

Vanderbilt Law Review

Volume 51

Issue 6 *Issue 6 - Symposium: The Legal Implications of Psychology: Human Behavior, Behavioral Economics, and the Law*

Article 1

11-1998

The Legal Implications of Psychology: Human Behavior, Behavioral Economics, and the Law Symposium: The Legal Implications of Psychology Human Behavior, Behavioral Economics, and the Law

Stephen D. Hurd

Follow this and additional works at: <https://scholarship.law.vanderbilt.edu/vlr>



Part of the [Law and Psychology Commons](#)

Recommended Citation

Stephen D. Hurd, *The Legal Implications of Psychology: Human Behavior, Behavioral Economics, and the Law Symposium: The Legal Implications of Psychology Human Behavior, Behavioral Economics, and the Law*, 51 *Vanderbilt Law Review* 1495 (1998)

Available at: <https://scholarship.law.vanderbilt.edu/vlr/vol51/iss6/1>

This Symposium is brought to you for free and open access by Scholarship@Vanderbilt Law. It has been accepted for inclusion in *Vanderbilt Law Review* by an authorized editor of Scholarship@Vanderbilt Law. For more information, please contact mark.j.williams@vanderbilt.edu.

Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review

*Donald C. Langevoort**

I.	INTRODUCTION	1499
II.	DEFINITIONAL BOUNDARIES	1503
III.	THE USE OF THE NEW BEHAVIORAL DECISION- MAKING RESEARCH BY LEGAL SCHOLARS	1506
A.	<i>Judicial Decision Making, Trial Procedure, and Evidence</i>	1508
B.	<i>Litigation Decisions, Settlement, and Negotiation</i>	1510
C.	<i>Contract Law</i>	1511
D.	<i>Tort Law</i>	1512
E.	<i>Criminal Law</i>	1514
F.	<i>Tax Law and Trusts and Estates</i>	1515
G.	<i>Corporate and Securities Law</i>	1515
H.	<i>Property and Other Legal Entitlements</i>	1517
I.	<i>Family Law</i>	1517
J.	<i>Lawyering</i>	1518
K.	<i>Social Risk Analysis and Policy Formulation</i>	1519
IV.	FUTURE RESEARCH	1520
A.	<i>Descriptive Accuracy</i>	1520
B.	<i>Institutional Constraint</i>	1522
C.	<i>Legal Implications</i>	1524
D.	<i>Legal Theory</i>	1524
V.	CONCLUSION	1526

I. INTRODUCTION

Nearly all interesting legal issues require accurate predictions about human behavior to be resolved satisfactorily. Judges, policy-makers, and academics invoke mental models of individual and social behavior whenever they estimate the desirability of alternative rules,

policies, or procedures. Contemporary legal scholarship has come to recognize that if these predictions are naive and intuitive, without any strong empirical grounding, they are susceptible to error and ideological bias. Something more rigorous is thus expected when normative claims are advanced, and the place of the social sciences has expanded in legal discourse to satisfy this expectation.¹

Three branches of the social sciences—economics, psychology, and sociology—offer the most obvious assistance in predicting everyday human behavior, and each has a well-recognized history of influence on legal scholarship. The legal realists—most notably, Jerome Frank²—took psychology quite seriously half a century ago; “sociological jurisprudence” came to prominence shortly thereafter, and law and society studies are still highly visible. But as many have said so often, both psychology and sociology have suffered from the inability to generate a unified behavioral model rivaling the simplicity, elegance, and testability of the economist’s utility-maximizing rational actor. For this reason (and probably a host of others³), the rational actor model came to dominate predictions about how “normal” persons and groups respond to legal incentives. By the late 1970s and early 1980s, law and economics was the one social science-based approach to have a truly pervasive effect on legal thinking. “Law and psychology” for some time was largely the study of either marginal segments of the population, such as the criminally insane, or specialized procedural subjects like jury behavior and eyewitness recall.⁴

* Lee S. & Charles A. Speir Professor, Vanderbilt Law School. Special thanks are due to Jeff Rachlinski and Russell Korobkin for their comments and suggestions.

1. This is hardly a novel insight. Ed Rubin’s work has been the most thorough exploration of the influences on “elite” legal thinking. See Edward L. Rubin, *Law And and the Methodology of Law*, 1997 WIS. L. REV. 521; Edward L. Rubin, *The New Legal Process, the Synthesis of Discourse, and the Microanalysis of Institutions*, 109 HARV. L. REV. 1393 (1996). It is also not to say that scholars are necessarily comfortable with heavy reliance on social science research in legal analysis. See generally David L. Faigman, *To Have and Have Not: Assessing the Value of Social Science to the Law as Science and Policy*, 38 EMORY L.J. 1005 (1989); Paul E. Meehl, *Law and the Fireside Inductions (with Postscript): Some Reflections of a Clinical Psychologist*, 7 BEHAV. SCI. & L. 521 (1989). Rather, some behavioral assumptions are crucial to legal reasoning and lawyers are not by virtue of their training necessarily expert in making or testing behavioral predictions. Thus the notion has arisen, with its heavy influence on modern legal scholarship, that it “takes a theory to beat a theory,” i.e., that to win a normative debate there must be affirmative empirical justification for any set of behavioral claims. See, e.g., Fred S. McChesney, *Assumptions, Empirical Evidence and Social Science Method*, 96 YALE L.J. 339, 340 (1986) (making this argument).

2. See Frank’s classic, *JEROME FRANK, LAW AND THE MODERN MIND* (1930).

3. See *infra* note 65.

4. The tension between economics and sociology, to which we shall return later, is nicely portrayed from a variety of viewpoints in Symposium, *Law and Society & Law and Economics: Common Ground, Irreconcilable Differences, New Directions*, 1997 WIS. L. REV. 375.

At roughly the same time that economics was rapidly diffusing into law,⁵ work by cognitive and social psychologists challenging the orthodox presumption of rational human behavior was becoming more prominent in the social sciences. To be sure, psychology has long claimed that human behavior is complex and contingent, and theories like cognitive dissonance (not to mention a broad range of psychoanalytic constructs) have for some time been available to question the decision making of otherwise normal members of society.⁶ But the mid to late 1970s and early 1980s brought distinct focus and attention to the new subdiscipline of "behavioral decision theory" within cognitive and social psychology. Work by researchers such as Amos Tversky, Daniel Kahneman, Hillel Einhorn, Robin Hogarth, Arie Kruglanski, Lee Ross, Richard Thaler, and many others suggested that there are heuristics, biases, and other departures from rational decision-making processes that are systematic and predictable and can thus be modeled and tested with a fair degree of rigor.⁷ The challenge to orthodox economic theory was plain, and a

5. The privileged status of economic analysis has not set well with many legal academics, of course. The debate about law and economics—particularly concern about the artificiality of some of the economists' standard assumptions about human behavior—has been very visible in the legal literature and hardly needs to be repeated here. Critiques have ranged from the work of the critical legal scholars pointing to the political and ideological assumptions and implications of heavy reliance on economic analysis, to the work of far more traditionalist scholars—most recently given expression in Anthony Kronman's *THE LOST LAWYER: FAILING IDEALS OF THE LEGAL PROFESSION* (1993)—concerned about the dissonance between economic theory in legal discourse and the ideals of realism and pragmatic wisdom. The point that if *no* social science-based behavioral theory accurately captures reality, then the heavy use of the social sciences in legal analysis will have a distorting impact on both lawyering and the legal process, *see supra* note 1, is well taken.

6. Cognitive dissonance is a basic concept in social psychology, referring to the tendency of people unconsciously to adjust their attitudes and beliefs to conform to voluntary choices previously made. *See generally* ELLIOT ARONSON, *THE SOCIAL ANIMAL* (7th ed. 1995). For a rare but noteworthy use of cognitive dissonance in the economics literature, see George A. Akerlof & William T. Dickens, *The Economic Consequences of Cognitive Dissonance*, 72 *AM. ECON. REV.* 307 (1982).

7. This work quickly became voluminous, appearing both in standard psychology journals and specialized journals on judgment and decision making, most notably the specialized journal *Organizational Behavior and Human Decision Processes*. Some of the classic books in this area are ROBYN M. DAWES, *RATIONAL CHOICE IN AN UNCERTAIN WORLD* (1988); *DECISION MAKING: DESCRIPTIVE, NORMATIVE AND PRESCRIPTIVE INTERACTIONS* (David E. Bell et al. eds., 1988); *INSIGHTS IN DECISION MAKING: A TRIBUTE TO HILLEL J. EINHORN* (Robin M. Hogarth ed., 1990); *JUDGMENT AND DECISION MAKING: AN INTERDISCIPLINARY READER* (Hal R. Arkes & Kenneth R. Hammond eds., 1986); *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* (Daniel Kahneman et al. eds., 1982); RICHARD NISBETT & LEE ROSS, *HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT* (1980). For some good recent reviews of the literature, see SCOTT PLOUS, *THE PSYCHOLOGY OF JUDGMENT AND DECISIONMAKING* (1993); Colin F. Camerer, *Individual Decision Making*, in *HANDBOOK OF EXPERIMENTAL ECONOMICS* 587 (John H. Kagel & Alvin E. Roth eds., 1995); Matthew Rabin, *Psychology and Economics*, 36 *J. ECON. LITERATURE* 11 (1998).

debate between the disciplines quickly began.⁸ This debate is still far from resolved.⁹ Conventional economics remains an extraordinarily powerful discipline, but within economics there is an increasing willingness (sometimes grudging, sometimes not) to take the psychologists' empirical claims seriously—even in market settings. Transaction cost economics accepts that the rationality of economic actors is "bounded," to use Herbert Simon's phraseology, and bounded rationality can include cognitive imperfection as well as informational limits.¹⁰ "Behavioral economics" has become an accepted subdiscipline within economics, and papers in the best economics and finance journals are more and more apt to make unsarcastic reference to the psychological literature. A pointed illustration of this interdisciplinary accommodation is the venerable *Quarterly Journal of Economics'* dedication of its May 1997 issue to the work of the late Amos Tversky, who pioneered behavioral decision theory.¹¹

Many legal academics have become aware of this behavioral research only in the last few years, and there is a sense of newness to these materials (not to mention the sense that it stands in stark contrast to "economic analysis"). Other professional disciplines—management and accounting in particular—grasped the implications of behavioral decision theory far sooner and more thoroughly than has law.¹² Yet it is easy to underestimate the impact this work has already had on legal thinking in a range of subject areas. My purpose in this literature review, then, is to provide a retrospective on the diffusion of this research into legal scholarship over the past two decades and then to pose some questions for future work in this area. As an Appendix, I have included a bibliography of existing legal scholarship, through early 1998, that has utilized this behavioral research.¹³

8. The debate appeared most visibly in a conference published in the *Journal of Business* in 1986, entitled *The Behavioral Foundations of Economic Theory*. See 59 J. BUS. S181 (1986).

9. For more recent expressions, see THE RATIONAL FOUNDATIONS OF ECONOMIC BEHAVIOR: PROCEEDINGS OF THE IEA (Kenneth J. Arrow et al. eds., 1996). See also Lola Lopes, *Psychology and Economics: Perspectives on Risk, Cooperation and the Marketplace*, 1994 ANN. REV. PSYCHOL. 197; Jason F. Shogren & Dermot J. Hayes, *Resolving Differences in Willingness to Pay and Willingness to Accept: Reply*, 87 AM. ECON. REV. 241 (1997).

10. An excellent survey here is John Conlisk, *Why Bounded Rationality?*, 34 J. ECON. LITERATURE 669 (1996). The prominence of transaction cost economics in legal scholarship is discussed in, among others, the work of Rubin, *supra* note 1.

11. See 112 Q.J. ECON. 341 (1997).

12. For an interesting introduction to the relevance of the behavioral research to managerial decision making, see MAX H. BAZERMAN, *JUDGMENT IN MANAGERIAL DECISION MAKING* (4th ed. 1998).

13. For ease of reference, I will hereafter cite all works of legal scholarship that appear in the bibliography simply by the author and date of publication, which is the standard social

II. DEFINITIONAL BOUNDARIES

There is no clean line of demarcation between the particular work on judgment and decision making that has captured the attention of legal scholars and work in cognitive or social psychology generally, which has long had an influence on the law. If we were to pose the question by asking what psychological factors influence individual judgments and choices, we would have to consider a full range of possibilities—beliefs, attitudes, emotions, and social forces, along with purely cognitive processes. This literature review would quickly become coextensive with law and psychology generally—an unmanageable task, even if we put aside the large portion of this literature that is devoted to deviant or abnormal populations.

To impose manageability, I will be fairly subjective. My focus will be on uses by legal scholars of the “new” cognitive psychology literature on decision-making *biases*—i.e., tendencies to make judgments or decisions in ways that systematically depart from the economist’s rational choice/expected utility model. Without any attempt to describe them fully,¹⁴ the following groupings seem to have been of most interest to lawyers:

(1) *Status Quo/Loss Aversion Biases and Framing Effects*. Much of the work in this area examines the tendency of people to weigh losses more heavily than gains, and thus to be more willing to assume risk when facing the loss of something they have than when potentially gaining something they don’t have. This tendency produces a natural bias toward the status quo. Kahneman and Tversky have developed their “prospect theory” of behavior based on this asymmetry in evaluating losses and gains.¹⁵ There is also a large body of work that suggests that whether decisions are “framed” in terms of potential gains or losses affects decisions even though the framing may be completely arbitrary and manipulable. A

science (as opposed to legal) citation method. Following this, reference to my own work will be in the third-person form. All other citations will be in standard legal form.

14. Readers interested in learning more about these biases should consult materials of the sort cited *supra* note 7, or overviews from a legal perspective such as Edwards & von Winterfeldt (1986), Ulen (1989), Arkes (1989) or Sunstein (1997). There appear to be two main (and somewhat distinct) sources in the psychology literature from which to draw. The first, associated with Kahneman, Tversky, and their colleagues, is purely cognitive, and derives from the long-standing (often highly mathematical) research program on decision theory. The other has its roots more firmly in social psychology, and goes under the heading social cognition. On the latter, see generally SUSAN T. FISKE & SHELLEY E. TAYLOR, *SOCIAL COGNITION* (2d ed. 1991). Today, many researchers in this subject area borrow freely from both traditions.

15. For a good description and use of this theory from a legal perspective, see Noll & Krier (1990).

commonplace manifestation of the status quo bias is the tendency for people to demand more to sell something they own than they would pay to buy the same item, referred to as the "endowment effect." This bias, coupled with biases in perceptions of equity and fairness (discussed below), is the basis for the most distinctive legal contribution of the behavioral literature: the possibility that the Coase theorem, which has had such an immense impact on law and economics, fails in real life because disparate valuations interfere with the ability of parties to reach optimal private agreements.

(2) *Anchoring and Adjustment.* Another set of findings from this literature is that people "anchor" on some initial possibility in the decision-making process, usually the status quo, and fail to adjust carefully as new information becomes available. In addition, an adjustment that does occur may be overly affected by the salience or recency of the data.

(3) *Illusory Correlations and Causation Biases.* People often find causal patterns and relationships in matters that are the product of random chance. Statistical base rates are ignored in favor of highly salient or available, but less predictive, information. We should also take note here of a construct from social psychology: the fundamental attribution bias, whereby people tend to overestimate the influence of dispositional factors in explaining another person's behavior, at the expense of situational influences.

(4) *Biases in Risk Perception.* All three of the foregoing groups of biases can affect how people perceive and evaluate risk.¹⁶ In addition, people tend to ignore low probability risks that are not otherwise made salient, and to have a strong preference for the elimination of uncertainty (e.g., to value risk reduction from five percent to zero percent significantly more than a reduction from ten percent to five percent).

(5) *The Hindsight Bias.* People overestimate the extent to which they could have predicted some future event (i.e., its foreseeability) once they learn what actually happened.

(6) *Context Biases.* Just as loss and gain framing may have a distorting impact on choice, the relative preference as between two

16. Risk regulation has been a major subject of interest to social scientists, particularly in the work of Paul Slovic and his colleagues. See, e.g., Paul Slovic et al., *Regulation of Risk: A Psychological Perspective*, in REGULATORY POLICY AND THE SOCIAL SCIENCES 241 (Roger G. Noll ed., 1985). There is also an interesting body of behavioral research on insurance choices that should interest legal scholars. See, e.g., Robin M. Hogarth & Howard Kunreuther, *Risk, Ambiguity, and Insurance*, 2 J. RISK & UNCERTAINTY 5 (1989); Howard Kunreuther et al., *Insurer Ambiguity and Market Failure*, 7 J. RISK & UNCERTAINTY 71 (1993).

options may be unduly affected by the availability of alternatives, particularly if they involve compromise possibilities.

(7) *Intertemporal Biases.* Future risks and rewards are discounted more heavily than standard economic analysis would indicate, suggesting a bias toward consumption and against deferred gratification.

(8) *Egocentric Biases.* A wide variety of biases fall under the label "egocentric." For instance, people have a tendency to engage in self-serving construals, explaining successes by reference to efficiency or control, and failures by reference to luck or other external circumstances. Individuals overestimate the extent to which other people share their same attitudes and beliefs (the false consensus effect). In assessing what is "fair," assessments of fairness are biased toward one's own self-interest. This latter finding is troubling both for purposes of ethical analysis¹⁷ and because research suggests that perceptions of unfairness can interfere with optimal contracting.¹⁸

Egocentric biases are particularly interesting because of a debate in the literature as to their derivation. By and large, cognitive psychologists have been more concerned with documenting the robustness of these behavioral tendencies than with explaining why they exist. It is assumed that some of these "heuristics" persist simply because of limited cognitive processing capacity and sources of information. Some egocentric cognitions may be readily explained in this fashion.¹⁹ Since a person receives so much more (and different) information about himself than about others, there will be natural biases in the assessment of one's self compared to the assessment of others. But there is a large body of work that suggests many of these kinds of biases are "motivated" ones.²⁰ For example, many researchers claim that people are motivated to maintain or enhance their own self-image (self-esteem), and will unconsciously bias the

17. For a particularly interesting recent study along these lines, see C. Daniel Batson et al., *In a Very Different Voice: Unmasking Moral Hypocrisy*, 72 J. PERSONALITY & SOC. PSYCHOL. 1335 (1997).

18. The barriers to optimal contracting are explored generally as an empirical matter in Hoffman & Spitzer (1985). For a discussion of the fairness problem from a legal perspective, see Loewenstein et al. (1993).

19. See NISBETT & ROSS, *supra* note 7, at 228-34 (describing research on "hot" versus "cold" cognitions).

20. See generally Ziva Kunda, *The Case for Motivated Reasoning*, 108 PSYCHOL. BULL. 480 (1990). Many kinds of biases can be explained in both cognitive and motivational ways. For instance, there is the sunk cost effect, the tendency of people to persist too long in a course of action once undertaken. This effect can be explained as a product of informational limitations, see Issacharoff & Loewenstein (1990; 1995), or as a self-esteem maintenance device, see *id.* and Langevoort (1995).

construal of information to accomplish this. Here, the new behavioral work makes a distinct connection with the more traditional psychological construct of cognitive dissonance—that is, the tendency for people to adjust their attitudes and beliefs (and construe new information) in a way that justifies choices and commitments previously made. Other possibly motivated biases along these lines are the tendency toward excessive optimism and an illusion of control over the future, which may be seen as mechanisms to relieve stress and anxiety and produce more aggressive, persistent behavior (thereby leading to greater success).²¹

Having put forth this list of systematic biases, I want to be careful about the semantics of rationality. The kinds of biases detected in the behavioral research plainly depart from the Bayesian forms of subjective expected utility-maximizing behavior that are the core of the economists' working model. But as social philosopher Jon Elster has repeatedly pointed out²² (and both Jules Coleman (1997) and Robert Scott (1986) have echoed for the benefit of legal audiences), identifying a departure from rationality is not the same as discovering irrationality. Among other things, in a world of bounded rationality—coupled with the inability of people to always control their will successfully—what seems to be a heuristic or a bias might really be quite adaptive for most people most of the time. Indeed, some biases create self-fulfilling prophecies by prompting others to behave in a more favorable fashion. In this sense, using the term irrationality may convey an unnecessarily pejorative connotation.

III. THE USE OF THE NEW BEHAVIORAL DECISION-MAKING RESEARCH BY LEGAL SCHOLARS

Until the mid-1980s, use of the new behavioral research on judgment and decision making by legal scholars was limited and episodic. Kelman (1979) drew on the Kahneman-Tversky research in his challenges to the usefulness of the Coase theorem in economic analysis of law. This initiated the line of work in which the bias literature has been invoked to criticize the strong normative and descriptive claims of the law and economics movement. At about the same time, proceduralists recognized the usefulness of this literature

21. See, e.g., ARONSON, *supra* note 6, at 168-71.

22. See JON ELSTER, *SOUR GRAPES: STUDIES IN THE SUBVERSION OF RATIONALITY* (1983) [hereinafter *SOUR GRAPES*]; JON ELSTER, *ULYSSES AND THE SIRENS: STUDIES IN RATIONALITY AND IRRATIONALITY* (1979) [hereinafter *ULYSSES AND THE SIRENS*].

in assessing the process of judge and jury decision making, a subject area that has long incorporated psychology research as a primary reference tool. An article by Saks and Kidd (1980) was a seminal step in what has become a progressive research program by both psychologists and lawyers to develop heuristic-based models of decision making in trial settings. Other significant early uses of the cognitive materials by legal scholars were articles by Latin (1982; 1985) on tort and environmental law; Farber (1983) on contract law; Coffee (1981), Haft (1982), and Cox and Munsinger (1985) on managerial decision making in corporate law; Eskridge (1984) on consumer protection in the home purchase decision; and Jackson's (1985) use of the materials in articulating his approach to the fresh start policy in bankruptcy law. Sunstein (1986) also gave this research some prominence in his discussion of governmental interference with private choices generally.²³

The field received a boost in visibility in 1986 with the publication of a symposium in the *Southern California Law Review* entitled *Legal Implications of Human Error*. The lead article by two social scientists, Edwards and von Winterfeldt, contained the first comprehensive survey for lawyers of the heuristics and biases literature and suggestions on how they might affect a broad range of legal issues, well beyond the conventional "law and psychology" issues. Much of the symposium, however, was more skeptical of the usefulness of this research as a challenge to the law and economics paradigm—little surprise given that so many of the contributors (Roberta Romano, Robert Scott, Alan Schwartz) were leaders in the law and economics movement.²⁴

Over the remainder of the decade, there was steadily increasing interest in the behavioral research. Both Ulen (1989) and Arkes (1989) provided general surveys of the cognitive imperfection literature and observations about its legal significance. Ellickson (1989) did so as well in what was a loud and widely heard call for greater emphasis on both psychological and sociological research as a counterweight to the dominance of orthodox law and economics. At the same time, more and more scholars were invoking behavioral decision theory within individual disciplines, discussed below. The June 1990

23. Schwartz & Wilde (1983) did as well, albeit in the form of an attack on the research's significance in market settings.

24. Scott's article is particularly interesting and by no means entirely dismissive of the cognitive research. His point, which anticipates the growing acceptance of psychological research within economics, is that rationality is hard to define—what seems to be irrational may in fact be an adaptive form of behavior, thus explaining its persistence.

symposium issue of the *Journal of Legal Studies* on the *Law and Economics of Risk* was a particular focal point of interest because it contained articles by scholars previously noted for their law and economics analysis advocating the relevance of the behavioral research for both contract law gap filling (Gillette (1990)) and the relevance of prospect theory to the formulation of public policy regarding environmental risks (Noll and Krier (1990), with interesting commentaries on the use of behavioral decision theory in law by both Spitzer (1990) and Camerer (1990)).

Through the 1990s, legal usage of the behavioral research became substantially more pervasive. Recent conceptual overviews by Sunstein (1997) and Jolls et al. (1998)—the latter, in turn, provoking rebuttals by both Kelman (1998) and Posner (1998)—have now given the subject particular salience.²⁵ Rather than continue with a general evolutionary description of the legal literature through the 1990s, however, it may be more worthwhile to move discipline-by-discipline to survey the impact the research has had over the last twenty years.²⁶

A. *Judicial Decision Making, Trial Procedure, and Evidence*

As noted earlier, one of the first and most obvious uses of the research on behavioral decision making was in analyzing how judges and juries decide cases. Here, social psychology already had a pervasive influence, with many psychologists devoting their primary research attention to the subject. Hence, the rapid and broad diffusion of these materials in legal studies was natural. A fair portion of articles published in specialized journals like *Law and Human Behavior* relate social or cognitive psychology to questions of jury fact-finding and evidence standards. Hence, this survey of the topic will be particularly selective in identifying those articles that make clear use of the contemporary heuristics and bias research. Even then, it will only be a small sampling.²⁷

Saks and Kidd (1980) tied the early decision-making research to this question, surveying all the heuristics and biases for their rele-

25. American Association of Law Schools annual meeting programs in 1997 and 1998 have featured these materials, and both Stanford University (largely through the efforts of Paul Brest) and the University of Illinois (Tom Ulen and Russell Korobkin) have introduced law school courses in which they are studied.

26. In addition to that of Sunstein (1997), a useful post-1990 general discussion of the behavioral literature from a legal perspective is Ulen's review-essay (1994) of Richard Thaler's books *THE WINNER'S CURSE* (1992) and *QUASI-RATIONAL ECONOMICS* (1992).

27. A good anthology of writings on this subject is one edited by Hastie (1993).

vance to trial deliberations. A similar theme is found in a book review by Spitzer (1981). In his contribution to the *Southern California Law Review* symposium, Gold (1986) considered how judges should react to the potential for these kinds of bias. Through the 1980s, social psychologists Nancy Pennington and Reid Hastie developed their "story model" of jury behavior, which uses the social judgment literature to build an account for how juries react to the presentation of evidence and its impact on their decision making. Their presentation of the story model to a legal audience, followed by an interesting commentary by Rick Lempert, can be found in a symposium on decision and inference in litigation in the *Cardozo Law Review* (1991). In turn, concern about decision-making bias has been connected to the formulation of appropriate rules and standards of civil and criminal procedure. Of note here is Clermont's (1987) use of the psychological literature to argue for "simplified" liability standards and burdens of proof given natural limitations on juries' ability to process information. Recently, on the other hand, Saks (1997) has cautioned against too ready a conclusion that jury bias is problematic simply from experimental studies.

Evidence scholarship has also been heavily influenced by the behavioral work, especially with regard to questions about probabilistic (base rate) reasoning compared to other forms of inference. An early symposium on probabilistic evidence in the *Boston University Law Review* (1986) contains a number of references to the heuristics and biases work. Koehler and Shaviro (1990) have expanded on this issue, and references can also be found in a number of the articles in the *Cardozo* symposium noted above.

More specific aspects of jury fact-finding have also profited from heuristics and bias research. For example, Perlin (1990) considered the potential for heuristic reasoning by juries to distort applications of the insanity defense. An empirical study by McCaffery et al. (1995) considers how gain/loss framing and related matters might affect jury deliberations over pain and suffering awards. Kelman et al. (1996) have offered an experimental examination of context dependence: whether the presence or placement of alternatives (e.g., the availability of lesser counts or compromise verdicts) could influence the relative preferences for the original options. Feigenson and his colleagues (1997) have studied victim-blaming in comparative negligence cases. In an article that draws heavily on social cognition research, Armour (1995) examines racial stereotyping in judicial decision making and its potential to perpetuate discrimination.

A particular concern expressed in the early work on jury deliberations was the fear that juries might be inclined to find liability too easily because of the hindsight bias (the tendency to consider events more foreseeable once told of the outcome). Noteworthy articles have offered both empirical and theoretical support for this concern in civil litigation against police officers for illegal searches (Casper et al. 1989), medical malpractice as contrasted with corporate litigation under the business judgment rule (Arkes & Schipani 1994), and negligence law (Kamin & Rachlinski 1995). Rachlinski (1998) has provided a broad overview of hindsight bias and judicial efforts to restrain it. Jolls et al. (1998) have also offered some specific mechanisms for debiasing.

Although most of the work in the judicial process area focuses on fact-finding, there has been a small amount of attention paid to what the bias literature says about how judges decide matters of law. Notable here is the work by Laufer and Walt (1992) on the psychology of adherence to precedent.

B. Litigation Decisions, Settlement, and Negotiation

Deciding whether to bring, settle, or terminate lawsuits is another obvious subject for behavioral inquiry. Using the literature on gain/loss framing, Rachlinski (1996) has shown empirically how biased perception prompted by the sense of loss, especially on the part of defendants, may make settlement harder to reach than standard economic theory would predict, and the implications this has for certain kinds of procedural reforms (such as "loser pays"). Along similar lines are two papers by Korobkin and Guthrie, one dealing with framing and equity-seeking in settlement negotiations (1994(a)), the other on the role of anchoring and adjustment and dissonance reduction with respect to opening offers (1994(b)). Babcock and her colleagues (1995) also have identified framing effects in studying the role of prior expectations in settlement evaluation.²⁸ Both Rachlinski (1996) and (in even more detail) Korobkin and Guthrie (1997) have suggested that these settlement barriers may be reduced by the presence of lawyers.

Focusing specifically on egocentric biases, Loewenstein and his collaborators (1993) have demonstrated how parties may either be overoptimistic in the assessments of cases or construe the fairness of

28. An earlier study by van Koppen (1990) on the status quo bias produced somewhat more ambiguous results.

the situation in a self-serving fashion, both of which would inhibit them from reaching optimal settlements. The same group (Babcock et al. (1998)) has also, however, suggested some means for "debiasing" such perceptions. Work by Issacharoff and Loewenstein has also shown how procedural mechanisms designed to cause more up-front information sharing and evaluation, like liberalized summary judgment standards (1990) and mandatory disclosures in the discovery process (1995), may not have the desired pro-settlement effects in light of self-serving inference and the sunk cost phenomenon. Huang and Wu (1992) have developed a formal economic model of litigation/settlement behavior that incorporates the role of emotions, particularly the desire to be treated fairly.

These barriers to litigation settlement can readily be generalized to other forms of negotiation and conflict resolution.²⁹ For lawyers, good behavioral overviews on conflict resolution generally can be found in Mnookin (1993), Mnookin and Ross (1995), and Kahneman and Tversky (1995).³⁰ Brown (1997) has specifically studied the role of hope and optimism in negotiations.

C. Contract Law

If parties to a contract suffer from cognitive limitations that prevent them from making wise commitments, then there is at least a *prima facie* case for more paternalistic forms of judicial intervention rather than strict reliance on freedom of contract (Sunstein (1986; 1997)). Farber (1983) made early use of the literature in raising doubts about warranty disclaimers; shortly thereafter, Eskridge (1984) made a similar claim, arguing that home buyers need greater protection from sales pressure.³¹ Jackson (1985) made strong use of the literature on cognitive limitations in justifying bankruptcy law's willingness to grant debtors a fresh start. A general overview of the relationship between the psychology literature and consumer protection is found in Silber (1990).

29. See, e.g., ROBERT M. BASTRESS & JOSEPH D. HARBAUGH, *INTERVIEWING, COUNSELING AND NEGOTIATION: SKILLS FOR EFFECTIVE REPRESENTATION* (1990); MARGARET A. NEALE & MAX H. BAZERMAN, *COGNITION AND RATIONALITY IN NEGOTIATION* (1991). We should take note here of the heavy uses of social and cognitive psychology for purposes of both research and teaching in clinical legal education generally (especially negotiation and trial practice), a subject area that would deserve a separate bibliography.

30. The latter two articles are found in a collection of materials designed to integrate economic and psychological approaches to the study of conflict resolution. See *BARRIERS TO CONFLICT RESOLUTION* (Kenneth J. Arrow et al. eds., 1995).

31. The home-buying issue is also treated in Sovern (1993).

More fundamentally, both Gillette (1990) and Melvin Eisenberg (1995) have used behavioral research to suggest that even fairly sophisticated parties to a contract may not see risks clearly at the time of contracting. Eisenberg delves into a wider range of contract law doctrines, from conditions and excuses through the treatment of liquidated damages clauses, and argues that cognitive biases justify judicial limits on the bargain principle.³² Assessing the costs and benefits of various judicial attitudes toward risk-insensitive contracting, Gillette is more agnostic, though he doubts that a rule that penalizes misperceivers is likely to be the most efficient one.

Korobkin (1998) explores a slightly different phenomenon in his experimental study of the status quo bias. His interest is in contract default rules: the "entitlement" that the law creates, subject to being contracted around should the parties so desire. He offers evidence that the act of granting such an entitlement shapes preferences, making actors less willing to give them up in a Coasean bargain.

Specific kinds of contracts and contractual provisions have been examined from a psychological standpoint. Garvin (1998) has provided a detailed study of various biases as they relate to the "adequate assurance of performance" issue when breach is threatened. With respect to pension plan decisions, Weiss (1991) has found cause to question whether employees will make prudent choices in the face of predictable intertemporal biases, a problem that has also been explored by Jolls with respect to both contract modifications and age discrimination in employment (1996; 1997). Langevoort (1996) has argued that decisions to purchase securities may be tainted by a variety of cognitive and motivational biases, many of which prompt a higher than expected degree of trust in stockbroker recommendations—a concern that may be generalized to a much wider range of sales interactions.

D. Tort Law

With its strong state of mind emphasis, tort law is a natural subject for drawing from the behavioral literature. The concern is that risk perception by both tortfeasors and victims may be skewed by predictable biases, resulting in inadequate deterrence and a subopti-

32. There has been a response from more conventional economic analysts, of course—that market forces and institutional constraints will tend to counter the harm that might otherwise seem to follow from cognitive biases. See, e.g., Schwartz & Wilde (1983) (regarding standard form contracts). On the possibility of commercial norms serving as mechanisms for overcoming individual bias, see Kraus (1997).

mal liability regime. Latin (1985) was an early explorer of this possibility in an article that provoked an accompanying rebuttal from Richard Posner (1985). Ulen (1989) considered the deterrence issue in his general overview of the potential for integrating cognitive psychology into economic analysis of law; a subsequent paper (1995) developed these ideas more fully.³³

There has been even greater attention to victim decision making. One of the legal psychologists in the field, Baruch Fischhoff (1977), authored a very early study of this problem in the products liability setting. This also became the principal focus of Latin's work in this area (1985; 1987), culminating in an article devoted to (and highly critical of) the efficacy of product warnings in light of contemporary psychological research (1994). A leading risk researcher now based at Harvard Law School, Kip Viscusi (1996), has also studied information processing by potential tort victims, coming to a less pessimistic conclusion than Latin but still conceding serious risk perception problems in consumer choice.³⁴ Some prescriptive suggestions regarding mandatory disclosure for consumer decisions can be found in Jolls et al. (1998).

We should also take note of a set of articles doubting that individual decision-making flaws are as prevalent or harmful in the tort setting as the behavioral research might seem to indicate. For instance, Schwartz (1988) has defended the notion of consumer sovereignty against behavioral attack in his article on products liability reform; earlier, Grether et al. (1986) had contributed a paper to the *Southern California Law Review* symposium doubting whether concern over consumer "information overload" (and resulting heuristics in product search) was as serious as suggested elsewhere. With respect to tortfeasor decision making, Heald and Heald (1991) have expressed doubt as to whether "mindless" behavior is actually likely to lead to a higher incidence of negligence, given the ability of schemas and scripts to incorporate a broad range of social experience.³⁵ Croley (1996) has argued that whatever the likelihood that cognitive

33. See also Weiner & Small (1992). The McCaffery et al. (1995) study of biases in the award of compensatory damages for pain and suffering in tort cases is also of relevance. In the context of a broader commentary, Langevoort (1995) has raised the possibility that egocentric biases in particular (e.g., cognitive dissonance, overoptimism, the illusion of control) may frustrate tort law's deterrence objective by blinding actors to the risks of their own errors or misfeasance.

34. Viscusi is the author of a large number of books and articles utilizing behavioral economics in the study of risk-taking and risk regulation, especially in the health and safety area. See, e.g., W. KIP VISCUSI, *FATAL TRADEOFFS* (1993); WESLEY A. MAGAT & W. KIP VISCUSI, *INFORMATIONAL APPROACHES TO REGULATION* (1992).

35. These ideas are further explored in Heald (1993).

imperfection makes individuals more likely to behave negligently, organizations are less likely to be prone to such bias. This argument strengthens the case for vicarious liability in tort law.

Finally, we should recall the studies described above dealing with the hindsight bias in judicial decision making. Two of these (Kamin & Rachlinski (1995); Arkes & Schipani (1994)) are specifically negligence-oriented, raising questions about whether judges or juries might be inclined to impose liability too easily once given the benefit of hindsight, even if warned to avoid the bias. In his more recent paper, Rachlinski (1998) considers the interplay between the hindsight bias and tort policy in terms of both deterrence and fairness.

E. Criminal Law

Like tort law, criminal law is a promising subject for behavioral research connections given its state of mind emphasis. The long-standing interest of psychologists and sociologists in criminology assured that the new behavioral research would be quickly and broadly explored; the growth of economic analysis of criminal behavior provided an appealing target.³⁶ Leo Katz (1987) has explored the relevance of cognitive bias in his otherwise more philosophical musings on criminal law theory.

One place where the line between behavioral decision theory and sociology generally tends to blur is in the subject of social influence. There is, of course, a great deal of work in social psychology on interpersonal influences on antisocial behavior that has been of interest to both legal scholars and criminologists (e.g., Milgram's studies on submission to authority³⁷). Similarly, the role of social norms in legal compliance has been a long-standing research area in the social sciences, and is gaining increasing attention in legal studies. Akers (1990) has lamented the prominence of rational choice theory and the lack of adequate attention to theories of social psychological forces in contemporary analysis of criminal behavior. In a broad survey de-

36. In the criminology literature, a good collection of materials on the rationality of criminal behavior (including a number of papers that take the heuristics and biases research as a point of departure) is *THE REASONING CRIMINAL: RATIONAL CHOICE PERSPECTIVES ON OFFENDING* (Derek B. Cornish & Ronald V. Clarke eds., 1986). Although strong forms of rational actor analyses of criminal behavior predominate in economics, some economists have demonstrated an interest in incorporating certain biases into their analyses of criminal behavior. See, e.g., William T. Dickens, *Crime and Punishment Again: The Economic Approach With a Psychological Twist*, 30 J. PUB. ECON. 97 (1986).

37. See Stanley Milgram, *Behavioral Study of Obedience*, 67 J. ABNORMAL & SOC. PSYCHOL. 371 (1963). See generally HERBERT C. KELMAN & V. LEE HAMILTON, *CRIMES OF OBEDIENCE: TOWARD A SOCIAL PSYCHOLOGY OF AUTHORITY AND RESPONSIBILITY* (1989).

signed to respond to excessively rational accounts of criminal activity, Kahan (1997) has explored the significance of social meaning and influence, drawing heavily from the social cognition literature. In a broad survey of substitution effects on individuals' preferences for engaging in criminal activity, Katyal (1997) has drawn both on the social influence literature and the cognitive bias literature, arguing, for example, that visibly heavy penalties for crack cocaine possession may bolster the choice to use heroin by making it appear relatively more attractive in context.

There has also been a good deal of attention to the social cognitive influences on public attitudes towards criminality and punishment. Stalans (1993), for instance, has done a laboratory study on the use of the availability heuristic in social preferences for criminal punishment. More generally, Beale (1997) has surveyed the psychological literature for explanations of why public preferences in this area depart from what the empirical evidence suggests is wise.

F. Tax Law and Trusts and Estates

Tax law compliance has been a subject of particular interest to scholars. In the legal literature, the social psychology of taxpayer choices has been examined by a number of scholars, notably Carroll (1987), Casey and Scholz (1991), and Kinsey et al. (1991). In a noteworthy paper, McCaffery (1994(a)) undertook a broad exploration of taxpayer behavior and tax policy from a cognitive perspective. He argues that the existing normative structure of tax law (e.g., hidden taxes, reliance on indexing) are best explained by reference to cognitive biases, and that understanding these biases can in turn generate strategies for channelling taxpayer behavior.

In the trusts area, Hirsch (1995) considers a host of biases in his generally critical analysis of the soundness of contemporary legal policy with respect to spendthrift trusts. Dobris (1997) analyzes trustee behavior in preferring dividends to capital gains by reference to a similar grouping of biases.

G. Corporate and Securities Law

Because corporations and other business associations are so subject to market constraints, there have been long-standing doubts as to whether psychological biases, even if robust at the individual level, are likely to have much impact on organized economic behavior. Nonetheless, Haft (1982) was an early proponent of the view that

understanding various social and cognitive biases could help guide policy formulation with respect to modes of decision making by corporate boards of directors. Coffee (1981) took note of similar biases in his study of corporate criminality. A few years later, Cox and Munsinger (1985) suggested in an influential paper that predictable in-group biases could lead to self-serving inferences regarding the merits of derivative suits on which board special litigation committees might be asked to pass. Hu gave some attention to the possibility of cognitive bias both in his analysis of the relationship between time and risk in decision making by corporate managers (1990) and in his research on risk evaluation with respect to derivatives and other novel financial products (1993).³⁸ Finally, in his study of managerial biases in organizational settings, Langevoort (1997(b)) suggests that various forms of selective perception and self-serving inferences may affect how senior executives perceive risks and threats, and how these biases might skew corporate disclosures.

On the question of investor and stock market behavior, a number of finance theorists in the 1980s began asking whether predictable cognitive biases could affect the capital markets notwithstanding their strong efficiency properties. These inquiries led to a body of research on "noise trading" that suggests that non-rational behavior could cause significant deviations between market price and fundamental value, triggering a debate about the efficient market hypothesis still ongoing in the economics literature. Langevoort examined the implications of noise theory for securities regulation, with specific reference to the cognitive bias problem (1992),³⁹ and, outside of the organized markets context, to the potential for cognitive biases to skew decision making in the investor-stockbroker interaction (1996). As noted earlier, Weiss (1991) used the psychological literature to express doubts as to the wisdom of the intertemporal choices of employees faced with retirement plan investment decisions, thus attacking calls based on neoclassical economic analysis to eliminate paternalistic government policies in this area.

38. Cognitive imperfection also plays a role, albeit a more limited one, in Henry T.C. Hu, *Illiteracy and Intervention: Wholesale Derivatives, Retail Mutual Funds, and the Matter of Asset Class*, 84 GEO. L.J. 2319 (1996).

39. See also the commentary of Thompson (1997). The most noteworthy uses of noise theory in securities regulation are Janet Cooper Alexander, *The Value of Bad News in Securities Class Actions*, 41 UCLA L. REV. 1421 (1994); Baruch Lev & Meiring de Villiers, *Stock Price Crashes and 10b-5 Damages: A Legal, Economic, and Policy Analysis*, 47 STAN. L. REV. 7 (1994). Here, the reliance on the behavioral literature is not explicit, but is not far from the surface. A brief criticism of the use of this literature can be found in RONALD J. GILSON & BERNARD S. BLACK, *SOME OF THE ESSENTIALS OF FINANCE AND INVESTMENT* 181-82 (1993).

H. Property and Other Legal Entitlements

There have been a number of subjects with respect to which legal scholars have probed the relevance of the status quo and loss aversion biases—particularly the notion that having an existing property interest creates a greater attachment (reflected in willingness to sell) than would be expressed by others not in possession of the same object (willingness to buy). This was one of Kelman's (1979) points of departure in his early attacks on the Coase theorem, and has been picked up by numerous others. Cohen and Knetsch (1992) argued that this disparity can help illuminate a wide range of legal subjects, including adverse possession, limits on the measurement of lost profits in contract litigation, and rules governing repossession of property. Hoffman and Spitzer (1993) have provided a detailed overview of this debate, expressing doubt that any strong normative claim can be drawn absent a more refined understanding of the phenomenon.⁴⁰ In his study of whether the endowment effect should inform the question of just compensation for the taking of property under constitutional law, Fischel (1995) has suggested that constitutional and public choice theory would say no.

A major work using social cognition literature to suggest that measures of economic value are more often comparative than absolute is McAdams (1992).⁴¹ Among other things, he examines income tax policy and antidiscrimination law in terms of their ability to dampen otherwise wasteful patterns of status-seeking behavior.

I. Family Law

Scott (1990) utilized cognitive biases broadly in her study of individual decisions relating to marriage and divorce, and the appropriate public policy responses. More concretely, Baker and Emery (1993) offer empirical evidence to suggest that both cognitive (e.g., representative) and motivational (e.g., optimistic) biases prevent future marriage partners from seeing the risk of divorce clearly, calling into question the soundness of decision making with respect to prenuptial agreements.

40. See also Hovenkamp (1991).

41. Like McAdams, an increasing number of legal scholars have become interested in matters of relative status in assessing economic concepts of wealth and value. The standard reference here is to the work of behavioral economist Robert Frank, particularly ROBERT FRANK, *CHOOSING THE RIGHT POND: HUMAN BEHAVIOR AND THE QUEST FOR STATUS* (1985).

J. Lawyering

Though there is little doubt—as Korobkin and Guthrie (1997) suggest in an insightful study—that lawyers can often help debias their clients' decision making, the possibility that cognitive biases may affect how lawyers do their jobs has hardly gone unnoticed either. For example, Langevoort (1993) has drawn on the cognitive decision-making and social cognition literature to suggest that once they commit to client representation, lawyers may be biased in the construal of information and hence miss warning signs of client fraud. Self-serving perceptions of fairness are the focus of Ted Eisenberg's (1994) examination of the size of fee claims made by bankruptcy attorneys, and overoptimism and the illusion of control are key elements of Loftus and Wagenaar's (1988) assessment of how litigators assess the probability of success in the cases they bring. Kahan and Klausner (1996) have used the status quo, anchoring, and conformity bias literature as a reason why lawyers may persist in using outmoded contractual forms and structures. In their article, Langevoort and Rasmussen (1997) consider the possibility that both anchoring and adjustment and egocentric biases may be at work in generating excessive risk aversion by business lawyers in their counselling activities, offering an example where behavioral and conventional economic analysis produce complimentary, not inconsistent, accounts. From a social cognition perspective, LoPucki (1997) has described the dissonance between the often indeterminate "law on the books" and the often more simplified and manageable (and highly socialized) "law in lawyers' heads."

More generally, Rhode has used the social psychology literature on moral evolution to address the need for pervasive ethics instruction (1992) and has also suggested that self-serving inference may interfere with good ethical deliberation (1994). Macey (1993) has argued that self-serving biases affect the legal profession as a whole to taint its perceptions of the social virtue of litigation and other lawyering activities.

Finally, Paul Brest has embarked on a mission to encourage lawyers to become familiar with behavioral decision theory, not so much because of the ethical questions but because creative problem-solving by attorneys requires that heuristic forms of thinking—by both clients and attorneys—be noticed and avoided when inappropriate. Brest and Krieger (1994) have examined the ways in which problem solving can be improved within the legal curriculum; subsequently, Brest (1995) has tied together the problem-solving and

professional responsibility dimensions of this learning. Blasi (1995) has also invoked a range of cognitive psychology research in exploring the development of expertise by practicing lawyers. Langevoort (1997(a)), in turn, has combined the ethical and problem-solving dimensions of professional responsibility by focusing on the need to understand both individual and organizational cognitive biases.

K. Social Risk Analysis and Policy Formulation

Underlying the analysis of many of the foregoing subject areas has been concern about what the behavioral literature says about the process of policy formulation generally. In their seminal article, Noll and Krier (1990) considered the extent to which status quo/loss aversion biases might influence public preferences for the regulation of toxic and other environmental risks, and (based on more conventional public choice theory) how regulators are likely to respond. Biases in the demand for environmental regulation were also explored by Cross (1994). More briefly, Rose (1994) also commented on the ability of bias to affect environmental policy formulation, as had Latin (1982) in an early work.⁴² These kinds of issues have also produced a rich literature on the "rationality" of public risk perception, on which Pildes and Sunstein (1995) offer a thorough analysis. A very different kind of social risk taking—the widespread appeal of lotteries—is the subject of analysis by McCaffery (1994(b)).

Less attention has been devoted to whether courts or regulators are likely to be biased along the lines suggested in the behavioral literature, perhaps because bureaucratic activity seems more organizational than individual. This is an important line of work given the pro-paternalism implication of the behavioral research generally, because in the spirit of comparative institutional analysis it forces one to assess whether paternalistic interventions will not themselves be skewed by predictable biases. The most focused attention to this question in the law review literature thus far is found in Gillette and Krier (1990) and Jolls et al. (1998).⁴³

42. An excellent collection of materials by psychologists on environmental policy is ENVIRONMENT, ETHICS AND BEHAVIOR (Max H. Bazerman et al. eds., 1997). On criminal law and public risk perception, see Beale (1997).

43. See also VISCUSI, *supra* note 34; Langevoort (1997(a)) (suggesting the need for corporate lawyers to account for both managerial and regulator bias in their compliance function). Obviously, these references invoke a long classical tradition of research in administrative behavior, albeit largely from a sociological perspective, that emphasizes the often dysfunctional nature of the bureaucratic mindset. See, e.g., ANTHONY DOWNS, INSIDE BUREAUCRACY (1967).

IV. FUTURE RESEARCH

As more and more legal scholarship invokes the behavioral research, what background questions deserve either better or more exploration? To me, the lurking conceptual issues can usefully be divided into four categories.

A. *Descriptive Accuracy*

The first kind of question is the one on which legal scholars (at least those who are not also trained social scientists) have the least to contribute: whether the cognitive biases are sufficiently robust empirically—or sufficiently strong causally—to justify their invocation in normative legal or policy deliberations. Although enough work has been done to satisfy most social scientists that the bias research is credible, legal usage must remain somewhat tentative.⁴⁴

Related to this is the question of contingency. Most psychologists seem to agree that heuristics are not necessarily automatic: there is a great deal of “task dependency” that determines how carefully people attend to their judgments and decisions.⁴⁵ As transaction cost economists well understand, the question of how much time and attention to devote to any matter is one of perceived costs and benefits. In this sense, biases may be robust in some settings but disappear when there is a greater level of motivation—induced by accountability or monetary incentive, for example—toward accuracy. This is an area where a better understanding of the forces that produce bias is likely to have some significance. Those biases that are simply mental shortcuts should be more prone to elimination (especially with respect to sophisticated sorts of actors). On the other

44. See McCaffery (1994(a)). For a recent counterattack, see Posner (1998). I will leave to others the debate about whether this tentativeness justifies reversion to neoclassical economics as a default rule for behavioral prediction other than to say that given the fairly conservative normative implications that tend to flow from most conventional economic analysis, leaving economics as the one social science sufficiently well-grounded to justify policy has obvious political consequences. It is not purely speculative to suspect a strong, if not entirely conscious, relationship between the politics (ranging from private foundation funding to the appointment of law and economics scholars as judges) and the academic production of law and economics analysis. This idea is touched upon in the context of securities regulation in Langevoort (1992).

45. A good articulation of this view can be found in JOHN W. PAYNE ET AL., *THE ADAPTIVE DECISION MAKER* ch. 3 (1993). On the varying motivational influences determining how much effort goes into decision accuracy, see Arie Kruglanski, *The Psychology of Being “Right”: The Problem of Accuracy in Social Perception and Cognition*, 106 *PSYCHOL. BULL.* 395 (1989).

hand, biases that serve some strong underlying motivation will be more stubborn.⁴⁶

Similar issues arise with the question of learning from experience. There is a substantial debate in the literature (of special interest to economists who work with game theory) as to whether facing repeated decision tasks will provide the kind of feedback that gradually improves the quality of the decision making. This question is quite important, because there is great variation in the iterative nature of decision making in real life settings. Members of a jury might have little opportunity to learn from mistakes; people who bargain over goods or services (all of us to some extent) have much more opportunity. This insight was one basis for Romano's prediction (1986) that the cognitive bias research would have relatively little to say about human behavior in market settings. On the other hand, the large experiential learning literature is not entirely optimistic, emphasizing that feedback must be both prompt and unambiguous to cause significant improvement.⁴⁷ Here, again, the potentially motivated nature of some biases may be significant. Social scientists who study managerial behavior have observed the "superstitious" nature of experiential learning given both the ambiguity and delay in business-related feedback and the motivational needs for optimism and control.⁴⁸ Legal scholars should attend to this learning problem carefully as they assess the extent to which legal theory or doctrine can assume the prevalence of any given kind of bias.

46. Accountability is a good example. It is fairly well recognized that if one senses that one will be held accountable for a decision, one will work harder to get it right. On the other hand, accountability produces a self-serving inference when one is already committed to a choice. See generally Philip E. Tetlock et al., *Social and Cognitive Strategies for Coping With Accountability: Conformity, Complexity and Bolstering*, 57 J. PERSONALITY & SOC. PSYCHOL. 632 (1989).

47. In the legal literature, this point is made by Camerer (1990). From among the many studies of learning from experience in the behavioral literature, see Berndt Brehmer, *In One Word: Not From Experience*, in Arkes & Hammond eds., *supra* note 7, at 705. This research is a point of departure for many laboratory studies of expert decision makers (e.g., asking experienced doctors to make diagnostic judgments, or asking real estate appraisers to make valuation decisions) that show that even experts demonstrate cognitive bias with some regularity, though it may be a *different* kind of bias than that shown by other subjects. See, e.g., Margaret A. Neale & Gregory B. Northcraft, *Experts, Amateurs, and Refrigerators: Comparing Expert and Amateur Negotiators in a Novel Task*, 38 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 305 (1986). On expert decision making in the legal literature, see Hu (1993).

48. See generally Barbara Levitt & James G. March, *Organizational Learning*, 14 ANN. REV. SOC. 319 (1988); James G. March & Zur Shapira, *Managerial Perspectives on Risk and Risk Taking*, 33 MGMT. SCI. 1304 (1987).

B. Institutional Constraint

The next level of question is the profound translation problem of moving from the assumption that cognitive biases are real to the assumption that they are robust in the institutional settings in which most of the economic activity that the law seeks to influence takes place. This point has been emphasized by Rubin (1996), among others. Markets, social norms, and organizations all constrain individual decision making in such a way that we cannot be sure that biases found in artificial settings will be pernicious in real life.⁴⁹

This question is an empirical one, harder to study with rigor as institutional size or complexity increases (and it moves us away from the traditional domain of cognitive psychology and back to standard sociology and economics). Rachlinski (1996) takes account of institutional debiasing in his empirical testing directed at whether attorney intervention in negotiations can reduce their clients' framing biases, on the assumption that attorneys' experience and detachment incline them more toward accurate evaluation of options; and Hu (1993) asks whether law firms and other professionals might play a debiasing role in the evolution of the derivatives market. But to identify institutional constraint does not *necessarily* mean that institutions will not themselves evidence heuristics and biases. Kahan and Klausner (1996), for example, suggest that institutional norms such as lawyer-designed contract terms can themselves reflect the cognitive biases of practicing lawyers. A good bit of work exists on group behavior to suggest that group decision making can exacerbate some kinds of bias. This phenomenon is observed in the so-called "risky shift" phenomenon, and in the "groupthink" construct associated with the work of Irving Janis and his colleagues.⁵⁰ Moving toward the larger institutional setting, there is a large volume of both theory and field study research to support the claim that managerial perceptual bias is a significant problem in the way organizations behave, and much of

49. This, too, was one of Romano's key points, and the essence of the orthodox economists' challenge to the behavioral literature generally. Variations on this theme can be found in the work of Schwartz & Wilde (1983) (markets), Heald & Heald (1991) (social norms), Croley (1996) (organizational structure), and Kraus (1997) (commercial norms).

50. See IRVING R. JANIS, VICTIMS OF GROUPTHINK: A PSYCHOLOGICAL STUDY OF FOREIGN POLICY DECISIONS AND FIASCOS (1972); see also Norbert L. Kerr et al., *Bias in Judgment: Comparing Individuals and Groups*, 103 PSYCHOL. REV. 687 (1996). An interesting recent study suggests that the self-serving inference may actually be enhanced in group settings. See Chip Heath & Forest J. Jourden, *Illusions, Disillusions and the Buffering Effects of Groups*, 69 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 103 (1997).

this research is explicitly tied to the literature on heuristics and biases.⁵¹

A particularly acute question, of course, is whether competitive market forces are likely to erode biased decision making. The familiar point is that suboptimal behavior can be exploited by “smart money” arbitrage activity, dooming persistent fools to Darwinian extinction. But as noted earlier, there is a significant body of work that argues that even organized capital markets—the conventional economist’s paragon of rational pricing behavior—can reflect both motivated biases and cognitive shortcuts. Hubris, loss framing, and herd behavior are explanations being found in finance journals for the activities of professional money managers and corporate CEOs.⁵² If this is so, such biases could be expected to appear even more strongly in the less competitive market settings that exist for the greater bulk of economic activity. Once again, the organizational cognition research is built on the assumption that bias does not disappear in competitive market environments; indeed, competitive success may be a precursor to organizational myopia and narcissism. Here, too, we must return to the dimly illuminated questions of why biases exist in the first place. The need for stability and routine in order to exploit a particular technology may actually make organizational myopia an adaptive form of cognition.⁵³ Similarly, institutional hubris—that is, a firm-wide illusion of control—might lead to greater organizational aggressiveness and cohesion and thus also be functional on average, even if it leads to predictable but infrequent disasters.⁵⁴

51. This topic is explored in Langevoort (1997(b)). For a literature review, see James P. Walsh, *Managerial and Organizational Cognition: Notes from a Trip Down Memory Lane*, 6 *ORG. SCI.* 280 (1995). On self-serving organizational inference, see Andrew D. Brown, *Narcissism, Identity and Legitimacy*, 22 *ACAD. MGMT. REV.* 643 (1997).

52. See, e.g., Tilman Ehrback & Robert Waldmann, *Why are Professional Forecasters Biased? Agency Versus Behavioral Explanations*, 111 *Q.J. ECON.* 21 (1996).

53. See, e.g., Daniel A. Levinthal & James G. March, *The Myopia of Learning*, 14 *STRATEGIC MGMT. J.* 95 (1993).

54. To simplify, if key agents believe (even excessively) in the company’s future, they are more likely to invest their human capital in it, more likely to trust others (a key to organizational success), and less likely to engage in “last period” kinds of behaviors. In this sense, an optimistic illusion may become a self-fulfilling prophecy. See Brown, *supra* note 51. This is a principal theme in some of the work of Langevoort (1995; 1997(a); 1997(b)). One should note here the connection with sociobiology, where similar claims about the adaptive character of egocentric cognitive illusions have been made. See, e.g., LIONEL TIGER, *OPTIMISM: THE BIOLOGY OF HOPE* (1979).

C. Legal Implications

Assuming that the foregoing matters are appropriately dealt with, legal scholars can then proceed (gingerly) to assess how legal doctrine or regulation should be responsive. This, of course, is what most of the works surveyed earlier have sought to do; obviously, as Sunstein (1997) suggests, there are many more subjects to consider. Here, the primary challenge is to move beyond simply noting the fallibility of human reason, and to suggest strategies that minimize the adverse effect of misperception or misjudgment without generating the costs associated with messy ex post interventions. Gillette (1990) has a good overview of the dilemmas here; Viscusi (1996) has a balanced discussion of the efficacy of information and warnings as a mechanism for improving private decision making in a world of bounded rationality.

One generic subject that promises to be of interest has to do with decision making under ambiguity.⁵⁵ Both heuristic and motivated reasoning are particularly likely when people face ambiguity rather than informational clarity; ambiguity, moreover, interferes with learning from experience and thus strengthens the role of social influences and superstitious forms of inference.⁵⁶ Long-standing questions about the comparative virtues of specific and general legal doctrine (rules versus standards) might well take this into account.

D. Legal Theory

In some sense, the growing prominence of the behavioral literature signals a new form of legal realism, with both primary human action in legal settings and the legal process itself infected (or perhaps blessed) by predictable departures from the rational ideal. A final level of question, then, is whether there are useful ideas to be drawn from the behavioral social science research with respect to basic questions of legal theory and legal philosophy.

Although there have been occasional references by contemporary legal theorists to forms of individual cognition (e.g., cognitive dissonance),⁵⁷ much more work in legal theory deals with the social constructs underlying ideas about law. That focus on social con-

55. See, e.g., Hillel J. Einhorn & Robin M. Hogarth, *Decision Making Under Ambiguity*, 59 J. BUS. S225 (1986).

56. See *supra* notes 47-48

57. See, e.g., J.M. Balkin, *Understanding Legal Understanding: The Legal Subject and the Problem of Legal Coherence*, 103 YALE L.J. 105, 144-51 (1993).

structs, however, brings us back to the blurry distinction between individual and social knowledge and belief, and the world of social constructionism. If individual biases are replicated, perhaps even intensified, in social perceptions and attitudes, then understanding them on a micro-behavioral level may help us better interpret socially constructed forms of knowledge or ideology generally,⁵⁸ including matters related to law. Both Sunstein (1996) and Kahan (1997) have begun to draw connections here, for example, in their work on social norms.⁵⁹

The often-cited article by Noll and Krier (1990) on cognitive bias in social risk perception is another good illustration of this potential. To the extent that social biases underlie a demand for some kind of legal intervention, what is the appropriate normative response? That risk and blame are socially constructed concepts readily decoupled from any form of objective rationality, as the sociologist Mary Douglas has emphasized,⁶⁰ leads to intriguing puzzles for legal theory given the central place of risk and blame in legal reasoning. The judgment and decision-making research may help tell us something about social biases that affect our understanding of risk, blame, and other building blocks of legal theory—and indeed, what we mean by “rationality” in social discourse.⁶¹

The scholar who has grappled most deeply with rationality, irrationality, and social theory, with occasional attention specifically to law, is the social philosopher Jon Elster. While Elster's work on social theory is generally well-recognized in legal scholarship (indeed, Elster himself has contributed extensively to the legal literature), his interest in cognitive bias and predictable departures from rationality has received somewhat less attention in legal circles.⁶² One of his

58. An interesting study along these lines is Dale Griffin & Lee Ross, *Subjective Construal, Social Inference and Human Misunderstanding*, in 24 *ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY* 319 (Mark P. Zanna ed., 1991).

59. To a lesser extent, see also Lawrence Lessig, *The Regulation of Social Meaning*, 62 *U. CHI. L. REV.* 943 (1995).

60. See MARY DOUGLAS, *RISK AND BLAME: ESSAYS IN CULTURAL THEORY* (1992).

61. There has been interesting literature that compares the alternative “rationality” of public risk preferences, some of which draws from the psychological materials. See, e.g., KRISTIN S. SHRADER-FRECHETTE, *PHILOSOPHICAL FOUNDATIONS FOR POPULIST REFORMS* (1991); Beale (1997); Cross (1994); Pildes & Sunstein (1995). Another area where psychologists have made a contribution is in the so-called “just world” theory (the illusion of justice to displace the fear that comes if the risk of random misfortune is too readily accepted). This leads, among other things, to too easy a willingness to blame the victim for his own misfortune. See generally KELLY G. SHAVER, *THE ATTRIBUTION OF BLAME: CAUSALITY, RESPONSIBILITY AND BLAMEWORTHINESS* (1985); Feigenson et al. (1997).

62. But see Lessig, *supra* note 59; Sunstein (1996). For the legal audience, the most accessible of Elster's books is *SOLOMONIC JUDGMENTS: STUDIES IN THE LIMITATIONS OF RATIONALITY*

most pointed questions has to do with why the strong belief in rationality, which he describes as a form of *irrationality*, so pervades legal thought. In essence, his argument is that rationality plays a mythical role, creating a comforting illusion of control through the rational application of law.⁶³ The idea of myth is, of course, a foundational element of sociology and anthropology. What is interesting, and what Elster sees, is that individual cognitive biases may also have their origins in the need to make sense—to a greater degree than is justified—of a confusing, chaotic world,⁶⁴ and that there is but a small step from this need to the social demands placed on law. I suspect that there is a good bit of legal theory that could build from the kinds of insights Elster has drawn. For instance, is the hold that law and economics has had on legal thinking a function not only—or not so much—of its empirical accuracy, but rather because its central rhetorical construct of rational man evokes an image of an institutionally controlled (and controllable) world? Or because the image of the rational actor as the ideal-type in the prevailing social structure reflects the egocentric self-image of judges and lawyers?⁶⁵

V. CONCLUSION

This literature review is meant to show that the behavioral judgment and decision research has not only a future in legal scholarship, but a significant past. I suspect that its appeal thus far to legal scholars has derived only partially from the apparent quality of the underlying empirical research. Another part is the desire to articulate with something other than intuition and anecdote the skepticism

(1989) [hereinafter SOLOMONIC JUDGMENTS]. See also RATIONAL CHOICE (Jon Elster ed., 1986); SOUR GRAPES, *supra* note 22; ULYSSES AND THE SIRENS, *supra* note 22. Recently, Elster (1997) has contributed to the legal literature an essay on the nature and limits of motivated reasoning and self-deception.

63. For a similar argument by a leading cognitive psychologist questioning the overuse of psychiatric and psychological “expertise” in legal proceedings (and society generally), see ROBYN M. DAWES, HOUSE OF CARDS: PSYCHOLOGY AND PSYCHOTHERAPY BUILT ON MYTH (1994).

64. See SOLOMONIC JUDGMENTS, *supra* note 62, at 57-59, 124. Along the same lines, see Keith J. Holyoak & Richard E. Nisbett, *Induction*, in THE PSYCHOLOGY OF HUMAN THOUGHT 50, 55 (Robert J. Sternberg & Edward E. Smith eds., 1988). From a socio-legal perspective, see Mark C. Suchman, *On Beyond Interest: Rational, Normative, and Cognitive Perspectives in the Social Scientific Studies of Law*, 1997 WIS. L. REV. 475, 484.

65. In this emphasis on the possible myth-function of belief in rationality, we are not that far from some well-known critical legal studies claims. See MARK KELMAN, AN INTRODUCTION TO CRITICAL LEGAL STUDIES ch. 9 (1987) (offering a cognitive analysis of the appeal of economic analysis in law). For a discussion of the possibility that lawyers in particular may be engaging in egocentric inference (with an element of false consensus) in inflating the notion of reasonableness in law, see Langevoort (1995).

about human nature that critics of law and economics, in the tradition of Arthur Leff,⁶⁶ have long harbored.

That desire is a bit dangerous, as psychologists would amply warn. Motivated to criticize pervasive human rationality, legal scholars can easily see what they want to see in the social science materials, with insufficient attention to its methodological limitations and limited conclusions. To be honest, legal critics of rationality should acknowledge how so much complex rational work actually seems to get done in the personal, economic, and social settings in which law seeks to intervene. Just as important, legal scholars who want to use the cognitive materials persuasively need to address head-on the question of institutional context and constraint, present in most all the settings that pose interesting legal issues.⁶⁷ Again, this should not be overly daunting: The existing literature hardly justifies the simple conclusion that institutions render individual biases trivial. They may or may not, or they may generate entirely different forms of bias.

In this sense, lawyerly attention to the psychology of judgment and decision making should be coupled with comparable attention to the literature in institutionalism generally, which has had a profound effect in both economics and sociology. The "new institutionalist" literature has a strong cognitive and behavioral dimension;⁶⁸ cross-references in this kind of work to Kahneman, Tversky, and their psychologist colleagues are not uncommon. Indeed, one can sense from a review of the contemporary literature of sociology, economics, and psychology a measure of interdisciplinary convergence, raising at least the hope for robust, tractable models of human and organiza-

66. See generally Arthur Allen Leff, *Economic Analysis of Law: Some Realism About Nominalism*, 60 VA. L. REV. 451 (1974).

67. This is not to say that further study of the biases themselves is not important, especially in the form of empirical work. But concentrating on bias alone, without grappling with institutional context, marginalizes the behavioral research in legal analysis to those settings that are not highly institutionalized.

68. A good example of this kind of attention is Rubin's connection of transaction cost economics with phenomenology in the study of lawyer involvement in the drafting of contracts in the entertainment industry. See Edward L. Rubin, *The Phenomenology of Contract: Complex Contracting in the Entertainment Industry*, 152 J. INSTITUTIONAL & THEORETICAL ECON. 123 (1996). For a wonderful collection of materials by both economists and sociologists addressing the question of organizational behavior, recognizing the cognitive dimension as a key to better understanding how organizations operate, see ORGANIZATION THEORY: FROM CHESTER BARNARD TO THE PRESENT AND BEYOND (Oliver E. Williamson ed., 1990). See also THE NEW INSTITUTIONALISM IN ORGANIZATIONAL ANALYSIS (Walter W. Powell & Paul J. DiMaggio eds., 1991). From a legal perspective, see Mark C. Suchman & Lauren Edelman, *Legal Rational Myths: The New Institutionalism and the Law and Society Tradition*, 21 L. & SOC. INQUIRY 903 (1996).

tional behavior that merge insights from each.⁶⁹ At least the invitation to integration is clear. In the long run, perhaps, legal uses of the judgment and decision-making research may be most interesting for their ability to inform the catholic form of law and (socio)economics that has already begun to flourish.⁷⁰

69. See Ulen (1994; 1997). The most recent editions of law and economics casebooks are beginning to take account of the behavioral materials. See, e.g., ROBERT COOTER & THOMAS S. ULEN, *LAW AND ECONOMICS* 296-97 (2d ed. 1997); see also NICHOLAS MERCURO & STEVEN G. MEDEMA, *ECONOMICS AND THE LAW: FROM POSNER TO POST-MODERNISM* 181-83 (1997). Moreover, there are aspects of the psychology research (e.g., self-serving inference) that can actually help explain why, in a world filled with apparently sincere conviction about fairness and justice, there is so much action that instead conforms to the economist's expectation of "selfishness with guile."

70. The growing interest of economics-oriented scholars, in law and elsewhere, in the role of social norms on economic behavior is a good case in point. This is one of the themes, for example, in the *Wisconsin* symposium, *supra* note 4, and in Symposium, *Law, Economics and Norms*, 144 U. PA. L. REV. 1643 (1996). There seems little doubt that the literature on social psychology can be of use in understanding norms better; as noted earlier, sociologists pay substantial attention to the cognitive aspects of norm development and conformity. We might well expect that norm-based literature, as well as other institutionalist literature, may take increasing interest in the questions of cognition, inviting a blending of psychology with socio-economics.

**BEHAVIORAL DECISION-MAKING RESEARCH: A SELECTED LEGAL
BIBLIOGRAPHY**

Ronald L. Akers, *Rational Choice, Deterrence, and Social Learning Theory in Criminology: The Path Not Taken*, 81 J. CRIM. L. & CRIMINOLOGY 653 (1990).

Hal R. Arkes, *Principles of Judgment/Decisionmaking Research Pertinent to Legal Proceedings*, 7 BEHAV. SCI. & L. 429 (1989).

Hal R. Arkes & Cindy A. Schipani, *Medical Malpractice v. the Business Judgment Rule: Differences in Hindsight Bias*, 73 OR. L. REV. 587 (1994).

Jody Armour, *Stereotypes and Prejudice: Helping Legal Decisionmakers Break the Prejudice Habit*, 83 CAL. L. REV. 733 (1995).

Linda Babcock et al., *Forming Beliefs about Adjudicated Outcomes: Perceptions of Risk and Reservation Values*, 15 INT'L REV. L. & ECON. 289 (1995).

Linda Babcock et al., *Creating Convergence: Debiasing Biased Litigants*, 23 L. & SOC. INQUIRY 913 (1998).

Lynn A. Baker & Robert E. Emery, *When Every Relationship is Above Average: Perceptions and Expectations of Divorce at the Time of Marriage*, 17 LAW & HUM. BEHAV. 439 (1993).

Sara Sun Beale, *What's Law Got to Do With It? The Political, Social, Psychological and Other Non-Legal Factors Influencing the Development of (Federal) Criminal Law*, 1 BUFF. CRIM. L. REV. 23 (1997).

Gary L. Blasi, *What Lawyers Know: Lawyering Expertise, Cognitive Science, and the Functions of Theory*, 45 J. LEGAL EDUC. 313 (1995).

Paul Brest, *The Responsibility of Law Schools: Educating Lawyers as Counselors and Problem Solvers*, 58 LAW & CONTEMP. PROBS. 5 (1995).

Paul Brest & Linda Krieger, *On Teaching Professional Judgment*, 69 WASH. L. REV. 527 (1994).

Jennifer Gerarda Brown, *The Role of Hope in Negotiation*, 44 UCLA L. REV. 1661 (1997).

Colin F. Camerer, *Comment on Noll & Krier, "Some Implications of Cognitive Psychology for Risk Regulation,"* 19 J. LEGAL STUD. 791 (1990).

John S. Carroll, *Compliance with the Law: A Decision-Making Approach to Taxpaying*, 11 LAW & HUM. BEHAV. 319 (1987).

Jeff T. Casey & John T. Scholz, *Beyond Deterrence: Behavioral Decision Theory and Tax Compliance*, 25 L. & SOC'Y REV. 821 (1991).

Jonathan D. Casper et al., *Juror Decision Making, Attitudes, and the Hindsight Bias*, 13 LAW & HUM. BEHAV. 291 (1989).

Kevin M. Clermont, *Procedure's Magic Number Three: Psychological Bases for Standards of Decision*, 72 CORNELL L. REV. 1115 (1987).

John C. Coffee, Jr., *No Soul to Damn, No Body to Kick: An Unscandalized Inquiry into the Problem of Corporate Punishment*, 79 MICH. L. REV. 386 (1981).

David Cohen & Jack L. Knetsch, *Judicial Choice and Disparities Between Measures of Economic Values*, 30 OSGOODE HALL L.J. 737 (1992).

Jules L. Coleman, *Rational Choice and Rational Cognition*, 3 LEGAL THEORY 183 (1997).

James D. Cox & Harry L. Munsinger, *Bias in the Boardroom: Psychological Foundations and Legal Implications of Corporate Cohesion*, 48 LAW & CONTEMP. PROBS. 83 (1985).

Steven P. Croley, *Vicarious Liability in Tort: On the Sources and Limits of Employee Reasonableness*, 69 S. CAL. L. REV. 1705 (1996).

Frank B. Cross, *The Public Role in Risk Control*, 24 ENVTL. L. 887 (1994).

Joel C. Dobris, *Why Trustee Investors Often Prefer Dividends to Capital Gain and Debt Investments to Equity—A Daunting Principal and Income Problem*, 32 REAL PROP. PROB. & TR. J. 255 (1997).

Ward Edwards & Detlof von Winterfeldt, *Cognitive Illusions and Their Implications for the Law*, 59 S. CAL. L. REV. 225 (1986).

Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 STAN. L. REV. 211 (1995).

Theodore Eisenberg, *Differing Perceptions of Attorney Fees in Bankruptcy Cases*, 72 WASH. U. L.Q. 979 (1994).

Theodore Eisenberg, *Negotiation, Lawyering, and Adjudication: Kritzer on Brokers and Deals*, 19 L. & SOC. INQUIRY 275 (1994).

Robert C. Ellickson, *Bringing Culture and Human Frailty to Rational Actors: A Critique of Classical Law and Economics*, 65 CHI.-KENT L. REV. 23 (1989).

Jon Elster, *Alchemies of the Mind: Transmutation and Misrepresentation*, 3 LEGAL THEORY 133 (1997).

William N. Eskridge, Jr., *One Hundred Years of Ineptitude: The Need for Mortgage Rules Consonant with the Economic and Psychological Dynamics of the Home Sale and Loan Transaction*, 70 VA. L. REV. 1083 (1984).

Daniel A. Farber, *Contract Law and Modern Economic Theory*, 78 NW. U. L. REV. 303 (1983).

Neal Feigenson et al., *Effect of Blameworthiness and Outcome Severity on Attributions of Responsibility and Damage Awards in Comparative Negligence Cases*, 21 LAW & HUM. BEHAV. 597 (1997).

William A. Fischel, *The Offer/Ask Disparity and Just Compensation for Takings: A Constitutional Choice Perspective*, 15 INT'L REV. L. & ECON. 187 (1995).

Baruch Fischhoff, *Cognitive Liabilities and Product Liability*, 1 J. PROD. LIAB. 207 (1977).

Larry T. Garvin, *Adequate Assurance of Performance: Of Risk, Duress, and Cognition*, 69 U. COLO. L. REV. 71 (1998).

Clayton P. Gillette, *Commercial Relationships and the Selection of Default Rules for Remote Risks*, 19 J. LEGAL STUD. 535 (1990).

Clayton P. Gillette & James E. Krier, *Risk, Courts and Agencies*, 138 U. PA. L. REV. 1027 (1990).

Victor J. Gold, *Jury Wobble: Judicial Tolerance of Jury Inferential Error*, 59 S. CAL. L. REV. 391 (1986).

David M. Grether et al., *The Irrelevance of Information Overload: An Analysis of Search and Disclosure*, 59 S. CAL. L. REV. 277 (1986).

Robert J. Haft, *Business Decisions by the New Board: Behavioral Science and Corporate Law*, 80 MICH. L. REV. 1 (1982).

Richard L. Hansen, Comment, *Efficiency Under Informational Asymmetry: The Effect of Framing on Legal Rules*, 38 UCLA L. REV. 391 (1990).

Jeffrey L. Harrison, *Piercing Pareto Superiority: Real People and the Obligations of Legal Theory*, 39 ARIZ. L. REV. 1 (1997).

Paul J. Heald, *Mindlessness and Nondurable Precautions*, 27 GA. L. REV. 673 (1993).

Paul J. Heald & James E. Heald, *Mindlessness and Law*, 77 VA. L. REV. 1127 (1991).

Adam J. Hirsch, *Spendthrift Trusts and Public Policy: Economic and Cognitive Perspectives*, 73 WASH. U. L.Q. 1 (1995).

Elizabeth Hoffman & Matthew L. Spitzer, *Entitlements, Rights, and Fairness: An Experimental Examination of Subjects' Concepts of Distributive Justice*, 14 J. LEGAL STUD. 259 (1985).

Elizabeth Hoffman & Matthew L. Spitzer, *Willingness to Pay vs. Willingness to Accept: Legal and Economic Implications*, 71 WASH. U. L.Q. 59 (1993).

Herbert Hovenkamp, *Legal Policy and the Endowment Effect*, 20 J. LEGAL STUD. 225 (1991).

Henry T.C. Hu, *Misunderstood Derivatives: The Causes of Informational Failure and the Promise of Regulatory Incrementalism*, 102 YALE L.J. 1457 (1993).

Henry T.C. Hu, *Risk, Time, and Fiduciary Principles in Corporate Investment*, 38 UCLA L. REV. 277 (1990).

Peter H. Huang & Ho-Mou Wu, *Emotional Responses in Litigation*, 12 INT'L REV. L. & ECON. 31 (1992).

INSIDE THE JUROR: THE PSYCHOLOGY OF JUROR DECISION-MAKING (Reid Hastie ed., 1993).

Samuel Issacharoff & George Loewenstein, *Second Thoughts About Summary Judgment*, 100 YALE L.J. 73 (1990).

Samuel Issacharoff & George Loewenstein, *Unintended Consequences of Mandatory Disclosure*, 73 TEX. L. REV. 753 (1995).

Thomas H. Jackson, *The Fresh-Start Policy in Bankruptcy Law*, 98 HARV. L. REV. 1393 (1985) (subsequently expanded in THE LOGIC AND LIMITS OF BANKRUPTCY LAW 225 (1986)).

Christine Jolls, *Contracts as Bilateral Commitments: A New Perspective on Contract Modification*, 26 J. LEGAL STUD. 203 (1997).

Christine Jolls, *Hands-Tying and the Age Discrimination in Employment Act*, 74 TEX. L. REV. 1813 (1996).

Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998).

Dan M. Kahan, *Social Influence, Social Meaning, and Deterrence*, 81 VA. L. REV. 349 (1997).

Marcel Kahan & Michael Klausner, *Path Dependence in Corporate Contracting: Increasing Returns, Herd Behavior and Cognitive Biases*, 74 WASH. U. L.Q. 347 (1996).

Daniel Kahneman & Amos Tversky, *Conflict Resolution: A Cognitive Perspective*, in BARRIERS TO CONFLICT RESOLUTION (Kenneth J. Arrow et al. eds., 1995).

Kim A. Kamin & Jeffrey J. Rachlinski, *Ex Post ≠ Ex Ante: Determining Liability in Hindsight*, 19 LAW & HUM. BEHAV. 89 (1995).

Neal Kumar Katyal, *Deterrence's Difficulty*, 95 MICH. L. REV. 2385 (1997).

LEO KATZ, *BAD ACTS AND GUILTY MINDS: CONUNDRUMS OF THE CRIMINAL LAW* (1987).

Mark Kelman, *Behavioral Economics as Part of a Rhetorical Duct: A Response to Jolls, Sunstein and Thaler*, 50 STAN. L. REV. 1557 (1998).

Mark Kelman, *Consumption Theory, Production Theory, and Ideology in the Coase Theorem*, 52 S. CAL. L. REV. 669 (1979).

Mark Kelman et al., *Context-Dependence in Legal Decision Making*, 25 J. LEGAL STUD. 287 (1996).

Karyl A. Kinsey et al., *Framing Justice: Taxpayer Evaluations of Personal Tax Burdens*, 25 L. & SOC'Y REV. 845 (1991).

Jonathan J. Koehler & Daniel N. Shaviro, *Veridical Verdicts: Increasing Verdict Accuracy Through the Use of Overtly Probabilistic Evidence and Methods*, 75 CORNELL L. REV. 247 (1990).

Russell Korobkin, Note, *Policymaking and the Offer/Asking Price Gap: Toward a Theory of Efficient Entitlement Allocation*, 46 STAN. L. REV. 663 (1994).

Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608 (1998).

Russell Korobkin & Chris Guthrie, *Opening Offers and Out-of-Court Settlement: A Little Moderation May Not Go a Long Way*, 10 OHIO ST. J. ON DISP. RESOL. 1 (1994(a)).

Russell Korobkin & Chris Guthrie, *Psychological Barriers to Litigation Settlement: An Experimental Approach*, 93 MICH. L. REV. 107 (1994(b)).

Russell Korobkin & Chris Guthrie, *Psychology, Economics, and Settlement: A New Look at the Role of the Lawyer*, 76 TEX. L. REV. 77 (1997).

Jody S. Kraus, *Legal Design and the Evolution of Commercial Norms*, 26 J. LEGAL STUD. 377 (1997).

Donald C. Langevoort, *Ego, Human Behavior, and Law*, 51 VA. L. REV. 853 (1995).

Donald C. Langevoort, *The Epistemology of Corporate-Securities Lawyering: Beliefs, Biases and Organizational Behavior*, 63 BROOK. L. REV. 629 (1997(a)).

Donald C. Langevoort, *Organized Illusions: A Behavioral Theory of Why Corporations Mislead Stock Market Investors (and Cause Other Social Harms)*, 146 U. PA. L. REV. 101 (1997(b)).

Donald C. Langevoort, *Selling Hope, Selling Risk: Some Lessons for Law from Behavioral Economics About Stockbrokers and Sophisticated Customers*, 84 CAL. L. REV. 627 (1996).

Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851 (1992).

Donald C. Langevoort, *Where Were the Lawyers? A Behavioral Inquiry into Lawyers' Responsibility for Clients' Fraud*, 46 VAND. L. REV. 75 (1993).

Donald C. Langevoort & Robert K. Rasmussen, *Skewing the Results: The Role of Lawyers in Transmitting Legal Rules*, 5 S. CAL. INTERDISC. L.J. 375 (1997).

Howard Latin, *Activity Levels, Due Care, and Selective Realism in Economic Analysis of Tort Law*, 39 RUTGERS L. REV. 487 (1987).

Howard A. Latin, *Environmental [sic] Deregulation and Consumer Decisionmaking Under Uncertainty*, 6 HARV. ENVTL. L. REV. 187 (1982).

Howard Latin, "Good" Warnings, Bad Products, and Cognitive Limitations, 41 UCLA L. REV. 1193 (1994).

Howard A. Latin, *Problem-Solving Behavior and Theories of Tort Liability*, 73 CAL. L. REV. 677 (1985).

William S. Laufer & Steven D. Walt, *The Law and Psychology of Precedent*, in HANDBOOK OF PSYCHOLOGY AND LAW 39 (D.K. Kagehiro & W.S. Laufer eds., 1992).

George Loewenstein et al., *Self-Serving Assessments of Fairness and Pretrial Bargaining*, 22 J. LEGAL STUD. 135 (1993).

Elizabeth F. Loftus & William A. Wagenaar, *Lawyers' Predictions of Success*, 28 JURIMETRICS J. 437 (1988).

Lynn M. LoPucki, *Legal Culture, Legal Strategy, and the Law in Lawyers' Heads*, 90 NW. U. L. REV. 1498 (1997).

Jonathan R. Macey, *Civic Education and Interest Group Formation in the American Law School*, 45 STAN. L. REV. 1937 (1993).

Richard H. McAdams, *Relative Preferences*, 102 YALE L.J. 1 (1992).

Edward J. McCaffery, *Cognitive Theory and Tax*, 41 UCLA L. REV. 1861 (1994(a)).

Edward J. McCaffery, *Why People Play Lotteries and Why It Matters*, 1994 WISC. L. REV. 71 (1994(b)).

Edward J. McCaffery et al., *Framing the Jury: Cognitive Perspectives on Pain and Suffering Awards*, 81 VA. L. REV. 1341 (1995).

Robert H. Mnookin, *Why Negotiations Fail: An Exploration of Barriers to the Resolution of Conflict*, 8 OHIO ST. J. ON DISP. RESOL. 235 (1993).

Robert H. Mnookin & Lee Ross, *Introduction*, in BARRIERS TO CONFLICT RESOLUTION (Kenneth J. Arrow et al. eds., 1995).

Roger G. Noll & James E. Krier, *Some Implications of Cognitive Psychology for Risk Regulation*, 19 J. LEGAL STUD. 747 (1990).

Nancy Pennington & Reid Hastie, *A Cognitive Theory of Juror Decision Making: The Story Model*, 13 CARDOZO L. REV. 519 (1991).

Michael L. Perlin, *Psychodynamics and the Insanity Defense: "Ordinary Common Sense" and Heuristic Reasoning*, 69 NEB. L. REV. 3 (1990).

Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. CHI. L. REV. 1 (1995).

Richard A. Posner, *Can Lawyers Solve the Problems of the Tort System?*, 73 CAL. L. REV. 747 (1985).

Richard A. Posner, *Rational Choice, Behavioral Economics and the Law*, 50 STAN. L. REV. 1551 (1998).

Jeffrey J. Rachlinski, *Gains, Losses, and the Psychology of Litigation*, 70 S. CAL. L. REV. 113 (1996).

Jeffrey J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571 (1998).

Deborah L. Rhode, *Ethics by the Pervasive Method*, 42 J. LEGAL EDUC. 31 (1992).

Deborah L. Rhode, *Institutionalizing Ethics*, 44 CASE W. RES. L. REV. 665 (1994).

Reberta Romano, *A Comment on Information Overload, Cognitive Illusions, and Their Implications for Public Policy*, 59 S. CAL. L. REV. 313 (1986).

Carol M. Rese, *Environmental Lessons*, 27 LOY. L.A. L. REV. 1023 (1994).

Edward L. Rubin, *The New Legal Process, the Synthesis of Discourse, and the Microanalysis of Institutions*, 109 HARV. L. REV. 1393 (1996).

Michael J. Saks, *What Do Jury Experiments Tell Us About How Juries (Should) Make Decisions?*, 6 S. CAL. INTERDISC. L.J. 1 (1997).

Michael J. Saks & Robert F. Kidd, *Human Information Processing and Adjudication: Trial by Heuristics*, 15 L. & SOC'Y REV. 123 (1980).

Alan Schwartz, *Proposals for Products Liability Reform: A Theoretical Synthesis*, 97 YALE L.J. 353 (1988).

Alan Schwartz & Louis L. Wilde, *Imperfect Information in Markets for Contract Terms: The Examples of Warranties and Security Interests*, 69 VA. L. REV. 1387 (1983).

Elizabeth S. Scott, *Rational Decisionmaking About Marriage and Divorce*, 76 VA. L. REV. 9 (1990).

Robert E. Scott, *Error and Rationality in Individual Decision-making: An Essay on the Relationship Between Cognitive Illusions and the Management of Choices*, 59 S. CAL. L. REV. 329 (1986).

Norman I. Silber, *Observing Reasonable Consumers: Cognitive Psychology, Consumer Behavior, and Consumer Law*, 2 LOY. CONSUMER L. REP. 69 (1990).

Kent W. Smith & Karyl A. Kinsey, *Understanding Taxpaying Behavior: A Conceptual Framework with Implications for Research*, 21 L. & SOC'Y REV. 639 (1987).

Jeff Sovern, *Toward a Theory of Warranties in Sales of New Homes: Housing the Implied Warranty Advocates, Law and Economics Mavens, and Consumer Psychologists Under One Roof*, 1993 WIS. L. REV. 13.

Matthew L. Spitzer, Book Review, 9 HOFSTRA L. REV. 1621 (1981) (reviewing RICHARD NISBETT & LEE ROSS, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT (1980)).

Matthew L. Spitzer, *Comment on Noll & Krier, "Some Implications of Cognitive Psychology for Risk Regulation,"* 19 J. LEGAL STUD. 801 (1990).

Special Issue, *Rationality*, 3 LEGAL THEORY 101 (1997).

Loretta J. Stalans, *Citizens' Crime Stereotypes, Biased Recall, and Punishment Preferences in Abstract Cases: The Educative Role of Interpersonal Sources*, 17 LAW & HUM. BEHAV. 451 (1993).

Cass R. Sunstein, *Behavioral Analysis of Law*, 64 U. CHI. L. REV. 1175 (1997).

Cass R. Sunstein, *Legal Interference with Private Preferences*, 53 U. CHI. L. REV. 1129 (1986).

Cass R. Sunstein, *Social Norms and Social Roles*, 96 COLUM. L. REV. 903 (1996).

Symposium, *Decision and Inference in Litigation*, 13 CARDOZO L. REV. 253 (1991).

Symposium, *Judgment and Decision Processes*, 7 BEHAV. SCI. & L. 429 (1989).

Symposium, *Legal Implications of Human Error*, 59 S. CAL. L. REV. 225 (1986).

Symposium, *Probability and Inference in the Law of Evidence*, 66 B.U. L. REV. 377 (1986).

Robert B. Thompson, *Securities Regulation in an Electronic Age: The Impact of Cognitive Psychology*, 75 WASH. U. L.Q. 779 (1997).

Thomas S. Ulen, *Cognitive Imperfections and the Economic Analysis of Law*, 12 HAMLINE L. REV. 385 (1989).

Thomas S. Ulen, *Firmly Grounded: Economics in the Future of the Law*, 1997 WISC. L. REV. 433.

Thomas S. Ulen, *Rational Choice and the Economic Analysis of Law*, 19 L. & SOC. INQUIRY 487 (1994).

Thomas S. Ulen, *Rational Victims—Rational Injurers: Cognition and the Economic Analysis of Tort Law*, in *LAW AND ECONOMICS: NEW AND CRITICAL PERSPECTIVES* (Robin Paul Malloy & Christopher K. Braun eds., 1995).

Peter J. van Koppen, *Risk Taking in Civil Law Negotiations*, 14 *LAW & HUM. BEHAV.* 151 (1990).

W. Kip Viscusi, *Individual Rationality, Hazard Warnings, and the Foundations of Tort Law*, 48 *RUTGERS L. REV.* 625 (1996).

Deborah M. Weiss, *Paternalistic Pension Policy: Psychological Evidence and Economic Theory*, 58 *U. CHI. L. REV.* 1275 (1991).

Richard L. Wiener & Mark A. Small, *Social Cognition and Tort Law: The Roles of Basic Science and Social Engineering*, in *HANDBOOK OF PSYCHOLOGY AND LAW* 435 (D.K. Kagehiro & W.S. Laufer eds., 1992).