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THE “NEW” LAW AND PSYCHOLOGY: A REPLY TO CRITICS, SKEPTICS, AND CAUTIOUS SUPPORTERS

Jeffrey J. Rachlinski†

Predicting human judgment and choice is a daunting undertaking. People pursue complex, often conflicting goals that vary across time and circumstance. Despite the difficulty of the task, the law needs an accurate model of human judgment and choice. In order to understand how the law has developed and how the law should develop, scholars must be able to predict people’s response to legal rules accurately. Recently, legal scholars have become interested in new theories of human decision making that researchers in psychology and empirical economics are developing.¹ These new theories promise to predict people’s reactions to law more accurately than either law and economics or traditional legal scholarship.

These new, empirical theories of decision making have an interdisciplinary origin. The field consists largely of psychologists, such as Amos Tversky and Daniel Kahneman, who refer to their work as the psychology of judgment and decision making. It also includes many economists, however. Some economists in this field, such as Vernon Smith, embrace rational-choice models, but seek to test their tenets empirically. They refer to their work as behavioral economics. Other economists, such as Richard Thaler and George Loewentsein, are skeptical of the rational-choice models and use empirical research to document its flaws. These economists refer to their field by the name that many legal scholars have embraced: behavioral decision theory (BDT).

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¹ See Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. (forthcoming July 2000); Cass R. Sunstein, *Behavioral Analysis of Law*, 64 U. CHI. L. REV. 1175 (1997); Symposium, *The Legal Implications of Psychology: Human Behavior, Behavioral Economics, and the Law*, 51 VAND. L. REV. 1495 (1998).

BDT is a somewhat misleading moniker. The inclusion of the word "behavioral" implies that this work is part of the psychological school known as behaviorism (sometimes behaviorism). Behaviorism refers to the work of psychologists, such as John Watson, B.F. Skinner, and Clark Hull, which dominated psychology during the middle part of the twentieth century.² In psychology, BDT is a descendant of the cognitive revolution, which displaced behavioral psychology in the 1960s as the leading school of thought in experimental psychology. Behaviorists make no inferences about human thought processes, which makes their work analogous to microeconomics. By contrast, human thought processes are the targets of study for cognitive psychologists. BDT relies upon inferences that psychologists make about cognitive processes and is therefore a radical departure from behaviorism and from microeconomic theory.

BDT research has identified numerous cognitive decision-making processes, which often include the use of mental shortcuts known as heuristics.³ These heuristics can be useful, but sometimes produce cognitive illusions that result in errors or biases in judgment.⁴ Although BDT seemingly documents a bewildering array of heuristics and biases, in reality, most are products of a few simple theories of how people think about decisions.⁵ Three basic observations about human judgment and choice account for most of the phenomena that BDT describes: (1) people rely on attention and memory as if both are limitless and infallible, even though they are neither; (2) the brain makes many automatic inferences outside of the range of conscious thought; and (3) people rely on fixed reference points to evaluate choices, paying more attention to changes in the status quo than to absolute values.⁶

Psychologists who study jury decision making have long made use of BDT.⁷ The use of BDT to predict the behavior of legal actors other than juries, however, has created a new role for psychology in law. This "new" law and psychology promises a more accurate description

² See CLARK L. HULL, *PRINCIPLES OF BEHAVIOR* (1943); B.F. SKINNER, *THE BEHAVIOR OF ORGANISMS: AN EXPERIMENTAL ANALYSIS* (1938); John B. Watson & Rosalie Rayner, *Conditioned Emotional Reactions*, 3 J. EXPERIMENTAL PSYCHOL. 1 (1914).

For a historical account of behaviorism's importance in the field of experimental psychology, see ERNEST R. HILGARD, *PSYCHOLOGY IN AMERICA: A HISTORICAL SURVEY* 191-204, 221-25 (1987).

³ See Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124, 1124 (1974).

⁴ See *id.*

⁵ See *infra* Part II.B.

⁶ This Reply discusses these observations in greater detail. See *infra* notes 53-62 and accompanying text.

⁷ See, e.g., Michael J. Saks & Robert F. Kidd, *Human Information Processing and Adjudication: Trial by Heuristics*, 15 L. & Soc'y REV. 123 (1980) (reviewing applications of BDT to law).

of human choice than the law otherwise has available, which in turn should improve both positive and normative legal analysis.

The new law and psychology has attracted critics and skeptics. Law-and-economics scholars are an obvious source of criticism, as BDT is a rival to the rational-choice models upon which law and economics relies. Debate between law-and-economics scholars and proponents of the new law and psychology has already entered the literature, and it will doubtless continue.⁸ In large measure, this debate replicates the conflict between traditional economists and proponents of BDT outside of the law.⁹ Traditional legal scholars also have concerns with the new law and psychology, as evidenced by the article by my colleague, Professor Robert Hillman.¹⁰

Professor Hillman presents himself as a contracts scholar who is open-minded about becoming a consumer of BDT. He finds value in the new law and psychology in that it provides a coherent, systematic, and empirically supported critique of law-and-economics scholarship. Nevertheless, he finds several obstacles to using BDT in either a positive or a normative fashion. He documents these impediments by applying BDT to a practical problem in contract law—the enforceability of liquidated damages clauses.¹¹ The obstacles that Professor Hillman encounters create a dilemma for the new law and psychology. If legal scholars cannot use BDT effectively, then BDT has no serious future in legal scholarship, other than providing critics of law and economics with another weapon.¹² If so, then BDT risks devolving into a degenerate research agenda with no positive theories, as has been the fate of

⁸ See Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 STAN. L. REV. 1551 (1998), along with the response to Judge Posner's comments included in Christine Jolls et al., *Theories and Tropes: A Reply to Posner and Kelman*, 50 STAN. L. REV. 1593, 1593-1605 (1998). See also Jennifer Arlen, *Comment: The Future of Behavioral Economic Analysis of Law*, 51 VAND. L. REV. 1765 (1998) (discussing the debate on the meaning of BDT for law and economics); Thomas S. Ulen, *The Growing Pains of Behavioral Law and Economics*, 51 VAND. L. REV. 1747 (1998) (same).

⁹ See Robin M. Hogarth & Melvin W. Reder, *Editors' Comments: Perspectives from Economics and Psychology*, 59 J. BUS. S185 (1986); Matthew Rabin, *Psychology and Economics*, 36 J. ECON. LITERATURE 11 (1998); Richard H. Thaler, *The Psychology and Economics Conference Handbook: Comments on Simon, on Einhorn and Hogarth, and on Tversky and Kahneman*, 59 J. BUS. S279 (1986).

¹⁰ See Robert A. Hillman, *The Limits of Behavioral Decision Theory in Legal Analysis: The Case of Liquidated Damages*, 85 CORNELL L. REV. 717 (2000). Other traditional legal scholars share Professor Hillman's concerns. See Samuel Issacharoff, *Can There Be a Behavioral Law and Economics?*, 51 VAND. L. REV. 1729, 1734 (1998); Mark Kelman, *Behavioral Economics as Part of a Rhetorical Duet: A Response to Jolls, Sunstein, and Thaler*, 50 STAN. L. REV. 1577, 1579 (1998).

¹¹ Liquidated damages clauses are contractual terms in which parties agree to a stipulated sum of damages in the event of a breach of contract. Most courts will not enforce these provisions unless they represent a reasonable estimate of the actual damages and the actual damages would be difficult to calculate at the time of contract. See E. ALLAN FARNSWORTH, *CONTRACTS* 844-45 (3d ed. 1999).

¹² See Arlen, *supra* note 8, at 1768-70; Issacharoff, *supra* note 10, at 1733-34.

critical legal studies.¹³ The question, then, is whether proponents of BDT can overcome the obstacles that Professor Hillman identifies. This Reply presents an argument that they can and that this new law and psychology has a promising future.

Professor Hillman identifies four obstacles to applying BDT to law.¹⁴ First, he worries that psychological phenomena will vary with context, making it unlikely that BDT's theories generalize to the real world. Second, he complains that BDT describes a laundry list of biases in human judgment and choice that often lead to conflicting policy prescriptions. Third, he contends that even if BDT generates clear statements about human judgment and choice, it fails to provide a normative position. Finally, Professor Hillman argues that because BDT suggests that cognitive biases are ubiquitous, the courts cannot be trusted to implement any clear prescription that might emerge from the application of BDT to law.

Although Professor Hillman is not the only legal scholar to recognize the obstacles to applying BDT to law,¹⁵ he is the first to do so in the context of a tangible legal issue. If BDT is to have a future in the law, law professors must find it to be a useful tool to address meat-and-potatoes legal issues, such as whether to enforce liquidated damages clauses in contracts. This Reply addresses these concerns.

Professor Hillman's first and fourth concerns do more to highlight the value of BDT than present obstacles to its application, as discussed in Part I of this Reply. His second and third concerns represent more serious issues, and Parts II and III of this Reply therefore address them separately. The essence of this Reply is that BDT is less indeterminate and conflicted than legal scholars have commonly presented it to be and that BDT frequently supports a normative position, although the precise position depends upon the legal context. Part IV presents a specific response to Professor Hillman's conclusion regarding liquidated damages clauses. Part V discusses the future of BDT in law.

¹³ See Richard A. Posner, *Social Norms, Social Meaning, and Economic Analysis of Law: A Comment*, 27 J. LEGAL STUD. 553, 565 (1998) (contending that law and economics has been successful because it is a progressive program, whereas critical legal studies has stagnated because it is a degenerate program).

¹⁴ See Hillman, *supra* note 10, at 729-37. Professor Issacharoff also identifies four obstacles to the successful use of BDT in law. See Issacharoff, *supra* note 10, at 1734. He argues that the phenomena BDT describes must be generalizable, robust, large, and capable of being translated into the actions of legal actors. See *id.*; see also Arlen, *supra* note 8, at 1766-70 (making similar arguments). The arguments of Professors Issacharoff and Arlen echo many of the points Professor Hillman makes, especially Professor Hillman's concern about context.

¹⁵ See Arlen, *supra* note 8, at 1780; Issacharoff, *supra* note 10, at 1741-44; Kelman, *supra* note 10, at 1590-91; Posner, *supra* note 8, at 1558-61; Ulen, *supra* note 8, at 1757-63.

I

CONTEXT AND INSTITUTIONAL CHOICE

Professor Hillman raises concerns with the generality of BDT phenomena and with the ubiquity of cognitive biases. Both concerns underscore rather than undermine the value of BDT for legal scholarship. BDT scholars closely attend to context and have an accepted methodology for assessing the generality of their theories. As to the ubiquity of cognitive biases, it would be difficult to argue that any phenomenon should be ignored because it is ubiquitous.

A. Generality of BDT Phenomena

The generality of BDT's laboratory studies is an important issue.¹⁶ Any serious policy prescription about BDT's implications for liquidated damages clauses requires support from an empirical demonstration that the phenomena that BDT research documents apply to the contractual setting. Unlike most legal theories, however, BDT has an objective criterion for evaluating its policy implications; as a science, BDT cannot endorse any phenomenon that lacks empirical support. The application of BDT to law is still new, and many propositions await empirical testing. The empirical success of efforts to apply BDT to other fields, such as medicine and business,¹⁷ suggests that this issue will be resolved favorably for BDT.¹⁸ In fact, several attempts to demonstrate that the phenomena that BDT describes apply to legal actors in real-world settings have proven successful.¹⁹

BDT is also much more well-suited to assessing and accepting the limitations of its theories than other methodological approaches to law. Consider that conventional legal methodologies adopt ideological positions, such as freedom of contract, as guiding principles in all contexts. Likewise, law and economics embraces economic efficiency as a universal goal. Studying the effect of context has long been a part of psychology in general and BDT in particular.²⁰ It is a core principle of psychological research that understanding a phenomenon re-

¹⁶ See Issacharoff, *supra* note 10, at 1734; Posner, *supra* note 8, at 1570-74.

¹⁷ See JUDGMENT AND DECISION MAKING: AN INTERDISCIPLINARY READER (Hal R. Arkes & Kenneth R. Hammond eds., 1986) (describing applications of BDT to business, medicine, law, and clinical psychology).

¹⁸ See Posner, *supra* note 8, at 1552 (predicting that further research will demonstrate that the phenomena BDT describes will apply to legal actors).

¹⁹ See Jeffrey J. Rachlinski, *Gains, Losses, and the Psychology of Litigation*, 70 S. CAL. L. REV. 113, 150-60 (1996) (demonstrating that studies of actual settlement discussions reveal evidence of framing effects); Marijke Malsh, *Lawyers' Predictions of Judicial Decisions: A Study on Calibration of Experts* 42-43 (1989) (unpublished Ph.D. dissertation, University of Leiden, on file with author) (demonstrating that attorneys make overconfident predictions of the outcome of lawsuits).

²⁰ See, e.g., Daniel Kahneman & Amos Tversky, *On the Reality of Cognitive Illusions*, 103 PSYCHOL. REV. 582, 589 (1996) (arguing that one of the strengths of BDT's research pro-

quires understanding when the phenomenon will occur and when it will not.²¹

Legal scholars applying BDT to law have, in fact, taken advantage of context to demonstrate important parameters of BDT phenomena. For example, BDT suggests that decision makers will change their risk preferences depending on whether a decision involves an element of gain or loss.²² This phenomenon illustrates BDT's attention to context (gains versus losses). Scholars who have applied this phenomenon to law have demonstrated that it influences the behavior of litigants; plaintiffs, who regularly choose among gains, are risk-averse, while defendants, who regularly choose among losses, are risk-seeking.²³ Furthermore, relying on other BDT research documenting the effect of context on risk preferences, Professor Guthrie has shown that this phenomenon is reversed in lawsuits in which the plaintiff is unlikely to win.²⁴ In another example, relying on research on the conditions that give rise to the endowment effect, I have shown that the endowment effect depends upon whether the available remedy protecting a right is injunctive relief or damages.²⁵ Attention to context has always been an important part of BDT and is already an important part of the new application of BDT to law.

B. Ubiquitous Biases

Similarly, Professor Hillman's concern that legal institutions cannot be trusted to remedy the problems that BDT raises, because the institutions themselves are influenced by cognitive biases, also highlights the value of BDT for legal analysis. BDT certainly suggests that all social institutions, including courts, legislatures, and administrative agencies, will be subject to cognitive biases. Each of these institutions will make decisions that reflect the limitations of human judgment and choice. This observation does not create indeterminacy, as Professor Hillman's critique suggests. Rather, it suggests new ways to assess the strengths and weaknesses of these institutions.

gram is that it will identify precisely the circumstances that lead people to rely on various heuristics and biases).

²¹ See LEE ROSS & RICHARD E. NISBETT, *THE PERSON AND THE SITUATION: PERSPECTIVES OF SOCIAL PSYCHOLOGY* 5-10 (1991); William J. McGuire, *The Yin and Yang of Progress in Social Psychology: Seven Koan*, 26 J. PERSONALITY & SOC. PSYCHOL. 446, 452 (1973).

²² See Daniel Kahneman & Amos Tversky, *Choices, Values, and Frames*, 39 AM. PSYCHOLOGIST 341, 342-44 (1984).

²³ See Russell Korobkin & Chris Guthrie, *Psychological Barriers to Litigation Settlement: An Experimental Approach*, 93 MICH. L. REV. 107, 130-38 (1994); Rachlinski, *supra* note 19, at 128-30.

²⁴ See Chris Guthrie, *Framing Frivolous Litigation: A Psychological Theory*, 167 U. CHI. L. REV. (forthcoming Winter 2000) (manuscript at 62-64, on file with author).

²⁵ See Jeffrey J. Rachlinski & Forest Jourden, *Remedies and the Psychology of Ownership*, 51 VAND. L. REV. 1541, 1566-72 (1998).

For example, administrative agencies might be superior to courts in regulating technological risks because the experts who make decisions in administrative agencies are less inclined to overestimate the dangers posed by these risks than the laypersons who make decisions in the courts.²⁶ Just as public choice theory suggests that the self-interest of the people who manage courts, legislatures, and administrative agencies influences how these institutions operate,²⁷ BDT suggests that cognitive limitations of the people who manage these institutions also influence their operation.

II

CONFLICTING SIGNALS AND INDETERMINACY

In his attempt to use BDT to resolve the mystery of liquidated damages clauses, Professor Hillman quickly discovers that many of the phenomena of human choice that BDT describes lead to contradictory policy prescriptions. One could quibble with the accuracy of Professor Hillman's analysis of each of the phenomena that he discusses,²⁸ but that would miss the point. His assertion that the application of BDT to law can produce conflicting policy prescriptions is clearly correct. Furthermore, as a corollary to this concern, BDT's seemingly endless list of cognitive heuristics and biases suggests that any analysis that relies on BDT will inevitably omit some contradictory phenomenon.

A. Conflicting Signals

BDT research sometimes supports conflicting policy implications, as Professor Hillman observes. Many of the conflicts that he identifies result from the fact that managers of different institutions rely on different cognitive processes. For example, Professor Hillman argues that the hindsight bias, which makes past events seem more predictable in hindsight than they really were in foresight,²⁹ leads courts to

²⁶ See, e.g., Clayton P. Gillette & James E. Krier, *Risk, Courts, and Agencies*, 138 U. PA. L. REV. 1027 (1990) (comparing the cognitive biases of courts with those of agencies in regulating technological risks); Paul H. Rubin, *Courts and the Tort-Contract Boundary in Product Liability*, in *THE FALL AND RISE OF FREEDOM OF CONTRACT* (Frank Buckley ed., forthcoming 2000) (comparing the cognitive biases of courts with those of consumers in assessing product safety).

²⁷ See Jonathan R. Macey, *Separated Powers and Positive Political Theory: The Tug of War over Administrative Agencies*, 80 GEO. L.J. 671, 694-97 (1992).

²⁸ See *infra* Part IV.

²⁹ See Baruch Fischhoff, *Hindsight ≠ Foresight: The Effect of Outcome Knowledge on Judgment Under Uncertainty*, 1 J. EXPERIMENTAL PSYCHOL. 288 (1975). For reviews of the research on the hindsight bias, see Scott A. Hawkins & Reid Hastie, *Hindsight: Biased Judgments of Past Events After the Outcomes Are Known*, 107 PSYCHOL. BULL. 311 (1990), and Jeffrey J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571, 576-88 (1998).

refuse to enforce liquidated damages clauses that should be enforced.³⁰ This effect suggests that the current rules on liquidated damages clauses are too restrictive. Professor Hillman also argues that cognitive biases lead contracting parties to be too optimistic about the likelihood that they will be able to perform a contract. This effect suggests that the current rules on liquidated damages clauses serve as a useful check against contracting parties' excessive optimism.³¹

Thus, the policy conflict that Professor Hillman identifies is an illusion. BDT supports two different policy prescriptions to address the separate problems that each institution faces. BDT recommends adopting evidentiary rules or procedures to ameliorate the effect of the hindsight bias on courts³² and retaining the rules restricting the enforcement of liquidated damages clauses as a hedge against the overoptimism of contracting parties.³³

The fact that BDT generates conflicting predictions about human choice in the same circumstances, however, is more troublesome for the application of BDT to law. For example, some BDT studies indicate that people understate the dangers posed by hazards that have a low probability of occurring, while other studies indicate that people overstate the dangers posed by such hazards.³⁴ This apparent conflict, however, reflects the reality of human judgment. People both underreact and overreact to the danger of low-probability hazards. Consequently, any theory that *fails* to make conflicting predictions about human choice would be flawed. In such a circumstance, researchers should identify what conditions produce underreaction and overreaction and determine the magnitude of these effects. BDT scholars want to reconcile conflicting phenomena, but reconciliation frequently requires extensive empirical research.

Professor Hillman's example of liquidated damages clauses illustrates this point. Just to take part of his analysis,³⁵ Professor Hillman

³⁰ As Professor Hillman explains, the reason for this tendency is that liquidated damages clauses are not enforceable if the parties could have predicted the actual damages at the time of the contract. Because courts determine predictability after they know the actual damages, the hindsight bias might make it seem as if these damages were more predictable than they were in foresight. See Hillman, *supra* note 10, at 735-37.

³¹ See Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 STAN. L. REV. 211, 225-36 (1995). Professor Garvin has also made much use of the phenomenon of overoptimism in contract law. See Larry T. Garvin, *Adequate Assurance of Performance: Of Risk, Duress, and Cognition*, 69 U. COLO. L. REV. 71, 149-56 (1998); Larry T. Garvin, *Disproportionality and the Law of Consequential Damages: Default Theory and Cognitive Reality*, 59 OHIO ST. L.J. 339, 404-06 (1998).

³² See Rachlinski, *supra* note 29, at 602-24.

³³ See *infra* Part III.B.1.

³⁴ See HOWARD MARGOLIS, *DEALING WITH RISK: WHY THE PUBLIC AND THE EXPERTS DISAGREE ON ENVIRONMENTAL ISSUES* 72-79 (1996) (discussing erroneous estimation of the dangers rare hazards pose).

³⁵ See *infra* Part IV (discussing Professor Hillman's other observations).

observes that BDT predicts that contracting parties will be overoptimistic about their ability to perform a contract and will be averse to ambiguity. BDT research provides strong support for each of these phenomena.³⁶ Overoptimism and aversion to ambiguity also lead to opposite prescriptions as to whether a court should enforce a liquidated damages clause. Overoptimism suggests that parties will be too cavalier in their willingness to enter into contracts with penalty clauses. Consequently, courts should be skeptical of liquidated damages clauses, because enforcing such a clause against a party who was a victim of overconfidence seems unfair. Ambiguity in the amount of damages that a court would award, however, can raise the costs of contracting. Because people are averse to ambiguity, parties would prefer to enter into contracts with definite damages terms than contracts that hold out the prospect of uncertain damages. Ambiguity thus creates an impediment to an otherwise mutually desirable contract that courts can remove by enforcing liquidated damages clauses. These two phenomena of human judgment seem to inspire conflicting policies, and they pertain to the same legal actors. Closer scrutiny reveals that, although there is tension, the courts pursue a rule that responds to this tension.

The conflict seems less serious after considering the circumstances that create overoptimism and aversion to ambiguity. BDT research suggests that overoptimism will be a consistent problem among contracting parties. Overoptimism occurs, because people are generally overconfident of their abilities, especially when they have control over them.³⁷ Furthermore, anticipating the ways in which failure can occur is chronically difficult, particularly if failure is uncommon.³⁸ Contracting parties can easily fail to imagine the many circumstances that would thwart their ability to perform a contract. Overconfidence and inability to anticipate failure do not vary much among different situations. By contrast, aversion to ambiguity depends upon the relative level of ambiguity that the parties face.³⁹ A reasonably clear prescription emerges from this observation: courts generally should be skeptical of liquidated damages clauses, but should enforce them in circumstances in which ambiguity is so large as to impede contract formation.

³⁶ See Eisenberg, *supra* note 31, at 225-36 (describing overoptimism in the context of liquidated damages clauses); Craig R. Fox & Amos Tversky, *Ambiguity Aversion and Comparative Ignorance*, 110 Q.J. ECON. 585 (1995) (describing research that demonstrates aversion to ambiguity).

³⁷ See SHELLEY E. TAYLOR, *POSITIVE ILLUSIONS: CREATIVE SELF-DECEPTION AND THE HEALTHY MIND* 37-39 (1989).

³⁸ See Paul Slovic et al., *Facts Versus Fears: Understanding Perceived Risk*, in *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* 463, 466-70 (Daniel Kahneman et al. eds., 1982).

³⁹ See Fox & Tversky, *supra* note 36, at 586-88.

In fact, the current judicial approach to enforcing liquidated damages clauses follows this formulation. Courts generally disfavor such clauses, but enforce them if the actual damages are difficult to calculate, and the liquidated damages clause reflects a reasonable effort to approximate actual damages.⁴⁰ This rule could be explained as judicial attempts to respond to an excess of optimism among contracting parties about their ability to perform the terms of a contract. It keeps contracting parties from enduring a penalty that they mistakenly believed they were extremely unlikely to face. The unwanted consequences of over-optimism generally trump other concerns. When damages are difficult to calculate, however, the consequences of breach are highly ambiguous, and hence the costs of aversion to ambiguity are high. Consequently, the courts will enforce liquidated damages clauses in these circumstances. Thus, the rule that courts follow with respect to the enforceability of liquidated damages clauses looks like an attempt to balance the adverse consequences of competing biases.

Whether the undesirable consequences of aversion to ambiguity are greater than the undesirable consequences of over-optimism is unclear. The courts seem to be crafting a rule that accommodates both phenomena, but it is impossible to be certain that the accommodation is either the most fair or the most efficient rule available. Resolving competing concerns can be difficult, and courts might be overreacting to one or both of these two cognitive biases. Even so, relying on BDT enhances the analysis of liquidated damages clauses by illuminating two cognitive processes that are likely to affect contracting parties. Ignoring overoptimism or aversion to ambiguity will not eliminate their impact on contracting parties. If they influence human choice, then law is likely to reflect this influence. Legal scholarship must therefore attend to these phenomena; ignoring complexity leads only to overly simplistic analysis.⁴¹

B. The "Laundry List" Syndrome

BDT's seemingly endless list of cognitive heuristics and biases presents a related, and more serious, problem for the application of BDT to law. The prospect of an unlimited number of phenomena that require innumerable constraints or caveats on legal analysis surely deters some legal scholars from incorporating BDT into their analyses. Even worse, if BDT has no limiting principles, then legal scholars can use some part of BDT to support almost any assertion

⁴⁰ See *supra* note 11.

⁴¹ As Ralph Waldo Emerson remarked, "[a] foolish consistency is the hobgoblin of little minds." Ralph Waldo Emerson, *Self-Reliance*, in RALPH WALDO EMERSON 131, 137 (Richard Poirier ed., 1990).

about human behavior.⁴² Professor Hillman does not articulate this criticism, but it is implicit in his analysis. Anyone familiar with BDT will quickly recognize that Professor Hillman's list of seven phenomena of human judgment is not exhaustive.⁴³ A methodology that creates hidden psychological trump cards that scholars can play to contradict any assertion about human behavior cannot satisfy any legal scholar.

The existing literature applying BDT to law does little to dispel this fear. None of the four recent papers reviewing the role of BDT in law presents organizational themes that rely on psychological theories linking the BDT phenomena that they discuss.⁴⁴ These four review papers are commendable contributions to legal scholarship. Their authors deserve credit for both suggesting numerous clever applications of BDT to law and motivating a new wave of scholarship. Unfortunately, the dizzying laundry lists of applications included in these papers perpetuates the impression that BDT lacks coherence.⁴⁵ This problem has not escaped the notice of BDT's critics.⁴⁶ Furthermore, one pair of BDT's supporters has asserted that the field consists of a

⁴² BDT's empirical foundation can also create indeterminacy. The field's theories and insights will necessarily change as research progresses. For example, recent data suggest that aversion to ambiguity does not deter people from undertaking gambles. See Fox & Tversky, *supra* note 36, at 587. Hence, aversion to ambiguity is not a sound reason to enforce liquidated damages clauses. This shift in policy implications of aversion to ambiguity might be troubling for legal scholars. Updating policy and theory in the face of new scientific discovery, however, cannot reasonably be described as a weakness of any methodology.

⁴³ Professor Hillman omits a number of potentially relevant psychological phenomena: self-serving biases, the representativeness heuristic, anchoring, contrast effects, reactive devaluation, the illusion of control, temporal inconsistency, and regret aversion.

⁴⁴ Of these papers, two present collections of phenomena without attempting an organizational arrangement. See Donald C. Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review*, 51 VAND. L. REV. 1499 (1998); Sunstein, *supra* note 1. The paper by Professors Jolls, Sunstein, and Thaler divides BDT phenomena into three categories: bounded rationality, bounded willpower, and bounded self-interest. Although this structure suggests an organizational theme, it makes a negative rather than a positive statement about judgment and choice. See Jolls et al., *supra* note 1, at 1476-79. The authors identify the problems with the rational-choice model, but do not suggest that BDT offers any replacement. See Posner, *supra* note 8, at 1552 ("[Jolls, Sunstein, and Thaler] don't actually tell us what 'behavioral economics' means. But implicitly they define it negatively . . ."). Professors Korobkin and Ulen have identified some general themes in BDT (such as the importance of context), but their paper is primarily an assertion that human judgment and choice are not consistent with rational-choice theory, as identified by part of their title, "Removing the Rationality Assumption from Law and Economics." Korobkin & Ulen, *supra* note 1.

⁴⁵ See Jolls et al., *supra* note 1 (describing 10 BDT phenomena); Korobkin & Ulen, *supra* note 1 (manuscript at 102) (identifying 15 deviations from rational-choice theory); Langevoort, *supra* note 44, at 1503-05 (documenting eight cognitive biases); Sunstein, *supra* note 1 (documenting 16 BDT phenomena).

⁴⁶ See Arlen, *supra* note 8, at 1776-77 (stating that BDT "cannot provide a coherent alternative model of human behavior"); Posner, *supra* note 8, at 1552 (describing BDT's approach to law as "ad hoc").

"haphazard collection of seemingly unrelated cognitive quirks."⁴⁷ Legal scholars who use BDT have unfortunately presented the field as if it had little or no order, logic, underlying theory, or limiting principles. It is therefore not surprising that traditional legal scholars, as well as law-and-economics scholars, are somewhat suspicious of the work.

The concern that BDT consists of a formless mass of atheoretical quirks is understandable, but ill-founded. This misperception arises partly from the field's attempt to justify its existence and partly from its methodological approach. Because rational-choice theory dominates the social sciences, BDT adds little value if the rational-choice model is completely accurate and directs social inquiry to the right questions. The sense that an endless set of biases in judgment exists is, to some extent, a tribute to BDT's success in documenting a large number of important inaccuracies in rational-choice models of choice.⁴⁸

BDT's emphasis on errors is not merely an effort to dislodge rational-choice theory. Rather, BDT is an attempt to develop a novel theory of human decision making. The field is modeled after successful research programs in the study of perception and memory.⁴⁹ Visual illusions tell psychologists a great deal about how human visual perception operates.⁵⁰ Likewise, psychological theories of memory build upon studies of when and how memory goes astray.⁵¹ Studies of conditions that produce erroneous judgment will likely be just as useful in helping to construct an accurate model of human choice. BDT's ultimate goal, however, is not to document errors, but to produce an accurate account of human judgment and decision making.⁵²

BDT's efforts are beginning to bear fruit. Most of the phenomena documented by BDT arise from a few simple observations about how the human brain operates.

First, people make inferences based on attention and memory as if these processes are infallible, even though both are error-prone.

⁴⁷ Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630, 715 (1999).

⁴⁸ Professor Thaler once edited a regular column describing behavior that is inconsistent with rational-choice theory in the *Journal of Economic Perspectives*. See Korobkin & Ulen, *supra* note 1 (manuscript at 6-7, n.22) (identifying each of the submissions to this column). Professor Thaler ultimately stopped publishing a regular column, complaining that the anomalies had become too numerous. See Daniel Kahneman et al., *The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSP. 193, 193 (1991).

⁴⁹ See Kahneman & Tversky, *supra* note 20, at 582.

⁵⁰ See ROGER N. SHEPARD, MIND SIGHTS 158-86 (1990).

⁵¹ See generally EUGENE B. ZECHMEISTER & STANLEY E. NYBERG, HUMAN MEMORY: AN INTRODUCTION TO RESEARCH AND THEORY 1-3 (1982) (presenting the overview of the study of human memory).

⁵² See Kahneman & Tversky, *supra* note 20, at 582.

Overoptimism results, in part, because people mistakenly assume that failure is unlikely, simply because they have difficulty imagining the details of how failure can occur.⁵³ People's reliance on memory and attention also accounts for other phenomena that legal scholars have found useful, including the representativeness and availability heuristics.⁵⁴ These cognitive processes are also closely tied to "support theory," which holds that people make choices based on the strength of the arguments that they can generate either in support of or in opposition to a decision.⁵⁵ People mistakenly act as if the strength of arguments that they can generate in support of an option relates perfectly to the desirability of an option; the strength of arguments, however, often depends upon factors irrelevant to its merits.⁵⁶ This phenomenon explains aversion to ambiguity, because ambiguity clouds the arguments that support undertaking an option.⁵⁷

Second, the brain conducts a significant amount of automatic processing outside of people's awareness. This phenomenon makes it difficult for people to control their inferential processes.⁵⁸ The hindsight bias occurs because people naturally make inferences about the underlying conditions that led up to an outcome when they learn how events actually unfold.⁵⁹ Consequently, even when told to disregard the outcome, people have difficulty ignoring the inferences derived from learning that outcome. Automatic processing also accounts for seemingly unrelated phenomena, such as anchoring.⁶⁰

Third, people tend to rely on fixed reference points in making decisions, which causes them to pay more attention to changes in the

⁵³ See Slovic et al., *supra* note 38, at 475-78.

⁵⁴ The representativeness heuristic refers to people's tendency to base categorical judgments entirely on the extent to which an event resembles the category, while discounting or even ignoring the importance of the statistical likelihood that the category will occur. See Amos Tversky & Daniel Kahneman, *Judgments of and by Representativeness*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES, *supra* note 38, at 84. People rely on this heuristic because statistical information is usually not available or is too pallid to grab one's attention. Likewise, the availability heuristic, which is the tendency to base judgments of an event's frequency on the ease with which one can mentally generate an instance of the event, clearly implicates both attention and memory. See Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 COGNITIVE PSYCHOL. 207, 208 (1973). Individuals can recall an event that is actually stored in their memory more easily than one that is not, and anything that they can mentally generate will grab more attention than anything that they cannot. See *id.* at 208-09.

⁵⁵ See Amos Tversky & Derek J. Koehler, *Support Theory: A Nonextensional Representation of Subjective Probability*, 101 PSYCHOL. REV. 547, 548-49 (1994).

⁵⁶ See *id.*

⁵⁷ See Fox & Tversky, *supra* note 36, at 599.

⁵⁸ See John F. Kihlstrom, *The Cognitive Unconscious*, 237 SCIENCE 1445, 1447 (1987).

⁵⁹ See Hawkins & Hastie, *supra* note 29, at 322.

⁶⁰ Anchoring refers to the tendency for arbitrary set points to influence judgment. Anchoring occurs largely because anchors usually convey information and therefore influence the final estimate. People quickly and automatically update their beliefs as a result of being provided with an anchor. See Tversky & Kahneman, *supra* note 3, at 1128-29.

status quo than to absolute levels of wealth or risk.⁶¹ This observation explains several BDT phenomena upon which legal scholars have relied heavily: the status quo bias, framing, and the endowment effect.⁶²

Taken together, these three observations account for most of the phenomena BDT describes that are relevant to law. They also support an important corollary: people do not possess a fixed set of preferences that they seek to satisfy with their choices, as economic models usually assume. BDT researchers, especially the psychologists, reject this model of choice.⁶³ Instead, BDT holds that people construct preferences on the spot to suit mentally available desires in any given context. The phenomena that BDT describes support the notion that preferences fluctuate and demonstrate that basic axioms upon which economic models rely, such as intransitivity⁶⁴ and invariance,⁶⁵ simply fail to describe human choice.

BDT is not an effort to amass an unprincipled, unbounded collection of heuristics and biases; it is an effort to create a systematic account of human judgment. The field was founded on the suspicion that rational-choice models are inadequate. As a result, BDT has progressed in the way that many scientific revolutions proceed: by first amassing flaws in the theories that have preceded it, and then developing new theories to replace the old.⁶⁶ Because the field is still new, BDT sometimes appears to be a loose collection of aberrations, but researchers in the field are working toward developing general theories of human judgment and choice.⁶⁷ That BDT's theories are often more complicated than those of rational-choice theory is a sign of progress, as human behavior is more sophisticated and complicated than the rational-choice model can easily accommodate.

⁶¹ See Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCIENCE 453, 455-57 (1981).

⁶² See Kahneman et al., *supra* note 48, at 194-203.

⁶³ See, e.g., Baruch Fischhoff, *Value Elicitation: Is There Anything in There?*, 46 AM. PSYCHOL. 835, 835 (1991) (rejecting economists' belief that people "pursue their own best interests, thereby making choices that reveal their values, in whatever decisions the marketplace poses").

⁶⁴ Transitivity means that if a person prefers *A* to *B* and *B* to *C*, then she cannot also prefer *C* to *A*. See Amos Tversky, *Intransitivity of Preferences*, 76 PSYCHOL. REV. 31 (1969) (demonstrating that people's preferences commonly violate transitivity); see also *infra* note 110 (providing an example of how a BDT phenomenon can lead to violations of transitivity).

⁶⁵ Invariance refers to the concept that if a person prefers *A* to *B*, then adding an option that is inferior to *A* and *B* cannot lead him to prefer *B* to *A*. See Mark Kelman et al., *Context-Dependence in Legal Decision Making*, 25 J. LEGAL STUD. 287 (1996) (documenting violations of invariance).

⁶⁶ See THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* 52-65 (2d ed. enlarged 1970).

⁶⁷ See, e.g., Michael R.P. Dougherty et al., *MINERVA-DM: A Memory Processes Model for Judgments of Likelihood*, 106 PSYCHOL. REV. 180 (1999) (describing a model of choice that posits a central role for memory).

III

THE NORMATIVE POSITION OF BDT

Professor Hillman rightly points out that applications of BDT to law often present murky normative positions.⁶⁸ This result should not be too surprising, as BDT is the study of how the human mind operates, not the study of how humans should behave in a civilized society. Nevertheless, BDT suggests normative positions, the substance of which depends on several factors. First, the appropriate normative position depends upon whether the applicable heuristics and biases relate to the adjudication process or to the behavior of parties outside of the courtroom.⁶⁹ Second, because people and institutions often adapt to the limitations of the human brain without any help from the legal system,⁷⁰ the ability of courts and parties to identify unwanted consequences of cognitive processes is also important. Finally, many of the psychological phenomena are quite adaptive. If these phenomena are mental shortcuts that serve people well, or even enhance their well-being, then crafting legal rules that induce people to avoid them could do more harm than good.

A. BDT in the Courtroom

Psychologists have always had much to say about the operation of the courtroom. Other than mental-health issues, the most common applications of psychology to law have been in the context of jury decision making.⁷¹ It is not surprising, then, that as legal scholars have begun to apply BDT to law, they have also become interested in the jury.⁷² In the context of applications to the operation of the courts, the basic methods of the new law and psychology are not much different from the existing applications of psychology to law; the work is largely prescriptive in nature. The most recent applications of BDT to

⁶⁸ See Hillman, *supra* note 10, at 733-35; see also Posner, *supra* note 8, at 1552 (making same argument).

⁶⁹ This distinction is not perfectly clear. Several scholars have researched the biases that litigants themselves bring to the courtroom. See Guthrie, *supra* note 24; Korobkin & Guthrie, *supra* note 23; George Loewenstein et al., *Self-Serving Assessments of Fairness and Pretrial Bargaining*, 22 J. LEGAL STUD. 135 (1993); Rachlinski, *supra* note 29. The implications of this work more closely resemble the application of BDT to parties affected by the law than to the application of BDT to the adjudication process.

⁷⁰ See Chip Heath et al., *Cognitive Repairs: How Organizational Practices Can Compensate for Individual Shortcomings*, in 20 RESEARCH IN ORGANIZATIONAL BEHAVIOR 1 (Barry M. Staw & L.L. Cummings eds., 1998) (suggesting strategies for overcoming the biases a person inevitably has when evaluating evidence and forming theories).

⁷¹ See, e.g., Saks & Kidd, *supra* note 7, at 123 (concluding that jury decision making is subject to "the heuristic biases of intuitive decision making").

⁷² See, e.g., Cass R. Sunstein et al., *Assessing Punitive Damages (with Notes on Cognition and Valuation in Law)*, 107 YALE L.J. 2071 (1998) (presenting research on cognitive processes and jury determinations of punitive damage awards).

law, however, address new psychological phenomena and consider whether the courts have already incorporated these phenomena.

When a psychological phenomenon, from BDT or otherwise, produces errors in judgment in a courtroom context, there is a clear normative position; errors in judgment lead to unwanted consequences and, other things being equal, should be eliminated. For example, if the hindsight bias leads judges and juries to overestimate contracting parties' *ex ante* abilities to calculate damages in the event of a breach, as Professor Hillman suggests, then judges and juries are making a serious error. Attributing a greater ability to predict the future to contracting parties is an undesirable error in judgment. In this context, the prescriptive norm is clear—eliminate the error in judgment.

BDT also documents phenomena that do not produce clear errors of judgment, but probably still influence the courts in uncertain and possibly undesirable ways. For example, as Professor Hillman notes, courts' failure to recognize framing's influence in the context of liquidated damages has arguably induced some courts to pursue a foolish distinction between a discount for early performance and a penalty for late performance.⁷³ Identifying framing's influence on courts helps explain why the courts have adopted this distinction. It also suggests that the distinction is arbitrary and unjustifiable. Recognition of the influence of framing does not produce a clear answer as to what rule the courts should adopt on enforcement of these terms. But it does suggest that absent some compelling justification, the rule should be uniform for discounts and penalties. In this example, BDT is useful in identifying a possible etiology of a curious legal rule and thereby supports some reform.

A more difficult question that scholars applying BDT to law must address is whether the legal system has already incorporated and adapted to the source of erroneous judgment that BDT identifies. Traditionally, applications of psychology to law assume that courts have either ignored or failed to notice the influence of cognitive illusions.⁷⁴ Other research in BDT, however, suggests that decision makers, particularly within organizations, develop procedures to reduce the unwanted consequences of their members' cognitive limitations.⁷⁵ It would be surprising if the legal system did not adapt to at least some of the cognitive illusions that BDT research documents.

The determination of whether courts have developed responses to cognitive illusions probably turns on how easily a court can detect their influence. Some illusions, such as the hindsight bias, are rela-

⁷³ This criticism assumes that the discount is financially identical to the penalty. See Hillman, *supra* note 10, at 732-33.

⁷⁴ See Rachlinski, *supra* note 29, at 575 n.12.

⁷⁵ See Heath et al., *supra* note 70, at 22-23.

tively easy to spot, while others, such as framing effects, are more difficult to identify.⁷⁶ When judges can detect judgmental illusions in the courtroom, they probably adapt to their influence in some way. If courts have detected the illusion, then BDT can suggest a positive analysis of how law has developed in response to the illusion. If courts have not detected the illusion, then BDT can offer prescriptive reforms.

Professor Hillman's analysis identifies two illusions of judgment that can affect how courts treat liquidated damages clauses: the hindsight bias and framing effects. The courts have adapted to the hindsight bias in other areas,⁷⁷ suggesting that they might also have done so in the context of liquidated damages. Rather than making ad hoc judgments in hindsight as to what parties could have predicted, courts might have developed relatively clear categories of situations in which the damages would be deemed per se speculative or unpredictable. In fact, courts usually enforce liquidated damages clauses in several categories of circumstances, such as contracts for the sale of land or goods with prices that fluctuate significantly.⁷⁸ In some contexts, however, courts have failed to notice the influence of the hindsight bias on adjudication.⁷⁹ The lesson that BDT teaches regarding the hindsight bias is relatively clear: legal scholars should first search for adjustments that the courts might have made to ameliorate the influence of the hindsight bias on judgment, while also being aware that the courts may have failed to notice the influence of the bias and are therefore in need of reform.

In contrast to the hindsight bias, the influence of framing is more difficult to detect.⁸⁰ Research indicates that judges do not easily recognize its influence in a legal setting.⁸¹ Courts apparently have not noticed the similarity between discounts for early performance and penalties for late performance and thus seem to have fallen prey to

⁷⁶ See Daniel Kahneman & Dan Lovallo, *Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking*, 39 MGMT. SCI. 17, 17-18 (1993) (describing conditions that make errors in judgment more or less transparent).

⁷⁷ See Rachlinski, *supra* note 29, at 574; cf. Hal R. Arkes & Cindy A. Schipani, *Medical Malpractice v. the Business Judgment Rule: Differences in Hindsight Bias*, 73 OR. L. REV. 587 (1994) (arguing that courts need to adopt reforms to correct for the hindsight bias).

⁷⁸ See 5 ARTHUR LINTON CORBIN, CORBIN ON CONTRACTS § 1064, at 310-13 (1951).

⁷⁹ See Jeffrey J. Rachlinski, *Cognitive Biases and the Courts: Ignorance or Adaptation?* (2000) (unpublished manuscript, on file with author).

⁸⁰ The reason for this difficulty is somewhat unclear. In order to understand the influence of framing, decision makers must recognize that there is an alternative way to describe the circumstances surrounding the decision and realize that the method of presentation might influence their choices. Research indicates that even when people understand that an alternative frame is available, they do not believe that the choice of frame will influence their decision making. See Edward J. McCaffery et al., *Framing the Jury: Cognitive Perspectives on Pain and Suffering Awards*, 81 VA. L. REV. 1341, 1373-87 (1995).

⁸¹ See *id.* (quoting extensively from trial judges' views of court proceedings).

framing effects.⁸² Because the frame is somewhat arbitrary, courts should eliminate the distinction. In this context, the courts have pursued a cognitive illusion, and the clear policy implication of BDT is that the courts should recognize the illusion and eliminate the arbitrary distinction that it has led them to pursue.

Although some cognitive illusions are reasonably easy to detect, on the whole, courts are unlikely to detect the influence of cognitive illusions. Although courts surely want to make accurate decisions, they face no competition or market pressures to develop procedures that reduce erroneous judgments. Also, courts rarely get feedback on the accuracy of their decisions; on issues of law, appeals are infrequent, and on issues of fact, the truth is rarely knowable with certainty, even after a case has concluded. Examples in which courts recognize and adapt to biases do exist, thereby muddying the normative position of BDT. The norm, however, is probably that courts fail to notice biases.

B. BDT Outside of the Courtroom

BDT's normative position outside of the courtroom depends largely on whether cognitive illusions produce errors in judgment. If cognitive illusions do not lead parties to make errors, then the law's response to the illusion is probably limited. If cognitive illusions do lead parties to make errors, however, then the law might play a role in reducing them. While the possibility that parties might adapt to their cognitive limitations complicates matters somewhat, a relatively clear policy still emerges. The thorniest problem for the application of BDT to law, however, is that some of the tendencies in judgment that BDT describes simultaneously produce errors in judgment and provide benefits for the decision maker.

1. *Errors of Judgment*

If cognitive processes produce unwanted consequences, how should the law respond?⁸³ As Professor Sunstein notes, the influence

⁸² At least one treatise comments on the similarity of these two situations, but does not explain why the courts have created this distinction. See 3 E. ALLAN FARNSWORTH, FARNSWORTH ON CONTRACTS § 12.18, at 294-95 (1990).

⁸³ Scholars outside of the legal context have heavily debated whether BDT documents any errors of judgment. Critics, both within and outside of BDT, have argued that errors in judgment are not actually errors. See L. Jonathan Cohen, *Can Human Irrationality Be Experimentally Demonstrated?*, 4 BEHAV. & BRAIN SCI. 317, 317 (1981) (asserting that experimenters "impute a fallacy where none exists"); Gerd Gigerenzer, *How to Make Cognitive Illusions Disappear: Beyond "Heuristics and Biases,"* in 2 EUROPEAN REVIEW OF SOCIAL PSYCHOLOGY 83, 83 (Wolfgang Stroebe & Miles Hewstone eds., 1991) ("Many so-called 'errors' in probabilistic reasoning are in fact *not* violations of probability theory."). Although researchers sometimes have difficulty determining whether decision makers in the real world are actually falling prey to cognitive errors, BDT studies have documented several clear

of cognitive illusions on judgment supports an argument against libertarian anti-paternalism.⁸⁴ A libertarian might argue in favor of enforcing liquidated damages clauses on the faith that people know what they want better than courts. BDT, however, suggests that contracting parties carry an excess of optimism into their negotiations that can lead to unintended consequences. Without further analysis, however, BDT's implications remain inconclusive. On the one hand, overoptimism cautions a court against enforcing liquidated damages clauses, because parties subject to it likely underestimated the probability that they would have to pay the liquidated amount. On the other hand, because people and institutions can adapt to their cognitive limitations,⁸⁵ a clear rule of enforcing liquidated damages clauses could lead experienced parties to develop an appropriate adaptation.

BDT does help to resolve debate, however. The field provides some suggestions for when courts should excuse parties from penalties incurred because of cognitive limitations and when courts should vigorously enforce such penalties so as to induce parties to adapt to their cognitive limitations. As noted above, feedback is a prerequisite for learning.⁸⁶ In the absence of adequate feedback, adopting a hard line on cognitive errors will simply penalize parties for mistakes that they could not have avoided. Similarly, novices in a field or one-shot players are unlikely to have had enough experience to have received adequate feedback.⁸⁷ In such circumstances, the courts should be receptive to adjusting substantive law to accommodate the bias, rather than forcing people to adapt.

Even if parties *can* adapt to their own cognitive limitations, it is not clear that they *will* adapt. BDT's earliest observation is that many decisions demand more cognitive abilities than decision makers are ordinarily willing to allocate to them.⁸⁸ People often make decisions

examples of costly mistakes. For example, people clearly overstate their own ability to have predicted the past, are overconfident regarding their ability to predict the future, and overestimate the chance of being killed by exceptionally unlikely but well-publicized causes of death. See generally Kahneman & Tversky, *supra* note 20 (responding to the arguments that BDT does not identify real errors in judgment). As a result of these errors, people hold defendants who took reasonable care negligent, fail to settle lawsuits that should settle, and demand excess regulation against hazards that have a low probability of occurring. See Jolls et al., *supra* note 1, at 1501, 1518, 1523-25. People rely on cognitive processes that produce outcomes that they later find to be undesirable, whether or not one calls these errors of judgment.

⁸⁴ See Sunstein, *supra* note 1, at 1178 (referring to this as "anti-anti-paternalism").

⁸⁵ See *supra* note 70 and accompanying text. Unlike courts, experienced players in contract law face competitive pressures from clients to avoid costly errors in judgment.

⁸⁶ See Hogarth & Reder, *supra* note 9, at S192.

⁸⁷ People could certainly hire experts, such as attorneys, who are experienced repeat players.

⁸⁸ See Hillel J. Einhorn & Robin M. Hogarth, *Behavioral Decision Theory: Progress of Judgment and Choice*, 32 AM. PSYCHOL. REV. 53, 54 (1981).

by "satisficing"—gathering only enough information to assure themselves that they have made a good choice, even if more information is available.⁸⁹ Law might signal the need to undertake greater care than a decision seems to require. In several respects, contract law pursues precisely this strategy. For example, as Professor Hillman observes, Lon Fuller argued that the requirement of consideration in contracts might be the law's attempt to ensure that parties have considered their situation carefully before entering into a binding promise.⁹⁰ Thus, even if feedback is available, BDT suggests that the law can serve a useful function by indicating the need for parties to undertake extra care in certain circumstances.

In the case of liquidated damages clauses, the courts have concluded that parties cannot adapt to cognitive limitations. Even among experienced parties, liquidated damages clauses are generally unenforceable. The rule can generally be attributed to the tendency for people to be too optimistic about their abilities to perform the contract. As to novices or parties engaged in a one-time transaction, adaptation to this cognitive limitation is obviously unlikely, because these parties have no opportunity to learn that they are overoptimistic. Even experts in most fields, however, tend to be overconfident in their abilities to determine the likelihood that adverse events with a low probability will occur.⁹¹ They assume that the probability that a rare disaster will occur is basically zero, even when it is relatively high.⁹² The law should probably not expect repeat players in contracts to adjust to their overconfidence any more than other type of experts. To the extent that the rule restricting the enforceability of liquidated damages clauses, even among experienced parties, depends upon overconfidence, BDT supports it.

2. *Tendencies That Do Not Produce Errors*

Some cognitive phenomena that BDT describes cannot easily be characterized as producing errors in judgment. For example, some phenomena produced by the disparate treatment of gains and losses are not clearly errors. Because of this disparity, people get attached to the status quo and value things that they own more than things that

⁸⁹ See Herbert A. Simon, *Rationality as Process and as Product of Thought*, AM. ECON. REV., May 1978, at 1, 10.

⁹⁰ See Lon L. Fuller, *Consideration and Form*, 41 COLUM. L. REV. 799, 799-802, 806-07, 812-15 (1941); see also Hillman, *supra* note 10, at 734 n.119 (describing this and other examples of how the law has responded to parties' cognitive limitations).

⁹¹ See, e.g., Kahneman & Lovallo, *supra* note 76, at 26-29.

⁹² See Dale Griffin & Amos Tversky, *The Weighing of Evidence and the Determinants of Confidence*, 24 COGNITIVE PSYCHOL. 411, 412 (1992) (asserting that experts "are often wrong but rarely in doubt" (internal quotation marks omitted)).

they do not. This phenomenon is called the endowment effect.⁹³ It is not entirely clear that the endowment effect leads to unwanted outcomes, and it might even be consistent with rational-choice theory.⁹⁴ The failure to recognize the influence of the framing of a decision as a gain or a loss can produce arbitrary distinctions, such as the disparate treatment of discounts and penalties by courts; but it is not clear that distinguishing between gains and losses otherwise produces unwanted consequences.⁹⁵

Nevertheless, in certain instances the law can avoid some adverse consequences of otherwise harmless illusions. For example, Professor Korobkin has demonstrated that a change in contract default terms alters the preference people express for those terms.⁹⁶ This preference impedes efforts to bargain around default terms.⁹⁷ Professor Korobkin's thorough research ultimately reveals that the source of this apparent anomaly is aversion to regret.⁹⁸ People worry more about the regret that they would feel from undertaking an affirmative act that they ultimately wish they had not undertaken than the regret that they would feel from the failure to take an affirmative act that they ultimately wish they had undertaken.⁹⁹ Aversion to regret can impede efficient bargaining, but it is not necessarily irrational. Regret is a real and costly experience for most people, and avoiding it is worth something. In this instance, the law could play a useful role in reducing the potential for regret, perhaps by creating a legal regime without a status quo.

3. *Beneficial Biases*

The fact that cognitive illusions often have beneficial characteristics is the most troublesome obstacle to identifying a clear normative position of BDT. For example, the overoptimism that leads parties to underestimate the likelihood of failing to comply with the terms of a contract has benefits. In the business setting, optimism leads people to undertake the kind of risky, high-yield ventures that a company

⁹³ See Kahneman et al., *supra* note 48, at 194-97.

⁹⁴ See W. Michael Hanemann, *Willingness to Pay and Willingness to Accept: How Much Can They Differ?*, 81 AM. ECON. REV. 635 (1991).

⁹⁵ One other consequence of the disparate treatment of gains and losses is that people make risk-averse choices with respect to gains and risk-seeking choices with respect to losses. See Kahneman & Tversky, *supra* note 22, at 342-44. This disparity can have adverse consequences. For example, evidence suggests that the tendency to make risk-seeking choices in the face of losses leads defendants in civil litigation to fail to settle lawsuits that they would be better off settling. See Rachlinski, *supra* note 19, at 118-19.

⁹⁶ See Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608, 633-64 (1998).

⁹⁷ See *id.* at 666-68.

⁹⁸ See Russell Korobkin, *Inertia and Preference in Contract Negotiation: The Psychological Power of Default Rules and Form Terms*, 51 VAND. L. REV. 1583, 1610-26 (1998).

⁹⁹ See *id.* at 1613-20.

must endure in order to be successful.¹⁰⁰ In fact, an excess of optimism may be an essential characteristic of a successful businessperson.¹⁰¹ A whole range of data in social and clinical psychology suggests that a rosy perspective of one's abilities is generally healthy.¹⁰² Psychologists have shown, for example, that only *clinically depressed* people make accurate predictions about their likelihood of success.¹⁰³ Even if policymakers could identify a legal reform that reduces overoptimism, the reform might unwittingly undermine the characteristics that lead to success in the business world.

In this context Professor Hillman is right; BDT does not provide a clear normative position. The best that BDT can do in such cases is to identify, and perhaps quantify, the costs and benefits of the cognitive processes. The question of whether to implement legal reforms that make people unhappy but lead them to make more efficient decisions must be answered in some other way. The answer to this question requires determining whether the law's proper function should be to promote accurate decision making or happiness.¹⁰⁴ Although BDT does not clearly settle this issue, the field enhances legal scholarship by identifying the tension between efficiency and happiness.

IV

REASSESSING LIQUIDATED DAMAGES CLAUSES

Although this Reply responds to general concerns about the application of BDT to law, it is worth specifically reassessing the issue that Professor Hillman has raised—liquidated damages clauses. Professor Hillman concludes that BDT cannot justify the restrictions on enforcing liquidated damages clauses. He agrees that some phenomena support the restrictions: parties are likely to be overoptimistic about their ability to perform the terms of a contract, which is compounded by cognitive dissonance; also, because courts try to avoid un-

¹⁰⁰ See Langevoort, *supra* note 44, at 139-41, 152-56.

¹⁰¹ This may be one of the principal reasons why businesspeople often express annoyance with their transactional attorneys.

¹⁰² See TAYLOR, *supra* note 37, at 227-39.

¹⁰³ See *id.* at 212-14.

¹⁰⁴ Although not directly relevant to contracts, people's memory of how painful a past experience was provides a compelling example of a phenomenon that can lead people to be happier in ways that they would never choose to undertake voluntarily. For example, research indicates that people's memories of how unpleasant a painful experience was depends far less on the duration of the whole episode than on how painful the last few minutes of the episode were. As a consequence, people prefer an experience that is uniformly painful for five minutes plus one additional minute that is mildly painful over an experience that is uniformly painful for five minutes, even though the former involves more overall pain. See Daniel Kahneman et al., *When More Pain Is Preferred to Less: Adding a Better End*, 4 PSYCHOL. SCI. 401, 401 (1993); Donald A. Redelmeier & Daniel Kahneman, *Patients' Memories of Painful Medical Treatments: Real-Time and Retrospective Evaluations of Two Minimally Invasive Procedures*, 66 PAIN 3, 6 (1996).

fair penalties, they refrain from forcing parties to endure the consequences of this excess of optimism. Professor Hillman argues, however, that this analysis ignores several psychological phenomena that support broader enforcement of liquidated damages clauses. He asserts that parties' inclusion of liquidated damages clauses is a means of reducing ambiguity in contract remedies. The courts should perhaps respect the parties' liquidated damages clause because their desire to include the clause overcame their preferences for default damages. Presumably the parties considered the terms of the liquidated damage clause to be fair at the time they entered into the contract. Furthermore, Professor Hillman contends that the hindsight bias influences the courts' implementation of the exceptions to the rule against enforcement and that framing effects have prevented the courts from viewing such contract terms as discounts as opposed to penalties. Thus, Professor Hillman concludes that even though the restrictions against enforcing liquidated damages clauses derive their support from BDT phenomena, a set of analogous opposing concerns also undermines these restrictions.

Among the BDT phenomena that Professor Hillman asserts in opposition to the restrictions on enforcement of liquidated damages clauses, two implicate the courts and not the contracting parties: framing effects and the hindsight bias. As a result of the influence of framing, the courts have created an arbitrary distinction between discounts and penalties. The research on framing, however, provides no justification for either enforcing penalties along with discounts or refusing to enforce discounts along with penalties. Professor Hillman's clever identification of the framing problem in this context only justifies uniformity.

Similarly, although the hindsight bias suggests that courts overestimate contracting parties' abilities to predict actual damages, it is not clear why that observation supports eliminating the rule against enforcement of penalties as opposed to applying the rule in a way that avoids reliance on hindsight. In many other areas of law, the courts have developed rules of administration that reduce the influence of the hindsight bias.¹⁰⁵ As suggested earlier,¹⁰⁶ courts might already have reduced the effect of the hindsight bias in this area by identifying circumstances in which actual damages are considered per se unpredictable. Identifying a defect in the implementation of a legal doctrine argues for improved implementation rather than elimination of the underlying doctrine.

¹⁰⁵ See Rachlinski, *supra* note 29, at 607-18. Also, the adverse consequences of the hindsight bias are often smaller than they initially seem. See *id.* at 595-602.

¹⁰⁶ See *supra* notes 77-79 and accompanying text.

Professor Hillman also contends that courts should treat parties' decisions to include liquidated damages clauses in their contracts more seriously, because these parties had to overcome the status quo bias to negotiate around the default norm of damages measured by expectations. Nevertheless, this preference is still based on parties' overoptimistic views of their abilities to perform the terms of the contract. The fact that parties who included liquidated damages clauses overcame the status quo bias assures the courts that the contracting parties carefully considered their preferences. It gives no assurance, however, that the parties relied on accurate assessments of their abilities to perform the terms of the contract. If overoptimism is the result of inattentiveness, then Professor Hillman is correct. People who carefully consider their choices, however, are also frequently overoptimistic.¹⁰⁷

Aversion to ambiguity supports full enforcement of liquidated damages clauses. As noted above, however, the courts have responded to the combination of overconfidence and aversion to ambiguity by crafting rules that allow the enforcement of liquidated damages clauses in cases that involve a high degree of ambiguity and not enforcing them otherwise.¹⁰⁸ In effect, the legal rule adopts a compromise position that balances the adverse consequences of each bias.

Furthermore, recent data suggest that the concern that parties fail to enter into otherwise beneficial contracts because of ambiguity may be unfounded.¹⁰⁹ Although people prefer well-defined risks to ambiguous risks, this preference apparently does not prevent people from taking ambiguous risks.¹¹⁰ If these new theories about the nature of aversion to ambiguity are correct, then ambiguity does not impede contract formation.

¹⁰⁷ See, e.g., Stuart Oskamp, *Overconfidence in Case-Study Judgments*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 287 (Daniel Kahneman et al. eds., 1982) (documenting overconfident judgments of clinical psychologists).

¹⁰⁸ See *supra* notes 77-79 and accompanying text (discussing ambiguity); *supra* notes 91-92 and accompanying text (discussing overconfidence).

¹⁰⁹ See Fox & Tversky, *supra* note 36, at 587.

¹¹⁰ This phenomenon provides a good example of a set of preferences that violates rational-choice theory's transitivity assumption. See *supra* note 64. To see how, consider an example. Suppose that gamble A is less ambiguous than gamble B. Assume that aversion to ambiguity is such that people who own gamble B would pay \$2 to enter into gamble A. The new research suggests that if evaluating independently, people will pay the same amount to purchase gamble A as gamble B. Suppose that amount is \$10. A person who expresses such preferences would violate the transitivity assumption and could be turned into a money pump. If offered a chance to buy gamble B, that person would pay \$10. That person would also be willing to pay \$2 to exchange gamble B for gamble A. Because gamble A is only worth \$10 to that person (assuming away any endowment effect), she would be willing to sell it for \$10. Following the sale, the individual would then still be willing to purchase gamble B for \$10, having just lost \$2 by cycling through the options. See Fox & Tversky, *supra* note 36.

Professor Hillman observes that the desire for fairness cuts both ways on the issue of liquidated damages clauses. At the time of contracting, the parties likely view the term as fair; following a breach, however, breaching parties might realize that they overestimated their ability to perform the contract and will come to see the enforcement of the liquidated damages clause as unfair. Not surprisingly, fairness depends upon perspective: whether a court takes an *ex ante* or *ex post* perspective will determine whether enforcing liquidated damages clauses seems fair. BDT can identify the circumstances that will invoke fairness norms, but these will change with perspective. In this case, the law itself has to supply an answer.

In sum, the basic observation that courts should beware enforcing liquidated damages clauses because contracting parties are likely to be overoptimistic about their ability to perform the contract remains a paramount consideration. Courts should attend to the anomalous doctrine that framing effects have created and should beware the hindsight bias when judging these cases, but a thorough analysis supports the existing doctrine. Generally speaking, when BDT identifies cognitive errors that parties are prone to making, it supports somewhat paternalistic legal doctrine. Professor Hillman is right to worry about what courts accomplish when they enforce such doctrine, but his analysis does not undermine the basic proposition.

Professor Hillman is also right to be concerned about BDT's impact on contract law, which, at its core, assumes that people know what they want. BDT might cause scholars to question much of contract law's foundations. As Professor Hillman's analysis reveals, legal scholars will need to address such questions with great care and give attention to all of the psychological influences that affect both contracting parties and courts.

V

CONCLUSION: THE NEW LAW AND PSYCHOLOGY

A common theme in the scholarship assessing the value of BDT for law is that its primary use will be to undermine law and economics. Professor Hillman argues that this will ultimately become BDT's primary role in legal scholarship, although he also finds affirmative uses for BDT. In making this assertion, he follows Professor Kelman, who has relied on BDT for many years to support arguments that law and economics relies upon mistaken assumptions about human behavior.¹¹¹ Indeed, some seventeen years ago, Judge Posner himself suggested that BDT would provide fertile ground for attack on law and

¹¹¹ See Mark Kelman, *Consumption Theory, Production Theory, and Ideology in the Coase Theorem*, 52 S. CAL. L. REV. 669 (1979).

economics.¹¹² More recently, Judge Posner has argued that BDT has little future in law because it is primarily a means of attacking law and economics, rather than an affirmative foundation for new work.¹¹³ To be sure, because of the vast scope and influence of economics in law, any scholarship that provides a criticism of the law-and-economics movement is likely to attract a readership. Judge Posner, however, is partly correct: if BDT is merely a critique, then it will fail to break any new ground of its own and will ultimately become a sideshow.

More recently, other scholars have begun to use BDT as a modification of law and economics. In two review articles, Professor Sunstein¹¹⁴ claimed that because BDT provides more accurate models of human choice, it will principally be used to modify, rather than to undermine, existing theories in law and economics.¹¹⁵ Similarly, Professors Korobkin and Ulen have asserted that the application of BDT to law is similar to law and economics, except that BDT eschews the assumption that human choice is rational. The work that these reviews describe identifies a brighter path for BDT in law. As one of my colleagues described it, however, this application of BDT to law consists only of changing the numbers in the law-and-economics equations.¹¹⁶ This role for BDT in law represents a more affirmative position than mere criticism, but risks converting BDT into a footnote to law and economics. Furthermore, it might be a footnote that few law-and-economics scholars want to see added. As Judge Posner asserts, much of the value of law-and-economics resides in its elegant simplicity: "[T]oo many bells and whistles will stop the analytic engine in its tracks."¹¹⁷

The application of BDT to law will do more than just provide another criticism of, or addendum to, law and economics. A legal scholar familiar with the research in BDT will ask different questions about law than scholars schooled in either law and economics or traditional legal analysis. For example, consider the role that the endowment effect plays in the analysis of law. Critics of law and economics have argued that the endowment effect provides a critique of the Coase Theorem,¹¹⁸ while proponents of law and economics attempt to

¹¹² See Richard A. Posner, *The Ethical Significance of Free Choice: A Reply to Professor West*, 99 HARV. L. REV. 1431, 1431, 1432 n.5 (1986).

¹¹³ See Posner, *supra* note 8, at 1551-52.

¹¹⁴ He was accompanied by Professors Jolls and Thaler in the second article.

¹¹⁵ See Jolls et al., *supra* note 1, at 1547; Sunstein, *supra* note 1, at 1175-79.

¹¹⁶ The source of this critique is my esteemed former colleague, Professor Lynn LoPucki.

¹¹⁷ Richard A. Posner, *The Future of Law and Economics: A Comment on Ellickson*, 65 CHI-KENT L. REV. 57, 62 (1989).

¹¹⁸ See Kahneman et al., *supra* note 48, at 194-97; Kelman, *supra* note 10, at 1590-91.

incorporate the effect into rational-choice models.¹¹⁹ Both of these assessments of the endowment effect, however, neglect interesting aspects of the phenomenon. Using the endowment effect to criticize Coase mistakenly treats it as a uniform impediment to trade, which it is not. The size of the effect and its impact on trade vary.¹²⁰ As a result, it will be important for legal scholars to identify the factors that influence the size of the phenomenon, especially if these factors interact with the legal system.¹²¹ Attempts to reconcile the effect with rational-choice theory also miss the point. Although clever, these efforts are entirely post hoc. Rational-choice theory would never, on its own, have predicted the existence of the endowment effect.

The value of studying phenomena like the endowment effect lies in the fact that they reveal important influences on human judgment and choice that other approaches to law do not expose. Despite its rigor, rational-choice theory misses important aspects of human choice, and nothing in traditional legal scholarship identifies these phenomena. Incorporating phenomena like the endowment effect, the hindsight bias, self-serving biases, and the status quo bias into the legal literature has led scholars to ask novel questions. Neither traditional legal scholarship nor law and economics could have led legal scholarship down the same paths that BDT has revealed.¹²² Only BDT has the potential to describe the richness and complexity of human judgment and choice in a rigorous and verifiable fashion.

Professor Hillman's discussion of liquidated damages clauses provides a wonderful case in point. In trying to determine whether courts should enforce them, law-and-economics scholars worry about the incentives courts create by either enforcing or striking down these clauses. Traditional scholars might sensibly worry about ideological issues, such as freedom of contract. A psychologist, however, would also point out that the parties are likely too confident of their ability to perform the terms of the contract. This overconfidence adds a new dimension to the debate. Psychologists would also worry about aversion to ambiguity and the cognitive problems that courts might encounter in determining whether to enforce these clauses. Rational-choice theory would not lead any legal scholar to undertake the kind

119 See Hanemann, *supra* note 94; Daniel S. Levy & David Friedman, *The Revenge of the Redwoods? Reconsidering Property Rights and the Economic Allocation of Natural Resources*, 61 U. CHI. L. REV. 493, 506-15 (1994).

120 See Rachlinski & Jourden, *supra* note 25, at 1556-59.

121 See *id.*

122 To be sure, many of the important issues that law and economics has added to traditional legal scholarship remain intact. Coase's observation that parties can and do bargain around legal rules is still a valuable insight. See Issacharoff, *supra* note 10, at 1731-32. Similarly, nothing in BDT suggests that incentives do not matter, that budget constraints are not important, that agents are not always faithful, or that hidden costs of legal rules should not be exposed. See *id.*

of inquiry that Professor Hillman has described. It is not clear that traditional legal analysis would trigger such an analysis either. Hence, if Professor Hillman has raised useful questions in his analysis of liquidated damages clauses, then he must (and does) give great credit to BDT's importance for legal scholars, despite the obstacles that he encountered.

The issues that BDT raises are not merely modifications to law and economics or add-ons to traditional legal analysis. The newer work applying BDT to law is a novel brand of law and psychology. No longer does law and psychology consist only of analyses of juries, eye-witnesses, and the mentally ill. The new law and psychology adds the study of litigants, manufacturers, tortfeasors, contracting parties, corporate officers, spouses, parents, fiduciaries, and property owners to the research agenda. The new law and psychology has begun to blaze a new trail and to inspire unique questions about law that legal scholars would not otherwise have asked.

The extension of psychology to a broader array of legal issues is inevitable. Law and psychology occupies a special place in the "law and" pantheon. Psychology and law share a common purpose: both constitute efforts to predict and control human behavior. Law has historically relied on ad hoc accounts of human behavior that are motivated by ideology, anecdote, and historical accident. Economics provided law with a behavioral theory that is rigorous and precise, but lacks an empirical foundation. Psychology offers an empirical, scientific source for theories of human behavior. We have only begun to see how the scientific study of human behavior will reshape the study of law. The new law and psychology is just now cutting its teeth. Thus far, it has consumed only a diet of issues that have been predigested by law and economics. The best work, however, is yet to be done.