

Spring 2009

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Recommended Citation

David Owen, *Design Defect Ghosts*, 74 *Brook. L. Rev.* 927 (2009).

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Design Defect Ghosts

David G. Owen[†]

I. INTRODUCTION

Ghosts haunt design defect law across the land. Design defectiveness lies at the heart of products liability law,¹ yet courts and legislatures around the nation, and increasingly the globe,² disagree on how the fundamentally important concept of a design defect should be defined. Both textual and conceptual ghosts from times gone by continue to frustrate efforts to apply modern principles to this field of law. Halting progress toward sound liability tests for unsafe design is visible here and there, but movement toward workable design defect definitions remains slow and tortured.

How design defects should be defined was the most explosive issue in the entire politically-charged *Restatement (Third) of Torts: Products Liability* project. When the Reporters (Professors Aaron Twerski and James Henderson, Jr.) offered their definition of design defect early in the *Third Restatement* project, most observers viewed it as a strange and radical departure from the straight-forward formulation of strict products liability in tort in section 402A of the *Restatement (Second) of Torts*. Yet, from the time the American Law Institute (ALI) approved section 402A in 1964 (and promulgated it in 1965), courts and lawyers struggled to apply its “strict” liability principles beyond manufacturing defects, a context where such principles comfortably grounded liability determinations, to the then-emerging context of design safety, where section 402A’s consumer expectations test proved increasingly inadequate. In addition to ingeniously diverting commotion away from the strict liability versus negligence debate that lay beneath, the *Third Restatement* Reporters’ functional, negligence-based definition of design defect reflected how courts and lawyers around the nation increasingly were framing and litigating this central issue of products liability law.

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¹ See DAVID G. OWEN, PRODUCTS LIABILITY LAW § 8.1, at 495 (2d ed. 2008) [hereinafter OWEN, PRODUCTS LIABILITY LAW].

² See *id.* § 1.4; Geraint Howells & David G. Owen, *Products Liability Law in America and Europe*, in HANDBOOK OF RESEARCH ON INTERNATIONAL CONSUMER LAW ch. 9 (forthcoming 2009).

Since the *Products Liability Restatement* was published in 1998, courts have tried to decide how much of the new *Restatement* to adopt and, in particular, the extent to which the section 2(b) definition of design defect should displace decades of section 402A jurisprudence. As one might expect, some courts have found the *Third Restatement* persuasive authority for redefining design defectiveness, while others have rejected it as inconsistent with their developed products liability jurisprudence, sometimes grounded in a reform statute and often constructed around *Restatement (Second) of Torts* section 402A. Yet, there can be no doubt that the words and concepts of section 2(b), even as this section emerged in its initial draft in 1993,³ began to frame the debate over how the notion of design defectiveness should be formulated for the 21st century.

First among design defect issues highlighted by the *Third Restatement* was whether the idea of a defective product should continue to be conceived as a unitary concept, as in section 402A of the *Second Restatement*, or whether instead the product defect idea should be splintered into three separate pieces, with design defect lying at the center. More fundamentally, the *Third Restatement* redefined design defect in principles of reasonableness and fault, based on a balance of the foreseeable costs and benefits of an untaken design precaution,⁴ in contrast to the widespread judicial characterization of design defect liability as “strict,” a characterization drawn from section 402A of the *Second Restatement* which grounded products liability broadly in terms of consumer safety contemplations.

Impedimenta to adoption of the *Third Restatement*'s formulation of design defectiveness abound. Obstacles to acceptance of *Products Liability Restatement* section 2(b) include various *textual* ghosts left over from section 402A of the *Second Restatement*—notably, questions about the very idea of “strict” liability; whether the linchpin section 402A phrase, “defective condition unreasonably dangerous,” is a one-pronged test or two; and how courts misinterpret comment j to section 402A as allowing manufacturers to escape responsibility for safe designs by providing warnings of a product's dangers. A number of *conceptual* ghosts also linger, including whether consumer safety expectations should remain the sole test of design defectiveness,⁵ whether such expectations should provide an independent, alternative test to risk-

³ Liability for selling a defective product may rest on “(b) a design defect if the foreseeable risks of harm presented by the product could have been reduced by the adoption of a reasonable, safer design” RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 101(2) (Preliminary Draft No. 1, 1993).

⁴ I borrowed the “untaken precaution” phrase and concept from the classic article by Mark F. Grady, *Untaken Precautions*, 18 J. LEGAL STUD. 139 (1989), and applied it to design defect litigation in David G. Owen, *Toward a Proper Test for Design Defectiveness: “Micro-Balancing” Costs and Benefits*, 75 TEX. L. REV. 1661 (1997) [hereinafter Owen, *Toward a Proper Test for Design Defectiveness*].

⁵ See Part III.B.1.

utility,⁶ or whether instead they should be blended somehow with risk-utility,⁷ and what to do with the Wade-Keeton “prudent manufacturer” hindsight test.⁸ In addition, other perplexing ghosts have frustrated courts attempting to frame a risk-utility test appropriate for design decisionmaking, including whether large numbers of conceivably relevant design factors (like the Wade factors) should regularly be considered, and whether a risk-utility test should be formulated in “macro-balance” terms (weighing the *product’s* risks against its utility) or “micro-balance” terms (weighing the costs and benefits of some particular untaken design *feature*).⁹

Resolution of these and other design defect perplexities has been retarded in many states by various barriers: the inertia of a developed jurisprudence of section 402A under the *Second Restatement*, products liability legislation in many states, and perceptions of the *Third Restatement* as an ideologically driven reform effort to rein in products liability law.¹⁰ Despite these obstacles, the *Products Liability Restatement* has served to focus debate in a manner that appears to be helping calm the unsettled design defect waters in a number of jurisdictions around America.¹¹ If in fits and starts, courts and legislatures in various states continue to mature and clarify their law with helpful guidance from section 2(b) of the *Restatement (Third) of Torts: Products Liability*.

II. DESIGN DEFECTS IN THE THIRD RESTATEMENT

Restatement (Third) of Torts: Products Liability articulates the fundamental liability principles in just two sections, 1 and 2. Grounding the *Third Restatement*, section 1 provides the overarching general principle of modern products liability law—that commercial enterprises are liable for harm caused by defects in products that they sell:

§ 1. Liability of Commercial Seller or Distributor for Harm Caused by Defective Products

One engaged in the business of selling or otherwise distributing products who sells or distributes a defective product is subject to liability for harm to persons or property caused by the defect.

⁶ See *Barker v. Lull Eng'g Co.*, 573 P.2d 443, 446-67 (Cal. 1978).

⁷ See, e.g., *Soule v. Gen. Motors Corp.*, 882 P.2d 298, 310 (Cal. 1994); *Potter v. Chicago Pneumatic Tool Co.*, 694 A.2d 1319, 1334 (Conn. 1997); *Mikolajczyk v. Ford Motor Co.*, 901 N.E.2d 329, 350 (Ill. 2008).

⁸ See Part III.B.2.

⁹ See Part III.C.

¹⁰ See, e.g., *Green v. Smith & Nephew AHP, Inc.*, 629 N.W.2d 727, 751 n.16 (Wis. 2001) (citing journal articles for this proposition); see also *Potter*, 694 A.2d at 1331-32; *Delaney v. Deere & Co.*, 999 P.2d 930, 945 (Kan. 2000).

¹¹ See Dominick Vetri, *Order Out of Chaos: Products Liability Design-Defect Law*, 43 U. RICH. L. REV. 1373, 1373 (2009) (identifying a “surprising harmony among the states” on proof of design defects).

Had the *Restatement* stopped here, it would have left *Restatement (Second) of Torts* § 402A effectively unchanged, addressing the concept of product defect monolithically in a manner that is strict. Instead, the Reporters followed the groundswell of jurisprudential development around the nation by splintering the idea of product defect into its three constituent parts—manufacturing defects, design defects, and warning defects. Section 2 thus defines each separate type of defect, including design defects in subsection 2(b), which provides that a product:

(b) is defective in design when the foreseeable risks of harm posed by the product could have been reduced or avoided by the adoption of a reasonable alternative design by the seller or other distributor, or a predecessor in the commercial chain of distribution, and the omission of the alternative design renders the product not reasonably safe¹²

Rather than defining liability strictly, as the *Second Restatement* had done, and rather than returning to explicit negligence doctrine, the Reporters for the *Third Restatement* focused on the type of proof lawyers and courts had increasingly been relying upon to determine whether or not a product is defective: whether the defendant reasonably could have adopted an alternative design that would have prevented the plaintiff's harm.¹³ Reducing the rather cumbersome Restatement language to its essentials, the design defect liability standard of section 2(b) may be translated as follows:

A design is defective if its foreseeable risks of harm could have been avoided by a reasonable alternative design, the omission of which renders the product not reasonably safe.¹⁴

The “foreseeability” and “reasonableness” requirements of section 2(b) effectively reset the liability standard to one of negligence—a rather remarkable retreat from the explicitly “strict” standard of liability of *Restatement (Second) of Torts* section 402A that most courts for decades have boldly purported to apply to design defect cases. Instead, section 2(b) bases liability for design defects on the reasonableness-balancing-negligence concepts that ground the law of tort.¹⁵ Many, perhaps most, courts have come to employ a “risk-utility” test for ascertaining whether the dangers of a product design are

¹² RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2(b) (1998).

¹³ For an extended discussion of this point, see RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 Reporters' Note, cmt. d (1998). The discussion here draws from OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 5.9, and David G. Owen, *Products Liability Law in America*, 11 DANNO E RESPONSABILITÀ 1065 (1999).

¹⁴ The Restatement's liability formulations are linguistically deconstructed in David G. Owen, *Defectiveness Restated: Exploding the “Strict” Products Liability Myth*, 1996 U. ILL. L. REV. 743, 766-76 [hereinafter Owen, *Defectiveness Restated*].

¹⁵ The moral theory of these principles is explained in David G. Owen, *Philosophical Foundations of Fault in Tort Law*, in PHILOSOPHICAL FOUNDATIONS OF TORT LAW 201 (David G. Owen ed., 1995); David G. Owen, *The Moral Foundations of Products Liability Law: Toward First Principles*, 68 NOTRE DAME L. REV. 427, 467-68 (1993) [hereinafter Owen, *Moral Foundations*].

acceptable or excessive,¹⁶ a determination normally based on a cost-benefit analysis of a manufacturer's decision to forego a safety improvement that the plaintiff claims was necessary to render the design reasonably safe, as further explored below. This reasonable safer design concept lies at the heart of the *Third Restatement's* definition of design defectiveness in subsection 2(b).

Consumer expectations remain entitled to important respect in evaluating design defect claims under section 2(b),¹⁷ but the comments to section 2 unceremoniously relieve consumer expectations of their elevated status as the exclusive, determining *test* of liability under section 402A. Instead, the *Third Restatement*, following the implicit (if usually unspoken) approach of many courts, relegates consumer expectations to the balancing calculus.¹⁸ Despite complaints at the time that this fundamental definitional change eviscerated the basis of section 402A, the *Third Restatement's* shift in section 2(b) from "strict" liability to negligence-like balancing principles, though conceptually monumental, merely did "restate" what most courts themselves had long been doing if rarely saying.

Prior to the *Third Restatement*, it had been an open secret for many years that while purporting to apply "strict" liability doctrine to design cases, courts in fact were applying principles that look remarkably like negligence.¹⁹ As today, most courts then based design defect determinations on risk-utility principles of balance, reasonableness, and foreseeability. Except for a very small number of aberrant decisions, courts widely have rejected efforts to make manufacturers guarantors of a product's design safety, requiring only that manufacturers design their products as safe as they are reasonably able to do, by methods that are

¹⁶ For surveys of how different states define the risk-utility test, see RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 Reporters' Note, cmt. d (1998) (concluding that most courts use a risk-utility test); David G. Owen, *Risk-Utility Balancing in Design Defect Cases*, 30 U. MICH. J.L. REFORM 239 (1997) [hereinafter Owen, *Risk-Utility Balancing*] (same); John F. Vargo, *The Emperor's New Clothes: The American Law Institute Adorns a "New Cloth" for Section 402A Products Liability Design Defects—A Survey of the States Reveals a Different Weave*, 26 U. MEM. L. REV. 493 (1996) (querulously challenging this conclusion); see *infra* note 32.

¹⁷ "[A]lthough consumer expectations do not constitute an independent standard for judging the defectiveness of product design, they may substantially influence or even be ultimately determinative on risk-utility balancing in judging whether the omission of a proposed alternative design renders the product not reasonably safe." RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 cmt. g (1998).

¹⁸ See *id.* § 2 cmt. f.

¹⁹ See, e.g., Sheila L. Birnbaum, *Unmasking the Test for Design Defect: From Negligence (to Warranty) to Strict Liability to Negligence*, 33 VAND. L. REV. 593, 601 (1980); Mary J. Davis, *Design Defect Liability: In Search of a Standard of Responsibility*, 39 WAYNE L. REV. 1217, 1238-48 (1993); James A. Henderson, Jr. & Aaron D. Twerski, *Doctrinal Collapse in Products Liability: The Empty Shell of Failure to Warn*, 65 N.Y.U. L. REV. 265, 277-78 (1990); Owen, *Defectiveness Restated*, *supra* note 14; William Powers, Jr., *A Modest Proposal to Abandon Strict Products Liability*, 1991 U. ILL. L. REV. 639. This divergence between illusory strict liability doctrine and actual liability principles is diagrammatically portrayed in David G. Owen, *The Fault Pit*, 26 GA. L. REV. 703, 706 (1992).

reasonably available and reasonably likely to be effective.²⁰ This is negligence, pure and simple, in fact if not in name. Consequently, by grounding liability for design defects in principles of negligence, the *Third Restatement* truly “restates” the law—no doubt quite differently from how most courts have *stated* (and still proclaim) the law to be, but in fact quite closely to how most courts functionally have *applied* the law in litigation.

Prior to the *Third Restatement*, a number of state legislatures had already defined design defect in untaken precaution terms.²¹ Since that time, the *Products Liability Restatement*'s section 2(b) definition of design defect has influenced a number of courts and legislatures reconsidering their definitions of defective design, particularly with respect to whether they should allow or require proof of a “reasonable alternative design,” as the *Third Restatement* puts it, commonly called a “RAD.”²² In 2002, the Iowa Supreme Court most boldly followed the *Third Restatement*'s recommendations by formally adopting the section 2(b) functional definition of design defect, rejecting doctrinal labels such as “negligence” and “strict liability” in the process.²³ Ohio's path toward the *Third Restatement*'s design defect approach has been convoluted, to say the least. One year after adopting the consumer expectations test,²⁴ the Ohio high court switched to a *Barker v. Lull Engineering Co.*²⁵ two-pronged test (without the shift in burden of proof).²⁶ Thereafter, the Ohio legislature adopted the two-pronged test, later dropped the consumer expectations prong,²⁷ and finally, following the *Third Restatement* approach, included consumer expectations as a factor in the risk-utility

²⁰ See OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 5.3.

²¹ See, e.g., LA. REV. STAT. ANN. § 9:2800.56 (enacted in 1988) (providing that a product is unreasonably dangerous in design if (1) the claimant's harm would have been prevented by an alternative design, and (2) the burden of which was outweighed by the likelihood and gravity of the harm it prevented); N.J. STAT. ANN. § 2A:58C-3(a)(1) (enacted in 1987) (providing that the unavailability of a feasible alternative design is a defense to design defect liability); WASH. CODE § 7.72.030(a) (enacted in 1981) (providing that a design is not reasonably safe if the burdens of a feasible alternative design were outweighed by the risks it would have prevented); see also MISS. CODE ANN. § 11-1-63(f) (enacted in 1993) (providing that a claimant must prove that the product failed to function as expected and a feasible design alternative design would have prevented the harm without impairing its usefulness); TEX. CIV. PRAC. & REM. CODE ANN. § 82.005(a)-(b) (enacted in 1993) (requiring a plaintiff to prove that an alternative design was feasible and would have prevented the harm).

²² Most courts and statutes speak instead of a “feasible” alternative design. For statutes, see *supra* note 21.

²³ *Wright v. Brooke Group Ltd.*, 652 N.W.2d 159, 166-70 (Iowa 2002). “[W]e prefer to label a claim based on a defective product design as a design defect claim without reference to strict liability or negligence.” *Id.* at 169.

²⁴ See *Leichtamer v. Am. Motors Corp.*, 424 N.E.2d 568, 577 (Ohio 1981).

²⁵ 573 P.2d 443 (Cal. 1978).

²⁶ See *Knitz v. Minster Mach. Co.*, 432 N.E.2d 814, 818 (Ohio 1982).

²⁷ See *Perkins v. Wilkinson Sword, Inc.*, 700 N.E.2d 1247, 1248-50 (Ohio 1998) (explaining statutory adoption of two-pronged test, followed by statutory elimination of consumer expectations prong).

balance of considerations.²⁸ In addition, the Ohio statute now specifically provides that a design is not defective if a feasible alternative design was not available.²⁹

While some jurisdictions have expressly relied upon the *Third Restatement's* RAD approach for defining design defects, others have rejected the section 2(b) formulation as imposing unnecessary obstacles to recovery for injured plaintiffs.³⁰ “Thus, . . . 2(b) increases the burden for injured consumers not only by requiring proof of the manufacturer’s negligence, but also by adding an additional—and considerable—element of proof to the negligence standard.”³¹ As will be seen below, however, the untaken precaution (RAD) approach of the *Products Liability Restatement*, though much maligned, is entirely sound. That is, the *Third Restatement* is entirely correct in characterizing a design as defective if a manufacturer failed to adopt a reasonable alternative design that would have avoided the plaintiff’s harm, since the RAD approach reflects how lawyers and courts routinely frame and litigate design defect cases in courtrooms across the nation.³²

The question here, then, is why more courts have not explicitly adopted *Restatement (Third) of Torts: Products Liability* section 2(b) as a formal definition for design defects. As explained below, the answer may be found, at least in part, by various design defect ghosts from several decades of jurisprudence on *Restatement (Second) of Torts* section 402A,

²⁸ See OHIO REV. CODE ANN. § 2307.75(B)(5) (2004).

²⁹ See *id.* § 2307.75(F).

³⁰ Our research of state court cases decided since the *Restatement (Third)*’s initial definition of design defect in 1993 revealed decisions relying explicitly and substantially on section 2(b) in ten states—six by common law (California, Iowa, Kentucky, New Mexico, New York, and Rhode Island), plus four with prior risk-utility statutes (Mississippi, New Jersey, Texas, and Washington)—compared to nine states rejecting it, often due to its RAD requirement (Connecticut, Florida, Illinois, Kansas, Maryland, Missouri, New Hampshire, Pennsylvania, and Wisconsin). While Illinois has expressly refused to adopt section 2(b), we note the inscrutability of that decision, *Mikolajczyk v. Ford Motor Co.*, 901 N.E.2d 329 (Ill. 2008), which concludes that “both the consumer-expectation test and the risk-utility test may be utilized in a strict liability design defect case to prove that the product is ‘unreasonably dangerous.’ . . . When both tests are employed, consumer expectation is to be treated as one factor in the multifactor risk-utility analysis.” *Id.* at 360. In *Bugosh v. I.U. North America, Inc.*, 942 A.2d 897 (Pa. 2008), the Supreme Court of Pennsylvania granted review to decide whether it should replace section 402A of the *Restatement (Second) of Torts* with section 2 of the *Restatement (Third) of Torts*.

³¹ *Green v. Smith & Nephew AHP, Inc.*, 629 N.W.2d 727, 751-52 (Wis. 2001); see also *Mikolajczyk*, 901 N.E.2d at 346 (holding that whether to add a RAD requirement, “that would so fundamentally alter the law of product liability,” was for legislature); *Delaney v. Deere & Co.*, 999 P.2d 930, 945 (Kan. 2000) (“The Third Restatement’s requirement that a plaintiff produce a reasonable alternative design has been harshly criticized.”); *Vautour v. Body Masters Sports Indust., Inc.*, 784 A.2d 1178, 1184 (N.H. 2001) (“Thus, the rigid prerequisite of a reasonable alternative design places too much emphasis on one of many possible factors that could potentially affect the risk-utility analysis.”).

³² The count of twenty-five jurisdictions requiring proof of RAD by Professors Twerski and Henderson is broader than our survey of decisions substantially informed by section 2(b) itself. Their compilation usefully reveals how widely courts apply some form of RAD approach. See James A. Henderson, Jr. & Aaron D. Twerski, *Manufacturers’ Liability for Defective Product Designs: The Triumph of Risk-Utility*, 74 BROOK. L. REV. 1061 (2009) (presenting a state-by-state compilation of standards for design defect); see also *supra* note 16.

such as the Wade-Keeton “hindsight” test, the Wade liability factors, and the formulation of the risk-utility test in “macro-balance” terms.

III. DESIGN DEFECT GHOSTS

That the *Third Restatement* requires plaintiffs to prove an alternative design is the primary reason most courts offer for rejecting section 2(b), as just discussed. Other objections, often unspoken, explain more fundamentally why more courts have not adopted this commonsense formulation. In short, section 402A of the *Second Restatement* and its enormous body of consumer protection jurisprudence casts a long shadow over the law of design defectiveness across the nation, a formidable ancestry which section 2(b) of the *Third Restatement* appears explicitly to repudiate in certain fundamental ways. Within this shadow lurk a number of persistent ghosts, to which the inquiry now will turn.

A. Textual Ghosts

Three textual aspects of *Restatement (Second) of Torts* section 402A continue to haunt design defect jurisprudence in a manner that retards judicial adoption of the language and principles of the *Third Restatement*. The first is the fundamental issue of whether liability for design defects is strict, or whether it actually is based on negligence; the second involves how a product with unacceptable design dangers should be characterized—as “defective,” as containing “a defective condition unreasonably dangerous to the user or consumer,” or somehow else; and the third is how properly to interpret a sentence in comment j to section 402A which says that warnings of danger render a product not defective.

1. “Strict” Liability versus Negligence

Section 402A of the *Second Restatement of Torts*, promulgated in 1965, applies a principle of “strict liability” to manufacturers and other sellers for physical harm caused by defects in products they sell. Strict liability is suggested, of course, by the black letter of section 402A(1) itself, which states simply: “One who sells any product in a defective condition unreasonably dangerous to the user or consumer . . . is subject to liability” More plainly, the strictness of liability is formally announced (also in black letter) in section 402A(2), which declares in no uncertain terms that the liability rule of subsection (1) “applies although

(a) the seller has exercised all possible care . . . ,” and the rule is explicitly declared to be “strict” in comment a.³³

With a gusto unmatched in the annals of the *Restatements of the Law*,³⁴ courts and legislatures across the land embraced section 402A and the bold new doctrine it proclaimed—“strict” liability in tort for physical harm caused by defective products.³⁵ Tort law has probably never witnessed such a rapid, widespread, and altogether explosive change in the rules and theory of legal responsibility.³⁶ If ever a Restatement reformulation of the law were accepted uncritically as divine,³⁷ surely it was section 402A of the *Restatement (Second) of Torts*.

Notwithstanding the rapid and widespread acceptance and application of “strict” liability doctrine to design defect litigation across the nation, and eventually over much of the world, American courts in time broadly came to understand that principles of reasonableness were necessary to resolve the difficult issues of balance between product usefulness, safety, cost, practicality, and information dissemination inherent in such cases. Whether one calls this method for determining liability “strict” or “twerski,” it is at bottom negligence. And, once one further recognizes that responsibility in such cases must be limited by principles of foreseeability, as many courts have done, then the liability standard is plainly negligence, and nothing more. Increasingly, in other words, whatever “strictness” there ever was in a manufacturer’s design responsibility has drained away. Yet most courts, while often acknowledging the application of negligence principles in such cases, insist on calling liability “strict,” on calling a pig a mule.³⁸

At the time the *Third Restatement* process was begun, some commentators argued that the new *Restatement* should preserve the form and language of the *Second Restatement’s* “strict” products liability doctrine as echoed in thousands of courtrooms and written decisions over three decades.³⁹ Others thought that doctrine should follow practice,

³³ “The rule is one of strict liability, making the seller subject to liability to the user or consumer even though he has exercised all possible care in the preparation and sale of the product.” RESTATEMENT (SECOND) OF TORTS § 402A cmt. a (1965).

³⁴ At the June 8, 1993 meeting of the Consultative Group on the *Restatement (Third) of Torts: Products Liability*, the Director of the ALI, Geoffrey Hazard, reported that section 402A had been cited in judicial opinions more than any other section of any *Restatement*.

³⁵ See OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 5.3.

³⁶ See William L. Prosser, *The Fall of the Citadel (Strict Liability to the Consumer)*, 50 MINN. L. REV. 791, 793-94 (1966) (characterizing the adoption of strict products liability in the early 1960s as “the most rapid and altogether spectacular overturn of an established rule in the entire history of the law of torts”).

³⁷ On the divinity of section 402A, see James A. Henderson & Aaron D. Twerski, *A Proposed Revision of Section 402A of the Restatement (Second) of Torts*, 77 CORNELL L. REV. 1512, 1513 (1992) (observing that section “402A has achieved the status of sacred scripture”).

³⁸ See Owen, *Defectiveness Restated*, *supra* note 14, at 749.

³⁹ See, e.g., Jerry J. Phillips, *Achilles’ Heel*, 61 TENN. L. REV. 1265 (1994); Marshall S. Shapo, *A New Legislation: Remarks on the Draft Restatement of Products Liability*, 30 U. MICH. J.L. REFORM 215 (1997); Marshall S. Shapo, *In Search of the Law of Products Liability: The ALI Restatement Project*, 48 VAND. L. REV. 631 (1995); Frank J. Vandall, *Constructing a Roof Before*

suggesting that the liability rule in design and warning cases formally be returned to the law of negligence.⁴⁰ Perhaps not unwisely, in view of the undiluted passion of the warring camps, the Reporters decided to ignore the conventional doctrinal labels of “strict liability” and “negligence” and instead defined liability “functionally” according to the required proof.⁴¹ Yet courts in most jurisdictions, due to the strong pull of decades of jurisprudence rooted in section 402A, even if increasingly applying principles of negligence, continue to purport to apply a rule of “strict” liability for harm caused by defects in design.⁴²

In design defect litigation, a number of important issues are bound up in the question of whether liability is based on negligence or is truly “strict.” One issue is how courts and legislatures choose to define the “test” for design defectiveness—that is, whether design defect is defined in terms of risk-utility (a negligence formulation) or consumer expectations (a strict liability formulation).⁴³ Another important but less frequent issue concerns the role of state-of-the-art evidence in design defect litigation, which involves the question of whether a design may be considered defective because of the development of technology after the product was designed that was not reasonably available at the time of design. The proper role for state-of-the-art evidence involves numerous complex issues all circling back to whether modern products liability law should be grounded on principles of reasonableness or should in fact be considered “strict.” Most courts and legislatures addressing the issue take the position that later-developed safety technology does not render an accident product’s earlier technology defective.⁴⁴ How design defect tests should be formulated is a fundamentally important issue further explored as a “conceptual ghost,” below.

2. “Defective Condition Unreasonably Dangerous”

Another textual ghost that continues to interfere with clear judicial thinking about design defect formulations is the focus of section 402A on whether a product is in a “defective condition unreasonably dangerous” to the user or consumer.⁴⁵ Too many courts have become

the Foundation Is Prepared: The Restatement (Third) of Torts: Products Liability Design Defect, 30 U. MICH. J.L. REFORM 261 (1997); Vargo, *supra* note 16, at 557; Note, *Just What You’d Expect: Professor Henderson’s Redesign of Products Liability*, 111 HARV. L. REV. 2366 (1998).

⁴⁰ See, e.g., Owen, *Defectiveness Restated*, *supra* note 14; David G. Owen, *The Graying of Products Liability Law: Paths Taken and Untaken in the New Restatement*, 61 TENN. L. REV. 1241 (1994).

⁴¹ See RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 cmt. n (1998).

⁴² Recent examples include *Mikolajczyk v. Ford Motor Company*, 901 N.E.2d 329, 334-35 (Ill. 2008), and *Phillips v. Cricket Lighters*, 841 A.2d 1000, 1007 (Pa. 2003) (reaffirming that “negligence concepts have no place in strict liability law”).

⁴³ See OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, §§ 8.2-8.4.

⁴⁴ See *id.* § 10.4.

⁴⁵ This discussion draws from OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 5.3.

entangled, understandably, in this prolix language. The history of this clumsy phrase is just one part of section 402A's tortuous path from conception to completion,⁴⁶ and there is widespread understanding that this bulky liability phraseology really means just one thing—that a product is more dangerous than it properly should be.⁴⁷ Today, most courts, almost all commentators, and the *Third Restatement* capture that single concept in a single word: “defective.”⁴⁸

Notwithstanding general agreement that “defective” best characterizes a product that is unacceptably dangerous, some courts still attribute more meaning to the language of section 402A than it deserves. Thus, many courts and even some legislatures nominally divide section 402A's “defective condition unreasonably dangerous” language into two separate elements, “defective” and “unreasonably dangerous,”⁴⁹ and a fair number of jurisdictions ambiguously suggest two separate elements.⁵⁰ Yet it is difficult to find a case where a court in such a jurisdiction explicitly addresses the differences between the two elements, perhaps because the comments to section 402A define both

⁴⁶ The phrase resulted from Dean Prosser's overreaction to the ALI Council's complaint that the “dangerous condition” language he initially proposed was over-broad. *See id.* § 5.8.

⁴⁷ *See, e.g.,* *McAlpine v. Rhone-Poulenc Ag. Co.*, 16 P.3d 1054, 1058 (Mont. 2000), quoting Dean Werdner Page Keeton of Texas, an Adviser for the *Second Restatement*:

It is unfortunate perhaps that Section 402A of the Restatement (Second) of Torts provides that as a basis for recovery it must be found that the product was both “defective” and “unreasonably dangerous” when as a matter of fact the term “unreasonably dangerous” was meant only as a definition of defect. The phrase was not intended as setting forth two requirements but only one.

W. Page Keeton, Product Liability and the Meaning of Defect, 5 ST. MARY'S L.J. 30, 32 (1973). *McAlpine* held that the trial court erred in instructing the jury that liability depended on the product having been in a “defective condition unreasonably dangerous,” rather than only in a “defective condition,” because the full Restatement phrase could mislead the jury into thinking that liability was based on two requirements rather than just one. *McAlpine*, 16 P.3d at 1059.

⁴⁸ *See, e.g.,* *Bostick v. Flex Equip. Co.*, 54 Cal. Rptr. 3d 28, 34-35 (Ct. App. 2007); *Parish v. Jumping, Inc.*, 719 N.W.2d 540, 543 (Iowa 2006); *Wheeler v. Sears Roebuck & Co.*, 831 N.Y.S.2d 427, 429 (App. Div. 2007). A few jurisdictions base liability on other single-concept phrases. *See, e.g.,* LA. REV. STAT. ANN. § 9:2800.54 (1988) (“unreasonably dangerous”); WASH. REV. CODE § 7.72.030 (2) (1981) (“not reasonably safe”); *Calles v. Scripto-Tokai Corp.*, 864 N.E.2d 249, 254-55 (Ill. 2007) (“unreasonably dangerous”).

⁴⁹ Some jurisdictions do so quite explicitly. *See, e.g.,* *Pilcher v. Suttle Equip. Co.*, 223 S.W.3d 789, 794 (Ark. 2006) (plaintiff has burden of proof that product “was not only in a ‘defective condition,’ but was also ‘unreasonably dangerous’”); *Halliday v. Sturm, Ruger & Co.*, 792 A.2d 1145, 1150 (Md. 2002) (“[F]or a seller to be liable under § 402A, the product must be both in a ‘defective condition’ and ‘unreasonably dangerous’ at the time it was placed on the market.”); *Williams v. Bennett*, 921 So. 2d 1269, 1274 (Miss. 2006) (state's products liability statute provides that “in a design defect claim, a manufacturer is not liable unless the design of the product is both defective and unreasonably dangerous”); *Haase v. Badger Mining Corp.*, 682 N.W.2d 389, 395 (Wis. 2004) (strict liability in tort requires proof that product was (1) defective, and (2) unreasonably dangerous).

⁵⁰ Some jurisdictions state that a defect must “make” or “render” the product unreasonably dangerous. *See, e.g.,* *Moss v. Batesville Casket Co.*, 935 So. 2d 393, 402 (Miss. 2006) (plaintiff must prove defect and also that defect made product unreasonably dangerous); *Raimbeault v. Takeuchi Mfg. (U.S.), Ltd.*, 772 A.2d 1056, 1063 (R.I. 2001) (plaintiff must prove defect and that “defect rendered the product unreasonably dangerous”) (quoting *Crawford v. Cooper/T. Smith Stevedoring Co.*, 14 F. Supp. 2d 202, 211 (D.R.I. 1998)).

phrases congruently, as dangerous beyond a consumer's expectations.⁵¹ In states that have legislated products liability doctrine, some statutes use terminology suggesting a two-pronged liability standard⁵² while others ground liability more simply in terms of a product's being "defective," "unreasonably dangerous," or some other single phrase without the burden of a second prong.⁵³ Even courts in some jurisdictions whose legislatures adopted section 402A statutorily⁵⁴ have avoided the trap of dividing the "defective condition unreasonably dangerous" concept into two separate elements,⁵⁵ and there simply is no good reason to perpetuate a linguistic error grounded in a *Restatement* that has now been superseded.

3. Comment j

That the three types of defect beget distinct and largely independent obligations would seem to be so obvious today as to be beyond dispute. Yet a sentence in one comment to section 402A, comment j, can be read quite literally to mean that a manufacturer who provides a warning—*any* type of warning, no matter how deficient—eludes altogether the separate duty of safe design.⁵⁶ Some courts still are haunted by this widespread misreading of comment j.⁵⁷

⁵¹ See RESTATEMENT (SECOND) OF TORTS § 402A cmts. g & i (1965).

⁵² See, e.g., ARK. CODE ANN. § 4-86-102 (2001) ("The product was supplied . . . in a defective condition that rendered it unreasonably dangerous . . ."); GA. CODE ANN. § 51-1-11(b)(1) (2000) (manufacturer subject to liability if product was "not merchantable and reasonably suited to the use intended"); MISS. CODE ANN. § 11-1-63(a)(ii) (West 2008) ("The defective condition rendered the product unreasonably dangerous . . ."); N.D. CENT. CODE § 28-01.3-06 (2006) ("a defect or defective condition in the product which made the product unreasonably dangerous to the user or consumer"). Indiana's curious statute adopts the "defective condition unreasonably dangerous" language of section 402A, IND. CODE § 34-20-2-1 (West 1976), and then defines "defective condition" as a condition (1) "not contemplated by . . . consumers," and (2) that is "unreasonably dangerous." IND. CODE § 34-20-4-1. Cf. TENN. CODE ANN. § 29-28-105(a) (2000) ("A manufacturer or seller of a product shall not be liable for any injury to a person or property caused by the product unless the product is determined to be in a defective condition *or* unreasonably dangerous at the time it left the control of the manufacturer or seller.") (emphasis added).

⁵³ See, e.g., LA. REV. STAT. ANN. § 9:2800.54(A) (1997) ("unreasonably dangerous"); N.J. STAT. ANN. § 2A:58C-2 (West 2000) ("designed in a defective manner"); OHIO REV. CODE ANN. § 2307.73(A) (LexisNexis 2005) (manufacturer subject to liability if product "defective" and defect proximately caused claimant's harm); TEX. CIV. PRAC. & REM. CODE ANN. § 82.001(2) (Vernon 1993) ("defective"); WASH. REV. CODE ANN. § 7.72.030(2) (West 2007) ("not reasonably safe").

⁵⁴ See, e.g., ME. REV. STAT. ANN. tit. 14, § 221 (1964); MONT. CODE ANN. § 27-1-719 (2007); OR. REV. STAT. § 30.920 (2007); S.C. CODE ANN. § 15-73-10 (2005).

⁵⁵ See, e.g., *McAlpine v. Rhone-Poulenc Ag Co.*, 16 P.3d 1054, 1058 (Mont. 2000) ("[A] plaintiff is not required to show that a product is defective and also that it is unreasonably dangerous because establishing that a product is unreasonably dangerous is merely a means of proving that it is defective."); see also *McCathern v. Toyota Motor Corp.*, 23 P.3d 320, 329-32 (Or. 2001) (statutory consumer expectations test is sole standard for assessing whether product is in a "defective condition unreasonably dangerous" to user).

⁵⁶ For a fuller discussion of this issue, see OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 6.2, from which this section draws.

⁵⁷ See *infra* note 62.

Comment j to section 402A basically sets forth, in a largely noncontroversial manner, a product seller's duty to warn of foreseeable hazards, but it concludes with this curious language:

Where warning is given, the seller may reasonably assume that it will be read and heeded; and a product bearing such a warning, which is safe for use if it is followed, is not in [a] defective condition, nor is it unreasonably dangerous.⁵⁸

This ambiguous language can be read literally, as several courts have done, to mean that *any* warning, no matter how inadequate, satisfies *every* duty of whatever type that a product seller has. Yet that would be quite preposterous, for it would allow a manufacturer of metal household fans to substitute a warning on the base of such a fan ("Watch out!") for the fan's protective cage.

For decades, the meaning of this curious sentence of comment j lay shrouded in the mists of history. Yet research has revealed that its actual meaning is far more limited than suggested above—that it really only means that sellers of inherently dangerous products like certain foods, alcohol, tobacco, and prescription drugs, in addition to supplying them free of impurities, need only warn consumers of any unavoidable, latent dangers such products foreseeably may contain.⁵⁹ This narrow interpretation has been shown to be correct because of the purpose of comments i, j, and k, all of which allay concerns that inherently hazardous but useful products like those just mentioned might give rise to liability under section 402A's new, "strict" standard of liability for the harmful consequences of their unavoidable risks.

Although a handful of decisions have misinterpreted comment j as negating the general duty of safe design,⁶⁰ a great majority of courts, some explicitly rejecting comment j on this point,⁶¹ hold that the separate forms of defect give rise to separate obligations that may independently support a products liability claim.⁶² Thus, except in certain limited

⁵⁸ RESTATEMENT (SECOND) OF TORTS § 402A cmt. j (1965).

⁵⁹ See David G. Owen, *The Puzzle of Comment J*, 55 HASTINGS L.J. 1377, 1381 (2004).

⁶⁰ See, e.g., *Ferguson v. F.R. Winkler GMBH & Co.*, 79 F.3d 1221, 1226 (D.C. Cir. 1996); *Lightolier v. Hoon*, 876 A.2d 100, 110-11 (Md. 2005); *Freas v. Prater Constr. Corp., Inc.*, 573 N.E.2d 27, 30-31 (Ohio 1991); *Curcio v. Caterpillar, Inc.*, 543 S.E.2d 264, 268-69 (S.C. Ct. App. 2001), *rev'd on other grounds*, 585 S.E.2d 272 (S.C. 2003). *But see* Erin O'Dea, *The Maryland Survey: 2004-2005: Recent Decisions: The Court of Appeals of Maryland*, 65 MD. L. REV. 1303, 1303 (2006) (criticizing *Lightolier v. Hoon*, 876 A.2d 100, 110-11 (Md. 2005)).

⁶¹ See, e.g., *Rogers v. Ingersoll-Rand Co.*, 144 F.3d 841, 844 (D.C. Cir. 1998); *Delaney v. Deere & Co.*, 999 P.2d 930, 942 (Kan. 2000) ("a warning . . . does not prevent the equipment from being dangerous"); *Uniroyal Goodrich Tire Co. v. Martinez*, 977 S.W.2d 328, 335-37 (Tex. 1998); *see also* *Ryle v. NES Rentals*, No. 3:04-CV-2800, 2006 WL 931862, at *3 n.2 (M.D. Pa. Apr. 11, 2006) (noting the rejection of cmt. j in the context of design cases by courts, commentators, and the *Restatement (Third) of Torts: Products Liability*).

⁶² Even critics of the *Third Restatement's* rejection of the warnings-trump-design approach acknowledge that the *Third Restatement* position is widely embraced by the courts. *See, e.g.*, Richard C. Ausness, *When Warnings Alone Won't Do: A Reply to Professor Phillips*, 26 N. KY. L. REV. 627, 638 (1999).

contexts,⁶³ it is abundantly clear that a manufacturer is subject to liability for a product's *manufacturing* defects, no matter how clear the product's warnings or how perfect its design;⁶⁴ for *warning* defects, no matter how perfect the product's manufacture or how impeccable its design;⁶⁵ and for *design* defects, no matter the precision of its manufacture or the abundance of its warnings.⁶⁶ This latter point may be the most important, because of the lingering, perverse effects of comment j's long tentacles in a number of jurisdictions.

"Decisively" repudiating the "primitive" interpretation of comment j that would accord warnings the power to override a manufacturer's other safety responsibilities,⁶⁷ the *Third Restatement* declares in no uncertain terms that the law does not permit a manufacturer to hide behind a warning in an attempt to insulate itself from its independent duty of safe design:

In general, when a safer design can reasonably be implemented and risks can reasonably be designed out of a product, adoption of the safer design is required over a warning that leaves a significant residuum of such risks. . . . Warnings are not . . . a substitute for the provision of a reasonably safe design.⁶⁸

The courts have quite colorfully expressed the same idea. For example, the Michigan Supreme Court has observed that "[a] warning is not a Band-Aid to cover a gaping wound, and a product is not safe simply

⁶³ Particularly in the case of drugs and other inherently dangerous products containing unavoidable dangers, where warnings normally are the only way to eliminate dangers in design. See RESTATEMENT (SECOND) OF TORTS § 402A cmt. k; see generally David G. Owen, *Design Defects in Prescription Drugs: Intersections of Law and Science in American Products Liability Law*, in MEDIZIN UND HAFTUNG: FESTSCHRIFT FÜR ERWIN DEUTSCH ZUM 80. GEBURTSTAG 389 (Hans-Jürgen Ahrens et al. eds., 2009).

⁶⁴ See, e.g., *Chapman v. Maytag Corp.*, 297 F.3d 682, 689 (7th Cir. 2002) (noting that "adequate warnings will not render a product with a manufacturing defect non-defective," regardless of whether compliance with the warnings would have rendered the product safe" (quoting *Chapman v. Maytag Corp.*, No. IP99-0039-C-D/F, 2000 WL 1038183, at *3 (S. D. Ind. July 27, 2000)); *Falada v. Trinity Indus.*, 642 N.W.2d 247, 251 (Iowa 2002) (noting that "defective design and defective workmanship are separate concepts").

⁶⁵ See, e.g., *Hiner v. Deere & Co.*, 340 F.3d 1190, 1193 (10th Cir. 2003) (A "product, though perfectly designed and manufactured, may be defective if not accompanied by adequate warnings of its dangerous characteristics."); *Rohde v. Smiths Med.*, 165 P.3d 433, 441 (Wyo. 2007).

⁶⁶ See, e.g., *Delaney v. Deere & Co.*, 999 P.2d 930, 942 (Kan. 2000) ("[J]ust because there is a warning on a piece of equipment does not prevent the equipment from being dangerous."); *White v. ABCO Eng'g Corp.*, 221 F.3d 293, 305-06 (2d Cir. 2000) (applying N.J. law) (notwithstanding clearly adequate warnings, conveyor manufacturer was subject to liability for failing to provide side guarding).

⁶⁷ See James A. Henderson, Jr. & Aaron D. Twerski, *The Politics of the Products Liability Restatement*, 26 HOFSTRA L. REV. 667, 689 (1998).

⁶⁸ RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 cmt. 1 (1998). See Aaron D. Twerski, *In Defense of the Products Liability Restatement: Part I*, 8 KAN. J.L. & PUB. POL'Y 27, 29 (1998) ("[C]omment j took the position that a product whose dangers are warned against, is not defective. We took the position in section 2 comment 1 of the *Restatement (Third) of Torts* that one cannot warn one's way out of a defective design case. If there is a reasonable design which would make the product safer, the mere fact that one warned against it does not insulate the seller from liability. . . . We vehemently disagree with the *Second Restatement*.").

because it carries a warning.”⁶⁹ And the United States Court of Appeals for the District of Columbia Circuit has ruled that “[i]t is thus not correct that a manufacturer may . . . merely slap a warning onto its dangerous product, and absolve itself of any obligation to do more.”⁷⁰ More succinctly, warnings do not trump design.

B. *Conceptual Ghosts*

Behind the textual ghosts of section 402A hide some conceptual ghosts, embedded in the design defect jurisprudence of many states, whose shadows continue to frustrate the adoption of the *Third Restatement’s* test for design defectiveness: (1) the consumer expectations test; (2) the Wade-Keeton test; and (3) over-broad formulations of the risk-utility test, including the Wade liability factors.

1. Consumer Expectations

How consumer expectations should figure in evaluating the sufficiency of a product’s design has bedeviled courts and commentators for at least half a century, and it remains one of the most problematic conceptual ghosts of section 402A.⁷¹ Resolving this issue appropriately, the Third Restatement relieves consumer expectations of its exalted place under the Second Restatement as the sole determinant of liability and relegates it to a mere factor in the risk-utility balance.⁷² Despite the correctness of the Third Restatement’s approach, judicial progression toward this ideal has been agonizingly slow and disorderly, and most courts and legislatures still have a long way to go in figuring out the proper role for consumer expectations in design defect litigation.

a. *Source of Consumer Expectations Standard*

Prior to the development of strict products liability in tort, courts applying strict liability in *warranty* drew from the law of contracts, grounded in the protection a purchaser’s expectations predictably generated by a product’s appearance and a manufacturer’s representations, express and implied. When William Prosser, the Reporter for the *Restatement (Second) of Torts*, searched for a foundation for the new doctrine of strict products liability in *tort*, it was only natural

⁶⁹ Glittenberg v. Doughboy Recreational Indus., 491 N.W.2d 208, 216 (Mich. 1992).

⁷⁰ Rogers v. Ingersoll-Rand Co., 144 F.3d 841, 844 (D.C. Cir. 1998).

⁷¹ The consumer expectations test still plays a prominent role as a liability standard for design defectiveness in roughly half the states by common law (e.g., Connecticut, New Hampshire, Wisconsin) or statute (e.g., North Dakota, Ohio, Tennessee). See OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, §§ 5.6, 8.3, and 8.6. A related standard, at least in name, exists in Europe. See *id.* § 1.4. See generally Douglas A. Kysar, *The Expectations of Consumers*, 103 COLUM. L. REV. 1700 (2003); Jerry J. Phillips, *Consumer Expectations*, 53 S.C. L. REV. 1047 (2002).

⁷² See RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 cmts. f & g (1998).

that he would turn to the same consumer expectations basis of the warranty law cases that provided the sole authority (until *Greenman v. Yuba Power Products, Inc.*⁷³) for the new tort doctrine. And as they began to apply section 402A to design defect cases, it was natural for the courts to adopt the warranty-based definition of liability provided in that section's comments which define "defective condition" and "unreasonably dangerous" as *dangerous beyond a consumer's contemplations*.⁷⁴ Accordingly, most courts applying section 402A in the 1960s and early 1970s reasonably concluded that design defectiveness under section 402A should be tested according to the warranty-based standard of product safety gauged by "consumer expectations."⁷⁵

b. Problems with Consumer Expectations

It was not long, however, before the frailties of the consumer expectations standard in the design defect setting began to reveal themselves. Though measuring the adequacy of a design's safety against consumer expectations was conventionally thought more protective of plaintiff interests than the risk-utility standard, courts in fact have applied the consumer expectations test most frequently to *deny* recovery in cases involving obvious design hazards.⁷⁶ Obvious dangers—such as the risk to human limbs from an unguarded power mower or industrial machine—are virtually always contemplated or expected by the user or consumer, who thereby is necessarily unprotected by the consumer expectations test, no matter how probable or severe the likely danger or how simple and inexpensive the means of avoiding it. In such cases, the buyer got what he or she paid for, or the user engaged a danger that he or she expected, so that the risk of injury is placed on the buyer or user who chose to accept it, or on a third-party victim who had no say in the matter at all. The failure of the consumer expectations test to deal adequately with the obvious danger problem profoundly weakens the usefulness of the test as the sole basis for determining defects in design.

Another significant limitation on the usefulness of consumer expectations as a liability standard in design cases is the problem of identifying whose expectations should control in cases where the buyer or user controls the safety of other persons, such as children, patients, employees, or bystanders. In such cases, the foreseeable victims of dangerous designs depend solely upon the actions of other, imperfect humans, and the consumer expectations test relieves manufacturers of responsibility for failing to adopt simple design improvements to protect

⁷³ 377 P.2d 897 (Cal. 1963).

⁷⁴ See *supra* note 53.

⁷⁵ See generally OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 5.6 (explaining early development of consumer expectations test).

⁷⁶ See, e.g., *Godoy ex rel. Gramling v. E.I. du Pont de Nemours & Co.*, 743 N.W.2d 159, 163 (Wis. Ct. App. 2007), *pet. for rev. granted*, 749 N.W.2d 661 (Wis. 2008).

the types of persons they know to be ultimately placed at risk. Finally, there is the problem of vagueness in a consumer's expectations concerning most complex designs, a problem further discussed below. All of these problems are resolved by the *Third Restatement's* definition of design defect in risk-utility terms,⁷⁷ a definition which allows for consideration of consumer expectations without giving it veto power over liability for design dangers for which manufacturers otherwise fairly should be responsible.

c. Partial Restrictions on Consumer Expectations

Although the consumer expectations test has now widely lost its status as the sole determinant of a product's design defectiveness, this test continues to exert a heavy hand in many states. The shadow that the consumer expectations ghost has cast upon American products liability jurisprudence is best illustrated by its evolution in California—the state that generated *Greenman v. Yuba Power Products, Inc.*,⁷⁸ the only tort authority for section 402A, but also a state that, ironically, never adopted section 402A. In *Barker v. Lull Engineering Co.*,⁷⁹ the California Supreme Court in 1978 adopted a two-pronged design defect test which allowed a plaintiff to prevail on *either* of two standards, consumer expectations or risk utility.⁸⁰ This approach has logical appeal because it protects the essential interests furthered by each test: contract law's protection of the expectations of buyers and sellers in their private bargains, and tort law's protection of the public welfare by requiring sellers to accord due respect to the safety interests of persons foreseeably endangered by defective products.⁸¹

While *Barker's* embrace of the risk-utility test and commensurate shift away from consumer expectations as the sole test was a laudable development, the retention of a dominant role for consumer expectations continued to haunt California's courtrooms over time. In 1994, in *Soule v. General Motors Corp.*,⁸² the California high court sharply restricted the consumer expectations prong to cases involving "simple" products or mechanisms (such as an unguarded fan), cases where expert testimony might not be necessary or appropriate.⁸³ In all other design defect cases, such as most automotive crashworthiness cases (like *Soule*), plaintiffs were restricted to using the risk-utility test.

⁷⁷ See *supra* text accompanying notes 15-16.

⁷⁸ 377 P.2d 897 (Cal. 1963).

⁷⁹ 573 P.2d 443 (Cal. 1978). For an expanded narrative of the California cases, see Vetri, *supra* note 11, at 1415-23.

⁸⁰ *Id.* at 455-56.

⁸¹ Two years before *Barker*, the explicitly two-pronged approach was proposed in John E. Montgomery & David G. Owen, *Reflections on the Theory and Administration of Strict Tort Liability for Defective Products*, 27 S.C. L. REV. 803, 843-45 (1976).

⁸² 882 P.2d 298 (Cal. 1994).

⁸³ *Id.* at 308.

Soule's simple versus complex product distinction had an initial appearance of genius in seeming to put each of the two design defect tests to its highest use, and a number of courts have followed this approach.⁸⁴ Yet, *Soule's* approach suffers from its retention of even a narrow, "simple-product" role for the consumer expectations test. A risk-utility test which retains consumer expectations as a factor (the approach of *Third Restatement* section 2(b)) fairly resolves just about *any* case where the facts and circumstances of an accident are knowable. In the small set of cases where knowledge of why an accident occurred is unavailable, the widely available "malfunction doctrine" provides plaintiffs with a fair and simple method for recovery in appropriate cases.⁸⁵

Soule's primary example of a "simple product" case appropriate for the consumer expectations test is *Campbell v. General Motors Corp.*, where a bus passenger was thrown from her seat during a sharp turn.⁸⁶ The court there held that the consumer expectations test properly allowed a design defect claim without expert testimony, based on the absence of a grab bar in easy reach of the injured passenger's seat, because jurors could decide the issue on the basis of common experience.⁸⁷ This is true, of course, but the case could have been decided just as easily, and on a more principled risk-utility basis, had the plaintiff introduced evidence of where and how, precisely, grab bars should have been installed on this particular model bus.

The *Soule* court's other examples of cases appropriate only for consumer expectations include cars that "explode while idling at stoplights," that "roll over and catch fire in two-mile-per-hour collisions," or new cars that suffer steering or brake failures.⁸⁸ Putting aside the implausibility of some of these hypotheticals, and acknowledging that the consumer expectations test could reasonably resolve such simple product cases, the consumer expectations test is hardly necessary for this purpose in the great majority of states which subscribe to the malfunction doctrine mentioned above. In short, while the *Soule* court nicely explains why the risk-utility test is the only practical and principled way to resolve design defect problems in complex design cases,⁸⁹ such as the automotive crashworthiness issues there involved, it fails to make a convincing case for retaining *Barker's* consumer expectations prong for use in any type of case.

⁸⁴ See, e.g., *Potter v. Chicago Pneumatic Tool Co.*, 694 A.2d 1319, 1333 (Conn. 1997); *Delaney v. Deere & Co.*, 999 P.2d 930, 944 (Kan. 2000) ("recogniz[ing] the validity of risk/utility analysis as a guide in determining the expectations of consumers in complex cases"); see also *McCathern v. Toyota Motor Corp.*, 23 P.3d 320, 331 (Or. 2001).

⁸⁵ On the malfunction doctrine, see RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 3 (1998); OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 7.4.

⁸⁶ 649 P.2d 224, 225 (Cal. 1982).

⁸⁷ *Id.* at 232-33.

⁸⁸ *Soule*, 882 P.2d at 308 n.3.

⁸⁹ *Id.* at 309.

Another problem with the *Soule* court's relegation of simple product design cases to the consumer expectations test is that it unreasonably dooms plaintiffs to lose most such cases for the simple reason that the dangers in such "simple" cases typically are obvious to consumers, a problem addressed above. This was the conclusion of the Illinois Supreme Court in *Calles v. Scripto-Tokai Corp.*, which recently addressed the *Soule* simple-product issue in a case where a young child used a utility lighter to set a deadly fire.⁹⁰ The trial court in *Calles* granted summary judgment to the lighter's manufacturer on the defendant's argument that a lighter without a child-proof safety mechanism was a simple product, restricting the plaintiff to the consumer expectations test which required a ruling for the defendant.⁹¹ Reversing, the Supreme Court refused to limit its *Barker*-like two-pronged design defect test with *Soule*'s mandated use of the consumer expectations prong in simple-product cases.⁹²

While restricting plaintiffs to the consumer expectations test in simple-product cases may be justified in autonomy terms of promoting personal responsibility,⁹³ courts unanimously crossed that policy bridge years ago by rejecting the patent danger rule in design defect cases in favor of social utility.⁹⁴ In short, while California beneficially progressed away from the consumer expectations standard toward risk-utility in *Barker* and then further in *Soule*, it so far has stopped short of recognizing the virtue of the *Third Restatement*'s adoption in section 2(b) of a unitary risk-utility standard which folds consumer expectations into its family of factors.⁹⁵

Other courts, often haunted by the false yet widespread view of some plaintiffs' lawyers that the consumer expectations test is more plaintiff-friendly than risk-utility, have moved away from consumer expectations to risk-utility by simply redefining "consumer expectations" in risk-utility terms. *Potter v. Chicago Pneumatic Tool Co.*⁹⁶ is a prominent example of this approach.⁹⁷ This case was brought by workers at a shipyard against the manufacturers of pneumatic hand tools for

⁹⁰ 864 N.E.2d 249, 256-57 (Ill. 2007).

⁹¹ *Id.* at 254.

⁹² "[T]he dangers associated with a product that is deemed 'simple' are, by their very nature, open and obvious. . . . [The] adoption of a 'simple product' exception is nothing more than the adoption of a general rule that a manufacturer will not be liable for open and obvious dangers." *Id.* at 258-59.

⁹³ Compare *id.*, with *id.* at 265-66 (Karameier, J, specially concurring).

⁹⁴ See OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 10.2.

⁹⁵ See also *Mikolajczyk v. Ford Motor Co.*, 901 N.E.2d 329, 360 (Ill. 2008) (reaffirming both its consumer expectations and risk-utility tests for use in design defect cases, but stating ambiguously: "When both tests are employed, consumer expectation is to be treated as one factor in the multifactor risk-utility analysis").

⁹⁶ 694 A.2d 1319 (Conn. 1997).

⁹⁷ Judge Wisdom first hinted at this approach in *Welch v. Outboard Marine Corp.*, 481 F.2d 252, 254 (5th Cir. 1973).

injuries from excessive vibration of the tools.⁹⁸ Although the consumer expectations test was well established in Connecticut, the court was nevertheless troubled by the vagueness problem in consumer expectations concerning the safety of complex designs.⁹⁹ Following jurisdictions like Washington “that have modified their formulation of the consumer expectation test by incorporating risk-utility factors into the ordinary consumer expectation analysis,”¹⁰⁰ the *Potter* court reformulated its consumer expectations test in risk-utility terms. That is, particularly with complex products, *Potter* reasoned that consumers reasonably expect manufacturers to make fair and reasonable risk-utility decisions in designing their products.¹⁰¹ While there is virtue in the *Potter* court’s adoption of risk-utility principles for evaluating a product’s design safety, a redefinitional approach adopted by a number of other courts,¹⁰² this type of judicial sleight of hand muddies products liability jurisprudence. It would be far better if such courts would admit that they are abandoning the consumer expectations test for the many reasons the risk-utility test is preferable for judging the safety of a product’s design.

2. The Wade-Keeton Test

In fixing responsibility on manufacturers for defects in design, courts and commentators have always sought to avoid absolute liability, recognizing that the concepts of design safety and design danger are matters of degree involving trade-offs between a product’s usefulness, cost, and safety. The idea of a design defect, in other words, has long been understood to rest on the idea of reasonable balance.¹⁰³ Because negligence itself is grounded on reasonableness and balance, one is led to inquire whether and how negligence and strict liability may differ in design defect litigation. Accordingly, in the 1960s, products liability scholars began to search for a way to define strict liability for selling products with defects in design (and warnings) in a manner that distinguished the strict liability standard from mere negligence.

Other than Dean Prosser, the two most prominent tort law scholars in the 1960s who shared a special interest in products liability law were Dean Page Keeton of the University of Texas and Dean John Wade of Vanderbilt University. As modern products liability law was

⁹⁸ *Potter*, 694 A.2d at 1324-25.

⁹⁹ *Id.* at 1333.

¹⁰⁰ *Potter*, 694 A.2d at 1333. The *Potter* court’s reference is to *Seattle-First Nat’l Bank v. Tabert*, 542 P.2d 774 (Wash. 1975), probably the first court explicitly to use this redefinitional, blended approach.

¹⁰¹ *Potter*, 694 A.2d at 1334.

¹⁰² *See, e.g.*, *Vautour v. Body Masters Sports Indus., Inc.*, 784 A.2d 1178, 1182 (N.H. 2001) (defining unreasonably dangerous in terms of consumer expectations and defining consumer expectations in terms of risk-utility); *McCathern v. Toyota Motor Corp.*, 23 P.3d 320, 331-32 (Or. 2001).

¹⁰³ *See, e.g.*, Owen, *Defectiveness Restated*, *supra* note 14, at 754-61.

just beginning to emerge in the 1960s, the two deans, both Advisers to the American Law Institute's *Restatement (Second) of Torts*, which was then in progress, offered separate versions of a similar definition of product defectiveness that distinguished negligence-based responsibility from liability called "strict" in a fundamental way. At the time, courts and commentators were just beginning to feel their way around the new precept of holding manufacturers of defective products "strictly" accountable for injuries to remote consumers.¹⁰⁴ Little thought was being devoted to how the new field might be divided up, for purposes of the standard of liability, according to different types of defect. Thus, as with most other scholars of the day, the search by Deans Keeton and Wade for an appropriate "test" of strict liability was a search for a single liability standard that would embrace most products liability problems of the day.

The test developed by Deans Keeton and Wade, which in time became known as the "Wade-Keeton" test,¹⁰⁵ quite simply was a negligence test stripped of scienter.¹⁰⁶ That is, both scholars proposed defining defectiveness in terms of whether a manufacturer or other seller with full knowledge of a product's dangerous condition would be negligent in selling it in that condition. By requiring a seller to know its product's risks, commensurately relieving an injured plaintiff of the burden of proving the foreseeability of those risks, this test imposes on the seller "constructive knowledge" of any dangers its products may possess.¹⁰⁷

In 1961, Dean Keeton authored a little article in the *Texas Law Review* in which he first articulated a liability test for product defects that was truly strict.¹⁰⁸ He there proposed that a product should not be considered defective "if a reasonable man with full knowledge of all the properties and the danger therein, would continue to market the product because the utility of its use outweighs the danger."¹⁰⁹ In numerous other articles, from 1963 to at least 1980, Dean Keeton recommended and refined his test of design defectiveness.¹¹⁰ In his later articles, he emphasized that a design's risks should be determined at the date of trial,

¹⁰⁴ See OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, §§ 5.2-5.4.

¹⁰⁵ See, e.g., *Privette v. CSX Transp., Inc.*, 79 F. App'x 879, 889 (6th Cir. 2003) (applying Tenn. law) (referring to this liability standard more fully as "the Wade-Keeton prudent manufacturer test" (quoting *Ray v. BIC Corp.*, 925 S.W.2d 527, 533 (Tenn. 1996))); *Brooks v. Beech Aircraft Corp.*, 902 P.2d 54, 63 (N.M. 1995); Richard L. Cupp & Danielle Polage, *The Rhetoric of Strict Liability Versus Negligence: An Empirical Analysis*, 77 N.Y.U. L. REV. 874, 884 (2002). The Wade-Keeton test is explored in OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, §§ 8.7, 10.4, from which this discussion draws.

¹⁰⁶ See, e.g., John W. Wade, *On the Nature of Strict Tort Liability for Products*, 44 MISS. L.J. 825, 834-35 (1973).

¹⁰⁷ See, e.g., *Phillips v. Kimwood Mach. Co.*, 525 P.2d 1033, 1038-39 (Or. 1974).

¹⁰⁸ Page Keeton, *Products Liability—Current Developments*, 40 TEX. L. REV. 193 (1961).

¹⁰⁹ *Id.* at 210. "This is close to a negligence test but not the same" because "excusable ignorance of a defect or the properties of a product is immaterial . . ." *Id.* In his full discussion, Dean Keeton mistakenly confuses the negative and positive formulations of the standard.

¹¹⁰ See *infra* note 120.

which of course imposes constructive knowledge on the manufacturer at the time of first design and sale: "A product is defectively designed [if] the magnitude of the danger in fact of the design as it is proved to be at the trial outweighs the utility of the design."¹¹¹

Dean John Wade, in a 1965 article¹¹² in which he cited both of Dean Keeton's Texas articles,¹¹³ offered a similar strict liability test for ascertaining whether a product is unreasonably dangerous: "assuming that the defendant had knowledge of the condition of the product, would he then have been acting unreasonably in placing it on the market?"¹¹⁴ Further, Dean Wade remarked, "[i]f the test is equivalent to that of whether a reasonable prudent man would put it on the market if he knew of the dangers of this particular article, then the elements for determining negligence are relevant. We have here again the problem of balancing the utility of the risk against the magnitude of the risk."¹¹⁵ In his famous 1973 article in the *Mississippi Law Journal*,¹¹⁶ Dean Wade restated his version of the test:

The simplest and easiest way [to define defectiveness] is to assume that the defendant knew of the dangerous condition of the product and ask whether he was then negligent in putting it on the market or supplying it to someone else. In other words, the scienter is supplied as a matter of law, and there is no need for the plaintiff to prove its existence as a matter of fact. Once given this notice of the dangerous condition of the chattel, the question then becomes whether the defendant was negligent Another way of saying this is to ask whether the magnitude of the risk created by the dangerous condition of the product was outweighed by the social utility attained by putting it out in this fashion.¹¹⁷

¹¹¹ W. Page Keeton, *Products Liability—Design Hazards and the Meaning of Defect*, 10 CUMB. L. REV. 293, 314-15 (1979). In this article, Dean Keeton noted that his test:

differs from negligence primarily because, as proposed, the danger in fact as proven at trial determines whether a product is good or bad. . . . When the negligence of the defendant is in issue, it is perceivable danger at the time the product was designed that is the basis for weighing danger against utility. Therefore, a clear difference between proof of negligence and proof of defect as a basis for recovery is apparent.

Id. In a footnote, Dean Keeton pointed out that the difference between the two tests was the requirement for negligence that the danger be foreseeable, whereas, under his "strict" liability test, "it is irrelevant that the defendant did not know or had no reason to know of the danger." *Id.* at 315 n.87.

¹¹² John W. Wade, *Strict Tort Liability of Manufacturers*, 19 SW. L.J. 5 (1965). The article arose out of a products liability symposium the year before in Dallas, Texas where both deans presented papers.

¹¹³ *Id.* at 12-13 n.45.

¹¹⁴ *Id.* at 15.

¹¹⁵ *Id.* at 17.

¹¹⁶ Wade, *supra* note 106.

¹¹⁷ *Id.* at 834-35. Dean Wade also recommended how the jury might be instructed on this test:

A [product] is not duly safe if it is so likely to be harmful to person [or property] that a reasonable prudent manufacturer [supplier], who had actual knowledge of its harmful character would not place it on the market. It is not necessary to find that this defendant

Just why the “Wade-Keeton” test was labeled precisely as it was is shrouded in the mists of time,¹¹⁸ but its name is surely backwards. Not only does it appear to have been invented by Dean Keeton in 1961, four years before Dean Wade first proposed it, but Dean Keeton spread the theory far and wide. Dean Wade, who appears to have borrowed the idea for the test from Dean Keeton, may have offered the test in the law journals merely twice, in 1965 and 1973. By contrast, Dean Keeton proposed and explained the test in law journals and his products liability casebook at least a dozen times, from 1961 at least to 1980.¹¹⁹

Be that as it may, a number of courts, themselves searching for a way to distinguish strict liability design claims (and warning claims) from those in negligence, picked up quite early on the Wade-Keeton hindsight test.¹²⁰ By the 1980s, however, courts and commentators had begun to question the fairness and logic of imposing strict liability for design defectiveness, and the only other truly strict test of products liability, the consumer expectations test, had already begun its decline. Recognizing the problems in forcing truly strict liability on manufacturers for dangers in design, Dean Wade and Dean Keeton, in the early 1980s, both repudiated the test that bore their names: Dean Wade claimed that he never meant what he had said,¹²¹ and Dean Keeton admitted that he no longer believed what he had said.¹²² The *Products Liability Restatement*, adopting a negligence-like risk-utility standard of liability, based on risks that are foreseeable at the time of sale, explicitly rejects the Wade-Keeton test and notes with pith: “The idea has not worn

had knowledge of the harmful character of the [product] in order to determine that it was not duly safe.

Id. at 839-40.

¹¹⁸ The dual origins of the test were noted at least as early as 1974, see *Phillips v. Kimwood Mach. Co.*, 525 P.2d 1033, 1036 n.6 (Or. 1974), and the “Wade-Keeton” moniker appeared in print no later than 1978. See *Cepeda v. Cumberland Eng'g Co.*, 386 A.2d 816, 829 (N.J. 1978); see also Birnbaum, *supra* note 19, at 619 n.125.

¹¹⁹ For citations to these articles, see OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 8.7 nn.11, 13, 14 & 16.

¹²⁰ See, e.g., *Dorsey v. Yoder Co.*, 331 F. Supp. 753, 759-60 (E.D. Pa. 1971), *aff'd*, 474 F.2d 1339 (3rd Cir. 1973) (stating test for strict products liability in tort as “whether a reasonable manufacturer would continue to market his product in the same condition as he sold it to the plaintiff with knowledge of the potential dangerous consequences the trial just revealed”) (emphasis omitted) (citing W. Page Keeton, *Manufacturer's Liability: The Meaning of “Defect” in the Manufacture and Design of Products*, 20 SYRACUSE L. REV. 559, 568 (1969)); see also *Phillips*, 525 P.2d at 1036, where the court formulated the test as follows:

A dangerously defective article would be one which a reasonable person would not put into the stream of commerce if he had knowledge of its harmful character. The test, therefore, is whether the seller would be negligent if he sold the article knowing of the risk involved. Strict liability imposes what amounts to constructive knowledge of the condition of the product.

Id.

¹²¹ See John W. Wade, *On the Effect in Product Liability of Knowledge Unavailable Prior to Marketing*, *Postscript*, 58 N.Y.U. L. REV. 734, 761 (1983).

¹²² See W. P. KEETON et al., PROSSER AND KEETON ON TORTS 697-98 n.21 (5th ed. 1984).

well with time.”¹²³ Most courts focusing on the state-of-the-art issue have agreed, rejecting the hindsight test and limiting a manufacturer’s responsibility to risks that are foreseeable.¹²⁴

Despite the rejection of the Wade-Keeton test by the scholars who gave it birth, some courts continued to adopt the test after its “official” demise in the early 1980s,¹²⁵ and others have continued rotely to restate the test,¹²⁶ and even proudly to reaffirm allegiance to it while knowing it has died.¹²⁷ While one state legislature reversed the judicial adoption of the Wade-Keeton test,¹²⁸ another affirmatively adopted it,¹²⁹ and one wonders at its staying power in scattered decisions across the nation. The ghost of the Wade-Keeton test continues to haunt judicial halls, but its time has come and gone.

C Risk-Utility Ghosts

1. Principles of Risk-Utility Balancing

The purpose of any design liability test, of course, is to separate bad products from good, to hold accountable manufacturers of products designed with excessive risks, and to protect manufacturers of products

¹²³ See RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 Reporters’ Note, cmt. m (1998).

¹²⁴ While the Wade-Keeton test sometimes arises in design defect cases, it more often arises in the warning context. See, e.g., *Powers v. Taser Int’l, Inc.*, 174 P.3d 777, 779-84 (Ariz. Ct. App. 2007) (declining to extend Arizona’s hindsight test from design to warning defect cases, and holding by implication that the duty to warn extends only to foreseeable risks); *Vassallo v. Baxter Healthcare Corp.*, 696 N.E.2d 909, 924 (Mass. 1998) (silicone breast implants; duty to warn limited to foreseeable risks); see also OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 10.4.

¹²⁵ See, e.g., *Sternhagen v. Dow Co.*, 935 P.2d 1139, 1144, 1147 (Mont. 1997) (adopting Wade-Keeton constructive knowledge test for strict products liability, and holding that “knowledge of any undiscovered or undiscoverable dangers should be imputed to the manufacturer”).

¹²⁶ See, e.g., *Golonka v. Gen. Motors Corp.*, 65 P.3d 956, 963-64 (Ariz. Ct. App. 2003) (applying hindsight test); *Denny v. Ford Motor Co.*, 662 N.E.2d 730, 735 (N.Y. 1995) (“[T]he New York standard for determining the existence of a design defect has required an assessment of whether ‘if the design defect were known at the time of manufacture, a reasonable person would conclude that the utility of the product did not outweigh the risk inherent in marketing a product designed in that manner.’” (quoting *Voss v. Black & Decker Mfg. Co.*, 450 N.E.2d 204 (N.Y. 1983))); *Anaya v. Town Sports Int’l, Inc.*, 843 N.Y.S.2d 599, 601 (App. Div. 2007).

¹²⁷ See *Brooks v. Beech Aircraft Corp.*, 902 P.2d 54, 63 (N.M. 1995) (recognizing that the Wade-Keeton test is now a misnomer, but reaffirming it where the facts did not show a true advancement in the technological state of the art):

[I]n those hypothetical instances in which technology known at the time of trial and technology knowable at the time of distribution differ—and outside of academic rationale we find little to suggest the existence in practice of unknowable design considerations—it is more fair that the manufacturers and suppliers who have profited from the sale of the product bear the risk of loss.

The standard New Mexico jury instruction applies the Wade-Keeton test. See *id.* at 62.

¹²⁸ In 1979, the Oregon legislature abolished the Wade-Keeton test, which that state’s Supreme Court had adopted in *Phillips v. Kimwood Mach. Co.*, 525 P.2d 1033 (Or. 1974), by legislatively adopting section 402A of the *Restatement (Second) of Torts*, including its comments which define defectiveness in consumer contemplation terms. See OR. REV. STAT. § 30.920 (2007).

¹²⁹ See TENN. CODE ANN. § 29-28-102(8) (2000). But see *id.* § 29-28-105; see also *Brown v. Crown Equip. Corp.*, 181 S.W.3d 268, 281-82 (Tenn. 2005) (stating Wade-Keeton hindsight test).

that are safe enough.¹³⁰ The immense basket of complexities involved in deciding how properly to design a product, and in judicially reviewing such decisions after a product accident—a basket that includes such diverse considerations as consumer preferences for utility, cost, and safety; engineering constraints; expense; and human physical and psychological characteristics¹³¹—suggests the need for a liability test that is subtle, intelligent, and robust. Put otherwise, determining whether a product design is safe enough, or whether instead it should include more safety, involves a sophisticated balance of such factors as engineering technology, cost, the magnitude of the risk, the extent to which a design change might reduce the risk, the effect of such a change on the product's utility, and the ability of consumers to perceive and control the risk themselves.¹³² As previously addressed, rather than resting on the sole pillar of consumer expectations, the quality of any particular design decision is usually best determined by a broad, evaluative balance of the costs and benefits of a particular untaken precaution.¹³³

Principles of equal freedom, utilitarianism, and economic efficiency inherent in the tort law system of corrective justice support the use of cost-benefit balancing precepts to test the propriety of design decisionmaking,¹³⁴ and such balancing precepts also reflect simple common sense. Nearly all reasoned decisions reflect a weighing of the advantages and disadvantages expected to flow from a contemplated course of action,¹³⁵ and product design decisions are no different. A responsible member of society contemplating action will weigh the expected costs and benefits to others as well as to himself, as reflected in Learned Hand's celebrated $B < P \times L$ formula in *United States v. Carroll Towing Co.*¹³⁶ In the products liability context, a manufacturer fairly may be charged with maximizing not only profits but also consumer welfare, which is comprised of product usefulness, desirability, affordability, and

¹³⁰ See the classic rock tub metaphor in James A. Henderson, *Should a "Process Defense" Be Recognized in Product Design Cases?*, 56 N.Y.U. L. REV. 585, 601-03 (1981).

¹³¹ To say nothing of other factors such as aesthetics, reliability, durability, ease and cost of operation, maintenance, and repair.

¹³² See RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 cmt. f (1998).

¹³³ See *supra* text accompanying note 80.

¹³⁴ See generally Owen, *Moral Foundations*, *supra* note 15, at 479.

¹³⁵ See, e.g., Letter from Benjamin Franklin (Sept. 19, 1772) (suggesting, as an aid to rendering difficult decisions, that one list and consider "all the reasons pro and con" and contemplate "where the balance lies"), reprinted in EDWARD M. GRAMLICH, *BENEFIT-COST ANALYSIS OF GOVERNMENT PROGRAMS 1-2* (1981); see also Oliver Wendell Holmes, Jr., *The Path of the Law*, 10 HARV. L. REV. 457, 474 (1897) (advising that "for everything we have to give up something else, and we are taught to set the advantage we gain against the other advantage we lose").

¹³⁶ 159 F.2d 169, 173 (2d Cir. 1947) (expressing the concept algebraically as negligence being implied if $B < P \times L$, where B is the burden or cost of avoiding accidental loss, P is the probability of loss absent B , and L is the expected magnitude or cost of such loss). For a considered review of the origins of risk-benefit analysis in early American tort law and its path into modern products liability law, see Michael D. Green, *Negligence = Economic Efficiency: Doubts >*, 75 TEX. L. REV. 1605 (1997).

safety to consumers and third parties.¹³⁷ Testing the propriety of a manufacturer's design decisions on a cost-benefit basis thus draws from principles of reasonableness, optimality, and balance, which support both the negligence and strict liability standards for judging the quality of product design decisions.¹³⁸

2. Judicial Confusion in Risk-Utility Formulations

While courts increasingly comprehend that ascertaining design defectiveness in products liability cases requires some kind of "risk-utility" balancing,¹³⁹ they do not seem to understand just what that balance should entail. In case after case, courts uphold verdicts rooted in risk-utility proof and argument—on the balance of the costs and benefits of some untaken design precaution—without focusing closely on just how that balance properly should be formulated. And when most courts and commentators do attempt to define the balance, to state with some precision just what should be balanced against what, they quickly lose themselves, conceptually and linguistically, in a tangled thicket of "risks" and "benefits" and "costs" and "utility." Balancing bedlam, that is, defines the interior of modern design defect jurisprudence.

Section 2(b) of the *Restatement (Third) of Torts: Products Liability* rests squarely on risk-utility balancing, as seen above, in defining design defect in terms of whether, on balance, some safer alternative design was better than the manufacturer's chosen design.¹⁴⁰ Yet, except in one Reporters' Note,¹⁴¹ the *Third Restatement* does not focus closely on how a proper design defect balancing test should be formulated. A comment to section 2(b) states broadly that the risks and benefits of the chosen and alternative designs should somehow be compared and adopts the popular "grab-bag" approach, throwing into the balance nearly everything in sight.¹⁴²

¹³⁷ See Owen, *Moral Foundations*, *supra* note 15, at 477-79.

¹³⁸ See Owen, *Defectiveness Restated*, *supra* note 14, at 753-61 (explaining the principles of reasonableness, optimality, and balance and the practical equivalence of negligence and strict liability in the design defect context).

¹³⁹ See, e.g., *Sperry-New Holland v. Prestage*, 617 So. 2d 248, 255 (Miss. 1993) (stating that risk-utility has become the "trend in most federal and state jurisdictions" and adopting the risk-utility standard for design defect cases).

¹⁴⁰ See RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 cmts. a, b, c, d, e & f (1998) (explaining the liability rule to be a risk-utility balancing test).

¹⁴¹ See *id.*, § 2 Reporters' Note, cmt. f(1).

¹⁴² Comment f provides in part:

A broad range of factors may be considered in determining whether an alternative design is reasonable and whether its omission renders a product not reasonably safe. The factors include, among others, the magnitude and probability of the foreseeable risks of harm, the instructions and warnings accompanying the product, and the nature and strength of consumer expectations regarding the product. The relative advantages and disadvantages of the product as designed and as it alternatively could have been designed may also be considered. Thus, the likely effects of the alternative design on production costs; the effects of the alternative design on product longevity, maintenance, repair, and esthetics;

Just what should be balanced against what in design defect cases? Should all the risks of the manufacturer's chosen product design, viewed in the aggregate, be balanced against all of that same design's aggregate utility? Or is the proper balance between the aggregate risks and utility of the alternatively designed product the plaintiff claims ought to have been adopted? Does the true balance require a comparison of the risks and utility of the chosen design, on the one side, against the risks and benefits of the proposed alternative design, on the other? Or should courts more narrowly balance the incremental risks (or costs) and utility (or benefits) resulting solely from altering the design in the particular manner proposed by the plaintiff? Balancing questions like these penetrate to the very heart of design defect decisions, but few courts have focused on the definitional confusion, much less attempted to unravel the mysteries inside conflicting formulations of the balancing equation.¹⁴³

Surveys of judicial opinions applying the risk-utility test to design defect determinations reveal a vast disparity of definition.¹⁴⁴ From court to court, and from judge to judge, definitions of the risk-utility test vary widely. Even within the same opinion, it is not unusual for a single judge to enunciate the test in two, three, or even more different ways,¹⁴⁵ demonstrating the definitional problem and the need for definitional focus. The existence of such disparity surrounding the central products liability issue hardly inspires confidence in the "law" and surely is a cause for despair by those bound to govern their conduct according to its precepts.

3. "Factoritis"

a. *The Disease*

Appellate courts too often open a Pandora's box by formulating the risk-utility calculus far too widely, in a scatter-shot manner that leaves no risk-utility stone unturned.¹⁴⁶ Such approaches open the balancing calculus to the sky by listing large numbers of possibly relevant "factors" that a risk-utility calculation might contain. Courts infected with this temptation invariably contract an insidious disease that might fairly be labeled "factoritis."

and the range of consumer choice among products are factors that may be taken into account. Plaintiff is not necessarily required to introduce proof on all of these factors; their relevance, and the relevance of other factors, will vary from case to case.

Id. § 2 cmt. f.

¹⁴³ For elaboration, see Owen, *Risk-Utility Balancing*, *supra* note 16, and Owen, *Toward a Proper Test for Design Defectiveness*, *supra* note 4, from which this discussion draws.

¹⁴⁴ See, e.g., RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2 Reporters' Note, cmt. d (1998); Owen, *Risk-Utility Balancing*, *supra* note 16; Vargo, *supra* note 16.

¹⁴⁵ See, e.g., *Nichols v. Union Underwear Co.*, 602 S.W.2d 429, 434 (Ky. 1980) (Lukowsky, J., concurring) (defining risk-utility in four separate ways).

¹⁴⁶ This section draws from OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 8.4.

*Banks v. ICI Americas, Inc.*¹⁴⁷ is a good example. There, in adopting a risk-benefit test for evaluating design defectiveness, the Georgia Supreme Court observed that “no finite set of factors can be considered comprehensive or applicable under every factual circumstance, since such matters must necessarily vary according to the unique facts of each case.”¹⁴⁸ Pertinent to the “reasonableness” of a manufacturer’s chosen design are “[s]uch diverse matters as competing cost trade-offs, tactical market decisions, product development and research/testing demands, the idiosyncrasies of individual corporate management styles, and federal and other regulatory restrictions”¹⁴⁹ The court offered a “non-exhaustive list of general factors,” including:

the usefulness of the product; the gravity and severity of the danger . . . ; the likelihood of that danger; the avoidability of the danger, i.e., the user’s knowledge of the product, publicity surrounding the danger, or the efficacy of warnings, as well as common knowledge and the expectation of danger; the user’s ability to avoid danger; the state of the art . . . ; the ability to eliminate danger without impairing the usefulness of the product or making it too expensive; and the feasibility of spreading the loss in the setting of the product’s price or by purchasing insurance.¹⁵⁰

The court then listed the “[a]lternative safe design factors” also pertinent to the issue: “the feasibility of an alternative design; the availability of an effective substitute for the product which meets the same need but is safer; the financial cost of the improved design; and the adverse effects from the alternative.”¹⁵¹ Finally, the court set forth “benefit factors” that may also be considered in the balancing test: “the appearance and aesthetic attractiveness of the product; its utility for multiple uses; the convenience and extent of its use, especially in light of the period of time it could be used [safely]; and the collateral safety of a feature other than the one that harmed the plaintiff.”¹⁵²

No doubt many (perhaps most) factors in this long list¹⁵³ should be considered by manufacturers making fully informed decisions on how to design their products. And most of the listed factors are legitimate issues in different kinds of design cases confronting courts over time. But such a wide and open-ended “catalogue of factors” provides little help for adjudicating the design defect issue in particular cases,¹⁵⁴ and a practicable “test” for design defectiveness must be framed far more

¹⁴⁷ 450 S.E.2d 671 (Ga. 1994). The Georgia court is not alone in succumbing to the temptation to list a broad range of risk-utility factors. A recent example is *Calles v. Scripto-Tokai Corp.*, 864 N.E.2d 249, 260-61 (Ill. 2007).

¹⁴⁸ *Banks*, 450 S.E.2d at 675.

¹⁴⁹ *Id.*

¹⁵⁰ *Id.* at 675 n.6.

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ Thirty-three, by my count.

¹⁵⁴ For an effort, see *Moore v. ECI Management*, 542 S.E.2d 115, 120 (Ga. Ct. App. 2000), applying the multi-factor risk-utility test to a washer/dryer design defect claim.

narrowly in terms of the costs and benefits of a particular untaken precaution normally at issue in a design defect case.

b. The Wade Factors

Over-broad formulations of risk-utility analysis for design defect decisionmaking are traceable to a widely quoted set of liability factors proposed in an early, influential article written by Dean John Wade,¹⁵⁵ *On the Nature of Strict Tort Liability for Products*.¹⁵⁶ Dean Wade proposed that a court consider the following list of factors:

- (1) The usefulness and desirability of the product—its utility to the user and to the public as a whole.
- (2) The safety aspects of the product—the likelihood that it will cause injury, and the probable seriousness of the injury.
- (3) The availability of a substitute product which would meet the same need and not be as unsafe.
- (4) The manufacturer's ability to eliminate the unsafe character of the product without impairing its usefulness or making it too expensive to maintain its utility.
- (5) The user's ability to avoid danger by the exercise of care in the use of the product.
- (6) The user's anticipated awareness of the dangers inherent in the product and their avoidability, because of general public knowledge of the obvious condition of the product, or of the existence of suitable warnings or instructions.
- (7) The feasibility, on the part of the manufacturer, of spreading the loss by setting the price of the product or carrying liability insurance.¹⁵⁷

Searching for guidance in the murky sea of design defectiveness, appellate courts quickly grasped onto the Wade factors for use in design defect cases.¹⁵⁸ However, while courts across the continent have authoritatively *quoted* these six or seven¹⁵⁹ factors for decades,¹⁶⁰ only infrequently do courts actually try to *apply* the factors in assessing whether a particular product was defective in design. Even more rarely has an application of these factors actually *helped* a court determine

¹⁵⁵ Indeed, the *Banks* court's "non-exhaustive list of general factors," *see supra* notes 147-150 and accompanying text, is largely a restatement of Dean Wade's seven factors.

¹⁵⁶ Wade, *supra* note 106, at 837-38.

¹⁵⁷ *Id.*

¹⁵⁸ *See, e.g.,* Cepeda v. Cumberland Eng'g Co., 386 A.2d 816, 826-27 (N.J. 1978), *overruled in part on other grounds by* Suter v. San Angelo Foundry & Mach. Co., 406 A.2d 140 (N.J. 1979); Roach v. Kononen, 525 P.2d 125, 129 (Or. 1974) ("We agree that these factors should be considered by a court before submitting a design defect case to the jury. Also, proof of these factors bears on the jury's determination of whether or not a given design is defective.").

For an inspired reduction of the Wade and other factors, see Montgomery & Owen, *supra* note 81, at 818, which propose four elegantly crafted factors.

¹⁵⁹ Some courts leave out the seventh factor, loss-spreading, as discussed below.

¹⁶⁰ *See, e.g.,* Barton v. Adams Rental, Inc., 938 P.2d 532, 537 (Colo. 1997); Potter v. Chicago Pneumatic Tool Co., 694 A.2d 1319, 1333-34 (Conn. 1997); Calles v. Scripto-Tokai Corp., 864 N.E.2d 249, 260-61 (Ill. 2007); Nunnally v. R.J. Reynolds Tobacco Co., 869 So. 2d 373, 379-80 (Miss. 2004); Bass v. Air Prods. & Chems., Inc., Nos. ESX-L-694-99, ESX-L-10385-99, ESX-L-10489-99, ESX-L-7176-00, & ESX-L-2676-02, 2006 WL 1419375, at *12 (N.J. Super. Ct. App. Div. 2006); Denny v. Ford Motor Co., 662 N.E.2d 730, 735 (N.Y. 1995); Ray v. BIC Corp., 925 S.W.2d 527, 533 n.10 (Tenn. 1996); *see also* Hernandez v. Tokai Corp., 2 S.W.3d 251, 256 (Tex. 1999) (reciting five modified factors).

design defectiveness;¹⁶¹ more typically, a court attempting to apply the factors has become ensnared in one of their many traps.¹⁶²

Despite some early favorable commentary on the Wade factor approach,¹⁶³ commentators now view most of the Wade factors as problematic.¹⁶⁴ The first factor, the utility of the product, has been criticized on political grounds for allowing courts to second-guess the market as to the desirability of different kinds of products. In particular, this factor seems to reflect “the fallacy that ‘essentials’ provide utility whereas ‘luxuries’ do not.”¹⁶⁵ Factor two, on the other hand, which embraces the $P \times L$ (risk of harm) side of the Hand formula discussed above, is vital to intelligent cost-benefit decisionmaking.¹⁶⁶

The third factor, the availability of a substitute product, is difficult to interpret. If it is read narrowly to mean the availability of a substitute design feature, then it properly introduces the necessarily central question in design defect analysis of the availability of a feasible and otherwise reasonable alternative design feature, a crucial issue previously examined.¹⁶⁷ If, on the other hand, this factor is interpreted literally, as Dean Wade probably intended, the availability of substitute “products” falls victim to the flaw infecting the first factor by inviting a judge or jury to engage in social engineering of the highest, and most dubious, order. Factor four, the manufacturer’s ability to eliminate the risk without unduly sacrificing price or utility, properly raises the relevant issues of the costs and benefits of altering the chosen design to eliminate the risk. Indeed, factors two and four together form the heart of proper cost-benefit analysis in design defect litigation.

Factors five and six raise important issues on the proper allocation of responsibility for product accidents between manufacturers and users. Factor five, the user’s ability to avoid the risk, importantly introduces the issue of consumer responsibility into the matrix. Its only fault lies in its tendency to mislead courts, and especially juries, into

¹⁶¹ For an unusual example of a decision astutely applying the factors, see *Monahan v. Toro Co.*, 856 F. Supp. 955 (E.D. Pa. 1994).

¹⁶² See, e.g., *Johansen v. Makita U.S.A., Inc.*, 607 A.2d 637, 645 (N.J. 1992) (court should have instructed jury not to consider evidence of plaintiff’s lack of care in deciding question of product defect, because fifth factor pertained only to users generally, not to particular plaintiff’s conduct). Compare *Murphy v. Playtex Family Prods. Corp.*, 176 F. Supp. 2d 473, 490-91 (D. Md. 2001) (where the court valiantly tried to apply the factors, yet ended up basing its determination on the reasonableness of the defendant’s actions), *aff’d*, 69 F. App’x 140 (4th Cir. 2003).

¹⁶³ See, e.g., *Montgomery & Owen*, *supra* note 81, at 895.

¹⁶⁴ See, e.g., RICHARD A. EPSTEIN, SIMPLE RULES FOR A COMPLEX WORLD 239-45 (1995); W. KIP VISCUSI, REFORMING PRODUCTS LIABILITY 70-86 (1991); Richard A. Epstein, *The Risks of Risk/Utility*, 48 OHIO ST. L.J. 469, 474-75 (1987); Michael D. Green, *The Schizophrenia of Risk-Benefit Analysis in Design Defect Litigation*, 48 VAND. L. REV. 609, 615-16 (1995); W. Kip Viscusi, *Wading Through the Muddle of Risk-Utility Analysis*, 39 AM. U. L. REV. 573, 580-82 (1990); see also OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 8.4, from which this discussion draws.

¹⁶⁵ Viscusi, *supra* note 164, at 582.

¹⁶⁶ See *id.* at 583.

¹⁶⁷ See OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 8.5.

confusing the proper issue of how users generally may act, on the one hand, with the improper issue of whether the particular plaintiff behaved appropriately in using the particular product in the manner that led to the accident, on the other.¹⁶⁸ The sixth factor, the user's awareness of the danger and avoidance techniques, is similarly problematic. Its most reasonable interpretation appears to be subjective, which then introduces a plaintiff's conduct into the prima facie case of design defectiveness, rather than leaving it as an affirmative defense where it normally belongs. If, on the other hand, this factor is interpreted with some strain as a broader inquiry into the extent to which consumers generally may be expected to comprehend a product's dangers, it would fit nicely with (though should precede) factor five.

The final Wade factor, number seven, is especially problematic as a factor for design liability decisionmaking. As a rationale for a generalized doctrine of strict tort liability for manufacturers, "loss-spreading" ("insurance" by another name) has been viewed in recent decades with increasing skepticism.¹⁶⁹ If the strict products liability litigation system is to serve as a substitute for private and social insurance, it must force people to buy types and levels of insurance against product accidents that many neither need nor want, and at excessive cost. By so requiring consumers to pay higher prices for products as a form of product accident insurance, loss-spreading may be seen as both unfair¹⁷⁰ and inefficient.¹⁷¹ Poor people pay regressively unfair premiums for this form of insurance,¹⁷² or "taxes" when the tort system substitutes for social welfare insurance. Moreover, the litigation method for determining whether particular accidents are covered by the system (whether a product is "defective," whether jurisdiction is proper, whether any defenses apply, etc.) is exceedingly time-consuming, enervating, and expensive. For the most serious accidents, where a victim's compensation needs are immediate and immense, it may take five or even ten years to complete the litigation compensation process.¹⁷³

¹⁶⁸ See, e.g., *Johansen v. Makita U.S.A., Inc.*, 607 A.2d 637, 645-46 (N.J. 1992) (trial court should have instructed jury "to not consider evidence concerning plaintiff's lack of care in deciding the question of design defect," because the fifth factor pertained only to users generally, not to particular plaintiff's conduct). While irrelevant to duty, the propriety of a particular user's conduct may well be relevant to the misconduct defenses.

¹⁶⁹ See, e.g., *Fiorino v. Sears Roebuck & Co.*, 707 A.2d 1053, 1057-58 (N.J. Super. Ct. App. Div. 1998) (including factor seven in jury instruction is reversible error because it improperly introduces insurance into case); see also OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 5.4 (on loss spreading as a products liability rationale).

¹⁷⁰ See, e.g., Owen, *Moral Foundations*, *supra* note 15, at 484-93.

¹⁷¹ See, e.g., Viscusi, *supra* note 164, at 584-91.

¹⁷² George Priest explains that the level of insurance "premiums" manufacturers add to product prices regressively penalizes the poor who stand to gain far less in damages for lost earnings than wealthy victims who pay the same premium for much higher coverage. See, e.g., George L. Priest, *The Current Insurance Crisis and Modern Tort Law*, 96 YALE L.J. 1521, 1558-60 (1987).

¹⁷³ See, e.g., *Mesman v. Crane Pro Servs., Div. of Konecranes, Inc.*, 409 F.3d 846 (7th Cir. 2005) (Ind. Law), *Mesman v. Crane Pro Servs.*, 512 F.3d 352 (7th Cir. 2008) (on appeal after

And in the end, the victim may lose the case and end up with no compensation whatsoever. In short, design defect liability is a poor means for society to spread the losses that result from product accidents.

As a factor for helping assess whether *particular* products are defective, loss-spreading is even more seriously flawed, because it *always* points toward liability: a finding of design defectiveness resulting in a judgment for the plaintiff always spreads the plaintiff's loss, at least among the shareholders of the manufacturer.¹⁷⁴ Yet products liability law self-consciously limits a manufacturer's liability to designs that are defective in order to distinguish between products whose design dangers are acceptable from those that are not, as previously discussed. Including loss-spreading, or any other factor that always weighs on the same side of the scales, can only subvert the process of fair and rational adjudication of design defectiveness.¹⁷⁵ As a result, this seventh, loss-spreading factor sometimes is excluded from the list as inappropriate.¹⁷⁶

It is understandable that in the early days of modern products liability courts looked for guidance to the Wade factors, which had an aura of logic, fairness, and common sense. Indeed, modern products liability law has absorbed the best aspects of Dean Wade's factors in a variety of ways. But the design defect jurisprudence of recent years has moved well beyond the place it was when Dean Wade conceived it at the time section 402A was just getting off the ground. Even from the start, courts have done little more than pay lip service to the Wade factors, which now are well past their prime. Typically, courts recite the factors and then move on to a far narrower and appropriate cost-benefit analysis of some particular design feature offered by the plaintiff as a safer alternative.¹⁷⁷ In short, by ridding risk-utility formulations of "catalogues of factors," design defect definitions are cured of the insidious "factoritis" disease.

new trial; 8 years from filing to final appeal in case applying Indiana law); Knitz v. Minster Mach. Co., 1987 WL 6486 (Ohio Ct. App. 1987) (11 years from accident to final appeal).

¹⁷⁴ See David G. Owen, *Rethinking the Policies of Strict Products Liability*, 33 VAND. L. REV. 681, 704 (1980) (explaining that loss spreading "suffer[s] incurably from being one-directional—[it] argue[s] only that payment should be made") [hereinafter Owen, *Rethinking the Policies*]; Gary T. Schwartz, *Foreword: Understanding Products Liability*, 67 CAL. L. REV. 435, 445 (1979).

¹⁷⁵ See Owen, *Moral Foundations*, *supra* note 15, at 492-93; Owen, *Rethinking the Policies*, *supra* note 174, at 703-07.

¹⁷⁶ See, e.g., *Nunnally v. R.J. Reynolds Tobacco Co.*, 869 So. 2d 373, 380 (Miss. 2004). Cf. *supra* note 169.

¹⁷⁷ See, e.g., *Barton v. Adams Rental, Inc.*, 938 P.2d 532, 537 (Colo. 1997); *Nunnally*, 869 So. 2d at 380; *Denny v. Ford Motor Co.*, 662 N.E.2d 730, 735 (N.Y. 1995); *Anaya v. Town Sports Int'l, Inc.*, 843 N.Y.S.2d 599, 601 (App. Div. 2007); *Irion v. Sun Lighting, Inc.*, No. M2002-00766-COA-R3-CV, 2004 WL 746823, at *7 (Tenn. Ct. App. Apr. 7, 2004).

4. Perils of *Macro*-Balancing

Worse, perhaps, than factoritis has been a disturbing long-term trend among appellate courts to articulate risk-utility definitions in a manner that is not only contrary to logic, but contrary to how courts and juries actually make design defect determinations.¹⁷⁸ Probably most appellate courts defining risk-utility have articulated a *global* type of balance for determining the adequacy of a design's safety, an evaluative method that might be characterized as "*macro*-balancing." Under this approach, the defect question is framed in terms of a comparison between a product's entire bundle of risks and the product's entire bundle of utility. That is, the balance of good and bad in a product is examined in the aggregate: if the product's aggregate risk exceeds its aggregate social utility, it is defective; if its aggregate utility exceeds its aggregate risk, the product is nondefective.¹⁷⁹

Although courts rarely endorse this form of global balancing explicitly,¹⁸⁰ the manner in which they generally describe the risk-utility test strongly suggests this interpretation. Thus, a global balance is asserted when a court refers to "balancing the *overall* risk and utility of a product,"¹⁸¹ and a global balance appears contemplated when a court states that design defect determinations require "balancing the utility of the product against the risks involved in its use."¹⁸² Unfortunately, courts widely use these and other macro-balance risk-utility formulations to define design defectiveness.¹⁸³

Defining design defectiveness in macro-balance terms poses a variety of problems, not the least of which is that this form of definition fails to state the issue as it ordinarily is litigated in courtrooms across the nation. This situation presents a fundamental jurisprudential problem

¹⁷⁸ This problem is explored in Owen, *Risk-Utility Balancing*, *supra* note 16, and Owen, *Toward a Proper Test for Design Defectiveness*, *supra* note 4.

¹⁷⁹ The widespread notion that a product's aggregate social utility and aggregate risk may have some relevance to design defectiveness may find its roots in two of Dean Wade's famous seven factors, discussed above: "(1) The usefulness and desirability of the product—its utility to the user and to the public as a whole;" and "(2) The safety aspects of the product—the likelihood that it will cause injury, and the probable seriousness of the injury." Wade, *supra* note 106, at 837.

¹⁸⁰ *But see* Beshada v. Johns-Manville Prod. Corp., 447 A.2d 539, 545 (N.J. 1982) (endorsing such a global risk-utility approach and explaining how it differs from the more narrow micro-balance approach).

¹⁸¹ Penick v. Christensen, 912 S.W.2d 276, 283 (Tex. App. 1995) (emphasis added); *see also* Denny, 662 N.E.2d at 736 (ascertaining defectiveness "requires a weighing of the product's dangers against its over-all advantages").

¹⁸² Caterpillar, Inc. v. Shears, 911 S.W.2d 379, 383-84 (Tex. 1995).

¹⁸³ *See* Banks v. ICI Ams., Inc., 450 S.E.2d 671, 673 (Ga. 1994) (finding that an "exhaustive review of foreign jurisdictions and learned treatises" reveals "a general consensus regarding the utilization in design defect cases of a balancing test whereby the risks inherent in a product design are weighed against the utility or benefit derived from the product"). Commentators have not been immune from this disease, also sometimes speaking loosely in macro-balance terms. *See, e.g.*, W. PAGE KEETON ET AL., PROSSER & KEETON ON THE LAW OF TORTS § 99, at 699 (W. Page Keeton ed., 5th ed. 1984) ("Under [the 'danger-utility test'] approach, a product is defective as designed if, but only if, the magnitude of the danger outweighs the utility of the product.").

because the liability standard announced by the appellate courts contravenes the law as it actually is applied. The issue normally litigated is not whether an accident-producing product was globally good or bad for society.¹⁸⁴ Instead, the question typically at issue is whether the manufacturer might have avoided the accident (and possibly others) by changing the product's design in some manner that was relatively inexpensive, that did not unduly diminish the product's usefulness, and that did not introduce excessive new dangers which the chosen design did not possess.¹⁸⁵ These litigated issues also involve a balance, of course, but one far narrower than that contemplated by the macro-balance formulations often articulated by appellate courts in their design defect risk-utility definitions.

5. A Reasoned *Micro*-Balance Approach

To distinguish the narrow courtroom balance from its mischievous big sister, *macro*-balance, one might label the former, proper approach a "*micro*-balance." The *micro*-balance scales care not about the *overall* risk, utility, or quality of a product but seek only to evaluate the marginal costs and benefits of adopting the particular alternative design *feature* proposed by plaintiff in order to determine whether its omission may be viewed as having rendered the product defective.¹⁸⁶ Thus, *micro*-balancing—not *macro*-balancing—is revealed to be the form of risk-utility balancing actually and properly used by lawyers and trial judges in the litigation of design defect cases.¹⁸⁷

As with negligence determinations,¹⁸⁸ the risk-utility *micro*-balance involved in design defect determinations focuses on the costs and benefits of adopting the particular alternative design *feature* proposed by the plaintiff—not a global *macro*-balance of all risks and benefits of either the chosen or the alternative design. Thus, if the plaintiff frames the issue in terms of the defectiveness of an outboard

¹⁸⁴ When confronting this issue head on, usually in the context of inherent risks (sometimes characterized as "product category" liability), courts almost always refuse to adjudicate the global desirability of a product in relation to its detriments, viewed as a whole. See OWEN, PRODUCTS LIABILITY LAW, *supra* note 1, § 10.3.

¹⁸⁵ See RICHARD J. HEAFEY & DON M. KENNEDY, PRODUCT LIABILITY: WINNING STRATEGIES AND TECHNIQUES §§ 4.04, 4.05 (1994) (describing plaintiff strategies in design defect cases); Paul Rheingold, *The Risk/Utility Test in Product Cases*, TRIAL LAW. Q., Summer/Fall 1987, at 49-51 (same).

¹⁸⁶ In the terms of the *Restatement (Third) of Torts: Products Liability*, the test is whether the omission of "a reasonable alternative design . . . renders the product not reasonably safe." RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 2(b) (1998).

¹⁸⁷ See, e.g., *Anderson v. Weslo, Inc.*, 906 P.2d 336, 339-42 (Wash. Ct. App. 1995) (discussing whether trampolines could be redesigned but not whether trampolines are valuable). Cf. *Parish v. Jumping, Inc.*, 719 N.W.2d 540, 543-45 (Iowa 2006) (comparing overall risks and benefits of trampolines and concluding that trampolines are not "manifestly unreasonable" under comment e to section 2 of the *Products Liability Restatement*).

¹⁸⁸ Insightfully explained in Grady, *supra* note 4, at 139.

motor not equipped with a propeller guard,¹⁸⁹ the proper inquiry concerns the balance of costs and benefits that would result from *adding* such a guard—not the risks and benefits of outboard motors generally, without such guards, and certainly not the broader risks and benefits of power boats propelled by outboard motors. Similarly, a plaintiff’s proposed design feature might involve *removing* some hazardous feature of the product, such as a dangerous hood ornament on a car.¹⁹⁰ Here, the only pertinent costs and benefits would concern the removal of the hood ornament from the car—not the broader risks and benefits of cars with sporty, but dangerously sharp, hood ornaments. This proper form of micro-balancing analysis describes quite well how design defect cases are actually litigated in the trial courts, but it does not comport at all with how most appellate courts define the balance.

6. Formulating a Proper Cost-Benefit Test

Just as courts and commentators have spared no ink in illustrating the variety of ways in which design defects may be defined incorrectly, so too are there a multitude of ways to define a test correctly. To fall into the “good” definitional pot rather than the “bad” pot requires that a liability formulation build properly upon *micro*-balance principles by framing the liability issue in terms of the marginal precaution costs and marginal safety benefits that should follow a move from the chosen to the alternative design. Such a “bare-bones” definition might look something like the following:

A product is defective in design if the safety benefits of an alternative design would have exceeded its costs.

A more robust test might look something like this:

A product is defective in design if the safety benefits of an alternative design were foreseeably greater than the resulting costs, including any diminished usefulness or diminished safety.

And a softer, more flexible formulation might be phrased along these lines:

A product is defective in design if it was not designed with reasonable safety, such that the safety benefits of an alternative design were foreseeably greater than the resulting costs, including any diminished usefulness or diminished safety.

¹⁸⁹ See, e.g., *Fitzpatrick v. Madonna*, 623 A.2d 322 (Pa. Super. Ct. 1993) (involving a teenager who was struck and killed by a power boat propelled by an outboard motor with unguarded propeller blades).

¹⁹⁰ Cf. *Hatch v. Ford Motor Co.*, 329 P.2d 605 (Cal. Dist. Ct. App. 1958) (involving an injury in which a child’s eye was pierced by a ten-inch-long hood ornament on a parked car).

There plainly is no single “proper” way to define a micro-balance test,¹⁹¹ but each of these formulations offers an appropriate micro-balance standard for assessing design defectiveness in most cases.¹⁹² Each of these risk-utility (or “cost-benefit”)¹⁹³ formulations reflects and builds upon the liability definition of the *Third Restatement*, and any formulation that applies similar cost-benefit, micro-balance principles should provide a coherent frame for design defect determinations.

IV. CONCLUSION

It is now sixteen years since the Reporters first offered their definition of design defects in *Restatement (Third) of Torts: Products Liability* section 2(b), a definition the ALI formally promulgated one decade in the past. Resting squarely on risk-utility—on a comparison of the costs and benefits of a “reasonable design alternative”—the formulation of design defect in section 2(b) consigns consumer safety expectations to a heap of contingent factors that may be relevant in particular situations. While a number of legislatures and courts have accepted some version of this untaken precaution method for evaluating design safety, many courts so far have rejected the *Third Restatement*’s explicit risk-utility approach to design defect determinations. Why more courts have not embraced section 2(b)’s commonsense untaken precaution view of design defectiveness may be explained in terms of a large number of textual and conceptual ghosts still lurking in the shadows after decades of section 402A jurisprudence, ghosts which may be expected to continue to haunt design defect decisions across the land for years to come.

¹⁹¹ Indeed, the very concept of a “perfect” test is surely rubbish.

¹⁹² Similar formulations are examined in Owen, *Toward a Proper Test for Design Defectiveness*, *supra* note 4.

¹⁹³ For an explanation of why the “cost-benefit” term is preferable to “risk-utility,” see *id.* at 1692-97.