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DESIGN DEFECT LITIGATION IN IOWA: THE MYTHS OF STRICT LIABILITY

*Keith Miller**

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Products liability continues to occupy a prominent role in tort law. Critics of products liability doctrine assert it has hampered industry in the United States by making United States products less competitive in the marketplace.[1] A number of tort reform measures targeting, among other things, products liability principles were enacted in the 1980s to make it

* B.A., University of Missouri—Kansas City; J.D., University of Missouri—Kansas City; LL.M., University of Michigan; Ellis and Nelle Levitt Distinguished Professor of Law, Drake Law School, Des Moines, Iowa.

1. *See, e.g.*, Phipps, *Tort Reform—A Delayed Reaction*, 36 DRAKE L. REV. 735, 735-36 (1986-1987).

more difficult for a plaintiff to recover in a personal injury case.[2] The products liability doctrine addressing design defect analysis has been sharply criticized. Critics claim uncertain or unduly stringent liability standards for the review of product design impede product innovation and prevent new and valuable products from being sold because manufacturers are unwilling to expose themselves to liability.[3] Moreover, critics assert design defect analysis is an unprincipled second-guessing of conscious choices made by a manufacturer.[4]

Perhaps the most unsettled issue in the design area is whether strict liability principles play a meaningful role in defect analysis. The commitment to strict liability represented by section 402A of the *Restatement (Second) of Torts* has had a profound influence,[5] and many courts continue to assert negligence plays no role in the evaluation of product defect.[6] The

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2. In Iowa the legislature adopted several provisions in response to the "tort crisis." For example, Iowa Code section 668.12 recognizes the "state of the art" defense in products liability cases, section 613.18(2) protects a retailer from strict liability for a defective product if the product manufacturer is solvent and subject to suit, section 668.14 abrogates the collateral source rule for economic loss, and section 668.4 prohibits the application of joint and several liability unless the defendant is 50% or more at fault. IOWA CODE §§ 668.12, 613.18(2), 668.14, & 668.4 (1991).

For a thorough discussion of the tort reform movement of the 1980s, see Sanders & Joyce, *"Off to the Races": The 1980s Tort Crisis and the Law Reform Process*, 27 HOUS. L. REV. 207 (1990).

3. *See, e.g.*, Richie, *The Two Faces of Strict Liability: It's Stifling Progress and Hurting Business*, 19 THE BRIEF 12, 18 (1989).

4. Peter Huber is one of the leading critics of the tort and product liability system of litigation. P. HUBER, LIABILITY: THE LEGAL REVOLUTION AND ITS CONSEQUENCES (1988). He has attacked, among other things, design defect litigation. *Id.* at 38-44.

5. Section 402A of the *Restatement (Second) of Torts* provides:

Special Liability of Seller of Product for Physical Harm to User or Consumer

(1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if

(a) the seller is engaged in the business of selling such a product, and

(b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.

(2) The rule stated in Subsection (1) applies although

(a) the seller has exercised all possible care in the preparation and sale of his product, and

(b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

RESTATEMENT (SECOND) OF TORTS § 402A (1965).

6. *See, e.g.*, Birchfield v. International Harvester Co., 726 F.2d 1131, 1135 (6th Cir. 1984); Caterpillar Tractor Co. v. Beck, 624 P.2d 790, 794 (Alaska 1981); Dart v. Wiebe Mfg., 147 Ariz. 242, 246-48, 709 P.2d 876, 880-81 (1985); Barker v. Lull Eng'g Co., 20 Cal. 3d 413, 434, 573 P.2d 443, 457, 143 Cal. Rptr. 225, 239 (1978); Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 133, 501 P.2d 1153, 1162, 104 Cal. Rptr. 433, 442 (1972); Aller v. Rodgers Mach. Mfg. Co., 268 N.W.2d 830, 835 (Iowa 1978); Bilotta v. Kelley Co., 346 N.W.2d 616, 622 (Minn. 1984); Phillips v. Kimwood Mach. Co., 269 Or. 485, 498-500, 525 P.2d 1033, 1037-38 (1974).

courts, however, have struggled with how to give effect to strict liability in cases in which conscious design choices of the manufacturer are being challenged. While design defect analysis cases are frequently laden with strict liability jargon and an obeisance to strict liability, careful reading reveals the courts usually are applying modified negligence principles.[7]

The Iowa Supreme Court has not escaped the struggle with this controversy. It was an early adherent to section 402A and continues to show its devotion to strict liability principles in products liability cases involving personal injury or property damage.[8] The court has fallen victim to the same blurred analysis of the design defect problem. In the recent case of *Fell v. Kewanee Farm Equipment Co.*,[9] the Iowa Supreme Court showed the inextricable functional relationship between design defect analysis and negligence principles.[10] This relationship exists, in part, because the Iowa legislature adopted a "state of the art" defense.[11] But the court's opinion in *Fell* simply reinforced the analysis used in earlier cases and did not address squarely the role negligence doctrine plays in the resolution of design defect cases. This failure leaves a critical aspect of design defect litigation unresolved.

In trying to understand the development of this problem, it is helpful to review the adoption of strict liability in section 402A. It is uncertain whether the provision was ever intended to apply to design cases. Many of the defect tests used by courts in design cases, however, have purported to use strict liability. A review of these tests leads one to conclude they have been largely unsuccessful in distinguishing strict liability from negligence and have created considerable confusion. An acknowledgement that the reasonableness of a manufacturer's conduct plays a role in the evaluation of conscious design choices would lend integrity to the decisional process and would affect the rights of injured parties negligibly, if at all. Ultimately, the Iowa Supreme Court would be providing for a clearer analysis by openly accepting the use of negligence principles in these cases.

I. THE ORIGINS OF STRICT LIABILITY

The Iowa Supreme Court adopted section 402A of the *Restatement (Second) of Torts* as the standard for products liability cases in 1970.[12] Arguably this *Restatement* provision marks the beginning of strict liabil-

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7. For a discussion of how negligence principles play a role in risk-utility analysis, see *infra* notes 63-65, 90-92, 112-27 and accompanying text.

8. *See* Aller v. Rodgers Mach. Mfg. Co., 268 N.W.2d 830 (Iowa 1978); Kleve v. General Motors Corp., 210 N.W.2d 568 (Iowa 1973); Hawkeye-Security Ins. Co. v. Ford Motor Co., 174 N.W.2d 672 (Iowa 1970).

9. Fell v. Kewanee Farm Equip. Co., 457 N.W.2d 911 (Iowa 1990).

10. *Id.* at 920.

11. IOWA CODE § 668.12 (1991).

12. Hawkeye-Security Ins. Co. v. Ford Motor Co., 174 N.W.2d at 684.

ity; however, the idea had been proposed much earlier. The court used strict liability language in design defect cases for the first time in 1978.[13] Perhaps the credit, or blame, for the notion belongs to Justice Roger Traynor. In his concurring opinion in *Escola v. Coca Cola Bottling Co.*[14] in 1944, Traynor suggested a manufacturer should be held to a standard stricter than negligence for its products that injured consumers.[15] Traynor's opinion in 1963 in *Greenman v. Yuba Power Products, Inc.*[16] was the immediate precursor to section 402A.

William Prosser was also central to the development of strict liability. He wrote two influential law review articles that foreshadowed and then later described the emergence of strict liability in tort.[17] In addition, he strongly influenced the American Law Institute's ("ALI") acceptance of a strict liability provision for products. In April 1961, Tentative Draft No. 6 of the *Restatement (Second)* recommended adoption of section 402A.[18] The new provision would impose strict liability on sellers in cases involving "food for human consumption."[19] In support of this provision, Prosser noted the rapid and spectacular development of the law in the products liability area.[20] He urged the ALI to expand liability beyond food to "products [intended] for intimate bodily use."[21] Prosser argued the expansion would more correctly state the developing law.[22] These arguments prevailed and

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13. Aller v. Rodgers Mach. Mfg. Co., 268 N.W.2d 830 (Iowa 1978).

14. Escola v. Coca Cola Bottling Co., 24 Cal. 2d 453, 150 P.2d 436 (1944).

15. *Id.* at ___, 150 P.2d at 440.

16. Greenman v. Yuba Power Prods., Inc., 59 Cal. 2d 57, 377 P.2d 897, 27 Cal. Rptr. 697 (1963).

17. Prosser, *The Assault upon the Citadel (Strict Liability to the Consumer)*, 69 YALE L.J. 1099 (1960); Prosser, *The Fall of the Citadel (Strict Liability to the Consumer)*, 50 MINN. L. REV. 791 (1966).

18. *See infra* note 19.

19. Tentative Draft No. 6 of the *Restatement (Second) of Torts* stated:

Special Liability of Sellers of Food

One engaged in the business of selling food for human consumption who sells such food in a defective condition unreasonably dangerous to the consumer is subject to liability for bodily harm thereby caused to one who consumes it, even though

(a) the seller has exercised all possible care in the preparation and sale of the food, and

(b) the consumer has not bought the food from or entered into any contractual relation with the seller.

RESTATEMENT (SECOND) OF TORTS § 402A (Tent. Draft No. 6, 1961).

20. *See Discussion of the Restatement of the Law, Second, Torts*, 38 A.L.I. PROC. 53 (1961).

21. *Id.* at 55.

22. *Id.*; *see also* Graham v. Bottenfield's, Inc., 176 Kan. 68, 269 P.2d 413 (1954) (hair dye); Markovich v. McKesson & Robbins, 106 Ohio App. 265, 149 N.E.2d 181 (1958) (permanent wave solution); Kruper v. Procter & Gamble Co., 113 N.E.2d 605 (Ohio App. 1953), *rev'd on other grounds*, 160 Ohio St. 489, 117 N.E.2d 7 (1985) (soap).

Tentative Draft No. 7 of the *Restatement (Second)* included a section imposing strict liability for products intended for intimate bodily use.[23]

In 1964, Prosser urged the ALI to make section 402A applicable to all products, again emphasizing the "rather spectacular developments in the case law."[24] It is likely Prosser was referring to the *Greenman* case decided a year earlier. In that case, Justice Roger Traynor, writing for the California Supreme Court, adopted strict liability for all products.[25] Again, Prosser proved to be persuasive because the ALI adopted his revised draft of section 402A with little dissent and with little discussion about the wisdom of extending strict liability to all products.

Much can be said in both criticism and support of section 402A, but it is clear that confusion and haste surrounded its adoption. The confusion unfortunately continues to create problems for the courts. One difficulty is created by the change from food for human consumption to products for intimate bodily use to all products. By 1962 the ALI had drafted most of the comments to section 402A. These comments set out the policy basis for the section and supplied some guidance as to how the section might be applied. However, when the provision was changed to include all products, most of the comments were not rewritten.[26] Consequently, most of the discussion in the comments addresses food or products for intimate bodily use. Comments referring to castor oil,[27] sugar,[28] and candy[29] are useless when a court is trying to determine how a standard of strict liability is to be applied to an industrial punch press that has an allegedly defective design. Similarly, the comment to 402A addressing warnings focuses on food al-

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23. Tentative Draft No. 7 of the *Restatement (Second) of Torts* stated:

Special Liability of Sellers of Products for Intimate Bodily Use

One engaged in the business of selling food for human consumption or other products for intimate bodily use, who sells such a product in a defective condition unreasonably dangerous to the consumer, is subject to liability for bodily harm thereby caused to one who consumes it, even though

(a) the seller has exercised all possible care in the preparation and sale of the product, and

(b) the consumer has not bought the product from or entered into any contractual relation with the seller.

RESTATEMENT (SECOND) OF TORTS § 402A (Tent. Draft No. 7, 1962).

24. *See Discussion of Restatement of the Law, Second, Torts*, 41 A.L.I. PROC. 349 (1964).

25. Greenman v. Yuba Power Prods., Inc., 59 Cal. 2d 57, 377 P.2d 897, 27 Cal. Rptr. 697 (1963). Prosser also advised the ALI that some jurisdictions had already expanded the scope of strict liability beyond food or products intended for intimate bodily use, and that numerous jurisdictions were moving in that direction. *Discussion of the Restatement of the Law, Second, Torts*, 41 A.L.I. PROC. at 350 (1964).

26. Only comments d and p were changed with the former comment noting that the section applied to all products and the latter adding references to automobiles, tires, and other hard goods.

27. RESTATEMENT (SECOND) OF TORTS § 402A comment i (1965).

28. *Id.*

29. *Id.* § 402A comment h.

lergies and offers no assistance as to when or how a manufacturer of capital equipment, or a manufacturer of any other good, should supply a warning.[30] Thus, a court that has adopted section 402A can draw little support from the comments and must develop the meaning of strict liability on its own.

The ALI's rush to decide on revised section 402A caused further confusion. The ALI failed to consider the relationship between 402A and other sections of the *Restatement (Second)* that impose negligence liability on product suppliers. For example, section 398 of the *Restatement (Second)* imposes negligence liability for the manufacture of goods made under a dangerous plan or design.[31] This provision was carried over from the *Restatement (First)* without change. In fact, several other sections imposing negligence liability on suppliers of products were carried over from the *Restatement (First)*[32] and included in the same chapter of the *Restatement (Second)* as section 402A. The relationship between section 402A and these provisions is not made clear nor even acknowledged. Clearly, this is because section 402A began as a special section that imposed liability only in the case of adulterated food or, at the most, products for intimate bodily use.

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30. *Id.* § 402A comment j.

31. Section 398 of the *Restatement* states:

Chattel Made Under Dangerous Plan or Design

A manufacturer of a chattel made under a plan or design which makes it dangerous for the uses for which it is manufactured is subject to liability to others whom he should expect to use the chattel or to be endangered by its probable use for physical harm caused by his failure to exercise reasonable care in the adoption of a safe plan or design.

Id. § 398.

32. *See id.* §§ 388, 395. Section 388 states:

Chattel Known to be Dangerous for Intended Use

One who supplies directly or through a third person a chattel for another to use is subject to liability to those whom the supplier should expect to use the chattel with the consent of the other or to be endangered by its probable use, for physical harm caused by the use of the chattel in the manner for which and by a person for whose use it is supplied, if the supplier

(a) knows or has reason to know that the chattel is or is likely to be dangerous for the use for which it is supplied, and

(b) has no reason to believe that those for whose use the chattel is supplied will realize its dangerous condition, and

(c) fails to exercise reasonable care to inform them of its dangerous condition or of the facts which make it likely to be dangerous.

RESTATEMENT (SECOND) OF TORTS § 388 (1965).

Section 395 states:

Negligent Manufacture of Chattel Dangerous Unless Carefully Made

A manufacturer who fails to exercise reasonable care in the manufacture of a chattel which, unless carefully made, he should recognize as involving an unreasonable risk of causing physical harm to those who use it for a purpose for which the manufacturer should expect it to be used and to those whom he should expect to be endangered by its probable use, is subject to liability for physical harm caused to them by its lawful use in a manner and for a purpose for which it is supplied.

Id. § 395.

Indeed, the scope note to chapter 14 of the *Restatement (Second)* states that a "special rule of strict liability to sellers of articles for consumption is stated in section 402A."[33] Under this structure the provisions such as section 398 presumably would have continued to operate and would have continued to apply negligence standards to design defect cases. When the ALI later expanded section 402A to apply to all products, it failed to redraft the other provisions. This was likely a result of the hurried effort to complete work on the *Restatement (Second)*. In any event, the ALI's adoption of 402A and acceptance of other negligence provisions created ambiguity regarding the standard of liability to be used in design cases.

This ambiguity is reinforced by the fact section 402A attempts to state a unitary concept of what it means for a product to be in an unreasonably dangerous, defective condition.[34] By purporting to use a single standard of liability for all defective products, neither the text nor comments of section 402A acknowledge the very real differences among the types of defects to which the section is to apply—manufacturing, marketing, and design defects. Moreover, while stating the provision in terms of strict liability, section 402A uses the reasonableness concept of negligence law. The comments to 402A state the "unreasonably dangerous" language was included to clarify that items posing some danger, like "good whiskey" and "good tobacco," were not unreasonably dangerous under the standard.[35] But how this makes the test one of strict liability rather than negligence is left quite uncertain. With this muddled background, it is not surprising that courts have failed to formulate a single coherent standard for addressing strict liability and that substantial confusion exists as to its meaning.

It is interesting to note the views of those central to the adoption of section 402A. Prosser, for example, observed there "is not one case in a hundred in which strict liability would result in recovery where negligence does not."[36] One might question whether a doctrine whose creator suggests will make only a marginal difference in the law is worth preserving in light of the confusion it has created. Another important figure in the adoption of section 402A, John Wade, likewise believed the use of the unreasonably dangerous language inevitably implicated negligence principles.[37] This language, and these views, have caused some courts to discard the unreasonably dangerous language from their test of strict liability, and to formulate a test of strict liability not derivative of section 402A.[38] In juris-

33. *Id.* §§ 388-408 introductory note .

34. Section 402A requires a plaintiff to prove, among other things, that the product was "in a defective condition unreasonably dangerous" to recover. *Id.* § 402A.

35. *Id.* § 402A comment i.

36. Prosser, *The Assault upon the Citadel (Strict Liability to the Consumer)*, 69 YALE L.J. 1099, 1114 (1960).

37. Wade, *Strict Tort Liability of Manufacturers*, 19 SW. L.J. 5, 15 (1965).

38. *See, e.g.*, Caterpillar Tractor Co. v. Beck, 593 P.2d 871, 883 (Alaska 1979); Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 132, 501 P.2d 1153, 1162, 104 Cal. Rptr. 433, 441 (1972).

dictions like Iowa, however, where strict liability has emerged from section 402A, uncertainties regarding the role of the doctrine are nearly unavoidable. Indeed, when one examines the tests applying strict liability principles to design defect cases, the legal schizophrenia is quite striking.

II. CONSUMER EXPECTATIONS TEST

One well-known test for determining whether a product is defectively designed is based on consumer expectations of the safety of the product. The text of section 402A of the *Restatement (Second)* does not refer to consumer expectations. However, comments to the liability imposing standards of section 402A—"defective condition"[39] and "unreasonably dangerous"[40]—do mention consumer expectations. The comments base liability on whether the product is in a condition not contemplated[41] by the ultimate,[42] ordinary consumer.[43] By premising liability on these expectations, it is clear the representations of a product's safety are considerably important.[44]

The consumer expectations test has dual origins. The comments to 402A draw on contract principles by focusing on consumer disappointment

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39. RESTATEMENT (SECOND) OF TORTS § 402A comment g (1965).

40. *Id.* § 402A comment i.

41. Comment g to section 402A of the *Restatement (Second) of Torts* states, in pertinent part: "The rule stated in this Section applies only where the product is, at the time it leaves the seller's hands, in a condition not contemplated by the ultimate consumer, which will be unreasonably dangerout to him." *Id.* § 402A comment g.

Comment i notes that: "The article sold must be dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics." *Id.* § 402A comment i .

42. *Id.* § 402A comment g.

43. *Id.* § 402A comment i.

44. The leading early proponent of use of consumer expectations as the test of liability for "consumer product disappointment" cases stresses the "portrayal" of the product made by the seller:

> Judgments of liability for consumer product disappointment should center initially and principally on the portrayal of the product which is made, caused to be made or permitted by the seller. This portrayal should be viewed in the context of the impression reasonably received by the consumer from representations or other communications made to him about the product by various means: through advertising, by the appearance of the product, and by the other ways in which the product projects an image on the mind of the consumer, including impressions created by widespread social agreement about the product's function. This judgment should take into consideration the result objectively determinable to have been sought by the seller, and the seller's apparent motivation in making or permitting the representation or communication.

Shapo, *A Representational Theory of Consumer Protection: Doctrine, Function and Legal Liability for Product Disappointment*, 60 VA. L. REV. 1109, 1370 (1974).

or frustration of expectations.[45] One comment notes the basis of strict liability stems from warranty.[46] Another comment, however, specifies the "basis of liability is purely one of tort" and use of the phrase "unreasonably dangerous" clearly raises tort concepts.[47] Some of the problems in applying the consumer expectations test may arise because of the incompatibility of these contract and tort principles.

The consumer expectations test for strict liability operates effectively when the product defect is a construction or manufacturing defect. For example, the product may be food or drink that has been adulterated[48] or the product may have an unintended flaw.[49] This condition of the product is dangerous and distinguishes it from other products of the same line. An internal standard exists against which to measure the product's condition—the manufacturer's own design standard.[50] In essence, a product flawed in manufacture frustrates the manufacturer's own design objectives. Liability is imposed on manufacturers in these cases even if the manufacturer shows it acted reasonably in making the product.[51] In other words, proof of reasonable quality control measures is irrelevant because the defective product is measured against the manufacturer's other similar products.[52] As a matter of consumer expectations, a consumer would not contemplate that a manufacturer's product contained flawed materials, had been improperly assembled, or, in the case of food or drink, was adulterated.

When the claim of defect is based on the product's plan or design, however, the consumer expectations test is inadequate. The test seems to function as a negligence test because a consumer would likely expect the manufacturer to exercise reasonable care in designing the product and us-

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45. *See* Wade, *Is Section 402A of the Second Restatement of Torts Preempted by the UCC and Therefore Unconstitutional?*, 42 TENN. L. REV. 123, 127 (1974).

46. Comment b to § 402A of the *Restatement (Second) of Torts* states: "In later years the courts have become more or less agreed upon the theory of a 'warranty' from the seller to the consumer, either 'running with the goods' by analogy to a covenant running with the land, or made directly to the consumer." RESTATEMENT (SECOND) OF TORTS § 402A comment b (1965).

47. *Id.* § 402A comment m.

48. *See, e.g.*, Hewitt v. B.F. Goodrich Co., 732 F.2d 1554 (11th Cir. 1984); Pouncey v. Ford Motor Co., 464 F.2d 957 (5th Cir. 1972); Jenkins v. General Motors Corp., 446 F.2d 377 (5th Cir. 1971); Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 501 P.2d 1153, 104 Cal. Rptr. 433 (1972).

49. *See, e.g.*, Yong Cha Hong v. Marriott Corp., 656 F. Supp. 445 (D. Md. 1987); Matthews v. Campbell Soup Co., 380 F. Supp. 1061 (S.D. Tex. 1974).

50. *See, e.g.*, Bilotta v. Kelley Co., Inc., 346 N.W.2d 616 (Minn. 1984). "In [the case of inadvertent manufacturing flaws] an objective standard exists—the flawless product—by which a jury can measure the alleged defect. Thus, in manufacturing-flaw cases, the defect is proved by focusing on the condition of the product." *Id.* at 622.

51. *See, e.g.*, Pulley v. Pacific Coca-Cola Bottling Co., 68 Wash. 2d 778, 415 P.2d 636 (1966) (defendant's offer of proof concerning quality control in bottling process was properly excluded in strict liability case).

52. *See id.*

ing the technology available at that time.[53] To say, as section 402A does, that a consumer can recover if his reasonable expectations are frustrated regardless of the care exercised by the manufacturer, does not provide a coherent strict liability test when the alleged defect is in the product's design. Although the consumer expectations test purports to establish the manufacturer's conduct is unimportant, it does not explain what truly converts it into a standard of strict liability.

In addition to not supplying meaningful guidance as to how it should operate in strict liability fashion, the consumer expectations test fails to work effectively in other aspects. If the product involved is a relatively simple one, the consumer expectations test may be appropriately applied.[54] There would be little trouble in establishing a basis for the analysis of consumer expectations if a seller has generated specific expectations about the product.[55] But when the product involved is a complex one, the consumer's, or juror's, judgment of what constitutes reasonable expectations would simply be a function of personal experiences. A consumer's expectation of safety for an automobile, for example, is likely to be vague and general. This fact has been the subject of considerable criticism.[56]

Some commentators have claimed the consumer expectations test could be more effective if courts would consider the information available on consumer perceptions.[57] Perhaps courts are reluctant to engage in this type of inquiry because of the apparent transaction costs that would be incurred. Basing consumer expectations on those portrayals of the product that create expectations in a consumer would necessitate frequent reconsideration of product advertising to determine if a different portrayal warranted different expectations.[58] Some courts have relied on product adver-

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53. *See* Henderson, *Strict Products Liability and Design Defects in Arizona*, 26 ARIZ. L. REV. 261, 265 (1984).

54. *E.g.*, Campbell v. General Motors Corp., 32 Cal. 3d 112, 649 P.2d 224, 184 Cal. Rptr. 891 (1982) (public transportation is a matter of common experience); Gard v. Raymark Indus., Inc., 185 Cal. App. 3d 543, 229 Cal. Rptr. 861 (1986) (even if juror had no previous experience with asbestos, a juror could conclude asbestos failed to meet consumer expectations for safety because an ordinary consumer would not expect a disease from its use).

55. *See* Powers, *The Persistence of Fault in Products Liability*, 61 TEX. L. REV. 777, 795 (1983).

56. *See, e.g.*, Keeton, *Products Liability Design Hazards and the Meaning of Defect*, 10 CUMB. L. REV. 293, 303-04 (1979).

57. *See, e.g.*, Shapo, *supra* note 44.

58. One commentator has criticized the consumer expectation test based on the portrayal idea:

> The [portrayal] thesis works well if the 'portrayal' is concrete enough to entail a U.C.C. express warranty or a Restatement product representation. Absent this concreteness, the thesis does not easily test out. Consider, for example, the advertisements of Datsun automobiles, advertisements that have always praised the car for both economy and quality, but with varying emphasis. For several years, this advertising stressed economy through the slogan, 'Datsun Saves.' After a well-publicized change of advertising agencies, in 1977-78 Datsun's message became 'We Are

tising in establishing consumer expectations.[59] Expert testimony has even been regarded as necessary in determining consumer expectations.[60] Considerable irony exists, however, in experts telling consumers the reasonable expectations to which they are entitled.

> Driven,' suggesting quality and performance. With inventories swelling in dealers' lots in fall 1978, its advertising shifted to 'We Are Dealing,' pointing to temporary low prices. To my mind, these changes in advertising themes, conspicuous though they are, do not justify a legal rule that measures Datsun's personal injury liability to its 1976 purchasers by standards less demanding than those applicable to its 1977-78 purchasers. Nor should Datsun's liability differ in any material respect from Toyota's ('If You Can Find A Better-Built Small Car, Buy It').

Schwartz, *Foreword: Understanding Products Liability*, 67 CALIF. L. REV. 435, 476 n.241 (1979).

59. *See, e.g.*, Leichtamer v. American Motors Corp., 67 Ohio St. 2d 456, 424 N.E.2d 568 (1981). Plaintiffs sued for injuries enhanced by collapse of roll-bar on a Jeep. *Id.* at ___, 424 N.E.2d at 571-72. At the time of the accident, the Jeep was being driven over rugged terrain. *Id.* at ___, 424 N.E.2d at 571. The plaintiffs claimed television advertising led them to believe the roll-bar would protect them if the Jeep landed on its top. *Id.* at ___, 424 N.E.2d at 572-73. The court held liability could be based on consumer expectations generated by advertisements:

> The commercial advertising of a product will be the guiding force upon the expectations of consumers with regard to the safety of a product, and is highly relevant to a formulation of what those expectations might be. The particular manner in which a product is advertised as being used is also relevant to a determination of the intended and reasonably foreseeable uses of the product. Therefore, it was not error to admit the commercial advertising in evidence to establish consumer expectation of safety and intended use.

Id. at 469, 424 N.E.2d at 578.

See also Heaton v. Ford Motor Co., 248 Or. 467, 435 P.2d 806, 809 (1967) (advertisements created image of ruggedness and durability of truck in rough terrain); West v. Johnson & Johnson Prods., Inc., 174 Cal. App. 3d 831, 857, 220 Cal. Rptr. 437, 452 (1986) (advertisement on tampon box stated tampon was designed to "keep you safer longer").

60. *See, e.g.*, Rosburg v. Minnesota Mining & Mfg. Co., 181 Cal. App. 3d 726, 735, 226 Cal. Rptr. 299, 306 (1986) (expert testimony was relevant and admissible on consumer expectation test for product defectiveness in action involving mammary implants); West v. Johnson & Johnson Prods., Inc., 174 Cal. App. 3d at 851-52, 220 Cal. Rptr. at 447-48 (1986) (expert testimony used to set standard of consumer's safety expectations of use of tampons).

See also Heaton v. Ford Motor Co., 248 Or. at ___, 435 P.2d at 809 (1967) (because "[h]igh-speed collisions with large rocks are not so common, however, that the average person would know from personal experience what to expect under the circumstances," the jury would not be able on its own to determine what a consumer's justifiable expectations of safety should be).

Cf. Akers v. Kelley Co., Inc., 173 Cal. App. 3d 633, 651, 219 Cal. Rptr. 513, 524 (1985). In noting the somewhat impressionistic nature of the consumer expectations approach, the court noted:

> There are certain kinds of accidents—even where fairly complex machinery is involved—which are so bizarre that the average juror, upon hearing the particulars, might reasonably think: 'Whatever the user may have expected from the contraption, it certainly wasn't that.'

Id. at 652, 219 Cal. Rptr. at 524.

The consumer expectations test has other deficiencies.[61] The test adds very little to an understanding of design defect analysis. It certainly does not offer a coherent means of importing strict liability principles into an evaluation of a product's design. While courts still use the consumer expectations approach in some form,[62] its use as a strict liability model for design cases is quite trivial.

III. RISK-UTILITY ANALYSIS

Although the consumer expectations test may be the test envisioned under section 402A, the test most widely used for design defect is a form of risk-benefit or risk-utility analysis. This fact creates problems for those who apply strict liability in design defect cases because risk-utility analysis is based on negligence.[63] The factors that have been suggested as appropriate for consideration by a court when it engages in risk-utility evaluation vary.[64] All the tests, however, involve a balancing of the risks

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61. For example, some critics of the consumer expectations test assert it is simply another form of the patent-danger doctrine, which denies recovery for injuries caused by a product's design if the design-related hazards were or should have been obvious to the consumer. *See* Birnbaum, *Unmasking the Test for Design Defect: From Negligence [to Warranty] to Strict Liability to Negligence*, 33 VAND. L. REV. 593, 613 (1980); Donaher, Piehler, Twerski & Weinstein, *The Technological Expert in Products Liability Litigation*, 52 TEX. L. REV. 1303, 1304 n.23 (1974). *See also* Vincer v. Esther Williams All-Aluminum Swimming Pool Co., 69 Wis. 2d 326, 230 N.W.2d 794 (1975) (relevant expectations to be used were those of an adult, even though it was two-year-old child who drowned in allegedly defective above ground swimming pool).

62. *See, e.g.*, Hylton v. John Deere Co., 802 F.2d 1011, 1015 (8th Cir. 1986) (applying Missouri law); Breazeale v. B.F. Goodrich Co., 564 F. Supp. 1541, 1544 (E.D. La. 1983) (applying Louisiana law); Johnson v. Raybestos-Manhattan Inc., 69 Haw. 287, ___, 740 P.2d 548, 549 (1987); Farmer v. International Harvester Co., 97 Idaho 742, 747, 553 P.2d 1306, 1311 (1976); Bemis Co. v. Rubush, 427 N.E.2d 1058, 1061 (Ind. 1981); Ulrich v. Kasco Abrasives Co., 532 S.W.2d 197, 200 (Ky. 1976); Heaton v. Ford Motor Co., 248 Or. at 472, 435 P.2d at 808 (1967); Gann v. International Harvester Co. of Canada, 712 S.W.2d 100, 105 (Tenn. 1986); Rigby v. Beech Aircraft Co., 548 P.2d 288, 291 (Utah 1977); Greiten v. LaDow, 70 Wis. 2d 589, ___, 235 N.W.2d 677, 682 (1975).

63. *See*, Prentis v. Yale Mfg., 421 Mich. 670, 365 N.W.2d 176 (1984); Birnbaum, *supra* note 61, at 649.

64. *Compare* the factors of Wade, *On the Nature of Strict Tort Liability for Products*, 44 MISS. L.J. 825, 837-38 (1973):

> 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.

inherent in the specific feature of the product's design that is being challenged as defective against the value or benefits of that design feature. This is negligence and not strict liability.[65]

One of the more critical factors courts consider in their design risk-utility analysis is proof an alternative product design is available. Many courts have held a plaintiff has the burden of establishing a "practicable" or "feasible" alternative design existed and could have been used by the product manufacturer.[66] This requirement seems reasonable in light of the fact there is no pre-existing external standard against which we can measure

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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.

with Montgomery & Owen, *Reflections on the Theory and Administration of Strict Tort Liability for Defective Products*, 27 S.C.L. REV. 803, 818 (1976):

1) The cost of injuries attributable to the condition of the product about which the plaintiff complains—the pertinent accident costs.

2) The incremental cost of marketing the product without the offending condition—the manufacturer's safety cost.

3) The loss of functional and psychological utility occasioned by the elimination of the offending condition—the public's safety cost.

4) The respective abilities of the manufacturer and the consumer to (a) recognize the risks of the condition, (b) reduce such risks, and (c) absorb or insure against such risks—the allocation of risk awareness and control between the manufacturer and the consumer.

65. *See* Prentis v. Yale Mfg. Co., 421 Mich. 670 at ___, 365 N.W.2d at 183-84 (1984).

66. *See, e.g.*, Phillips v. Hardware Wholesales, Inc., 762 F.2d 46 (6th Cir. 1985) (plaintiff offered sufficient proof of reasonableness of alternative to ladder's foot design to get to jury); Owens v. Allis-Chalmers Corp., 414 Mich. 413, 326 N.W.2d 372 (1982) (plaintiff's proof on claim that forklift was defective because of absence of driver restraints was insufficient to make out jury case because there was no evidence concerning utility or relative safety of risks involved); Nerud v. Haybuster Mfg., Inc., 215 Neb. 604, 340 N.W.2d 369 (1983) (plaintiff failed to establish risk could have been avoided because no alternative design was offered); Wilson v. Piper Aircraft Corp., 281 Or. 61, 477 P.2d 1322, *reh'g den.*, 282 Or. 411, 579 P.2d 1287 (1978) (though plaintiff offered proof of alternative design, he did not satisfy burden of showing feasibility of such design in terms of cost practicality and technological feasibility); Troja v. Black & Decker Mfg. Co., 62 Md. App. 101, 488 A.2d 516 (1985) (plaintiff failed to satisfy burden of establishing technological feasibility of manufacturing product with suggested safety measures, cost of such a step, or consumer acceptance of such a change); Kinzie v. AMF Law & Garden, Division of AMF, Inc., 167 Mich. App. 528, 423 N.W.2d 253 (1988) (plaintiff offered sufficient proof of risk involved in lawn mower's design and suggested reasonable alternative to get to jury); Burgos v. Lutz, 128 A.D.2d 496, 512 N.Y.S.2d 424 (1987) (plaintiff failed to establish there was a feasible alternative to defendant's seatbelt design; therefore, no prima facie case of defect existed); Macri v. Ames McDonough Co., 211 N.J. Super. 636, 512 A.2d 548 (1986) (plaintiff's failure to offer evidence there was an alternative design to hammer manufactured by defendant caused trial court properly to conclude there was no issue of design defect for jury to decide).

the defendant's chosen design.[67] It is difficult to condemn an entire product line as defective when there is no suggestion the product could have been designed any differently. Not all courts agree a plaintiff must offer proof of an alternative design. Some courts have held the availability of an alternative design is simply one risk-utility factor among many.[68] Such evidence may be a critical factor in determining whether a product's design is flawed, but proof of an available alternative design is not an element of the plaintiff's prima facie case.[69]

It is questionable whether a plaintiff gains anything from a rule that releases him from the responsibility of offering proof of an alternative design. A plaintiff gains little by attacking the defendant's chosen design without offering something to replace it. But even in these cases in which an alternative design is considered as only one factor among many, it is still a process of weighing the risks and benefits of product design against each other. Courts do this balancing when negligence analysis is being conducted, despite the strict liability label a court may affix to the process. As will be noted,[70] the courts' efforts to convert the risk-utility process into a strict liability method of inquiry have confused the issue for other cases, have rarely made a difference in case outcome, and are not worth following or retaining.

IV. HYBRID TESTS

The California Supreme Court articulated one of the most controversial tests for design defect liability in *Barker v. Lull Engineering Co.*[71] Part of the *Barker* ruling suggests a dramatic reallocation of the burdens of proof between the parties. The court in *Barker* held a plaintiff could establish a product was defective in design by satisfying one of two tests.[72] First, the plaintiff could prevail if he could prove the "product failed to perform as safely as an ordinary consumer would expect when used in an intended or reasonably foreseeable manner."[73] This test of liability, however, is

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67. *See, e.g.*, Palmer v. Avco Distrib. Corp., 82 Ill. 2d 211, 412 N.E.2d 959 (1980) (proof of alternative design is merely one method of proving product is unreasonably dangerous); Schaffner v. Chicago & North Western Trans. Co., 161 Ill. App. 3d 742, 515 N.E.2d 298 (1987); Ogg v. City of Springfield, 121 Ill. App. 3d 25, 458 N.E.2d 1331 (1984) (plaintiff not required to prove existence of feasible alternative to succeed in a products liability case). *See also* Voss v. Black & Decker Mfg. Co., 59 N.Y.2d 102, 450 N.E.2d 204, 463 N.Y.S.2d 398 (1983) (alternative design proof seemingly not always required).

68. *See* Kallio v. Ford Motor Co., 407 N.W.2d 92, 97 (Minn. 1987).

69. *Id.*; *see also* O'Brien v. Muskin Corp., 94 N.J. 169, ___, 463 A.2d 298, 306 (1983) (jury could permissibly find some products—an above-ground pool—are so dangerous they should not be marketed at all, even if no alternative exists).

70. *See infra* text accompanying notes 87-107.

71. Barker v. Lull Eng'g Co., 20 Cal. 3d 413, 573 P.2d 443, 143 Cal. Rptr. 225 (1978).

72. *Id.* at 433, 573 P.2d at 455, 143 Cal. Rptr. at 237.

73. *Id.* at 433, 573 P.2d at 455-56, 143 Cal. Rptr. at 237-38.

inadequate because the consumer often would not have any basis for determining how safe a product should be.[74] As an alternative test, the plaintiff could prevail if the jury found the product's design exposed the plaintiff to "excessive preventable danger."[75] This phrase, the court noted, was another way of asking whether the risks of the chosen design outweighed the benefits.[76]

Several other courts have adopted the alternative approach enunciated in *Barker*.[77] This model permits the courts to use the risk-utility analysis when the product in question is a complex one which the jury could not be expected to form reasonable expectations of safety.

Another part of the *Barker* decision marked an innovative course. The court expressed considerable concern that the application of the risk-utility test would unduly burden the plaintiff with "many of the onerous evidentiary burdens inherent in a negligence cause of action."[78] This was inappropriate because one of the purposes of strict liability was to relieve the plaintiff of these exacting proof requirements.[79] To accomplish this purpose, the court held that "once the plaintiff makes a prima facie showing that the injury was proximately caused by the product's design, the burden should appropriately shift to the defendant to prove, in light of the relevant factors, that the product is not defective."[80] The court was careful to specify the burden that shifted to the defendant was not simply the burden of coming forward with evidence.[81] Rather, the burden of ultimate persuasion was being placed on the defendant.[82] The plaintiff could prevail if he could establish the product's design was a proximate cause of his injury and if the defendant failed to establish the benefits of that design outweighed its risks.[83]

Taken literally, the *Barker* approach would virtually eliminate the possibility a defendant could gain a directed verdict in a design defect case. After all, the plaintiff need not show a design defect caused his injury, only that the design itself was a proximate cause of the injury. The plaintiff would likewise have no responsibility for establishing the feasibility of an alternative design. Moreover, shifting the burden of ultimate persuasion

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74. *Id.* at 431, 573 P.2d at 454, 143 Cal. Rptr. at 236.
75. *Id.*
76. *Id.*
77. *See, e.g.*, Briney v. Sears, Roebuck & Co., 782 F.2d 585 (6th Cir. 1986); Dart v. Wiebe Mfg., Inc., 147 Ariz. 242, 709 P.2d 876 (1985); Caterpillar Tractor Co. v. Beck, 593 P.2d 871 (Alaska 1979); Ontai v. Straub Clinic & Hosp., 66 Haw. 237, 659 P.2d 734 (1983); Chown v. U.S.M. Corp., 297 N.W.2d 218 (Iowa 1980); Knitz v. Minister Mach. Co., 69 Ohio St. 2d 460, 432 N.E.2d 814, *cert. denied*, 459 U.S. 857 (1982).
78. Barker v. Lull Eng'g Co., 20 Cal. 3d at 431, 573 P.2d at 455, 143 Cal. Rptr. at 237.
79. *Id.*
80. *Id.*
81. *Id.*
82. *Id.* at 432, 573 P.2d at 456, 143 Cal. Rptr. at 238.
83. *Id.*

puts the defendant in the position of having to prove a negative, that is, the benefits of the product design are not outweighed by its risks. This portion of *Barker* has been subject to considerable criticism[84] and has few adherents.[85] Its practical impact on a case may be less than one might presume.[86] It is unlikely, however, that courts will accept the principle enunciated in *Barker* that the proper way to impose a strict liability standard in a design defect case is to shift the burden of ultimate persuasion to the defendant.

V. RISK-UTILITY: CAN IT BE MADE INTO STRICT LIABILITY?

As noted earlier, there is little doubt risk-utility analysis is grounded in negligence.[87] Learned Hand's "calculus of negligence" had nothing to do with strict liability or products liability.[88] The vast number of jurisdictions, however, have adopted strict liability for defective products and have not differentiated design defects from manufacturing flaws.[89] Consequently, courts have attempted to apply both the risk-utility method and strict liability. It is questionable whether these efforts have accomplished anything other than confusion.

Some courts have attempted to infuse a strict liability quality into design defect cases by stating it is the condition of the product, not the conduct of the manufacturer, that is the focus of the risk-utility analysis.[90] Therefore, even if the manufacturer acted reasonably in designing the

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84. *See, e.g.*, Henderson, *Renewed Judicial Controversy over Defective Product Design: Toward the Preservation of an Emerging Consensus*, 63 MINN. L. REV. 773, 782-97 (1979) ("a radical departure from tradition that could wreak havoc for years to come").

85. *See* Caterpillar Tractor Co. v. Beck, 593 P.2d 871 (Alaska 1979); Ontai v. Straub Clinic & Hosp., Inc., 66 Haw. 237, 659 P.2d 734 (1983); Knitz v. Minster Mach. Co., 69 Ohio St. 2d 460, 432 N.E.2d 814 (1982).

86. Some commentators have suggested plaintiffs should be careful in availing themselves of the *Barker* burden-shifting approach. *See* Schwartz, *Forward: Understanding Products Liability*, 67 CALIF. L. REV. 435, 469 (1979). The plaintiff's case may be adversely affected if the defendant gets the first shot at the jury on the relative safety of the product's design. *Id.* It may be to the plaintiff's advantage to offer the risk-utility evidence first that demonstrates the product's dangers and the availability of an alternative design. *Id.*

87. *See supra* text accompanying note 63.

88. *See* United States v. Carroll Towing Co., 159 F.2d 169, 173 (2nd Cir. 1947); Conway v. O'Brien, 111 F.2d 611, 612 (2d Cir. 1940), *rev'd on other grounds*, 312 U.S. 492 (1941).

89. The *Restatement (Second) of Torts* section 402A speaks of products in a "defective condition unreasonably dangerous to the user or consumer" without articulating any different test of liability depending on whether the defect alleged is a manufacturing, warning, or design defect. RESTATEMENT (SECOND) OF TORTS § 402A (1965).

90. *See, e.g.*, Dart v. Wiebe Mfg., Inc., 147 Ariz. 242, 709 P.2d 876 (1985); Barker v. Lull Eng'g Co., Inc., 20 Cal. 3d 413, 573 P.2d 443, 143 Cal. Rptr. 225 (1978); Camacho v. Honda Motor Co., 741 P.2d 1240 (Colo. 1987); Aller v. Rodgers Mach. Mfg. Co., 268 N.W.2d 830 (Iowa 1978); Rahmig v. Mosley Mach. Co., 226 Neb. 423, 412 N.W.2d 56 (1987); Voss v. Black & Decker Mfg. Co., 59 N.Y.2d 102, 450 N.E.2d 204, 463 N.Y.S. 2d 398 (1983); Bowling v. Heil Co., 31 Ohio St. 3d 277, 511 N.E.2d 373 (1987); Ziegler v. Kawaski Heavy Indus., Ltd., 74 Md. App. 613, 539 A.2d 701 (1988); Ellis v. Chicago Bridge & Iron Co., 376 Pa. Super. 220, 545 A.2d 906 (1988).

product, the product may still have a quality that renders it defective. As one court stated:

> We believe that there is a fundamental difference in the application of a risk/benefit analysis in a negligent design case and the same analysis in a strict liability design case. The difference is significant, for it shifts the central focus of the inquiry from the *conduct* of the manufacturer (negligence) to the *quality of the product* (strict liability). Negligence theory concerns itself with determining whether the conduct of the defendant was reasonable in view of the foreseeable risk of injury; strict liability is concerned with whether the product itself was unreasonably dangerous.[91]

The cases adopting this approach, however, do not explain how the test makes any difference in a case or how it is to be implemented. It is easy enough to assert the manufacturer's conduct is not in issue, but the "condition of the product" test is hardly self-executing. Some courts, however, purport to apply a risk-utility analysis to reach this result.[92] Under such a "pure" risk-utility approach, the issue for the jury would apparently be whether the risk of harm presented by the challenged product design outweighed the utility or benefit of that design feature. This seems to be what a risk-utility analysis should do, but one can question whether this is a form of strict liability in which manufacturer conduct is irrelevant. Several of the risk-utility factors proposed by Dean Wade, for example, focus on conduct of either the manufacturer or the user.[93] As one court critical of this approach stated:

> Although many courts have insisted that the risk-utility tests they are applying are not negligence tests because their focus is on the *product* rather than the manufacturer's *conduct*, . . . the distinction on closer examination appears to be nothing more than semantic. As a common-sense matter, the jury weighs competing factors presented in evidence and reaches a conclusion about the judgment or decision (i.e., *conduct*) of the manufacturer. The underlying negligence calculus is inescapable.[94]

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91. Dart v. Wiebe Mfg., Inc., 147 Ariz. at 246, 709 P.2d at 880 (1985) (emphasis added).

92. *See, e.g.*, Barker v. Lull Eng'g Co., 20 Cal. 3d 413, 573 P.2d 443, 143 Cal. Rptr. 225 (1978); Turner v. General Motors Corp., 584 S.W.2d 844 (Tex. 1979).

93. For example, factor number four speaks of the "manufacturer's ability to eliminate the unsafe character of the product without impairing its usefulness or making it too expensive," and number seven looks at the feasibility of the manufacturer of spreading the loss in some way. Wade, *supra* note 64 at 837-38. On the other hand, factor five is the "user's ability to avoid danger by the exercise of care in the use of the product, and factor six considers the "user's anticipated awareness of the dangers inherent in the product and their avoidability." *Id.*

94. Prentis v. Yale Mfg. Co., 421 Mich. 670, ___, 365 N.W.2d 176, 184 (1984) (citations omitted) (emphasis added). *See also* Birnbaum, *supra* note 61, at 609 (author argues the effort to

In short, the "focus on the condition of the product" method seems to offer little substantive basis for a true strict liability approach to design defect cases.

A similar effort used to incorporate what is considered a strict liability test into design defect cases is the presumed knowledge approach. It begins by assuming risk-utility analysis is an approach grounded in negligence that asks what a reasonably prudent manufacturer would do in designing a product. To transform this into a strict liability test, some courts have held the manufacturer is charged with constructive knowledge of the product's dangerous condition.[95]

The origin of this approach is traceable to John Wade[96] and Page Keeton.[97] According to Wade, knowledge of the product's dangerous condition at the time it was released into the stream of commerce is imputed to the manufacturer. Thus, a product is defective if a "reasonable prudent manufacturer . . . who had actual knowledge of the harmful character would not place it on the market" given the dangers the product poses to users.[98] The manufacturer's decision to market the product would be based on Wade's risk-utility factors.[99] Wade later disavowed the application of this test as a means of achieving strict liability.[100]

Keeton's test would operate similarly; however, the knowledge imputed to the manufacturer would be "all the risks found to exist by the jury at the time of trial."[101] Thus, Keeton's approach is more rigorous than Wade's

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focus on product's condition and not manufacturer's conduct ignores the "underlying negligence calculus that is inescapable in a risk-utility analysis").

95. *See, e.g.*, Carter v. Johns-Manville Sales Corp., 557 F. Supp. 1317 (E.D. Tex. 1983); Dart v. Wiebe Mfg., Inc., 147 Ariz. 242, 709 P.2d 876 (1985); Phillips v. Kimwood Mach. Co., 269 Or. 485, 525 P.2d 1033 (1974).

96. *See* Wade, *supra* note 64, at 825.

97. *See* Keeton, *Product Liability and the Meaning of Defect*, 5 ST. MARY'S L.J. 30 (1973). In some instances the courts have spoken of the "Wade-Keeton" approach, suggesting the scholars had acted in concert or that the views of one represented the views of both. Wade, *On the Effect in Product Liability of Knowledge Unavailable Prior to Marketing*, 58 N.Y.U. L. REV. 734, 761-63 (1983). Wade wrote this is not the case and although the authors have conferred on these issues over the years their views are their own and are not joint in nature. *Id.*

98. *See* Wade, *supra* note 64, at 839-40.

99. *Id.* at 837-38.

100. *See* Wade, *supra* note 97, at 764. Wade states:

> Indeed, I now would be inclined to think that there is no longer any particular value in using the assumed-knowledge language. Its usefulness, I thought, was in explaining the concept of strict liability when it was new by clearly contrasting it with negligence in which the defendant's actual culpability in failing to learn of the dangerousness of the product had to be shown. It always had overtones of difficulties if taken literally. The idea of evaluating the product rather than the defendant's conduct is now entirely familiar and does not need any added explanation.

Id.

101. Keeton, *supra* note 97, at 37-38.

because he would hold the manufacturer liable when the product's design risks outweighed the utility of the design. Liability would exist even if the manufacturer were capable of knowing about the risks at the time of trial but did not have such capability at the time of manufacture.

Perhaps the leading early case adhering to the Wade-Keeton approach is *Phillips v. Kimwood Machine Co.*[102] The court stated strict liability and negligence could be distinguished in design defect cases by the imposition of constructive knowledge.[103] "A dangerously defective article would be one that 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."[104] Whether the test stated in *Phillips* focuses on the condition of the product or the conduct of the manufacturer is uncertain. In one sense the test is conduct-oriented because the court speaks of reasonable persons and negligence and examines the actions of the particular manufacturer.[105] The court, however, also states strict liability focuses on product condition and not manufacturer conduct.[106] Courts may adopt this approach but cases reflect this confusion regarding the proper focus of the test.[107]

A closer look at the *Phillips* case reveals other problems. The apparent danger in the product, an industrial sanding machine, was that it regurgitated thin sheets of board that were inserted into it when the machine was set for receiving thick sheets.[108] The court held a jury could find the machine was defective in part because the manufacturer was charged with "having the constructive knowledge of [the machine's] propensity to regurgitate thin sheets when it was set for thick ones."[109] But the court did not state this propensity was unforeseeable or something a manufacturer, one charged with an expert's knowledge, would not have anticipated and taken steps to avoid. Rather, the court stated a jury could have found that, at the time of manufacture, an alternative design was available which could have prevented this problem.[110] This view of *Phillips* shows the shortcomings of the presumed knowledge approach. Neither *Phillips* nor the other cases following this approach inform litigants of when this approach truly makes a difference, that is, when it leads to a result different than one that would

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102. Phillips v. Kimwood Mach. Co., 269 Or. 485, 525 P.2d 1033 (1974).
103. *Id.*
104. *Id.* at 492, 525 P.2d at 1036.
105. *Id.* at 493-94, 525 P.2d at 1037.
106. *Id.* at 491-92, 525 P.2d at 1036.
107. *See, e.g.*, Stanley v. Schiavi Mobile Homes Inc., 462 A.2d 1144, 1148 (Me. 1983); Reiger v. Toby Enter., 45 Or. App. 679, ___, 609 P.2d 402, 403 (1980); Jarrell v. Monsanto Co., 528 N.E.2d 1158, 1170 (Ind. App. 1988).
108. Phillips v. Kimwood Mach. Co., 269 Or. 485, ___, 525 P.2d 1033, 1034 (1974).
109. *Id.* at ___, 525 P.2d at 1038-39.
110. *Id.* at ___, 525 P.2d at 1035.

have been produced by the application of negligence principles in an aggressive way.

Another problem with the presumed knowledge approach is how it might apply in cases in which the risk was not only unknown by the manufacturer at the time of manufacture, but was scientifically unknowable. A logical application of this approach is that a manufacturer could be charged with the knowledge of risks that science could not have discovered at the time the product was sold. While this approach might be a form of strict, if not absolute, liability and a court might speak bravely of imposing liability in this way, very few cases actually hold the manufacturer to this test. Although the presumed knowledge approach allows a jury to hold a manufacturer liable even when it made the product with the best available technology, it will likely refuse to do so.[111]

These efforts to inject design defect cases with a strict liability quality are unwarranted and unnecessary. They are all based on clumsy semantic and conceptual models that probably make no difference to case outcomes. Moreover, they confuse the issues in cases in which the negligence doctrine operates quite effectively and fairly for both parties. A direct ac-

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111. *See, e.g.*, Halphen v. Johns-Manville Sales Corp., 484 So. 2d 110, 115-16 (La. 1986) (holding manufacturer could be held liable for injuries caused by product although the manufacturer did not know and could not reasonably have known of the danger).

This issue can also be considered as part of the "state of the art" problem. *See infra* notes 188, 206-10 and accompanying text; *see also infra* notes 232-34 and accompanying text; *see also* Kornreich, *Consequences of Applying Cost-Benefit Analysis to Strict Products Liability in Design Defect Cases*, 1 PROD. LIAB. L.J. 1 (1988). This commentator asserts a federal case interpreting Iowa law held a manufacturer strictly liable for a hazard discovered after manufacture. *Id.* at 14. In Kehm v. Proctor & Gamble Mfg. Co., 724 F.2d 613 (8th Cir. 1983), plaintiff's decedent died from toxic shock syndrome soon after using defendant's tampon. *Id.* at 616. In affirming a jury verdict in favor of the plaintiff, the Eighth Circuit noted the defendant learned of health studies showing the toxic shock danger after the product had been distributed but before the decedent's use. *Id.* at 617. The commentator contends the court applied a cost-benefit analysis based on this post-manufacture acquisition of knowledge to impose liability, and that this is a form of hindsight strict liability. Kornreich, *Consequences of Applying Cost-Benefit Analysis to Strict Products Liability in Design Defect Cases*, 1 PROD. LIAB. L.J. at 14.

Several reasons exist why this claim is unpersuasive. First, the Eighth Circuit opinion focused on a failure to warn theory rather than design defect and it approved of the lower court's instruction that a manufacturer has a duty to warn when it knows of the product's dangerous qualities or characteristics. Kehm v. Procter & Gamble Mfg. Co., 724 F.2d at 620. Second, neither the district court nor the Eighth Circuit opinion addressed the hindsight approach to strict liability nor referred to either the Wade or Keeton formulation. *See id.* at 613; Kehm v. Procter & Gamble Co., 580 F. Supp. 890 (N.D. Iowa 1982). Most importantly, neither court cited any Iowa opinion that would have supported the imposition of liability on this basis. *See* Kehm v. Procter & Gamble Mfg. Co., 724 F.2d 613 (8th Cir. 1983); Kehm v. Procter & Gamble Co., 580 F. Supp. 890 (N.D. Iowa 1982). It is unlikely the court would have approved of a presumed knowledge approach without reference to supporting Iowa authority. Finally, it is not clear from *Kehm* that the manufacturer charged with the knowledge of an expert should not have known of the dangers of its product at the time of manufacture.

knowledgement that risk-utility analysis in design defect cases is grounded in negligence and not strict liability is advisable.

Perhaps the most clearly reasoned case that has adopted this approach is *Prentis v. Yale Manufacturing Co.*[112] In *Prentis*, the Michigan Supreme Court addressed what standard should be applied in design defect litigation.[113] It noted risk-utility analysis was the standard used in these cases and it offered several reasons why negligence and not strict liability should govern the analysis.[114] First, the court stated the attempt to create strict liability by focusing on a product was a failed semantic effort.[115] Realistically, when a jury concluded the risks of a product's design outweighed its utility or benefit, it was saying a manufacturer had exposed the consumer to an unacceptably high level of risk in its choice of design and its calculation of design safety and cost tradeoffs.[116] This is nothing other than negligence.[117]

Second, it asserted courts confused juries in using the language of strict liability without giving the juries meaningful guidelines to follow.[118] "Imposing a negligence standard for design defect litigation is only to define in a coherent fashion what our litigants in this case are in fact arguing and what our jurors are in essence analyzing."[119] Finally, the court criticized these strict liability efforts as being unfair and undermining the loss prevention and safety incentives supplied by negligence.[120] Thus, the court adopted "a pure negligence, risk-utility test in products liability actions" in which the claim is defective design.[121]

Other jurisdictions employ negligence principles in design defect cases,[122] but *Prentis* is exceptional for its refusal to twist the issue. The opinion adds clarity to a muddled and confused area. Ultimately, a plaintiff loses little if negligence rather than strict liability controls a design case. This is especially the case if the product manufacturer is regarded as an expert in the field. Many courts have stated a manufacturer is held to the knowledge and skill of an expert.[123] As such, the manufacturer is charged

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112. Prentis v. Yale Mfg. Co., 421 Mich. 670, 365 N.W.2d 176 (1985).
113. *Id.* at ___, 365 N.W.2d at 186.
114. *Id.* at ___, 365 N.W.2d at 183.
115. *Id.* at ___, 365 N.W.2d at 184.
116. *Id.*
117. *Id.*
118. *Id.* at ___, 365 N.W.2d at 185.
119. *Id.* at ___, 365 N.W.2d at 185-86.
120. *Id.* at ___, 365 N.W.2d at 184-85.
121. *Id.* at ___, 365 N.W.2d at 186.
122. For a relatively recent example, see St. Germain v. Husqvarna Corp., 544 A.2d 1283 (Me. 1988).
123. *See, e.g.*, Halphen v. Johns-Manville Sales Corp., 484 So. 2d 110, 115 (La. 1986); Maietta v. International Harvester Co., 496 A.2d 286, 292 (Me. 1985); Collins v. Interroyal Corp., 126 Ill. App. 3d 244, ___, 466 N.E.2d 1191, 1200 (1984); Layne v. GAF Corp., 42 Ohio Misc.

with an expert's "knowledge of the arts, materials and processes involved in the development, production and marketing of that product."[124] This expert status would require the manufacturer to take those steps necessary to keeping up with literature relating to product risk, safety developments, and technological change. One commentator, Page Keeton, stated in 1965:

> Recent cases make it clear that a manufacturer is not to be judged simply on the basis of what he knows and what manufacturers generally know. Rather he is often expected to know at least what an investigation of the scientific literature will disclose; i.e., he must keep reasonably abreast of scientific information.[125]

For an expert to keep "reasonably abreast" with these developments might require that the manufacturer help in exploring the frontiers of cutting edge technology. Expert manufacturers can also be expected to invest considerable resources for studying and implementing means of improving product safety, to anticipate the ways in which a product will be handled in its environment of use, and to gather information about the circumstances of injuries apparently caused by its products. Moreover, the expert manufacturer might be expected to foresee product hazards and alternative design options that nonexperts would not have anticipated. Accordingly, several courts have approved jury instructions that impose expert status on manufacturers.[126]

The "expert manufacturer" standard set in a negligence context is a more familiar and workable standard for use in a design defect case than the presumed knowledge approach, which purports to be a strict liability model. Any uncertain benefit accruing from the presumed knowledge

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2d 19, ___, 537 N.E.2d 252, 258 (1988); Cleveland Bd. of Educ. v. Armstrong World Indus., 22 Ohio Misc. 2d 18, ___, 476 N.E.2d 397, 405 (1985).

124. Cleveland Bd. of Educ. v. Armstrong World Indus., 22 Ohio Misc. 2d at ___, 476 N.E.2d at 405 (1985).

125. Keeton, *Products Liability—Problems Pertaining to Proof of Negligence*, 19 SW. L.J. 26, 30 (1965).

126. *See, e.g.*, Maietta v. International Harvester Co., 496 A.2d 286 (Me. 1985). In *Maietta* the court stated:

> In determining whether a manufacturer has exercised reasonable care in the design of its product, it is to be held to the degree of knowledge and skill of experts. This standard imposes upon the manufacturer the duty of an expert to keep abreast and informed of the development in its field including safety devices and equipment used in its industry for the type of produce it manufactures.

Id. at 297. The court in Halphen v. Johns-Manville Sales Corp., 484 So. 2d 110 (La. 1986) stated:

> In performing this duty a manufacturer is held to the knowledge and skill of an expert. It must keep abreast of scientific knowledge, discoveries, and advances and is presumed to know what is imparted thereby. . . . A manufacturer also has a duty to test and inspect its product, and the extent of research and experiment must be commensurate with the dangers involved.

Id. at 115.

model is outweighed by its semantic clumsiness and conceptual obscurity. Ultimately, the instruction that requires the manufacturer as an expert to anticipate change and danger provides greater protection to injured consumers than contentless strict liability standards.

VI. DESIGN DEFECT ANALYSIS IN IOWA

The Iowa Supreme Court's adoption of strict products liability was certainly innocent enough. In 1970 the court squarely addressed the issue of whether to accept section 402A of the *Restatement (Second) of Torts*. In *Hawkeye-Security Insurance Co. v. Ford Motor Co.*,[127] the court embraced the principles of section 402A, relying on the justifications set forth in the landmark California case, *Greenman v. Yuba Power Products, Inc.*[128] Although *Greenman* did not rely on the *Restatement (Second)* it stated a manufacturer should be held strictly liable when its product "proves to have a defect which causes injury to a human being."[129] The court in *Hawkeye Security* appropriately adopted strict liability because the alleged defect was a classic manufacturing defect—a faulty brake assembly on an automobile.[130] Consequently, problems in resolving claims of design defect likely were not in the minds of the Iowa Supreme Court at the time and the discourse of strict liability was inviting.

Three cases serve to define the boundaries of design defect analysis in Iowa.[131] Though the cases show a genuine effort to address the rather esoteric problems presented by design defect cases, they all succumb to the siren call of strict liability. Unfortunately, this results in the court's failure to develop a coherent measure of a product's design. Because these three cases embody the pitfalls of attempting to use a strict liability standard in design defect cases they warrant detailed attention.

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127. Hawkeye-Security Ins. Co. v. Ford Motor Co., 174 N.W.2d 672, 684 (Iowa 1970).

128. *Id.* at 683 (citing Greenman v. Yuba Power Prods., Inc., 59 Cal. 2d 57, ___, 377 P.2d 897, 900, 27 Cal. Rptr. 697, 700 (1963)). The court in *Greenman* applied strict liability to defective products "to insure that the costs of injuries resulting from defective products are borne by the manufacturers that put such products on the market rather than by the injured persons who are powerless to protect themselves." Greenman v. Yuba Power Prods., Inc., 59 Cal. 2d at ___, 377 P.2d at 901, 27 Cal. Rptr. at 701.

129. *Id.* at ___, 377 P.2d at 900, 27 Cal. Rptr. at 700.

130. Hawkeye-Security Ins. Co. v. Ford Motor Co., 174 N.W.2d at 685. (LeGrand, J., dissenting).

131. Fell v. Kewanee Farm Equip. Co., 457 N.W.2d 911 (Iowa 1990); Chown v. USM Corp., 297 N.W.2d 218 (Iowa 1980); Aller v. Rodgers Mach. Mfg. Co., 268 N.W.2d 830 (Iowa 1978).

A. Aller v. Rodgers Machinery Manufacturing Co.[132]

It was not until 1978 that the standard for design defect analysis began to take shape in Iowa. In the pivotal case of *Aller v. Rodgers Machinery Manufacturing Co.*,[133] the Iowa Supreme Court considered in detail the appropriate standard for design defect analysis.[134] Unfortunately, the *Aller* case laid the groundwork for the confusion that has followed.

The product in *Aller*, a power saw, cut and crushed the plaintiff's hand when it was activated by a co-employee.[135] The plaintiff alleged the saw was defectively designed because it did not have an adequate guard system and could be activated when a person's hand was too near the blade.[136] Though the plaintiff originally asserted other claims against the defendant-manufacturer, the case went to the jury solely on the basis of a strict liability in tort theory.[137] After a jury verdict and judgment in favor of the defendant, the plaintiff appealed on several grounds.[138] Among other things, the plaintiff urged the court to eliminate the phrase "unreasonably dangerous" from the test of strict liability, or to at least change its definition.[139] In the course of its opinion, the court gave full-scale treatment to the issue of how a design case should be treated.

The opinion in *Aller* offered several pronouncements now familiar to the vocabulary of strict liability. First, the court stated manufacturers were liable under strict liability even though they had exercised all possible care in the preparation and sale of the product.[140] That is, proof of negligence was not required.[141] Second, the court invoked the idea that in contrast to a negligence situation, which focuses on the conduct of the manufacturer, strict liability focuses on the dangerous condition of the product.[142]

The court's explanation of how this strict liability standard was to be applied, however, shows the court was searching for the proper test of liability. On the one hand, the court stated a plaintiff had to establish the product was more dangerous than a reasonable consumer would have expected.[143] This requirement applied to both the defective condition and unreasonably dangerous elements of section 402A.[144] To this extent, *Aller* seems to follow

132. Aller v. Rodgers Mach. Mfg. Co., 268 N.W.2d 830 (Iowa 1978).
133. *Id.*
134. *Id.* at 835-36.
135. *Id.* at 832.
136. *Id.*
137. *Id.*
138. *Id.*
139. *Id.* at 835.
140. *Id.* at 834.
141. *Id.*
142. *Id.* at 835.
143. *Id.* at 834.
144. *Id.* (citing RESTATEMENT (SECOND) OF TORTS § 402A comment i (1965)).

the *Restatement (Second)* approach of consumer expectations. But this allegiance was short-lived. The court held that determining whether the product is dangerous to an unreasonable extent requires a balancing of the product's risk and utility:

> Whether the doctrine of negligence or strict liability is being used to impose liability the same process is going on in each instance, i.e., weighing the utility of the article against the risk of its use. Therefore, the same language and concepts of reasonableness are used by courts for the determination of unreasonable danger in product liability cases.[145]

The court reassured the plaintiff that despite the apparent similarity between the negligence and strict liability approaches, they were in fact quite different because strict liability focused on the condition of the product rather than the conduct of the manufacturer.[146] The court again attempted to articulate the test of liability, by stating:

> In strict liability the plaintiff's proof concerns the condition (dangerous) of a product which is designed or manufactured in a particular way. In negligence the proof concerns the reasonableness of the manufacturer's conduct in designing and selling the product as he did.[147]

Ultimately, the court concluded the "unreasonably dangerous" phrase did not inject issues of negligence into the case in which strict liability was the theory.[148] In so holding, the court vacillated between the consumer expectations and risk-utility approaches, leaving it quite unclear which of the two was to be emphasized and if the court thought they were in any way different. Moreover, the court acknowledged there was substantial similarity between the negligence and strict liability theories in a design case.[149] But the only means offered by the court to distinguish between the two was the worn and unhelpful cliche that strict liability cases focus on product condition and not manufacturer conduct.[150] What is the significance of this focus on product condition? What is the relevance of a focus on product condition when the reasonable expectations of a consumer define the scope of liability? How do we decide what these expectations are? It seems inescapable that the consumer's expectations would in part be a function of the manufacturer's conduct in making the product. Similarly, if the risk-utility approach is to control, it is unlikely this can be done without focusing

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145. *Id.* at 835.
146. *Id.*
147. *Id.* (citing Phillips v. Kimwood Mach. Co., 269 Or. 485, 493-95, 525 P.2d 1033, 1037 (1974)).
148. *Id.*
149. *Id.*
150. *Id.* at 835.

to some extent on the manufacturer's conduct. The *Aller* opinion provides little assurance the strict liability and negligence theories differ in any coherent fashion. Indeed, the court seems to apply strict liability by decree. Strict liability, however, is not a self-defining or self-evident concept whose meaning is readily apparent.

It is ironic the court in *Aller* declined to adopt a standard that is widely regarded as a means of imposing a standard higher than negligence on manufacturers. The plaintiff contended the trial court had erroneously injected negligence into the strict liability case by instructing the jury to consider the product's condition not at the time of trial or time of accident, but at the time the saw was manufactured.[151] That is, the "jury was to consider the saw's propensity for danger based on knowledge common to the community in April of 1967."[152] The court was perplexed by plaintiff's claim, stating that it failed to see how this instruction was improper or injected negligence considerations into the case.[153]

The court's confusion on this point is surprising. It suggests the court was unaware it could infuse a measure of strict liability into design defect cases by charging the manufacturer with the knowledge of all product risks, commonly known or not, or by evaluating the product's design at some point other than the time of manufacture. Indeed, that is the essence of the proposals made by John Wade and Page Keeton. Wade's strict liability standard charges the manufacturer with the knowledge of all risks presented by the product as of the time of manufacture, regardless of whether the manufacturer could have reasonably foreseen them.[154] This is a much more rigorous approach than the *Aller* test of the "propensity for danger based on knowledge common to the community" as of the time of manufacture.[155]

Keeton's test, which would impute to the manufacturer "all the risks found to exist by the jury at the time of trial," is sterner yet.[156] The fact the manufacturer could not have reasonably foreseen the particular danger at the time of manufacture is no defense. If the product's design risks outweighed its utility, the manufacturer is still liable even if the design risks, while known at the time of trial, could not reasonably have been known at

151. *Id.* at 836.

152. *Id.* at 837.

153. "Plaintiff did not explain at trial and does not explain in written argument to this court how this instruction injects considerations of negligence standards. We fail to see how it does." *Id.*

154. For a detailed discussion of the Wade model see *supra* text accompanying notes 95-100.

155. Aller v. Rodgers Mach. Mfg. Co., 268 N.W.2d at 837.

156. For a detailed discussion of the Keeton model see *supra* text accompanying notes 95-97, 101.

the time of manufacture.[157] By any measure, the court's purported strict liability test in *Aller* pales in comparison to these approaches.

The court's puzzlement at the plaintiff's argument is surprising for another reason. In an earlier portion of the opinion, the court rejected the plaintiff's request to adopt the language in *Phillips v. Kimwood Machinery Co.* which stated that the test for liability was whether the manufacturer would be negligent if he sold the article knowing of the product's risks.[158] This is an expression of the Wade approach. The basis of the court's rejection of this formulation was not a repudiation of doctrine but of language. The court adopted the questionable statement in *Phillips* that the test based on the Wade proposal was the same as the consumer expectations test.[159] Consequently, because the tests were identical, the court in *Aller* perceived no reason to change the language of the consumer expectations test it had been using.[160] This test, based on section 402A, had developed advantages in the time between its adoption in the *Hawkeye-Security* case in 1970 and the *Aller* case: "Since then courts, lawyers and citizens in general have had time to think of strict liability in terms of the language of section 402A and the comments thereto. A change now to the *Phillips* test would be disadvantageous."[161]

It is unfortunate *Aller* is the case that has served as the touchstone of design defect analysis in Iowa. The court's opinion does not offer a coherent vision of what the focus of analysis is in such a case. It is not enough to declare a case will be treated under strict liability principles without articulating a workable set of guidelines for how this is to be achieved. To say this is accomplished, as the court's opinion did, by focusing on the product's condition simply begs the question of what one should be looking for when focusing on the product. The court's ambiguous references to the role con-

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157. Aller v. Rodgers Mach. Mfg. Co., 268 N.W.2d at 837.

158. *Id.* at 836 (citing Phillips v. Kimwood Mach. Mfg. Co., 269 Or. 485, 492, 525 P.2d 1033, 1036 (1974).

159. Aller v. Rodgers Mach. Mfg. Co., 268 N.W.2d at 836 (citing Phillips v. Kimwood Mach. Mfg. Co., 269 Or. at 492, 525 P.2d at 1036-37 (1974)). The court in *Aller* stated:

> On the surface such a test would seem to be different than the test of 2 Restatement (Second) of Torts § 402A, Comment *i*., of 'dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it.'. . .
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> . . . .
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> To elucidate this point further, we feel that the two standards are the same because a seller acting reasonably would be selling the same product which a reasonable consumer believes he is purchasing. That is to say, a manufacturer who would be negligent in marketing a given product, considering its risks, would necessarily be marketing a product which fell below the reasonable expectations of consumers who purchase it. The foreseeable uses to which a product could be put would be the same in the minds of both the seller and the buyer unless one of the parties was not acting reasonably.

Id.

160. *Id.*

161. *Id.*

sumer expectations and risk-utility approaches play in the analysis are at least confusing and perhaps contradictory. When this is combined with the unpersuasive distinction the court offers between strict liability and negligence the result is an unsatisfactory mix of doctrine. The irony of the court passing up the opportunity to invoke what might arguably be a strict liability approach is striking. Ultimately, *Aller* is a case that, though no doubt well intentioned, has muddied the design defect analytical waters for cases to follow.

B. Chown v. USM Corp.[162]

The Iowa Supreme Court did not wait long before undertaking another effort at formulating the test for design defect. In 1980, the court considered the issue in *Chown v. USM Corp.*[163] The plaintiff in *Chown* was injured when his hand was caught in the "nip point" of a calender machine at which he was working for the first time.[164] Plaintiff claimed the absence of a barrier guard, which would have prevented an operator's fingers from being drawn into the rollers at the nip point, made the machine defective as a matter of both negligence and strict liability.[165] The court ruled in favor of the manufacturer.[166]

In affirming the trial court and finding it was not required as a matter of law to find the product unreasonably dangerous and defective, the Iowa Supreme Court expressed the same uncertainty displayed in the *Aller* case about the appropriate test to use in a design defect case.[167] Drawing on the theories of John Wade, it distinguished the strict liability theory from the negligence theory, stating strict liability relieved the plaintiff of the requirement of establishing the product's dangerous condition was due to a negligent act of the manufacturer.[168] However, the court announced, "That difference is not material here."[169]

Considering the plaintiff's proof in the case, it is noteworthy the court so casually dismissed the difference between strict liability and negligence. Plaintiff offered expert testimony that the accident was caused by the absence of a barrier guard, and that barrier guards which would keep an operator's fingers away from the nip point were known at the time the machine was manufactured between 1900 and 1904.[170] Evidence offered by the

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162. Chown v. USM Corp., 297 N.W.2d 218 (Iowa 1980).
163. *Id.*
164. *Id.* at 219-20.
165. *Id.* at 220.
166. *Id.*
167. *Id.*
168. *Id.*
169. *Id.*
170. *Id.* at 221.

defendant, however, suggested such barriers did not exist until 1923.[171] Given the conflicting testimony, the Iowa Supreme Court held the trial court could have reasonably concluded the design of the machine "was not unreasonably dangerous under 1900-1904 standards."[172]

One might question why it makes any difference, under the strict liability standard the court purported to apply, that the specific safety measure involved was not available to the employer at the time of manufacture. Certainly under a negligence approach we would not hold a manufacturer had acted unreasonably in not using a safety device that was not available at the time of manufacture. But if strict liability focuses instead on the condition of the product, it seems quite plausible to argue the machine was defective and unreasonably dangerous without this safeguard irrespective of when the safety device became available. Indeed, if the court had wanted to show how the strict liability theory did make a difference, the *Chown* case offered an excellent vehicle. By imposing liability, the court clearly would have been expressing that it is completely immaterial whether the manufacturer acted reasonably. The relevant inquiry is whether the product presents an unreasonably dangerous risk to the consumer. The opinion in *Chown* was surely the correct one, but the court's statement that the difference between strict liability and negligence was "not material" in the case seems to be an admission that the two theories are substantively and analytically the same.

The court's ambivalence about the appropriate standard in a design defect case is also evident when it addresses the consumer expectations and risk-utility tests. In referring to *Aller*, the court notes there are two tests of unreasonable danger.[173] One test is the consumer expectations test; the other focuses on whether the product's design dangers outweigh its utility.[174] The factors emphasized by the court as being critical to the risk-utility test are drawn from the controversial *Barker* case,[175] and include evidence of "a safer alternative design."[176] The court, however, did not choose between the two approaches, rather it applied both. In considering the consumer expectations approach, the court noted:

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171. *Id.*
172. *Id.*
173. *Id.* at 220.
174. *Id.*
175. *Id.* at 220-21.
176. The court in *Chown* stated:

> In a design case, the risk-utility analysisinvolves balancing of 'the gravity of the danger posed by the challenged design, the likelihood that such danger would occur, the mechanical feasibility of a safer alternative design, the financial cost of an improved design, and the adverse consequences to the product and to the consumer that would result from an alternative design.'

Id. (quoting Barker v. Lull Eng'g Co., 20 Cal. 3d 413, 431, 573 P.2d 443, 455, 143 Cal. Rptr. 225, 237 (1978)).

> Under this record, we cannot say the trial court was compelled as a matter of law to find the calender was unreasonably dangerous. The court was not required to find that the defendant in 1900-1904 could reasonably have foreseen that a consumer in 1975 would expect barrier guards to be included in the design.[177]

In viewing the risk-utility test, the court likewise concluded the trial court had not been "compelled to find that the safety device was technologically and practically feasible at the time of manufacture."[178] Consequently, the product was not, as a matter of law, unreasonably dangerous.[179]

The court's application of both tests is disturbing. It may be convenient to apply both when the result reached is the same, but the tests do not inevitably produce identical results. The court's instincts in *Chown* were sensible and its judgment sound. It would be inappropriate to hold a manufacturer liable for failing to incorporate a safety device on a product if the evidence suggests the safety device did not exist at the time of manufacture. This could be a matter of the plaintiff not being able to meet its burden of showing there was, at the time of manufacture, an available alternative design that could have practically been employed on the product to avoid the plaintiff's injury. But the discussion of what the consumer would expect about the product's safety devices and the injection of strict liability jargon only confuses this otherwise careful analysis. The court would have been better off had it stated the case was going to be analyzed with negligence principles because that is in fact what the court did.

C. Fell v. Kewanee Farm Equipment Co.[180]

The Iowa Supreme Court remained involved in the products liability area throughout the 1980s.[181] However, it was not until 1990, in *Fell v. Kewanee Farm Equipment Co.*,[182] that the court undertook another full-scale

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177. *Id.* at 221.
178. *Id.*
179. *Id.*
180. Fell v. Kewanee Farm Equip. Co., 457 N.W.2d 911 (Iowa 1990).
181. *See, e.g.*, Osborn v. Massey-Ferguson, Inc., 290 N.W.2d 893 (Iowa 1980); Hughes v. Magic Chef, 288 N.W.2d 542 (Iowa 1980). Much of the court's attention focused on warning doctrine. *See, e.g.*, Sandry v. John Deere Co., 452 N.W.2d 616 (Iowa 1989). *See also* Petty v. United States, 740 F.2d 1428, 1441 (8th Cir. 1984) (manufacturer had duty to warn under strict liability of dangers of mass immunization); Kehm v. Proctor & Gamble Mfg. Co., 724 F.2d 613, 620 (8th Cir. 1983) (manufacturer breached duty to warn tampon users of toxic shocks syndrome when manufacturer "had reason to know of the TSS risk to some Rely users sometime before [plaintiff] used the product and died").
182. Fell v. Kewanee Farm Equip. Co., 457 N.W.2d 911 (1990).

assessment of design defect cases. Unfortunately, the opinion drew on the heritage supplied by *Aller* and did nothing to clarify the issue.[183]

Plaintiff was injured when her left hand became entangled in the exposed beveled gears of a grain elevator that was being used to move corn.[184] In claiming a design defect, the plaintiff alleged the guard covering the beveled gear mechanism was inadequately mounted and attached to the elevator and failed to keep the gear in place during the expected and foreseeable use of the elevator.[185] Plaintiff sought relief on the basis of negligence, breach of implied warranty of merchantability, and strict liability.[186] After the trial court granted the defendant's motions for partial summary judgment on the implied warranty and strict liability claims, the case went to the jury on the negligence count alone.[187] The court gave the jury an instruction for Kewanee's state of the art defense premised on section 668.12 of the Iowa Code.[188] By special verdict, the jury found Kewanee had satisfied the state of the art defense and, as instructed, went no further.[189] The plaintiff claimed, among other things, that it was improper to grant summary judgment on the strict liability count[190] and that the trial court had erred in giving the state of the art instruction.[191]

The supreme court gave detailed attention to the dual requirements of strict liability—defective condition and unreasonably dangerous condition.[192] The court looked to the consumer expectations test, which was set forth in comment g to section 402A, for the test of whether the product was defective.[193] The court considered a report written by the plaintiff's expert

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183. *Id.* at 918.
184. *Id.* at 913.
185. *Id.* at 916-17.
186. *Id.* at 913.
187. *Id.*
188. *Id.* The state of the art statute provides:

Liability for Products—State of the Art Defense

In any action brought pursuant to this chapter against an assembler, designer, supplier of specifications, distributor, manufacturer or seller for damages arising from an alleged defect in the design, testing, manufacturing, formulation, packaging, warning, or labeling of a product, a percentage of fault shall not be assigned to such persons if they plead and prove that the product conformed to the state of the art in existence at the time the product was designed, tested, manufactured, formulated, packaged, provided with a warning, or labeled. Nothing contained in this section shall diminish the duty of an assembler, designer, supplier of specifications, distributor, manufacturer or seller to warn concerning subsequently acquired knowledge of a defect or dangerous condition that would render the product unreasonably dangerous for its foreseeable use or diminish the liability for failure to so warn.

Id. at 920 (quoting IOWA CODE § 668.12 (1987)).
189. *Id.*
190. *Id.* at 916.
191. *Id.* at 920-21.
192. *Id.* at 916-18.
193. *Id.* at 916. *Restatement (Second) of Torts* section 402A, comment g provides:

addressing the gear guard's mounting and attachment to the elevator.[194] According to the expert, the gear guard system was defective because it did not assure the guard would remain in the "'specified configuration and location during foreseeable and expected usage of the elevator.'"[195] Moreover, the expert stated that "'the normal user would not appreciate the danger associated with a missing shield.'"[196] This part of the expert's opinion squarely addressed the consumer expectations test.[197] The expert's report, however, went on to say that a better way to attach the guard to the gear box existed at the time of manufacture.[198] Though it is difficult to know the relevance of such proof to the consumer expectations test, it suggests that both the expert and the court attached importance to the fact an alternative design was available at the time of manufacture and that both contemplated a risk-utility approach. In light of this expert testimony and other nonexpert proof, the court held there was a question of material fact on the issue of product defect.[199]

Next, the court turned to the issue of whether the elevator was unreasonably dangerous.[200] It looked to the *Aller* case for the standard.[201] The court applied a strict liability standard that focused on both risk-utility balancing and whether a consumer would contemplate the danger presented by the product.[202] In applying this standard, however, the court focused on the same evidence it relied on in finding that the product was defective: the expert's report that a normal user would not appreciate the danger presented by the missing guard and an alternative design existed at the time of manufacture which could have been employed by the manufacturer.[203] The court reached the same conclusion it reached on the issue of product defect—there was a question of material fact on whether the product was unreasonably dangerous.[204]

The court's analysis on these matters is open to serious question. First, the court stated the tests were based on strict liability, but it made no effort to distinguish the proof that would be relevant to a negligence claim from that relevant in a strict liability action. An unfocused consumer ex-

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> *Defective condition.* The rule stated in this Section applies only where the product is, at the time it leaves the seller's hands, in a condition not contemplated by the ultimate consumer, which will be unreasonably dangerous to him.

RESTATEMENT (SECOND) OF TORTS § 402A comment g (1976).

194. Fell v. Kewanee Farm Equip. Co., 457 N.W.2d 911, 917 (1990).
195. *Id.*
196. *Id.*
197. *See id.* at 917-18.
198. *Id.* at 917.
199. *Id.* at 918.
200. *Id.*
201. *Id.*
202. *Id.*
203. *Id.*
204. *Id.*

pectations test does not amount to strict liability, and may be nothing more than unprincipled guessing.[205] Moreover, the risk-utility analysis placed considerable importance on the availability of an alternative design at the time of manufacture. If this was in fact the case then the negligence doctrine could easily be adapted to hold the manufacturer liable for failing to incorporate the available alternative design. In other words, strict liability was superfluous. The court's opinion, however, gave no indication of what strict liability added to the case that negligence did not supply.

The best indication that the court's analysis is flawed is the redundancy of the defect and unreasonable danger analysis. It is difficult to explain why there should be a dual standard of determining the safety of a product's condition if the evidence offered on both points is the same. If the answer is that section 402A contemplates that type of duplicative analysis, one can only hope this is the sort of legal exegesis on which we seek to improve. Ultimately, when the evidence considered is the same, the standard should be a unified one, if for no reason other than to eliminate the potential for conflicting jury findings.

The court's reliance on the proof of an available alternative design to satisfy the defect and unreasonable danger elements, however, leads to other inconsistencies in its opinion—inconsistencies that are in part an attempt to maintain the fiction of a strict liability analysis. As noted, the court submitted an instruction to the jury based on Iowa Code section 668.12, the state of the art defense.[206] Under that statute, if the defendant can establish its product complied with the state of the art, it is a complete defense.[207] According to the Iowa Civil Jury Instructions, the jury is informed:

> Affirmative Defense - State Of The Art. (Defendant) claims it complied with the state of the art.
>
> "State of the art" is what feasibly could have been done. It means what technologically and practically could have been done . . . to [design] [manufacture] (*product*) that would have prevented plaintiff's injuries while meeting the user's needs.
>
> To establish this defense, the defendant must prove the product conformed to the state of the art in existence at the time the product was [designed] [tested] [manufactured] [formulated] [packaged] [provided with a warning] or [labeled] . . . .[208]

In *Fell*, the jury returned with a special finding that the defendant had satisfied the state of the art defense and went no further in its determination

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205. *See supra* text accompanying notes 53-56.
206. Fell v. Kewanee Farm Equip. Co., 457 N.W.2d 911, 913 (1990); *see supra* note 188.
207. IOWA CODE § 668.12 (1991).
208. IOWA CIVIL JURY INSTRUCTIONS § 1000.10 (Iowa State Bar Ass'n 1991).

of the issues.[209] The only reasonable interpretation of this finding is that the jury did not regard the expert testimony offered by plaintiff on the issue of an available alternative design as credible. In other words, the jury's finding—"what technologically and practically could have been done to [design the product] that would have prevented plaintiff's injuries while meeting the user's needs" had been done—completely undercuts the plaintiff expert's assertion that more could have been done at the time of manufacture in the way of an alternative design.[210] This finding makes insignificant the court's analysis of defect and unreasonable danger, both of which were premised on the existence of an alternative design under a risk-utility analysis. The court, however, made no reference to this glaring inconsistency.

Section 668.12 undermines the notion that strict liability can be applied in a design defect case. According to the statute, a manufacturer can defend himself by establishing that what "practically" could have been done to make the product safe had been done at the time of manufacture.[211] The focus of the statute is on the manufacturer's conduct in designing the product. A strict liability approach that purported to focus on the product would not care what practically could have been done by the manufacturer. If the product is unreasonably dangerous, strict liability would have to apply regardless of the manufacturer's best efforts. It is clear, however, that the statute dashes the efforts to focus solely on the product.

The state of the art issue was further clouded by the court's treatment of another part of section 668.12. The latter portion of the statute provides that irrespective of compliance with the state of the art, the manufacturer is not relieved of a duty "to warn concerning subsequently acquired knowledge of a defect or dangerous condition that would render the product unreasonably dangerous for its foreseeable use or diminish the liability for failure to so warn."[212] In *Fell*, the plaintiff claimed the manufacturer had learned of the design defect in the gear guard after it had sold the product, and the trial court erred in failing to instruct the jury on this portion of section 668.12.[213]

The court stated that the plaintiff's theory of subsequently acquired knowledge should have been submitted to the jury, and that its earlier discussion of whether the product was defective and unreasonably dangerous applied.[214] This apparently meant the product could have been found to be

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209. Fell v. Kewanee Farm Equip. Co., 457 N.W.2d 911, 913 (Iowa 1990).

210. The expert testified that during the 1960s better means of attaching the guard to the gear box "were known and in use on farm and other equipment." *Id.* at 917. The jury found the state of the art defense had been established. *Id.* The fair inference of the jury's finding is it did not believe such an alternative design was available at the time the product was manufactured. *Id.* at 921.

210. *See* IOWA CODE § 668.12 (1991).

212. *Id.*

213. Fell v. Kewanee Farm Equip. Co., 457 N.W.2d at 921.

214. *Id.*

defective and unreasonably dangerous. The court went on to state there was considerable evidence Kewanee, the manufacturer, had notice throughout the 1960s and 1970s that the gear guard was not adequately fastened.[215] A prototype design for a safer gear fastener was developed in the 1960s, but it was never implemented by Kewanee.[216] This evidence created enough of an inference that Kewanee later knew the gear guard was defective because the gear guard would eventually come off to generate a jury question on the "after-acquired knowledge" portion of section 668.12.[217]

The latter portion of section 668.12 has troubling implications. A fair reading of the provision would impose on a manufacturer the duty to warn when the manufacturer learns there is a danger in the product, even if this knowledge is acquired years after the product has been sold. Not every danger that is "discovered" in a product, however, is one that renders the product defective or unreasonably dangerous. A manufacturer inevitably learns of ways a design is dangerous and could be made safer—that is the essence of the evolution of a product line. An expansive reading of this provision would make the state of the art protection nearly meaningless. Even if a manufacturer had done everything possible to make a product safe at the time it was released into the stream of commerce, it could potentially still be liable because it did not warn of all arguably dangerous conditions of the product that were later discovered through risk-detection technology not available at the time of manufacture.

The state of the art statute raises many disturbing questions, none of which were answered by the court in *Fell*. The court could have elaborated on the circumstances when a manufacturer is deemed to have acquired knowledge of defect and unreasonable danger such that it had a duty to warn under the statute. Such information would have been helpful, but it was not forthcoming. Additionally, discussion of the manner in which a manufacturer is to discharge this duty would have provided guidance to manufacturers justifiably fearful of the potentially broad sweep of the statute. While the facts of a particular case would obviously dictate how the manufacturer could satisfy this responsibility, a discussion of the general guidelines would have been useful. For example, what importance should

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215. *Id.* at 922. The facts of the case were:

> In the 1960s Kewanee developed a proto-type 615-002 gear guard with a safer bolt fastener. Yet Kewanee never implemented the new design. Earlier, we [the court] mentioned a 1962 memorandum that urged Kewanee to put another bolt fastener on the gear guard to prevent it from rattling. In 1978 Kewanee was again warned—via a notation by an employee on a customer inquiry memo—that there was no bolt on the underside of the gear guard to hold it in place. Finally, in 1978 Kewanee's own consulting engineering firm told the company that guards off Kewanee elevators were seen in the field.

Id. at 921-22.

216. *Id.* at 921.

217. *Id.*

be placed on the length of time that has passed between the time of sale and the time of discovery of the defect? What efforts must be made by the manufacturer to warn of these post-sale dangers? Must the warnings be given to the consumer of the product, or is it enough the wholesaler or retailer is notified? While these and other problems may not have been squarely before the court in *Fell*, given the open-ended nature of the statute, a more extensive engagement of the issues would have served the interests of future litigants.

Fell is merely a continuation of the use of strict liability discourse without the reality of its application. The court offered no insight on how the defect analysis in a design case was in fact strict liability. If an alternative design were available at the time of manufacture, then negligence concepts using a risk-utility approach would have been sufficient to impose liability. If no alternative design were available, then it is highly questionable whether liability, strict or otherwise, should be imposed. This is especially true in light of the jury findings based on the state of the art statute. The rhetoric of strict liability infuses cases with the promise of some dramatically different type of analysis on which the courts cannot coherently deliver. Due to the confusion and doctrinal disorder this effort engenders, it seems the time has arrived to acknowledge these shortcomings in design defect analysis and to adopt clear workable standards of analysis. In fact, this can be done without revolutionary change, and the clarity that would emerge would benefit both plaintiff and defendant.

VII. A PROPOSAL FOR DESIGN DEFECT ANALYSIS

As an initial step in establishing a workable, fair, and coherent test for the litigation of design defect cases, Iowa courts should follow the lead of the Michigan Supreme Court in *Prentis*, and recognize the appropriate test to use is one grounded in negligence and risk-utility analysis.[218] In fact, in many respects, this would only be an overt recognition of what the Iowa Supreme Court presently does.

As noted earlier,[219] the Michigan Supreme Court, in *Prentis*, held a pure negligence test was the proper approach in a design defect case.[220] This negligence test could be directly implemented by a risk-utility test, which gives the jury guidance as to the factors it should consider in determining whether the manufacturer exposed the consumer to an unacceptably high level of risk in the product's design.[221] The use of the negligence-based risk-utility analysis would have several helpful effects.

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218. *See* Prentis v. Yale Mfg. Co., 421 Mich. 670, 365 N.W.2d 176 (1985).

219. *See supra* text accompanying notes 113-21.

220. Prentis v. Yale Mfg. Co., 421 Mich. at ___, 365 N.W.2d at 186.

221. Some question exists as to whether the risk-utility factors that courts apply to review product design should be imparted to the jury. Current Iowa Civil Jury Instruction section

First, it would recognize that despite the jargon of strict liability, courts in design cases are balancing the risks of a product design against its benefit or utility. The efforts to charge the manufacturer with knowledge of all product risks, even when they are unknowable, have never gained acceptance with the courts.[222] Similarly, the courts have not been inclined to impose liability on a manufacturer for failing to employ a safety feature if it did not exist at the time of manufacture.[223] The statements that the focus of strict liability is the product and not manufacturer conduct are also hollow pronouncements. Though product condition is important, the test of liability should address the manufacturer's efforts to design the product in a reasonably safe manner.

Second, a dedication to the risk-utility approach would free courts of the unworkable constraints of the consumer expectations test. The *Restatement* model has not withstood the test of time. The consumer expectations approach is flawed in its attempt either to establish what in fact consumers expect in terms of safety or to dictate what their expectations of safety can be. As a spiritual touchstone, section 402A is inspiring and its

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1000.4, which addresses the "unreasonably dangerous" element, instructs the jury that a product is unreasonably dangerous if:

> (3) The benefits of the design do not outweigh the risks. In determining the issue, you may consider:
> (a) The seriousness of the harm posed by the design.
> (b) The likelihood that such danger would occur.
> (c) The mechanical feasibility of a safer alternate design.
> (d) The cost of an improved design.
> (e) The adverse consequences to the product and the user that would result from an alternate design.
> (f) Any other facts of circumstances shown by evidence having any bearing on the question.

IOWA CIVIL JURY INSTRUCTION § 1000.4 (Iowa State Bar Ass'n 1991).

Dean Wade, however, proposed the risk-utility factors of his test be explicitly addressed only by the court in deciding whether a design defect case should be submitted to the jury. Wade, *On the Nature of Strict Tort Liability for Products*, 44 MISS. L.J. 825, 839 (1973); *see also* Roach v. Kononen, 269 Or. 457, 525 P.2d 125, 129 (1974) ("We agree that these factors should be considered by a court before submitting a design defect case to the jury."). *But see* Vetri, *Products Liability: The Developing Framework for Analysis*, 54 OR. L. REV. 293 (1975) (suggests jury should be instructed on the relevant risk-utility factors).

The Iowa approach of suggesting factors for the jury's consideration, and allowing the jury to take other factors into account, seems preferable. It is likely the parties' proof will concentrate on such factors and explicitly setting out these factors gives the jury's deliberations some direction. This helps to avoid the unfocused deliberation that is almost inevitable under the consumer expectations approach.

222. *But see* Halphen v. Johns-Manville Sales Corp., 484 So. 2d 110 (La. 1986). In *Halphen*, the court held a manufacturer could be held strictly liable for injuries caused by an unreasonably dangerous product even if the manufacturer did not know and reasonably could not have known of the danger. *Id.* at 115-16. The holding was promptly overturned by statute. LA. REV. STAT. ANN. § 9:2800.56(2) (West 1991).

223. For further discussion of the state of the art defense see *supra* notes 188, 207-08 and accompanying text.

symbolic value cannot be underestimated. However, neither its text nor comments should be looked to for analytical assistance. If there is a need to retain the *Restatement* as the basis of design defect analysis, it would be preferable to look to section 398 and its negligence analysis.[224] After all, section 398 was overlooked in the rush to apply section 402A to all products. Furthermore, by adoption of a negligence risk-utility test, the Iowa Supreme Court could discard its ambivalence toward the risk-utility and consumer expectations approaches. Rather than trying to apply both tests in a case and hoping it did not produce inconsistent results, or engaging in the clear fiction that the two tests were the same, the court should reject the consumer expectations model and embrace the familiar risk-utility approach. Doctrinal clarity would certainly emerge from the disposal of the consumer expectations model.

Plaintiffs would not suffer under an invigorated risk-utility approach premised on negligence. As noted earlier,[225] plaintiffs should aggressively press courts for instructions that charge manufacturers with the knowledge and foresight of an expert in the field. Such an instruction would allow the jury to find even slightly foreseeable risks were within the manufacturer's knowledge. This result could be accomplished without the jargon-laden and nearly incomprehensible efforts to charge the manufacturer with knowledge of risks that could not have been foreseen. The proposed approach makes more sense to juries because it draws on a standard they are familiar with—the exercise of due care—and it educates them that the manufacturer has a special responsibility to keep abreast of technological advances, monitor field usage of its products, engage in continuing research to make its products safer, and otherwise take substantial steps that society demands of a product manufacturer. A toughened negligence standard that truly evaluated the manufacturer's design decisions with exacting scrutiny would better serve plaintiffs and would communicate to defendants that their responsibilities are real, substantial, and framed in a familiar negligence context.

Just as the court should discard the dual consumer expectations/risk-utility test, it should likewise cast off the dual defective condition/unreasonably dangerous analysis. The *Fell* case shows the redundancy of the proof offered on these points. This redundancy is a function of the *Restatement*'s preoccupation with consumer expectations. Measuring a product's safety by two different tests, both of which ask what a consumer anticipates, is simply unnecessary and ill-advised. Although the *Restatement* can provide inspiration, one is not well served by looking to it for doctrinal analysis.

So long as it is understood that the test of liability is one of risk-utility negligence, it makes little difference whether the legal conclusion is

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224. *See supra* text accompanying notes 32-35.
225. *See supra* text accompanying notes 123-26.

framed in terms of defect or unreasonable danger. Defect better suggests something wrong with the product—the product's design does not measure up when placed on the risk-utility scale. The term defect may better suggest the test is not just any old negligence analysis, but one with teeth. This may lend a sense of distinctiveness to case analysis for products cases that is absent when the unreasonably dangerous term is used.[226]

Some might argue that repudiating strict liability as the theory of choice in a design defect case will have a damaging impact on the "satellite" doctrines of strict liability. For example, in some jurisdictions, bringing an action in strict liability prevents the invoking of contributory negligence as a defense,[227] permits the imposition of liability on successor corporations,[228] retailers[229] and used product sellers,[230] and allows evidence of later remedial measures to be admitted against the manufacturer.[231] Eliminating strict liability in design cases could imperil these rules. In Iowa, however, plaintiffs would not be significantly affected by such a turn away from strict liability.[232] To the extent they would be affected, the courts

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226. The California Supreme Court has held it is inappropriate to require a plaintiff to prove a product is not only defective, but also unreasonably dangerous. Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 501 P.2d 1153, 104 Cal. Rptr. 433 (1972). The same concept of defectiveness could be used in a products liability design case premised on toughened negligence principles. Again, this would underscore the distinctiveness of the products liability case and reinforce the fact that something had to be wrong with the product. By eliminating reference to unreasonableness it might be easier for the unique products liability jurisprudence to emerge and be recognized.

For Prosser's explanation of why "unreasonably dangerous" was added to section 402A, see *Discussion of the Restatement of the Law, Second, Torts*, 38 A.L.I. PROC. 50, 55 (1961).

227. *See, e.g.*, McCown v. International Harvester Co., 463 Pa. 13, 16-17, 342 A.2d 381, 382 (1975) ("Recognition of consumer negligence as a defense to a 402A action would contradict this normal expectation of product safety"); *see also* RESTATEMENT (SECOND) OF TORTS, § 402A comment n (1965).

228. *See, e.g.*, Ray v. Alad Corp., 19 Cal. 3d 22, 560 P.2d 3, 11, 136 Cal. Rptr. 574, 582 (1977) ("[A] party which acquires a manufacturing business and continues the output of its line of products under the circumstances here presented assumes strict tort liability for defects in units of the same product line previously manufactured and distributed by the entity from which the business was acquired").

229. *See, e.g.*, Zamora v. Mobil Corp., 104 Wash. 2d 199, 704 P.2d 584 (1985); Mead v. Warner Pruyn Div., Finch Pruyn Sales, Inc., 57 A.D.2d 340, 394 N.Y.S.2d 483 (1977); *see also* RESTATEMENT (SECOND) OF TORTS, § 402A comment f (1965).

230. *See, e.g.*, Crandell v. Larkin & Jones Appliance Co., 334 N.W.2d 31 (S.D. 1983).

231. *See, e.g.*, Cook v. McDonough Power Equip. Inc., 720 F.2d 829 (5th Cir. 1983); Ault v. International Harvester Co., 13 Cal. 3d 113, 528 P.2d 1148, 117 Cal. Rptr. 812 (1974); *see also* FED. R. EVID. 407.

232. For example, in Iowa:

(1) The Comparative Fault Act treats negligence and strict liability as a form of "fault" wherein the plaintiff's contributory conduct can be compared to the defendant's. IOWA CODE § 668.1 (1991);

(2) The Iowa Supreme Court has held that the "product line" theory of successor corporation liability would not be adopted in Iowa in strict liability cases. DeLapp v. Xtraman, Inc., 417 N.W.2d 219 (Iowa 1987);

could easily retain the remedial effects of these rules by continuing their application in design defect cases. In fact, doing so would offer another means of making products liability cases distinctive while rigorously employing negligence principles for core defect analysis.

One issue that would need to be addressed is whether the plaintiff should be required as part of the risk-utility analysis to prove an alternative design was available at the time of manufacture. Generally, this seems to be an appropriate burden. Under the state of the art statute in Iowa, however, the defendant can assert as an affirmative defense that it made the product according to the state of the art extant at the time of manufacture. If the plaintiff had the burden of establishing there was an alternative design available at the time of manufacture and the defendant had the burden of offering proof there was no such alternative design, the potential for conflicting results exists. This should, of course, be avoided if at all possible.[233] Though the approach of having the plaintiff establish the alternative design seems the preferable way to address the issue, this is not practicable given the statute. Unless the statute is changed,[234] proof of an alternative design should be retained as one factor among several for the jury to consider in making its risk-utility findings.

One change the court could entertain is the shifting of the burden. After the plaintiff proves the product design caused her injury, the court could shift the burden to the defendant to justify its design on a risk-utility basis.[235] Such a change, however, seems improper as well as politically unfeasible. To alter the rules regarding the burden of ultimate persuasion in a civil case would require an unmistakable showing that such a change was the only means of doing justice between the parties. Given the terms of the proposal set forth here, that is not the case. Moreover, such a radical step

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(3) Retailers cannot be held strictly liable for a defective product if the manufacturer is subject to the court's jurisdiction and solvent. IOWA CODE § 613.18(1)(b) (1991);

(4) The Iowa Supreme Court has refused to hold a used product seller strictly liable, Grimes v. Axtell Ford Lincoln-Mercury, 403 N.W.2d 781 (Iowa 1987); *but see* IOWA R. EVID. 407 (if claim brought under strict liability theory, subsequent remedial measure evidence admissible).

233. The Iowa Supreme Court has addressed a similar problem in the context of misuse, holding that because the plaintiff must prove a product is defective when put to a reasonably foreseeable use, misuse was no longer an affirmative defense. Hughes v. Magic Chef, Inc., 288 N.W.2d 542, 546 (Iowa 1980). To permit such a defense, the court held, would be to invite inconsistent jury findings. *Id.; cf.* IOWA CODE § 668.1 (1991) (misuse is a defense under the Comparative Fault Act).

234. If the court rigorously applied a rule that a plaintiff had to prove the availability of an alternative design at the time of manufacture, the state of the art defense would be superfluous. Manufacturers might want to prove their products employed all safety devices available at the time of manufacture.

235. *See* Barker v. Lull Eng'g Co., 20 Cal. 3d 413, 573 P.2d 443, 143 Cal. Rptr. 225 (1978) (once plaintiff establishes product's design caused injury, burden of ultimate persuasion to justify design on a risk-utility basis shifts to defendant).

would likely foreclose any chance defendants would regard the proposal as substantially balanced.

Other steps could be taken to toughen the risk-utility analysis even further.[236] One should certainly proceed with some caution, however, until this restrained proposal is instituted and its potential explored.

VIII. CONCLUSION

The struggle to establish meaningful, coherent, and workable standards in the design defect area has been a difficult one for the Iowa Supreme Court as well as for courts in other jurisdictions. The strict liability envisioned by section 402A, which Prosser said would not even affect one case in 100,[237] was flawed from its inception insofar as design defects are concerned. A modest reform of design defect analysis to bring the stated standards in line with the standards applied by the courts would simplify the litigation process, impart needed clarity, and treat both plaintiff and defendant fairly. The elimination of strict liability language will certainly create some difficulties. To continue on a path of ambivalence with uncertain standards, however, is both unnecessary and unwise.

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236. For example, courts could relax the traditional causation requirements in a design defect case. *See* Campbell v. General Motors Corp., 32 Cal. 3d 112, 649 P.2d 224, 184 Cal. Rptr. 891 (1982) (jury could reasonably infer the absence of a restraining pole or rail within the reach of plaintiff was the proximate cause of plaintiff's injuries suffered when she was thrown from the bus seat to the floor).

237. Prosser, *The Assault Upon the Citadel* (Strict Liability to the Consumer), 69 YALE L.J. 1099, 1114 (1960).