (1) One can try to implement one’s affirmative program by trying to appeal to (and/or reconstruct) a normal science from within; or (2) one can try to undermine an existing normal science by provoking or deepening crisis. But if one chooses the latter—and there are times when that choice is appropriate—then one must accept the fact that one has unavoidably chosen marginalization. There is, however, another alternative. One way to appeal to a normal science under attack is to offer a new paradigm or radical way out of the crisis that, nevertheless, maintains enough of the old tradition to assuage the inevitable drive for homeostasis.

Winter, *supra* note 78, at 1472.

503. “One of the frustrations with homeostatic systems of normal science is that, within their stabilized contexts, there is no orderly way to undo them.” *Id.* at 1469.

504. See Kuhn, *supra* note 34, at 121 (“[N]ormal science ultimately leads only to the recognition of anomalies and crises. And these are terminated, not by deliberation and interpretation, but by a relatively sudden and unstructured event”); OGLE, *supra* note 266, at 66 (“[T]here is no straightforward way of building up a paradigm, linearly, step-by-step, moving from the simple to the more complex.”).

505. See Kuhn, *supra* note 34, at 166 (“The very existence of science depends upon vesting the power to choose between paradigms”); see also Winter, *supra* note 78, at 1453 (“Kuhn’s influential account of the history of science identifies rationality as dependent upon such paradigms.”).

necessarily evaluate arguments and information in terms of some set of unconscious assumptions, beliefs, standards, frames of reference, and the like.”⁵⁰⁶ Rather, paradigms are replaced through Gestalt shifts, a different way of seeing the world, triggered after a period of crisis.

Our purpose here is to explore the “larger cultural constructs and stabilized matrices” in which law is already situated, as a means of exposing the assumptions that animate our jurisprudence to the anomalies that have called them into doubt.⁵⁰⁷ In doing so, we hope to lay the groundwork for an alternative model of law. Moreover, we no longer believe that these anomalies can be addressed within the dominant paradigm or on a piecemeal basis.

We would not presume to be able to offer a full account of an alternative model of law. However, we can suggest ways in which these insights suggest alternative conceptions and modes within law. Such an exercise is not merely theoretical, nor do we need to start from scratch. Existing jurisprudence offers models in case law and statutes for adopting what Laurence Tribe would call “post-Newtonian” insights. The courts have inconsistently and sporadically adopted such perspectives.

For example, in the 1969 case *Gaston County v. United States*,⁵⁰⁸ the Supreme Court held that the consideration of not only the purpose of a literacy requirement but also the effect on all citizens’ rights to vote amounts to an unconstitutional denial.⁵⁰⁹ In *Gaston*, a North Carolina county sought to reinstate a literacy test requirement for voting.⁵¹⁰ The test had previously been automatically suspended after the enactment of the Voting Rights Act.⁵¹¹ The county argued, *inter alia*, that a literacy test did not explicitly or necessarily amount to race-based discrimination.⁵¹² Indeed, a uniform requirement equally applicable to every person wishing to vote is not *explicit* discrimination.⁵¹³ A “Newtonian” view of the law would hold that a neutral test generally applicable would not amount to discrimination. But the Court in *Gaston* refused to hold as much, instead declaring that the effect of the law was to

506. Winter, *supra* note 78, at 1496. That does not mean that meaningful dialogue cannot occur. Rather, it simply means that “transformative dialogue cannot overcome these incommensurables without a means for more radical conversion.” *Id.* (emphasis added).

507. *Id.* at 1501.

508. 395 U.S. 285 (1969).

509. *Id.* at 296–97.

510. *Id.* at 287.

511. *Id.* at 286–87.

512. *Id.* at 288.

513. The Court has held as much in other contexts. See Emp. Div. Dep’t of Human Res. of Oregon v. Smith, 494 U.S. 872, 880 (1990) (“[T]he right of free exercise does not relieve an individual of the obligation to comply with a ‘valid and neutral law of general applicability on the ground that the law proscribes (or prescribes) conduct that his religion prescribes (or proscribes)’.”).

deny African American citizens to vote, and that this effect was due to previous state action depriving African American citizens of other rights.⁵¹⁴ Specifically, unequal segregated education produced differential rates of literacy. Justice Harlan, writing for the Court, explained:

From this record, we cannot escape the sad truth that throughout the years Gaston County systematically deprived its black citizens of the educational opportunities it granted to its white citizens. 'Impartial' administration of the literacy test today would serve only to perpetuate these inequities in a different form.⁵¹⁵

This decision is a far cry from the Court's decision in *Milliken v. Bradley*. The Court in *Milliken* refused to acknowledge the role of history and influence of context in its ruling, just as it refused to acknowledge the broader context in *McCleskey*.⁵¹⁶ In fact, *Milliken* represented a departure from the more contextual opinion of the district court below. At the district level, the court said, "In considering the present racial complexion of the City of Detroit and its public school system we must first look to the past and view in perspective what has happened in the last half century."⁵¹⁷ After describing, without noting causation, the increase in African American population and decrease in white population in the city, the court continued:

While the racially unrestricted choice of black persons and economic factors may have played some part in the development of this pattern of residential segregation, it is, in the main, the result of past and present practices and customs of racial discrimination, both public and private, which have and do restrict the housing opportunities of black people. On the record there can be no other finding.

Governmental actions and inaction at all levels, federal, state and local, have combined, with those of private organizations, such as loaning institutions and real estate associations and brokerage firms, to establish and to maintain the pattern of residential segregation throughout the Detroit metropolitan area. . . . While it would be unfair to charge the present defendants with what other governmental officers or agencies have done, it can be said that the actions or the failure to act by the responsible school authorities, both city and state, were linked to that of these other governmental units. When we speak of governmental action we should not view the different agencies as a collection of unrelated units. Perhaps the most that can be said is that all of them, including the school authorities, are, in part, responsible for the segregated condition which exists. And we note that just as there is an interaction between residential patterns and the racial composition of the

514. *Gaston County v. United States*, 395 U.S. 285, 291 (1969).

515. *Id.* at 296-97.

516. *See supra* notes 315-27 and accompanying text.

517. *Bradley v. Milliken*, 338 F. Supp. 582, 585 (E.D. Mich. 1971).

schools, so there is a corresponding effect on the residential pattern by the racial composition of the schools.⁵¹⁸

This lower court's decision represents the post-Newtonian contextual/cross-domain views called for by Tribe, Kennedy, and others. The district court recognized that there is a relationship between public actions that shape private behaviors, and that public actions cannot be compartmentalized and atomized by agencies, departments, and legislators, but are a combination of and emergent characteristic of all. Similarly, the actions of private citizens are not so compartmentalized and are in fact related to and in part determined by public actions.

Notably, individual Justices have expressed post-Newtonian insights in recent years, particularly late in their terms or after their time on the bench. In a commencement address, Justice Souter explained that "judicial perception turns on the experience of the judges,"⁵¹⁹ a view well-founded within the mind sciences.⁵²⁰ In his final opinion, Justice Stevens expressed an eloquent critique of the possibility of an 'objective and neutral' judicial outlook:

Although Justice Scalia aspires to an "objective," "neutral" method of substantive due process analysis, his actual method is nothing of the sort. Under the "historically focused" approach he advocates, numerous threshold questions arise before one ever gets to the history. At what level of generality should one frame the liberty interest in question? What does it mean for a right to be "'deeply rooted in this Nation's history and tradition,'"? By what standard will that proposition be tested? Which types of sources will count, and how will those sources be weighed and aggregated? There is no objective, neutral answer to these questions. There is not even a theory—at least, Justice Scalia provides none—of how to go about answering them.⁵²¹

The task of remaking law—to render it adequate to the task of thinking and acting in the 21st century—cannot lie solely with the courts. Although the common law and the constitutional provisions provide textual bases for such revision, Congress plays an important role. With recognition of the intransigence of certain problems, given the complexity and depth of particular problems, Congress has adopted prophylactic measures that stress outcomes rather than process. The Court, in its turn, has at times endorsed these approaches. For example, in *Kimel*, the Court recognized that "[d]ifficult and intractable problems often require powerful remedies, and we have never held that § 5 precludes Congress from enacting reasonably prophylactic

518. *Id.* at 587 (emphasis added).

519. Souter, Commencement Remarks *supra* note 416.

520. See *supra* Part II.C (discussing the interchange between perception and prior experience).

521. *McDonald v. City of Chicago*, 561 U.S. ___, No. 08-1521 (June 10, 2010) (Stevens, J., dissenting).

legislation.”⁵²² In *Garrett* the Court said that the Voting Rights Act of 1965 reflected the Congressional determination “that litigation had proved ineffective and that there persisted an otherwise inexplicable 50-percentage-point gap” between black and white voter registration.⁵²³ Private remedies were ineffective in addressing deeply entrenched public harms.

In other contexts, with harms that are particularly pernicious and difficult to address, Congress has called for assessment of impact, such as environmental impact statements. Similarly, in response to the inadequacies of the Fourteenth Amendment intent doctrine announced in *Washington v. Davis*,⁵²⁴ Professor Derek Black has suggested the deliberate indifference standard.⁵²⁵ The Court, according to Black, is focusing on the wrong question when it comes to discrimination—it asks not about the harm to the plaintiff, but instead about the moral culpability of the discriminatory bad actor.⁵²⁶ He posits that “whether a harm is perpetrated by malicious motivations, benign neglect, indifference, or pure ignorance does not change the harm.”⁵²⁷ Additionally, failure to prevent the harm of discrimination or unequal treatment can be called a failure to provide equal protection under the law.⁵²⁸ Intent, as we note above, is not as simple as the Court makes it. For example, in the case of a defendant, such as the state in *Davis*,⁵²⁹ that continues to use a racially discriminatory test in spite of the results, knowing that African-American plaintiffs will be harmed could have easily been called intentional discrimination had the Court wanted it to be. The intent standard is problematic because it causes the Court to speculate on whether or not discrimination occurred, or whether or not the racial disparity at hand is even objectionable, as with disparate impact.⁵³⁰

In addition, the intent standard, according to Black, preserves the already uneven status quo.⁵³¹ Black argues that the current state of racial disparities is not simply the result of past discrimination or cumulative discrimination, but it

522. *Kimel v. Fla. Bd. of Regents*, 528 U.S. 62, 88 (2000).

523. *Bd. of Trs. of the Univ. of Ala. v. Garrett*, 531 U.S. 356, 373 (2001).

524. 426 U.S. 229, 239–45 (1976).

525. Derek W. Black, *The Contradiction Between Equal Protection’s Meaning and Its Legal Substance: How Deliberate Indifference Can Cure It*, 15 WM. & MARY BILL RTS. J. 533, 537 (2007).

526. *Id.* at 569.

527. *Id.*

528. *Id.* at 569–70.

529. *Washington v. Davis*, 426 U.S. 229, 234–35 (1976).

530. Black, *supra* note 525, at 571. Black posits that the ability of a judge to test whether or not racial disparities are aberrational is especially hard considering the privilege entrenched in most judges. *Id.* at 571–72. In addition, discrimination has changed since many of the Fourteenth Amendment rules have been put in place, but the Court is unwilling to revisit discrimination jurisprudence in light of these changes. *Id.* at 571.

531. *Id.* at 572.

is “dependent on active decisions and policies.”⁵³² The racial inequality today “is directly connected to yesterday’s, and it extends back to the very status quo that equal protection was intended to challenge.”⁵³³ The courts ignore this continuing discrimination by treating the harm “as neutral if [the harm] cannot be connected to an overt racial consideration.”⁵³⁴ This method of ignoring discrimination is apparent in the decisions of the court in de facto school segregation cases discussed above.⁵³⁵

In response to this judicial failure to remedy discrimination according to the intent of the Fourteenth Amendment,⁵³⁶ Black suggests a deliberate indifference standard, which would “focus on whether the government is actively cognizant of its citizens’ rights and the harm it causes them”⁵³⁷ His standard asks “first, whether the government was or should have been aware of the racial harm or impacts that its actions caused or the benefits/opportunities it denied; second, whether other less harmful reasonable alternatives were or became available”⁵³⁸ If the first two prongs are answered affirmatively, the inquiry continues with “third, why those alternatives were not implemented; and fourth, what, if any, interests are used to justify the racial harm.”⁵³⁹ If the government cannot provide a purpose that outweighs the harm of discrimination, the court must find that equal protection was denied.

The alternative view of discrimination has important consequences for the kinds of remedial action that both Congress and plaintiffs in civil rights cases ought to be able to seek. Perhaps the paradigmatic case of this nexus between complex causation and remedies is voting discrimination and Section 5 of the Voting Rights Act of 1965 (“VRA”).⁵⁴⁰ The VRA sought to intervene in a long history of African-American vote denial and dilution across the United States, particularly in the South. For decades, Congress and the Court had attempted to blot out each novel practice of vote denial, which amounted to “a

532. *Id.*

533. *Id.* at 573.

534. *Id.*

535. See *Parents Involved in Cmty. Sch. v. Seattle Sch. Dist. No. 1*, 551 U.S. 701 (2007); *Milliken v. Bradley*, 418 U.S. 717 (1974); *Keyes v. Sch. Dist. No. 1*, 413 U.S. 189 (1973); see also *supra* Section V.

536. Black suggests that the Framers of the Fourteenth Amendment intended to secure affirmative rights, not just passive rights or negative rights to be free from discrimination. Black, *supra* note 525, at 563. This equal protection entitles all people to the protection of the law. *Id.* at 577. Black’s equal protection is envisioned as an active shield against the status quo and “was intended to correct the defects in the political process and ensure that our republican form of government carries out its mandate.” *Id.*

537. *Id.* at 575.

538. *Id.*

539. *Id.*

540. 42 U.S.C. §§ 1973–1973aa-6 (2006).

constitutional game of ‘Whac-A-Mole . . . ,’⁵⁴¹ in which each new statute or decision was met with a more clever form of disenfranchisement. In response to this interminable game, Congress enacted Section 5 of the VRA, which, among other things, requires covered jurisdictions to submit for pre-approval (“preclear”) almost any changes in their local voting procedures with the Department of Justice. Congress recognized that the phenomenon of disenfranchisement is a complex system with lots of moving parts. Addressing each one piece by piece would fail to change the overall system. In response, they created a flexible mechanism—preclearance—that could intervene within the system to address novel vote denial schemes as they arose.

The source of Congress’s power to enact this sort of flexible, intervention-based, prophylactic scheme is its power under Section 5 of the Fourteenth Amendment. At one point in history, the Supreme Court interpreted Congress’s power under this provision to be almost without limit.⁵⁴² But starting with *City of Boerne v. Flores*⁵⁴³ and continuing to this day, the Court has gradually chipped away at Congress’s power to enact prophylactic remedies. In 2009, *Northwest Austin Municipal Utility District Number One v. Holder* (“NAMUDNO”), the Court declined to address squarely the constitutionality of the VRA, instead disposing of the case narrowly.⁵⁴⁴ Nonetheless, the Court’s opinion—as well as the tenor of the questions at oral argument—sent a message to Congress that intrusive prophylactic schemes, such as preclearance, may not pass constitutional muster the next time around. This message from the Court should give pause to those who view the VRA’s preclearance procedure as precisely the kind of remedy required to meet the complex system of disenfranchisement that persists in portions of the United States today.

If we understand law as a formative context for society, then it makes sense that courts account for how their decisions shape that society, not simply assume a safe, distant remove from society, and that the application of law flows from objective vantage point. We need to account for the uneven, “warped” legal space, and the way in which the law differentially impacts people based upon their circumstances. Similar to disparate impact standards, “The question is whether the state’s combination of acts and omissions, rules, funding decisions and the like, so shaped the legal landscape in which women decide matters bearing on their reproductive lives as to violate the Constitution’s postulates of liberty and equality.”⁵⁴⁵ This suggests a very

541. Jurisdictional Statement of Appellant at 33, *Nw. Austin Mun. Util. Dist. No. 1 v. Holder*, No. 08–322, 129 S. Ct. 2504 (2009).

542. *Katzenbach v. Morgan*, 384 U.S. 641, 651–53 (1966).

543. 521 U.S. 507 (1997).

544. *Holder*, 129 S. Ct. at 2516–17.

545. Tribe, *supra* note 19, at 32.

different approach to remedies and to causation. The law itself is a causal contributor to particular outcomes, and not separate or distinct from its effects. Some jurists will likely be uncomfortable with a systems approach because outcomes matter. While this is what the deontologist tries to deny, there is a way of proceeding based on participation and probability.⁵⁴⁶

CONCLUSION

"The Outside Is Not, The Inside Is Too"

- Don Cherry⁵⁴⁷

In his account of the Scientific Revolution, Stephen Shapin claims that there is a great paradox at the heart of modern science, put there in the seventeenth century: "the more a body of knowledge is understood to be objective and disinterested, the more valuable it is as a tool in moral and political action."⁵⁴⁸ Through this paradox we can fully understand the utility of then-judge John Roberts' umpire metaphor, with all of its trappings. Science serves a legitimizing function.⁵⁴⁹ The more adjudication appears like science, the less it appears to be politics. But short of performing experiments in a laboratory or testing theories like Einstein or Newton, how can one claim this prestige? The answer is by appropriating the methodology of the Scientific Revolution or, failing that, its grammar. Much of modern Western intellectual activity in the past 400 years has sought to mimic science.⁵⁵⁰ The Enlightenment Project is the essence of this mimicry, to create a "science of man." In Part II, we set out the grammar of the Enlightenment Project. We described its basic assumptions and practices. In Part III we traced how these assumptions and practices shaped Anglo-American law and American constitutional law from its inception and how those epistemic practices continue to be employed today. Throughout this article we suggested that the law is built upon the foundations of the Enlightenment epistemology.

The Enlightenment Project engendered a radical separation.⁵⁵¹ It helped usher in the separation of the self from the world, the subject and the object,

546. See generally Susan Sturm, *Activating Systemic Change Toward Full Participation: The Pivotal Role of Boundary Spanning Institutional Intermediaries*, 54 ST. LOUIS U L.J. 1117.

547. DON CHERRY, *UNIVERSAL MOTHER* (Atlantic Recording Company 1976).

548. SHAPIN, *supra* note 25, at 164.

549. James Hackney claims that ever since, "modern culture has required that any enterprise with pretensions to stature claim to be scientific." HACKNEY, *supra* note 32, at 13.

550. See *id.* at 12-13. One could call this "scientism."

551. Some have suggested that the first hominids and proto-humans experienced a self that was fundamentally embedded, that man's world and man's self were undifferentiated in any meaningful way, that the external and internal worlds were fused, and that man experienced no existential fears. KEN WILBER, *UP FROM EDEN* 26 (1996). In a sense, the "universal myth" of the Garden of Eden represents humanity's rise to consciousness, self-knowledge of the world triggers existential awareness, and the fears that flow from it. But it is suggested that even pre-

the observer and observed, society and nature, and even of Nature's God, the divine clockmaker. Consequently, the way we know the world is either by observing it from a distance or through Reason, *a priori* thought untainted by tradition or sensory illusions. The Enlightenment *philosophes* appropriated this methodology in constructing a science of man.

This separation introduced to humanity ontological fear. Once we are separate from the world, a freestanding individual, we leave the "state of nature" and enter a state of war, a cold war fought on the proxy battlefields of the mind and in law. It is a fear that instigates a search for certainty, whether it is Cartesian cogito or Newton's laws. Fear of relativism, nihilism, and other supposed evils—such as judicial activism—motivates a claim to objectivity in law, and certainty in its application.⁵⁵²

But it is a war that cannot be won. We are in a battle against time, which claims our lives, against others, who would take our property, and the state, which is ostensibly organized to protect us from each other. The deep Cartesian anxiety merely precedes the Hobbesian fear of others, which precedes the fear of a tyrannical state.⁵⁵³ It's a fear that cannot be resolved. But it is a fear that need not be resolved.

In Part IV, we sketched modern developments in the physical, biological, and mind sciences. What connects the modern developments in the physical and mind sciences are that they are all "whole" approaches. Everything in quantum theory is radically holistic. The subject and object are broken down. From a social science perspective, individuality—the self—emerges from interactions rather than as a pre-given. Systems theory is a paradigm with a different philosophical lineage and a different set of assumptions about knowing. The contrast is sometimes drawn between Newtonian science and quantum physics, with the latter having parallel assumptions about the impact of the observer, the dynamic, evolving nature of reality, interconnectedness, and the appropriate unit of analysis being relationships rather than parts. Compared to the classical models, modern science, both of the physical world, of biological and social systems, and of the mind, is radically holistic.

modern man experienced an embeddedness that is only fully split asunder with the fifteenth to eighteen centuries. To the ancients and other pre-moderns, at least in the West, humanity was deeply embedded in the cosmos. In the Ptolemaic/Aristotelian worldview, the "self existed in relation to th[e] divine structure." SEIGEL, *supra* note 44, at 52.

552. Gedicks, *supra* note 70, at 642.

553. Indeed, one may reasonably interpret tea party anger and resentment as an expression of this fear. See, for example, J.M. Bernstein, *The Very Angry Tea Party* (June 13, 2010), <http://opinionator.blogs.nytimes.com/2010/06/13/the-very-angry-tea-party/?src=me&ref=general> ("Tea Party anger is, at bottom, metaphysical, not political: what has been undone by the economic crisis is the belief that each individual is metaphysically self-sufficient, that one's very standing and being as a rational agent owes nothing to other individuals or institutions.").

This brings into view an understanding that we are deeply inter- and intra-related with the world, that we are a part of it. The new science brings us back into relationship with the world, but not in the same way as the pre-moderns. We are a part of the world in the sense that we are constantly engaged with it. There is an intra-action between the subject/object/environment.⁵⁵⁴ There is an evolving dynamic between us and things, but the dynamic changes the thing and us. In that sense, there is no meaningful distinction between the things, and the relationship becomes part of a larger phenomena. Observing affects the observed and the observer. Moreover, there is a limit to certainty and to knowledge itself. The self requires reconceptualization. The self is not a rigidly defined construct, but is constantly in flux, shaped by environment and interactions, all of which are relationships.

More profoundly, to see objects, parts of the whole, or “things” as such, even in relationship, is to miss the fluidity of these things. These relationships are not the interaction of things, but the intrarelationship of processes. And those processes are processes, and so on. From this perspective, the world is far more fluid, dynamic, interactive, and insubstantial. Because the processes change at different speeds, some things seem stable or set, while others seem more fluid, like water. But we know that even mountains flow, just at a very different speed. What this suggests is that the ontological fear produced by the Enlightenment is built upon the creaky epistemological edifice of the Scientific Revolution. It is not just that the separation engendered by the Enlightenment Project is false; it is dangerously false on account of the fear that it generates.

Self-knowledge, in the Enlightenment worldview, leads to a separation from the world, particularly in Western society. But the challenge is acknowledging our intra-relationship to the world, our embeddedness in it.⁵⁵⁵ The impact of this would be transformative in law, in terms of how we organize space, our standards for causality, and the distribution of responsibility. We would recognize that law is not a neutral referee or an inert background; it is a participant in a dynamic, intra-active world. In Part V, we suggested ways in which the law could better reflect these insights, building upon existing models and suggesting new ones.

Increasingly, there is a sense, nearly one hundred years since Freud and Einstein, that the Enlightenment Project has run its course. As George Soros notes, we have now lived with over two hundred years of the Enlightenment,

554. And there is no inert environment or background.

555. To follow the Eden myth as a metaphor already developed, our self-knowledge cannot be undone. The fruit of the tree of knowledge has been consumed, and from there it is not possible to return. The question is whether, with self-knowledge, we can account for our embeddedness and interrelationship, not in an unconscious way as pre-human hominids and animals do, but in a conscious way.

and its limitations are increasingly evident.⁵⁵⁶ Professor Laurence Tribe has long called for “post-Newtonian perspectives” in judicial adjudication.⁵⁵⁷ Not content simply to revise and refurbish our ways of thinking and being, linguist George Lakoff has called for a New Enlightenment⁵⁵⁸ that would appreciate and make known a twenty-first century understanding of the brain and the mind.⁵⁵⁹

After all, if the scientific advances that preceded and informed the Enlightenment have turned out to be wrong, then the social sciences that constitute the Enlightenment Project are also called into question. And if, as Lakoff suggests, our “institutions and practices reflect our collective self-understanding,”⁵⁶⁰ it might follow that a New Enlightenment would serve this end, bringing our institutions and practices which remain tethered to the Old Enlightenment and the Newtonian and Cartesian worldviews that underpin it in line with advances physical and mind sciences. Without question, we would consider it an advance if the social sciences, particularly the theory of both law and economics, would embrace a post-Newtonian worldview.

But our argument is not just that new developments in the physical and mind sciences call into question older paradigms upon which the law is constructed.⁵⁶¹ That would suggest the replacement of one scientific edifice with another, effectively recreating many of the same problems that have brought us to this point. The idea, for example, of the natural and “social” or “moral” sciences presumes, first, an innate separation, and second, the idea that social reality, or ethics, is properly the domain of “normal” science. Scientism—the all-encompassing scientific methodology as a complete worldview—flows out of the Enlightenment.⁵⁶² It is, in large measure, scientism that we must call into question. The application of science in domains in which it does not properly apply is an attempt to acquire legitimacy

556. SOROS, *supra* note 95, at 13–14.

557. See Tribe, *supra* note 19, at 37.

558. See LAKOFF, *supra* note 20, at 13.

559. *Id.* at 266–68.

560. *Id.* at 271.

561. In his symposium remarks, Prof. Isaak Dore suggested that three propositions were at issue: (1) Advances in natural science influence claims to knowledge in social science. (2) Advances in natural science undermine older claims in natural science. (3) Advances in natural science have also similarly undermine older claims in social science. Isaak Dore, *Pragmatic Existentialism in a Post-Newtonian World*, 54 ST. LOUIS U. L.J. 1035, 1040 (2010). We want to be clear that it is not that the new science is more real, whatever that might mean. It might be more probable, but we cannot be sure that there is an underlying reality we will ever have access to.

562. WALLERSTEIN, UNCERTAINTIES OF KNOWLEDGE *supra* note 80, at 13 (“Scientism is the claim that science is disinterested and extra-social, that its truth claims are self-sustaining without reference to more general philosophical assertions, and that science represents the only legitimate mode of knowledge.”).

to being “scientific.” Additionally, all normal science is conducted within a particular paradigm.⁵⁶³ To replace one paradigm with another, an updated science, does not grant us access to objective truth, it simply replaces one paradigm with another. Our answers are not final, they are contingent.

Breaking free from the ontological unrest set loose by the Enlightenment and overcoming the Cartesian anxiety means learning to live without the idea of absolute knowledge, of certainty.⁵⁶⁴ This, above all, is the most problematic legacy of the Enlightenment Project. The great yearning for certainty, for the Archimedean point, of access to ultimate truth is the chimera of the Enlightenment. As Soros notes, “The Age of Reason ought to yield to the Age of Fallibility.”⁵⁶⁵ But rejecting a claim to ultimate truth, to certainty, does not entail relativism, as is so often feared. It simply means that we need to accept contingency, openness, fallibility, and a different basis for objectivity.⁵⁶⁶

563. See Kuhn, *supra* note 34, at 10–11 (noting that paradigms produce the prerequisites—the commitment to and consensus for rules and standards—for normal science).

564. Bernstein, *supra* note 45, at 166.

565. SOROS, *supra* note 95, at 14.

566. Iris Marion Young says that “[m]odern thought has often conceptualized objectivity as achieved by transcending particularities of social position and experience, abstracting from them to construct a standpoint outside and above them that is general rather than particular.” IRIS MARION YOUNG, *INCLUSION AND DEMOCRACY* 113 (2000). She criticizes this scientific pursuit as the pursuit for a “view from nowhere.” *Id.* In her view, this method of objectivity is not real, nor attainable, and in fact may be problematic. *Id.* When we seek to solve a problem, looking at it “objectively” does not make sense, given that the problem exists in a world that is relational, and subjective. Instead, principles must be applied in those contexts. *Id.* Explicit inclusion and recognition of differentiated situatedness can provide both experiential and critical resources to bear. *Id.* at 115. This new form of “objectivity” is truly inclusive, and explicitly acknowledges difference, structures, and relations between people and things.

