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LIABILITY FOR POSSIBLE WRONGS: CAUSATION, STATISTICAL PROBABILITY, AND THE BURDEN OF PROOF[†]

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I. INTRODUCTION

Courts around the world are increasingly considering whether liability should exist in various types of situations in which a plaintiff can prove that a defendant's tortious conduct may have contributed to the plaintiff's injury, but it is inherently impossible, given the nature of the situation, for the plaintiff to prove that the defendant's tortious conduct actually contributed to the injury.¹

Some courts and scholars in these types of situations have sought to treat increasing the risk of some harm as causation of the harm, but this clearly is fallacious.² Other courts and scholars, including myself in my early articles, have sought to treat the defendant's exposing the plaintiff to the risk of suffering an injury that subsequently occurred as itself being a legally cognizable injury.³ However, at an informal discussion hosted by Jules Coleman

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1. *E.g.*, *Accident Comp. Corp. v. Ambros*, [2008] N.Z.L.R. 340 (C.A.); *Barker v. Corus UK Ltd.*, [2006] UKHL 20, [2006] 2 A.C. 572 (appeal taken from Eng.) (U.K.); *Gregg v. Scott*, [2005] UKHL 2, [2005] 2 A.C. 176 (U.K.); LARA KHOURY, *UNCERTAIN CAUSATION IN MEDICAL LIABILITY* 13–16 (2006); Vaughan Black & David Cheifetz, *Through the Looking Glass Darkly: Resurfice Corp. v. Hanke*, 45 ALTA. L. REV. 241, 241 (2007); Ewoud Hondius, *A Dutch DES Case: Pharmaceutical Producers Jointly and Severally Liable*, 2 EUR. REV. PRIVATE L. 409, 409 (1994); Federico Stella, *Causation in Products Liability and Exposure to Toxic Substances: A European View*, in *EXPLORING TORT LAW* 403, 405–08, 411–15 (M. Stuart Madden ed., 2005).

2. See Stella, *supra* note 1, at 405–08, 411–15; Richard W. Wright, *Actual Causation vs. Probabilistic Linkage: The Bane of Economic Analysis*, 14 J. LEGAL STUD. 435, 439 (1985) [hereinafter Wright, *Probabilistic Linkage*]; Richard W. Wright, *Causation, Responsibility, Risk, Probability, Naked Statistics, and Proof: Pruning the Bramble Bush by Clarifying the Concepts*, 73 IOWA L. REV. 1001, 1042–67 (1988) [hereinafter Wright, *Bramble Bush*].

3. Wright, *Bramble Bush*, *supra* note 2, at 1067–77; Richard W. Wright, *Causation in Tort Law*, 73 CAL. L. REV. 1735, 1813–21 (1985) [hereinafter Wright, *Causation*].

at Yale Law School in 1990, I was quickly convinced by the other persons present that treating risk exposure, even as so qualified, as a legal injury to the individual plaintiff is wrong.⁴ Risks are merely abstract *ex ante* statistics that report the frequency of occurrence of some harm given a specified set of conditions.⁵ Unlike the actual occurrence of such harm, risks per se do not constitute an actual setback to another's equal external freedom through an invasion of the other's rights in his person or property, as is required for an interactive justice wrong.⁶ Treating the risk exposure as the legal injury, but only when the risked harm actually occurs and only in the problematic causation situations, is an ad hoc solution that, among other problems, fails to explain why recovery is contingent on the actual occurrence of the risked harm and why the damages are based on the *ex post* actual harm rather than the *ex ante* expected harm.⁷

Liability in the problematic causation cases must be justified, if it can be, through the alternative approach that I identified and mistakenly rejected in my initial articles. This approach begins by noting the distinction between the substantive requirements for liability and the evidentiary and procedural rules governing proof of those substantive requirements and then sets forth a principled justification for modifying the usual evidentiary and procedural rules when doing so is necessary to promote justice and avoid injustice.⁸

4. For subsequently published criticisms of my initial position by most of those who were present, see JULES L. COLEMAN, RISKS AND WRONGS 399–401 (1992); ERNEST J. WEINRIB, THE IDEA OF PRIVATE LAW 156–58 (1995); Stephen R. Perry, *Protected Interests and Undertakings in the Law of Negligence*, 42 U. TORONTO L.J. 247, 252–62 (1992).

5. Wright, *Bramble Bush*, *supra* note 2, at 1046–54.

6. *Id.* at 1004; Arthur Ripstein & Benjamin C. Zipursky, *Corrective Justice in an Age of Mass Torts*, in PHILOSOPHY AND THE LAW OF TORTS 214, 222–23 (Gerald J. Postema ed., 2001); Richard W. Wright, *Right, Justice and Tort Law*, in PHILOSOPHICAL FOUNDATIONS OF TORT LAW 159, 180 (David G. Owen ed., 1995); Richard W. Wright, *The Grounds and Extent of Legal Responsibility*, 40 SAN DIEGO L. REV. 1425, 1429–34 (2003) [hereinafter Wright, *Legal Responsibility*]. I use “interactive justice” to refer to what is commonly called “corrective justice” since “interactive,” unlike “corrective,” indicates the distinct focus of this division of justice and does not promote the common but erroneous assumption (e.g., COLEMAN, *supra* note 4, at 348–49) that this type of justice is only concerned with redressing independently defined wrongs after they have occurred, and not with elaborating the nature of the wrong or, if possible, preventing its occurrence.

7. *Kramer v. Lewisville Mem'l Hosp.*, 858 S.W.2d 397, 405 (Tex. 1993); RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 26 cmt. n (Proposed Final Draft No. 1, 2005).

8. See Wright, *Causation*, *supra* note 3, at 1812–13. Although my change of position has been noted in my course materials since 1990, I have only recently had occasion to refer to it, briefly, in my published writings. See Richard W. Wright, *Acts and Omissions as Positive and*

This is the approach that generally has been taken by scholars who view tort liability as being based on interactive justice.⁹ It is also the approach taken in a recent article by Mark Geistfeld,¹⁰ who, although he is primarily an efficiency theorist, seeks to reconcile efficiency arguments with arguments of fairness or justice.¹¹ Geistfeld notes, correctly, that the courts view the causation requirement as a fundamental principle of tort liability, which, however, cannot be explained or justified by principles of efficient deterrence.¹² He attempts to explain and justify, from a fairness perspective, a few of the tort doctrines developed to deal with some of the problematic causation situations. Since his arguments raise and illustrate some of the major issues that I want to address, I devote considerable space to them below.

The problematic nature of the causal issue is usually recognized when the probability of causation is not greater than 50 percent, with courts adopting different views, depending on the type of situation, on whether liability nevertheless is appropriate and, if so, whether liability should be full or only proportionate to the probability of causation. However, when the probability of causation is only slightly higher—greater than 50 percent—many courts do not view either causation or liability as being problematic. Indeed, under the commonly accepted version of the *res ipsa loquitur* doctrine, liability

Negative Causes, in EMERGING ISSUES IN TORT LAW 287, 301–02 (Jason W. Neyers et al. eds., 2007) [hereinafter Wright, *Acts and Omissions*]; Richard W. Wright, *Once More Into the Bramble Bush: Duty, Causal Contribution, and the Extent of Legal Responsibility*, 54 VAND. L. REV. 1071, 1118 & n.163 (2001) [hereinafter Wright, *Once More*].

9. See COLEMAN, *supra* note 4, at 395–99; WEINRIB, *supra* note 4, at 154–55; John C.P. Goldberg & Benjamin C. Zipursky, *Concern for Cause: A Comment on the Twerski-Sebok Plan for Administering Negligent Marketing Claims Against Gun Manufacturers*, 32 CONN. L. REV. 1411, 1420 n.25 (2000); Ripstein & Zipursky, *supra* note 6, at 216–17, 233–43.

10. Mark A. Geistfeld, *The Doctrinal Unity of Alternative Liability and Market-Share Liability*, 155 U. PA. L. REV. 447, 449–52, 457 (2006).

11. See, e.g., Mark Geistfeld, *Economics, Moral Philosophy, and the Positive Analysis of Tort Law*, in PHILOSOPHY AND THE LAW OF TORTS, *supra* note 6, at 250; Mark Geistfeld, *Reconciling Cost-Benefit Analysis with the Principle that Safety Matters More than Money*, 76 N.Y.U. L. REV. 114, 114 (2001). However, Geistfeld's conception of fairness and justice focuses on a utilitarian equal treatment or weighting of interests rather than on interactive justice. See Geistfeld, *supra* note 10, at 461–62; Mark Geistfeld, *Scientific Uncertainty and Causation in Tort Law*, 54 VAND. L. REV. 1011, 1025–26, 1030–32 (2001); *infra* note 58, and text accompanying notes 57–59.

12. Geistfeld, *supra* note 10, at 449–52, 457; see Wright, *Causation*, *supra* note 3, at 1759–74, 1813–28; Wright, *Probabilistic Linkage*, *supra* note 2, *passim*; Richard W. Wright, *The Efficiency Theory of Causation and Responsibility: Unscientific Formalism and False Semantics*, 63 CHI.-KENT L. REV. 553, *passim* (1987).

is assumed to be unproblematic even though the only indication of negligent conduct as well as causation is a mere 50+ percent *ex ante* statistical probability.

The dramatic difference in treatment of situations that are identical except for a trivial difference in statistical probability is due to an unexamined assumption that the usual “preponderance of the evidence” or “balance of probabilities” burden of persuasion in civil cases merely requires proof of a 50+ percent statistical probability. As will be demonstrated below, this assumption, which is common among academics as well as courts but is rejected by courts when the statistical rather than case-specific nature of the probability is obvious, has led to inconsistent and incoherent treatment of normatively and descriptively analogous types of situations and even to erroneous denials of proof of causation and liability in some situations in which tortious causation clearly exists.

The statistical probability interpretation of the burden of persuasion in civil cases is inconsistent with the traditional understanding of that burden, which instead requires the formation of a minimal degree of belief, based on evidence specific to the particular occasion, in the actual existence of the disputed fact in the particular situation. When the disputed fact is actual causation of injury, there must be a minimal belief that the causal law underlying the allegedly applicable causal generalization was fully instantiated on the particular occasion. General statistics cannot support such a belief; only concrete evidence specific to the particular situation can do so.

Only when the burden of persuasion is correctly understood can many currently debated issues regarding the existence and scope of tort liability be properly understood and consistently resolved. When it is impossible to prove tortious causation, there may well be good reasons, as a matter of justice, for second-best solutions that impose full or proportionate liability on a defendant who behaved tortiously and whose tortious conduct may well have caused the plaintiff’s injury. However, well-founded and consistent decisions on such matters will be reached only when there is a clear recognition of those situations in which a first-best solution is not possible due to the problematic nature of the causation issue. When the various types of problematic situations are compared, it turns out that the market share liability principles adopted in *Sindell v. Abbott*

*Laboratories*¹³ and, arguably, *Hymowitz v. Eli Lilly & Co.*,¹⁴ which are highly controversial,¹⁵ are more defensible than the liability principles that are widely employed in the alternative causation cases,¹⁶ the medical malpractice lost-chance cases,¹⁷ the toxic tort cases,¹⁸ and, especially, in the usual formulation of the *res ipsa loquitur* doctrine.¹⁹

II. ALTERNATIVE CAUSATION

The widely adopted alternative causation doctrine, which is often misleadingly described as an “alternative liability” doctrine, allows a plaintiff who proves that his injury was tortiously caused by one or more of a (limited) group of tortious actors, but who is unable due to the nature of the situation to identify which particular actor(s) tortiously caused the injury, to hold each tortious actor who *possibly* caused the injury jointly and severally liable for the entire harm.²⁰ The leading American case is *Summers v. Tice*,²¹ in which the plaintiff’s eye was injured by a shotgun pellet that could have come from either of the negligent defendants’ guns. The *Summers* court stated:

When we consider the relative position of the parties and the results that would flow if plaintiff was required to pin the injury on one of the defendants only, a requirement that the burden of proof on that subject be shifted to defendants becomes manifest. They are both wrongdoers—both negligent toward plaintiff. They brought about a situation where the negligence of one of them injured the plaintiff, hence it should rest with them each to absolve himself if he can. The injured party has been placed by defendants in the unfair position of pointing to which defendant caused the

13. 607 P.2d 924 (Cal. 1980).

14. 539 N.E.2d 1069 (N.Y. 1989).

15. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28(b) cmt. o & cmt. o, reporters’ note (Proposed Final Draft No. 1, 2005); *see infra* Part V.

16. *See infra* Part II.

17. *See infra* Part IV.

18. *See infra* Part IV.

19. *See infra* Part VI.

20. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28(b) & cmt. e (Proposed Final Draft No. 1, 2005); RESTATEMENT (SECOND) OF TORTS § 433B(3) (1965).

21. 199 P.2d 1 (Cal. 1948).

harm. If one can escape the other may also and plaintiff is remediless.²²

The *Summers* court notes that this rationale for shifting the burden of proof also supports the similar shift of the burden of proof when two or more defendants tortiously contribute to injuries that theoretically are or may be separable into different injuries caused by the different defendants but it is practically impossible for the plaintiff to prove which injuries were caused by which defendants:

[T]he same reasons of policy and justice [that] shift the burden to each of defendants to absolve himself if he can—relieving the wronged person of the duty of apportioning the injury to a particular defendant, apply here where we are concerned with whether plaintiff is required to supply evidence for the apportionment of damages. If defendants are independent tort feasons and thus each liable for the damage caused by him alone, and, at least, where the matter of apportionment is incapable of proof, the innocent wronged party should not be deprived of his right to redress. The wrongdoers should be left to work out between themselves any apportionment.²³

In both types of cases, the shift of the burden of proof on the causation issue to the defendants is warranted as an implementation of interactive justice. The plaintiff has established that he suffered an interactive justice wrong (a harm to his person or property caused by the wrongful conduct of another), that each of the defendants acted wrongfully toward him, and that the wrongful conduct of each defendant may have been the cause of the wrong. When the plaintiff has proved this and it is practically impossible for him to prove which wrongfully acting defendant caused the wrong, justice is better served and injustice avoided, as both *Summers* and the *Restatement*

22. *Id.* at 4. The court adds, “Ordinarily defendants are in a far better position to offer evidence to determine which one caused the injury,” *id.*, but this is merely a supplementary rather than a determinative reason for shifting the burden of proof on (lack of) causation to the defendants, since it was neither required nor found to be true in *Summers* or in many other cases applying the doctrine.

23. *Id.* at 5; see *Maddux v. Donaldson*, 108 N.W.2d 33 (Mich. 1961); RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28(b) & cmt. d (Proposed Final Draft No. 1, 2005); RESTATEMENT (SECOND) OF TORTS § 433B(2) (1965).

(*Second*) state,²⁴ by shifting the burden of proof on the causation issue to each wrongfully acting defendant, rather than leaving the wronged plaintiff without any remedy, at least when the number of defendants is not too large so that there is a substantial likelihood that each defendant was a cause of the wrong.²⁵ Although a defendant in these types of situations often will have no better access to information about causation than the plaintiff and therefore will be unable to exculpate herself from being held fully liable under the joint and several liability doctrine, she will be able to bring contribution actions against the other possible wrongdoers, which, to the extent that the others are available and solvent, will result in an equitable sharing of the ultimate liability among the possible wrongdoers.

In his recent article, Geistfeld occasionally mentions, but does not stress or rely on, the interactive justice rationale for the alternative causation doctrine, without so labeling it or acknowledging its elaboration in *Summers* or in the *Restatement (Second)*.²⁶ Instead, Geistfeld attempts to recast the alternative causation doctrine as a group causation doctrine by employing an “evidential grouping” principle, which contains two distinct but related parts. First, to establish a *prima facie* case in situations in which it is inherently impossible for the plaintiff to prove which of several tortious actors caused the plaintiff’s injury, the plaintiff need merely prove that the defendant was one of a group of defendants, each of whom behaved tortiously and may have tortiously caused the plaintiff’s injury and at least one of whom (unidentified) did tortiously cause the plaintiff’s injury. Second, if the plaintiff establishes such an evidential group, the defendant can avoid liability only if she proves, as an affirmative defense, that it is not possible, rather than merely not probable, that she (tortiously) caused the plaintiff’s injury.²⁷

24. RESTATEMENT (SECOND) OF TORTS § 433B cmts. d & f (1965); *see infra* text accompanying note 45.

25. *See* RESTATEMENT (SECOND) OF TORTS § 433B cmt. e (1965) (noting that, if there is a large number of actors, “each of whom contributes a relatively small and insignificant part to the total harm, . . . to hold each of them liable for the entire damage because he cannot show the amount of his contribution may perhaps be unjust”).

26. *E.g.*, Geistfeld, *supra* note 10, at 471–72, 498.

27. *Id.* at 464–65, 466, 469. Geistfeld also includes a requirement that “each defendant would be subject to liability for having actually caused or contributed to the harm,” *id.* at 469,

Geistfeld asserts that his evidential grouping principle does not result in any relaxation of the causation requirement, apparently because the plaintiff is still required to prove tortious causation of the injury by the usual preponderance standard, albeit by the evidential group as a whole rather than by the individual defendant.²⁸ However, from the standpoint of the individual defendant, there clearly has been a substantial relaxation of the causation requirement: first, by merely requiring that the plaintiff prove causation by the evidential group of which the defendant is a member rather than by the defendant herself and, second, if the plaintiff does so, by shifting the burden to the defendant to prove that it is not possible, rather than merely not probable, that her tortious conduct was a cause. The overall effect is a shift from requiring the plaintiff to prove tortious causation by the individual defendant by a preponderance of the evidence to requiring the implicated defendant to prove lack of causation by a virtual certainty.

Geistfeld argues that his evidential grouping principle is supported by precedent and principle. For precedents, he points to the multiple fires cases, in which two defendants independently and negligently start separate fires, each sufficient to destroy the plaintiff's property, which merge and destroy the plaintiff's property, and the successive injury cases in which the defendant tortiously injures the plaintiff, causing some disability, which however would have occurred subsequently due to a second injury separately caused by another defendant.²⁹

The courts hold both defendants liable for the destruction of the plaintiff's property in the multiple fires cases (as described), and they hold the first but not the second defendant liable for the disability in

which apparently is merely intended to preclude use of evidential grouping when one of the defendants is immune from suit rather than being an incorporation of attributable responsibility ("proximate" cause) requirements. *See id.* at 469 & n.58, 493 n.126. However, Geistfeld also discusses a "proximity" requirement, relating to how "direct" the possible connection between the defendant's tortious conduct and the plaintiff's harm must be. He argues that the requirement of proof of a direct exposure to the defendant's product in the asbestos cases, but not in the DES cases, "can be justified by evidential grouping" by the supposed fact that the DES manufacturers, unlike the asbestos manufacturers, were "acting in a practically indistinguishable manner," even though he acknowledges that DES was produced and marketed in different shapes, sizes, colors, and dosages and with unique brand names. *Id.* at 487-90 & n.116. It was also, unlike asbestos, distributed through individual prescriptions with the identity of the manufacturer and the name of the recipient.

28. *Id.* at 447, 452-53, 458-59, 471, 479.

29. *Id.* at 462-63.

the successive injury case, although in neither case was either defendant a but-for cause of the relevant harm. Geistfeld assumes that liability is being imposed through evidential grouping in the absence of proof of causation by the individual defendant(s).³⁰

This assumption is incorrect. It is true that in these cases no defendant's tortious conduct was a "but for" cause of the plaintiff's harm. However, it is generally recognized that the but-for test is an inadequate test of causation in such overdetermined causation situations, for which, instead, a sufficiency test must be used. In the multiple fires cases, each fire was an actually sufficient condition and thus was a duplicative cause of the destruction of the plaintiff's property. In the successive injury case, only the injury inflicted by the first defendant was an actually sufficient condition for the plaintiff's disability; the first injury preempted the potential disabling effect of the injury subsequently inflicted by the second defendant.³¹ Contrary to Geistfeld's claim, evidential grouping is not needed or employed in these cases. The causal contribution of each defendant can be and is determined through a proper focus on the causal sufficiency rather than the causal necessity of each defendant's tortious conduct—as Geistfeld acknowledges.³²

This is also true in the asbestos cases that Geistfeld discusses,³³ which the courts and the *Restatement (Third)* assume involve causal overdetermination rather than alternative causation. They assume that, although no individual exposure may have been necessary or independently sufficient for the occurrence of the asbestos-caused disease, each exposure contributed to a cumulative threshold dosage

30. *Id.* at 462–64.

31. See Wright, *Legal Responsibility*, *supra* note 6, at 1440–42.

32. As Geistfeld acknowledges, a simple test of causal sufficiency is all that is needed to handle the multiple fires and successive injury cases, rather than the necessary element of a sufficient set ("NESS") test that he describes as "hardly intuitive or easy to apply" and yet relies upon himself. Geistfeld, *supra* note 10, at 465; see *id.* at 464 n.46, 469–70, 476 (noting that "evidential grouping" is not proper when individual causation can be resolved through the proper causal tests). Geistfeld's criticisms of the NESS test rely on David Fischer's criticisms of the test, which confuse actual causation with "proximate" causation and ultimate responsibility. *Id.* at 465–66; see *infra* note 39, and accompanying text. It is true that a different type of analysis is needed to handle the cases involving failures to use a defective safeguard and other overdetermined negative causation cases, since in such cases the issue is what caused the failure rather than the success of a causal process, but the analysis continues to be grounded in the concept of causation embodied in the NESS test. Wright, *Acts and Omissions*, *supra* note 8, at 302–07.

33. Geistfeld, *supra* note 10, at 464, 468.

that is sufficient for the occurrence of the disease and thus is a cause of the disease.³⁴ If this assumption is correct, the finding of causation is also correct, under the necessary element of a sufficient set (“NESS”) test of causation, and there is no need for evidential grouping.³⁵ If, however, the “one-hit” theory of causation is true for asbestos or some other carcinogenic or toxic substance, no conclusion can be drawn regarding the causal status of any single exposure to that substance, or group of exposures that does not include all the exposures, and the cases are instead alternative causation cases like *Summers* but with a much greater number of alternative tortious causes.³⁶ In such situations the courts refuse to hold the multiple defendants liable under the alternative causation doctrine.³⁷

Geistfeld apparently believes that the overdetermined causation cases exemplify his principle of evidential grouping because the courts will not allow a defendant to avoid liability in such cases by proving that the injury would have happened anyway as a result of the tortious conduct of one or more of the other possible tortfeasors,

34. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM §§ 27 cmts. f, g, 28 cmts. e, l, & cmt. g, reporters’ note (Proposed Final Draft No. 1, 2005).

35. Wright, *Bramble Bush*, *supra* note 2, at 1018–22, 1035–39, 1073; Wright, *Legal Responsibility*, *supra* note 6, at 1443–45 & n.67. Geistfeld cites *Spaur v. Owens-Corning Fiberglas Corp.*, 510 N.W.2d 854, 858 (Iowa 1994), as having explicitly adopted evidential grouping. Geistfeld, *supra* note 10, at 459 n.34. *Spaur* did quote and seemingly endorse Prosser and Keeton’s even broader form of such grouping, which would apply the but-for test to a group of defendants when none of them individually satisfies the but-for test. 510 N.W.2d at 858 (quoting W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 41, at 268 (5th ed. 1984)). However, not only is this broader form overinclusive, as Geistfeld concedes (see Geistfeld, *supra* note 10, at 458–59, 469–70), but it is meant to be applied only in the overdetermined causation cases, in which it is assumed that, although the defendant’s conduct was not a but-for cause or perhaps even an independently sufficient cause, it nevertheless contributed to the injury—as the NESS test would establish. The *Spaur* court assumed, as have other courts dealing with asbestosis and mesothelioma, that multiple exposures to asbestos have a cumulative effect in causing those diseases, so each exposure is a concurring contributing cause. 510 N.W.2d at 859, 861.

36. *Rutherford v. Owens-Ill., Inc.*, 941 P.2d 1203, 1218 (Cal. 1997); RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 27 cmt. g, reporters’ note (Proposed Final Draft No. 1, 2005); Jane Stapleton, *Two Causal Fictions at the Heart of U.S. Asbestos Doctrine*, 122 LAW Q. REV. 189 (2006); Wright, *Bramble Bush*, *supra* note 2, at 1073.

37. *Rutherford*, 941 P.2d at 1216–18; RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmts. e, i, l & o (Proposed Final Draft No. 1, 2005). The *Rutherford* court held that, given the “irreducible uncertainty regarding the cellular formation of an asbestos-related cancer,” a defendant could be held liable if the plaintiff proved that exposure to the defendant’s product(s) “in reasonable medical probability . . . was a substantial factor contributing to plaintiff’s or decedent’s risk of developing cancer.” 941 P.2d at 1220.

but rather require specific proof that the defendant was not a cause.³⁸ Geistfeld has been misled by David Fischer's and Jane Stapleton's failure to distinguish factual causation and attributable responsibility in the overdetermined causation cases.³⁹ As explained above, in these cases the individual defendant's tortious causation of the injury can be and has been proven, given the courts' understanding of the causal processes involved, using a sufficiency rather than a necessity test of causation. The defendant's exculpatory argument is not an argument about lack of causation, but rather an attributable responsibility ("proximate" cause) argument that she should not be liable despite her tortious causation of the injury because it would have happened anyway as a result of the other defendants' tortious conduct. The courts properly reject this argument. Consistent with interactive justice, they absolve the defendant of liability for the harm that she tortiously caused only if she proves, to a near certainty or at least by clear and convincing evidence, rather than by a mere preponderance, that the harm would have occurred anyway as a result of a *nonresponsible* condition.⁴⁰

The *Summers* court does not rely upon a fiction of aggregate group causation, as Geistfeld does, nor does it say anything that would support the second part of Geistfeld's evidential grouping principle, which raises the defendants' burden of persuasion on lack of causation from a mere preponderance of the evidence to a virtual

38. See Geistfeld, *supra* note 10, at 463–65.

39. See *id.* at 463 n.42 (citing articles by Fischer and Stapleton); Wright, *Acts and Omissions*, *supra* note 8, at 296, 299–300 & n.36, 303–05 & n.47 (criticizing Fischer's and Stapleton's arguments); Wright, *Once More*, *supra* note 8, at 1115–31, 1116 n.156, 1121 n.172 (also criticizing Fischer's and Stapleton's arguments).

40. Wright, *Legal Responsibility*, *supra* note 6, at 1434–67. Geistfeld also quotes, as support for his evidential grouping principle, the court's statement in *Summers* that "[We] believe it is clear that the [trial] court sufficiently found on the issue that defendants were jointly liable and that thus the negligence of both was the cause of the injury or to that legal effect." Geistfeld, *supra* note 10, at 472 (quoting *Summers v. Tice*, 199 P. 2d 1, 2 (Cal. 1948)) (emphasis by Geistfeld); see *id.* at 458 (same quote without italics). As indicated by the qualifier, "or to that legal effect," the *Summers* court was focusing on the normative legal responsibility issue rather than the causal issue. Later in the same paragraph, the court states:

[The trial court] determined that the negligence of both defendants was the legal cause of the injury—or that both were responsible. Implicit in such finding is the assumption that the court was unable to ascertain whether the shots were from the gun of one defendant or the other or one shot from each of them. The one shot that entered plaintiff's eye was the major factor in assessing damages and that shot could not have come from the gun of both defendants. *It was from one or the other only.*

Summers, 199 P.2d at 3 (emphasis added).

certainty. Instead, as we have seen, the *Summers* court focuses on the interactive justice implications of the elements that constitute the first part of Geistfeld's principle, which, shorn of its aggregate causation pretensions, simply states the conditions that the *Summers* court elaborates as being sufficient, as a matter of interactive justice, for shifting the burden of proof (with the usual burden of persuasion) on the causation issue to the defendants.⁴¹

Rather than focusing on the interactive justice argument that is emphasized by *Summers* and the *Restatement (Second)*, Geistfeld argues that adoption of the alternative causation doctrine in *Summers* is justified by the fact that the two defendants "interacted to create impenetrable factual uncertainty regarding the identity of the shooter who actually hit the plaintiff, making the two defendants responsible for the uncertainty."⁴² He subsequently extends this argument to justify applying the alternative causation doctrine when all the possible tortfeasors cannot be joined, since the joined defendants' "misconduct has made it unreasonably difficult for the plaintiff to identify the actual tortfeasor."⁴³ Although he does not say so, this argument could be further extended to justify, contrary to the case law, applying the alternative causation doctrine when the possible alternative causes include nontortious conditions, even when there is only a single possible tortfeasor, since, as Geistfeld himself previously observed, tortious conduct "routinely creates factual uncertainty regarding causation."⁴⁴

Geistfeld fails to note that the reference to factual uncertainty in the *Restatement (Second)* follows immediately after and completes the *Restatement's* elaboration of the interactive justice rationale. The *Restatement (Second)*, like *Summers*, states that the reason for the shifted burden of proof is "*the injustice of permitting proved wrongdoers, who among them have inflicted an injury upon the*

41. See *supra* text accompanying notes 20–27.

42. Geistfeld, *supra* note 10, at 476.

43. *Id.* at 478–79. This argument is similar to Ariel Porat and Alex Stein's "evidential damage" doctrine, which suffers from the same flaw of being applicable to any case in which there is any uncertainty about whether a defendant's tortious conduct contributed to the plaintiff's injury—which, as Geistfeld notes, is true of (almost?) every case. See ARIEL PORAT & ALEX STEIN, TORT LIABILITY UNDER UNCERTAINTY 160–84 (2001); Ariel Porat & Alex Stein, *Indeterminate Causation and Apportionment of Damages: An Essay on Holtby, Allen, and Fairchild*, 23 O.J.L.S. 667, 697–700 (2003).

44. Geistfeld, *supra* note 10, at 456.

entirely innocent plaintiff, to escape liability because the nature of their conduct and the resulting harm has made it difficult or impossible to prove which of them has caused the harm.”⁴⁵ The impossibility of proving causation in these types of situations is not by itself the rationale for shifting the burden of proof on the causation issue; rather, it completes the interactive justice rationale for doing so, which focuses on the proven wrong to the plaintiff, the defendants’ proven status as persons whose wrongful conduct may have caused that wrong to the plaintiff, and the plaintiff’s inability due to proof problems inherent in the type of situation to prove which wrongful actor actually caused him to suffer the wrong.

Geistfeld initially states, correctly, that the “innocent plaintiff versus culpable defendant” rationale for the alternative causation doctrine, which is the primary rationale stated in the *Restatement (Third)*,⁴⁶ is similarly too broad; it would require that the burden of proof on the causation issue be shifted or otherwise relaxed whenever the plaintiff was not negligent, rather than only in those situations in which the alternative causation doctrine is applicable.⁴⁷ Yet, again, Geistfeld subsequently reverses ground. He claims:

Once the causal issue is evaluated in group terms, it . . . becomes apparent why the *Restatement (Third)* rationale for alternative liability . . . is applicable only to cases involving

45. RESTATEMENT (SECOND) OF TORTS § 433B cmt. f (1965) (emphasis added); *see id.* cmt. d.

46. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmt. f (Proposed Final Draft No. 1, 2005). The only other rationale mentioned in the *Restatement (Third)*, as a supplemental rationale that might be at work in some cases, is defendants’ occasional better access to relevant evidence that is inaccessible to the plaintiff. *Id.* There was no such better access in *Summers*, and it is not a requirement for application of the doctrine. *Sindell v. Abbott Labs.*, 607 P.2d 924, 929–30 (Cal. 1980). The “innocent plaintiff versus culpable defendant” argument was the principal, often sole, argument that was employed by plaintiffs’ advocates, almost always unsuccessfully, in the initial legislative debates over joint and several liability. They should instead have pointed out the invalidity of the defense advocates’ argument that defendants were being held liable for injuries that they had not caused or for which they were not responsible. Richard W. Wright, *The Logic and Fairness of Joint and Several Liability*, 23 MEM. ST. U. L. REV. 45, 51–62 (1992).

47. Geistfeld, *supra* note 10, at 456–57. The *Restatement (Third)* does not disavow the “innocent plaintiff” rationale for relaxing the burden of proof in the single negligent actor situation. It rather argues that there is no need to shift the burden of proof in that situation since there supposedly is substantial “flexibility” in inferring “*more likely than not*” causation when there is a single defendant, while such flexibility generally would be precluded by the mathematical odds in the alternative causation type of situation. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmt. f (Proposed Final Draft No. 1, 2005); *see id.* cmt. b.

multiple defendants and not a single defendant. Insofar as alternative liability involves the grouping of defendants for causal purposes, it relies upon a principle that is not relevant to cases involving a single defendant.⁴⁸

This argument is circular and illogical. Insofar as the “innocent plaintiff versus culpable defendant” rationale is used to justify treating the group as a single entity for causal purposes and shifting the burden of proof to the members of the group, it is circular to use the resulting grouping as a means of somehow limiting the use of the rationale in the single defendant context. Moreover, insofar as the group is treated as a single entity, it is indistinguishable as a matter of principle from the single defendant situation.

The “innocent plaintiff” rationale is at most a supplemental rationale that reinforces the interactive justice rationale, but which is not a necessary part of the interactive justice rationale and has no weight by itself. References to the innocence of the plaintiff that appear in the *Restatement (Second)*’s rationale for shifting the burden of proof,⁴⁹ and in some of the *Summers* court’s discussion but not in its justification for shifting the burden of proof,⁵⁰ probably are simply due to the fact that a plaintiff’s contributory negligence was a complete defense when these statements were written, so any successful plaintiff would have had to be an innocent plaintiff. As Geistfeld states, now that the plaintiff’s contributory negligence is no longer a complete defense, the alternative causation doctrine should be available to negligent as well as innocent plaintiffs.⁵¹ The plaintiff’s contributory negligence is an affirmative defense, which the defendant must prove, that is distinct from the plaintiff’s prima facie case against the defendant, for which the alternative causation doctrine and its interactive justice rationale—but not the supposed “innocent plaintiff” rationale—remain relevant and applicable.

The *Summers* court shifts the burden of proof to the defendant to prove lack of causation, but it does not say or imply that the burden of persuasion the defendant must bear is changed from the usual preponderance standard. In contrast, the second part of Geistfeld’s

48. Geistfeld, *supra* note 10, at 475.

49. RESTATEMENT (SECOND) OF TORTS § 433B cmts. d & f (1965); *see supra* text accompanying note 45.

50. *See supra* text accompanying notes 22–23.

51. Geistfeld, *supra* note 10, at 497–99.

evidential grouping principle allows an inculpatated defendant to avoid liability only if she proves that it is not possible, rather than merely not probable, that her tortious conduct caused the injury.⁵²

Geistfeld includes this requirement to circumvent a critical but rarely noted problem that arises in the alternative causation cases when there are more than two defendants. If a defendant is only required to prove lack of causation by the preponderance standard and—as Geistfeld and others assume—that standard merely requires a 50+ percent statistical probability, then the statistical probabilities by themselves ordinarily will enable each defendant to prove, without more, that she was not the cause of the injury.⁵³ For example, if there are three defendants, each equally likely to have been the cause of the plaintiff's injury, there is a 67 percent probability that any particular defendant was not the cause. Contrary to the assumption of the *Restatements* and the holdings of the courts,⁵⁴ a plaintiff could never successfully employ the alternative causation doctrine when there are more than two tortious actors whose tortious conduct may have caused the plaintiff's injury.

Geistfeld's solution is to raise each defendant's burden of persuasion on lack of causation from a mere preponderance of the evidence to a virtual certainty: the defendant must prove that she "could not possibly have caused the harm."⁵⁵ He justifies raising the burden of persuasion to this extremely high level by the logical inconsistency that otherwise would result. Allowing each defendant to prove, by a preponderance of the evidence interpreted as a statistical probability, that her tortious conduct was not a cause of the injury would result in proof that none of the actors' tortious conduct was a cause, contrary to the plaintiff's prior proof by a preponderance of the evidence that the tortious conduct of one of the actors was a cause.⁵⁶

52. *Id.* at 465, 466.

53. *Id.* at 455.

54. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28(b) & cmts. d(1) & e, reporters' notes (Proposed Final Draft No. 1, 2005); RESTATEMENT (SECOND) OF TORTS §§ 433B(2)–(3) (1965).

55. Geistfeld, *supra* note 10, at 465–466.

56. *Id.* at 464–65, 468. Geistfeld sometimes recasts this argument as an assertion of an inconsistency between a defendant's (assumed) admission that she may have caused the injury and her stating that more probably than not she did not cause the injury. *Id.* at 466, 474. This version of the argument has been employed by Arthur Ripstein and Benjamin Zipursky to support market-share liability in *Sindell*. Ripstein & Zipursky, *supra* note 6, at 234–35. However, there

However, raising the defendant's burden of persuasion does not eliminate the logical inconsistency that results from interpreting the preponderance standard as merely requiring a 50+ percent statistical probability; it rather papers over the logical inconsistency by requiring the defendants, but not the plaintiff, to prove the relevant issue by a virtual certainty—a standard that was not applied by the *Summers* court and that has not been applied by any other court in this context.

Geistfeld supplements the logical inconsistency argument with a normative argument. He argues that a failure to shift the burden of proof to the defendants and to raise each defendant's burden of persuasion to a virtual certainty would be inconsistent with an alleged tort law norm of giving "equal weight or concern" to the interest of a nonculpable defendant in avoiding "false positives" regarding liability and the interest of a deserving plaintiff in avoiding "false negatives" by "apportion[ing] equally the burden of factual uncertainty or erroneous legal determinations between [them]"⁵⁷ He assumes that this alleged norm, which is based on the utilitarian conception of equality rather than the equal freedom principle that is the foundation of interactive justice,⁵⁸ underlies the interpretation of the preponderance standard as a 50+ percent statistical probability.⁵⁹ However, the preponderance standard, even as so interpreted, obviously does not treat the defendant and plaintiff equally but rather displays more concern for nonculpable defendants than it does for deserving plaintiffs, by preferring the defendant over the plaintiff when the probabilities are equally balanced. Moreover, it is not clear how allowing the plaintiff to prove tortious causation by the group of defendants (rather than by the individual defendant) by a preponderance of the evidence, but then requiring each defendant to prove lack of causation by a virtual certainty, gives equal weight and

is no such admission in either *Summers* or *Sindell* and, even if there were, there is no inconsistency in admitting possible causation while denying proof of actual causation or liability.

57. Geistfeld, *supra* note 10, at 461–62.

58. The erroneous identification of an equal weighting of interests—the fundamental premise of utilitarianism and economic efficiency—with the Kantian norm of "equal respect and concern" that underlies the concept of justice has been common not only among efficiency theorists but also among some proponents of interactive justice. See Richard W. Wright, *Justice and Reasonable Care in Negligence Law*, 47 AM. J. JUR. 143, 167–94 (2002); Richard W. Wright, *The Principles of Justice*, 75 NOTRE DAME L. REV. 1859, 1864–71 (2000).

59. Geistfeld, *supra* note 10, at 461–62.

concern to the interest of each defendant as compared with the plaintiff.

III. THE PREPONDERANCE OF THE EVIDENCE STANDARD

Geistfeld does not address the basic problem that gives rise to the apparent logical inconsistency in the alternative causation doctrine, which is brought into clear view when there are more than two possible tortfeasors. That problem is the common but erroneous assumption that the preponderance standard merely requires a 50+ percent statistical probability.⁶⁰

Instead, without apparently realizing that he is doing so, Geistfeld contradicts the standard as so interpreted when he notes, correctly, that “[j]udges generally have refused to accept naked statistics or *ex ante* causal probabilities as evidence of what actually happened on a particular occasion” and instead require “particularistic,” case-specific evidence of the actual existence on the particular occasion of the fact to be proved or disproved.⁶¹

Similarly, as Geistfeld notes,⁶² when the reporters for the *Restatement (Third)* discuss alternative causation situations involving more than two defendants, they also depart from the statistical probability interpretation of the preponderance standard, which they otherwise accept,⁶³ without advertising or perhaps realizing that they are doing so. The reporters state:

60. Arthur Ripstein and Benjamin Zipursky also make this assumption, but unlike Geistfeld they therefore would not allow the alternative causation doctrine to be applied when there are more than two defendants. Ripstein & Zipursky, *supra* note 6, at 243. They justify joint and several liability when there are only two defendants, despite the lack of proof that either defendant breached a duty of non-injury as required by their theory, on the ground that, since the probabilities of breach and non-breach are (supposedly) evenly balanced, the tie should be broken in favor of the plaintiff because doing so will result in only a 50 percent chance of the plaintiff's proceeding against the defendant who did not cause his injury, while not doing so “is *guaranteed* to leave the loss with the innocent plaintiff, and to relieve the negligent tortfeasor of liability.” *Id.* at 242. This argument is incorrect. Applying the alternative causation doctrine allows—indeed perhaps requires—the plaintiff to proceed against both defendants and to hold each potentially fully liable, and thus results in a 100 percent chance (guarantee) of the plaintiff's proceeding against the defendant who did not cause his injury. See *infra* text accompanying notes 102–105. The “injustices” are evenly balanced under their error-minimizing view of “justice.”

61. Geistfeld, *supra* note 10, at 467–68 (quoting Wright, *Bramble Bush*, *supra* note 2, at 1050–51); see PORAT & STEIN, *supra* note 43, at 87, 89. Portions of the following discussion are extracted from a much more extensive discussion in Wright, *Bramble Bush*, *supra* note 2, at 1048–77. See also Stella, *supra* note 1, at 411–15, 417–20.

62. Geistfeld, *supra* note 10, at 456 n.23, 474.

63. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM §§ 26 cmt. 1 & illus. 5, n, 28 cmt. a, reporters' note (Proposed Final Draft No. 1, 2005).

Defendants would be able to satisfy their burden of production when three or more defendants are subject to alternative liability in one of two ways: a defendant might show *why* it was not the cause of plaintiff's injury or it might show *which one* of the other defendants was the cause.⁶⁴

To show *why* she was not the cause or *which one* of the other defendants was the cause, the defendant must produce concrete particularistic evidence specific to the particular occasion, rather than mere abstract *ex ante* causal probabilities or noncausal "naked statistics," neither of which provide any information about what actually happened on the particular occasion. A judgment on what actually happened on a particular occasion is a judgment on which causal generalization and its underlying causal law was fully instantiated on the particular occasion. An item of particularistic evidence is a concrete feature of a particular occasion that instantiates, or negates the instantiation of, one of the abstract elements in a possibly applicable causal generalization. Particularistic evidence connects a possibly applicable causal generalization to the particular occasion by instantiating the abstract elements in the causal generalization, thereby converting the abstract generalization into an instantiated generalization. Without such particularistic evidence, there is no basis for applying the causal generalization to the particular occasion.

An abstract *ex ante* causal probability associated with some possibly applicable causal generalization is not evidence of what

64. *Id.* § 28 cmt. j, reporters' note at 565 (emphasis added). See also *Senn v. Merrell-Dow Pharmaceuticals, Inc.*, 751 P.2d 215 (Or. 1988), in which the court, while apparently adopting the statistical probability interpretation of the preponderance standard—and thus noting that in alternative causation situations involving two defendants, "the evidence is in equipoise" so that, "[i]n theory, one of the defendants can escape liability altogether by presenting some scintilla of exculpatory evidence greater than that the other defendant produces"—stated that in situations involving more than two defendants "the necessary quantum of exculpatory evidence cannot be easily articulated," despite noting that the probability of any defendant's being the cause if there are three defendants is only 33 1/3 percent. *Id.* at 223. Indeed, the court in *Senn* did not allow either defendant to be held liable even though one of the defendants had 73 percent of the market for the drug in question. *Id.* at 216 n.1; see *infra* text accompanying notes 132–135. I am not aware of any alternative causation case in which a court held one defendant liable and the others not liable because the one defendant had a 50+ percent statistical probability of being the cause, although that would surely be the situation in many cases even when, as in *Senn*, there are only two defendants. Consider *Summers* itself if one defendant was a better shooter, or if the shotgun cartridge for one defendant contained 340 pellets and the cartridge for the other contained only 339.

actually happened on the particular occasion because it provides no information on whether the abstract elements in the causal generalization and the underlying causal law actually were instantiated on the particular occasion. It merely states that X percent of the time that the known abstract elements in the causal generalization are instantiated, the unknown abstract elements required to complete the causal law are also instantiated. It does not help us determine whether this particular occasion is one of the X percent in which the causal law was fully instantiated, or instead is one of the 100 – X percent in which the causal law was not fully instantiated. If a horse wins 90 percent of its races or the odds are 90 percent that a spin of a roulette wheel will not result in the ball's landing on a certain number, no one who placed a bet either way in either situation will consider themselves to have won or lost the bet in the absence of particularistic evidence of the actual outcome of the particular race or spin of the wheel.

Even less relevant are “naked statistics,” which are reports of accidental groupings that neither instantiate an abstract element in a possibly applicable causal generalization nor are *ex ante* causal probabilities associated with any such generalization—for example, the fact that over half of the taxis in a town are owned by a particular company. When such naked statistics are presented to courts as alleged proof of causation, they are almost always rejected as having no relevance.⁶⁵

The preponderance of the evidence standard, properly interpreted, requires particularistic evidence rather than naked statistics or *ex ante* causal probabilities:

It has been held not enough that mathematically the chances somewhat favor a proposition to be proved; for example, the fact that colored automobiles made in the current year outnumber black ones [a naked statistic] would not warrant a finding that an undescribed automobile of the current year is colored and not black, nor would the fact that only a

65. *E.g.*, *Howard v. Wal-Mart Stores, Inc.*, 160 F.3d 358, 359–60 (7th Cir. 1998); *Smith v. Rapid Transit, Inc.*, 58 N.E.2d 754, 755 (Mass. 1945); Wright, *Bramble Bush*, *supra* note 2, at 1050 n.271. In the *Howard* case and again in *United States v. Veysey*, 334 F.3d 600, 605 (7th Cir. 2003), quoted by Geistfeld, *supra* note 10, at 467 n.55, Judge Posner repeats the mathematical probabilists' “missing evidence” argument to try to explain the courts' rejection of naked statistics. The flaws in that argument are discussed in Wright, *Bramble Bush*, *supra* note 2, at 1055–56.

minority of men die of cancer [an *ex ante* causal probability] warrant a finding that a particular man did not die of cancer. The weight or ponderance of evidence is its power to convince the tribunal which has the determination of the fact, of the actual truth of the proposition to be proved. After the evidence has been weighed, that proposition is proved by a preponderance of the evidence if it is made to appear more likely or probable in the sense that actual belief in its truth, derived from the evidence, exists in the mind or minds of the tribunal notwithstanding any doubts that may still linger there.⁶⁶

To determine whether a specific causal law was fully instantiated, we use particularistic evidence to assess, non-quantitatively, the *ex post* probability that each of the abstract elements in the causal law was instantiated. The *ex post* probability for complete instantiation of the causal law is equal to the lowest *ex post* probability for instantiation of any constituent element. The *ex post* probability for instantiation of the known abstract elements listed in the causal generalization is either based on direct particularistic evidence of such instantiation or, as with the unknown abstract elements required to complete the causal law, is circumstantially inferred from particularistic evidence of the network of causal relationships that encompasses the particular occasion. The final judgment on what actually happened depends on whether the unquantified *ex post* probability associated with a possibly applicable causal generalization—the *ex post* probability, based on all the particularistic evidence, that the causal law underlying the causal generalization was fully instantiated—is sufficient, in comparison with the unquantified *ex post* probability associated with competing causal generalizations, to produce the required degree of *belief in the truth* that the first causal generalization and its underlying law were the ones that were fully instantiated on the particular occasion.

In tort law, as in other areas of civil law, the required degree of belief generally is the attainment of the slightest degree of belief,⁶⁷

66. *Sargent v. Mass. Accident Co.*, 29 N.E.2d 825, 827 (Mass. 1940) (citations omitted).

67. *See e.g.*, *Livanovitch v. Livanovitch*, 131 A. 799, 800 (Vt. 1926) (“If . . . you are more inclined to believe from the evidence that he did so deliver the bonds to the defendant, even though your belief is only *the slightest degree* greater than that he did not, your verdict should be for the plaintiff.” (quoting the trial court’s jury instructions)).

rather than the much stronger degrees of belief required under the “clear and convincing evidence,” “beyond a reasonable doubt,” or virtual certainty standards. This is how the preponderance of the evidence standard traditionally has been understood and is presented to juries:

To “establish by a preponderance of the evidence” means to prove that something is more likely so than not so. In other words, a preponderance of the evidence in the case means such evidence as, when considered and compared with that opposed to it, has more *convincing* force, and produces in your minds *belief* that what is sought to be proved is more likely *true* than not true. This rule does not, of course, require proof to an absolute certainty, since proof to an absolute certainty is seldom possible in any case.⁶⁸

Jury instructions often refer to the “weight” of the evidence. Only concrete particularistic evidence has “weight.” The instructions generally refer to proof that the disputed fact is “more probably *true* than not *true*,” rather than simply “more likely than not” as a matter of abstract class-based statistics.⁶⁹ When “more likely than not” or some similar phrase is employed, it is usually clear from the surrounding language that the phrase is not being used to refer to a mere statistical probability, but rather to refer to the truth of what actually happened on the particular occasion. Empirical studies have found that few judges, jurors, or laypersons interpret the “preponderance of the evidence” standard or even a “more probable than not” standard as merely requiring a 50+ percent statistical probability. When asked to attach a quantitative probability to these phrases, many refuse to do so, and the great majority of those who do so specify a probability much higher than 50 percent.⁷⁰

68. 3 EDWARD H. DEVITT ET AL., *FEDERAL JURY PRACTICE AND INSTRUCTIONS (CIVIL)* § 72.01, at 32 (4th ed. 1987) (emphasis added); see also Wright, *Bramble Bush*, *supra* note 2, at 1065 & nn.337–39 (citing numerous sources).

69. *E.g.*, ILL. SUPREME COURT COMM. ON PATTERN JURY INSTRUCTIONS IN CIVIL CASES, *ILLINOIS PATTERN JURY INSTRUCTIONS: CIVIL* § 21.01 (2006) (“more probably true than not true”) [hereinafter *ILLINOIS PATTERN JURY INSTRUCTIONS*]; 4 LEONARD SAND ET AL., *MODERN FEDERAL JURY INSTRUCTIONS* ¶ 73.01, Instruction 73–2 (2007) (stating that “by a preponderance of the evidence” means “more likely true than not true,” considering the “weight” and “quality and persuasiveness” of the evidence).

70. When asked to do so by researchers, many judges explicitly object to interpreting burdens of proof in terms of quantitative probabilities. C.M.A. McCauliff, *Burdens of Proof: Degrees of Belief, Quanta of Evidence, or Constitutional Guarantees?*, 35 *VAND. L. REV.* 1293,

When the preponderance standard and its various substitutes are properly understood as requiring the formation of a minimal belief in the truth of a disputed fact, based on particularistic evidence specific to the particular occasion, the logical inconsistency that results from using the statistical probability interpretation of the preponderance standard in the alternative causation cases disappears, and there is no need to require an inculcated defendant in an alternative causation situation to prove lack of causation to a virtual certainty rather than by the usual preponderance of the evidence. As Geistfeld states:

[T]he plaintiff has provided particularistic evidence showing that each defendant belongs to the group of [possible] tortfeasors that caused the harm, whereas each defendant [using the statistical probability argument] only relies upon “quantitative probability” or “the greater chance” that the other defendants caused the injury. That evidence, however, is not probative of what actually happened on this particular occasion, since the evidence, when relied upon by each defendant, establishes that no one

1332 (1982); Rita James Simon & Linda Mahan, *Quantifying Burdens of Proof: A View from the Bench, the Jury, and the Classroom*, 5 LAW & SOC'Y REV. 319, 329 (1971) (quoting judges as stating that “[p]ercentages or probabilities simply cannot encompass all the factors, tangible and intangible, in determining guilt—evidence cannot be evaluated in such terms”). In one survey, 80 out of 255 judges refused to specify a probability sufficient for a “preponderance of the evidence” finding. McCauliff, *supra*, at 1325 n.184, 1330. Of the judges who were willing to do so, only about three-fifths chose a probability of 50 to 55 percent; about two-fifths chose a probability of 60 percent or greater, almost one-fifth a probability of 70 percent or greater, one-tenth a probability of 80 percent or greater, and one-twentieth a probability of 90 to 100 percent. *Id.* at 1331; Simon & Mahan, *supra*, at 324–25, 327 tbl.7. The distribution of probabilities was about the same for the more-probable-than-not standard. McCauliff, *supra*, at 1331. Laypersons—jurors and students—were even less willing to interpret the preponderance standard as a mere greater-than-fifty-percent probability. About four-fifths of the laypersons chose a probability of 70 percent or greater, half a probability of 80 percent or greater, and more than one-tenth a probability of 95 to 100 percent. Simon & Mahan, *supra*, at 327 tbl. 7; see also Dorothy K. Kagehiro & W. Clark Stanton, *Legal vs. Quantified Definitions of Standards of Proof*, 9 LAW & HUM. BEHAV. 159, 164, 169 (1985) (discussing an empirical study demonstrating a divergence between subjects’ findings under the preponderance standard and a quantified 51 percent standard, with results closer to those obtained under the preponderance standard even when the two standards were combined in the same instruction). Over 90 percent of the judges and about two-thirds of the laypersons were opposed to having jurors simply make a probability finding, which the judge would then use to determine liability. Simon & Mahan, *supra*, at 329, 330 n.8. Trial consultants continue to advise plaintiffs’ lawyers that “[m]any jurors will not agree to decide on the basis of 80 percent or 70 percent or 60 percent certainty,” but rather “expect you to prove your case beyond a reasonable doubt, and you won’t change their minds by explaining preponderance.” David Ball, *Making Preponderance Work*, TRIAL, Mar. 2008, at 38, 39. Instead, the trial consultants advise, repeatedly get witnesses to testify that something is “more likely right than wrong” and, “beyond that,” that they are “certain.” *Id.* at 40.

caused the harm, and that outcome is inconsistent with the plaintiff's uncontested particularistic proof that she was, in fact, injured by at least one of the defendants. To avoid liability, a defendant must instead provide [particularistic] evidence rebutting the plaintiff's particularized proof⁷¹

IV. INCREASED RISKS AND LOST CHANCES

Although phrases such as “more likely than not” or “balance of probabilities” have long been part of the legal language regarding the burden of persuasion in tort law and other areas of civil law, it is only in fairly recent years that they have come to be understood as mere statistical probability statements. A major locus of this shift in understanding is the toxic tort cases, in which proof often depends on, and often consists solely of, statistical epidemiological evidence. Such evidence is very useful, although neither necessary nor sufficient, in establishing that a toxic substance is capable of causing a particular kind of injury—the causal capacity or “general causation” issue. However, such evidence has also incorrectly come to be viewed by many courts as being sufficient to prove the actual occurrence of the relevant causal process on a particular occasion—“specific causation”—if exposure to the substance (which has to be proved by particularistic evidence specific to the particular occasion) more than doubles the frequency of occurrence of that kind of injury, so that it can be said that, whenever that injury occurs, it “more likely than not” was due to the exposure to the toxic substance.⁷²

On the other hand, “numerous jurisdictions have rejected medical experts’ conclusions based upon a ‘probability,’ a ‘likelihood,’ and an opinion that something is ‘more likely than not’ as insufficient medical proof,” and instead have required that the expert express a “reasonable medical certainty” about the fact at

71. Geistfeld, *supra* note 10, at 468.

72. *E.g.*, *Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311, 1313–14, 1318–22 (9th Cir. 1995); *Marder v. G.D. Searle & Co.*, 630 F. Supp. 1087, 1092 (D. Md. 1986), *aff’d*, 814 F.2d 655 (4th Cir. 1987); RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmt. c(4) (Proposed Final Draft No. 1, 2005). Geistfeld notes that the “doubling+” requirement is too stringent if exposure to the substance at issue accelerates or otherwise contributes to harms that would have occurred anyway absent such exposure. Mark Geistfeld, *Scientific Uncertainty and Causation in Tort Law*, 54 VAND. L. REV. 1011, 1033–35 (2001).

issue.⁷³ Unfortunately, “reasonable certainty” standards are not employed and have no meaning in the medical and scientific communities, so the plaintiff’s attorney can and often does fill the semantic void, and the plaintiff’s expert then employs the required terminology.⁷⁴

If the expert opinion, whether couched in terms of “reasonable certainty,” “more likely than not,” or “preponderance of the evidence,” is based only on an aggregate statistical probability, a good defense attorney will make explicit the purely statistical nature of the evidence and ask the expert, “Can you say whether the plaintiff’s exposure to the [relevant substance] actually caused the [relevant specific harm] in this case?” The expert—if honest—will reply, “No,” and be chagrined for having been made to appear to have contradicted her earlier testimony.

As in the alternative causation cases, the statistical probability interpretation of the preponderance standard produces odd results in the toxic torts cases. When exposure to a substance more than doubles the risk, the “doubling+” doctrine will result in defendants being held liable for every instance of the injury that occurs following exposure to the substance, even if there is no evidence that the substance actually caused the injury on any particular occasion, and even though exposure to the substance could only have caused a portion of the injuries. For example, if exposure to the substance barely doubles the frequency of occurrence of the injury, so that just over half of the injuries that occur following exposure to the substance are caused by that exposure, defendants nevertheless will be held liable in every case, for all of the injuries. Conversely, when, as is usually the case, exposure to the substance does not more than double the frequency of occurrence of the injury, no defendant will be liable for any of the injuries that occur following exposure to the substance, no matter how many may actually have been caused by such exposure, even though as many as half of the injuries may be due to exposure to the substance.⁷⁵

73. *Sterling v. Velsicol Chem. Corp.*, 855 F.2d 1188, 1200–01 (6th Cir. 1988); *see* RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmt. a (Proposed Final Draft No. 1, 2005).

74. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmt. a & cmt. a, reporters’ note (Proposed Final Draft No. 1, 2005).

75. *See id.* § 28 cmt. c(4).

The “doubling+” standard of proof of specific causation in the toxic tort cases should be recognized for what it is: a departure from the usual tort and civil law rules regarding proof of causation, which provides either full recovery or (much more often) no recovery, depending on the arbitrary fact of whether exposure to the substance just barely doubles or just barely fails to double the overall frequency of occurrence of the injury. When it is seen in its true light, rather than being mistakenly viewed as a straightforward application of the preponderance standard, the normative issue needs to be addressed: does the “doubling+” standard best promote justice in this context, or should there be a disallowance of any recovery absent specific proof of causation on the particular occasion even if exposure to the substance more than doubles the frequency of occurrence of the injury, or full or (more likely) partial recovery proportional to the probability of causation whether or not exposure to the substance more than doubles the frequency of occurrence of the injury?

The same normative issue arises in the medical malpractice context, where, again, most courts recognize the issue only when the probability of causation is equal to or less than 50 percent. Many courts erroneously assume that, if the doctor’s negligence in diagnosing or treating an ill patient deprived the patient of a 50+ percent statistical probability of avoiding the adverse health result that occurred—generally, death—then causation is easily established under the preponderance standard.⁷⁶

However, if the plaintiff would have had at most a 50 percent chance of survival with proper diagnosis and treatment, the normative issue is unavoidable even if it is not always explicitly acknowledged. Many jurisdictions, focusing on the need to deter negligent treatment of patients with less than a 50+ percent chance of

76. See, e.g., *Kramer v. Lewisville Mem’l. Hosp.*, 858 S.W.2d 397, 399–400 (Tex. 1993); cf. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 26 cmt. n (Proposed Final Draft No. 1, 2005) (assuming proof of causation, and thus full liability, if “the probability of a better outcome was in excess of 50 percent”). Rather than simply focusing on the initial probability of survival, the probability analysis should take into account the effect of the defendant’s negligence on the probability of death. For example, if a plaintiff with proper diagnosis and treatment would have had a 70 percent statistical probability of surviving, which was reduced to 45 percent by a defendant’s negligent diagnosis or treatment, there was less than a doubling of the risk of death ($55/30 = 1.83$), and only a 45 percent statistical probability ($(55 - 30) / 55$) that the death was caused by the defendant’s negligence. See RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 26 cmt. n, reporters’ note (Proposed Final Draft No. 1, 2005); Lars Noah, *An Inventory of Mathematical Blunders in Applying the Loss-of-a-Chance Doctrine*, 24 REV. LITIG. 369, 393–99 (2005).

survival and the doctor's breach of an affirmative obligation to take reasonable care to maximize the plaintiff's chance, have fashioned doctrines to allow the plaintiff to hold the defendant liable.⁷⁷ The initial decisions, and even some of the more recent ones, attempt to portray the liability as not being a departure from the usual proof of causation requirement. These decisions use a "substantial factor" instruction to send the causal issue to the jury, which is allowed to find causation and impose full liability despite a less than 50+ percent probability of survival even with proper diagnosis and treatment.⁷⁸ Some of the courts that employ this "relaxed causation" approach candidly admit that it "permits the jury to engage in some speculation with respect to cause and effect" and that juries, without being instructed to do so, "often discount damages according to the statistical evidence in order to accurately evaluate the true loss."⁷⁹ Other courts employing the "relaxed causation" approach explicitly restrict recovery to an amount proportional to the lost chance or the probability of causation.⁸⁰

Many courts treat the lost chance as the legal injury (an approach I initially supported but no longer support),⁸¹ which enables the factfinder to make a fairly straightforward finding of the defendant's having caused the loss of the chance and limits damages to the value of the lost chance.⁸²

Some of the courts that have adopted the "relaxed causation" approach, including the courts in *Hicks v. United States*⁸³ and *Hamil v. Bashline*,⁸⁴ the two leading cases that have been relied on by other courts,⁸⁵ have done so in situations in which the plaintiff allegedly

77. See RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 26 cmt. n & cmt. n, reporters' note (Proposed Final Draft No. 1, 2005); DAN B. DOBBS, THE LAW OF TORTS § 178 (2000).

78. See, e.g., *Holton v. Mem'l Hosp.*, 679 N.E.2d 1202, 1209–13 (Ill. 1997); *Hamil v. Bashline*, 392 A.2d 1280, 1286–89 (Pa. 1978). The *Holton* court noted that it had not been asked to treat the lost chance as a distinct, legally cognizable injury. 679 N.E. at 1210 n.1.

79. *Thompson v. Sun City Cmty. Hosp.*, 688 P.2d 605, 615–16 (Ariz. 1984).

80. See, e.g., *Cahoon v. Cummings*, 734 N.E.2d 535, 540–41 (Ind. 2000); *McKellips v. Saint Francis Hosp.*, 741 P.2d 467, 475–77 (Okla. 1987).

81. See *supra* text accompanying notes 3–7.

82. See RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 26 cmt. n & cmt. n, reporters' note (Proposed Final Draft No. 1, 2005); DOBBS, *supra* note 77, § 178.

83. 368 F.2d 626, 632 (4th Cir. 1966) (plaintiff "would have survived" with proper treatment).

84. 392 A.2d 1280, 1283 (Pa. 1978) (75 percent probability of survival).

85. Wright, *Bramble Bush*, *supra* note 2, at 1069.

had a much greater than 50 percent probability of survival that was totally eliminated by the defendant's negligence. They thus apparently reject the statistical probability interpretation of the preponderance standard, or else there would be no reason to discuss the need for a relaxed burden of proof of causation. At the least, they recognize that a mere statistical probability, no matter how high, is insufficient to prove whether the defendant's negligence caused the patient's death in the particular case. Some of the courts that treat the lost chance as a distinct legal injury also recognize this.⁸⁶ In his influential plurality opinion in *Herskovits v. Group Health Cooperative*,⁸⁷ which was the first judicial opinion to treat the lost chance as the legal injury, Justice Pearson criticized having all-or-nothing liability that arbitrarily turns on the satisfaction of a 50+ percent statistical probability threshold:

Under the all or nothing approach . . . a plaintiff who establishes that but for the defendant's negligence the decedent had a 51 percent chance of survival may maintain an action for that death. The defendant will be liable for all damages arising from the death, even though there was a 49 percent chance it would have occurred despite his negligence. On the other hand, a plaintiff who establishes that but for the defendant's negligence the decedent had a 49 percent chance of survival recovers nothing.⁸⁸

Just as the but-for test of actual causation "takes the eye off the ball" by asking what might have happened had things been different, rather than focusing attention on what actually did happen,⁸⁹ the statistical probability interpretation of the preponderance standard takes the eye off the ball by asking what was likely to happen *ex ante*, or what the abstract statistical odds were, rather than focusing on what actually happened *ex post*. Both forms of misperception infected the decision of the British House of Lords in *Hotson v. East*

86. *E.g.*, *DeBurkarte v. Louvar*, 393 N.W.2d 131 (Iowa 1986). The plaintiff's 50 to 80 percent chance of ten-year survival of cancer was reduced to zero by the defendant doctor's negligent diagnosis. *Id.* at 135, 137. The Iowa Supreme Court held that causation of a shortened life could not be established but that the plaintiff could recover for the reduced chance of a longer life. *Id.* at 135, 137–38.

87. 664 P.2d 474, 479–87 (Wash. 1983) (plurality opinion).

88. *Id.* at 486.

89. *See Wright, Causation, supra* note 3, at 1803.

Berkshire Area Health Authority,⁹⁰ which held that the defendant was not liable due to a lack of causation despite sufficient evidence of causation.

The plaintiff in *Hotson* was a thirteen-year-old boy who fell from a tree while playing on a school ground. The fall caused an acute traumatic fracture of the left femoral epiphysis and the rupture of some but not all of the blood vessels that supplied necessary blood to the epiphysis.⁹¹ The parties agreed that a group of blood vessels providing around 20 percent of the blood had been ruptured and that another group supplying somewhere under 30 percent had not been ruptured; they disagreed on whether a third group of blood vessels that provided around half of the blood had been ruptured.⁹² The defendant health authority negligently failed to diagnose the boy's condition when he was brought into the hospital a few hours after the accident, which delayed proper diagnosis and treatment of the injury for five days. During those five days, the plaintiff's expert argued, the bleeding from the ruptured blood vessels caused swelling of the epiphysis that compressed the distorted but intact blood vessels and blocked the blood supply from those blood vessels. The defendant's expert opined that no swelling and compression had occurred.⁹³ If there had been immediate treatment, no further damage to the blood supply would have occurred.⁹⁴ As a result of inadequate blood supply, the epiphysis became distorted and deformed, resulting in permanent injury to the boy's left hip and leg.⁹⁵

The trial judge stated that he was unable to accept either of the experts' "competing extreme views."⁹⁶ He found that, even if the health authority had correctly diagnosed and treated the plaintiff when he first arrived at the hospital, there was a 75 percent probability that he would have suffered the same permanent injury, which by the time he was actually treated was virtually certain to occur due to the compression and blocking of the intact blood vessels

90. [1987] 1 A.C. 750 (H.L.) (appeal taken from Eng.) (U.K.).

91. *Id.* at 779 (Lord Bridge of Harwich).

92. *Id.* at 791 (Lord Ackner).

93. *Id.* at 779–81 (Lord Bridge of Harwich).

94. *Id.* at 785 (Lord Mackay of Clashfern).

95. *Id.* at 790–91 (Lord Ackner).

96. *Id.* at 781 (Lord Bridge of Harwich).

by the bleeding from the ruptured blood vessels.⁹⁷ The House of Lords, focusing on the 75 percent probability that the permanent injury would have occurred in the absence of the defendant's negligence, held that the defendant was not liable due to lack of causation, which as a past fact is determined by the "balance of probabilities"—the British version of the preponderance of the evidence burden of persuasion.⁹⁸ Moreover, the court held, there could be no recovery for any lost chance: "In determining what did happen in the past a court decides on the balance of probabilities. Anything that is more probable than not it treats as certain."⁹⁹

The judges' myopic focus on the *ex ante* causal probabilities prevented them from paying careful attention to the evidence of what actually happened. It does not matter, with respect to the issue of factual causation, that there was a 75 percent probability that the permanent injuries would have occurred anyway because insufficient blood vessels remained intact, and thus a 75 percent probability that the delay was not a but-for cause of the permanent injury. The delay in treatment resulted in the preventable swelling of the epiphysis caused by bleeding from the ruptured blood vessels, which compressed and blocked the supply of blood from the intact blood vessels. The delay in treatment thus contributed to (was a NESS cause of) the loss of blood that caused the distortion and deformation of the epiphysis and the consequent permanent injuries to the left hip and leg (and was a but-for cause of all this happening earlier than it otherwise would have), just as stabbing a person who more likely than not already has been stabbed sufficient times to bleed to death, but who still has a significant amount of blood left and several hours to live, contributes to that person's bleeding to death (and is a but-for cause of the death happening earlier than it otherwise would have).¹⁰⁰

97. See *id.* at 779 (Lord Bridge of Harwich), 784–85 (Lord Mackay of Clashfern), 791–92 (Lord Ackner).

98. *Id.* at 782 (Lord Bridge of Harwich), 785, 789–90 (Lord Mackay of Clashfern), 792 (Lord Ackner).

99. *Id.* at 785 (Lord Mackay of Clashfern) (quoting *Mallett v. McMonagle*, [1970] A.C. 166, 176 (H.L.) (appeal taken from N. Ir.) (U.K.) (Lord Diplock)); accord, *Hotson*, 1 [1987] A.C. at 792 (Lord Ackner).

100. See Wright, *Legal Responsibility*, *supra* note 6, at 1443–44; *supra* text accompanying notes 30–32. Stephen Perry notes the physical consequences of the delay in treatment, but, like the House of Lords, he focuses on but-for causation and the "balance of probabilities" and thus fails to note the physical consequences' causal contribution to the permanent injuries. See Perry, *supra* note 4, at 252–61. As Jane Stapleton notes in *Occam's Razor Reveals an Orthodox Basis*

The defendant health authority might still have been able to escape liability through the “no worse off” limitation on attributable responsibility, if the permanent injury would have occurred anyway as the result of the non-liability-generating condition of the ruptured blood vessels caused by the plaintiff’s fall from the tree. But now the shoe is on the other foot when considering the probabilities. Once the plaintiff has established that the defendant’s negligence caused (contributed to) his injury, as should have been found in *Hotson*, the courts generally will not—and should not—let the defendant escape liability for the injury that it negligently caused unless the defendant proves that it is nearly certain (or at least “clear and convincing”) that the injury would have occurred anyway: any uncertainty should be resolved in favor of the wronged plaintiff rather than in favor of the wrongdoer.¹⁰¹ The 75 percent probability that the permanent injury would have occurred anyway is, I believe, not sufficient to justify letting the defendant health authority off the hook for the injury that it negligently caused.

V. MARKET SHARE LIABILITY

Although the courts generally have required that all the possible tortfeasors be joined as defendants in order for the alternative causation doctrine as applied in *Summers* to be applicable,¹⁰² they have not imposed that requirement in the very similar cases involving theoretically separable but practically inseparable injuries,¹⁰³ nor is such a requirement stated in *Summers* or the *Restatement (Second)*. In fact, as the *Sindell* court noted,¹⁰⁴ the *Restatement (Second)* explicitly leaves open the possibility of applying the doctrine when all the possible tortfeasors are not joined

for *Chester v. Afshar*, 122 LAW Q. REV. 426, 429–30, 437 (2006), the Law Lords refused to follow the logic of either the but-for test or the “balance of probabilities” standard of proof in *Chester v. Afshar*, [2004] UKHL 41, [2005] 1 A.C. 134 (appeal taken from Eng.) (U.K.). The various speeches in *Chester* confuse loss with risk, causation of loss with increasing risk, and causation of loss with issues of attributable responsibility (“proximate” causation).

101. See Wright, *Legal Responsibility*, *supra* note 6, at 1434–67; *supra* text accompanying note 40.

102. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmt. g (Proposed Final Draft No. 1, 2005).

103. RESTATEMENT (SECOND) OF TORTS § 433B cmt. c (1965); see RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmt. d(1) (Proposed Final Draft No. 1, 2005).

104. *Sindell v. Abbott Labs.*, 607 P.2d 924, 931 n.16, 936 (Cal. 1980).

as defendants.¹⁰⁵ Under the interactive justice rationale for the alternative causation doctrine, the critical point (in addition to the inherent impossibility of resolving the causation issue) is that the plaintiff must prove that he was wronged and that the defendant is a person whose tortious conduct may have caused that wrong. This requires only that the plaintiff prove that all the possible alternative causes of the injury were tortious, not that the plaintiff join them all in his lawsuit and bring them all before the court.

The courts in *Sindell* and *Hymowitz*, confronted with cases in which there were hundreds of manufacturers who might have manufactured the diethylstilbestrol (DES) drug that caused the plaintiff's cancer, not all of whom could be joined as defendants, applied an "extended" and modified version of *Summers*'s alternative causation doctrine, which imposes proportionate several liability based on the joined defendants' respective shares of the market for the injurious product. They were unwilling to impose full joint and several liability as in *Summers* for two related reasons. First, the large number of possible tortfeasors greatly increases the number of defendants who would be held liable who did not contribute to the specific injury and correspondingly lowers the probability that any particular one of them wrongfully caused that injury, thereby rendering increasingly tenuous the justice argument for imposing full liability on each defendant. Second, the large number of wronged plaintiffs means that each defendant would be held fully liable for a total number of injuries—all those caused by the injurious product—that is much greater than the number that could possibly have been caused by its tortious conduct.¹⁰⁶

The market share proportional liability scheme adopted in *Sindell* and *Hymowitz* addresses both of these concerns. As the *Sindell* court explained, in a statement that the *Hymowitz* court later

105. RESTATEMENT (SECOND) OF TORTS § 433B cmt. h (1965); *cf.* RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmt. g (Proposed Final Draft No. 1, 2005) ("[I]t would be reasonable to excuse the plaintiff from this joinder requirement when an immunity or lack of jurisdiction prevents the joinder.").

106. *Sindell*, 607 P.2d at 928, 931, 936–38; *Hymowitz v. Eli Lilly & Co.*, 539 N.E.2d 1069, 1074, 1076, 1078 & n.3 (N.Y. 1989). *But see* *Martin v. Abbott Labs.*, 689 P.2d 368, 383 (Wash. 1984) (holding liable defendants unable to prove their actual market share liable, pro rata, for the balance of the market); *Collins v. Eli Lilly Co.*, 342 N.W.2d 37, 50–53 (Wis. 1984) (apportioning liability for the entire market among the liable defendants using comparative negligence principles); *Hondius*, *supra* note 1, at 410–11, 412 (discussing the Hoge Raad's imposition of full joint and several liability on the defendant DES manufacturers).

correctly described as the “central justification” for *Sindell*’s market share approach,¹⁰⁷ the defendants’ arguments that imposing any liability would be “unfair and contrary to public policy” were “based upon the assumption that one manufacturer would be held responsible for the products of another or for those of all other manufacturers if plaintiff ultimately prevails. But under the rule we adopt, each manufacturer’s liability for an injury would be approximately equivalent to the damages caused by the DES it manufactured.”¹⁰⁸ That is, one would expect that the percentage of the total DES plaintiffs who were actually injured by each defendant’s marketing of the generically identical formulations of DES is approximately the same as that defendant’s share of the total DES market, so holding each defendant liable in each case for a share of the damages in that case equal to its market share is roughly the same as what the defendant would and should be liable for if the plaintiffs that actually were injured by its DES could be identified.

Viewed in this light, the market share version of the alternative causation doctrine results in the least departure from the causation requirement, rather than being the most radical departure, as is often claimed. The wrongfully acting defendant has much less reason to complain under the market share version than it would under the full (joint and several) liability version as applied in *Summers*. Not only is the liability reduced from full liability to partial liability (based on the defendant’s share of the relevant market), but also, given the large number of cases, each defendant’s aggregate liability will roughly equal the share of the total damages that it actually caused, rather than having all but one defendant held liable although they did not cause any injury, as occurs in single incident situations like *Summers*.

Sindell requires the plaintiff to join as defendants the manufacturers of a “substantial share” of the market,¹⁰⁹ but neither the *Hymowitz* court nor any other court that has adopted some form of the market share theory has required this.¹¹⁰ Contrary to what is

107. *Hymowitz*, 539 N.E.2d at 1076.

108. *Sindell*, 607 P.2d at 938; *see id.* at 937.

109. *Id.* at 937.

110. *See Hymowitz*, 539 N.E.2d at 1076–78. Two of the better known cases, in addition to *Hymowitz*, are the *Martin* and *Collins* cases cited *supra* note 106.

sometimes assumed,¹¹¹ and as the *Sindell* court seems to have intended with its requirement that the plaintiff join a “substantial share” of the market,¹¹² the point is not—or should not be—to assure a high or substantial probability that liability will be imposed on and damages paid by the DES manufacturer whose tortious conduct actually caused the injury. That entity still may not be one of the joined defendants, and, even if it is, it will at best pay only a portion of the damages and may well pay none if it is insolvent or has such a small share of the market that it would be too costly for the plaintiff to try to collect from it. Rather, as *Sindell* emphasizes, the point is to have each defendant pay (roughly) for its share of the total DES-related injuries, by paying a share of each injury equal to its share of the relevant DES market,¹¹³ and there is no need to require joinder of any other possible tortfeasors in order to accomplish this objective for any particular defendant.

The correlation between the damages the defendant actually caused and the damages for which the defendant is held liable will be greatest under the market share scheme adopted in the *Hymowitz* case. Nevertheless, some courts and interactive justice scholars find *Hymowitz* to be the most radical and objectionable tort case, since it holds a defendant liable in proportion to her market share even when the defendant can prove that it was not the cause of the particular plaintiff’s injury.¹¹⁴ As the *Hymowitz* court explains, allowing such exculpation would detract from the overall objective of the market share scheme, which does not seek to hold a defendant liable for the particular injuries that it caused, which generally is impossible to do in this context, but rather to hold it liable to the extent feasible for the share of the total damages that it actually caused. If the defendant were allowed to exculpate itself, it would pay zero damages in those cases while paying only its market share in other cases, resulting

111. *E.g.*, RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 28 cmt. g (Proposed Final Draft No. 1, 2005).

112. *See Sindell*, 607 P.2d at 936–37.

113. *Id.* at 937–38.

114. *See, e.g.*, *Smith v. Eli Lilly & Co.*, 560 N.E.2d 324, 334 (Ill. 1990); WEINRIB, *supra* note 4, at 154–55 & n.20; Goldberg & Zipursky, *supra* note 9, at 1413–14, 1416 n.16; Ripstein & Zipursky, *supra* note 6, at 215–16, 228, 238.

overall in underpayment for the share of the total damages that it actually caused.¹¹⁵

It may seem that the *Hymowitz* court is inconsistent with respect to this overall objective, since it allows a plaintiff to obtain full damages from a defendant if the plaintiff can prove that the defendant caused her particular injury.¹¹⁶ However, it clearly would be an injustice to the individual plaintiff to require that her fully proven, “first-best” interactive justice claim must be sacrificed to the “second-best” market share interactive justice scheme. The imbalance introduced into the market share scheme by holding the defendant fully liable to such a plaintiff can be reduced by allowing the defendant to bring a contribution action against the other participants in the market to obtain reimbursement from them for their share of the plaintiff’s damages.¹¹⁷

The courts that have rejected market share liability generally have done so for practical reasons, including administrative complexities and the difficulty of establishing actual market shares, especially when the products put into the market by different defendants are not fungible or create different amounts of risk. The trial court in *Sindell* ultimately found it necessary and feasible to use a national market, as did the *Hymowitz* court.¹¹⁸ Some courts, in addition to citing the practical problems, have also asserted that market share liability is too radical a departure from established tort principles, in particular the causation requirement,¹¹⁹ but these assertions ring hollow. Market share liability more closely conditions defendants’ liability on their tortious causation of wrongs

115. *Hymowitz*, 539 N.E.2d at 1078 & n.3. Although the court stated that, given its adoption of a national market for the purpose of calculating market shares, its market share theory could not be “founded upon the belief that, over the run of cases, liability will approximate causation *in this State*,” *id.* at 1078 (emphasis added), and that it was apportioning liability “so as to correspond to the over-all culpability of each defendant, measured by the amount of risk of injury each defendant created to the public-at-large,” *id.*, its use of national market shares to measure that risk and culpability and its disallowance of exculpation clearly were intended to have each defendant’s liability approximate, as closely as possible, the share of the total DES damages actually caused nationally by that defendant, with respect to the portion of those damages for which claims were brought in the New York courts. *See id.* at 1077 (noting that many of the New York claims undoubtedly involved DES ingested in another state).

116. *Id.* at 1073.

117. *Smith*, 560 N.E.2d at 345, 349 (Clark, J., dissenting).

118. *Hymowitz*, 539 N.E.2d at 1076–77; *see* Aaron D. Twerski, *Market Share—A Tale of Two Centuries*, 55 BROOK. L. REV. 869, 870 & n.5 (1989).

119. *See, e.g., Smith*, 560 N.E.2d at 328–29, 334–36, 345.

than do many other doctrines—the *Summers* alternative causation doctrine, the “doubling+” doctrine in the toxic tort cases, the medical lost chance doctrine, and especially the *res ipsa loquitur* doctrine (discussed in Part VI below)—that are accepted by many courts, including those courts that object to the market share doctrine.¹²⁰

It is true that a tension with the interactive justice principle is created by *Hymowitz*’s disallowance of exculpation by a defendant who can prove that it did not cause the plaintiff’s injury and, similarly, by the suggested allowance of contribution actions by an inculpated defendant against defendants known not to have caused the plaintiff’s injury. Interactive justice claims assert that a wrong (possibly) has been or is about to be inflicted on the plaintiff by the defendant. While *Hymowitz* does not sacrifice a plaintiff’s first-best interactive justice claim to the second-best market share liability regime, it does, by holding liable a defendant who did not wrong—or even possibly wrong—the plaintiff, seem to hold the defendant liable without any interactive or distributive justice justification and thus to create an interactive justice wrong to the defendant.¹²¹ Yet, unlike the “fault pools” promoted by Jules Coleman and others, the defendant is not being held liable for mere imposition of risk in the absence of causation of any injury or in the absence of any other (e.g., distributive justice) justification.¹²² Rather, the defendant is being held liable for the damages that it wrongfully caused in the

120. For the Supreme Court of Illinois’s unsuccessful attempt to explain why market share liability is a radical departure from fundamental tort principles, but *Summers*’s alternative causation doctrine and the *res ipsa loquitur* doctrine—both of which it accepts—are not, see *id.* at 339–40. The court subsequently adopted, while claiming not to have done so, the “relaxed causation” version of the medical lost chance doctrine. *Holton v. Mem’l Hosp.*, 679 N.E.2d 1202, 1209–13 (Ill. 1997). It noted that it had not been asked to adopt the “risk exposure as injury” liability doctrine. *Id.* at 1210 n.1.

121. See Wright, *Right, Justice and Tort Law*, *supra* note 6, at 178–80; Richard W. Wright, *Substantive Corrective Justice*, 77 IOWA L. REV. 625, 702–05 (1992).

122. Coleman’s advocacy of fault pools and no-fault systems is described and criticized in Wright, *Right, Justice and Tort Law*, *supra* note 6, at 176–80; Wright, *Substantive Corrective Justice*, *supra* note 121, at 665–83, 704–05; see also COLEMAN, *supra* note 4, at 401–06. He claims that *Sindell* and *Hymowitz* neither implement nor conflict with interactive justice, but rather set up a “localized at-fault pool” that, in *Hymowitz*, displaces interactive justice claims. *Id.* at 405–06. This is wrong. As is discussed in the text, *Sindell* and (arguably) *Hymowitz* set up second-best interactive justice liability regimes, which, moreover, do not displace first-best interactive justice claims. Coleman erroneously states that I interpret and defend *Hymowitz* as imposing liability for the wrongful imposition of risk. *Id.* at 399–400. In my only previous discussion of the *Hymowitz* case, I briefly defended it on the grounds that are elaborated here. See Wright, *Once More*, *supra* note 8, at 1118 & n.163.

aggregate, and this is most true under *Hymowitz's* liability regime. Thus, although there undoubtedly is a tension with first-best interactive justice, I believe *Hymowitz's* liability regime can be defended as a proper second-best interactive justice solution in the special context of situations like the DES cases.

Geistfeld only attempts to explain and justify *Sindell's* market share liability rule—again through his evidential grouping principle rather than any interactive justice or efficiency argument. He relies on the 50+ percent statistical probability interpretation of the preponderance standard and *Sindell's* requirement that plaintiffs join as defendants DES manufacturers representing a “substantial share” of the DES market, which he implicitly assumes must be more than 50 percent (or else his argument will not work). He also relies on the legal fiction that was relied on by the British House of Lords in *Hotson*—that anything that is proved to be more probable than not is, under the statistical probability interpretation of the preponderance standard, treated as certain. He argues that, since it is more likely than not that an evidential group composed of defendants that supplied more than half of the DES market contains the manufacturer whose DES drug actually caused the plaintiff's injury, application of the preponderance standard interpreted as a statistical probability “proves” that this group—or, to the same effect, one of its members, each of whom may have caused the injury—caused the plaintiff's injury, and, conversely, that none of those outside the group caused the plaintiff's injury. Therefore his evidential grouping principle (which, unlike the *Restatement (Second)*, requires that all possible tortfeasors be joined as defendants) is satisfied, and the alternative causation doctrine applies to the members of the group.¹²³

Although it is not entirely clear, given Geistfeld's confusing (and perhaps confused) discussions of joint and several liability, he apparently recognizes that, under the alternative causation doctrine and his evidential grouping principle, each defendant in the group is jointly and severally liable for the entirety of the plaintiff's damages (unless the defendant proves that she did not cause the plaintiff's injury), but he assumes that each defendant would ultimately pay only a fractional share of the total damages as a result of contribution actions among the defendants. The fractional share would be based

123. Geistfeld, *supra* note 10, at 478–79, 481–82 & n.93.

on each defendant's proportionate contribution to the overall risk created by the evidential group, for which the defendant's share of the (group's) market is a sufficient proxy when the product in question is fungible and risk exposure occurs identically through each instance of consumption of the product, as was assumed to be true for the DES drug.¹²⁴

However, this extension of *Summers* would result in each defendant's being held liable for more than her proportionate share of the damages, even after contribution by the other defendants, considering the risks created by all the possible tortfeasors, including those not included in the smaller group. This result, Geistfeld asserts, would be unfair, although nothing in his evidential grouping principle explains why it would be unfair. He argues that, to avoid this unfair excessive liability, each defendant's liability should be limited in proportion to the probability that she actually caused the injury.¹²⁵ But then the plaintiff would not receive, in the aggregate, 100 percent of her damages, as is intended under the alternative causation doctrine. This problem, Geistfeld states, explains why the courts require that all possible tortfeasors be joined as defendants and brought before the court: to ensure that the plaintiff receives 100 percent compensation without imposing excessive liability on any defendant. However, if all the possible tortfeasors must be joined the plaintiff will receive nothing when this is not possible. To enable the plaintiff to obtain some recovery from the defendants who are brought before the court, without imposing excessive liability on any defendant, Geistfeld argues that the alternative causation doctrine and his evidential grouping principle must be modified in this context (when all tortfeasors cannot be joined) by limiting each defendant's liability to a share of the plaintiff's damages equal to the defendant's proportionate contribution to the risk created by all the possible tortfeasors—which is *Sindell's* liability rule.¹²⁶

As Geistfeld acknowledges, his argument does not explain *Hymowitz* or any of the other market share liability cases other than *Sindell*,¹²⁷ which unlike *Sindell* do not require joinder as defendants of manufacturers representing a “substantial share” of the market.

124. *Id.* at 480, 482, 490–92 & n.122.

125. *Id.* at 480–83, 492.

126. *Id.* at 480–83.

127. *Id.* at 483–84.

Nor does his argument even explain *Sindell* if the required “substantial share” in *Sindell* is less than or equal to 50 percent. If the evidential group of joined defendants does not represent more than half of the market, it cannot be “proven,” through use of the statistical probability interpretation of the preponderance standard, that (one of the members of) the evidential group caused the plaintiff’s injury.

Moreover, Geistfeld’s argument has an internal inconsistency that invalidates it as an explanation of *Sindell*, even with a required joinder of defendants representing more than half of the market. The assumption of excessive liability that supposedly justifies shifting from joint and several liability to proportionate several liability based on actual market shares contradicts his argument that it has been proven (by a statistical probability) that all the possible tortfeasors are members of the smaller (“substantial share” of the market) group. Given that “proof,” there is no excessive liability when the full liability is divided up among the members of the smaller group, either initially or through contribution actions. Bringing those excluded from the smaller group back into the picture in order to argue that there is excessive liability for those in the smaller group, based on proportionate risk contribution calculated in terms of the initial larger group, is contrary to and undermines the purported “proof” that the smaller group contains all the possible tortfeasors.¹²⁸

As with the basic alternative causation doctrine in *Summers*, taking the statistical probability interpretation of the preponderance standard seriously leads to a *reductio ad absurdum* when it is applied to the DES cases. Geistfeld’s argument, which depends on the statistical probability interpretation, can be applied repeatedly to carve successively smaller groups out of the original group of

128. Geistfeld’s argument also fails to explain why all the possible tortfeasors must be joined as defendants. He claims that this is necessary for the plaintiff to be able to recover 100 percent of her damages. *Id.* at 481. However, under *Summers*’s alternative causation doctrine, each defendant who is unable to prove lack of causation is jointly and severally liable for the entirety of the plaintiff’s damages. *Summers v. Tice*, 199 P. 2d 1, 4 (Cal. 1948). The plaintiff will be unable to recover all of her damages only if the doctrine is changed so that each defendant’s liability initially is only proportionate several liability rather than joint and several liability, and even then only if one or more defendants in the group is unavailable or insolvent, since, as explained in the text, the proportionate shares of the members of the smaller group should add up to 100 percent. In any event, it is odd to argue, as Geistfeld does, that the plaintiff’s inability to recover all of her damages under the proportionate several liability approach explains the requirement that all the possible tortfeasors be joined, which results in the plaintiff’s receiving zero damages given the initial assumption that all the possible tortfeasors cannot be joined.

possible tortfeasors, by “proving” at each step that the increasingly smaller group contains all the possible tortfeasors, one of whom caused the plaintiff’s injury, until we are down to a single defendant who is “proved” to have caused the plaintiff’s injury and thus is fully liable for that injury. His argument, taken to its logical conclusion, would support liability not only when the plaintiff joins as defendants DES manufacturers representing at least half of the market, as he assumes is required in *Sindell*, but also liability without such a joinder requirement—as in *Hymowitz* and the other cases that have approved some form of market share liability—but it would go much further than *Sindell* and *Hymowitz* in supporting full (joint and several) liability rather than proportionate several liability.

Another consequence of taking the statistical probability interpretation of the preponderance standard seriously is that a single defendant who had more than 50 percent of the market—for example, 55 percent—should be held liable as a matter of law for each of the injuries caused by the product at issue, even though it could have caused only around 55 percent of the total injuries. The plaintiff in *Sindell* alleged that Eli Lilly and five or six other companies produced 90 percent of the marketed DES,¹²⁹ and it has been stated that Eli Lilly may well have supplied, directly or indirectly, more than half of the marketed DES.¹³⁰ It thus is worth noting how carefully the *Sindell* court phrased its statements on proof of causation of the plaintiff’s injury. The court observed that an inference of causation based on statistical probability would fail “if we measure the chance that any one of the defendants supplied the injury-causing drug by the *number* of possible tortfeasors,”¹³¹ rather than by the defendant’s market share. It seems fairly clear that, even if Eli Lilly was involved in production of more than half of the marketed DES, no court would or should hold Eli Lilly fully liable for each (and thus every) DES injury, although such a result would be mandated under the statistical probability interpretation of the preponderance of the evidence standard.

129. *Sindell v. Abbott Labs.*, 607 P.2d 924, 937 (Cal. 1980).

130. See Aaron M. Levine, “*Gilding the Lilly*”: A DES Update, 20 TRIAL, Dec. 1984, at 18, 19–20.

131. *Sindell*, 607 P.2d at 931 (emphasis added); see *id.* at 936–37.

As far as I know, only one court, the Supreme Court of Oregon in *Senn v. Merrell-Dow Pharmaceuticals, Inc.*,¹³² has even suggested such a possibility. The *Senn* court, noting that one defendant had supplied 73 percent of the DPT vaccine in the state and the other defendant had supplied the other 23 percent, stated that, because neither party had raised the issue, “we do not now consider whether proof that a particular manufacturer’s share of the relevant market is greater than 50 percent satisfies the preponderance of evidence standard on the issue of causation” and then cited articles referring to the “naked statistics” issue.¹³³ The answer should be yes, as a matter of law, if the court took literally and seriously what it described elsewhere in the opinion as the “traditional 50+ percent (‘more probable than not’) preponderance of evidence standard.”¹³⁴ Ironically, the court rejected the alternative causation doctrine (becoming one of the very few courts to do so) even though there were only two possible tortfeasors, each of whom was joined as a defendant, because of “the violence it does to the causation-in-fact element of tort law,”¹³⁵ while mentioning as possibly plausible using the naked 73 percent statistic to “prove” causation by one of the defendants, which would result in much greater violence being done to the causation requirement and just principles of liability, especially if there were numerous plaintiffs, to each of whom the defendant would be fully liable.

VI. *RES IPSA LOQUITUR* AND ENTERPRISE LIABILITY

Geistfeld proposes a different version of evidential grouping to explain and justify the liability result in *Ybarra v. Spangard*.¹³⁶ In *Ybarra*, an unconscious patient suffered a traumatic injury during or after an operation, which had to have been caused by one or more of the attending doctors or nurses, only some of whom were employees of the hospital.¹³⁷ The court, noting that the plaintiff obviously was unable to identify the person(s) who injured him “unless the doctors and nurses in attendance voluntarily chose to disclose the identity of

132. 751 P.2d 215 (Or. 1988).

133. *Id.* at 216 n.1.

134. *Id.* at 222.

135. *Id.*; see *supra* note 64.

136. 154 P.2d 687 (Cal. 1944).

137. *Id.* at 688, 690.

the negligent person and the facts establishing liability,” stated that “the particular force and justice of the [*res ipsa loquitur* doctrine], regarded as a presumption throwing upon the party charged the duty of producing evidence, consists in the circumstance that the chief evidence of the true cause, whether culpable or innocent, is practically accessible to him but inaccessible to the injured person.”¹³⁸ The court employed an expanded version of the doctrine to create a rebuttable presumption of negligent causation of the injury by each of the doctors and nurses, who thus were each jointly and severally liable, except for those who proved (through specific evidence rather than a mere statistical probability) that they did not negligently contribute to the injury.¹³⁹

Geistfeld’s normal evidential grouping argument will not work to justify the joint and several liability in *Ybarra*, since there was no specific evidence of negligence by any of the defendants and not all of the attending nurses were joined as defendants.¹⁴⁰ He instead argues that, “[s]ince the defendants acted together as a group in providing surgical treatment to the plaintiff, and since the nature of their conduct made it impossible for the plaintiff to identify the individual tortfeasor, the defendants’ conduct provided a sufficient reason to group them for evidentiary purposes.”¹⁴¹ This is a weak and extremely overbroad rationale for imposing joint and several liability on each of the defendants in the absence of any specific proof of negligence or causation, especially with respect to the joined nurses who likely had no knowledge of what occurred and no way of finding out.¹⁴²

Ybarra has been heavily criticized and rarely followed.¹⁴³ By creating an *en masse* rebuttable presumption of negligence and causation by each doctor and nurse, it is a radical extension of the usual *res ipsa loquitur* doctrine in the United States, which only

138. *Id.* at 689 (quoting 9 JOHN HENRY WIGMORE, TREATISE ON THE ANGLO-AMERICAN SYSTEM OF EVIDENCE IN TRIALS AT COMMON LAW § 2309, at 382 (3d ed. 1940)).

139. *Id.* at 690–91.

140. *See id.* at 688.

141. Geistfeld, *supra* note 10, at 473.

142. *See supra* text accompanying notes 42–44. Geistfeld sets aside the *Ybarra* court’s focus on the “conspiracy of silence” in medical practice and the court’s assumption that someone among the defendants must have known what happened, since those factors did not exist in *Summers* and he is seeking to analogize *Ybarra* to *Summers*. Geistfeld, *supra* note 10, at 473.

143. PORAT & STEIN, *supra* note 43, at 68–69; *see* DOBBS, *supra* note 77, § 249.

permits (rather than requires) an inference of negligence and causation, only permits such an inference against individual defendants, and only permits the inference if certain conditions are met, which are usually stated as follows:

It may be inferred that harm suffered by the plaintiff is caused by negligence of the defendant when

(a) the event is of a kind which ordinarily does not occur in the absence of negligence;

(b) other responsible causes, including the conduct of the plaintiff and third persons, are sufficiently eliminated by the evidence; and

(c) the indicated negligence is within the scope of the defendant's duty to the plaintiff.¹⁴⁴

Ybarra dispenses with condition (b), which requires that the negligence inferred through satisfaction of condition (a) be attributable to the particular defendant.¹⁴⁵

Although it is not generally recognized, even with condition (b) intact, the *res ipsa loquitur* doctrine, as commonly stated, constitutes a major departure from not only the individualized proof of causation requirement, but also, even more significantly, the requirement that the plaintiff prove that the particular defendant was negligent. Interpreted literally, condition (a) in the *Restatement (Second)* formulation allows an inference of negligent conduct, which is subsequently attributed to the defendant through satisfaction of condition (b), based on a mere *ex ante* statistical frequency. If, in the aggregate, most (50+ percent) occurrences of this type of event are caused by negligence, then negligent causation by someone can be inferred without any specific evidence of negligence by the defendant or anyone else on the particular occasion, and that

144. RESTATEMENT (SECOND) OF TORTS § 328D(1) (1965). As David Kaye has pointed out, the phrasing of condition (a) is ambiguous, and it is an improper basis for even a statistically based inference of negligence if it is interpreted literally. David Kaye, *Probability Theory Meets Res Ipsa Loquitur*, 77 MICH. L. REV. 1456, 1461–64 (1979). The problem is not—as Kaye assumes—with the phrase “ordinarily does not occur,” see *id.*, but rather with the phrase “in the absence of.” If “in the absence of negligence” means “if there is no negligence,” condition (a) merely says that accidents of this type do not usually occur when there is no negligence, which does not support an inference that, when an accident does occur, it usually is due to negligence. “In the absence of negligence” should be replaced with “unless there is negligence.”

145. 154 P. 2d at 690.

negligence can then be attributed to the defendant through satisfaction of condition (b).

Thus, contrary to what is commonly stated,¹⁴⁶ it is not true that *res ipsa loquitur* is merely a fancy Latin name, employed in the particular context of proving the defendant's causal negligence, for the ordinary use of circumstantial evidence to make a straightforward factual inference. Circumstantial evidence is concrete evidence specific to the particular occasion about the network of instantiated causal relationships leading to and flowing from the particular factual issue being litigated. For example, a person's running away from the scene of a murder immediately after it happened with blood on her that matches the victim's blood and holding a knife, the blade of which matches the victim's stab wound, is strong circumstantial evidence that she stabbed the victim. The inference of negligence allowed by the *res ipsa loquitur* doctrine as stated by the *Restatement (Second)* and many courts, interpreted literally, does not require any such case-specific evidence of what actually happened on the particular occasion, but rather only abstract statistical data (or assumptions) on what usually (50+ percent of the time) has happened in such situations.

An inference of negligence on the particular occasion based merely on abstract aggregate statistics is valid if the sort of accident that occurred never (or almost never?) happens unless there is negligence. Such proof is required if the word "ordinarily" is left out of condition (a) in the *Restatement (Second)* formulation, so that the plaintiff must prove that the event is of a kind that does not, or could not, or would not happen unless there is negligence. This is how the situation was described in the case that gave birth to the phrase and how the requirement is still described by some courts.¹⁴⁷ If the plaintiff offers such proof, then it is a straightforward and necessary

146. E.g., PROSSER & KEETON, *supra* note 35, § 39, at 243–44 & n.20; RESTATEMENT (SECOND) OF TORTS § 328D cmt. a (1965). But see DOBBS, *supra* note 77, § 154, at 372 (noting, correctly, that *res ipsa loquitur* cases differ "overwhelmingly" from ordinary circumstantial evidence cases by allowing an inference of negligence without any particularistic evidence of negligence on the particular occasion).

147. McGonigal v. Gearhart Indus., Inc., 788 F.2d 321, 326 (5th Cir. 1986) ("[I]n the absence of negligence, the accident would not have occurred . . ."); Kolakowski v. Voris, 415 N.E.2d 397, 400 (Ill. 1980) ("For plaintiff to take advantage of this inference, he must show that he was injured (1) in an occurrence which would not have occurred in the absence of negligence . . ."); Byrne v. Boadle, [1803] 159 Eng. Rep. 299, 301 (Exch. Div.) ("A barrel could not roll out of a warehouse without some negligence.").

factual inference that someone must have been negligent. But if the word “ordinarily” is included, as it usually is, and “ordinarily” is interpreted as mere statistical frequency, as it usually is (at least by academics), then the defendant is being found negligent in the absence of any evidence that the defendant (or anyone else) was negligent on the particular occasion, merely because in most situations like this there is negligence (by someone). The difference in the validity of the inference depending on whether or not the word “ordinarily” is included parallels the distinction between the admissibility of habit evidence (allowed) and character evidence (generally not allowed) to prove what a person did on a particular occasion.¹⁴⁸

The inference of negligence may also be valid under those formulations of the *res ipsa loquitur* doctrine that allow the inference if the accident is of a kind that “in the normal or ordinary course of events would not happen” unless there is negligence.¹⁴⁹ This phrasing is not equivalent to the “ordinarily would not happen” phrasing. The latter phrasing directly invites resort to mere statistical frequency, whereas the former suggests a focus on the physical sequence of events on the particular occasion or, at the least, does not immediately focus thought on mere statistical frequency.¹⁵⁰

Although some view the “sufficient elimination” issue in condition (b) of the *Restatement (Second)* formulation as also being a mere 50+ percent statistical probability issue, it is usually not

148. *E.g.*, 1 MCCORMICK ON EVIDENCE §§ 186, 188, 195 (Kenneth S. Broun et al. eds., 6th ed. 2006).

149. *See, e.g.*, ILLINOIS PATTERN JURY INSTRUCTIONS, *supra* note 69, § 22.01 (stating that the plaintiff must prove that “in the normal course of events, the [injury] [damage] would not have occurred if the defendant had used ordinary care”); *Scott v. London & St. Katherine Docks Co.*, [1865] 159 Eng. Rep. 665, 667 (Exch. Div.) (“[W]here the thing is shewn to be under the management of the defendant or his servants, and the accident is such as in the ordinary course of things does not happen if those who have the management use proper care, it affords reasonable evidence, in the absence of explanation by the defendants, that the accident arose from want of care.”).

150. There is a common failure to appreciate the possibly significant difference between the two phrasings. Consider the following passage:

The requirement that the occurrence be one which *ordinarily does not happen* without negligence is of course only another way of stating an obvious principle of circumstantial evidence: that the event must be such that *in the light of ordinary experience* it gives rise to an inference that someone *must* have been negligent.

PROSSER & KEETON, *supra* note 35, § 39, at 244 (emphasis added); *see* DOBBS, *supra* note 77, § 154, at 371 & n.5. There is a significant difference between “*must* have been negligent” and “*probably* was negligent.”

interpreted or treated that way in practice. Rather, the courts require that other possible sources of the causal negligence (inferred through satisfaction of condition (a)) be eliminated through evidence specific to the particular occasion that is sufficient to create a minimal belief that it must have been the defendant, rather than someone else, who was the negligent cause of the accident. The comments to *Restatement (Second)* § 328D(1)(b), while making a few references to mere probability, reflect this practice, while noting that there need not be proof beyond a reasonable doubt. The comments focus on the often mentioned “exclusive management or control of the defendant” and “no voluntary action or contribution by the plaintiff” requirements,¹⁵¹ which, although overly strict if interpreted literally, are specific attempts to make sure that the inferred causal negligence actually was that of the particular defendant.¹⁵²

The *Restatement (Third)*, on the other hand, not only treats both conditions as mere statistical probability issues but assumes, erroneously, that they are stochastically independent issues that should be multiplied together to obtain an overall probability of the defendant’s being the negligent cause of the event.¹⁵³ It thus collapses the conditions for drawing the *res ipsa loquitur* inference into a single statistical probability assessment:

The factfinder may infer that the defendant has been negligent [and that the negligence caused the accident] when the accident causing the plaintiff’s physical harm is a type of accident that ordinarily happens as a result of the negligence of a class of actors of which the defendant is the relevant member.¹⁵⁴

151. See RESTATEMENT (SECOND) OF TORTS § 328D cmts. f, g, i (1965).

152. See *id.*; PORAT & STEIN, *supra* note 43, at 84, 87, 91–92; PROSSER & KEETON, *supra* note 35, § 39, at 244, 249–50, 254; sources cited *supra* note 149.

153. See RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 17 cmt. a (Proposed Final Draft No. 1, 2005).

154. *Id.* § 17. But see *id.* §17 cmt. d:

Evidence about other possible causes. In many situations, neither common knowledge nor expert testimony may be available to support the idea that the type of accident ordinarily happens because of the negligence of the defendant. In such situations, *res ipsa loquitur* can be found applicable only if the plaintiff has offered evidence tending to negate the presence of causes other than the defendant’s negligence. That is, if the type of accident is sometimes caused by the defendant’s negligence but is more frequently brought about by other causes that are unrelated to the defendant’s negligence, *res ipsa loquitur* can be found applicable only once the plaintiff has presented evidence tending to negate the presence of those other causes.

The issues addressed by the two conditions in the *Restatement* (*Second*) formulation (and by the two or more conditions in the courts' formulations) are distinct liability requirements. As with the distinct elements that make up a complete cause of action, courts should and do require that they be individually appraised and proved by a preponderance of the evidence. They are not subject to the combinatorial algorithms of mathematical probability theory, which are valid for *ex ante* statistical probability assessments of what might happen but not for *ex post* case-specific assessments of what actually happened.¹⁵⁵

The common failure to appreciate the extraordinary nature of the *res ipsa loquitur* doctrine is probably attributable to an assumption that the word "ordinarily" in the first condition is simply an incorporation of the preponderance of the evidence standard, interpreted as merely requiring a 50+ percent statistical probability. Once again, however, taking this interpretation seriously immediately raises a logical contradiction. Why, if the first condition is satisfied, is the inference that someone was negligent only a permissive one, rather than being required? Why, in the absence of any contrary evidence by the defendant, allow the factfinder not to draw the inference once the conditions for drawing the inference have been established, especially since this permits inconsistent verdicts by different juries in similar situations, which is a denial of formal justice?

The reason, I suspect, is a discomfort with the broad formulation of the doctrine, especially when there is a conscious realization that it permits an inference of negligence by the defendant based merely on aggregate statistical frequency. Allowing the factfinder not to draw the inference may be an implicit concession that the factfinder should be able to draw the inference or not depending on whether the factfinder actually *believes* the defendant was causally negligent in the particular situation. But if the existence of such an actual belief is the concern, the broad formulation should be abandoned in favor of the narrow one, or at least the factfinder should be instructed that an inference of negligent causation should be drawn only if evidence

155. See L. JONATHAN COHEN, THE PROBABLE AND THE PROVABLE 49–120 (1977); Ronald J. Allen & Sarah A. Jehl, *Burdens of Persuasion in Civil Cases: Algorithms v. Explanations*, 2003 MICH. ST. L. REV. 893, 895–904; Wright, *Bramble Bush*, *supra* note 2, at 1051–66; *supra* text accompanying notes 66–70.

specific to the particular case combines with the “ordinarily would not happen” statistical frequency to raise a minimal belief that the defendant actually was negligent in the particular situation and that such negligence contributed to the plaintiff’s injury. On the other hand, if the broad formulation is meant to provide a second-best (or third-best) resolution of the factual uncertainty regarding negligent causation, it seems that decision should be consistently implemented through a rebuttable presumption.

Ybarra extends liability much further than the ordinary *res ipsa loquitur* doctrine and also much further than *Summers*, *Sindell*, or *Hymowitz*, since it is not only unlikely that all or even most of the defendants contributed to the injury, but also unlikely that all or even many of them were negligent. Jules Coleman argues that the *Ybarra* result can be justified under interactive justice as providing an incentive for those with knowledge of what actually happened to reveal that information, so that liability will fall properly and solely on the negligent wrongdoer(s).¹⁵⁶ However, as he recognizes, the information may not be forthcoming. Some of the defendants, especially the nurses, will have little or no ability to discover what happened if they were not themselves involved, and they will face considerable pressure to remain silent even if they do know.

I have previously suggested that an enterprise liability theory would be justifiable in situations like *Ybarra*, although not as applied in *Ybarra* itself:

The court itself mentioned that all the defendants could be treated as permanent or temporary employees of the supervising surgeon or the hospital. When all the defendants are connected through contractual or commercial relationships into a common enterprise and can adjust the risks and liabilities among themselves, and persons injured by that enterprise ordinarily will have a difficult time pinpointing the tortious source of the injury, it may be appropriate to treat the defendants as a group entity—an enterprise—which tortiously caused the injury, and to let the members of the enterprise allocate the liability among themselves or absolve themselves, as they see fit.

156. COLEMAN, *supra* note 4, at 395–96, 492 n.2.

The other situations to which the *Ybarra* rationale has been applied all fit this analysis.¹⁵⁷

As I indicated in a footnote appended to the first sentence of the above quote, in *Ybarra* the liability should be limited to the supervising surgeon and/or the hospital (preferably the latter), since “the hospital and supervising surgeon can control and adjust the risks beforehand and obtain information afterward more easily than the nurses or orderlies can.”¹⁵⁸ This indeed is the approach that has been taken in similar cases, rather than *Ybarra*’s imposition of liability *en masse*.¹⁵⁹

VII. CONCLUSION

Geistfeld’s attempt to justify the alternative causation doctrine and to extend it to justify *Sindell*’s market share doctrine is valuable for bringing into clear view a logical inconsistency that arises when the alternative causation doctrine is applied to a situation involving more than two defendants and the preponderance of the evidence standard is interpreted as merely requiring a 50+ percent statistical probability. However, rather than questioning the statistical probability interpretation, Geistfeld constructs various arguments, some of which rely on that interpretation, to try to get around the logical inconsistency that it generates. As I have tried to demonstrate, these arguments generate further inconsistencies and implausible results, as do the arguments of others who accept—and often rely on—the statistical probability interpretation when criticizing one or more of the various tort doctrines that have arisen in an attempt to deal with situations involving irreducible uncertainty about causation.¹⁶⁰ They do not realize that the statistical probability interpretation generates results that are much more of a departure from the causation requirement and a just system of tort liability than the results allowed by the doctrines that they criticize, or, relatedly, that doctrines that they do not question that are based on the

157. Wright, *Causation*, *supra* note 3, at 1821 (footnote omitted).

158. *Id.* at 1821 n.361.

159. See, e.g., Kolakowski v. Voris, 415 N.E.2d 397, 401 (Ill. 1980); DOBBS, *supra* note 77, § 249, at 652; PORAT & STEIN, *supra* note 43, at 69.

160. See, e.g., Senn v. Merrell-Dow Pharm., Inc., 751 P.2d 215, 222–23 (Or. 1988) (discussed *supra* note 64 and text accompanying notes 132–135. Smith v. Eli Lilly & Co., 560 N.E.2d 324, 340–41 (Ill. 1990); Goldberg & Zipursky, *supra* note 9, at 1414–15; Ripstein & Zipursky, *supra* note 6, at 241–44.

statistical probability interpretation are much more problematic than the doctrines that they criticize.

The statistical probability interpretation of the preponderance standard must be abandoned. It must be replaced with the traditional understanding of the preponderance standard, which still generally prevails in practice: proof by a preponderance of the evidence requires the formation of a minimal belief, based on particularistic evidence specific to the particular occasion, that the disputed fact actually existed. When the disputed fact is actual causation of injury, there must be a minimal belief that the causal law underlying the allegedly applicable causal generalization was fully instantiated on the particular occasion. This understanding of the burden of persuasion in civil cases is required as a matter of interactive justice. When the burden of persuasion is understood in this way, both the *Summers* alternative causation doctrine and the market share doctrine adopted in *Sindell* and, arguably, in *Hymowitz* can be defended as second-best implementations of interactive justice, and the justice or injustice of other doctrines, such as various versions of the *res ipsa loquitur* doctrine and liability for increased risks and lost chances, can be more clearly addressed.

