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Daubert and Its Discontents

Ronald J. Allen[†] and Esfand Nafisi[‡]

I. INTRODUCTION*

The law suffers from serious informational vulnerability. The legal system has no independent body of knowledge from which to determine rights and obligations, but rather is dependent upon external sources—witnesses and exhibits—to present information from which the facts will be found.¹ Parties presenting these sources of evidence, and sometimes the sources themselves, may have mixed incentives to present truthfully, depending upon whether the truth yields a desirable result. The law's solution to this problem is to commit the task of fact finding to disinterested individuals, either jurors or judges, who are fully aware of the foibles of human existence. They are asked to process and rationally deliberate upon what the parties present in order to determine the most plausible explanation of the events being litigated.

The law largely permits parties to present whatever relevant evidence there is and explore the veracity of that evidence at trial. The operating assumption, and the deepest aspiration of the legal system, is that this process will facilitate the accurate resolution of disputes upon which the rights and

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* We, like many others, were both inspired and provoked by the work of the late Professor Margaret A. Berger. In the article that follows we acknowledge much of the wisdom of her views and attempt to demonstrate where and why, in some instances, we differ. We had hoped this article would spark a dialogue with her, which is one of the reasons we published it in her home journal.

¹ In fact, the matter is a bit more complicated, as most of the evidence is imported to a trial by whomever the decision maker is. *See generally* Ronald J. Allen, *Factual Ambiguity and a Theory of Evidence*, 88 NW. U. L. REV. 604-40 (1994); Ronald J. Allen & Alicia L. Carriquiry, *Factual Ambiguity and a Theory of Evidence Reconsidered: A Dialogue Between a Statistician and a Law Professor*, 31 ISR. L. REV. 464 (1997).

obligations of the parties depend. Without factually true findings, rights are meaningless.²

The process of litigation seems to work fairly well for the most part. The fact that very few cases reach the trial stage³ suggests that only highly contentious disputes need be resolved by a third-party fact finder. The reason it works well is largely because the fact finders—jurors or judges—are cognitively competent and properly motivated to find the facts accurately. Mistakes can be made, but the typical issue at trial is within the understanding of the decision makers. There are some cases, however, that pose a challenge to the deep aspiration of accurate dispute resolution. Some litigated controversies require access to organized bodies of knowledge that are not within the grasp of the intelligent layman, judge, or juror. Radiology, oncology, metallurgy, organic chemistry, and psychology are but a few examples. Since the development of the legal system, our society has changed from one of largely common knowledge, with only a few isolated bodies of specialized knowledge, to a society abounding in specialties and subspecialties. This increasing stratification of knowledge has caused informational vulnerability within the law. The law needs access to these specialized bodies of knowledge; indeed, it needs to know them—but it does not and realistically cannot.

This dilemma explains the law's struggle to domesticate expert evidence: if the operating assumption is that the law needs access to an organized body of knowledge that it cannot assimilate, then the solution must lie in some formal criteria that take the place of substantive knowledge. In other words, the law must have a mechanism for evaluating the admissibility of evidence that judges and juries do not know enough about to evaluate for themselves.

² *Tehan v. United States*, 382 U.S. 406, 416 (1966) (“The basic purpose of a trial is the determination of truth . . .”); see also Ronald J. Allen, *Explanationism All the Way Down*, 5 *EPISTEME* 320, 321-22 (2008) (“All rights and obligations are meaningless without accurate fact finding. Whether the issue is the age of adulthood, the right to an abortion, the various powers of government, or your right to possess, consume, and dispose of your clothes, it is the conditioning of rights and obligations on facts that gives them substance. This is the feature that most distinguishes liberal democracies and market economies from autocratic states and centralized economies, and the consequences are obvious.”).

³ In 2001, only 3% of all civil cases went to trial. Thomas H. Cohen & Steven K. Smith, *Civil Trial Cases and Verdicts in Large Counties, 2001*, BUREAU OF JUST. STAT. (Apr. 2004), <http://www.ojp.usdoj.gov/bjs/abstract/ctcvlc01.htm>. Plaintiffs won 55% of those cases. *Id.*

The *Frye*⁴ test is the paradigmatic example.⁵ Motivating the *Frye* test is the simple but compelling assumption that deference to knowledge can substitute for rational deliberation. Even though the fact finder may not possess the knowledge to decide the case, it can defer decision to someone who does, and simply embrace that person's conclusion as its own. Thus the provenance of the general acceptance test is the sentiment that "[s]cience is the only source of its own reliability."⁶ What better ground to defer to expertise—and what better guarantee of that expertise—than proof that there is unmistakably an organized body of knowledge, and that the evidence being offered is generally accepted within it?

The problems with the *Frye* test are serious and do not need rehashing here. In essence, they amount to a demonstration of the limits and fragility of deference.⁷ We would go further and point out that deference as a mode of decision making flies in the face of—indeed is a reproach to—the deep aspiration of the legal system to obtain rational results. If it is truly the case that the fact finder does not possess the information necessary to decide a case, then it is logical that it also lacks the information necessary to know to which of two competing opinions to defer. By embracing a deferential model of decision making, the *Frye* test guarantees irrational decision making.⁸

⁴ *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).

⁵ *Id.* at 1014 ("Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while the courts will go a long way in admitting experimental testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.")

⁶ Paul S. Milich, *Controversial Science in the Courtroom: Daubert and the Law's Hubris*, 43 EMORY L.J. 913, 923 (1998). Milich continues,

Anything less than complete deference to the weight of credible scientific opinion concerning the reliability of scientific evidence means going outside science—to the judge or jury . . . to resolve a scientific dispute. The resulting judgment cannot be scientific and therefore we cannot honestly speak of the evidence as having "scientific" reliability . . . [T]he "real" issue is whether good scientists consider the evidence reliable at this time.

Id. at 923-24.

⁷ See Ronald J. Allen & Joseph S. Miller, *The Common Law Theory of Experts: Deference or Education?*, 87 NW. U. L. REV. 1131, 1141-42 (1993).

⁸ Jurors are left to decide which expert to believe based on the experts' credentials and their credibility—that is, their oratorical performance.

The United States Supreme Court's 1993 *Daubert* decision was a commendable effort to reestablish the primacy of rationality in decision making.⁹ Rather than engage in a futile and misdirected effort at finding the expert opinion to defer to, the Supreme Court interpreted the Federal Rules of Evidence to require that the trial judge ensure that all evidence—not just lay evidence—be both relevant and reliable in order to be admissible.¹⁰ However, the critical point is that the Supreme Court's articulation of the trial court's duty requires that the trial court not defer to the experts, but instead reach a reasoned conclusion about the substance of the testimony. In short, the trial court must inform itself about the fields pertinent to the testimony. *Daubert* thus rejects the deference model at least so far as the question of admissibility is concerned.¹¹

Unfortunately, once past the admission threshold, nothing forbids the presentation of the evidence to the jury in the tired, old, radically-subversive-to-the-goals-of-the-legal-system, deferential fashion. The true problem with *Daubert*, in other words, is that it did not go far enough; although to be fair to the Court, it is constrained by the rules as written, which plainly permit a deferential presentation of the evidence.¹² Nonetheless, expert testimony could be treated just like any other testimony, which means that for it to be admitted, it must be understandable by the fact finder. To make an expert's testimony understandable requires not just the judge but also the jury to be educated about the relevant matters.¹³ If parties

⁹ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993).

¹⁰ *Id.* at 597 (“‘General acceptance’ is not a necessary precondition to the admissibility of scientific evidence under the Federal Rules of Evidence, but the Rules of Evidence—especially Rule 702—do assign to the trial judge the task of ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand. Pertinent evidence based on scientifically valid principles will satisfy those demands.”).

¹¹ However, there is some ground for concern about how the trial courts will go about their task. See generally Ronald J. Allen, *Expertise and the Daubert Decision*, 84 J. CRIM. L. & CRIMINOLOGY 1157 (1994).

¹² Rule 704 permits experts to opine on ultimate issues to be decided by the trier of fact so long as the opinion does not state that a defendant in a criminal case “did or did not have the mental state or condition constituting an element of a crime charged or of a defense thereto.” FED. R. EVID. 704(b).

¹³ Alvin Goldman uses two very helpful terms to distinguish statements in experts' discourse. Experts' discourse involves *esoteric* and *exoteric* statements. Esoteric statements fall within “the relevant sphere of expertise,” but have “truth-values [that] are inaccessible” to jurors—“in terms of personal knowledge,” at least. “Exoteric statements [fall] outside the domain of expertise” and jurors may understand them. Alvin I. Goldman, *Experts: Which Ones Should You Trust?*, 63 PHIL. & PHENOMENOLOGICAL RES. 94 (2001). Statements are exoteric or esoteric relative to an

were forced to educate the fact finder about the topics where expert opinions are now employed, the problem of expert evidence would largely disappear because the process of educating the fact finder would likely reveal weaknesses or falsities in the evidence. *Daubert* thus takes a hesitating step in the right direction, and those interested in rational decision-making should encourage extending its application to the trial itself.¹⁴ Cost is the primary objection to this, but it is remarkable that cost is raised as an objection to evidence that might actually be useful to a jury—evidence about oncology or statistics, for example—where by contrast we force juries to absorb vast amounts of information about the private affairs of parties that are purely useless to them.

Notwithstanding the critical epistemological limit of *Daubert* elaborated above, the case has been generally well received by the legal system (although not as well received as the Federal Rules of Evidence in general).¹⁵ In addition to its epistemological limitations, other criticisms of it have been raised, and the case has prompted at least one major proposal, supported by the Project on Scientific Knowledge and Public Policy (“SKAPP”) and a distinguished legal scholar, Professor Margaret A. Berger, to change tort law to avoid its effects.¹⁶

epistemic standpoint—that is, over time statements that were once esoteric may become exoteric. On the education model of expert testimony, the aim is to convert as much esoteric evidence as possible to exoteric information. *Id.*

¹⁴ The positive effect of *Daubert*, as well as a symptom of the cost of not extending it, is clear in the concern, which is likely true, that judges are making sufficiency determinations in *Daubert* hearings in the guise of admissibility determinations. This is a perfectly plausible thing to do if judges think that juries will not understand expert evidence. In that case, if the evidence is admissible but not sufficient for a verdict, sending it to a jury risks a difficult-to-overturn mistake. Screening the evidence for a sufficiently justified opinion to defer to, by contrast, advances the goals of the system in this weird setting of irrational decision making.

¹⁵ As of mid-2003, nine states had adopted the full *Daubert* trilogy, which includes *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999), and *General Electric Co. v. Joiner*, 522 U.S. 136 (1997); seven states had adopted *Daubert* itself but not the other parts of the trilogy; six states had adopted *Daubert* and *Kumho* (i.e., the *Daubert* standards apply to a wide range of expert testimony) but had not adopted *Joiner* (i.e., they have rejected the abuse of discretion standard for appellate review); five states had explicitly *not* adopted *Daubert* but have determined that the *Daubert* factors can be utilized (i.e., they have “endorsed” some of the *Daubert* principles); fifteen states continue to rely on *Frye*, with the remaining states having their own standards that are neither *Daubert* nor *Frye*. David E. Bernstein & Jeffrey D. Jackson, *The Daubert Trilogy in the States*, 44 JURIMETRICS J. 351, 351-66 (2004). Similarly, many states have closely modeled their rules of evidence after the Federal Rules of Evidence. For a list of states adopting the Federal Rules of Evidence in various forms, see 6 JACK B. WEINSTEIN & MARGARET A. BERGER, WEINSTEIN’S FEDERAL EVIDENCE (2d ed. 2009).

¹⁶ See, e.g., Margaret A. Berger, *What Has a Decade of Daubert Wrought?*, 95 AM. J. OF PUB. HEALTH S59, S65 (2005) (acknowledging the Project on Scientific

Collectively, these efforts raise important and timely questions, which we address in this article. Although we think the critics have highlighted critical issues and provided illuminating analysis, we ultimately conclude that, with one notable exception, they leave the important—and very difficult—questions having to do with expert testimony untouched. With respect to the notable exception, the policy prescription derived from it is, in our opinion, misguided. Nonetheless, their proposals help sharpen the intractable problems posed by *Daubert* and the role of expert testimony in the legal system.

In this paper, we address the various critiques relating to *Daubert* that have been influenced in one manner or another by Professor Berger. We begin Part II by addressing what is perhaps the central concern with *Daubert*—that judges are not well suited for the gatekeeper function that *Daubert* bestows upon them. These concerns have given rise to a number of efforts to either eliminate *Daubert* or substantially alter the judge's gatekeeper function. More particularly, Part II discusses scientific bias and its attendant evidentiary dangers, and examines one scholarly proposal for dealing with such bias. We argue that those concerns miscalculate the incentives to create biased science. In Part III, we evaluate indirect attacks on *Daubert* in the form of proposals for new liability rules that eliminate outright the causation requirement in toxic tort cases, and thus minimize or eliminate the need for expert testimony to support a plaintiff's case.

The critiques and responses to *Daubert* we address are individually quite creative. But they are analogous to the previous efforts to domesticate the problem of expert testimony, of which *Daubert* itself is an example. Rather than dealing directly with the epistemological problem expert testimony poses, each of these efforts responds with a new set of substantive rules of one sort or another, whether focusing on the criteria of admissibility or modifying substantive tort law to achieve a purportedly better outcome in the shadow of the difficulties of expert testimony. Like previous efforts to deal with expert testimony, these proposals will have undesirable consequences—often hurting those the proposals are intended to help. To us this confirms that the standard of admissibility

Knowledge and Public Policy for its support). Berger is also heavily cited in at least one SKAPP manuscript. See PROJECT ON SCIENTIFIC KNOWLEDGE AND PUB. POLICY, *DAUBERT: THE MOST INFLUENTIAL SUPREME COURT RULING YOU'VE NEVER HEARD OF* (2003) [hereinafter SKAPP, *DAUBERT*].

for expert testimony should turn on epistemological concerns rather than on political or moral concerns. By ignoring the epistemological concerns, these proposals may redistribute winners and losers in litigation, but will not advance the overall objectives of the legal system.

Finally, in Part IV, we briefly discuss SKAPP's study of *Daubert's* effects in the Delaware courts. That study, though not conclusive, suggests that *Daubert* has not led to the nightmare scenarios that many imagined. Indeed, its impact has been minimal. After evaluating the proposals for new liability rules and discussing the empirical indication that *Daubert* may not have the negative effects that scholars imagine, we conclude that the solution to the problem of expert testimony lies in making it conform to the normal criteria of admissible evidence: that it is capable of being understood by the fact finder.

II. CRITIQUES OF *DAUBERT*

A. *The Foundational Fear: Biased Judges and Biased Science*

It is obvious and somewhat troubling that attorneys will select the most credible expert whose opinions about the litigated matter align with the litigants' objectives. It is less obvious but perhaps even more troubling that, as Professor Bernstein discusses in a recent article,¹⁷ experts will bend, consciously and unconsciously, to the objectives of the litigants. Conscious bias arises when experts adapt their opinions to the needs of the attorney who hires them.¹⁸ Unconscious bias is the "natural bias to do something serviceable for those who employ you and adequately remunerate you."¹⁹ Selection bias means

¹⁷ David Bernstein, *Expert Witnesses, Adversarial Bias, and the (Partial) Failure of the Daubert Revolution*, 93 IOWA L. REV. 451, 454-55 (2008).

¹⁸ *Id.* Bernstein argues that "hired gun" expert witnesses are widely recognized as a serious problem. According to Judge Jack Weinstein, "An expert can be found to testify to the truth of almost any factual theory, no matter how frivolous . . ." Jack B. Weinstein, *Improving Expert Testimony*, 20 U. RICH. L. REV. 473, 482 (1986). Hired guns have, for example, been a major problem in asbestosis and silica litigation. *See, e.g., In re Silica Prods. Liab. Litig.*, 398 F. Supp. 2d 563, 635 (S.D. Tex. 2005) (detailing how experts skewed their testimony to benefit plaintiffs); *see also* David E. Bernstein, *Keeping Junk Science Out of Asbestos Litigation*, 31 PEPP. L. REV. 11, 12 (2003) (discussing plaintiffs' experts who find evidence of injury from asbestos exposure in almost every individual presented to them, even when the exposure was extremely limited).

¹⁹ Bernstein, *supra* note 17, at 455-56 (quoting *Abinger v. Ashton*, 17 L.R. Eq. 358, 374 (Ch. 1873)).

that experts selected for trial will be chosen to “represent the perspective the attorney wants to present at trial.”²⁰

Given these potential biases, Judge Alex Kozinski may have gotten it right in the remand of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,²¹ when he warned that science done for the purpose of litigation is more prone to bias.²² Judge Kozinski expressed concerns that scientists retained for trial would deviate from the norm of disinterested inquiry. This disinterested inquiry is what makes scientific evidence so valuable in courtrooms: “[T]estimony proffered by an expert . . . based directly on legitimate, preexisting research unrelated to the litigation provides the most persuasive basis for concluding that the opinions [a scientist] expresses were ‘derived by the scientific method.’”²³ The concern, expressed in a roundabout way, is that scientists conducting litigation-driven science are more likely to succumb to biases, leading them to commit fraud or to fudge the data. In other words, “when an expert prepares reports and findings before being hired as a witness, that record will limit the degree to which he can tailor his testimony to serve a party’s interests.”²⁴ Judge Kozinski’s central concern, to borrow a helpful dichotomy from Professor Susan Haack, is that scientists retained for litigation will focus on advocacy rather than disinterested inquiry.²⁵

²⁰ *Id.* at 456. Given the deference model of expert testimony encouraged by *Daubert* and judges, it is quite likely that selection bias means that attorneys shop for experts who will not only testify favorably, but will do so with a convincing demeanor. *See id.* at 456-57. The epistemic opacity of expert testimony on the deference model means that jurors frequently must judge expert witnesses not on their substantive testimony, but on their demeanor and credentials. *See, e.g.,* Goldman, *supra* note 13, at 96 n.13, 97. One of the sources of evidence that non-experts may draw on to judge between competing experts is the formal credentials earned by the experts. *See* Scott Brewer, *Scientific Expert Testimony and Intellectual Due Process*, 107 YALE L.J. 1535, 1538 (1998). Of the array of reasoning mechanisms available to non-experts to choose among expert witnesses, the two most likely to be relied on are (1) “the expert’s demeanor, either as he appears before the non-expert in person or as indicated by . . . the tone and authoritative style of written submissions to the court,” and (2) the expert’s credentials. *Id.* at 1616.

²¹ *Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311 (9th Cir. 1995).

²² *Id.* at 1317.

²³ *Id.*

²⁴ *Id.*

²⁵ Susan Haack, *What’s Wrong with Litigation-Driven Science? An Essay in Legal Epistemology*, 38 SETON HALL L. REV. 1053, 1070 (2008) (“Inquiry, investigation—the professional business of scientists, historians, legal and literary scholars, investigative journalists, and so forth—is a matter of trying to discover the answer to some question: who committed the crime, what caused the cancer or made it advance so quickly, where did the money go, etc.? Advocacy, by contrast—the professional business of lobbyists, attorneys, and so on—is a matter of trying to

Although much has been made of Kozinski's concerns about litigation-driven science, our own brief and informal survey revealed that judges who invoke this concern do so only when scientific evidence fails to meet most or all of the other *Daubert* factors.²⁶ Indeed, it appears that judges only invoke the litigation-driven nature of scientific work where *none* of the *Daubert* factors is satisfied—that is, the expert's study has not been peer reviewed, has no error rate, has no general acceptance, and so forth—and then the judges only invoke it in a boilerplate fashion.²⁷ In effect, Judge Kozinski's additional *Daubert* factor is used as something of a pejorative term to describe evidence that has met none of the *Daubert* factors. And we think this is perfectly appropriate.

1. Proposed Liberalized Standards

In a recent SKAPP-sponsored article, Leslie I. Boden and David Ozonoff argue convincingly that there is good reason to be concerned about litigation-driven science conducted by defendants prior to—and in expectation of—a lawsuit.²⁸ This is because certain corporations always act with an eye to

persuade an audience of the truth of some proposition: that my client didn't do it, that it was work-related PCB exposure that promoted the tumor, that the stolen money has been hidden in a numbered account in the Cayman Islands, etc.”)

²⁶ These cases are anecdotally interesting, as the list is nowhere near comprehensive. In *Cabrera v. Cordis Corp.*, 945 F. Supp. 209, 214 (D. Nev. 1996), the court mentions the litigation-driven nature of a doctor's work, but then bars the evidence based on the damning fact that the doctor never examined the plaintiff's brain shunt, had no literature to support his claims, and was arguing claims that are neither supported in the scientific community nor subjected to peer review. In *Awad v. Merck & Co.*, 99 F. Supp. 2d 301, 304, 306 (S.D.N.Y. 1999), the court ultimately permitted testimony despite the fact that “[the expert's] opinion rests primarily on articles written by others, which he analyzed only because of this case [T]he theory on which he bases his conclusions—that the RA 27/3 vaccine causes chronic joint problems—has been subjected to peer review, and its degree of acceptance in the scientific community can be examined.” In *Cerna v. South Florida Bioavailability Clinic*, 815 So. 2d 652, 654-56 (Fla. Dist. Ct. App. 2002), the court noted that the expert's testimony was prepared specifically for trial, but rejected it after a lengthy analysis because “his methodologies are not generally accepted in the scientific community.” In *Johnson v. Manitowoc Boom Trucks, Inc.*, 484 F.3d 426, 433, 435-36 (6th Cir. 2007), the court affirmed summary judgment for the defendant because the plaintiff's expert had not tested his hypothesis (which itself did not enjoy general acceptance during the relevant time period) and because the “quintessential expert for hire” did not show “some objective proof—such as the expert's extensive familiarity with the particular type of machine in question . . . —supporting the reliability of the expert's testimony.”

²⁷ It bears mentioning that such evidence would likely be inadmissible even absent Judge Kozinski's *Daubert* factor.

²⁸ Leslie I. Boden & David Ozonoff, *Litigation-Generated Science: Why Should We Care?*, 116 ENVTL. HEALTH PERSP. 117 (2008).

litigation.²⁹ Accordingly, Boden and Ozonoff argue, there is no reason to think that litigation-generated science (“LGS1”) is any less reliable than science generated in expectation of litigation (“LGS2”).³⁰ Thus, Kozinski’s concern about bias was correct, but it did not go far enough. Boden and Ozonoff suggest liberalizing the standards for the admissibility of scientific evidence, relying on cross-examination to winnow out the unreliable science.³¹

There are, to be sure, powerful incentives in place for biased science.³² LGS1, which plaintiffs frequently rely upon to prove causation in toxic tort cases, potentially creates in the scientist “a financial conflict of interest.”³³ The concern is that the conflict of interest “will lead the researcher to conduct the study or interpret the results in a manner designed to suit that party,”³⁴ but there are equally strong financial and social incentives for scientists to fudge LGS2.³⁵ The ability to influence scientific experiments allows corporations to use biased LGS2 to satisfy the safety concerns of purchasers, and it proves useful if the product’s safety should be litigated.³⁶ Boden and Ozonoff assert that a cluster of studies show “a covert litigation-driven relationship between LGS2 and the general literature that is currently less likely to be subjected to the same additional scrutiny routinely applied to science that is

²⁹ *Id.* at 118.

³⁰ *Id.*

³¹ *Id.* at 119.

³² The pressure on corporate scientists is immense:

Approval of new drugs can literally add billions of dollars to annual profits. To obtain approval, companies must demonstrate safety and efficacy. Failure to show either can lead the U.S. Food and Drug Administration (FDA) to delay or ultimately deny approval. Thus, the companies funding drug trials obviously need and want results that support their applications. This research is begun well in advance of any possible liability litigation and not explicitly to support a position in a lawsuit. But such research purporting to demonstrate safety could be used later by companies defending themselves Scientists and companies are aware of this aspect of safety research conducted before a product hits the market.

Id. at 118.

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.* One study, for instance, shows that “safety and efficacy studies funded by pharmaceutical companies” tend to exhibit “conclusions more favorable to the companies funding them.” *Id.* Another study shows that “biomedical industry relationships are associated with a delay in reporting research results.” *Id.* (citation omitted). The authors argue that such delays violate scientific norms when they are caused by trade secret concerns. *Id.*

³⁶ *Id.*

explicitly case specific.”³⁷ Because plaintiffs do not have the same ability to generate LGS2 as potential defendants, the authors argue that judges, like Kozinski, who treat LGS1 as much more suspect than LGS2, effectively “place[[their] thumb[s] on the scales of justice.”³⁸

Unlike some of the other critiques of *Daubert* that endorse eliminating judges’ gatekeeper function outright, Boden and Ozonoff endorse substantially lowering the gate of admissibility. Specifically, they endorse “expanded discovery and greater latitude for cross-examination by the parties. . . . [p]articularly . . . where company motives that appear unrelated to the case at hand may be highly pertinent.”³⁹ They buttress their arguments for expanded discovery by arguing that peer review is overrated and that cross-examination in many cases will do at least as good a job as peer review of winnowing out bad science.⁴⁰

Boden and Ozonoff disagree with recent work that has taken a more hopeful view of peer review’s potential to winnow scientific wheat from chaff.⁴¹ Peer review, they argue, is not the remedy for Judge Kozinski’s concerns, and even if it were, peer review may take too long to meet the demands of litigation.⁴² Moreover, the questions central to a legal case may be too narrow for peer-review publication, and the methodologies utilized in LGS1 may be too cutting edge to satisfy the “inside the box” thinking that peer review rewards.⁴³ *Daubert*, the

³⁷ *Id.* at 119.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.* at 119-20. They cite research showing that peer reviewers frequently disagree about whether to support papers. *Id.* at 119 (citing Peter M. Rothwell & Christopher N. Martyn, *Reproducibility of Peer Review in Clinical Neuroscience: Is Agreement Between Reviewers any Greater than Would Be Expected by Chance Alone?*, 123 *BRAIN* 1964 (2000)). They also show evidence that “poorly designed and analyzed studies can easily receive favorable reviews.” *Id.* (citing Gregory D. Curfman, Stephen Morrissey & Jeffrey M. Drazen, *Expression of Concern Reaffirmed*, 354 *NEW ENGL. J. MED.* 1193 (2006); Richard Smith, *Peer Review: A Flawed Process at the Heart of Science and Journals*, 99 *J. ROYAL SOC’Y MED.* 178 (2006)). Additionally, they argue that published articles receive “only the most cursory peer review.” *Id.* at 119-20 (citing S. Jasanoff, *Representation and Re-representation in Litigation Science*, 116 *ENVTL. HEALTH PERSP.* 123 (2008)). “[S]cientists opt for study designs, do analyses, and interpret results in ways that bias conclusions one way or another Peer review . . . is unlikely to detect any but the most blatant fraud or scientific misconduct.” *Id.* at 120.

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.* As examples of “outside of the box” thinking, the authors cite articles in economics that had great difficulty in getting published but that eventually were awarded the Nobel Prize. See, e.g., Joshua S. Gans & George B. Shepherd, *How Are the Mighty Fallen: Rejected Classic Articles by Leading Economists*, 8 *J. ECON. PERSP.* 165 (1994).

authors point out, recognizes these problems: “[I]n some instances, well-grounded but innovative theories will not have been published Some propositions, moreover, are too particular, too new or of too limited interest to be published.”⁴⁴ The protections of peer review, they argue, can “fall apart if lawyers and litigation experts invade the realm of scientific research and manipulate the medical and scientific publication system to achieve their litigation ends.”⁴⁵

Boden and Ozonoff believe that jurors should get to decide what kind of science is unreliable by letting all evidence in and letting the process of cross-examination reveal which science is unworthy. Cross-examination, in the authors’ view, is more stringent than almost all peer review processes because lawyers, unlike peer reviewers, are properly incentivized to get to the truth; therefore, cross-examination may actually be more useful than peer review for uncovering flawed or biased research.⁴⁶ Lawyers preparing for cross-examination are typically aided by consultants and go over the studies in exacting detail, which could potentially bring to light any flaws in a particular study. Cross-examination’s adversarial nature thus offers the potential of revealing errors that peer review would not detect.⁴⁷ They conclude that there are no strong reasons to treat the conflicts of interest that LGS1 creates any differently from the conflicts of interest that LGS2 creates: “Drawing a bright line at the moment litigation begins may be

⁴⁴ Boden & Ozonoff, *supra* note 28, at 120 (quoting *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 593 (1993)).

⁴⁵ *Id.* at 120 (quoting William L. Anderson, Barry M. Parsons & Drummond Rennie, *Daubert’s Backwash: Litigation-Generated Science*, 34 U. MICH. J.L. REFORM 619 (2001)).

⁴⁶ *Id.* Boden and Ozonoff suggest a greater degree of disclosure by scientists as required by the manuscript requirements of the International Committee for Medical Journal Editors:

Authors submitting articles to [medical] journals must disclose all relationships that might involve the appearance of a conflict of interest, and they must disclose study funding Articles submitted to the journals should be accompanied by signed statements by authors stating that they control the data, analysis, the writing of reports, and submission for publication. Authors must describe any involvement of sponsors in any of these aspects of the study.

Id. at 121. It seems like these questions would be answered right away on cross-examination. However, disclosure is not a panacea, the authors argue, as “[s]ponsors with control over publication can decide which studies to submit, possibly choosing preferentially to submit favorable studies and thus biasing the overall literature on safety or efficacy.” *Id.* (citations omitted).

⁴⁷ *Id.* at 120.

convenient for the court, but it does not serve the interests of justice.”⁴⁸

Boden and Ozonoff’s prescription to lower standards of admissibility for scientific evidence is premised on the conventional notion that errors at trial should be distributed fairly, as well as the assumption that a fair distribution of errors is not possible if defendants are allowed to introduce more biased science than plaintiffs. The authors propose to solve this potential inequality by allowing judges to admit more of plaintiffs’ error-inducing biased science into the courtroom, thus ensuring a parity of errors.

We have elaborated on Boden and Ozonoff’s arguments about pre-litigation science because we think there is a critical element of truth in the assertion that LGS2 is susceptible to the same sorts of conflicts of interest and biases as LGS1. Thus, it is by no means impossible that the Kozinski position biases the trial process unfairly against plaintiffs, and that as a result, errors at trial may be inappropriately skewed against plaintiffs. Curiously, however, the authors neglect the point that defendants also commission LGS1 and that plaintiffs also commission LGS2.⁴⁹ Boden and Ozonoff’s failure to account for these realities, particularly the latter, diminishes the force of their arguments. Recent events demonstrate that our concerns about Boden and Ozonoff’s oversights are more than merely hypothetical.

2. The Problem with Relaxed Standards: The MMR Vaccine Example

The link between the measles, mumps, and rubella (“MMR”) vaccination and autism has been a major source of concern for years now. The concern was that trace amounts of mercury in childhood vaccines were causing autism in very young children. Consequently, many children were not given life-saving vaccines due to parental omission bias,⁵⁰ and the

⁴⁸ *Id.* at 121.

⁴⁹ Indeed, the point is neglected that massive errors against defendants are also made by the system. Interestingly, SKAPP’s very existence is a consequence of one of those errors. SKAPP is funded by the *Silicone Implants Products Liability Litigation* which was, by most lights, wrongly decided for the plaintiffs. *See, e.g.,* David E. Bernstein, *The Breast Implant Fiasco*, 87 CAL. L. REV. 457 (1999) (reviewing MARCIA ANGELL, *SCIENCE ON TRIAL: THE CLASH OF MEDICAL EVIDENCE AND THE LAW IN THE BREAST IMPLANT CASE* (1996)).

⁵⁰ “[O]mission bias is manifested when a more harmful act of omission is preferred to a less harmful act of commission.” Hal Arkes, *The Psychology of Patient*

“failure to vaccinate . . . caused many preventable deaths and avoidable hospitalizations from measles, whooping cough, diphtheria, flu, hepatitis and meningitis.”⁵¹ In a pattern evincing the Benedictin scare leading to the *Daubert* lawsuit,⁵² public concern about the autism link led to the vaccine thimerosal being pulled off the market, and the initiation of more than 4800 lawsuits.⁵³ Despite reports by pediatricians that vaccines did not cause autism, and support from American pediatricians for the World Health Organization’s decision to continue vaccinating children with thimerosal, the scare campaign carried out in the media was thoroughgoing and, evidently, good for ratings, as there was even a fictional television program about a law suit against a pharmaceutical manufacturer that created a substance similar to thimerosal.⁵⁴

Much of the vaccine scare can be traced back to a 1998 study by the English doctor Andrew Wakefield. In his study, published in the prestigious *Lancet* medical journal, Dr. Wakefield reported that eight out of twelve families in his clinic who had given the measles, mumps, and rubella vaccine to their children began to see signs of autism within just days of their children receiving the jab.⁵⁵ Dr. Wakefield’s report led to a staggering decrease in vaccinations in England, with rates of inoculation falling from 92% to below 80%.⁵⁶ At the time of this writing, there are 1348 cases of measles in England and Wales, compared to 56 in 1998.⁵⁷ Two children have died of the

Decision Making: The Omission Bias, in INTERACTIVE TEXTBOOK ON CLINICAL SYMPTOM RESEARCH, http://symptomresearch.nih.gov/chapter_4/sec2/chas2pg1.htm (last visited Oct. 28, 2010).

⁵¹ *Caplan on Vaccines and Autism*, THE EDITORS’ BLOG, AM. J. OF BIOETHICS (Feb. 6, 2007), <http://blog.bioethics.net/2007/02/caplan-on-vaccines-and-autism.html>.

⁵² *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993).

⁵³ Ed Silverman, *Long Shot? Autism and Vaccines Trial Begins*, PHARMALOT (May 12, 2008, 9:11 AM), <http://www.pharmalot.com/2008/05/long-shot-autism-and-vaccines-trial-begins>.

⁵⁴ Molly McDonough, *Pediatric Group Releases Mercury-Autism Study, Condemns New Lawyer Drama*, ABA JOURNAL (Jan. 30, 2008, 7:15 PM), http://www.abajournal.com/news/article/pediatric_group_releases_mercury_autism_study_condemns_new_lawyer_drama/.

⁵⁵ Andrew Deer, *MMR Doctor Andrew Wakefield Fixed Data on Autism*, SUNDAY TIMES (Feb. 8, 2009), http://www.timesonline.co.uk/tol/life_and_style/health/article5683671.ece.

⁵⁶ *Id.*

⁵⁷ *Id.*

disease.⁵⁸ It has since become clear that Wakefield drastically misreported the results of his study.⁵⁹

The patients who were “enrolled” in his study were actually not just random children who appeared on the doorstep of Royal Free Hospital but were clients of an attorney working against a vaccine company alleging that vaccines caused autism. Most already know that the children already had autism when they came into the study, but what was news to me at least was that Wakefield had received 55,000 pounds from something called Britain’s Legal Aid Board in the previous year (big money if you are a graduate student) which supported research related to lawsuits.⁶⁰

Tellingly, the *Lancet* recently retracted Dr. Wakefield’s article.⁶¹ The General Medical Council ruled that Dr. Wakefield evinced a “callous disregard” for children’s welfare and abused his station.⁶²

Boden and Ozonoff’s concerns about incentives to fudge science are well-founded and worthy of consideration. But their proposal for relaxed standards of admissibility does not account for the possibility that biased science is conducted on behalf of potential plaintiffs, as the Wakefield example demonstrates. If both defendants and plaintiffs have powerful incentives to manipulate scientific research, relaxing the standards of admissibility will not level the playing field, as Boden and Ozonoff hope; it will only increase the risk of errors.

Given the attendant dangers of errors in juridical decision making based on false or misleading scientific

⁵⁸ *Id.*

⁵⁹ The Sunday Times investigation in coordination with the General Medical Council (GMC):

reveal[ed] that: In most of the 12 cases, the children’s ailments as described in *The Lancet* were different from their hospital and GP records. Although the research paper claimed that problems came on within days of the jab, in only one case did medical records suggest this was true, and in many of the cases medical concerns had been raised before the children were vaccinated. Hospital pathologists, looking for inflammatory bowel disease, reported in the majority of cases that the gut was normal. This was then reviewed and the *Lancet* paper showed them as abnormal.

Id.

⁶⁰ Summer Johnson, *The Wakefield Scandal Thickens...*, BIOETHICS BLOG (Feb. 23, 2009), <http://blog.bioethics.net/2009/02/the-wakefield-scandal-thickens>.

⁶¹ Madison Park, *Medical Journal Retracts Study Linking Autism to Vaccine*, CNN HEALTH (Feb. 2, 2010, 1:29 PM), <http://www.cnn.com/2010/HEALTH/02/02/lancet.retraction.autism/index.html?hpt=T2>.

⁶² Thomas Moore, *MMR Row Doctor Hits Back at Conduct Claims*, SKY NEWS ONLINE (Jan. 28, 2010, 5:04 PM), <http://news.sky.com/skynews/> (search “MMR Row Doctor Hits Back at Conduct Claims”; then follow hyperlink to article).

evidence, and the capacity of both sides to litigation to produce it, Boden and Ozonoff's suggestion for even laxer standards of admissibility is misguided. Ensuring a parity of errors, as the authors suggest, might provide fairness, but will certainly come at the cost of accuracy in fact finding. The suggestion is both unacceptable and unnecessary. It is unacceptable given the Supreme Court's supposition that "[t]he basic purpose of a trial is the determination of truth."⁶³ It is unnecessary because the solution to the problems of endemic bias in LGS1 and LGS2 is not to sacrifice accuracy to attain fairness, but to attain fairness by increasing accuracy. Potentially error-inducing variables in all scientific enterprises should be examined fully by the trial judges, and research efforts that do not measure up should be excluded whenever they are brought to light. This is not a radical idea at all—it is what *Daubert* demands.

The genius of *Daubert* is that it commands that the trial judge take all possibilities of bias into account. Of course, if research generated in litigation turns out to be more systematically biased than other forms, then it should follow, and should follow uncontroversially, that such research should also be more frequently excluded. Boden and Ozonoff have provided an admirable service by highlighting the potential biasing pressures in LGS2, but what follows from this is that *all* scientific expert testimony should run the same gamut of admissibility, not that errors at trial should be proliferated out of a misguided sense of fairness.⁶⁴

B. Bias in Action: The Unfair and Unconstitutional Application of Daubert

SKAPP and those associated with it criticize *Daubert* from a number of other angles and call for a variety of reforms. SKAPP argues that *Daubert* may violate the Seventh Amendment, or at least should be construed to do so, and that judges routinely misinterpret scientific evidence in pretrial *Daubert* hearings in ways that are consistently harmful to

⁶³ *Tehan v. United States*, 382 U.S. 406, 416 (1966).

⁶⁴ In a system without transaction costs, a policy of letting all evidence in that the parties wished to adduce might be sensible. Patient exploration of "junk" produced by the other side would expose it for what it is. Things change in a system with transaction costs, especially, as in the United States, where the parties do not bear the true cost of their activities. In that system, an exclusionary approach may achieve better overall outcomes.

plaintiffs in toxic tort cases.⁶⁵ An important example is the exclusion of “mosaic evidence,” which entails relying on shards of otherwise inadmissible evidence in order to create a picture of causation.⁶⁶

SKAPP grounds its arguments against *Daubert* in the Seventh Amendment, which it interprets as imparting a right for a plaintiff to tell his or her story in court, regardless of the evidentiary merit.⁶⁷ According to this view, *Daubert* hearings raise serious constitutional issues by denying plaintiffs that right.⁶⁸ According to Professor Berger, the Seventh Amendment, which assures the right to a jury trial,⁶⁹ “could be read as not just entitling a litigant to a jury verdict, but more broadly to a jury trial when experts in different disciplines disagree.”⁷⁰ Professor Berger argues that point:

Even if a plaintiff's verdict were ultimately set aside as not based on sufficient evidence of causation, a public trial means the plaintiff gets to tell his or her story and it also means that wrongdoing on the part of defendants can be exposed. Even when causation cannot be proved, that does not necessarily mean that defendants did not act in a reprehensible manner in exposing the public to risk. For example, problems often develop with drugs long after they have been approved for market. Jury trials could reveal whether corporations knowingly kept drugs or products on the market after it became clear that problems existed. If such a case ends with a *Daubert* hearing, none of this will ever become public.⁷¹

The difficulty here is obvious. The Seventh Amendment has never been construed as containing the right to use trials as a form of investigative reporting independent of the validity of the underlying legal claims.⁷² Professor Berger does not seriously argue to the contrary. Rather, she argues that it should be so construed, but in doing so neglects the proposal's problems of costs and increased chance of erroneous (and

⁶⁵ SKAPP, *DAUBERT*, *supra* note 16, at 7-8.

⁶⁶ *See id.*

⁶⁷ *Id.* at 8.

⁶⁸ *Id.*

⁶⁹ U.S. CONST. amend. VII.

⁷⁰ SKAPP, *DAUBERT*, *supra* note 16, at 8 (citing Interview by SKAPP with Margaret Berger, Professor of Law, Brooklyn Law School (May 15-June 6, 2003)).

⁷¹ *Id.*

⁷² As an initial matter, the Seventh Amendment has not been held “incorporated” in the Fourteenth Amendment's Due Process Clause. Thus, the Constitution does not assure a right to jury trial in state court proceedings. *Minneapolis & St. Louis R.R. Co. v. Bombolis*, 241 U.S. 211 (1916); *Walker v. Sauvinet*, 92 U.S. 90 (1875).

difficult to rectify) verdicts. Moreover, it is entirely unclear what benefit might result. If “corporations”—it is unclear to us why corporations are the focus, but we adopt her focus for the discussion herein—behaved “reprehensibl[y]” and “knowingly kept drugs and products on the market after it became clear that problems existed,” it is difficult to imagine why there would not be a plethora of deserving plaintiffs willing to let the plaintiffs’ bar bring a cause of action.⁷³

A more troubling concern that SKAPP raises has to do with the frequency with which judges bar “mosaic evidence.” Mosaic evidence is, as the name suggests, a composite evidentiary image made up of shards of evidence “from sources that are frequently excluded when used to prove causation—such as anecdotal evidence, animal studies, chemical structure analysis, in vitro studies, and preliminary epidemiological studies.”⁷⁴ SKAPP argues that the cumulative impact of mosaic evidence is ignored by judges who weigh each piece of evidence individually.⁷⁵ SKAPP argues that by barring mosaic evidence, judges bar evidence that is commonly relied on in the scientific community.

But the criticism misses the significance of the differing institutional context. In the scientific community, mosaic evidence is used as a brake against introducing potentially harmful products into the public, whereas in the legal context it is used as an engine of liability. So, for instance, it may take only the slightest hint that something is harmful for it not to be introduced into the public, but liability for products that have been approved by the FDA and undergone thorough testing should require more than a slight hint of risk.

The Bendectin case is a good example. As Professor Berger and products liability scholar Aaron Twerski tell it, there were many such hints of risk at the time of litigation, but it is now generally accepted that those slight hints were statistical aberrations or the results of poorly conducted studies.⁷⁶ Bendectin is still prescribed in many places in the world, including Europe, is endorsed by the World Health Organization as safe, and has been vindicated by meta-

⁷³ SKAPP, *DAUBERT*, *supra* note 16, at 8.

⁷⁴ David E. Bernstein, *Learning the Wrong Lessons from “An American Tragedy”: A Critique of the Berger-Twerski Informed Choice Proposal*, 104 MICH. L. REV. 1961, 1971-72 (2006) (footnotes omitted).

⁷⁵ SKAPP, *DAUBERT*, *supra* note 16, at 8.

⁷⁶ Bernstein, *supra* note 74, at 1964-67.

analyses and the support of a number of epidemiological studies.⁷⁷ Given the weight of evidence in favor of Bendectin's safety, it seems peculiar to argue for mosaic evidence from a case in which it would have plainly been misleading.

The final SKAPP critique we address concerns the chilling effects of *Daubert* on plaintiffs. The costs of *Daubert* hearings, SKAPP argues, chill plaintiffs from bringing suits because jury awards often barely cover the costs of *Daubert* hearings.⁷⁸ This argument overestimates the frequency of *Daubert* hearings⁷⁹ and miscalculates their costs. The miscalculation is because SKAPP considers only the chilling effect of *Daubert* hearings on plaintiffs, and ignores the effect of high costs on defendants.⁸⁰ Costly *Daubert* hearings may deter plaintiffs from bringing suit, but they also provide a powerful incentive for defendants to settle.

III. CAUSATION-FREE THEORIES OF TORT

We now turn directly to the work of Professor Margaret A. Berger, a distinguished evidence scholar who has made many significant contributions to the field of evidence, particularly scientific evidence.⁸¹ For a little over a decade, Professor Berger has argued for eliminating the causation

⁷⁷ See, e.g., P.M. McKeigue et al., *Bendectin and Birth Defects: A Meta-Analysis of the Epidemiologic Studies*, 50 *TERATOLOGY* 27 (1994); Bruce Jancin, *Do-It-Yourself Bendectin Advocated for Nausea*, *OB/GYN NEWS* (Oct. 1, 2002), http://findarticles.com/p/articles/mi_m0CYD/is_19_37/ai_92938826 ("Thirty epidemiologic studies have concluded that Bendectin was safe for use in pregnancy[.] The FDA, World Health Organization, and March of Dimes have exonerated the drug. The Centers for Disease Control and Prevention hasn't found any reduction in birth defects nationally since Bendectin was pulled from the market.").

⁷⁸ SKAPP, *DAUBERT*, *supra* note 16, at 12.

⁷⁹ See NICOLE L. WATERS & JESSICA P. HODGE, *NAT'L CTR. FOR STATE COURTS, THE EFFECTS OF THE DAUBERT TRILOGY IN DELAWARE SUPERIOR COURT 21* (2005) (finding that in Delaware *Daubert* hearings were isolated to a small number of important and complex cases).

⁸⁰ Defendants too must retain experts to testify at *Daubert* hearings. Defendants must also contribute to costs associated with the hearing. See, e.g., Thomas G. Gutheil & Harold J. Bursztajn, *Attorney Abuses of Daubert Hearings: Junk Science, Junk Law, or Just Plain Obstruction?*, 33 *J. AM. ACAD. PSYCHIATRY L.* 150, 152 (2005).

⁸¹ See, e.g., Margaret A. Berger, *Laboratory Error Seen Through the Lens of Science and Policy*, 30 *U.C. DAVIS L. REV.* 1081 (1997); Margaret A. Berger, *Procedural Paradigms for Applying the Daubert Test*, 78 *MINN. L. REV.* 1345 (1994); Margaret A. Berger, *A Relevancy Approach to Novel Scientific Evidence*, 26 *JURIMETRICS J.* 245 (1986); Margaret A. Berger, Introduction, *Science for Judges*, 12 *J.L. & POL'Y* 1 (2003); Margaret A. Berger, Introduction, *Science for Judges II*, 12 *J.L. & POL'Y* 485 (2004); Margaret A. Berger, *Upsetting The Balance Between Adverse Interests: The Impact of The Supreme Court's Trilogy on Expert Testimony in Toxic Tort Litigation*, 64 *LAW & CONTEMP. PROBS.* 289 (2001).

requirement in toxic torts contexts, which would in turn largely eliminate the debate over scientific evidence in a large run of tort cases by making such evidence unnecessary for a plaintiff's case. This would accomplish indirectly what the direct attacks on limited admissibility of scientific evidence attempt to achieve. We address her individual efforts and trace their evolution in her collaborative work with products liability scholar Aaron D. Twerski.

A. *Professor Berger's Causation-Free Theory*

Professor Berger proposes a new theory of toxic torts that she rightly calls "a new theory of justice."⁸² Professor Berger hopes to prevent immoral corporate behavior by imposing liability on corporations that fail "to develop and disclose information that is needed to assess serious latent risk[]" in toxic substances.⁸³ To accomplish this end, Berger proposes shifting the burden of persuasion on the issue of causation such that defendants in toxic tort cases must prove that they did not cause the plaintiff's injury.⁸⁴ Under this theory, a plaintiff need only show that the defendant corporation failed to keep itself "reasonably informed about the risks of its products."⁸⁵ Successful plaintiffs under Berger's theory may receive only a fraction of compensatory damages (possibly through an administrative compensation fund) because they have not borne the burden of proving the defendant caused their physical injury.⁸⁶ The damage award is largely punitive in nature, ignoring as it does causation, and focusing instead on wrongdoing.

⁸² Margaret A. Berger, *Eliminating General Causation: Notes Towards a New Theory of Justice and Toxic Torts*, 97 COLUM. L. REV. 2117, 2117 (1997).

⁸³ *Id.*

⁸⁴ *Id.* at 2144-45. Similarly, the defendant bears the burden of proving that the drug was only partly responsible for the plaintiff's injury, thereby mitigating damages. *Id.*

⁸⁵ *Id.* at 2134.

⁸⁶ *Id.* ("Regardless of whether an administrative compensation scheme is in effect, plaintiffs might not be entitled to a full measure of traditional damages under this new tort. In exchange for relieving plaintiffs of having to prove general causation, a possible fair trade-off might be to release defendants from having to pay for plaintiffs' pain and suffering, or to provide for some form of damage scheduling. This is one of the many difficult issues that courts would have to resolve. Punitive damages should not be available as they already have been factored into the recovery—liability has been imposed because of defendants' egregious indifference to ascertaining risk, a component that under traditional tort theory does not support liability in the absence of causation.").

Berger's theory was born of a concern that, in a post-*Daubert* world, plaintiffs frequently cannot prove causation due to scientific uncertainty about the dangers of a particular substance.⁸⁷ In toxic tort cases, "[t]he causation model is blind to the realities of scientific uncertainty."⁸⁸ Injured plaintiffs are losing cases they should win, Professor Berger argues, because of the difficulties that attend proving causation under *Daubert*.⁸⁹ Scientific uncertainty allows unscrupulous pharmaceutical manufacturers to keep potentially unsafe drugs on the market. Professor Berger's charge is that manufacturers not only predict when they will be able to avoid liability despite having inadequately researched and disclosed the long term risks of their chemicals, but also use these predictions to market unsafe drugs.⁹⁰

Professor Berger was not being immodest when she referred to her theory as a new theory of justice: a causation-free tort that places the burden of proving noncausation on the defendant and awards injured plaintiffs a portion of compensatory damages through an administrative fund is substantively, structurally, and procedurally a significant departure from current tort practice. This novel theory arose out of two concerns. First, Professor Berger argues that tort law's causation requirement inadequately incentivizes responsible corporate behavior.⁹¹ Berger's second concern is that the causation model is inconsistent with the "corrective justice rationale that liability is linked to moral responsibility."⁹² This is because "causation is often fortuitous and thus morally arbitrary. To erect sharp disparities of treatment on such a foundation violates the requirement of equal treatment implied by the conception of equal dignity and respect."⁹³

⁸⁷ *Id.* at 2123.

⁸⁸ *Id.* at 2117.

⁸⁹ *See id.* at 2130-34.

⁹⁰ *Id.* at 2136-40.

⁹¹ *Id.* at 2119.

⁹² *Id.* ("[E]liminating causation furthers tort law's corrective justice rationale that liability is linked to moral responsibility."). Professor Berger argues that certain features of toxic tort cases "mesh poorly with the corrective justice notion that individuals should be liable only for morally irresponsible choices." *Id.* at 2133.

⁹³ Christopher H. Schroeder, *Causation, Compensation and Moral Responsibility*, in *PHILISOPHICAL FOUNDATIONS OF TORT LAW* 347, 349 (David G. Owen ed., 1995).

Professor Berger's proposal invites appraisal at both the philosophical and practical levels. We begin with the philosophical.

1. Philosophical Difficulties

Professor Berger justifies her theory in part on corrective justice grounds.⁹⁴ Specifically, she relies on the work of Christopher Schroeder, who argues that corrective justice demands the abandonment of tort law's cause-in-fact requirement because it is "too slender a reed" upon which to rest liability.⁹⁵ Schroeder's theory of corrective justice, which predicates liability on moral responsibility, is not well accepted among tort theorists.⁹⁶ But even Schroeder agrees that theories of corrective justice must adhere to certain foundational principles,⁹⁷ one of which is the Kantian requirement that corrective justice "defend[] liability on *noninstrumental* grounds, freed from consideration of purposes external to the tort process, such as distributive justice."⁹⁸ Berger's theory violates this requirement by justifying liability on instrumental grounds, as it aims to incentivize corporations to "obtain[]

⁹⁴ Berger, *supra* note 82, at 2119. ("[E]liminating causation furthers tort law's corrective justice rationale that liability is linked to moral responsibility.").

⁹⁵ Schroeder, *supra* note 93, at 361; *see also*, Christopher H. Schroeder, *Corrective Justice, Liability for Risks, and Tort Law*, 38 UCLA L. REV. 143 (1990). "[C]orrective justice does not require liabilities in tort to be based on cause-in-fact." *Id.* at 144. Schroeder advocates a conception of corrective justice that holds "actors . . . liable for the risks they create," rather than the risks they create that result in harm. *Id.* Indeed, Schroeder advocates a "liability-for-risk system" rather than "harm-caused system." *Id.*

⁹⁶ *See, e.g.*, Jules Coleman & Gabriel Mendlow, *Theories of Tort Law*, in STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Edward N. Zalta ed., 2010), <http://plato.stanford.edu/entries/tort-theories/#CorJus> ("For a loss to be wrongful in the relevant sense, it need not be one for which the wrongdoer is morally to blame."). Schroeder maintains that his is a theory of corrective justice because corrective justice "is itself a contested concept, loose enough to invite continual debate . . . and comprehended enough to produce some shared agreement." Schroeder, *supra* note 95, at 146.

⁹⁷ Schroeder, *supra* note 93, at 360.

⁹⁸ Schroeder, *supra* note 95, at 147 (footnote omitted) (emphasis added). For Schroeder, who grounds his theory of corrective justice in Kantian moral philosophy, the noninstrumental requirement flows from the central tenet of Kantian moral philosophy, which is to "[a]ct in such a way that you treat humanity, whether in your own person or in the person of any other, always at the same time as an end and never merely as a means to an end." IMMANUEL KANT, *GROUNDING FOR THE METAPHYSICS OF MORALS* 30 (James W. Ellington trans., Hackett 3d ed. 1993) (1785); *see also* Ernest J. Weinrib, *Deterrence and Corrective Justice*, 50 UCLA L. REV. 621, 633 (2002) ("So far as private law is concerned, Kant traces the conceptual development of right from the notion that one is not to allow oneself to be a mere means for others . . ."). Any instrumentalist justification for the theory would then undercut its Kantian foundations.

earlier and better information . . . about potential problems.”⁹⁹ Hence, corrective justice provides no justificatory cover for Berger’s causation-free theory of torts. Accordingly, Berger’s theory must be evaluated on instrumental grounds; that is, the value of her theory depends entirely on the consequences of its implementation. We turn to those next.

2. The Unforeseen and Undesirable Consequences of Berger’s Theory

Professor Berger’s theory promises to make defendants behave differently by increasing the costs for any risky behavior and vindicating plaintiffs who would otherwise lose due to scientific uncertainty. It is a safe bet that both of these aims will be fulfilled under her theory. In this sense, her theory might be said to give rise to consequences that might be viewed as beneficial. But there are a whole host of additional consequences to consider—particularly aggregate costs—that Professor Berger does not address.

Consider the problem of setting highway speed limits: speeding-related traffic deaths would certainly be reduced if visually and emotionally arresting accidents were used as the basis for lowering highway speed limits by forty miles per hour.¹⁰⁰ But such a solution entails many other human costs.¹⁰¹ The cost of goods would increase as commerce slowed, the economy would suffer as people spent otherwise productive time in transit. People might very well quit using highways for their high speed driving, instead choosing to drive faster in residential areas and other areas less suited for high speed driving, in turn causing even more fatal accidents and perhaps even raising the costs of traffic enforcement. By seeking to prevent all accidents, we may indirectly cause many more. All costs must be considered when writing regulations that effect human safety.

In appraising these costs, we begin with a previously unnoticed but significant consequence of Berger’s theory. By shifting the burden of proof to the defendant, Berger’s theory

⁹⁹ Berger, *supra* note 82, at 2141.

¹⁰⁰ Though it may be difficult to admit, we tacitly agree to sacrifice thousands of human lives a year in exchange for the benefits that flow from current highway speeds.

¹⁰¹ For general discussions of the unavoidable tradeoffs of governing, see Ronald J. Allen & Larry Laudan, *Deadly Dilemmas*, 41 TEX. TECH. L. REV. 65, 73 (2008); Ronald J. Allen & Amy Shavell, *Further Reflections on the Guillotine*, 95 J. CRIM. L. & CRIMINOLOGY 625, 628 (2005).

eliminates plaintiffs' lawyers' gatekeeper function, thereby altering the litigation calculus. Plaintiffs' lawyers (and often their expert witnesses) play a gatekeeper function of their own, weighing the costs of litigation against the potential contingency fee discounted by the probability of success. It has been argued that *Daubert* drove the costs of litigation up for plaintiffs, thereby dissuading some plaintiffs from litigating, and it is certainly true that the cost of litigation affects plaintiffs' incentive to bring suit and defendants' incentive to settle. Berger's proposed theory of liability will drive the costs of litigation down for plaintiffs, and it will make the costs for defendants disproportionately higher. Placing the burden of causation on the defendants concomitantly removes the burden of proving causation from the plaintiffs. As the plaintiffs' costs go down and defendants' costs go up, litigation is likely to increase as the incentives to settle increase.¹⁰² In essence, the burden of proving the absence of causation will fall on defendants to show that every possible claim that plaintiffs might make is false, rather than requiring plaintiffs now to provide justification for their claims. However, the difficulty of proving a negative is legendary. All a plaintiff must do is allege some as yet unresolved state of affairs that has not been studied and claim illness as a result of, say, a defendant's drug. For example, a plaintiff who has taken a variety of drugs, has a rare precondition, and has developed a rare illness could require every single manufacturer of every drug the plaintiff has ever taken to demonstrate lack of causation. In short, the most predictable and troubling consequence of Berger's theory is that meritless litigation and settlements will proliferate, generating costs which consumers will ultimately be forced to bear. Higher litigation and settlement costs for manufacturers

¹⁰² The larger the potential pool of plaintiffs suffering from a given injury, the greater a defendant's incentives to litigate, because the costs of causation studies will be outweighed by the potential liability to the pool of plaintiffs. Conversely, smaller pools of plaintiffs will decrease defendants' incentives to litigate, since the costs of disproving causation will be more likely to outweigh the costs of settling. Thus, so long as the plaintiff crafts an appropriately narrow claim—say, that the defendant negligently failed to research drug *X*'s interaction with drug *Y* and rare precondition *Z*—the plaintiff can ensure that the defendants incentive to litigate will approach zero. A predictable result of Berger's theory is that defendants will be overwhelmed by a torrent of unusual law suits of this sort. They will settle these suits because litigation will be exponentially more expensive. There will be many, many undeserving plaintiffs who recover under this theory, because economic efficiency demands that defendant corporations settle rather than defend in cases where the cost of disproving causation is in the hundreds of thousands or millions of dollars and the plaintiff is alleging a relatively unique injury.

will translate into higher drug prices for consumers as well as fewer drugs being brought to market.¹⁰³

B. Professors Berger and Twerski's Causation-Free Theory

Professor Berger recently collaborated with Professor Aaron Twerski to revise her tort theory. Together, they argue that courts ought to recognize an informed choice cause of action that would allow plaintiffs claiming injury from pharmaceutical products to recover damages for deprivation of informed choice when the indicia of a “troubling” and “recurring pattern of drug cases” arises:

(1) the causal relationship between the toxic agent and plaintiff's harm is unresolved at the time of litigation . . . ; (2) the drug is not therapeutic but rather its purpose is to avoid discomfort or to improve lifestyle; (3) it is almost certain that a patient made aware of the risk that is alleged to be associated with consumption of the drug would have refused to take it; and (4) the defendant drug company was aware of the potential risk or should have undertaken reasonable testing to discover the risk and failed to provide the requisite information to the physician or patient.¹⁰⁴

This theory is interesting and remarkable in its own right.

Professor David Bernstein critiqued Professors Berger and Twerski's theory and they responded,¹⁰⁵ and we do not recreate those arguments here. Rather, we raise concerns of our own. First, we again address the odd philosophical or theoretical aspects of the theory, which differ from those posed by Professor Berger's alternative vision of tort liability. Next, we explain how the cause of action they propose will overdeter or underdeter due to its failure to account for base incidence

¹⁰³ See, for example, the state of affairs in the pre-*Daubert Ferebee* era, when manufacturers rolled back research and development of new drugs and vaccines out of fear of litigation in which even unreliable evidence was admissible. Bernstein, *supra* note 17, at 467-68. “*Ferebee* implicitly condoned treating plaintiffs’ experts in toxic tort cases as if their status as qualified experts meant that their reasoning and conclusions necessarily reflected the views of a reputable segment of their scientific peers.” *Id.* at 465-66. And those drugs that do come to market will be covered in warnings—so many, in fact, that they may begin to lose meaning. This article’s authors did an informal survey and found that the FDA’s most severe warning, so-called “Black Box” warnings, attach to drugs for treating acne, depression, menopause, and anxiety. *Drugs with Black Box Warnings by Therapeutic Class*, BLACKBOXRX, <http://www.formularyproductions.com/master/showpage.php?dir=blackbox&whichpage=237> (last visited Aug. 27, 2010).

¹⁰⁴ Margaret A. Berger & Aaron D. Twerski, *Uncertainty and Informed Choice: Unmasking Daubert*, 104 MICH. L. REV. 257, 259 (2005).

¹⁰⁵ See *id.*; Margaret A. Berger & Aaron D. Twerski, Correspondence, *From the Wrong End of the Telescope: A Response to Professor David Bernstein*, 104 MICH. L. REV. 1983 (2006); Bernstein, *supra* note 74.

rates. Finally, we draw on work in moral psychology to explain why juror damage awards will likely approximate full compensatory damages instead of the partial damage awards that are integral to the theory.

1. Theoretical Problems: Proximate Cause Without Cause-in-Fact

Professors Berger and Twerski's theory abandons tort law's causation-in-fact requirement because of the difficulties of proving causation in toxic tort cases. The only question is whether the defendant's breach—here, a failure to disclose some risk—was a foreseeable cause of the plaintiff's injury. Note that the plaintiff must have suffered an injury, but is not required to prove that the defendant's risky conduct caused the injury. The defendant need only have failed to disclose some risk—however small—to the plaintiff and the plaintiff must have suffered the type of injury within the scope of the risk not disclosed. The mechanics of Berger and Twerski's tort reduces to one question: did the defendant breach a duty to the injured plaintiff?¹⁰⁶ It is of course possible to attach liability to breaches of duty, and this is quite common in criminal law. But it is not a feature of the tort system.

It is tempting, and certainly less confusing, to say that Berger and Twerski's theory simply attaches liability to a breach of duty, but that is not quite the case. The theory requires that a plaintiff have suffered some injury, but people frequently breach their duties without causing injury. The proposal thus has a conceptual muddle at its center: it randomly assigns liability based on a breach of duty, regardless of whether the breach of duty actually caused the harm. And of course, the "breach of duty" is entirely hypothetical, precisely because one does not know that in fact the harm was actually caused by the defendant.

2. Practical Problems: Unforeseen Consequences

We turn now to the potential consequences of their theory. Because plaintiffs under this theory are entitled to damages that will only be a portion of compensatory damages,

¹⁰⁶ On this point, see Arthur Ripstein & Benjamin C. Zipursky, *Corrective Justice in an Age of Mass Torts*, in *PHILOSOPHY AND THE LAW OF TORTS* 214, 220-21 (Gerald J. Postema ed., 2001).

disciplining the defendants under Berger and Twerski's theory will be a function of the number rather than the magnitude of lawsuits. For example, in the case of drugs and disease, the number of lawsuits will turn on baseline rates of the disease (as it would if Berger and Twerski's theory had been applied to Bendectin cases, which we now know to be nonteratogenic and not the cause of the injuries) rather than the real incidence of injury. This problem is most clearly understood through an example.

Consider the recent concerns over potential linkages between cell phones and brain cancer.¹⁰⁷ Cell phones are not necessary for the preservation of life; they simply increase the quality of life. Under Berger and Twerski's theory, if it turns out that cell phone manufacturers did not warn of radiation risks that a reasonable person would want to know about, every person in the United States who uses a cell phone and is afflicted with brain cancer would have a cause of action against the manufacturer of his or her cell phone, regardless of the source of the injury. In other words, plaintiffs would have a cause of action regardless of the baseline cancer rates. Even if brain cancer rates had remained consistent for a century or more, thereby providing strong evidence that cell phones do not cause brain cancer, every injured person would have a cause of action against the manufacturer. Even in the unlikely event that damage awards are small in these cases, the number of cases (there are roughly 22,000 new cases of brain cancer a year)¹⁰⁸ would impose large costs on the manufacturer. But given the baseline, it would also very likely result in a windfall for many, if not all, of the 22,000 plaintiffs.¹⁰⁹ While those cell phone users who also suffered loss of informed choice—the injury for which plaintiffs recover damages under this theory—without developing cancer receive nothing, those developing cancer, whatever the cause, receive damages.

By providing recovery for unsubstantiated risks, Berger and Twerski almost certainly guarantee a regime in which doctors and pharmaceutical manufacturers provide too many warnings, which will have the dual effect of not only diminishing the force of warnings that reflect a truly serious

¹⁰⁷ A Lexis-Nexis search for news articles with the words "cellular phones" and "cancer" pulls more than 3000 articles.

¹⁰⁸ *Brain Tumor Home Page*, NAT'L CANCER INST., <http://www.cancer.gov/cancertopics/types/brain> (last visited Nov. 16, 2009).

¹⁰⁹ *See id.*

risk, but also deterring people from taking medications that they should take.¹¹⁰ If drugs like Bendectin should have come with warnings, as Berger and Twerski argue, then many other safe drugs will be covered in unnecessary warnings, thus diminishing the value of all warnings. A patient will have two choices: numb herself to the warnings that cover every pill bottle, or refuse treatment with medications that are necessary for her, or her fetus', wellbeing. These outcomes could very well be worse than the status quo, but in any event they plainly need to be accounted for in proposals like Berger and Twerski's.

Finally, as with Professor Berger's original theory, the proposed cause of action would likely lead to increased litigation with the predictable effect of driving even some safe drugs off the market:

While successful informed choice actions would individually be less remunerative for plaintiffs than successful causation actions would be, it would be much easier for plaintiffs to meet the burden of proof and persuade judges and juries to rule in their favor. Pharmaceutical companies would therefore likely face far more lawsuits for lack of informed choice than they ever faced for causation. Under such circumstances, "who in his right mind . . . would work on a product that would be used by pregnant women?"¹¹¹

. . . .

The jury is then supposed to ignore the causation and damages evidence they just heard and dispassionately decide whether the evidence of "risk" presented by the plaintiff's experts warrants granting the plaintiff emotional distress damages based on lack of informed choice, knowing that if they rule for the defendants on this issue, the plaintiff will receive no compensation.¹¹²

A growing body of work in psychology suggests that the sort of mental restraints that Berger and Twerski's work requires of jurors may simply not be available to them.¹¹³

¹¹⁰ Omission bias occurs when a more harmful act of omission is preferred to a less harmful act of commission. *The Psychology of Patient Decision Making*, *supra* note 50. One rather extreme example of omission bias is choosing to forego a polio vaccine during a polio outbreak because there is a one in a million chance of contracting polio from the vaccine itself.

¹¹¹ Bernstein, *supra* note 105, at 1978 (footnotes omitted).

¹¹² *Id.* at 1975.

¹¹³ See generally Joshua Green & John Haidt, *How (and Where) Does Moral Judgment Work?*, 6 TRENDS COGNITIVE SCI. 517 (2002). One of the key ideas is "automaticity"—i.e., "the mind's ability to solve many problems, including high-level social ones, unconsciously and automatically." *Id.* at 517.

3. Juror Confusion: A Moral-Psychological Perspective

Berger and Twerski's theory raises a serious question about jury decision making: when jurors are faced with a plaintiff suffering from some severe and tragic injury, and a defendant, often a corporate defendant, is shown to have failed to disclose some uncertain risk of causing the injury, it is quite possible that a juror's natural instinct will be to fill the causation gap and punish the defendant in order to make the plaintiff whole. In this section, we draw on work in the field of moral psychology and the burgeoning field of experimental philosophy to demonstrate the seriousness of this risk. In the field of psychology, we focus on Mark Alicke's Culpable Control Model of Blame Attribution ("CCM"), which provides empirical evidence of the potential of Berger and Twerski's theory to adversely affect jury decision making.¹¹⁴ We also discuss Joshua Knobe's work with Ben Fraser on causation and ascriptions of blame which also supports the proposition that, all other things being equal, an actor who violates a moral norm is more likely to be viewed as responsible for a bad state of affairs than an actor whose conduct does not violate a moral norm.¹¹⁵ The danger of Berger and Twerski's theory is that it invites such misattributions of causation.

Alicke's CCM provides a descriptive account of how blame attributions are made in ordinary circumstances and purports to show "the conditions that increase as well as mitigate blame and analyzes the process by which blame and mitigation decisions are made."¹¹⁶ Alicke's work in the psychology of blame indicates that spontaneous evaluations of the bad outcome (here the injury to the plaintiff), will directly affect blame ascriptions, which jurors will then buttress by altering their causal control assessments.¹¹⁷ When jurors' blame ascription mode is turned on by evidence of corporate misfeasance or malfeasance, they tend "*to over ascribe control to human agency and to confirm unfavorable expectations,*"¹¹⁸

¹¹⁴ See generally Mark D. Alicke, *Culpable Control and the Psychology of Blame*, 126 PSYCHOL. BULL. 556 (2000).

¹¹⁵ See Joshua Knobe & Ben Fraser, *Causal Judgment and Moral Judgment: Two Experiments*, in 2 MORAL PSYCHOLOGY 441, 442 (Walter Sinnott-Armstrong ed., 2008).

¹¹⁶ Alicke, *supra* note 114, at 557.

¹¹⁷ *Id.* at 565 ("[S]pontaneous evaluations of the outcome directly affected blame ascriptions, which participants then buttressed by altering their causal control assessments.").

¹¹⁸ *Id.* at 558 (emphasis added).

leading persons to “exaggerate evidence that establishe[d] [an actor’s] causal or volitional control and de-emphasize exculpatory evidence.”¹¹⁹

In the context of Berger and Twerski’s theory, this could easily translate to confirming causation where none exists. To see how this works, consider the following study:

Participants learned that the driver was speeding either to hide an anniversary present or a vial of cocaine. Moreover, they learned that the driver encountered a number of environmental obstacles—slippery road, poor visibility, etc. Participants were then asked to say whether the driver’s speeding or the environmental factors played a greater role in causing the accident. The results showed that participants were more inclined to attribute the accident to the driver rather than the environmental conditions when the driver was hiding the cocaine than they were when he was hiding an anniversary gift.¹²⁰

The example above may map directly onto jury decision making, suggesting that jurors may be more inclined to attribute the accident to defendants when the defendants performed some antecedently immoral act. Under Berger and Twerski’s theory, plaintiffs whose cases would have been dismissed on summary judgment for lack of evidence of causation will now have an opportunity to bring an action. Once in court, plaintiffs’ lawyers will argue that the defendants immorally failed to warn of a risk. Alicke’s work suggests that “cognitive shortcomings and motivational biases are endemic to blame,”¹²¹ which means that actions under Berger and Twerski’s theory may likely lead to gross overcompensation, a factor that Berger and Twerski did not consider. At a minimum, before substantial change to the tort system can be adopted, such concerns need to be accommodated.

Recent experiments conducted by Joshua Knobe and Ben Fraser indicate that moral judgments can directly impact causal judgments.¹²² As they acknowledge, “[i]t has long been known that people’s causal judgments can have an impact on their moral judgments.”¹²³ For instance, the knowledge that someone caused the death of another may lead to the

¹¹⁹ *Id.* at 566.

¹²⁰ Thomas Nadelhoffer, *Bad Acts, Blameworthy Agents, and Intentional Actions: Some Problems for Juror Impartiality*, 9 PHILOSOPHICAL EXPLORATIONS 203, 207-08 (2006).

¹²¹ Alicke, *supra* note 114, at 557.

¹²² Knobe & Fraser, *supra* note 115, at 441.

¹²³ *Id.*

conclusion that the behavior was morally wrong. Knobe and Fraser proffer evidence supporting the opposite conclusion: negative moral judgments can lead to attributions of causation.

Knobe and Fraser analyze a hypothetical posed by Julia Driver:

Lauren and Jane work for the same company. They each need to use a computer for work sometimes. Unfortunately, the computer isn't very powerful. If two people are logged on at the same time, it usually crashes. So the company decided to institute an official policy. It declared that Lauren would be the only one permitted to use the computer in the mornings and that Jane would be the only one permitted to use the computer in the afternoons. As expected, Lauren logged on the computer the next day at 9:00 am. But Jane decided to disobey the official policy. She also logged on at 9:00 am. The computer crashed immediately.¹²⁴

When presented with this case, in which both persons were the but-for cause, but only one, Jane, breached a duty, people frequently respond that Jane caused the crash, not Lauren, despite the fact that Jane's behavior almost perfectly resembles Lauren's. The major difference, the authors argue, is normative: Jane's violation of her obligations influences participants' causal judgments.¹²⁵

The problem with Knobe and Fraser's study, however, is that it highlights, but does not clarify, the complexity of the legal concept of causation. In the example above, both Jane and Lauren are but-for causes of the computer crash, but only Jane was the proximate cause of the computer crash.¹²⁶ Participants in Knobe and Fraser's study may have been intending to express this notion when they ascribed causation to Jane. If true, Knobe and Fraser's study highlights the common critique

¹²⁴ *Id.* at 442 (quoting Julia Driver, *Attributions of Causation and Moral Responsibility*, in 2 MORAL PSYCHOLOGY, *supra* note 115, at 413, 428).

¹²⁵ *Id.* There is a debate about whether the attributions of causation are due to the immorality of Jane's antecedent acts or merely due to the atypicality of that act. Knobe and Fraser highlight Julia Driver's argument on atypicality:

Jane's behavior seems quite atypical for a person in her position, whereas Lauren's behavior seems perfectly common and ordinary. So perhaps people's tendency to pick out Jane's behavior and classify it as a cause has nothing to do with its distinctive moral status. It might be that people simply classify Jane's behavior as a cause because they regard it as atypical.

Id.; see also Julia Driver, *Kinds of Norms and Legal Causation: Reply to Knobe and Fraser and Deigh*, in 2 MORAL PSYCHOLOGY, *supra* note 115, at 459.

¹²⁶ Jane's use of the computer was the legal or proximate cause of the crash, in the sense that it involved an "unreasonable risk of: (1) causing harm to a class of persons of which the other is a member and (2) subjecting the other to the hazard from which the harm results." RESTATEMENT (SECOND) OF TORTS § 430 (1965).

of experimental philosophy: that opinion polling is often too blunt an instrument to tease out the concepts being studied.¹²⁷

Nonetheless, Knobe and Fraser's findings do make the intuitively obvious point that jurors may be more likely to attribute causation to defendants who have performed some act—like failing to disclose a risk, however small—that makes the subsequent injury more foreseeable. And this is precisely what Berger and Twerski's theory sets jurors up to do. In a typical case, a corporation will be shown to have not disclosed some risk with regard to a substance; a plaintiff that has ingested that substance and subsequently developed some tragic illness. Under Berger and Twerski's theory, the jury is supposed to coolly and rationally put the question of causation out of their minds and simply punish the defendants for their failure to warn the plaintiffs. A more likely result, supported by Knobe and Fraser's research, is that jurors will attribute causation in situations like these—either explicitly, in the form of a judgment, or tacitly, in the form of larger damage awards for violation of the failure to warn tort.

IV. SKAPP'S STUDY OF *DAUBERT* IN THE DELAWARE COURTS: IS THERE A PROBLEM?

The concerns about *Daubert* and the resultant solutions all turn on assumptions about the effects of *Daubert*. SKAPP funded a study by the National Center for State Courts to gauge these effects in Delaware courts.¹²⁸ That study found that the effects of *Daubert* have been minimal.¹²⁹ As SKAPP's own

¹²⁷ For further critiques of experimental philosophy, see Antti Kauppinen, *The Rise and Fall of Experimental Philosophy*, 10 PHIL. EXPLORATIONS 95 (2007); S. Matthew Liao, *A Defense of Intuitions*, 140 PHIL. STUD. 247 (2007); Kirk Ludwig, *The Epistemology of Thought Experiments: First versus Third Person Approaches*, 31 MIDWEST STUD. IN PHIL. 128 (2007); Ernest Sosa, *Experimental Philosophy and Philosophical Intuition*, 132 PHIL. STUD. 99 (2006).

¹²⁸ WATERS & HODGE, *supra* note 79, at 2. Delaware is among a number of states that have adopted *Daubert* at the state court level. *Id.* at 5.

¹²⁹ *Id.* at 21. Waters and Hodge concluded:

The overall impact of *Daubert* has been minimal compared to what was originally feared when the decision came down from the U.S. Supreme Court. Delaware Superior Court was not affected by excessive or unnecessary cost or delay as a result of *Daubert*. Although *Daubert* has created additional barriers to civil plaintiffs' ability to bring their case to trial, the impact has been isolated to a small number, albeit important and complex, cases. As confirmed in other work in this area, challenges to expert witness testimony are not a frequent occurrence in either civil or criminal cases in the Delaware Superior Court. The practice of holding *Daubert* hearings is even less frequent. *Daubert* motions appeared most frequently in mature cases ready

study would seem to be credible evidence to judge its positions, we discuss it briefly below.¹³⁰

Prior to SKAPP's study, many of the extant studies of the effects of the *Daubert* trilogy relied on content analysis of appellate opinions.¹³¹ Because studies of appellate opinions are subject to selection bias, the authors of the SKAPP-funded study set out to directly explore whether and to what extent the *Daubert* trilogy has affected the ways courts handle expert witness testimony. The authors researched products liability and criminal cases in Delaware pre-*Daubert* from the years 1989-1993 and post-*Daubert* from the years 1999-2004.¹³² The authors surveyed all 126 product liability cases during that time period as well as 1950 cases of felony rape and murder.¹³³ Additionally, they conducted interviews with judges and lawyers about *Daubert's* effect on the case.¹³⁴ The authors found only twenty cases in which a litigant moved to exclude expert witness testimony.¹³⁵ Ten of the cases were pre-*Daubert* and ten were post-*Daubert*.¹³⁶ Of the twenty disputes many revolved around "duo-experts," involving, for example, a bio-engineering expert to explain the causal mechanism of an injury and a medical expert to explain the injury itself.¹³⁷ Usually, the motions were to ensure that the expert testifying about causation did not testify about injury and the expert testifying about injury did not testify about causation.¹³⁸

for trial, and judges typically rendered a ruling on the expert's deposition and attorneys' briefs. *Daubert* hearings were reserved for complex civil cases and occasionally entertained during a criminal trial.

Id.

¹³⁰ Note that the small numbers impair its generalizability, but there should be no question about bias.

¹³¹ See Henry F. Fradella, Lauren O'Neill & Adam Fogarty, *The Impact of Daubert on Forensic Science*, 31 PEPP. L. REV. 323 (2004); Jennifer L. Groscup et al., *The Effects of Daubert on the Admissibility of Expert Testimony in State and Federal Criminal Cases*, 8 PSYCH. PUB. POL'Y & L. 339, 344 (2002); D. Michael Risinger, *Navigating Expert Reliability: Are Criminal Standards of Certainty Being Left on the Dock?*, 64 ALB. L. REV. 99 (2000); Rob Robinson, *Does CSI Lie? The New Institutionalism and the Treatment of Forensic Evidence by Federal Courts under Daubert*, (Apr. 7, 2005) (paper presented at the meeting of The Midwest Political Science Association).

¹³² WATERS & HODGE, *supra* note 79, at 8, 10.

¹³³ *Id.* at 10.

¹³⁴ *Id.* at 2.

¹³⁵ *Id.* at 15.

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Id.*

The authors' findings and conclusion disconfirm SKAPP's prediction that *Daubert* portends disaster for plaintiffs. The authors found that motions *in limine* were treated roughly the same before and after *Daubert*,¹³⁹ but that post-*Daubert*, the disposition less often resulted in a jury or bench trial.¹⁴⁰ And when the motions were granted, a partial exclusion of the testimony or a limiting of the scope of admissible testimony resulted more frequently than a complete exclusion of an expert.¹⁴¹ They found "no differences between the pre-*Daubert* and post-*Daubert* cases in the number of summary judgments entered."¹⁴² The courts were not overrun by cost or delay, due in no small part to judges' ability to handle the new challenges.¹⁴³ Overall, *Daubert* hearings were found to be isolated to a small number of important and complex cases.¹⁴⁴ Expert testimony was challenged in only sixteen percent of product liability cases and eight percent of felony murder and rape cases.¹⁴⁵ The study concluded that "[t]he overall impact of *Daubert* has been minimal compared to what was originally feared when the decision came down from the U.S. Supreme Court."¹⁴⁶

SKAPP argues elsewhere that *Daubert* has chilled plaintiffs from bringing suits.¹⁴⁷ Evidence supporting this proposition is said to be in the results of a 2002 RAND Institute study, which "found that after an initial spike in the number of challenges to expert testimony, the incidence began to fall off dramatically."¹⁴⁸ From this SKAPP concludes that the fall in challenges occurred because "plaintiffs increasingly decided not to bring actions that relied heavily upon scientific testimony unless that testimony met the *Daubert* standards."¹⁴⁹ However, the decrease in the number of *Daubert* challenges might just as well be due to the fact that defendants choose not to pursue *Daubert* challenges or because the system quickly settled back into something approximating its previous status

¹³⁹ *Id.*

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

¹⁴³ *Id.* at 21.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ SKAPP, *DAUBERT*, *supra* note 16, at 12-13.

¹⁴⁸ *Id.* at 12.

¹⁴⁹ *Id.*

quo. Interestingly, SKAPP's Delaware study confirms this point. Although the evidence gathered from Delaware suggests that SKAPP's critiques may miss the mark, obviously much more empirical work is necessary to fully assess the effects of the *Daubert* trilogy in state courts.¹⁵⁰

V. CONCLUSION

We end where we began. *Daubert* has not been an unmitigated success, but the recent criticisms of it, whatever their motivation, seem more likely to achieve an unjustified redistribution of wealth with predictable negative social consequences. We understand the impulse that yearns to provide the unfortunate person solace, but we do not understand the failure to contextualize the consequences of redistribution schemes, many of which may make more persons worse rather than better off.

The SKAPP study discussed in Part IV suggests that critics of *Daubert* are focusing on the wrong implications of the precedent in formulating their criticisms and alternate theories. For example, Berger and Twerski assume that *Daubert* will result in fewer plaintiffs being able to bring successful toxic tort claims. However, the real problem with *Daubert*—the problem that Berger and Twerski do not address—is epistemological in nature, and concerns the conditions that permit rational deliberation about expert testimony. This problem raises serious questions about the dangers of leaving fact finders to choose among experts based on credentials, demeanor, or epistemically arbitrary criteria.

¹⁵⁰ See LLOYD DIXON & BRIAN GILL, CHANGES IN THE STANDARDS FOR ADMITTING EXPERT EVIDENCE IN FEDERAL CIVIL CASES SINCE THE *DAUBERT* DECISION xiii (2001) (“It appears that judges are indeed doing what they were directed to do by the Supreme Court: they are increasingly acting as gatekeepers for reliability and relevance, they are examining the methods and reasoning underlying the evidence, and they appear to be employing general acceptance as only one of many factors that enter their reliability assessments.”); see also Richard J. Arsenault & John Randall Whaley, *Will Daubert Challenge Your Class Certification?*, TRIAL, July 2009, at 38, 39 (“Courts have wrestled with what admissibility standard to apply at the class certification stage when parties offer expert testimony.”); Fradella, O’Neill & Fogarty, *supra* note 131; Paul C. Giannelli, *Daubert Revisited*, 41 CRIM. L. BULL. 302 (2005) (noting that “federal courts demand stringent epidemiological studies in toxic tort cases and then accept such vacuous reasoning in criminal cases”); Jeremy Buchman, *The Legal Model and Daubert’s Effect on Trial Judges’ Decisions to Admit Scientific Expert Testimony* (Apr. 15-18, 2004) (paper presented at the Midwest Political Science Association Annual meeting), http://www.allacademic.com/meta/p_mla_apa_research_citation/0/8/3/3/9/pages83392/p83392-1.php (using quantitative analysis to find “no evidence that the outcomes of admissibility rulings are affected either by the Supreme Court’s holding in *Daubert* or the prospect of reversal by a superior court.”).

The solution is not relaxing the overall standard for expert testimony, nor is it creating new theories of liability based on a hodgepodge of otherwise inadmissible evidence, particularly if those theories will lead to excessive and unnecessary warnings. Substantive justice in the context of expert testimony will be the result of procedures that lead to the truth.

The real problem with *Daubert* cannot be corrected by a formal test or by the redistribution programs discussed above. The real problem that *Daubert* highlights is how incompatible the use of incomprehensible scientific or technical evidence is with basic notions of justice. The solution is not more injustice that happens to be more equally distributed, or more injustice in the name of helping the unfortunate. The solution is to deal with the problem—the informational vulnerability of the law. *Daubert* should be extended rather than cut back. All evidence, not just lay evidence, should truly be tested by relevance and reliability. Ironically, the *Daubert* court inadequately appreciated the relevance component rather than inadequately treated the reliability component, which is the standard critique of the case. Evidence cannot be relevant unless it can be understood. *Daubert* requires the trial judge to understand the evidence, but does not require the trial judge to require the jury to understand it. That is the deep flaw in *Daubert* and the flaw that should be corrected by rejecting the deferential model of decision making it encourages.