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## Cognitive Biases and Heuristics in Tort Litigation: A Proposal to Limit Their Effects Without Changing the World

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# Cognitive Biases and Heuristics in Tort Litigation: A Proposal to Limit Their Effects Without Changing the World

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"Probability is the very guide of life," in Bishop Butler's famous phrase. He does not mean, of course, that calculations about dice are the guide of life but that real decision making involves an essential element of reasoning with uncertainty. Humans have coped with uncertainty without the benefit of advice from mathematicians, both before and after Pascal and Fermat's discovery of the mathematics of probability in 1654.<sup>1</sup>

## I. INTRODUCTION

Behavioral studies indicate that individuals do not always make objective decisions about risk.<sup>2</sup> Various cognitive biases and heuristics—mental shortcuts everyone uses consciously or subconsciously to make decisions under conditions of uncertainty—introduce error and subjectivity.<sup>3</sup> At one level, these studies merely confirm the obvious: individuals make decisions based on both reason and emotions. At another level, they may introduce serious complications into some types of legal analysis, which are based on the assumption that individuals are rational actors.<sup>4</sup>

The potential effects of erroneous decisions about risk are of particular concern in the area of tort law.<sup>5</sup> Laboratory studies establish that

1. JAMES FRANKLIN, *THE SCIENCE OF CONJECTURE: EVIDENCE AND PROBABILITY BEFORE PASCAL*, at ix (2001) (quoting JOSEPH BUTLER, *The Analogy of Religion*, in *THE WORKS OF JOSEPH BUTLER* § 4, at 5 (W.E. Gladstone ed., 1897)).
  2. For comprehensive discussion of research in this area, see generally CASS R. SUNSTEIN ET AL., *PUNITIVE DAMAGES: HOW JURIES DECIDE* (2002); Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630 (1999) [hereinafter Hanson & Kysar, *The Problem*]; and Gregory Mitchell, *Taking Behavioralism Too Seriously? The Unwarranted Pessimism of the New Behavioral Analysis of Law*, 43 WM. & MARY L. REV. 1907 (2002).
  3. For discussion of biases and heuristics and their potentially conflicting effects on decisions about risk, see Roger G. Noll & James E. Krier, *Some Implications of Cognitive Psychology for Risk Regulation*, 19 J. LEGAL STUD. 747 (1990). Emotion can also affect judgment and decisionmaking. See generally Jeremy A. Blumenthal, *Law and the Emotions: The Problems of Affective Forecasting*, 80 IND. L.J. 155 (2005); Jeremy A. Blumenthal, *Does Mood Influence Moral Judgement? An Empirical Test with Legal and Policy Implications*, 29 LAW & PSYCHOL. REV. 1 (2005).
  4. For a general literature review of the potential problems caused by biases and heuristics in all areas of law, see Donald C. Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review*, 51 VAND. L. REV. 1499 (1998). Biases and heuristics can also complicate policymaking since policymakers must base response plans for things such as disaster relief on general perceptions of risk as well as their actual probability. See Henry L. Chambers, Jr., *Fear, Irrationality, and Risk Perception*, 69 MO. L. REV. 1047 (2004); Chris Guthrie, *Risk Realization, Emotion, and Policy Making*, 69 MO. L. REV. 1039 (2004).
- For general discussions of the legal implications of behavioralism, see BEHAVIORAL LAW AND ECONOMICS (Cass R. Sunstein ed., 2000); and Symposium, *Empirical Legal Realism: A New Social Scientific Assessment of Law and Human Behavior*, 97 N.W. U. L. REV. 1075 (2003).
5. Assessment of risk affects not only the basic determination of negligence, but proximate cause, defenses, and the availability of punitive damages. Risk is also

individuals role-playing as jurors in hypothetical negligence scenarios exhibit consistent bias in evaluating the level of risk in certain activities.<sup>6</sup> Their knowledge that an event has occurred or that a bad result has been reached biases them toward finding that the event or result was more foreseeable than if viewed objectively and without prior knowledge of the bad result.<sup>7</sup> Studies also establish that individuals overestimate small risks and underestimate large risks.<sup>8</sup> Individuals also have difficulty evaluating risks and benefits separately, making risk-benefit decisions difficult.<sup>9</sup> Do these apparent deviations from rational decisionmaking significantly affect actual juror decisions about risk in torts cases? Are jury verdicts consistently erroneous, warranting corrective measures? If the results of these laboratory studies can be extrapolated to actual litigation, verdicts in negligence cases may be overdetering conduct which is reasonably safe. Jurors may also be labeling negligent conduct as recklessness, thereby warranting punitive damages. Fundamental fairness is also implicated. If normative tort rules are tainted by bias in their application, the credibility of the litigation process as a cornerstone of dispute resolution is called into question.

Relying on such empirical data, many commentators argue this bias is happening consistently.<sup>10</sup> They propose a variety of corrective

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relevant to many issues affecting products liability and abnormally dangerous activities as well.

6. Chris Guthrie et al., *Inside the Judicial Mind*, 86 CORNELL L. REV. 777 (2001) (judges are affected as well as jurors); Reid Hastie & W. Kip Viscusi, *What Juries Can't Do Well: The Jury's Performance as a Risk Manager*, 40 ARIZ. L. REV. 901 (1998); Susan J. LaBine & Gary LaBine, *Determinations of Negligence and the Hindsight Bias*, 20 LAW & HUM. BEHAV. 501 (1996); W. Kip Viscusi, *Jurors, Judges, and the Mistreatment of Risk by the Courts*, 30 J. LEGAL STUD. 107, 131 (2001).
7. See, e.g., Jonathan Baron & John C. Hershey, *Outcome Bias in Decision Evaluation*, 54 J. PERSONALITY & SOC. PSYCHOL. 569, 570 (1988); Robert A. Caplan, *Effect of Outcome on Physician Judgments of Appropriateness of Care*, 265 JAMA 1957, 1960 (1991); see also Jeffrey J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571, 581 n.36 (1998) (collecting references).
8. Baruch Fischhoff, *Hindsight ≠ Foresight: The Effect of Outcome Knowledge on Judgment Under Uncertainty*, 1 J. EXPERIMENTAL PSYCHOL.: HUM. PERCEPTION & PERFORMANCE 288 (1975).
9. Hastie & Viscusi, *supra* note 6, at 911.
10. See SUNSTEIN ET AL., *supra* note 2; Mark Geistfeld, *Reconciling Cost-Benefit Analysis with the Principle that Safety Matters More than Money*, 76 N.Y.U. L. REV. 114 (2001); Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: A Response to Market Manipulation*, 6 ROGER WILLIAMS U. L. REV. 259 (2000) [hereinafter Hanson & Kysar, *A Response*]; Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 HARV. L. REV. 1420 (1999) [hereinafter Hanson & Kysar, *Some Evidence*]; Hanson & Kysar, *The Problem*, *supra* note 2; Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1523-32 (1998); Douglas A. Kysar, *The Expectations of Consumers*, 103 COLUM. L. REV. 1700 (2003); Howard

measures, from wholesale replacement of jurors in punitive-damage cases with experts who will likely be less susceptible to bias,<sup>11</sup> to adoption of enterprise liability for product defect cases,<sup>12</sup> to elevated burden of proof requirements and bifurcated trials in tort cases generally.<sup>13</sup> The arguments these scholars advance necessarily call into question the viability of the behavioral theory of rational choice.<sup>14</sup> Rational-choice theory assumes that individuals act rationally and objectively to maximize their utility. If jurors do not act rationally, then rational-choice theory is an imperfect behavioral foundation for legal rules, especially negligence. The proposals also generally assume that the laboratory studies documenting biased decisionmaking are sufficiently applicable to actual jury trials to support changing normative rules and litigation procedures in all cases. They devote little attention to the validity of that assumption. Nor do they devote sufficient consideration to the usefulness of existing precedent and practices to correct for biases.<sup>15</sup>

The purpose of this Article is to challenge the necessity for such broad changes in the tort litigation system. I argue the following: (1) cognitive bias and heuristics may indeed introduce errors in result in some cases; (2) both the breadth of any errors and their magnitude may be relatively small and confined to a group of cases identifiable in advance; and (3) existing case law and procedures offer potential to protect against the level of bias that may actually be affecting juror deliberations.

Part II of this Article reviews the empirical data and behavioral theories supporting the argument that juror decisions are affected by bias. Part III summarizes proposals for dramatically altering normative tort rules and procedures to address the problems of juror bias. Part IV discusses why these proposals are overly broad and unneces-

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Latin, "Good" Warnings, Bad Products, and Cognitive Limitations, 41 UCLA L. REV. 1193 (1994); Alan Schwartz, *The Case Against Strict Liability*, 60 FORDHAM L. REV. 819 (1992) [hereinafter Schwartz, *Against Strict Liability*]; Alan Schwartz, *Proposals for Products Liability Reform: A Theoretical Synthesis*, 97 YALE L.J. 353 (1988) [hereinafter Schwartz, *Proposals*]; Cass R. Sunstein, David Schkade & Daniel Kahneman, *Do People Want Optimal Deterrence?*, 29 J. LEGAL STUD. 237 (2000); Cass R. Sunstein, Daniel Kahneman & David Schkade, *Assessing Punitive Damages (with Notes on Cognition and Valuation in Law)*, 107 YALE L.J. 2071 (1998); W. Kip Viscusi, *Corporate Risk Analysis: A Reckless Act?*, 52 STAN. L. REV. 547 (2000); Viscusi, *supra* note 6.

11. SUNSTEIN ET AL., *supra* note 2, at 258.

12. Hanson & Kysar, *Some Evidence*, *supra* note 10, at 1553–54.

13. Jolls et al., *supra* note 10, at 1528.

14. See *infra* notes 23–25 and accompanying text.

15. There is some discussion of categories of cases that deal with problems caused by hindsight bias and procedural measures, which could be of use in controlling the effect of such biases. See Jolls et al., *supra* note 10, at 1528–29; Philip G. Peters, Jr., *Hindsight Bias and Tort Liability: Avoiding Premature Conclusions*, 31 ARIZ. ST. L.J. 1277, 1306–11 (1999); Rachlinski, *supra* note 7, at 616–17.

sary. Finally, Part V discusses the ability of existing case law to control bias and proposes solutions to accomplish that objective.

## II. ARGUMENTS THAT BIASES AND HEURISTICS AFFECT JURORS: THEORY AND FACT

Normative legal rules serve many purposes. Among their most important functions, at least in tort law, should be to deter undesirable conduct and promote desirable behavior.<sup>16</sup> From an economic perspective, Coase observes that legal rules do not compel behavior but establish the costs and consequences of actions and inactions.<sup>17</sup> It is but a short step from Coase's observation to its legal implementation in tort law through Judge Learned Hand's formulation of a calculus of risk.<sup>18</sup> Hand's classic approach to negligence involves risk-benefit balancing: Is the burden of avoiding a harmful result less or greater than the benefit from avoiding the result?<sup>19</sup> Viewed through an economic lens, Hand's deceptively straightforward negligence formula offers a method to advance economically desirable goals.<sup>20</sup> Excessively dangerous conduct is deterred because the cost to pursue it is too great in light of the benefits of avoidance. Negligence rules create an incentive for more desirable, less dangerous conduct. Individuals will pursue optimal levels of safety by balancing the risks, costs, and utility of available alternative conduct.<sup>21</sup> In the aggregate, collective individual actions will lead to socially optimal allocation of resources to the problem of accidents. Resources devoted to accident costs and accident-prevention costs will be optimized, promoting wealth maximization.<sup>22</sup>

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16. RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 175 (4th ed. 1992); Guido Calabresi & Jon T. Hirschoff, *Toward a Test for Strict Liability in Torts*, 81 YALE L.J. 1055, 1057 (1972).

17. R. H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

18. *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947).

19. In Judge Hand's words,

[T]he owner's duty . . . to provide against resulting injuries is a function of three variables: (1) The probability that [the barge] will break away; (2) the gravity of the resulting injury . . . ; (3) the burden of adequate precautions. Possibly it serves to bring this notion into relief to state it in algebraic terms: if the probability be called P; the injury, L; and the burden, B; liability depends upon whether B is less than L multiplied by P: i.e., whether  $B < PL$ .

*Id.* at 173.

20. There are, of course, perspectives and objectives other than economic. See, e.g., *PHILOSOPHICAL FOUNDATIONS OF TORT LAW* (David G. Owen ed., 1995) (philosophical perspective); Martha Chamallas & Linda K. Kerber, *Women, Mothers, and the Law of Fright: A History*, 88 MICH. L. REV. 814 (1990) (feminist perspective); George P. Fletcher, *Fairness and Utility in Tort Theory*, 85 HARV. L. REV. 539 (1972).

21. For a comprehensive discussion, see Richard A. Posner, *A Theory of Negligence*, 1 J. LEGAL STUD. 29 (1972).

22. See *id.*

Risk-creating actors can order their conduct in reliance on the fair and transparent application of these rules in every case, as administered through the tort system.

### A. Rational Choice as a Flawed Behavioral Model

The optimal outcome described above rests on the assumption that individuals, including jurors, make decisions rationally. The theoretical foundation for this view is rational-choice theory, derived from the game theory work of John Von Neumann and Oskar Morgenstern.<sup>23</sup> Rational-choice theory presumes that individuals always try to maximize their expected utility, primarily through acting rationally when making decisions involving risks and benefits.<sup>24</sup> Rational-choice theory assumes that "objective criteria exist . . . to differentiate rational from irrational" behavior, that individual behavior is based on rational considerations, and that individuals acting on optimal information can and do rationally assess the risks involved in their choices and seek to maximize utility by choosing from stable preferences.<sup>25</sup>

Critics argue that rational-choice theory inadequately or incompletely explains human behavior.<sup>26</sup> Perhaps at best it explains some behavior most of the time. In contrast to the predictions of rational-choice theory, individuals do not always act to maximize their expected utility for a variety of reasons. They sometimes make suboptimal choices because of the impossibility of evaluating risks and risk-

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23. JOHN VON NEUMANN & OSKAR MORGENSTERN, *THEORY OF GAMES AND ECONOMIC BEHAVIOR* (1944). For additional discussions of game theory, also see Ian Ayers, *Playing Games with the Law*, 42 STAN. L. REV. 1291 (1990) (book review); and Stephen W. Salant & Theodore S. Sims, *Game Theory and the Law: Ready for Prime Time?*, 94 MICH. L. REV. 1839 (1996) (book review).

24. RICHARD A. POSNER, *THE PROBLEMS OF JURISPRUDENCE* 353 (1990) ("[P]eople are rational maximizers of their satisfactions . . . in all of their activities . . . that involve choice."). There is no single version of rational-choice theory. For discussion of this point, see Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051, 1061-66 (2000); and Jolls et al., *supra* note 10, at 1476. See also GARY S. BECKER, *THE ECONOMIC APPROACH TO HUMAN BEHAVIOR* 14 (1976) (explaining that all people "maximize their utility from a stable set of preferences and accumulate an optimal amount of information").

25. Jacob Jacoby, *Is It Rational to Assume Consumer Rationality? Some Consumer Psychological Perspectives On Rational Choice Theory*, 6 ROGER WILLIAMS U. L. REV. 81, 100-01 (2000).

26. See generally Samuel Issacharoff, *Can There Be a Behavioral Law and Economics?*, 51 VAND. L. REV. 1729 (1998); Jacoby, *supra* note 25; Korobkin & Ulen, *supra* note 24; see also Gerald L. Clore, *For Love or Money: Some Emotional Foundations of Rationality*, 80 CHI.-KENT L. REV. 1151 (2005) (suggesting that rational-choice theory is too narrow because rationality involves value judgments about what is a desirable outcome); Edward L. Rubin, *Rational Choice and Rat Choice: Some Thoughts on the Relationship Among Rationality, Markets, and Human Beings*, 80 CHI.-KENT L. REV. 1091 (2005) (discussing the relationship between values and rational-choice theory).

cost trade offs.<sup>27</sup> Too much necessary information is either unknowable or too complex to assess with complete objectiveness. People often act with subconscious motivation instead of complete rationality. They sometimes evaluate information subjectively. Rational-choice theory also neglects an important body of philosophical work on probability theory.<sup>28</sup> Probability is an important component of risk, dealing with the numerical likelihood or frequency of occurrence of an adverse consequence. Since the seventeenth century, probability theory has recognized the duality of probability as containing both objective and subjective elements.<sup>29</sup> Professor Stephen Perry's discussion of this duality is particularly useful.<sup>30</sup> One view of probability theorizes that it is an objective but unrealizable concept. Incomplete knowledge and imperfect observation prevent determination of its true value.<sup>31</sup> Probability, and accordingly risk, can only be approximated. Estimates are inherently subjective since they depend on the observer's frame of reference, values, and intuitive reasoning.<sup>32</sup> Probability, though objective in theory, cannot be objectively determined.<sup>33</sup>

This "subjectivist" approach to probability is consistent with behavioral decision theories, which recognize the incompleteness of rational choice. Bounded rationality is one such approach.<sup>34</sup> It assumes that human decisionmaking cannot be utility-maximizing as predicted by rational-choice theory. People are willing to accept less than optimal utility so long as their choices come within an acceptable range of solutions which approximate maximum utility.<sup>35</sup> The added information-cost necessary for optimal decisions, rationally arrived at, may not be worth the marginal gain in utility. "Satisficing"<sup>36</sup> behavior—behavior which approximates utility-maximization—is sufficient. So

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27. Jacoby, *supra* note 25, at 107–08.

28. For an overview, see ROY WEATHERFORD, *PHILOSOPHICAL FOUNDATIONS OF PROBABILITY THEORY* (1982).

29. RUDOLF CARNAP, *LOGICAL FOUNDATIONS OF PROBABILITY* 19–51 (2d ed. 1962); IAN HACKING, *THE EMERGENCE OF PROBABILITY* 122–23 (1975); David Lewis, *A Subjectivist's Guide to Objective Chance*, in 2 *PHILOSOPHICAL PAPERS* 63 (1986).

30. Stephen R. Perry, *Risk, Harm and Responsibility*, in *PHILOSOPHICAL FOUNDATIONS OF TORT LAW*, *supra* note 20, at 321.

31. *Id.* at 325–29.

32. *Id.* at 325.

33. *Id.* at 323–24.

34. See generally HERBERT A. SIMON, *MODELS OF BOUNDED RATIONALITY* (1982); HERBERT A. SIMON, *Theories of Bounded Rationality*, in *MODELS OF BOUNDED RATIONALITY: BEHAVIORAL ECONOMICS AND BUSINESS ORGANIZATION* 408 (1982).

35. Korobkin & Ulen, *supra* note 24, at 1077–78.

36. Herbert A. Simon, *Rational Choice and the Structure of the Environment*, in *MODELS OF MAN: SOCIAL AND RATIONAL* 261, 270–71 (1957); Herbert A. Simon, *Satisficing*, in *THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS* 243 (John Eatwell et al. eds., 1987); see also Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 *STAN. L. REV.* 211, 214 (1995) (arguing that the costs of



stated, bounded rationality, unlike rational choice, accounts for the fact that making utility-maximizing decisions may be too complex for human cognitive processes and too burdened by ambiguity.<sup>37</sup> Trade-offs such as risk versus cost, to be applied, may involve such complex elements of objective information and subjective notions of individual utility that optimal cost-benefit decisions are not pursued. Similar deviations are to be expected because of ambiguities in available information. Relevant comparisons may be incomplete, unavailable, or even unknowable. As a result, rationally maximizing utility is not possible or at least not worth the cost. While rational-choice theory may be "descriptively and prescriptively accurate more often than any other single theory of [human] behavior,"<sup>38</sup> it is flawed and incomplete. One important consequence is that the application of normative legal rules may not lead to the results assumed by rational-choice theory.

## **B. Empirical Evidence that Decisionmaking Involving Risk is Affected by Biases and Heuristics**

If behavioral theory recognizes lack of total rationality in decision-making, empirical studies support that position. Many studies contradict assumptions underlying rational-choice theory.<sup>39</sup> The groundbreaking empirical work in this area is Tversky & Kahneman's study of individual decisionmaking under conditions of uncertainty.<sup>40</sup> It demonstrated that individuals making decisions under ambiguous conditions resort to heuristics<sup>41</sup>—mental short cuts—to reduce the complexity of the decision to manageable proportions. While heuristics do reduce complexity, they can also lead to decisionmaking errors which are "severe and systematic."<sup>42</sup>

Two heuristics, the "representativeness heuristic" and the "availability heuristic," are particularly relevant to decisionmaking involving risks.<sup>43</sup> When faced with uncertain, ambiguous choices, individuals

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gathering and processing information lead most people to search for satisfactory alternatives rather than optimal alternatives).

37. Korobkin & Ulen, *supra* note 24, at 1077-78.

38. *Id.* at 1072.

39. See *supra* note 2. For a general discussion of how decisionmaking is affected by biases and heuristics, see SCOTT PLOUS, *THE PSYCHOLOGY OF JUDGMENT AND DECISION MAKING* 109-88 (1993).

40. Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 *SCI.* 1124 (1974). For general discussion of the influence of Tversky and Kahneman's work, see David Laibson & Richard Zeckhauser, *Amos Tversky and the Ascent of Behavioral Economics*, 16 *J. RISK & UNCERTAINTY* 7 (1998).

41. Tversky & Kahneman, *supra* note 40, at 1124-26.

42. *Id.* at 1124.

43. For a more general discussion of the representativeness heuristic, see *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* 23-98 (Daniel Kahneman et al. eds., 1982). For discussion of a related heuristic, the affective heuristic, see Paul

may, sometimes subconsciously, utilize the representativeness heuristic. They are more likely to choose the options most representative of previous, known patterns without questioning whether that previous pattern has relevance in predicting future events.<sup>44</sup> This can overemphasize the relevance of a small number of prior representative events, leading to error in estimating the likelihood of the occurrence of a future event. Overestimation or underestimation of results, including the estimation of risk, can occur. Small risks, if known, can be overestimated. If the risk is unknown, it may be underestimated or ignored.<sup>45</sup> The representativeness heuristic is accurate in predicting a future event only when previous, isolated occurrences are actually representative of a future pattern. If they are not, but are merely random occurrences despite their apparent similarity to the current scenario, then use of the representativeness heuristic leads to erroneous predictions.

The availability heuristic works similarly. The more available the information about a possible future event, the more likely the available data will be used. Other, less available information, though more predictive, will be used less often.<sup>46</sup> If all data—less available and generally available—point to the same decision, inaccuracy is minimal. If less available information is more predictive and reliable, a biased decision results. The same holds true for unimaginable consequences. If a consequence is unlikely to be imagined, it will be less likely to be foreseen.<sup>47</sup> The availability heuristic can also lead either to overestimation or underestimation depending on the available information used by the observer.

In addition to errors from heuristics, individuals have decision-making biases. They have “tendencies to make judgments or decisions in ways that systematically depart from the economist’s rational choice expected utility model.”<sup>48</sup> There are several documented biases

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Slovic, *What's Fear Got to Do with It? It's Affect We Need to Worry About*, 69 Mo. L. REV. 971, 975–76 (2004).

44. Amos Tversky & Daniel Kahneman, *Judgments of and by Representativeness*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES, *supra* note 43, at 84. For a discussion of the relationship between the representativeness heuristic and exclusions of character evidence in criminal trials under the *Federal Rules of Evidence*, see Korobkin & Ulen, *supra* note 24, at 1086–87.
45. See Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, in JUDGMENT UNDER UNCERTAINTY, *supra* note 43, at 3, 8.
46. See Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 COGNITIVE PSYCHOL. 207, 207–08 (1973); see generally SUSAN T. FISKE & SHELLEY E. TAYLOR, SOCIAL COGNITION 142–79, 245–94 (2d ed. 1991) (describing the general process of how people recognize information about their surroundings and how that information is then organized and used).
47. See RICHARD NISBETT & LEE ROSS, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT 18–23 (1980).
48. Langevoort, *supra* note 4, at 1503.

of particular interest in the torts area.<sup>49</sup> "Hindsight bias" causes an observer to overestimate the predictability of an event when the observer already knows what happened.<sup>50</sup> "Outcome bias" is closely related. If an observer is aware of a bad result (for example, a serious injury from a medical procedure), its occurrence is more likely to be seen as predictable.<sup>51</sup> The "egocentric" or "optimistic bias" causes individuals to overestimate their own abilities, such as the ability to act carefully to avoid injury or the ability to control events which are in fact random occurrences beyond human control.<sup>52</sup> Other risk-perception biases cause individuals to ignore small risks which are not otherwise emphasized and to prefer the elimination of uncertainty over its reduction.<sup>53</sup> Stated differently, overprotection is preferable to reasonable protection.

Hindsight bias and outcome bias have been repeatedly examined in the legal context.<sup>54</sup> Their cumulative influence arises from the fact that knowledge of an outcome makes it difficult for an observer to set aside that knowledge when asked to assess the factors which affect the outcome. Subjects role-playing as jurors, given knowledge that harm has been caused, attribute significantly higher probabilities to the risk of harm occurring than subjects in the role of *ex ante* decisionmakers without the same prior knowledge.<sup>55</sup> Small risks, as a consequence, are overestimated, making events seem more foreseeable than objectively they are. The bias appears in groups as well, but is perhaps less pronounced.<sup>56</sup> It also may affect the decisions of judges.<sup>57</sup> "Debiasing efforts," at least those relying on providing ad-

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49. For a useful, brief description of various biases, see *id.* at 1503-06.

50. Fischhoff, *supra* note 8, at 288.

51. Baron & Hershey, *supra* note 7, at 570.

52. Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. PERSONALITY & SOC. PSYCHOL. 806, 806 (1980); see also Langevoort, *supra* note 4, at 1505-06 (discussing egocentric biases).

53. Langevoort, *supra* note 4, at 1504.

54. See Galen V. Bodenhausen, *Second-Guessing the Jury: Stereotypic and Hindsight Biases in Perceptions of Court Cases*, 20 J. APPLIED SOC. PSYCH. 1112 (1990); Jonathan D. Casper, Kennette Benedict & Jo L. Perry, *Juror Decision Making, Attitudes, and the Hindsight Bias*, 13 LAW & HUM. BEHAV. 291 (1989); Guthrie et al., *supra* note 6; Reid Hastie, David A. Schkade & John W. Payne, *Juror Judgments in Civil Cases: Hindsight Effects on Judgments of Liability for Punitive Damages*, 23 LAW & HUM. BEHAV. 597 (1999); Hastie & Viscusi, *supra* note 6; Kim A. Kamin & Jeffrey J. Rachlinski, *Ex Post ≠ Ex Ante: Determining Liability in Hindsight*, 19 LAW & HUM. BEHAV. 89, 101-02 (1995); Viscusi, *supra* note 6.

55. Kamin & Rachlinski, *supra* note 54, at 99-102.

56. See Guthrie et al., *supra* note 6, at 803 (discussing the presence of hindsight bias in the decisions of a test group of judges).

57. *Id.* at 803; see also Jennifer K. Robbennolt, *Evaluating Juries by Comparison to Judges: A Benchmark for Judging?*, 32 FLA. ST. U. L. REV. 469 (2005) (explaining that judges and jurors are affected by same factors in making decisions and react similarly).

vance information to subjects about the existence of bias, appear to have little effect.<sup>58</sup> Outcome bias is a factor as well. Observers with prior knowledge of the bad outcome of a decision, when asked to evaluate the quality of the decisionmaking process producing the outcome, consistently rate it lower if they had prior knowledge of the bad result.<sup>59</sup> Since jurors in torts cases know the plaintiff has suffered injuries as a result of a bad outcome, hindsight bias and outcome bias can work together.<sup>60</sup>

Jurors do more than assess the foreseeability of harm in negligence cases. They are also charged with balancing risk, cost, and utility to determine whether particular conduct is tortious. Studies suggest that subjectivity affects the balancing process.<sup>61</sup> Juror assessment of both risks and benefits may be affected by either positive or negative perceptions associated with those risks and benefits. Individuals seem less concerned with the level of risk when they perceive benefits associated with the risk.<sup>62</sup> Individuals appear to accept higher levels of risk if the risk is voluntarily encountered than if it is forced on them.<sup>63</sup> Where there is the ability to totally eliminate risk as compared to merely reducing it, elimination is preferred to reduction even if the objective level of reduction—for example, twenty percent—is the same.<sup>64</sup> Risk and benefit are not separable concepts to most observers. They appear to be combined into one subjective, overall determination affected by a “moral outlook in which human life is not viewed as properly subject to instrumentalist [balancing] against . . . competing interests.”<sup>65</sup> Rather, “empirical evidence suggests that juries are simply unable or unwilling to approach the informal step of the risk-utility analysis in the tidy, [objective] manner required by economic theory.”<sup>66</sup>

Other studies involving risk-creating actors reach the same general conclusions as the juror studies. The decisionmaking of profes-

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58. Guthrie et al., *supra* note 6, at 825; Jolls et al., *supra* note 10, at 1527.

59. See Baron & Hershey, *supra* note 7, at 571–72; LaBine & LaBine, *supra* note 6, at 507–08; D. Jordan Lowe & Phillip M.J. Reckers, *The Effects of Hindsight Bias on Juror's Evaluation of Auditor Decisions*, 25 DECISION SCI. 401, 408–11 (1996).

60. Baron & Hershey, *supra* note 7, at 570.

61. Viscusi, *supra* note 6, at 115; see also Jon Cohen, *Rethinking a Vaccine's Risk*, 293 SCI. 1576 (2001) (noting that overestimation of small risk of dangerous bowel obstruction in use of vaccine to prevent rotavirus infections, which kill 800,000 children worldwide each year, led to manufacturer's decision to take off the market a vaccine with significant health benefits in preventing rotavirus).

62. See generally Chauncey Starr & Chris Whipple, *Risks of Risk Decisions*, 208 SCI. 1114 (1980); Chauncey Starr, *Social Benefit Versus Technological Risk*, 165 SCI. 1232 (1969).

63. Starr, *supra* note 62, at 1233–38.

64. Langevoort, *supra* note 4, at 1504.

65. Kysar, *supra* note 10, at 1738.

66. *Id.* at 1737.

sionals generally—as engineers, project managers, physicians, designers, and accountants—is also affected by the same biases.<sup>67</sup> Decisions about the risk of failure of a product or process may be based on individual knowledge that failure has not occurred in the past, instead of reliance on more comprehensive baseline data which predicts a higher risk of failure.<sup>68</sup> Such common mental error has been repeatedly observed in accidents involving complex systems failures attributable to judgment errors.<sup>69</sup> Individuals also overestimate their own ability to perform an action safely and at the same time underestimate the risks associated with the activity. This egocentric bias leads to the erroneous belief that individual ability and competence can control risks that are in fact beyond human control.<sup>70</sup> Knowledge that these biases can affect decisions is so sufficiently widespread that many organizations have formal procedures in place to avoid them.<sup>71</sup>

Even with controls in place, organizational culture can lead to erroneous risk assessments. Substantial work has been done on the role of cultural and institutional bias, as opposed to work on individual, psychological bias, which points to the conclusion that organizational culture can also affect the rationality and objectivity of decisions about risk.<sup>72</sup> The connection between organizational culture and behavior of

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67. See Guthrie et al., *supra* note 6, at 783 n.26 (collecting references).

68. For discussion of this effect and how investment decisions by economists and other financial professionals were catastrophically affected, see ROGER LOWENSTEIN, *WHEN GENIUS FAILED: THE RISE AND FALL OF LONG-TERM CAPITAL MANAGEMENT* (2001).

69. See generally JAMES R. CHILES, *INVITING DISASTER: LESSONS FROM THE EDGE OF TECHNOLOGY* (2001) (discussing heuristics and engineering safety decisions); CHARLES PERROW, *NORMAL ACCIDENTS: LIVING WITH HIGH-RISK TECHNOLOGIES* (1984) (complex high-risk technology systems can suffer from failures of two or more parts that interact in a way designers did not expect, and such unexpected interactions will inevitably lead to accidents).

70. For general discussions, see Christine Jolls, *Behavioral Economics Analysis of Redistributive Legal Rules*, 51 *VAND. L. REV.* 1653, 1659 (1998); and Weinstein, *supra* note 52.

71. For a comprehensive discussion of the formal safety procedures used by the National Aeronautics and Space Administration (NASA) to reduce the risks of launching and flying space shuttles, and the tragic failure of those procedures due to biased judgments, see DIANE VAUGHAN, *THE CHALLENGER LAUNCH DECISION: RISKY TECHNOLOGY, CULTURE, AND DEVIANCE AT NASA* (1996).

72. *Id.* at 399–405; see also MARY DOUGLAS, *RISK ACCEPTABILITY ACCORDING TO THE SOCIAL SCIENCES* (1985) (discussing the impact of cultural and social factors on risk perception and acceptability); MARY DOUGLAS & AARON WILDAVSKY, *RISK AND CULTURE* (1982) (arguing that public perception of acceptable risks to the environment is a function of social organizations and group constructs); SHEILA JASANOFF, *RISK MANAGEMENT AND POLITICAL CULTURE* (1986); James F. Short, Jr., *The Social Fabric at Risk: Toward the Social Transformation of Risk Analysis*, 49 *AM. SOC. REV.* 711 (1984) (discussing the interplay between social factors and risk analysis).

individuals within the organization suggests two effects at work. First, decisions which objective observers outside an organization would label as questionable or even excessively dangerous may be rationalized as acceptable within the organization. Internal institutional norms and practices become of greater significance than generally accepted external societal and professional norms in guiding decisions.<sup>73</sup> Second, an institutional environment often reflects strong competitive pressures, budget constraints, and project deadlines which influence individual actions.<sup>74</sup> These "environmental" factors operate even though the organization has procedures in place to prevent such forces from adversely affecting decisions.<sup>75</sup>

Studies in both large and small organizations have found that a common factor in accidents is "failure[ ] of foresight."<sup>76</sup> Events which should have alerted a rational observer to the risk of failure were either ignored, overlooked, explained away, or interpreted inconsistently with other information which indicated excessive risk.<sup>77</sup> Institutional culture may contribute to the underestimation of risk, producing results similar to individuals affected by heuristics and biases. Diane Vaughan, in an insightful work, has documented in great detail how the institutional culture of the National Aeronautics and Space Administration (NASA) contributed to the loss of the space shuttle *Challenger* in 1986.<sup>78</sup> Vaughan's major point is that institutional culture can lead to "normalization of deviance" in organizations.<sup>79</sup> Decisions which would be considered dangerous outside an organization are "normalized" inside it because of various institutional pressures. Institutional culture may create "[o]perational forces that shape worldview, normalizing signals of potential danger, resulting in mistakes with harmful human consequences."<sup>80</sup>

### C. The Implications of Risk Misperception

The implications of risk misperception are dramatically different depending on whether the problem is viewed primarily as underestimation or overestimation of risk. In fact, both kinds of misperceptions are at work. As a general proposition, there is substantial evidence that individuals, either when making decisions about risk or acting as jurors and deciding whether the risks others have taken are accept-

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73. VAUGHAN, *supra* note 71, at 406-07.

74. *Id.*

75. *Id.* at 415-16.

76. BARRY A. TURNER, MAN-MADE DISASTERS 161 (1978).

77. *See id.* at 151.

78. VAUGHAN, *supra* note 71.

79. *Id.* at 409.

80. *Id.*

able, do not always act rationally.<sup>81</sup> This contradicts the behavioral assumptions of rational-choice theory, raising questions as to its ability to predict responses to legal rules. Regardless of whether individuals overestimate or underestimate risk, important societal and legal implications follow. To the extent that individuals and even organizations consistently underestimate risks of their conduct, they impose greater risks on society. Only a very small percentage of accidents end up in litigation and full damages may not be awarded in all cases.<sup>82</sup> Even assuming general societal knowledge of risk levels transmitted through higher insurance rates and the deterrence signals from accidents which are litigated, widespread underestimation of risk may be causing a greater number of accidents than rational-choice theory predicts. The level of tortious conduct in society may be excessively high and beyond the ability of the legal system to control through the usual deterrence mechanisms operating through negligence rules.<sup>83</sup>

The societal problem of potentially excessive accidents has been largely unaddressed by scholars more concerned with studies that jurors may be overestimating risk. If jurors consistently overestimate the foreseeability of small risks, non-tortious conduct may be labeled as negligence. Jurors may be imposing *de facto* strict liability even though they are instructed on the basis of *de jure* negligence principles. At the other end of the fault continuum, ordinary negligence may be transmuted into recklessness or wantonness. Punitive damages may be assessed for negligent conduct. Total damages, compensatory and punitive, may be higher than justified by the facts. Jurors may also be incapable of making objectively "correct" risks-cost-utility tradeoffs necessary in negligence law. Excessively costly alternatives may be required because of overweighting of safety interest and overemphasis on risks.

These deviations from objective assessment of risk because of juror bias also may have major consequences. Verdicts in negligence cases may cause misallocations of resources spent on safety and accident costs. Tort verdicts may be directing more than optimal resources to the problems of accidents, raising insurance costs accordingly. The tort goal of wealth maximization is frustrated since optimal deterrence cannot be achieved because of biased jury verdicts. The funda-

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81. It is important to note, as have others, that not acting rationally should not be equated with acting irrationally. See JON ELSTER, *SOUR GRAPES: STUDIES IN THE SUBVERSION OF RATIONALITY* (1983); Langevoort, *supra* note 4, at 1506.

82. See J.M. Balkin, *Too Good to Be True: The Positive Economic Theory of Law*, 87 COLUM. L. REV. 1447, 1463 (1987) (book review).

83. See *id.*; see also Hanson & Kysar, *Some Evidence*, *supra* note 10 (arguing that many corporations, through advertising, manipulate consumer perceptions of risk, making consumers believe products are safer than they actually are, resulting in less spending by manufacturers on product safety).

mental fairness of the tort process is also at issue. Individuals and organizations order their conduct to some extent on the effect of normative legal rules. If those rules are affected by biased judgment regarding their applications, then the rules operate differently than commonly assumed. The system may be unfair because results are unpredictable. While it has been observed that litigants and even judges may be generally unaware and therefore little concerned about the problem of fairness arising from juror bias,<sup>84</sup> awareness of the fairness issue may increase as knowledge of the bias problem is more generally known. The effect of juror bias directly contradicts the assumption—based partly on rational-choice theory, partly on social norms—that the legal system is fair, impartial, and objective. Juror decisionmaking tainted even by unconscious bias leading to unpredictable and unfair results is reason for concern.

The theoretical shortcomings of rational-choice theory and the substantial evidence of biased decisionmaking by jurors and risk-creating actors are sufficiently compelling to many to justify corrective measures. Part III of this Article will explore proposals for change.

### III. PROPOSALS TO COUNTERACT THE INFLUENCE OF BIASES AND HEURISTICS

The scholarly conversation about the potential shortcomings of rational-choice theory and the effects of biases and heuristics on the legal systems is now well into its second decade.<sup>85</sup> From the beginning, there has been disagreement over whether jurors consistently overestimate or underestimate risk because behavioral studies support both conclusions. Much of the initial work in the torts area focused on the ability of consumers to respond rationally to product warnings, and whether psychological studies suggested that consumers overestimate or underestimate product risk in light of the warning information provided by manufacturers.<sup>86</sup> Howard Latin, in an early influential article, contended that a combination of biases and heuristics in the aggregate caused underestimation of risk.<sup>87</sup> By his analysis, consumers are usually unaware of many product risks. When given information on how to reduce such risks, product users may ignore it. They

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84. See Rachlinski, *supra* note 7, at 601.

85. For a literature review, see Langevoort, *supra* note 4, at 1529–40.

86. Latin, *supra* note 10; Howard A. Latin, *Problem-Solving Behavior and Theories of Tort Liability*, 73 CAL. L. REV. 677 (1985); Robert A. Prentice & Mark E. Roszkowski, "Tort Reform" and the Liability "Revolution": Defending Strict Liability in Tort for Defective Products, 27 GONZ. L. REV. 251 (1991); Schwartz, *Against Strict Liability*, *supra* note 10; Schwartz, *Proposals*, *supra* note 10; W. Kip Viscusi, *Individual Rationality, Hazard Warnings, and the Foundations of Tort Law*, 48 RUTGERS L. REV. 625 (1996).

87. Latin, *supra* note 10, at 1240–41.



prefer risk elimination<sup>88</sup> instead of risk reduction. They are also confident in their ability to use products safely because of the operation of the egocentric bias.<sup>89</sup> These factors collectively, Latin argued, undermine the rational-actor assumptions underlying comment j to the *Restatement (Second) of Torts* section 402A<sup>90</sup> and support the need for greater manufacturer liability to offset consumer inability to accurately perceive product risks, even when warned.<sup>91</sup>

Other scholars reach a different conclusion from the behavioral research, arguing that consumers overestimate product risks.<sup>92</sup> In their view, the biases and heuristics which lead to risk overestimations are most likely to influence consumer behavior.<sup>93</sup> As a consequence, consumers are excessively deterred from using products which are in fact reasonably safe, and manufacturers must expend more than optimal resources to market their products. Liability rules that require even more deterrence, such as a true strict-liability requirement for product warnings and designs, would only strengthen an already undesired effect. Viscusi's solution to this problem would be a uniform national product warning system to offset and counterbalance the inability of consumers to assess risks rationally.<sup>94</sup> Alan Schwartz agreed with Viscusi that increased liability is not warranted, but on a different ground. He was not convinced the behavioral research supported either risk overestimation or underestimation<sup>95</sup> and, in light of that uncertainty, did not believe a case could be made for strict liability based on the empirical data alone.

Recent work has gone far beyond the scope of this earlier work by proposing more specific remedies for the problems raised by the behavioral research.<sup>96</sup> While the proposals vary widely, most share common elements. For the most part, they assume the major problem is overestimation of risk leading to excessive deterrence and not un-

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88. *Id.* at 1239.

89. People are often "unduly optimistic about their ability to avoid . . . hazards" and consequently do not respond adequately to product warnings. *Id.* at 1243. See also Prentice & Roszkowski, *supra* note 86, at 294-95 (arguing that people tend to be overconfident in their own judgment and in their ability to avoid accidents with the products they use).

90. RESTATEMENT (SECOND) OF TORTS § 402A cmt. j (1965) (providing that where an adequate "warning is given, the seller may reasonably assume that it will be read and heeded").

91. Latin, *supra* note 10, at 1240-41.

92. See generally Schwartz, *Against Strict Liability*, *supra* note 10; Viscusi, *supra* note 86.

93. Viscusi, *supra* note 86, at 645-46.

94. *Id.* at 666.

95. Schwartz, *Against Strict Liability*, *supra* note 10, at 832-35.

96. See articles cited *supra* note 10.

derestimation.<sup>97</sup> This overestimation, documented by behavioral research, is assumed to affect decisions of jurors in actual litigation. The biases are assumed to affect all cases and do not operate selectively.<sup>98</sup> Conventional de-biasing efforts which might be employed by courts to counterbalance the effect of biases and heuristics are not effective,<sup>99</sup> requiring different approaches.

One group of proposals concentrates on restricting juror discretion in evaluating risks to minimize the potentially harmful effect of bias on juror decisionmaking. Cass Sunstein and his colleagues have addressed this issue with a comprehensive review of the behavioral research and a sweeping recommendation for change.<sup>100</sup> Based on empirical research on the effect of juror bias, especially in products liability cases involving punitive damages,<sup>101</sup> they conclude that juries often behave as retributionist bodies insufficiently concerned with the proper amount of deterrence imposed by these verdicts.<sup>102</sup> The solution proposed is to dramatically circumscribe or even eliminate the jury's role, especially in determining punitive damages awards. Judges would be given a far greater role, and experts—instead of juries—would assess damages.<sup>103</sup> Juries could even be replaced by administrative tribunals, converting at least a portion of the torts litigation process into a worker's compensation analogue with strong elements of paternalism.<sup>104</sup>

Other discussions have focused on whether the litigation process itself could be modified to reduce the effects of bias. Jolls, Sunstein, and Thaler have proposed different, less sweeping remedies which fit more comfortably within the existing torts litigation process.<sup>105</sup> They

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97. See, e.g., SUNSTEIN ET AL., *supra* note 2; Hastie & Viscusi, *supra* note 6; Jolls et al., *supra* note 10, at 1527.

98. Most of the discussion about the effect of biases and heuristics has concerned these individual effects in sequential fashion. There are only a few discussions of their potentially cumulative or offsetting effects. See Rachlinski, *supra* note 7, at 594; Schwartz, *Against Strict Liability*, *supra* note 10, at 832–33.

99. Hastie & Viscusi, *supra* note 6, at 917; Kamin & Rachlinski, *supra* note 54, at 97–98.

100. SUNSTEIN ET AL., *supra* note 2.

101. A major theme of the work is that jury punitive damages awards are unpredictable (both high and low) because of human cognition error. *Id.* at viii.

102. See *id.* at 39. For a discussion of this aspect of the work, see Catherine M. Sharkey, *Punitive Damages: Should Juries Decide?*, 82 TEX. L. REV. 381, 382–84 (2003) (book review).

103. SUNSTEIN ET AL., *supra* note 2, at 242, 258; see also Stephen D. Sugarman, *Doing Away with Tort Law*, 73 CAL. L. REV. 555 (1985) (arguing that the tort system should be replaced by regulatory and insurance regimes since its costs outweigh benefits).

104. See Cass R. Sunstein, *Behavioral Analysis of Law*, 64 U. CHI. L. REV. 1175, 1178 (1997); Eyal Zamir, *The Efficiency of Paternalism*, 84 VA. L. REV. 229, 229–30 (1998) (arguing that paternalistic norms can be efficient).

105. Jolls et al., *supra* note 10.

support bifurcation of trials to separate the issue of liability from damages<sup>106</sup> and to keep knowledge of bad results from jurors,<sup>107</sup> as well as elevating the burden of proof to a clear-and-convincing standard to reduce the effect of hindsight bias.<sup>108</sup> Others have argued more generally for decreasing the influence of juries in tort cases.<sup>109</sup> Hastie and Viscusi state that "[t]he present structure [with juries vested with large discretion to ultimately decide tort litigation] will not simply make random errors but will in fact impose a systematic bias by levying excessive penalties on companies for whom the accident lottery has turned out unfavorably."<sup>110</sup> The problem of "massive hindsight"<sup>111</sup> bias in jurors calls for shifting from a jury-centered litigation system to a "non-tort-centric"<sup>112</sup> approach to risk management.<sup>113</sup>

Finally, Guthrie, Rachlinski, and Wistrich point out that there may be as many problems with limiting the role of jurors and increasing the authority of judges as there are with juries alone.<sup>114</sup> Judges decide about as many cases as juries, as well as deal with questions of admissibility of evidence and qualification of experts. If biases affect judges to the same extent they affect jurors, then increasing the power of judges at the expense of jurors may accomplish little.<sup>115</sup> These scholars' own empirical studies suggest just that: Judges as well as jurors are affected by bias.<sup>116</sup> In fact, juries may be less affected than judges since group decisions may be less susceptible to the effects of bias than individual decisions.<sup>117</sup> Making judges, or even experts, the chief decisionmakers, as Sunstein proposes,<sup>118</sup> may not be good policy.

Use of substantive rules instead of procedural devices as a means of counteracting the effects of heuristics and biases has also been proposed.<sup>119</sup> Hanson and Kysar argue that enterprise liability—strict liability which imposes all external costs caused by the entity on the enterprise—should become the liability standard in products liability cases.<sup>120</sup> Unlike others,<sup>121</sup> they argue that seller manipulation of consumer product safety perceptions leads to greater risk, which would

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106. *Id.* at 1527–29.

107. *Id.*

108. *Id.* at 1529–32.

109. *See, e.g.,* Hastie & Viscusi, *supra* note 6.

110. *Id.* at 916–17.

111. *Id.* at 917.

112. *Id.* at 918.

113. *Id.*

114. Guthrie et al., *supra* note 6, at 827.

115. *Id.* at 781, 827.

116. *Id.* at 803.

117. *Id.* at 827.

118. SUNSTEIN ET AL., *supra* note 2, at 242, 258.

119. *See* Hanson & Kysar, *Some Evidence*, *supra* note 10; Kysar, *supra* note 10.

120. Hanson & Kysar, *Some Evidence*, *supra* note 10, at 1553–62. For earlier development of the same thesis, see Stephen P. Croley & Jon D. Hanson, *Rescuing the*

best be deterred by enterprise liability.<sup>122</sup> As such, they see the need for greater deterrence, not less.<sup>123</sup> Using largely the same body of behavioral research as other scholars, they are uncertain whether the studies suggest risk is overestimated or underestimated.<sup>124</sup> For their purposes the answer awaits further research, and in any event, is largely irrelevant. Rather, they assert that manufacturers and marketers know individuals misperceive risk. These groups are driven by competitive pressure to actively manipulate consumer risk perception in a way advantageous to product marketers;<sup>125</sup> advertising is the vehicle to accomplish this result. Consumers are regularly persuaded that products are safer than they actually are through marketing techniques which emphasize safety and downplay risks.<sup>126</sup> Hanson and Kysar argue that products are in fact more dangerous on average than consumers expect them to be. Marketing techniques in essence "overload" other more objective messages about product risks and promote overuse of dangerous products.<sup>127</sup> To correct for this false perception of safety, manufacturers should be held to enterprise-liability standards, thereby increasing costs to manufacturers and injecting additional deterrence into the product marketplace, which increases product safety.<sup>128</sup>

Other commentators propose a different substantive change.<sup>129</sup> Again relying on behavioral research, Kysar argues that jurors do not make rational, objective risk-cost tradeoffs in tort cases.<sup>130</sup> Because of this, the consumer-expectations test for defects, which imposes liability in situations where a product is more dangerous than a reasonable consumer expects it to be, should assume a greater role in products liability litigation than currently is the case.<sup>131</sup> The *Restatement (Third) of Torts: Products Liability* relies on risk-utility balancing as the preferred defect test, with an implicit assumption that jurors can effectively perform the balance.<sup>132</sup> Kysar argues risk-utility balanc-

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*Revolution: The Revived Case for Enterprise Liability*, 91 MICH. L. REV. 683, 706-10 (1993).

121. See generally SUNSTEIN ET AL., *supra* note 2; Jolls et al., *supra* note 10; Prentice & Roszkowski, *supra* note 86; Viscusi, *supra* note 86.

122. Hanson & Kysar, *Some Evidence*, *supra* note 10, at 1552-55. For further development of this argument, see Hanson & Kysar, *A Response*, *supra* note 10.

123. Hanson & Kysar, *Some Evidence*, *supra* note 10, at 1554-55.

124. *Id.* at 1427.

125. *Id.*

126. *Id.* at 1553.

127. *Id.*

128. *Id.*

129. See Kysar, *supra* note 10 (writing separately from Hanson to advance this change); see also Gregory C. Keating, *Pressing Precaution Beyond the Point of Cost Justification*, 56 VAND. L. REV. 653 (2003) (proposing a similar change).

130. Kysar, *supra* note 10, at 1735-40.

131. *Id.* at 1741-42.

132. RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 cmt. a (1997).

ing is beyond the grasp of the typical juror. Preferential use of the consumer-expectations test would lessen the influence of biases and heuristics, which affect juror decisions on whether a product's risks outweigh its benefits.<sup>133</sup>

Mark Geistfeld, relying little on behavioral research, develops a corollary to Kysar's argument that juries are incapable of making the risk-cost-utility balances contemplated by economic theory.<sup>134</sup> Geistfeld argues that overestimation of risk levels is justifiable, especially when the actual level of risk is unknown, to ensure an appropriate level of safety.<sup>135</sup> This overweighing of safety interests will not lead to the optimal level of safety assumed to be achieved by objective risk-utility balancing.<sup>136</sup> The justification for this approach is that individuals prefer security, with its heightened safety emphasis, over liberty interests. The liberty interest emphasizes freedom to act and to pursue risk-creating conduct in exchange for greater wealth and utility. For small risks with only slight benefit, Geistfeld argues that it is justifiable to prefer security over liberty. Individuals should not have to be exposed to risks of serious harm or death even if optimal deterrence would point to a different result.<sup>137</sup> Like others, he also advocates more deterrence, but primarily for nonconsensual risks involving serious injury or death. This would be accomplished by explicitly overweighing by a factor of two, the weight given to risk in the traditional Hand calculus-of-risk equation.<sup>138</sup> In this way, safety would be preferred over risk-creating activity. Its effect would be the same as if jurors consistently overestimated small risks because of biases and heuristics. Geistfeld devotes little attention to how his proposal might be affected by behavioral research on juror bias in assessing risk. He does offer the observation that his proposal is consistent with how individual jurors actually assess risk,<sup>139</sup> but offers no discussion on whether his proposal, coupled with the possibility of juror bias, could produce even greater levels of safety than desired.

While there has been counsel for caution and moderation,<sup>140</sup> the dominant theme in these proposals is for corrective measures which would affect virtually all tort litigation involving evaluation of risk, either alone or in combination with cost and utility. Whether such broad ranging proposals are justified is evaluated below in Part IV.

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133. Kysar, *supra* note 10, at 1735.

134. Geistfeld, *supra* note 10.

135. *Id.* at 124.

136. *Id.* at 118-19.

137. *Id.* at 138-39.

138. *Id.* at 143-45; *see also supra* note 19.

139. Geistfeld, *supra* note 10, at 167.

140. Peters, *supra* note 15, at 1312; Rachlinski, *supra* note 7, at 625.

#### IV. REASONS FOR A CAUTIOUS APPROACH TO THE PROBLEMS CAUSED BY BIASES AND HEURISTICS IN TORTS LITIGATION

The proposals discussed above rely on two implicit assumptions. First, the errors introduced by biases and heuristics are of sufficient magnitude and scope to affect all litigation results. Second, the results of laboratory studies documenting the existence of these biases and heuristics and their effects are generally applicable to actual litigation. Wholly apart from the doctrinal criticisms that have addressed the substantive merits of these proposals,<sup>141</sup> and as will be developed in this Part, these assumptions are questionable. Some errors in litigation results attributable to biases and heuristics may exist; those errors may affect outcomes in a relatively small percentage of cases. The hindsight bias appears to operate selectively and not in every case. In addition, where it does operate, the size of the effect is probably small, and not enough to always skew results. Finally, the behavioral studies which are the foundations of these proposals are not contextual. They take into consideration neither the realities of the adversarial process nor the ability of existing rules and procedures to control bias-induced errors.

##### A. The Scope and Magnitude of the Effects of Biases and Heuristics

Studies measuring the degree to which individuals overestimate risks because of biases and heuristics indicate that the overestimations are relatively small<sup>142</sup> and may affect only a small percentage of individuals estimating risk levels.<sup>143</sup> Errors of this magnitude do not

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141. James A. Henderson, Jr. & Jeffrey J. Rachlinski, *Product-Related Risk and Cognitive Biases: The Shortcomings of Enterprise Liability*, 6 ROGER WILLIAMS U. L. REV. 213, 216 (2000) (arguing that enterprise liability is flawed because it does not permit consideration of a product user's ability to avoid injuries); Robert A. Hillman, *The Limits of Behavioral Decision Theory in Legal Analysis: The Case of Liquidated Damages*, 85 CORNELL L. REV. 717, 718 (2000) (implying that the empirical evidence is not yet sufficiently clear to justify it as a basis for new legal rules); Issacharoff, *supra* note 26, at 1742 (stating that empirical studies neglect effect of institutional context of litigation and ability of existing constraints to control problem of biases); Mitchell, *supra* note 2, at 1911–12 (examining how the empirical evidence does not justify changing substantive rules); Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 STAN. L. REV. 1551 (1998) (explaining that rational choice, even though it does not completely explain human behavior, remains the most comprehensive theory of human behavior and an adequate basis for legal rules).

142. On average the overestimations are about fifteen percent.

143. Rachlinski, *supra* note 7, at 606; *see also* Fischhoff, *supra* note 8, at 289–90 (noting that in studies not involving legal scenarios, results affected by biases ranged from six percent to forty percent); *cf.* Mitchell, *supra* note 2, at 1965 (explaining

occur in every case,<sup>144</sup> and even if they did, are not always of significant magnitude to affect jury verdicts. The actual effect may instead be limited to a relatively small portion of the universe of tort verdicts. In a theoretically perfect negligence model where the other calculus-of-risk variables such as cost, feasibility of alternatives, and severity of harm and utility<sup>145</sup> could be held constant while only foreseeability of harm varied, it would be possible to assess the quantitative effects of errors attributable to biases and heuristics. Assuming this could be done—and also assuming that other variables affecting negligence are at a level that would justify holding a defendant negligent if the risk of harm, objectively assessed, is significant but not if the risk is small—there surely would be an effect of bias, but not in all cases. If foreseeability of harm, even without the overestimations attributable to hindsight bias, is sufficiently great to justify liability, risk overestimation would not produce additional liability because a jury would find negligence in any event. There probably are a relatively small group of cases where the bias might tip otherwise merely negligent conduct into recklessness, leading to a punitive damages award.<sup>146</sup> This is one group of cases that need a mechanism to control the effects of biases and heuristics. In a second situation, the foreseeability of harm may be so small that even a fifteen percent overestimation of risk by some, but not all jurors, will still not result in a finding of negligence. In a third group of cases, the actual level of risk is sufficient but not necessarily conclusive on the issue of negligence. Here, bias may affect results because hindsight bias could tip jurors toward finding liability when, in its absence, conduct might not be labeled as tortious.

In the real world, quantitative effects usually do not operate in such orderly fashion. The above examples assume the other variables in the negligence calculus-of-risk equation are in equipoise, when in fact they rarely are. In a broad range of cases, foreseeability of harm may be of relatively minor importance in determining negligence. The relatively small quantitative effect of risk overestimation, when compared with the potentially greater effect of other variables in the determination of negligence, suggests caution in generalizing the effect

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that in surveys of general public, those who might make a different decision because of hindsight bias range from seven percent to twenty-seven percent).

144. Being charitable with the numbers in note 143, if only one in five jurors would make a different decision because of hindsight bias and the average magnitude of risk overestimation is on average about twenty percent, in a typical twelve person jury panel the decision of only two members might be affected, and then only to a minor degree. These numbers suggest that many, if not most cases, would not be affected.

145. RESTATEMENT (SECOND) OF TORTS §§ 289, 291–293 (1965).

146. *But see* SUNSTEIN ET AL., *supra* note 2; Richard Lempert, *Juries, Hindsight, and Punitive Damages Awards: Failures of a Social Science Case for Change*, 48 DEPAUL L. REV. 867, 889–90 (1999).

of bias on negligence verdicts. Cost and feasibility of alternative conduct are variables not affected by overestimation of risk, and they often far outweigh the effect of foreseeability of harm in determining liability. Costs to pursue a safer alternative may be either so great<sup>147</sup> or reasonable enough<sup>148</sup> that the relatively small effect of hindsight bias may be of no consequence. Where no feasible alternative to the risk creating conduct exists,<sup>149</sup> risk overestimation of jurors will not yield a negligence finding. In addition, in violation-of-statute cases where the elements of negligence per se are met,<sup>150</sup> liability will result, regardless of the effect of hindsight bias. Violation of customary practice also would probably outweigh the effect of any bias.

## B. Context Considered: The Difference Between Laboratory Studies and Litigation

Lack of context for behavioral studies is an additional reason for caution in assuming their general applicability to the litigation process.<sup>151</sup> These studies generally do not take into account the possibility that plaintiffs as well as defendants may be at fault. Since comparative fault is the rule in most states<sup>152</sup> and arises in a significant percentage of cases, this leaves a major gap in the data. For example, assume a situation where the plaintiff is aware of the danger in the design of the defendant's product and nevertheless proceeds to use the product in an unreasonable way and is injured. Both the potential negligence of the defendant in designing the product<sup>153</sup> and

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147. For a general discussion of proof of feasible alternative, see *Wilson v. Piper Aircraft Corp.*, 577 P.2d 1322 (Or. 1978). See also *Rypkema v. Time Mfg. Co.*, 263 F. Supp. 2d 687 (S.D.N.Y. 2003) (stating that plaintiff must prove the existence of a feasible alternative).

148. *Lewis v. Am. Cyanamid Co.*, 715 A.2d 967 (N.J. 1998) (finding that three other companies already used alternative); *McCathern v. Toyota Motor Corp.*, 985 P.2d 804 (Or. Ct. App. 1999) (design change already under way and was later incorporated).

149. See RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 cmt. b (1997) (stating, in part, that the existence of a "reasonable alternative design is the predominant, yet not exclusive, method for establishing defective design"); see also *Wilson*, 577 P.2d 1322 (holding that to meet burden, plaintiff must establish not only that alternative design is technically feasible but practicable, which involves concrete consideration of cost and the impact on the overall utility of the product).

150. *Martin v. Herzog*, 126 N.E. 814, 815 (N.Y. 1920); RESTATEMENT (SECOND) OF TORTS § 288B (1965).

151. Issacharoff, *supra* note 26, at 1743; Mitchell, *supra* note 2, at 1957–59; Sharkey, *supra* note 102, at 404.

152. As of this writing, only Alabama, Maryland, North Carolina, Virginia, and the District of Columbia retain contributory negligence as a defense. See DAVID G. OWEN, PRODUCTS LIABILITY LAW 793 n.10 (2005).

153. See RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2(b) (1997) (providing that the reasonableness of the defendant's action in designing the product is the test for liability).



the potential negligence of the plaintiff in using it are at issue. Would biases and heuristics work directionally in the same way where the plaintiff is at fault compared to a scenario where the plaintiff is free from fault? Presumably not. Hindsight bias may cause jurors to overestimate the risks in the defendant's design process or the design itself. There is no reason to assume that the same jurors would not similarly overestimate the risks of plaintiff's conduct.<sup>154</sup> If bias affects assessment of both the defendant's and plaintiff's risks, then both may be overestimated. The result in a comparative-fault jurisdiction would be greater fault by the plaintiff, possibly preventing any recovery or further reducing the defendant's share of the liability and damages.<sup>155</sup> In comparative-fault jurisdictions and with a plaintiff who is partially at fault, hindsight bias could produce an effect opposite the result if the plaintiff were free of fault. Additional complications may occur with multiple claimants and multiple defendants.<sup>156</sup>

The behavioral studies also do not account for the impact of the adversarial process itself.<sup>157</sup> It is one thing to read a hypothetical fact situation and respond to questions when some variables are changed. A quite different dynamic is at play where the same basic facts are presented by testimony of witnesses in the formal structure of a judicial proceeding with lawyers present and a judge presiding. Presumably, lawyers can make a difference; skilled advocates may have a greater impact on the outcome of a case than bias errors of jurors.<sup>158</sup>

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154. On the same point, see Rachlinski, *supra* note 7, at 594–95. The plaintiff's own fault, to the extent attributable to overconfidence from the egocentric bias, should be recognized by the jury and reflected in its determination of the percentage of the plaintiff's liability for his own damages.

155. Rachlinski observes that juror biases towards plaintiffs and defendants could be offsetting, producing no effect on overall liability. *Id.* This may hold some truth in some situations. More likely, plaintiff's damages will be reduced because of his or her own relative fault.

156. There is no behavioral research on this point. For one approach to handling multiple plaintiffs and defendants, insolvency of one of the defendants, contribution and set-offs, see UNIF. COMPARATIVE FAULT ACT §§ 2, 3, 6, 12 U.L.A. 33 (Supp. 1981).

157. For general discussions of the interaction of juror bias and the litigation process, see NEIL FEIGENSON, *LEGAL BLAME: HOW JURIES THINK AND TALK ABOUT ACCIDENTS* (2000); Mark R. Kosieradzki, *Voir Dire in the Age of Juror Bias*, TRIAL, Oct. 2001, at 37, 65; and Mark Mandell, *Overcoming Juror Bias: Is There an Answer*, TRIAL, July 2000, at 28, 28. For reviews of the literature on whether results of mock juror studies accurately reflect actual juror behaviors, see Brian H. Bornstein & Sean G. McCabe, *Jurors of the Absurd? The Role of Consequentiality in Jury Simulation Research*, 32 FLA. ST. U. L. REV. 443 (2005); and Robert J. MacCoun, *Comparing Legal Factfinders: Real and Mock, Amateur and Professional*, 32 FLA. ST. U. L. REV. 511 (2005).

158. For discussions of tactics attorneys can use during voir dire and trial to mitigate various juror biases, see Kosieradzki, *supra* note 157, at 65–69; and Mandell, *supra* note 157, at 28–29. See also Merric Joe Stallard & Debra L. Worthington, *Reducing the Hindsight Bias Utilizing Attorney Closing Arguments*, 22 HUM.

So far, empirical studies leave this issue largely unaddressed.<sup>159</sup> Behavioral studies also do not take into consideration the broad range of constraints already in place in the legal system to control aberrant jury results. In the punitive damages area, for example, the Supreme Court<sup>160</sup> and many state courts<sup>161</sup> have imposed a number of safeguards, including elevation of the burden of proof,<sup>162</sup> greater scrutiny of jury verdicts within strict parameters by both trial and appellate courts,<sup>163</sup> and guidelines for the ratio of the size of the punitive damages award to the trustee of the compensatory award.<sup>164</sup> Judicial response to excessive punitive damages awards may be a useful model for dealing with the potential problems of biases and heuristics generally.<sup>165</sup>

Errors introduced by biases and heuristics may be a problem in some cases. Their effect should be recognized and dealt with appropriately. But behavioral studies do not as of yet support the much broader conclusion that biases operate consistently in every case or even to a significant degree in cases where they may be present. At this point, many of the proposals designed to address the bias problem

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BEHAV. 671, 675 (1998) (defense counsel appeal during closing to avoid hindsight bias and not second-guess reduced effect of hindsight bias by more than seventy percent).

159. For a review on what has been done, see Lowe & Reckers, *supra* note 59, at 403.

160. *BMW of N. Am., Inc. v. Gore*, 517 U.S. 559 (1996); *see also* *Honda Motor Co. v. Oberg*, 512 U.S. 415 (1994) (imposing safeguards); *TXO Prod. Corp. v. Alliance Res. Corp.*, 509 U.S. 443 (1993) (same); *Pacific Mut. Life Ins. Co. v. Heslip*, 499 U.S. 1 (1991) (same); *cf.* *Browning-Ferris Indus. of Vt., Inc. v. Video Disposal, Inc.*, 492 U.S. 527 (1989) (same).

161. For a representative state's decision, see *Gamble v. Stephenson*, 406 S.E.2d 350 (S.C. 1991), which establishes an eight-factor test to determine whether a trial court must reduce a given punitive damages award to ensure due process. The factors are "(1) defendant's degree of culpability; (2) duration of the conduct; (3) defendants' awareness of concealment; (4) existence of similar or past conduct; (5) likelihood the award will deter like conduct; (6) whether the award is reasonably related to the harm likely to result from such conduct; (7) defendant's ability to pay;" and (8) other appropriate factors. *Id.* at 354. *See also* *Hammond v. City of Gadsden*, 493 So. 2d 1374, 1379 (Ala. 1986) (listing factors). Review in federal court is treated in *Atlas Food Systems & Services, Inc. v. Crane National Vendors, Inc.*, 99 F.3d 587 (4th Cir. 1996). Assuming no constitutional challenge, whether the amount of the jury verdict meets state law limits is determined by the district court under federal procedural standards. The jury's finding of the amount of punitive damages is given a less deferential review than other issues. Also, the trial judge has a participating role in determining whether the punitive damages award will result in a miscarriage of justice. *See* F. PATRICK HUBBARD & ROBERT L. FELIX, *THE SOUTH CAROLINA LAW OF TORTS* 587-92 (2d Ed. 1997).

162. *Pacific Mutual*, 499 U.S. at 20.

163. *See id.* at 22; *Gamble*, 406 S.E.2d at 354.

164. *See Pacific Mutual*, 499 U.S. at 1, 21, 23.

165. Securities fraud cases are another example of close judicial scrutiny of possibly erroneous jury verdicts. For a discussion of this trend, *see infra* notes 222-33 and accompanying text.

and which would dramatically change the basic tort systems, are not warranted. Where problems may exist, narrower remedies strategically employed by judges in appropriate cases offer a better approach. These potential remedies will be explored in the next Part of this Article.

## V. A CASE-BY-CASE APPROACH TO THE PROBLEMS CAUSED BY BIASES AND HEURISTICS IN TORT LITIGATION

Behavioral studies have established beyond doubt that decision-making on risk is affected by biases and heuristics.<sup>166</sup> Juror deliberations on risk may be affected as well.<sup>167</sup> This would mean that both juror assessment of the magnitude of risk and decisions on risk-cost-utility balancing could be impacted. Even so, errors attributable to biases and heuristics may be consistently present only in a particular cluster of tort cases. Beyond this recurring pattern the effects of bias are unclear and must await more studies. Too many complexities, including the relative fault of plaintiffs and defendants,<sup>168</sup> the effects of potentially offsetting biases,<sup>169</sup> the relatively small magnitude of the biases<sup>170</sup> and other factors, like the effect of lawyers on the outcome of litigation,<sup>171</sup> cumulatively weigh against concluding that juror bias consistently affects outcomes of all cases. Even if juror determinations of risk are affected in a relatively small group of cases, corrective measures are warranted. Growing awareness of the potential for unfair results and the potential for verdicts producing mistaken deterrence signals are sufficient reasons for remedies. This Part argues, first, that the types of cases where juror bias is most likely to affect results in a predictable way are identifiable in advance; and second, that courts have developed a variety of approaches to the problems of misperception generally that can be applied to risk misperceptions caused by biases and heuristics. A case-by-case approach to the problem is preferable to broader solutions which could have indiscriminate and even harmful effects in cases where the possible effect of juror bias is unclear.

### A. Areas of Tort Litigation Most Likely Affected

Cases where bias and heuristics are likely to have some impact are identifiable. They involve relatively small to moderate risk,<sup>172</sup> ab-

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166. See *supra* Part II.

167. See authorities cited *supra* note 54.

168. See *supra* notes 151-55 and accompanying text.

169. See *supra* note 154.

170. See *supra* notes 142-44 and accompanying text.

171. See *supra* notes 156-58 and accompanying text.

172. See *supra* note 55 and accompanying text.

sence of significant contributory fault by the plaintiff,<sup>173</sup> no violations of custom or statute,<sup>174</sup> minimal cost of alternative conduct,<sup>175</sup> and significant harm.<sup>176</sup> Behavioral studies establish that both hindsight bias<sup>177</sup> and outcome bias<sup>178</sup> operate here and may lead to consistent overestimation of risks by jurors.<sup>179</sup> This risk overestimation coupled with the operation of outcome bias—which suggests that a bad result, a serious injury, comes from a flawed decision<sup>180</sup>—may consistently lead to overestimation of the defendant's fault. Absence of contributing fault by the plaintiff eliminates the possibility of potentially offsetting effects.<sup>181</sup> At the same time, small risks or moderate risks leading to serious injuries when the cost of a safer alternative is not prohibitive, require the kinds of juror risk-cost-utility balance most likely to be affected by subjective factors.<sup>182</sup>

Courts have developed preventive measures to offset the problems of juror misperceptions in a variety of contexts. From these various approaches, a useful remedy for the particular problems caused by biases and heuristics in tort litigation can be fashioned.

## B. Approaches to the Control of Juror Misperceptions

The potential for misperceptions leading to erroneous verdicts arises in many contexts. Courts have developed strategies to address the problem. Constraints on jury discretion and stringent review of jury decisions address potential errors in setting punitive damages awards.<sup>183</sup> Use of custom as the standard of care in professional malpractice cases<sup>184</sup> avoids difficulties juries might have in determining reasonable care in cases involving complex professional judgment. The business judgment rule<sup>185</sup> serves the same purpose in assessing the reasonableness of business decisions. The misperception problem

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173. See Rachlinski, *supra* note 7, at 594–95.

174. See *supra* note 150 and accompanying text.

175. See *supra* notes 147–49 and accompanying text.

176. See *supra* notes 64–66 and accompanying text.

177. See *supra* references in note 6.

178. See *supra* references in note 7.

179. See *supra* references in note 6.

180. Baron & Hershey, *supra* note 7, at 570.

181. Rachlinski, *supra* note 7, at 594–95; see also *supra* note 155 (discussing Rachlinski's observations).

182. Kysar, *supra* note 10, at 1738.

183. See, e.g., *BMW of N. Am., Inc. v. Gore*, 517 U.S. 559 (1996).

184. Hal R. Arkes & Cindy A. Schipani, *Medical Malpractice v. the Business Judgment Rule: Differences in Hindsight Bias*, 73 OR. L. REV. 587, 597–601 (1994).

185. *Id.* at 613–17; see also Melvin A. Eisenberg, *The Duty of Care of Corporate Directors and Officers*, 51 U. PITT. L. REV. 945 (1990) (examining the effect of the business judgment rule on corporate duties); Philip C. Sorensen, *Discretion and Its Limits—An Analytical Framework for Understanding and Applying the Duty of Care to Corporate Directors (and Others)*, 66 WASH. U. L.Q. 553 (1988) (same).

arises with some frequency in factual determinations. In tort litigation, scrutiny of jury determinations of negligence where the risk of harm is slight has drawn occasional attention from appellate courts.<sup>186</sup> In securities fraud<sup>187</sup> and merger and valuation cases,<sup>188</sup> the potential effect of the representativeness heuristics and outcome bias can lead to errors.<sup>189</sup> One problem in securities fraud cases is the attempt by plaintiffs to equate bad financial results alone with the prior existence of fraud when in fact bad results may be due to negligence or even nontortious conduct.<sup>190</sup> In merger cases an analogous problem arises. Parties often attempt to use after-the-fact, instead of contemporaneous, valuations to establish the value of a business for merger purposes. Attention to the potential errors which can result from such practices has led to the development of judicial controls.<sup>191</sup> Nonobviousness in patent cases<sup>192</sup> presents similar difficulties. Non-obviousness must be determined at the time of the invention, not later at the time of the litigation where judgment in hindsight could easily influence the decision.<sup>193</sup> To mitigate possible misperceptions, factual surrogates for nonobviousness have been developed which are less susceptible to hindsight errors.<sup>194</sup> A synthesis of these various elements of judicial control of factual misperception offers a viable solution to the problem of biases and heuristics in tort litigation. Each is discussed in the following sections, and ultimately a synthesis proposed.

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186. Representative cases are *Di Ponzio v. Riordan*, 679 N.E.2d 616 (N.Y. 1997); *Greene v. Sibley, Lindsey & Curr Co.*, 177 N.E. 416 (N.Y. 1931); *Adams v. Bullock*, 125 N.E. 93 (N.Y. 1919); *Pinero v. Rite Aid of New York, Inc.*, 743 N.Y.S.2d 21 (App. Div. 2002); and *Cain v. Rykin*, 717 P.2d 140 (Or. 1986).

187. See, e.g., *DiLeo v. Ernst & Young*, 901 F.2d 624 (7th Cir. 1990); *Beck v. Mfrs. Hanover Trust Co.*, 820 F.2d 46 (2d Cir. 1987).

188. *Doft & Co. v. Travelocity.com, Inc.*, No. Civ.A. 19734, 2004 WL 1152338 (Del. Ch. May 21, 2004); *Cede & Co. v. JRC Acquisition Corp.*, No. Civ.A. 18648-NC, 2004 WL 286963 (Del. Ch. Feb. 10, 2004); *Agranoff v. Miller*, 791 A.2d 880 (Del. Ch. 2001).

189. See *supra* notes 41–42, 54 and accompanying text.

190. Elliott J. Weiss, *The New Securities Fraud Pleading Requirement: Speed Bump or Road Block?*, 38 ARIZ. L. REV. 675, 688 (1996).

191. *Agranoff*, 791 A.2d 880.

192. See, e.g., *Graham v. John Deere Co.*, 383 U.S. 1 (1966); *Ellicott Mach. Corp. v. United States*, 405 F.2d 1385 (Ct. Cl. 1969); see also Richard L. Robbins, Note, *Subtests of "Nonobviousness": A Nontechnical Approach to Patent Validity*, 112 U. PA. L. REV. 1169 (1964) (explaining the standard).

193. See *Ellicott*, 405 F.2d 1385.

194. See *Graham*, 383 U.S. 1.

### C. Jury Misperception of Risk in Torts Cases

Foreseeability of harm, though a question of fact and not often challenged on appeal,<sup>195</sup> has on occasion drawn close examination by appellate courts.<sup>196</sup> Collectively, these cases can be read as establishing a standard of rigorous scrutiny<sup>197</sup> when jury determination of risk is questionable. Some of the cases arose before behavioral research was conducted on bias generally and juror bias specifically. Many fit into the general fact pattern suggested above, where juror bias may be most likely in cases to occur: small to moderate risk, serious injury, absence of fault by the plaintiff, and no prohibitive costs associated with safer, untaken precautions.<sup>198</sup>

A line of New York cases, of which two opinions were authored by Benjamin Cardozo,<sup>199</sup> has dealt with the specific problems of jury misperception of risk. The issue in these cases was whether there was sufficient evidence of foreseeable harm to support the jury's verdict of negligence. In two early cases, *Greene v. Sibley, Lindsay & Curr Co.*,<sup>200</sup> and *Adams v. Bullock*,<sup>201</sup> Judge Cardozo reversed negligence verdicts because the evidence of foreseeable harm was insufficient. In *Greene* where plaintiff was injured when she fell over defendant's employee who was working near her, Cardozo's opinion addressed the problem that later behavioral research would recognize as hindsight bias:

Looking back at the mishap with the wisdom born of the event, we can see that the mechanic would have done better if he had given warning of the change of pose. Extraordinary prevision might have whispered to him at the moment that a warning would be helpful. What the law exacted of him, however, was only the ordinary prevision to be looked for in a busy world.<sup>202</sup>

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195. There are relatively few cases. For a representative example, see *Coleman v. Cintas Sales Corp.*, 40 S.W.3d 544 (Tex. App. 2001). See also *Bolton v. Stone*, (1951) A.C. 850 (H.L.) (holding that risk of driving cricket ball completely out of field onto relatively untraveled road and hitting plaintiff so small as to be unforeseeable).

196. See cases cited *supra* note 186.

197. I use the term "rigorous" to suggest closer than usual examination to distinguish this type of review from the "strict scrutiny" standard used in constitutional litigation. See, e.g., *Comm. for Pub. Educ. v. Nyquist*, 413 U.S. 756, 797-98 (1973) (applying strict scrutiny to excessive entanglement of government and religion); *Street v. New York*, 394 U.S. 576, 592 (1969) (applying strict scrutiny in free speech context).

198. See *supra* notes 171-76 and accompanying text. Note, however, that *Adams v. Bullock*, 125 N.E. 93 (N.Y. 1919), does not totally fit this pattern, since the cost of safer alternatives may have been prohibitive.

199. *Greene v. Sibley, Lindsey & Curr Co.*, 177 N.E. 416 (N.Y. 1931); *Adams*, 125 N.E. 93.

200. 177 N.E. 416 (N.Y. 1931).

201. 125 N.E. 93 (N.Y. 1919).

202. *Greene*, 177 N.E. at 416.

In *Adams* a child was injured when a wire he dangled over the defendant's bridge came into contact with un-insulated electric trolley wires running beneath the bridge.<sup>203</sup> The jury's verdict that the risk of injury by the defendant's failure to guard against such a risk was foreseeable enough to sustain a judgment of negligence was upheld on first appeal.<sup>204</sup> Cardozo, writing for the New York Court of Appeals, saw the situation differently and reversed.<sup>205</sup>

We think the verdict cannot stand . . . we think there is no evidence that this duty [to adopt precautions to prevent the injury] was ignored. . . . Only some extraordinary causality, not falling within the area of ordinary prevision, could make it [the arrangement of wires under the bridge] a thing of danger. Reasonable care . . . imparts a high degree of vigilance . . . . But no vigilance, however alert, unless justified by the gift of prophecy, could have predicted . . . where such an accident would occur. . . . We think the ordinary caution did not involve forethought of this extraordinary peril.<sup>206</sup>

Two recent New York tort cases have continued Cardozo's close scrutiny of the sufficiency of evidence of foreseeable harm to support a negligence verdict. In *Di Ponzio v. Riordan*,<sup>207</sup> plaintiff, a customer on the premises of defendant's filling station, was injured when another customer's unattended vehicle rolled backward into the plaintiff. Defendant's alleged negligence was failure to train employees to comply with company policy to instruct customers to turn off their vehicle's engines when refueling (presumably to reduce fire hazard).<sup>208</sup> On appeal, the New York Court of Appeals found no liability:

[T]he accident was, at most, a remote possibility . . . and thus was not a foreseeable consequence of the attendant's inaction, even though the risk may now readily be perceived through hindsight . . . .<sup>209</sup>

*Di Ponzio's* approach is seen again in *Pinero v. Rite Aid of New York, Inc.*<sup>210</sup> Plaintiff was injured when she fell in defendant's store while reaching for a box of macaroni and cheese the defendant's assistant manager was attempting to pass to her over a metal cart blocking the aisle. Summary judgment for the defendant was upheld on appeal<sup>211</sup> on the basis of no evidence of a foreseeably hazardous condition. The court of appeals relied on *Di Ponzio's* observations that "although virtually any untoward consequence can theoretically be foreseen 'with the wisdom born of the event' . . . the law draws a line between remote

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203. The child was 12 years old and the wire he was swinging from was eight feet long. Apparently, contributory fault of the plaintiff was not an issue in the case.

204. *Adams*, 125 N.E. at 93.

205. *Id.* at 94.

206. *Id.* at 93.

207. 679 N.E.2d 616 (N.Y. 1997).

208. *Id.* at 617.

209. *Id.* at 620.

210. 743 N.Y.S.2d 21 (App. Div. 2002).

211. *Id.* at 22.

possibilities and those that are reasonably foreseeable.”<sup>212</sup> No factual issue of negligence necessitated submitting the case to the jury.

*Cain v. Rijken*,<sup>213</sup> an Oregon case, also deals with evidentiary sufficiency to establish foreseeability of harm. In a wrongful death action the defendant hospital allegedly negligently failed to treat an outpatient whose subsequent careless driving caused the plaintiff's death.<sup>214</sup> The court left the issue of sufficiency of evidence on foreseeability of a driving risk to the jury,<sup>215</sup> but only after more than usual scrutiny by the appellate court:

The fact that Rijken [the outpatient] had been involved in the previous offense described did not in itself make the (fatal) collision with Cain foreseeable. Careless or reckless driving habits are hardly limited to psychiatric outpatients. With hindsight's 20/20 vision, it is easy to say that Providence [the defendant hospital] should have foreseen that Rijken presented a risk to the public at large. Proof aided by hindsight that the therapist judged wrongly is insufficient to establish negligence. Foreseeability is measured by the way that a reasonable person should have understood the situation as it existed without the benefit of hindsight.<sup>216</sup>

The court proceeded to examine other specific evidence bearing on foreseeability in addition to the defendant's prior driving accident and the therapist's misjudgment.<sup>217</sup> Based on the totality of the evidence on foreseeability, the court determined the case was sufficient for submission to a jury.<sup>218</sup>

Unlike the clear-error standard used by appellate courts in reviewing most questions of fact,<sup>219</sup> these cases can be read as establishing a different, more rigorous standard. These illustrative cases span a period of some eighty years, both before and after behavioral research on biases and heuristics started. They deal with situations of outcome bias (the therapist's misjudgment in *Cain*) and possible hindsight bias (in *Green*, *Adams*, *Di Ponzio*, and *Pinero*), where jurors would have

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212. *Id.* (quoting *Di Ponzio*, 679 N.E.2d at 619).

213. 717 P.2d 140 (Or. 1986).

214. An outpatient of the defendant hospital suffered hallucinatory episodes which were known to the hospital, and to a defendant-therapist who misjudged his potential dangerousness. *Id.* at 142.

215. *Id.* at 149.

216. *Id.*

217. The additional factors relevant to whether the risk was foreseeable were Rijken's deteriorating mental condition, his relationship with a therapist, his outpatient status with diminished ability by the defendant hospital to control his behavior, no observation of any threat by Rijken to cause harm or drive recklessly, and his involvement in a serious collision three years earlier. These factors all raised inferences (sometimes conflicting) relevant to whether the defendant hospital should have taken Rijken into custody. *Id.* at 148.

218. *Id.* at 149.

219. See, e.g., *Koshiba v. Merck & Co.*, 384 F.3d 58, 64 (3d Cir. 2004) (using clear-error test); *Hall v. Folger Coffee Co.*, 874 So. 2d 90, 98 (La. 2004) (using manifest-error standard); cf. TENN. R. APP. P. 13(d) (findings of fact by jury set aside only if no material evidence to support the verdict).



known of the injury resulting from a small risk. In appropriate situations, these cases indicate that evidentiary sufficiency of foreseeability of harm should be evaluated by a rigorous-scrutiny standard. In the context of these cases, rigorous scrutiny means particularly close reviews of evidence which could be affected by "prevision"<sup>220</sup> or "hindsight."<sup>221</sup> Where these possibilities are significant, courts reversed jury verdicts based on insufficient evidence of foreseeability by closely scrutinizing the sufficiency of specific facts relevant to foreseeability.

#### D. Securities Fraud Cases

A group of cases quite removed from these tort cases exhibits a similar concern with the potentially pernicious effects of juror misperception. Securities fraud cases are potentially susceptible to errors from hindsight and outcome bias.<sup>222</sup> In statutory securities fraud cases, claims based only on evidence that the financial condition of the organization has deteriorated have drawn particularly close scrutiny.<sup>223</sup> Courts need a clear dividing line between negligence and fraud in such situations. Claims which can survive summary judgment usually have significant settlement value, necessitating a standard which strikes a balance between pursuing claims of plaintiffs in suits where fraud is a distinct possibility, and protecting defendants from the significant expense of defending against non-actionable negligence claims.

To address the problem, Rule 9(b) of the *Federal Rules of Civil Procedure* requires that in "averments of fraud . . . the circumstances constituting fraud or mistake shall be stated with particularity."<sup>224</sup> A 1995 amendment to the Securities and Exchange Act of 1934 also addresses the same issue.<sup>225</sup> The amendment requires that complaints alleging fraud and seeking money damages "with respect to each act or omission alleged to violate [the 1934 Act], state with particularity facts giving rise to a strong inference that the defendant acted with the required state of mind."<sup>226</sup>

This amendment incorporated the holdings of some prior decisions dealing with the issue into the Act. In *DiLeo v. Ernst & Young*,<sup>227</sup> a

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220. *Greene v. Sibley, Lindsay & Curr Co.*, 177 N.E. 416 (N.Y. 1931).

221. *Di Ponzio v. Riordan*, 679 N.E.2d 616, 620 (N.Y. 1997); *Rykin*, 717 P.2d at 149.

222. "Courts uniformly refuse to allow plaintiffs to claim fraud by pointing to the inconsistency [between two different financial reports, the latest one initiating a decline in the company's financial status], noting that such a claim amounts to no more than 'fraud by hindsight.'" Weiss, *supra* note 190, at 688. See also *DiLeo v. Ernst & Young*, 901 F.2d 624, 627-28 (7th Cir. 1990).

223. *DiLeo*, 901 F.2d at 627-28.

224. FED. R. CIV. P. 9(b).

225. 15 U.S.C. § 78u-4 (2000).

226. *Id.*

227. 901 F.2d 624 (7th Cir. 1990).

securities fraud allegation was dismissed because the plaintiff made no specific allegation of fraud. The complaint alleged only that the defendant-accountant had knowledge that a bank was experiencing financial reverses on problem loans and the bank's loan reserves were inadequate.<sup>228</sup> Plaintiffs alleged that this knowledge, coupled with the adverse change noted on the bank's financial report, constituted fraud.

Because only a fraction of financial deteriorations reflect fraud, plaintiff may not proffer the different financial statements and rest. Investors must point to some facts suggesting that the difference is attributable to fraud. . . . Rule 9(b) required the district court to dismiss the complaint, which discloses none of the circumstances that might separate fraud from the benefit of hindsight. There is no "fraud by hindsight" in Judge Friendly's felicitous phrase.<sup>229</sup>

The requirement of pleading with particularity is satisfied by pleading facts which suggest the defendant either had malice and opportunity to misrepresent material facts or consciously or recklessly misrepresented material facts. If the plaintiff is unable to plead such facts, the strength of circumstantial evidence must be correspondingly greater.<sup>230</sup> One commentator surveying the cases in light of the 1995 amendment has proposed that courts must articulate the inferences that can be drawn from facts bearing on fraud and avoid broad behavioral assumptions (such as accountants are generally honest), since drawing inferences from such generalizations instead of from specific facts is prone to error.<sup>231</sup> Since conflicting inferences can be drawn from the fact that a business's financial condition has worsened, the potential for jurors to draw unsupported conclusions of fraud merely from the knowledge of a bad financial result (outcome bias) must be protected against.

The solutions to these problems in fraud cases and the problems of insufficient evidence of foreseeability of harm in negligence cases offer useful parallels. In both areas, bias may influence juror decisions. Requirements of pleading facts with specificity address the problems in fraud cases. Precedent for a similar approach can be found in tort.<sup>232</sup> The end result in both areas is the same: more rigorous scrutiny and additional specificity regarding facts relied on to prove either fraud or foreseeability of harm where bias is known to affect results.

## E. Nonobviousness Cases in Patent Law

Hindsight bias is potentially a problem in patent cases as well. After the fact and looking back, misjudgment about the nonobviousness

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228. *Id.* at 627-28.

229. *Id.* (citing *Denny v. Barber*, 576 F.2d 465, 470 (2d Cir. 1978) (Friendly, J.)).

230. *Beck v. Mfrs. Hanover Trust Co.*, 820 F.2d 46 (2d Cir. 1987).

231. Weiss, *supra* note 190, at 695.

232. See *Cain v. Rijken*, 717 P.2d 140 (Or. 1986).

of any invention at the time of its invention, a requirement of patentability,<sup>233</sup> is all too easy to make. "Since hindsight is often difficult to avoid in determining obviousness of inventions, it is frequently helpful to inquire into the problem in the art to which the invention was directed as a guide to what those skilled in the art would have considered obvious."<sup>234</sup>

The Supreme Court has looked to surrounding circumstances, such as commercial success, a long-felt but unsatisfied need, and failure of others to discover a solution which "might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be protected."<sup>235</sup> "The difficulties [in determining nonobviousness] are comparable to those encountered by the court in such frames of reference as negligence and scienter, and should be amenable to a case-by-case development."<sup>236</sup> The solution here is to articulate factual surrogates for nonobviousness that have specific relevance on the issue but are not susceptible to bias- and heuristic-induced errors. Commercial success, a long-felt but unmet need, and failure of others to solve the problem at the time of the invention collectively support the inference of nonobviousness at the time of the invention. Otherwise, the market would have responded and fulfilled the need.

In this area as well, a narrowly tailored judicial solution to a factual determination susceptible to bias-induced errors has been developed, analogous to approaches in the securities fraud and tort cases.

## F. Valuation Cases in Mergers and Acquisitions

A series of Delaware Chancery Court cases deal expressly with the potential effects of biases and heuristics where the issue is corporate valuations in mergers and acquisitions.<sup>237</sup> Judges in nonjury trials,<sup>238</sup> after the fact, must determine the fair market value of corporate assets at the time of a merger or acquisition. Valuation must be determined by looking back at the value of the assets at the time of the agreement. Experts typically offer opinions based on various valuation models.<sup>239</sup> The position of the Chancery Court is that management projections made contemporaneously with the merger are the

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233. *Graham v. John Deere Co.* 383 U.S. 1 (1966).

234. *Ellicott Mach. Corp. v. United States*, 405 F.2d 1385, 1390 (Ct. Cl. 1969).

235. *Graham*, 383 U.S. at 17–18.

236. *Id.* at 18.

237. *Doft & Co. v. Travelocity.com Inc.*, No. Civ.A. 19734, 2004 WL 1152338 (Del. Ch. May 21, 2004); *Cede & Co. v. JRC Acquisitions Corp.*, No. Civ.A. 18648-NC, 2004 WL 286963 (Del. Ch. Feb. 10, 2004); *Agranoff v. Miller*, 791 A.2d 880 (Del. Ch. 2001).

238. Behavioral studies indicate judges are subject to the effect of biases as well as jurors. See Guthrie et al., *supra* note 6, at 803.

239. *Cede*, 2004 WL 286963, at \*2; see also *Gilbert v. MPM Enters., Inc.*, 709 A.2d 663, 669 (Del. Ch. 1997).

most reliable indicator of value.<sup>240</sup> Experts often attempt to deviate from such contemporaneous projections using after the fact assumptions. The Chancery Court has indicated considerable skepticism about such “litigation-driven” forecasts.<sup>241</sup> “Contemporaneous pre-merger management projections are particularly useful . . . because management projections, by definition, are not tainted by post-merger hindsight.”<sup>242</sup> In contrast, post-hoc litigation-driven forecasts have an “untenably high”<sup>243</sup> probability of containing “hindsight bias and other cognitive biases.”<sup>244</sup> On this issue, “this Court . . . holds a healthy skepticism of post-merger adjustment to management projections . . . . Expert valuations that completely disregard contemporaneous management projections are sometimes completely discounted.”<sup>245</sup>

This court of special jurisdiction has clearly identified the particular problems of cognitive biases as a recurring issue and has fashioned a remedy where the problem is most likely to occur. It has laid down a bright-line test to avoid the problems in valuation cases. Evidence with the potential of injecting bias even into decisions by judges is viewed with an “appropriately high level of skepticism”<sup>246</sup> or is given it no weight.<sup>247</sup> In effect, the Delaware Chancery Court has fashioned a rigorous-scrutiny standard when considering evidence on an issue where the effect of various biases may come into play.

### **G. A Proposal for Dealing with Errors Caused by Biases and Heuristics in Torts Litigation**

These groups of cases establish principles useful in addressing the problem of biases and heuristics in tort litigation. The proposal is as follows:

1. The types of cases most likely to be affected by biases and heuristics can be broadly identified in advance. Most likely to be affected are cases with facts suggesting small to moderate risks, relatively serious harm, absence of contributing fault by the plaintiff, no violation of statute or custom, and the availability of alternative safer conduct which does not appear to be prohibitively expensive.

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240. *Cede*, 2004 WL 286963, at \*2; see also *Gilbert*, 709 A.2d at 669.

241. *Doft*, 2004 WL 1152338, at \*6.

242. *Cede & Co. v. Technicolor, Inc.*, No. Civ.A. 7129, 2003 WL 23104613, at \*7 (Del. Ch. Dec. 31, 2003).

243. *Agranoff v. Miller*, 791 A.2d 880, 892 (Del. Ch. 2001).

244. *Id.*

245. *Cede*, 2004 WL 286963, at \*2.

246. *Doft*, 2004 WL 1152338, at \*7.

247. *Cede*, 2004 WL 286963, at \*2.

2. Where this fact pattern exists, both trial and appellate courts may employ a rigorous-scrutiny standard to test the sufficiency of evidence proffered on issues involving risk.
3. Rigorous scrutiny may require pleading with specificity facts relevant to risk instead of a general allegation of foreseeability of harm.<sup>248</sup>
4. Rigorous scrutiny may require review beyond the usual deference given to jury determination of fact and may require articulation of the inferences about risk raised by specific facts.<sup>249</sup>

This proposal avoids across-the-board reforms, which could cause as many problems as they resolve by neglecting the potentially offsetting operation of conflicting biases and by affecting cases where the effect of biases may be relatively insignificant.<sup>250</sup> It can be utilized on a case-by-case basis and only where necessary and appropriate. It places control of the bias problem with judges. It also employs techniques such as pleading with specificity and heightened scrutiny which have been used in other contexts and with which lawyers and judges are familiar. Where used, this proposal may require more rigorous discovery and development of proof of facts bearing on risk earlier in the litigation process. As a result, summary judgment may become a more widespread tool for screening cases when foreseeability of harm does not support tort liability.

This proposal may be used in conjunction with other procedural approaches which have been suggested as useful in dealing with errors from biases and heuristics. Research on a requirement for unanimous verdicts suggests that jurors are more deliberative about outcomes when unanimity is required, including deliberation about potential errors and proof burdens.<sup>251</sup> Bifurcated trials on the issues of liability and damage may also be useful. Delaying juror knowledge of the extent of plaintiffs harm may reduce the effect of outcome bias, even though it probably cannot be eliminated completely.<sup>252</sup> There are also techniques available to defense counsel during voir dire, presentation of evidence, and in closing arguments, that suggest that the effect of bias may be reduced by defense counsel tactics.<sup>253</sup> This proposal has the virtue of operating more selectively than other reforms, even relatively modest ones such as elevation of the plaintiff's burden

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248. Cf. FED. R. CIV. P. 9(b); *DiLeo v. Ernst & Young*, 901 F.2d 624 (7th Cir. 1990).

249. Weiss, *supra* note 190, at 695.

250. See Jolls et al., *supra* note 10; Peters, *supra* note 15; Rachlinski, *supra* note 7. Peters's review is particularly useful.

251. See REID HASTIE ET AL., *INSIDE THE JURY* 173, 229 (1983).

252. David B. Wexler & Robert F. Schopp, *How and When to Correct for Juror Hindsight Bias in Mental Health Malpractice Litigation: Some Preliminary Observations*, 7 BEHAV. SCI. & L. 485, 493-97 (1989); see also NEIL VIDMAR, *MEDICAL MALPRACTICE AND THE AMERICAN JURY* 274 (1995).

253. Stallard & Worthington, *supra* note 158, at 675.

of proof.<sup>254</sup> While making it more difficult for the plaintiff to prevail where risk is relatively modest, an increased burden would also elevate plaintiff's burden on every issue in a negligence case, including causation and damages. As a result, defendants may obtain an unfair advantage in close cases. The rigorous-scrutiny proposal developed here, coupled with selective use of other techniques, offers a way to control potential errors attributable to biases and heuristics.

## VI. CONCLUSION

Biases and heuristics may affect jurors in actual litigation. In fact, the effects are most likely in cases of modest risk, severe injury, absence of fault of the plaintiff, no statutory or custom violations, and where alternative conduct is not prohibitively expensive. In such cases, juror bias may cause unjustified liability and unfair results. Some broad proposals to deal with the problem would radically change the torts system and could produce unintended consequences. A case-by-case solution is more appropriate. Cases where biases are most likely can be identified in advance. In these cases a rigorous-scrutiny standard on facts tending to prove risk, coupled with more rigorous pleading requirements, would permit judges to deal with bias issues. Remaining tort cases, where the actual effect of biases awaits further behavioral research, would not be affected. This approach offers a way to reduce the potential for erroneous, unfair judgments while preserving the fundamental norms and procedures of tort litigation.

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254. Jolls et al., *supra* note 10, at 1528.