

Understanding Judicial Decision-Making: The Importance of Constraints on Non-Rational Deliberations

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All of social science is based on the assumption that people act rationally, in a logical, unemotional fashion. This is true for all disciplines in social science, including both economics and law. Neoclassical price theory assumes that producers and consumers are rational actors, while the reasonable person in law is the rational cousin to the economic actor. New institutional economists were among the first scholars to examine economic issues by modifying rational choice theory. Today, a large and growing body of scholarship exhibits a willingness to modify the rationality assumption by using cognitive science, behavioral psychology, and experimental economics. This Article shares that perspective. In the Article, we reexamine the way judges make decisions by using contemporary theories from cognitive science and concepts from the new institutional economics.

The dominant model of judicial decision-making is an outgrowth of rational choice theory: the judge is a rational actor who reasons logically from facts, previous decisions, statutes, and constitutions to reach a decision.¹ Everyone knows, however, that this model explains only part of the process. From the Legal Realists in the first half of the twentieth century to the Critical Legal Theorists today, this

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1. Richard A. Posner, *The Jurisprudence of Skepticism*, 86 MICH. L. REV. 827, 865 (1988); see Dan Simon, *A Third View of the Black Box: Cognitive Coherence in Legal Decision Making*, 71 U. CHI. L. REV. 511, 512 (2004).

model has been criticized for failing to include non-doctrinal factors that affect the outcome of cases.² In order to understand fully how judges decide cases, we need to understand how the mind works. We need to know how judges perceive the issues involved in lawsuits, how they see competing priorities and available choices, and how they make their decisions. These are the same questions involved in understanding human decision-making in general. Behavioral psychologists and cognitive scientists have studied decision-making for centuries, but our knowledge of the brain's processes is still very primitive.

This Article attempts to contribute to our knowledge of judicial decision-making. It begins by considering the relevance of judicial discretion and non-doctrinal factors to the outcome of court cases and then uses the concept of belief systems from the new institutional economics to help our understanding of discretion. The next part of the Article explains some contemporary theories of cognition that lead us to conclude that non-doctrinal factors and discretion are inherent in judicial decision-making. Then the Article considers the constraints built into the judicial process, which act as a limitation on judicial discretion in most cases. These constraints on judges also make it appear as if they are deciding cases in the manner described by the rational, doctrinal theory of judicial decision-making, even when they are not. Although we would like to conclude with a model that accurately includes discretion and non-doctrinal factors, the state of knowledge of human decision-making is still too primitive to allow us to do that. Rather, we return to the usefulness of the rational choice model in a constrained environment.

I. THE PROBLEM OF DISCRETION

The importance of judicial discretion has been well-known since judges began resolving disputes. It also has generated unending attempts to limit discretion and to make judicial outcomes more predictable. For example, the great civil codes of eighteenth century

2. *See, e.g.*, AMERICAN LEGAL REALISM (William W. Fisher III, Morton J. Horowitz & Thomas A. Reed eds., 1993); JOSEPH WILLIAM SINGER, LEGAL REALISM NOW 465 (1988) (reviewing LAURA KALMAN, LEGAL REALISM AT YALE 1927–1960 (1986)).

Europe were designed to provide answers for all contingencies. As Roscoe Pound explained, the court would function as “a sort of judicial slot machine. The necessary machinery had been provided in advance by legislation or by received legal principles and one had but to put in the facts above and take out the decision below.”³ Of course it is impossible to create this type of judicial slot machine. Similar concerns about unpredictability led to the creation of the Federal Trade Commission (FTC) in the early twentieth century. Unhappy with the discretion accorded judges by the “rule of reason” in Sherman Act cases, a coalition of business leaders and progressive reformers wanted a commission that would write a “Code of Good Business Practices” establishing in advance precise rules of what was and what was not illegal anticompetitive conduct. Congress created the FTC, but the FTC could not create this kind of code. Drafting a code that covered every possible anticompetitive act would be possible only in a world where the fundamental underlying structure of the economy is constant and therefore timeless. Not surprisingly, the FTC shortly gave up on the enterprise.⁴

Legal doctrine and methodology have a great influence on the outcome of all court cases. The terms of constitutions and statutes, the dictates of case law, and the methodology for applying them in a lawsuit all limit the discretion of judges and direct the outcome of the case. Yet in many lawsuits, something else is crucial to the outcome. The unpredictability of the decision in some cases stems from the dynamic nature of the world. With new products, new processes, new financial instruments, new corporate forms, new modes of communications, and on and on, the legal system must continually adapt to new kinds of unanticipated disputes. The world is too complex and dynamic to enable even a comprehensive statutory regime to provide answers for all the problems that are sure to arise. In addition, the imprecision of language often makes for ambiguous, incomplete statutes even when the drafters know the contingencies

3. ROSCOE POUND, *THE SPIRIT OF THE COMMON LAW* 170 (1921).

4. *See* ELEANOR M. FOX, LAWRENCE A. SULLIVAN & RUDOLPH J.R. PERITZ, *CASES AND MATERIALS ON U.S. ANTITRUST IN GLOBAL CONTEXT* 48–51 (2d ed. 2004); GERALD C. HENDERSON, *THE FEDERAL TRADE COMMISSION: A STUDY IN ADMINISTRATIVE LAW AND PROCEDURE* 1–48 (1924).

they want to address. Common law decision-making relies heavily on analogy to past decisions. However, this methodology breaks down as new problems, distinct from old answers, arise. Many judges and scholars agree that statutes and precedents often narrow the range of potential outcomes but do not point to the only possible answer.⁵ Somehow the judge must choose from that narrow range of justifiable outcomes.

Notwithstanding the role of discretion, most people accept the rational doctrinal model of judicial decision-making. This is not surprising because legal scholars, judges, and lawyers focus on doctrine when they analyze the law. Judicial opinions explain the application of constitutional provisions, statutes, and judicial precedents through accepted methods of statutory interpretation and case analysis. Arguments are made logically, step-by-step to a conclusion, almost as if the law were a form of mathematics. This approach is comforting because it shows law to be impersonal and based on rational action. Plus, most legal questions are straightforward enough to be answered by doctrine with little appearance of discretion.⁶ The focus on legal doctrine is also understandable because it relies on written materials and processes that can be explained. This is the visible part of the law. However, the non-doctrinal factors that make up discretion are an invisible part of judicial decision-making that cannot be explained with any precision given our primitive understanding of how the mind works. Think of a curtain that divides our understanding of the judicial process. We

5. See, e.g., RICHARD A. POSNER, *THE PROBLEMS OF JURISPRUDENCE* 131 (1990); AMERICAN LEGAL REALISM, *supra* note 2, at 164–65; Dan Simon, *A Psychological Model of Judicial Decision Making*, 30 RUTGERS L.J. 1, 14 (1998); SINGER, *supra* note 2, at 465. Oliver Wendell Holmes explained the indeterminacy of common law reasoning as follows:

Two widely different cases suggest a general distinction, which is a clear one when stated broadly. But as new cases cluster around the opposite poles, and begin to approach each other, this distinction becomes more difficult to trace; the determinations are made one way or the other on a very slight preponderance of feeling, rather than of articulate reason; and at last a mathematical line is arrived at by the contrast of contrary decisions, which is so far arbitrary that it might equally have been drawn a little farther to the one side or to the other, but which must have been drawn somewhere in the neighborhood where it falls.

OLIVER WENDELL HOLMES, *THE COMMON LAW* 101 (1881).

6. Posner, *supra* note 1, at 890.

know what is visible in front of the curtain: written doctrine, accepted methodology, etc. But we only know a little bit about what lies behind the curtain, although we know something is there. The judicial world is not like the Land of Oz, where we can pull back the curtain to see the real source of decisions. No matter how hard we try today, we cannot understand all the hidden factors that influence judicial outcomes.

For over a decade, a branch of political science has attempted to explain case outcomes with empirical methodology that focuses on characteristics of judges, such as whether they are liberal or conservative or whether they were appointed by a Republican or Democrat President.⁷ This approach jars legal scholars because it completely disregards the effects of legal doctrine. What this approach does, however, is demonstrate that something other than doctrine strongly influences the outcome of many cases. It shows the importance of the hidden factors, even though it does not help us understand what they are or how they influence the results.

That something beyond legal doctrine influences judicial decision-making is no surprise. In his classic article, *The Path of the Law*, published over a century ago, Oliver Wendell Holmes emphasized the unconscious factors that influence a judge:

The language of judicial decision is mainly the language of logic. And the logical method and form flatter that longing for certainty and for repose which is in every human mind. But certainty generally is illusion, and repose is not the destiny of man. Behind the logical form lies a judgment as to the relative worth and importance of competing legislative grounds, often an inarticulate and unconscious judgment it is true, and yet the very root and nerve of the whole proceeding.⁸

The Legal Realists tried to move beyond legal formalism in explaining the outcome of cases, emphasizing the indeterminacy of legal doctrine and method and the consequent importance of the

7. See, e.g., LEE EPSTEIN & JACK KNIGHT, CHOICES JUDGES MADE (1998); JEFFREY A. SEGAL & HAROLD J. SPAETH, THE SUPREME COURT AND THE ATTITUDINAL MODEL (1993); Pauline T. Kim, *Lower Court Discretion*, 82 N.Y.U. L. REV. 383, 384–85 (2007).

8. Oliver Wendell Holmes, *The Path of the Law*, 10 HARV. L. REV. 457, 465–66 (1897).

judges' preferences.⁹ They believed that legal rules and methodology did not lead to a certain answer in many cases and therefore left the outcome to the preferences of the judge. Some were even skeptical that the reasons given in opinions for the outcome of cases actually explained why the judges reached their decisions.¹⁰ Although the realists' criticism of judicial decision-making was well developed, they had difficulty moving beyond criticism.¹¹ One branch of Legal Realism advocated more attention to psychological factors. For example, Jerome Frank asserted that judges should undergo Freudian psychoanalysis to better understand their own prejudices and, as a result, become better judges.¹² Over time, to many commentators, Legal Realism became a caricature remembered solely for the claim that the outcome of cases was only a matter of "what the judge had for breakfast."¹³ Without a doubt, however, the Legal Realists made a valuable contribution to jurisprudence by their emphasis on the importance of the hidden factors in judicial decision-making. Their legacy remains influential today.

9. SINGER, *supra* note 2, at 470; Roscoe Pound, *The Call for a Realist Jurisprudence*, 44 HARV. L. REV. 697, 707 (1931). Legal realism was not only a jurisprudential response to the classical legal theory of the late 19th century, which provided the underpinnings of the *Lochner* era. SINGER *supra* note 2, at 474–75. It was also a political response to the *Lochner*-era holdings and a justification for the change in judicial response to economic regulation. *Id.* at 495. Many prominent legal realists served in the federal government during the New Deal and helped shape important reforms. AMERICAN LEGAL REALISM, *supra* note 2, at xiv. As an intellectual movement, legal realism laid the foundation for much of modern legal theory, including empirical analysis, law and economics and critical legal studies. *Id.* at xiv; SINGER, *supra* note 2, at 503–05. Finally, from the content of casebooks, to the discussions of policy and to the use of the social sciences, modern legal education bears the imprint of the legal realists. AMERICAN LEGAL REALISM, *supra* note 2, at 270–73; SINGER, *supra* note 2, at 473–75.

10. BENJAMIN N. CARDOZO, *THE NATURE OF THE JUDICIAL PROCESS* 9 (1921); Joseph C. Hutcheson, Jr., *The Judgment Intuitive: The Function of the "Hunch" in Judicial Decision*, 14 CORNELL L.Q. 274, 279 (1929); John Dewey, *Logical Method and Law*, 10 CORNELL L.Q. 17, 24 (1924).

11. See RICHARD A. POSNER, *FRONTIERS OF LEGAL THEORY* 3 (2001) ("Legal realism had failed to deliver on its promises, and by the end of World War II had petered out."); Roscoe Pound, *The Call for a Realist Jurisprudence*, 44 HARV. L. REV. 697, 699 (1931) (cannot build a "science of law . . . merely on the basis of such criticism").

12. JEROME FRANK, *COURTS ON TRIAL* 248 (1949); JEROME FRANK, *LAW AND THE MODERN MIND* 147 (1930).

13. RONALD DWORKIN, *LAW'S EMPIRE* 36 (1986); SINGER, *supra* note 2, at 469–70; AMERICAN LEGAL REALISM, *supra* note 2, at xiv.

II. THE IMPORTANCE OF JUDICIAL BELIEF SYSTEMS

More than 85 years ago, before cognitive science became fashionable or, indeed, was even of concern, Frederick Hayek wrote an early draft of *The Sensory Order*,¹⁴ a book about cognitive science, which was published in 1952 but written in 1920. For Hayek, beliefs are a construction of the mind as interpreted by the senses. We do not reproduce reality; rather, we construct systems of classifications to interpret the external environment. As Hayek wrote in *The Sensory Order*:

Perception is thus always an interpretation, the placing of something into one or several classes of objects. The qualities which we attribute to the experienced object are, strictly speaking, not properties of that object at all, but a set of relations by which our nervous system classifies them. Or, to put it differently, all we know about the world is of the nature of theories, and all experience can do is change these theories.¹⁵

Hayek conceived of the semi-permanent network of connections among nerve fibers as mapping the classification process. Given that structure, the mind models the immediate environment. A reinterpretation of reality occurs when the prevailing model, or set of maps, produces unanticipated results, forcing a reclassification. However, such reclassification is constrained by deep-seated tacit rules that determine the flexibility of the mind to adjust. For Hayek, the mind is inseparably connected with the environment:

[T]he apparatus by means of which we learn about the external world is of itself the product of a kind of experience. It is shaped by the conditions prevailing in the environment in which we live, and it represents a kind of generic reproduction of the relations between the elements of this environment

14. F.A. HAYEK, *THE SENSORY ORDER: AN INQUIRY INTO THE FOUNDATIONS OF THEORETICAL PSYCHOLOGY* (1952).

15. *Id.* at 143.

which we have experienced in the past, and we interpret any new event in the environment in the light of that experience.¹⁶

It follows that the experiences that have shaped the mental classifications in the mind can and frequently will lead to misinterpretations of the problems confronting the individual.

Hayek maintained that the classification of the stimuli performed by our senses will be based on a system of acquired connections that reproduce in a partial and imperfect manner the relationships existing in the external environment. Our minds do not reproduce reality; rather, they attempt to interpret the very complex relationships in what are always theories. We may know all the facts and numbers possible about a particular set of events, but to order them and to explain them requires theory, and that theory, obviously, is a construction of the mind.

This does not mean that all results are subjective. Obviously, what we try to do is to test the theories we have against the evidence so that we can arrive at rough, very rough, estimates of the reliability of such theories. But it does mean that all the theories we have are subjective; they are always imperfect and incomplete.

Individuals from different backgrounds will interpret the same evidence differently and in consequence make different choices. Individuals have different systems of beliefs that create different filters through which they perceive the world and its problems and also create different theories to explain the world and devise solutions for the problems. These belief systems develop from life experiences with a myriad of influences—from parents and family, peers, teachers, religious authorities, government leaders, public commentators, and so on. Judges, of course, have their own belief systems, just like everyone else. And it is differing belief systems that make for judges with differing judicial philosophies and for judges to be labeled either liberal or conservative or either activist or restrained.

It is obvious that the belief systems of judges are part of the hidden aspects of judging. Many judges openly admit the impact their

16. *Id.* at 165.

belief systems have on their decisions, often in an unconscious and unexplainable way. As Holmes explained:

The very considerations which judges most rarely mention, and always with apology, are the secret root from which the law draws all the juices of life. I mean, of course, considerations of what is expedient for the community concerned. Every important principle which is developed by litigation is in fact and at the bottom the result of more or less definitely understood views or public policy; most generally, to be sure, under our practice and traditions, the unconscious result of instinctive preferences and inarticulated convictions. . . .¹⁷

The indeterminacy of the judicial process described above leaves an opening for belief systems to affect outcomes. In addition, some of the methods used to decide particular types of cases invite judges to act on their own belief systems. A “balancing” test, common in constitutional law, frequently requires judges to balance incomparable considerations.¹⁸ For example, in regulatory takings cases, a judge must determine the outcome by balancing the harm to the aggrieved party against the benefit to society, usually when harm and benefit cannot be quantified.¹⁹ Another common approach requires judges to look at a number of factors and make a decision based on the totality of the circumstances.²⁰ Some judges will view one factor as important; other judges will disregard that factor and concentrate on another.

The high stakes battle over the appointment of Supreme Court Justices is a constant reminder of the importance of a particular justice’s judicial philosophy. Many dissenting opinions are a testament to the differing belief systems of the various justices. There must be tens of thousands of cases in the history of American law that would have turned out differently if different people had ruled in

17. OLIVER WENDELL HOLMES, *THE COMMON LAW* 31 (1881).

18. It is ironic that the Legal Realists were proponents of balancing tests, which make judicial discretion more important. SINGER, *supra* note 2, at 504.

19. *See, e.g.*, *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415–16 (1922).

20. *See, e.g.*, *Penn. Central Transportation Co. v. New York City*, 438 U.S. 104, 124 (1977).

the case. Just one example is *Brown v. Board of Education*,²¹ which scholars believe would have upheld *Plessy v. Ferguson*²² if Chief Justice Vinson had not died and been replaced by Earl Warren after argument but before decision.²³

We can identify the belief systems of judges as having a major influence on the outcome of cases, but we cannot explain this relationship with any precision or detail. We need to understand how belief systems are formed, how to classify them, and how to link belief systems with outcomes in cases that involve competing policies. Although political scientists are getting better and better in using empirical methodology to predict and explain how judges vote,²⁴ their scholarship is not directed at helping us understand the formation and effects of the judges' belief systems.

III. THEORIES OF HUMAN DECISION-MAKING

Our lack of understanding of belief systems is part of the broader problem of our inability to explain human decision making in general. Scientific research about the brain is too primitive to give us answers to these questions. As a result, we make do with theories, models, and even educated guesses developed by cognitive scientists and behavioral psychologists. The models and theories used in law, economics, and other social sciences are, for the most part, grounded in rational choice theory.

Philosophers since the Age of Enlightenment have equated human reason with the laws of probability and logic.²⁵ This has been refined and formalized over the years so that the modern view of human behavior incorporates two complementary models: expected utility theory and Bayes' theorem.²⁶ These models view human decision-

21. 347 U.S. 483 (1954).

22. 163 U.S. 537 (1896).

23. *E.g.*, RICHARD KLUGER, *SIMPLE JUSTICE* 655–56, 678–99 (1975).

24. *See, e.g.*, Theodore Ruger et al., *The Supreme Court Forecasting Project: Legal and Political Science Approaches to Predicting Supreme Court Decisionmaking*, 104 *COLUM. L. REV.* 1150 (2004).

25. Valarie M. Chase, Ralph Hertwig & Gerd Gigerenzer, *Visions of Rationality*, in 2 *TRENDS IN COGNITIVE SCI.* 206 (1998).

26. Expected utility theory and Bayes' theorem are described technically as follows:

making to be like that of a computer: knowing, ordered, logical, and calculating. The two models, usually lumped together as rational choice theory, play a central role in much of modern social science, including both economics and law.²⁷ The models have become so powerful to some social scientists that they see the models “as norms against which human reasoning can be evaluated rather than as a codification of it: when the two diverge, it is concluded that there is something wrong with the reasoning, not with the norms.”²⁸

However, some cognitive scientists have emphasized that rational choice theory is not based on how the mind works. For example, Andy Clark starts with the research that shows the brain to be a mass of neural networks and then concludes that human reasoning is a combination of fast pattern recognition coupled with manipulation of and constraints by the external environment.²⁹ As he explains:

Fundamentally, on the theory of (subjective) expected utility, problem solving or decision making requires a strategy set, a set of outcomes associated with each alternative in that set, a utility function defined over the outcomes and a rule for maximizing expected utility . . . The agent must know the alternative strategies available and be able to predict their consequences or likely consequences. There must be a utility function ordering possible futures and a decision rule based on the array of futures associated with the various alternatives. The model has proved to be remarkably resilient, and over the 50 years following John von Neumann and Oskar Morgenstern’s (1947) revival of it, the theory has been elaborated in a variety of ways which enhance its descriptive adequacy: it has been extended to incorporate subjective weighting of alternatives, to take into account various attitudes toward risk, and to allow for nonlinear preference functions. A Bayesian model of human reasoning, similarly, requires an exhaustive set of hypotheses, a probability distribution on those hypotheses which is coherent, and conditional probability assignments for evidence on the various alternative hypotheses. . . . In order to assess the impact of some piece of evidence, an individual must know the theoretical alternatives and how likely each is on prior evidence. The probability assignments to the various hypotheses must meet the conditions on coherence laid down in the probability calculus. To then determine the impact of evidence on a given hypothesis, the individual must know how likely that evidence is on each of the competing alternative hypotheses.

Robert C. Richardson, *Heuristics and Satisfying*, in *A COMPANION TO COGNITIVE SCIENCE* 566, 566–67 (William Bechtel & George Graham ed., 1998).

27. See, e.g., Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 *STAN. L. REV.* 1471 (1998); Jack Knight & Douglass C. North, *Explaining Economic Change: The Interplay Between Cognition and Institutions*, 3 *LEGAL THEORY* 211 (1997); Debra Satz & John Ferejohn, *Rational Choice and Social Theory*, 91 *J. PHIL.* 71 (1994).

28. Chase, Hertwig & Gigerenzer, *supra* note 25, at 206.

29. ANDY CLARK, *BEING THERE: PUTTING BRAIN, BODY, AND WORLD TOGETHER AGAIN* 60–63, 184–86 (1977). Clark explains:

Most of us, it is argued, can learn to know at a glance the answers to simple multiplications, such as $7 \times 7 = 49$. Such knowledge could easily be supported by a basic on-board pattern-recognition device. But longer multiplications present a different kind of problem. Asked to multiply 722×9422 , most of us resort to pen and paper (or a calculator). What we achieve, using pen and paper, is a reduction of the complex problem to a sequence of simpler problems beginning with 2×2 . We use the external medium (paper) to store the results of these simple problems, and by an interrelated series of simple pattern completions coupled with external storage we finally arrive at a solution.³⁰

Not only does the external environment provide a wealth of tools for storing experience and methods for doing the manipulations and calculations, it also constrains (or “scaffolds” to use Clark’s term) the reasoning process.³¹ Relying on the work of Satz and Ferejohn³² and of Denzau and North,³³ Clark concludes that the rational choice model works best in instances of “highly scaffolded choice,” as in the competitive environment of capital markets, and falters as the constraints weaken.

Most scholars who investigate how judges make decisions stay true to the rational choice model, believing that deliberation and rational decision-making are the central part of the process.³⁴ That is

The brain is composed of many simple processing units (neurons) linked in parallel by a large mass of wiring and junctions (axions and synapses). The individual units (neurons) are generally sensitive only to local information—each ‘listens’ to what its neighbors are telling it. Yet, out of this mass of parallel connections, simple processors and local interactions there emerges the amazing computational and problem-solving powers of the human brain.

Id. at 54.

30. *Id.* at 60–61.

31. *Id.* at 45–47, 60–63, 179–92.

32. Satz & Ferejohn, *supra* note 27.

33. Arthur Denzau & Douglass C. North, *Shared Mental Models: Ideologies and Institutions*, 47 *KYKLOS* 3 (1994).

34. Recent legal scholarship about judges’ decision-making processes has modified rational choice theory models with behavioral assumptions. *See, e.g.*, Chris Guthrie, Jeffrey L. Rachlinski & Andrew Wistrich, *Blinking on the Bench: How Judges Decide Cases*, working paper; Simon, *supra* note 1. Just as the behavioral literature that relies on heuristics and biases uses a rational choice-based model, so does this recent scholarship on judicial decision-making.

a comforting thought, because most of us would be shocked to learn that a sentence of life or death or an award of \$100 million resulted from a combination of fast pattern recognition coupled with manipulation of and constraints by the external environment. Nonetheless, the mismatch between the rational choice model and the actual operation of the brain should remind us that theories of judicial decision-making that are grounded in rational choice theory are only models, albeit very useful ones.

There are other competing theories of how people make decisions. Recently, some cognitive scientists have emphasized the importance of simple decision-making rules.³⁵ Try as we might to do otherwise, our brains use simple decision rules to make decisions, even very important decisions, because they have evolved that way. Gerd Gigerenzer explains his conclusions as follows:

Intuitions based on only one good reason tend to be accurate when one has to predict the future (or some unknown present state of affairs), when the future is difficult to foresee, and when one has only limited information. Complex analysis, by contrast, pays when one has to explain the past, when the

To a cognitive scientist like Andy Clark who views connectionism as the key to understanding the mind, any type of model based on rational choice theory, even one modified by experimental results, is inconsistent with what we know scientifically.

35. See, e.g., GERD GIGERENZER, *GUT FEELINGS: THE INTELLIGENCE OF THE UNCONSCIOUS* (2007); MALCOLM GLADWELL, *BLINK: THE POWER OF THINKING WITHOUT THINKING* (2005). In his book, Gerd Gigerenzer begins with a lesson about the use of a rational cost-benefit analysis to choose a spouse. He quotes a letter Benjamin Franklin wrote to his nephew giving advice about how to choose between two women:

If you doubt, set down all the Reasons, pro and con, in opposite Columns on a Sheet of Paper, and when you have considered them two or three Days, perform an Operation similar to that in some questions of Algebra; observe what Reasons or Motives in each Column are equal in weight, one to one, one to two, two to three, or the like, and when you have struck out from both Sides all the Equalities, you will see in which column remains the Balance. . . . This kind of *Moral Algebra* I have often practiced in important and dubious Concerns, and tho' it cannot be mathematically exact, I have found it extremely useful. By the way, if you do not learn it, I apprehend you will never be married.

GIGERENZER, *supra*, at 5. Of course, few use a rational calculus in choosing a partner; many aren't even sure how they make that choice. See Bruno Frey & R. Eichenberger, *Marriage Paradoxes*, in 8 *RATIONALITY AND SOCIETY* 187 (1996).

future is highly predictable, or when there are large amounts of information.³⁶

He also believes that moral judgments are based on simple decision rules, such as “Do what the majority of your peers do” or “Follow the default rule.”³⁷ However, people are unaware that they follow simple rules in making moral judgments: “people tend to believe they solve complex problems with complex strategies even if they rely on simple ones.”³⁸

36. GIGERENZER, *supra* note 35, at 151.

37. *Id.* at 182, 191.

38. *Id.* at 194. Many studies describe the inability of people to report accurately about the effects of stimuli and cognitive processes. Richard E. Nisbett & Timothy De Camp Wilson, *Telling More Than We Can Know: Verbal Reports on Mental Processes*, in 84 *PSYCHOLOGICAL REV.* 23X (1977). Nisbett and Wilson conclude as follows:

We propose that when people are asked to report how a particular stimulus influenced a particular response, they do so not by consulting a memory of the mediating process, but by applying or generating causal theories about the effects of that type of stimulus on that type of response. They simply make judgments, in other words, about how plausible it is that the stimulus would have influenced the response. These plausibility judgments exist prior to, or at least independently of, any actual contact with the particular stimulus embedded in a particular complex stimulus configuration. . . .

The tools that people employ when asked to make judgments about causality are analogues to the “representativeness heuristic” described by Tversky and Kahneman [citation omitted]. These writers have proposed that when making judgments about the probability that an individual is, say, a librarian, one does so by comparing his information about the individual with the contents of his stereotype concerning librarians. If the information is representative of the contents of the stereotype concerning librarians, then it is deemed “probably” that the individual is a librarian . . . We are proposing that a similar sort of representativeness heuristic is employed in assessing cause and effect relations in self-perception. Thus a particular stimulus will be deemed a representative cause if the stimulus and response are linked via a rule, an implicit theory, a presumed empirical covariation, or overlapping connotative networks. . . .

When subjects were asked about their cognitive processes, therefore, they did something that may have felt like introspection but which in fact may have been only a simple judgment of the extent to which input was a representative or plausible cause of output. It seems likely, in fact, that the subjects in the present studies, and ordinary people in their daily lives, do not even attempt to interrogate the memories about their cognitive processes when they are asked questions about them. Rather, they may resort in the first instance to a pool of culturally supplied explanations for behavior of the sort in question or, failing in that, begin a search through a network of connotative relations until they find an explanation that may be adduced as psychologically implying the behavior. Thus if we ask another person why he enjoyed a particular party and he responds with “I liked the people at the party,” we may be extremely

Our knowledge of the brain is too primitive to let us judge with any confidence which cognitive theories are correct or, at least, which parts of which theories are correct. Nonetheless, the theories that posit simple decision rules and intuition are not based on rational choice theory and seem more consistent with the connectionist theory of the mind supported by Clark. In addition, many judges and legal scholars have advanced the notion that some type of intuition or “spark” is part of decision making and that opinions are an after-the-fact rationalization of the reasons for the decision. This notion extends from the Legal Realists to contemporary, respected judges. Richard Posner, for example, has written:

[W]e describe the lawyer’s and the judge’s reasoning as the “art” of social governance by rules (which may just be a fancy terms for tacit inference). The fact that law schools do not teach a distinctive method, the heavy rhetorical element in judicial opinions, and the low voltage of the methods of legal reasoning converge to support the idea that law is indeed better regarded as an art (more humbly, as a craft, or, as a skill such as riding a bicycle or speaking a foreign language) than as a system of reasoning.³⁹

dubious as to whether he has reached this conclusion as a result of anything that might be called introspection. We are justified in suspecting that he has instead asked himself “Why do people enjoy parties?” and has come up with the altogether plausible hypothesis that in general people will like parties if they like the people at the parties.

Id. at 249–50.

39. Posner, *supra* note 1, at 856. It would not be surprising if intuition and simple decision rules operated in the judicial environment described by Posner:

The judge’s essential activity is the making of a large number of decisions in rapid succession, with very little feedback concerning the correctness or consequences of the decision. . . . He does not have the luxury of withholding decision until persuaded by objectively convincing arguments that the decision will be correct, and he no more wants to wallow in uncertainty and regrets than a law student wants to retake an exam in his mind after having taken it in the examination room.

Id. at 873. Plus, “the politics of the selection process [guarantees] that many judges will be intellectually mediocre.” *Id.* at 874.

For recognition of intuitive factors, see *Lochner v. New York*, 198 U.S. 45, 76 (1905) (Holmes, J., dissenting); AMERICAN LEGAL REALISM, *supra* note 2, at 165 (1993); Frederick Schauer, *Prediction and Particularity*, 78 B.U.L. REV. 773, 786 (1998); Simon, *supra* note 5, at 4–12, 21; Singer, *supra* note 2, at 471–72, 542–43 (1988); Joseph C. Hutcheson, Jr., *The Judgment Intuitive: The Function of the “Hunch” in Judicial Decisions*, 14 CORNELL L.Q. 274

Posner has also called it “naive” to believe we can “infer the nature of the judicial process from the rhetoric of legal opinions.”⁴⁰

Even though we lack the knowledge to explain accurately how judges make decisions, we do know that judicial systems do their job in scores of countries around the world.⁴¹ Judges reach decisions that uphold rights, create predictability and certainty, and support the workings of successful social and economic systems. While we wait for neuro- and cognitive scientists to give us better tools to understand the judicial process, we can continue to follow a prescription Roscoe Pound made in 1931 in response to the Legal Realists. Pound said that legal scholars should recognize

. . . the existence of an alogical, unrational, subjective element in judicial action, and attempt by study of concrete instances of its operation to reach valid general conclusions as to the kinds of cases in which it operates most frequently, and where it

(1929); Oliver Wendell Holmes, *The Path of the Law*, 10 HARV. 457, [167] (1897); Dewey, *supra* note 10, at 21–22 (1924).

40. Posner, *supra* note 1, at 865. For a concern about legal opinions not describing the decision-making process, see AMERICAN LEGAL REALISM, *supra* note 2; Schauer, *supra* note 39, at 783–84; Simon, *supra* note 5, at 34–38; Singer, *supra* note 2, at 471–72; and Dewey, *supra* note 10, at 24.

41. Proposals to change the manner in which judges deliberate are premature, given the primitive understanding of human decision-making. To give two examples of this type of scholarship, Chris Guthrie, Jeffrey Rachlinski, and Andrew Wistrich believe that deliberation will lead to better decisions than intuition and that intuition can be over-ridden by increased deliberation. To achieve this, they propose that dockets be lightened to allow more time for deliberation, that judges be required to write opinions in more instances, and that lawsuits be bifurcated as a way “to limit judges’ exposure to stimuli that are likely to trigger intuitive thinking.” Chris Guthrie, Jeffrey L. Rachlinski, & Andrew Wistrich, *Blinking on the Bench: How Judges Decide Cases*, 93 CORNELL L. REV. 1, 35–37 (2007). If simple rules are the innate basis for decision-making, more time for deliberation and avoiding stimuli may have no effect at all. Similarly, if opinions are just after-the-fact rationalizations for the decisions, making better opinions will not make better decisions. Dan Simon applies a Gestalt-based psychological theory that posits that people seek coherence in their cognitive processes. He suggests that judges be encouraged to resist the automatic process of coming to conclusions for the sake of consistency and to be more open to ambiguity and complexity. Simon, *supra* note 5, at 139–41 (1998). See also Simon, *supra* note 1. Even if the model accurately depicts decision-making, which is far from certain, it might be impossible to achieve anything like this because it requires a judge to willingly change mental processes that are unknown to the judge. There is also a danger that extreme proposals discredit the enterprise of studying judicial decision-making. Jerome Frank’s call for the Freudian analysis of all judges must have been laughable to many, to the discredit of the entire Legal Realism movement.

operated most effectively or most unhappily for the ends of the legal order.⁴²

This brings us to the importance of constraints on judicial decision-making, which act to minimize the effects of belief systems, random intuitions, and other hidden factors that make case outcomes unpredictable and surprising.

IV. CONSTRAINTS TO INDUCE “RATIONAL” DECISION-MAKING

Institutions are the rules of the game in a society—humanly devised constraints that shape human interaction. They structure incentives in human exchange, whether political, social, or economic.⁴³ Institutions can be formal, such as written laws, or informal, such as norms. Institutions are not the only constraint on human interaction, however. Market forces, for example, are a powerful constraint on economic actions. These types of constraints can channel an individual’s actions to make it appear that the person is acting rationally when she is not. As Satz and Ferejohn explain the process: “the [traditional] theory of rational choice is most powerful in contexts where choice is limited.”⁴⁴ The structures in which the individual is embedded channel her conduct, rather than her own cognitive processes driving her action.⁴⁵ The success of the economic neoclassical price theory model in both explaining and predicting some market outcomes is an illustration of the effect of constraints. The model is based on some assumptions that do not reflect reality; for example, it posits that producers maximize profits. That is an impossibility because accounting profits, calculated by firms, are different than economic profits. Further, studies of firm behavior show that firms attempt to maximize market share rather than

42. Roscoe Pound, *The Call for a Realistic Jurisprudence*, 44 HARV. L. REV. 697, 710 (1931).

43. DOUGLASS C. NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE AND ECONOMIC PERFORMANCE 3 (1990).

44. Satz & Ferejohn, *supra* note 27, at 72.

45. Andy Clark, *Economic Reason: The Interplay of Individual Learning and External Structure*, in FRONTIERS OF THE NEW INSTITUTIONAL ECONOMICS 269, 272 (John N. Drobak & John V.C. Nye eds., 1997).

profits.⁴⁶ Nonetheless, market competition and the need for solvency as a condition of survival make the firm behave as if it were maximizing economic profits.⁴⁷

Legal Realists and contemporary critics of the rational model of judicial decision-making have focused on the discretion that remains for judges when applying statutes and case law. There is another conclusion to be drawn, however. Constitutions, statutes, regulations, and case law do constrain judges, although to differing degrees in different situations. For example, if a state statute plainly prohibits public school teachers from striking, it will be very difficult for a state court to permit teachers to strike. Perhaps a court here and there can glean some ambiguity in the statute or find the statute to be inconsistent with the state constitution, but the vast majority of courts will just follow the statute. Some Legal Realists tried to limit discretion by new detailed statutes, the Uniform Commercial Code being the most famous example.⁴⁸ Likewise, the methodology of construing statutes and using cases also limits the possible outcomes. These rules of decision-making would be of little value, however, without ways to enforce them. The hierarchy of a court system is a key component of judicial constraints. With appellate courts and a supreme court having the power to reverse lower courts, a hierarchical court system provides an important enforcement mechanism for assuring that inferior courts follow the established rules. The structure of courts also affects the discretion of individual judges. On the United States Supreme Court, nine justices must reach decisions, while constitutional courts have much larger panels that dilute the importance of one judge's vote.

46. See, e.g., JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 46 (1990).

47. Clark, *supra* note 45, at 272–75. Denzau and North provide a vivid example of the effect of constraints in a comparison of trading by constrained zero intelligence traders (computer modeled agents who could not theorize, recall events or try to maximize returns) with human traders. Unconstrained traders did very poorly in a double auction game until constrained by a decision rule that allowed bids only when they would not yield an immediate loss. This decision rule increased the traders' efficiency by 75%. When the computer traders were replaced by humans, efficiency increased only 1% more. Denzau & North, *supra* note 33, at 5. See Clark, *supra* note 45, at 273–75.

48. See AMERICAN LEGAL REALISM, *supra* note 2, at xiv; Richard Danzig, *A Comment on the Jurisprudence of the Uniform Commercial Code*, 27 STAN. L. REV. 621 (1975); SINGER, *supra* note 2, at 471; Zipporah Batshaw Wiseman, *The Limits of Vision: Karl Llewellyn and the Merchant Rules*, 100 HARV. L. REV. 465 (1987).

In addition to statutes and case law, many other formal and informal institutions constrain judges. There are forms of political control of the judiciary and of individual judges in every country in the world.⁴⁹ The use of impeachment of judges for political reasons is a terrible, extreme example, but it has been and is still practiced in many countries. Even in the United States, where Congress's last attempt to impeach a federal judge for political reasons failed in 1804 when former state supreme court judges broke ranks with President Thomas Jefferson, individual members of Congress have used the media to stir up public sentiment for impeaching judges who take unpopular positions. The same holds on the state level, although it usually arises in re-election campaigns of judges rather than in state impeachment proceedings. Jurisdiction stripping is another tool for asserting political control of judges.⁵⁰ Self-restraint by courts, through such things as justiciability rules, is also important. Self-restraint is a two-way process, however, as Congress has limited its use of political tools like impeachment and jurisdiction stripping to achieve a balance with the courts.

Constraints also arise from judicial norms. For example, Judge Harry Edwards of the D.C. Circuit Court of Appeals has tried to instill collegiality among all the judges on a court and to discourage dissenting opinions. He believes that compromise among the various positions taken by individual judges leads to better decisions and helps a court to better fulfill its limited role in the governance structure.⁵¹ In Japan, judges are promoted based upon performance evaluations by senior judges, so the standards and objectives of the senior judges constrain the actions of judges who desire promotions. Of course, ethical standards and self-regulation through judicial commissions also cabin judges' actions. Judges are also constrained

49. See John Ferejohn & Larry Kramer, *Judicial Independence in a Democracy: Institutionalizing Judicial Restraint*, in *NORMS AND THE LAW* 161, 167–78 (John N. Drobak ed., 2006).

50. For example, after the Ninth Circuit Court of Appeals held that the Pledge of Allegiance unconstitutionally violated the first amendment because it contains the words "under God," successive Congresses attempted to prevent the federal courts from hearing challenges to the Pledge of Allegiance by requiring those lawsuits to be heard in state courts.

51. Harry T. Edwards, *Judicial Norms: A Judge's Perspective*, in *NORMS AND THE LAW* 230, 237–38 (John N. Drobak ed., 2006). Harry T. Edwards, *The Effects of Collegiality on Judicial Decision Making*, 151 U. PA. L. REV. 1639 (2003).

by the society in which they live; they are subject to contemporary culture, values, and norms, as we all are.⁵² And feedback from court decisions, both in terms of social commentary and visible effects on economic and social affairs, surely creates some incentives for different outcomes in subsequent cases. Education also reinforces the rational doctrinal method of decision-making. From the time judges were law students and throughout their careers as lawyers and judges, they are told repeatedly that legal decisions turn on accepted methods of doctrinal analysis. In addition, continuously going through the process of analyzing and applying statutes and cases must reinforce how the brain processes information and reaches decisions.⁵³

The formal and informal constraints discussed above must limit the influence of discretion and non-doctrinal factors in many cases. In other cases, the constraints work to make it appear as if judicial decisions are formed after logical deliberation with accepted methods of doctrinal analysis. These constraints may play another important role by creating the environment in which judges make their decisions. Some cognitive scientists believe that in order to understand human problem solving, it is crucial to examine deliberation in context, not in isolation. Edwin Hutchins argues that we cannot adequately understand cognition without accounting for the fact that “culture, context, and history ... are fundamental aspects of human cognition and cannot be comfortably integrated into a perspective that privileges abstract properties of isolated individual minds.” The basic task is one of “locating cognitive activity in context, where context is not a fixed set of surrounding conditions but a wider dynamical process of which cognition of the individual is only a part.”⁵⁴ Consequently, under this systems approach, the output of the courts should be the central concern, as opposed to the thought

52. Lawrence Friedman, *Judging the Judges*, in *NORMS AND THE LAW*, *supra* note 49, at 139, 149–55.

53. Andy Clark told one of the authors that law professors are much more efficient and quicker at reading court opinions than law students because professors have been reinforcing a particular brain function for years, often decades. This is similar to the “muscle memory” that is so important to the training of athletes and musicians.

54. EDWIN HUTCHINS, *COGNITION IN THE WILD* xiii (1995). See DOUGLASS C. NORTH, *UNDERSTANDING THE PROCESS OF ECONOMIC CHANGE* 33–34 (2005).

processes in a judge's mind separated from the environment of the litigation process.

V. CONCLUSION

The theories of rational choice and neoclassical economics are useful models at the core of social science and economics. Similarly, the logical, doctrinal model of judicial decision-making is at the core of legal analysis. Even though we know that humans often fail to act rationally, all three models successfully serve their purposes, due in large part to the constraints on human behavior. We suspect that the constraints discussed above are a powerful influence limiting the effects of discretion and non-doctrinal factors in the vast majority of lawsuits. Similarly, non-doctrinal factors are likely most influential in cases involving controversial social issues, especially at the Supreme Court level where the constraints are the weakest. Given the current state of our understanding of human decision-making, it is impossible to reach a definitive conclusion on this issue, however.

It would have been better if we could have used this Article to propose an accurate model to replace the rational choice theory of judicial decision-making. Although behavioral psychologists and cognitive scientists have studied decision-making for centuries, our knowledge of the brain's processes is still very primitive. This is no criticism of scholars in those fields. It just reflects the difficulty of the problems they try to understand by using the ineffective tools and elementary knowledge supplied by medical science. With brain scanning, chemical testing, and other new techniques, researchers are pushing the frontiers of medical knowledge of the brain's processes. But there is still a great amount of research to be done. It is important for scholars—from medicine, psychology, cognition, economics, and law—to continue to probe the human decision-making processes. However, until we truly understand much more about how people make decisions, we cannot replace the rationality-based models. Consequently, those working with the law must continue to concentrate on the visible part of judging. We know that the effects of belief systems and other non-doctrinal factors play a role in all judicial systems, albeit to varying degrees, so legal scholars will continue to study and speculate about these hidden factors. For now

and for probably a long time to come, it is sensible for lawyers and judges to disregard the unknown and to continue to participate in what appears to be a rational, doctrinal legal process.