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EFFICIENCY, EXPECTATION, AND JUSTICE: A JURISPRUDENTIAL ANALYSIS OF THE CONCEPT OF UNREASONABLY DANGEROUS PRODUCT DEFECT

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OUTLINE OF CONTENTS

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> Woe unto you, lawyers! for ye have taken away the key of knowledge . . . .
>
> — *Luke* 11:52

> Woe unto you, ye blind guides. . . .Woe unto you, scribes and Pharisees . . .! for ye . . . have neglected the weightier matters of the law, justice and mercy and faith . . . .
>
> — *Matthew* 23:16, 23

INTRODUCTION

It is widely regarded as "good" or "right" that sellers of products should be "strictly" liable for injuries caused by product defects.[1] Such strict liability is broader than negligence,[2] but narrower than "absolute" liability.[3] Among the doctrines narrowing this liability is the requirement that the injury be caused by an unreasonably dangerous, defective condition.[4] Thus, the scope of strict liability is determined in part by the definition of such a condition.

This article will consider this concept of "unreasonably dangerous product defect" from a jurisprudential perspective.

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1. This view has been adopted by: (1) courts, *see* 2 L. FRUMER & M. FRIEDMAN, PRODUCTS LIABILITY § 16A[3], at 3-248 n.2 (1975); 1 R. HURSH & H. BAILEY, AMERICAN LAW OF PRODUCTS LIABILITY § 4.41 (2d ed. 1974); Annot., 13 A.L.R.3d 1057 § 4 (1967); [1974] PROD. LIAB. REP. CCH ¶ 4060; (2) legislatures, *see, e.g.*, ARK. STAT. ANN. § 85-2-318.a (Supp. 1975); GA. CODE ANN. §§ 105-106 (1968); S.C. CODE ANN. §§ 66-371 to -373 (Cum. Supp. 1975); and (3) commentators, *see, e.g.*, W. PROSSER, LAW OF TORTS § 98 (4th ed. 1971); RESTATEMENT (SECOND) OF TORTS § 402A (1965).

2. For example, the exercise of "due care" by the defendant is irrelevant. *E.g.*, RESTATEMENT (SECOND) OF TORTS § 402A(2)(a) (1965). Similarly due care or reasonableness on the part of the plaintiff is irrelevant insofar as discovering a defect is concerned. *Id.* Comment n.

3. Liability would be viewed as absolute if the seller were liable whenever the product was a "cause" of injury in the sense that "but for" the product, there would have been no injury. However, such absolute liability is not imposed for product-related injury. *See, e.g.*, Helene Curtis, Inc. v. Pruitt, 385 F.2d 841, 849 (5th Cir. 1967); Calabresi & Hirschoff, *Toward a Test for Strict Liability in Torts*, 81 YALE L.J. 1055, 1056 (1972); Fischer, *Products Liability — The Meaning of Defect*, 39 MO. L. REV. 339, 340 (1974).

4. *E.g.*, RESTATEMENT (SECOND) OF TORTS § 402A(1) (1965) (the entire section is quoted in note 41 *infra); but see, e.g.*, Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 501 P.2d 1153, 104 Cal. Rptr. 433 (1972) (plaintiff need show only that product "defective").

Such analysis differs from conventional doctrinal discussion in two respects. First, jurisprudential analysis is broader and more general.[5] From this broader perspective, the concept of "unreasonably dangerous defect" is viewed in terms of its relation not only to products liability but also to torts generally and to the entire legal system. Second, jurisprudence is not necessarily concerned with proposing a concrete solution to a particular doctrinal problem. Rather, a primary task of jurisprudence is to provide a general analytical framework for organizing and evaluating specific doctrinal proposals.[6]

The focus of this article is upon the construction of such a framework. Part I develops a jurisprudential approach for viewing "doctrine" from a social perspective and for evaluating proposals concerning what the concept of doctrine "ought" to be. The use of this framework is illustrated in Part II by considering two tests for the "proper" identification of unreasonably dangerous defects: the "cost-benefit" test and the "reasonable consumer expectation" test. Since this discussion is primarily illustrative, consideration of other possible tests of liability for product-related injury is limited. Part III utilizes the jurisprudential framework to demonstrate that, while useful in the judicial decisionmaking process, existing proposals concerning what product-liability doctrine "ought" to be (including proposals other than efficiency or consumer expectation) are deficient in that they omit considerations of substantive justice involved in this process. The jurisprudential framework proposed in this article also omits substantive considerations; this weakness is addressed in several short, tentative observations concerning justice and metaphysics.

The textual development, illustration, and evaluation of the proposal are brief, thus helping emphasize the framework's basic structure. This has necessitated an unusually extensive use of textual footnotes. The reader, therefore, should anticipate that

5. *See, e.g.*, J. HALL, FOUNDATIONS OF JURISPRUDENCE 11-17 (1973).

6. *See, e.g.*, Hart, *Analytical Jurisprudence in Mid-Twentieth Century, A Reply to Professor Bodenheimer*, 105 U. PA. L. REV. 953 (1957); Pannam, *Professor Hart and Analytical Jurisprudence*, 16 J. LEGAL ED. 379 (1964); Summers, *The New Analytical Jurists*, 41 N.Y.U.L. REV. 861 (1966); *cf., e.g.*, A. KAPLAN, THE NEW WORLD OF PHILOSOPHY 53-93 (1961). Kaplan notes that:

> [A]nalytic philosophy focuses on the task of formulating the conditions which a statement must satisfy in order to convey knowledge, and developing procedures by which to determine the meaning of any such statement.

Id. at 92.

reference to some footnotes may be essential to a more complete understanding of the text. Conciseness and clarity are also facilitated by the use of symbols.

I. A JURISPRUDENTIAL PERSPECTIVE ON DOCTRINE

A. Doctrine Within the Broader Social and Legal Context

That man's environment is characterized by a scarcity of necessary resources is a truism with enormous impact on the structure of social systems.[7] Every society must have some method of distributing these scarce goods so that at any one time a particular person may exclude all others from a particular resource.[8] Such a distribution is often referred to as the granting or recognition of a "right" or of an "entitlement."[9] If these entitlements/rights are viewed as an exclusionary "boundary" around a person or thing,[10] then the concept of "duty" or "obligation" can be regarded as a requirement not to cross a boundary without "consent."[11]

Another truism concerning social life is that boundary cross-

7. Not all resources are characterized by scarcity. For example, cultural resources such as concepts, songs, or alphabets are not depleted no matter how many people use them. *See, e.g.*, J. LUCAS, THE PRINCIPLES OF POLITICS § 44 at 184 (1966). Indeed, quite the opposite is often true — for example, the greater the number of people using a particular alphabet, the more useful that alphabet becomes. Nevertheless, certain crucial physical resources like air, water, land, energy, and labor are scarce. *See, e.g., id.* at 183-84; P. SAMUELSON, ECONOMICS 17-19 (9th ed. 1973). Moreover, it could be said that we have a scarcity of new, improved cultural resources.

8. *See, e.g.*, H. HART, THE CONCEPT OF LAW 89, 167, 192 (1961); Calabresi & Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1090-91 (1972); Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARV. L. REV. 1165, 1206-13 (1967); *cf., e.g.*, ECONOMIC FOUNDATIONS OF PROPERTY LAW, 1-50 (B. Ackerman ed. 1975).

9. *See, e.g.*, RESTATEMENT (SECOND) OF TORTS § 1, Comment b (1965) ("right"); Calabresi & Melamed, *supra* note 8, at 1090 (1972) ("entitlement"). This distribution need not be directed by any official agent who "grants" rights to society but may evolve gradually as members of the society come to recognize rights. *See, e.g.*, J. BUCHANAN, THE LIMITS OF LIBERTY 8-12, 17-24 (1975); L. MAIR, PRIMITIVE GOVERNMENT 35-60 (1970); *cf.* note 26 and accompanying text *infra*.

10. *See, e.g.*, R. NOZICK, ANARCHY, STATE AND UTOPIA 57 (1974).

11. *See, e.g.*, Hohfeld, *Some Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 23 YALE L. J. 16 (1913). For a discussion of Hohfeld's system, see note 23 *infra*. The possible limits on the granting of consent are not considered herein. This topic is developed briefly in Calabresi & Melamed, *supra* note 8, at 1092-93 (1972); *cf., e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS 55-64 (1970). Analysis of these limits in terms of products liability would be particularly relevant in a doctrinal system which determined rights and duties in terms of communications between sellers and buyers. For a discussion

ings do occur.[12] Societies, therefore, must respond in some way. There are several possibilities:[13]

(1) *Prohibit the crossing or conduct likely to result in the crossing.*[14] Where the prohibition is disobeyed or likely to be disobeyed, there are a number of approaches available to the legal system: punishment,[15] restraint,[16] treatment,[17] or author-

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of the latter approach, see notes 85, 94 and accompanying text *infra*. Concepts of *implied* consent would be relevant in both negligence and strict liability frameworks for determining liability for product- "caused" injury. *See, e.g.*, RESTATEMENT (SECOND) OF TORTS §§ 496A-496G (assumption of risk as a defense in negligence), § 402A, Comment n (1965) (assumption of risk as a defense in strict liability).

12. Although the likelihood of these crossings is reduced by coercive enforcement of duties, *see, e.g.*, H. HART, *supra* note 8, at 191, 193-94, some prohibited crossings will occur even with such coercion. *See, e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS 194 (1970).

13. Possible responses in addition to those in the text include: (1) regulate or prohibit except where the potential border crosser satisfies certain requirements — *e.g.*, passing a license test, bond to compensate injured (*See* notes 145, 147 *infra* and accompanying text); (2) discourage — *e.g.*, tax activity heavily (note that taxes may or may not be used to compensate); and (3) provide "better" alternatives — *e.g.*, improved employment opportunities or welfare programs to "prevent" theft.

14. Three points should be made concerning prohibition. First, prohibition should include two subcategories — (1) with compensation and (2) without compensation. This distinction is required because forbidding X to cross Y's boundary necessarily restricts X's activities, *see, e.g.*, J. LUCAS, *supra* note 7, at §§ 42 & 43, and X is sometimes compensated for these restrictions. *E.g.*, Spur Industries Inc. v. Del E. Webb Development Co., 108 Ariz. 178, 494 P.2d 700 (1972) (cattle feedlot enjoined as nuisance, but plaintiff required to compensate owner of feedlot for this restriction). For discussions of the problems involved in determining when such compensation is required, *see, e.g.*, R. NOZICK, *supra* note 10, at 78-79, 81-84, 86-87, 114-115, 142-147; Michelman, *supra* note 8. Second, prohibition is often imposed where no unconsented boundary crossings are involved. Some of the problems involved in justifying such a prohibition are discussed in note 80 *infra*. Third, reasons for excusing or justifying border crossings, *see, e.g.*, H. HART, PUNISHMENT AND RESPONSIBILITY 28-53 (1968), are considered as part of the response.

15. Punishment is defined in various ways. H.L.A. Hart's approach in PUNISHMENT AND RESPONSIBILITY, *supra* note 14, is adopted in this article:

> I shall define the standard or central case of "punishment" in terms of five elements:
>
> (i) It must involve pain or other consequences normally considered unpleasant.
>
> (ii) It must be for an offence against legal rules.
>
> (iii) It must be of an actual or supposed offender for his offence.
>
> (iv) It must be intentionally administered by human beings other than the offender.
>
> (v) It must be imposed and administered by an authority constituted by a legal system against which the offence is committed.

Id. at 4-5. For comparisons of the two basic approaches to justifying punishment, retribution and deterrence, *see, e.g., id.* at 6-13; R. NOZICK, *supra* note 10, at 59-63 (1975). For a discussion of other possible principles of punishment, *see, e.g.*, CRIMINAL LAW 222-238 (G. Dix and M. Sharlot eds. 1973). The use of punishment (punitive damages) in products

ized self-help.[18]

(2) *Allow the crossing but require compensation.*[19] There are a number of ways of determining when compensation will be required: strict liability,[20] negligence,[21] or a variety of other possible standards.[22]

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liability cases is discussed in, *e.g.*, Owen, *Punitive Damages in Products Liability Litigation*, 76 MICH. L. REV. 1257 (1976).

16. Restraint — for example, by imprisonment or by quarantine — differs from punishment in that:

(1) It does not involve pain or other consequences normally considered unpleasant.

(2) It is sometimes imposed even where there has been no offence.

See note 15 *supra*. The justification for restraint is the prevention of a nonconsensual boundary crossing and/or of irrational behavior. *See* note 85 *infra*.

17. A "treatment perspective" views border crossings without consent (or irrational acts, or behavior indicating a strong likelihood of either) as manifestations of an illness that can be cured. Treatment may involve restraint — for example, by commitment to a mental institution — but it might also consist of therapy imposed outside institutions. Treatment differs from punishment in that:

(1) Pain or other unpleasant consequences are not necessarily involved. Their use is only incidental to "curing" the illness.

(2) There need not be an offense against the legal rules.

See note 15 *supra*. For discussion of consensual crossings, *see* note 85 *infra*.

18. Examples of self-help include self defense and the forceful recapture of chattels. *See, e.g.*, W. PROSSER, *supra* note 1, at §§ 19, 22.

19. Several points should be made concerning compensation. First, although the payment of compensation can be unpleasant, this is merely incidental because the focus is on correcting the harm caused by the crossing. Indeed, compensation need not come from the person crossing the boundary. *See, e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS, *supra* note 11, at 22-23. Compensation is thus different from prohibition. *See* note 15 *supra*. Second, although compensation is usually made after the border crossing, this delay is not necessary if it is possible to determine, within some given parameters of reliability, the probability of a border crossing. Approaches to such precrossing compensation are discussed in APPENDIX 1. Third, although restitution could be used in many cases (for example, where property which was taken without consent), the focus herein is on crossings where restitution is inappropriate and damages (or replacement) is the only possible remedy — for example, property is destroyed without consent.

20. *See* notes 2 & 3 and accompanying text *supra*.

21. This approach can be subcategorized in terms of whether liability depends upon the negligence of

(1) the person who crossed the border, *see, e.g.*, United States v. Carroll Towing Co., 159 F.2d 169 (2d Cir. 1947); and/or

(2) the person whose border was crossed. *See, e.g.*, RESTATEMENT (SECOND) OF TORTS §§ 463-496 (1965) (contributory negligence); Calabresi & Hirschoff, *supra* note 3, at 1058-59 ("reverse negligence").

The difficulties in framing any test for negligence are discussed in notes 50-52, 55-89, 102, 115-38 and accompanying text *infra*.

22. Examples include intent, *e.g.*, RESTATEMENT (SECOND) OF TORTS § 8A (1965), and recklessness, *id.* at § 282, Comment e, §§ 500-503 at one extreme, and absolute liability, *see* note 3 *supra*, at the other.

(3) *Do nothing about the crossing.*[23]

Response decisions, like entitlement decisions, have distributional consequences. For example, if *X* is granted the entitlement to property, he becomes richer than he would be if the entitlement were denied. Moreover, he is richer if the legal system responds by requiring compensation or by prohibiting rather than

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The following list of fact situations indicates the variety of potential doctrinal results based on this subcategorization:

I. *D* (person who crossed border) negligent, *V* (person whose border is crossed) negligent. Depending on the particular negligence doctrine applied, there are several possible results:
  A. Negligence:
    (1) with contributory negligence, *V* bears loss;
    (2) without contributory negligence, *D* bears loss; or
    (3) with comparative negligence, *D* and *V* bear loss.
  B. "Reverse Negligence" (*see* Calabresi & Hirschoff, *supra* note 3):
    (1) with reverse contributory negligence, *D* bears loss;
    (2) without reverse contributory negligence, *V* bears loss; or
    (3) with comparative negligence, *D* and *V* bear loss.

II. *D* negligent, *V* not negligent — *D* bears loss.

III. *D* not negligent, *V* negligent — *V* bears loss.

IV. *D* not negligent, *V* not negligent. Depending on the particular negligence doctrine applied there are two possible results.
  A. Negligence — *V* bears loss.
  B. "Reverse Negligence" — *D* bears loss.

23. Although a legal system can be said to "do nothing" if it prohibits a crossing but does not enforce the prohibition, this is not the sense in which "do nothing" is used in the text. The framework presented in the text is formal, not empirical, in that "doing nothing" is distinguished in reference to prohibition and compensation. This formal structure can be illustrated by considering a particular entitlement:

Entitlement: *A* is entitled to this book.

Duty: *A*'s entitlement establishes a border around the book which others cannot cross by possessing, using, or harming book.

Response: Some possible responses to crossings are:
  (1) Prohibit: If a person crosses "intentionally," then he is punished by the legal system.
  (2) Allow with compensation: If person crosses intentionally or negligently, then the legal system will require him to compensate.
  (3) Do nothing: If a person crosses with due care, then the legal system will do nothing.

See notes 14 & 19 *supra.* Entitlements/rights are sometimes defined in terms of responses. For example, Hohfeld viewed the third response in the example above as a denial of an entitlement to *A* — *i.e.*, *A* had a "no-right" to book where injury done with due care. Hohfeld, *supra* note 11. This article distinguishes between granting the entitlement and responding to crossings of the border established by the entitlement because "doing nothing" is not the same thing as denying an entitlement. The entitlement might still be respected by members of society even if there is no legal response. *See, e.g.*, H. HART, *supra* note 8, at 55-57, 80-88, 96, 134-37; Calabresi & Melamed, *supra* note 8, at 1090-91 n.4.

by doing nothing.[24] Similarly, because a negligence system allows others to cross his boundary so long as they use due care, he is richer if the system's theory of response is strict liability rather than negligence.[25]

A third truism concerning societies is that complex interdependent societies cannot rely entirely on custom and self-help to establish and enforce entitlement boundaries. Instead, a considerable portion of these tasks must be accomplished by "officials" who are "recognized" as having certain powers to grant entitlements, to define the conditions which constitute border crossings without consent, and to respond to such crossings.[26] Consequently, in "modern" societies many basic distributive decisions are made by officials. Viewed from this broad social perspective, entitlement doctrine consists of the patterns of specific decisions of officials granting and enforcing rights/entitlements.

B. Jurisprudential Criteria for Evaluation of Normative Doctrine

Doctrine may be viewed from a number of overlapping, but nonetheless distinct, perspectives. For example, it can be said that:

(1) Doctrine is what officials do about conflicts over scarce goods.[27]

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24. At the same time, however, the person holding the entitlement is richer to the extent that he crosses the border of others holding the same type of entitlement because it is cheaper for him to cross such borders where the system responds by doing nothing. This complication reinforces rather than negates the textual point that the determination of response has distributional implications.

25. Because of the distributional consequences of selecting a particular response, it is difficult, if not impossible, to analyze torts solely in terms of retributive or corrective justice. An example of an attempt to exclude all distributional considerations from tort doctrine is provided in a series of three articles by Richard Epstein. Epstein, *A Theory of Strict Liability*, 2 J. LEGAL STUD. 151 (1973); Epstein, *Defenses and Subsequent Pleas in a System of Strict Liability*, 3 J. LEGAL STUD. 165 (1974); Epstein, *Intentional Harms*, 4 J. LEGAL STUD. 391 (1975).

26. *See, e.g.*, H. HART, *supra* note 8, at 77-120; Hubbard, *"One Man's Theory . . .": A Metatheoretical Analysis of H.L.A. Hart's* MODEL OF LAW, 36 MD. L. REV. 39 (1976); *cf., e.g.*, J. BUCHANAN, *supra* note 9, at 12-13, 64-73; T. HOBBES, LEVIATHAN (1651); R. NOZICK, *supra* note 10, at 3-146.

27. This definition of law is characteristic of "legal realists." *See, e.g.*, Rumble, *Law as the Effective Decision of Officials: A "New Look" at Legal Realism*, 20 J. PUB. L. 215 (1971). An example of "legal realism" is Walter Wheeler Cook's assertion that:

> "Right," "duty," and other names for relations are not . . . names of objects or entities which have an existence apart from the behavior of the officials in question, but merely terms by means of which we describe to each other what

(2) Doctrine is established by an official rule which governs conflicts over scarce goods.[28]

(3) Doctrine is what ought to be reflected in officials' actions and/or in a rule.[29] There are two types of such normative doctrine:

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prophecies we make as to the probable occurrence of events — the behavior of the officials.

Cook, *Logical and Legal Bases of the Conflict of Laws,* 33 YALE L. J. 457, 476 (1934) (emphasis added). This approach is also characteristic of many legal sociologists. *See, e.g.,* D. Black, *The Boundaries of Legal Sociology, quoted in* THE SOCIAL ORGANIZATION OF LAW 41 (D. Black & M. Mileski eds. 1973) (Legal sociology is concerned with patterns in "the observable dispositions of judges, policemen, prosecutors, or administrative officials." *Id.* at 46).

28. This perspective is characteristic of "legal positivism." For a short, critical discussion of positivism, see, *e.g.,* Dworkin, *The Model of Rules,* 35 U. CHI. L. REV. 14 (1967). This article accepts Dworkin's conceptual distinctions between rules, principles and policies:

Rule: A rule *determines* the result of a case if it applies.

Principle: A principle may apply to a case but not determine its result. A principle, therefore, has a dimension of "weight" which a rule does not. An example of a principle is: "no man may profit from his own wrongdoing" (applicable but not determinative, for example, in cases of adverse possession).

Policy: A goal or ultimate aim of a *particular* area of the law — *e.g.,* prevention of accidents. Principles are applicable to various areas.

See id. at 22-29; Dworkin, *Hard Cases,* 88 HARV. L. REV. 1057 (1975). However, this use of these three concepts does not involve a commitment to Dworkin's position that principles dictate one and only one proper decision in a particular case. *See* Dworkin, *Hard Cases, supra;* Note, *Dworkin's Rights Thesis,* 74 MICH. L. REV. 1167 (1976).

29. This perspective includes "natural law" assertions that official action and rules can be evaluated in terms of a higher, absolute law, which is innate in the nature of man and the world. Where acts/rules conflict with this "natural law," the modern "natural law" response varies along a spectrum. At one end of the spectrum, where the conflict is minimal, conflicting acts/rules are viewed as bad or ill-advised but still "law" in the sense that a citizen ought to obey them. At the other end of the spectrum, the conflict is so severe that the citizen has no obligation to obey. Rather there may be an obligation to disobey. *See, e.g.,* L. FULLER, THE MORALITY OF LAW (rev. ed. 1969); H. HART, *supra* note 8, at 195-207; J. LUCAS, *supra* note 7, at §§ 73-74; J. RAWLS, A THEORY OF JUSTICE §§ 51-59 (1971).

This perspective also includes more modest views — for example, policy orientations which evaluate existing rules and actions in such terms as "if you want to accomplish X, then Y is the rule/action which ought to be adopted." The distinction between the natural law and the policy orientations is illustrated in the discussion in note 33 *infra.* The effects of the refusal by policy analysts to address the determination and evaluation of X are discussed in text accompanying notes 115-22 *infra.*

Since any empirical pattern of entitlement decisions will reflect a particular approach of how entitlements ought to be allocated and enforced, it can be said that every legal system is based, at least implicitly, on a set of criteria for designating certain persons as more worthy of entitlements and certain responses to border crossings as "better" than others. *See, e.g.,* Calabresi & Melamed, *supra* note 8. The textual discussion, however, is directed to explicit ideal perceptions of what doctrine ought to be.

(a) *Substantive.* A variety of proposals have been offered for determining

1) which persons should be granted entitlements,[30] and/or

2) which responses should be used in a given situation.[31]

(b) *Formal.* Regardless of the substantive decisions made by the legal system, various formal requirements, such as the following, often are proposed for evaluating doctrine:[32]

1) A legal system should "treat like cases alike."[33]

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30. *See, e.g.*, J. RAWLS, *supra* note 29.

31. *See, e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS (1970).

32. *See, e.g.*, L. FULLER, *supra* note 29; J. RAWLS, *supra* note 29, at § 38. For a general discussion of the nature and limits of formal theories, see notes 33 & 34 *infra*.

33. This particular proposal illustrates several points concerning the "ought" perspective on law:

(1) The necessity to treat like cases alike can be viewed as good either: (a) in itself because of some higher, natural law, *see, e.g.*, L. FULLER, *supra* note 29 at 46-49, 200-24; J. LUCAS, *supra* note 7, at §§ 27 & 28; J. RAWLS, *supra* note 29, at § 38 at 237-38; *cf.* I. KANT, GROUNDWORK OF THE METAPHYSIC OF MORALS 67-68, 83-84 (H. Paton trans. 1958); or (b) because it is instrumental or efficient in the accomplishment of some given goal or policy. *See, e.g.*, H. HART, *supra* note 8, at 88-89, 191, 195-97. Further discussion of these two perspectives is contained in note 29 *supra*.

(2) Formal requirements of justice are limited for a number of reasons:

(a) Their impact often depends on prior substantive decisions. *See, e.g.*, F. NORTHROP, THE COMPLEXITY OF LEGAL AND ETHICAL EXPERIENCE 47 (1959); Lyons, *On Formal Justice*, 58 CORNELL L. REV. 833 (1973). "Treat like cases alike," for example, requires some stipulation of the proper substantive criterion(a) of likeness. *See, e.g.*, ARISTOTLE, POLITICS BK III, Ch. 12, (E. Barker trans. 1948); H. HART, *supra* note 8, at 155; J. LUCAS, *supra* note 7, at § 56, at 244; *cf., e.g.*, Miller & Howell, *The Myth of Neutrality in Constitutional Adjudication*, 27 U. CHI. L. REV. 661 (1960); M. Shapiro, *The Supreme Court and Constitutional Adjudication: Of Politics and Neutral Principles*, 31 GEO. WASH. L. REV. 587 (1963); B. Wright, *The Supreme Court Cannot be Neutral*, 40 TEX. L. REV. 599 (1962). Nevertheless, the precept is not meaningless if it forces decision-makers to "justify" a particular classification. *See, e.g.*, J. RAWLS, *supra* note 29, at § 38, at 237-38; *see also* notes 36 & 120 and accompanying text *infra*.

(b) In many cases a particular formal requirement may conflict with:

(i) Another formal requirement. For example, if two lower courts rule differently on the same issue, then a higher court in resolving the issue must either treat like cases *un*like by allowing both conflicting decisions to stand or indulge in something akin to retroactive legislation by reversing at least one of the decisions. *Cf., e.g.*, L. FULLER, *supra* note 29, at 46-49, 51.

(ii) A substantive requirement. For example, stare decisis, which is a temporal form of treating like cases alike, will often conflict with the need to adopt a better criterion of likeness by overruling

2) An individual entitlement decision should be made by an impartial judicial tribunal.[34] 3.131

The allocation of product-caused losses between sellers and consumers presents issues concerning the establishment and enforcement of boundaries. One pattern or "doctrine" in the resolution of these issues is a concern with the question: "What is an unreasonably dangerous product defect (hereinafter UDPD)?" As a result, each of the broad perspectives on doctrine set forth above is paralleled by a more particular statement concerning UDPD:

(1) UDPD is what a court says it is.
(2) UDPD is what a rule, *e.g,* section 402A of the *Restatement (Second) of Torts,* says it is.
(3) UDPD is what a normative test says it "ought" to be.

This article will focus on the last view of UDPD by examining two theories of how UDPD ought to be defined. Thus, tasks such as cataloguing and reconciling cases as well as predicting judicial decisions are omitted. Similarly, there is little analysis of existing rules.

The discussion of these tests focuses on the extent to which each test satisfies two formal jurisprudential criteria for appraising any "ought"-oriented doctrinal test:

(1) The test should be as clear and unambiguous as possible.[35]

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precedent. *See, e.g.,* R. KEETON, VENTURING TO DO JUSTICE 39-53 (1969).

(c) As indicated in note 34 and accompanying text *infra,* formal models are often directed toward particular officials and the impact of a formal requirement is often dictated by the particular official involved. For example, although legislatures can be viewed as limited by the requirement of treating like cases alike, *see, e.g.,* U.S. CONST. art. I, § 9, cl. 3 ("No bill of attainder or ex post facto law shall be passed."); *id.* amend. XIV, it is generally conceded that legislatures are not as limited as courts in treating like cases unlike—for example, by enacting radically different statutes. *See, e.g.,* J. LUCAS, *supra* note 7, at §§ 25, 50-51.

34. *See, e.g.,* J. LUCAS, *supra* note 7, at §§ 20, 24, 25, 28; J. RAWLS, *supra* note 29, at 238-39; *cf., e.g.,* H. WECHSLER, PRINCIPLES, POLITICS AND FUNDAMENTAL LAW (1961); J. RAWLS, *supra* at 30-32, 83-90. This type of formal justice proposal is often referred to as procedural justice, *see, e.g.,* RAWLS, *supra* note 29, at § 14, § 31 at 197, §§ 36-38; R. UNGER, LAW IN MODERN SOCIETY 195-96 (1976), or as a "process" model of justice, *see, e.g.,* F. NORTHROP, *supra* note 33, at 45-46. Process or procedural justice proposals are subject to the limits set out in note 33 *supra.* The parallel weaknesses are apparent if one rephrases the textual requirement of "an imparital tribunal" as "a tribunal which treats 'like cases alike.'" For further discussion of the strengths and weaknesses of such models, see notes 115-22 and accompanying text *infra.*

35. *See, e.g.,* N. BOWIE, TOWARDS A NEW THEORY OF DISTRIBUTIVE JUSTICE 15-16 (1971);

(2) The test should be "justified" as superior to other available tests in terms of some criteria other than the ad hoc, subjective preferences of the proponent of the test.[36]

L. FULLER, *supra* note 29, at 63-65; W. QUINE & J. ULLIAN, THE WEB OF BELIEF 65-66 (1970). No test or rule can be completely certain or precise because of the limits of language and the limits of man's ability to determine existing conditions and to predict future conditions. *See, e.g.*, ARISTOTLE, NICOMACHEAN ETHICS BK. V, Ch. 9; H. HART, *supra* note 8, at 121-26; PLATO, STATESMAN 294. Attempts to go beyond these limits are subject to the criticism of risking artificial rigidity and precision by attempting to articulate what cannot be articulated. *See, e.g.*, Christie, *Vagueness and Legal Language*, 48 MINN. L. REV. 885 (1964). The first criterion states only that ambiguity is undesirable and should, therefore, be avoided to as great an extent as possible, and this statement explicitly recognizes that some vagueness is unavoidable.

36. *See, e.g.*, J. LUCAS, *supra* note 7, at § 27. Lucas argues that evaluative statements should be "universal." For example,

> A man who claims that a particular picture is a good picture, but allows that another picture might be like it in every respect, except that it was not good, shows thereby that he has not been reasoning rationally, and that his putative value-judgment 'This is a good picture' is not a value-judgment, because not a judgment at all.
>
> . . . .
>
> The picture enthusiast was proved irrational . . . because he was prepared to deny that another picture was good although he did not allow that there was *any* respect in which it differed from the picture that, he maintained, was good.

Id. at 127-29. Similarly, it is irrational to assert that a particular "ought"-oriented doctrine is better than another without justifying that conclusion by pointing out how the preferred doctrine is better.

Three qualifications concerning "justification" are in order. First, since justification can be viewed in terms of Lucas's concept of universalisability, it should be noted that:

> The sense in which rationally arrived at conclusions must be universalisable has raised many difficulties. One, which is important for our present purpose, is whether the universalisability is a practical universalisability, such that the speaker should be able, on demand, to universalise his conclusion, stating exactly and completely what the relevant universal characteristics are; or whether the universalisability is only in principle, so that *if* there were a case exactly the same in all relevant (but unstated) respects, then the same conclusion would follow. The requirement of universalisability in the former sense is a more stringent one. It requires that the speaker should be able to specify an *infima species* all the instances of which are qualitatively identical so far as the argument is concerned, and therefore with the some [sic] conclusion holding of them all. The latter sense requires only that if different conclusions hold in two cases, there must be some relevant difference between the cases to account for the discrepancy.

Id. at 128. The criterion of justification employed in this article is based on the latter, weaker sense of universalisability. Second, the specification of relevant characteristics is the equivalent of the subjective stipulation of substantive criteria of "likeness" involved in distinguishing like and unlike cases. *See* note 33 *supra.* Thus, subjective preference eventually becomes involved, but at a higher level than the doctrinal level. *Cf., e.g.*, J. RAWLS, *supra* note 29, at 46-53; Feinberg, *Rawls and Intuitionism*, READING RAWLS 108 (N. Daniels ed. 1974); Hare, *Rawls' Theory of Justice* (pts. 1-2), 23 PHILOSOPHICAL Q. 144, 241 (1973). Third, the requirement is formal in that it does not prescribe any proper criteria of justification. It only requires that some justification be given.

These particular standards are employed for two reasons. First, the criteria are likely to be accepted by most persons constructing models of what doctrine ought to be. Second, to the extent that a normative model of proper doctrine is designed to direct decision-oriented inquiry, both tests are functional: they require not only that the model be specific about the conduct of the inquiry but also that it indicate why the particular directions are "important."

Although other formal criteria might be added,[37] the tasks of proposing, illustrating, and justifying them would considerably expand the scope of this article and dilute the emphasis on the basic structure of the proposed framework. For example, the application of formal tests of consistency would require the detailed examination of specific proposals. The analysis, therefore, is limited to the two formal criteria of minimal ambiguity and justification.

In addition to these formal requisites, substantive standards such as the following could be proposed:

(1) The test should not be a "pie in the sky;" rather, it should be an empirically accurate description of how the courts do/will/can determine UDPD.
(2) The test should maximize social utility.

Some such substantive criteria are crucial to a complete evaluation of any doctrinal proposal because doctrine could be unambiguous and justified yet still be offensive to "common sense" or fundamental notions of substantive justice.[38] For example, a doctrine which granted entitlements on the basis of race might satisfy the formal criteria yet be morally offensive to many people. Although this article recognizes the importance of substantive

37. Lon Fuller, for example, would require that, in order to be called "law," a rule should, among other things, be consistent so that it does not require contradictory behavior. L. FULLER, *supra* note 29, at 65-70. Similarly, Jerome Hall adopts consistency in developing some measures of a good jurisprudential theory, Hall, *Integrative Jurisprudence*, 27 HASTINGS L.J. 779 (1976), while Norman Bowie evaluates theories of distributive justice partly in terms of consistency. N. BOWIE, *supra* note 35. W.V. Quine and J.S. Ullian offer five "virtues" which can be used in conjunction with specificity or nonambiguity to measure the "plausibility" of a predictive theory: conservatism, generality, simplicity, refutability, and modesty. W. QUINE & J. ULLIAN, *supra* note 35, at 42-53, 65-66 (1970).

38. *See, e.g.*, R. BEARDSMORE, MORAL REASONING (1969); J. RAWLS, *supra* note 28, at 46-53. This limitation parallels the limitations on formal theories of justice discussed in notes 33-34 *supra*. The crucial role of subjective perceptions in justification is discussed in note 36 *supra*.

criteria in any "ought"-oriented doctrine, specific substantive proposals are not considered because such notions of proper doctrine are much more individualized than the formal requirements. As a result of this increased individual variation, the development of substantive criteria which are not only specific enough to be workable but also acceptable to many persons is a difficult, if not impossible, task, far beyond the scope of this article.[39]

Although as a result of this omission, the proposed criteria for evaluating normative doctrine are incomplete, they nevertheless are useful in a limited sense. There is nothing per se wrong with a limited standard so long as it is helpful: problems arise only when one loses sight of the limitations and tries to use such a standard where it is inapplicable.[40]

II. Tests For Identifying an Unreasonably Dangerous Product Defect

The primary existing rule for identifying UDPD is section 402A of the *Restatement (Second) of Torts* which imposes strict liability for physical harm on one "who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property."[41] Several comments to this section,

39. *See* notes 117-123, 128-138 and accompanying text *infra*. One difficulty with substantive proposals is that they are subjective. However, the formal requirements are also subjective or cultural in that some people or cultures do/could use different criteria. *Cf., e.g.*, Tribe, *Policy Science: Analysis or Ideology?*, 2 Philosophy & Pub. Aff. 66, 75-78 (1972). However, this subjectivity is not so individualized as that involved in substantive notions of justice.

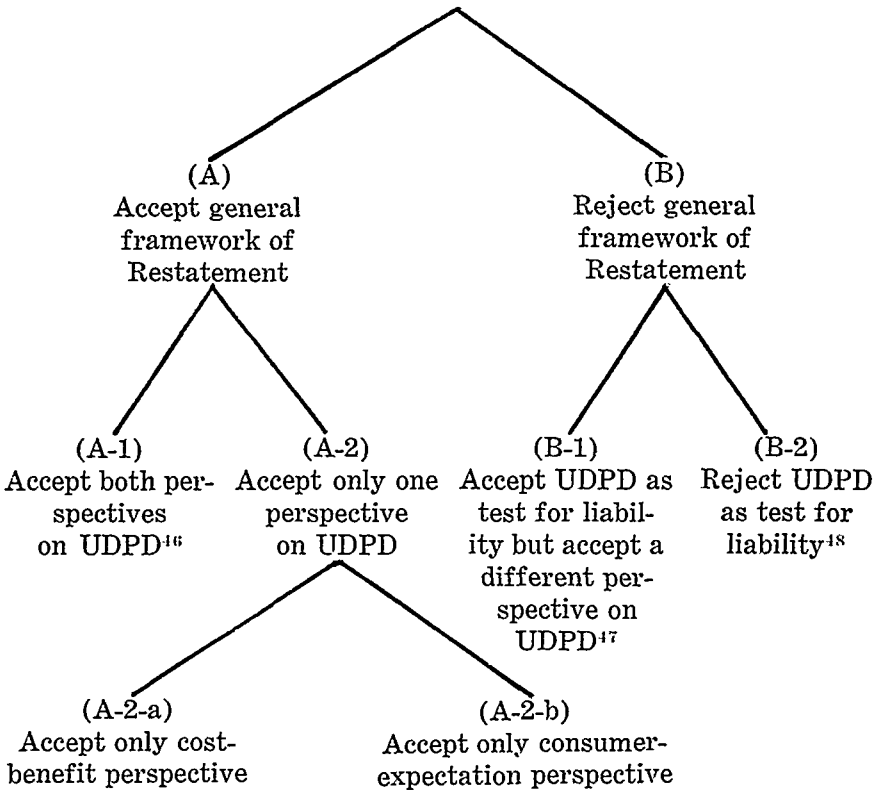
40. *See* notes 103-09, 115-23 and accompanying text *infra*.

41. The section as a whole 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.

when read together, provide that UDPD is "a condition not contemplated by the ultimate consumer, which will be unreasonably dangerous to him."[42] The contemplated condition is determined by reference to normal (common, ordinary) consumer expectations under normal conditions.[43] If the danger exceeds such expectations then the product is "unreasonably dangerous."[44] Another comment provides that UDPD is determined by considering whether the benefits offered by the product outweigh the risks which cannot be eliminated by existing technology.[45] Thus, the comments to section 402A suggest two different perspectives on UDPD: (1) consumer expectations and (2) cost-benefit comparisons.

The following diagram illustrates some of the possible reactions to this existing rule:



RESTATEMENT (SECOND) OF TORTS § 402A (1965). This is not the only existing rule. For example, there are alternative judicial, *see, e.g.*, Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 501 P.2d 1153, 104 Cal. Rptr. 433 (1972), and statutory rules, *see, e.g.*, UNIFORM COMMERCIAL CODE §§ 2-314 through-316, -318, -715(2), -719(3).

42. RESTATEMENT (SECOND) OF TORTS, § 402A, Comment g (1965).

43. *Id.*, Comments g, h, & j.

44. *Id.*, Comment i.

45. *Id.*, Comment k. This comment is quoted in note 108 *infra*.

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Since the proposed framework for analyzing doctrine can be illustrated without a full analysis of all these possible responses, this article will focus on *Restatement*-oriented proposals which state that only a cost-benefit (A-2-a) or a consumer-expectation (A-2-b) definition of UDPD "ought" to be adopted.

Although strict liability differs from negligence,[49] these two tests of UDPD have been selected because they parallel the two models of "reasonable" behavior used in traditional fault analysis. The "calculus of risk" has long been used as a standard for determining unreasonable conduct,[50] and it is not surprising that

46. There are a number of possible syntheses. One such possibility is to view the two perspectives as integral parts of a single test — for example, risks and benefits are evaluated from the standpoint of the reasonable consumer. *See, e.g.*, Welch v. Outboard Marine Corp., 481 F.2d 252, 254 (5th Cir. 1973); Phillips v. Kimmood Mach. Co., 269 Ore. 485, 494-96, 525 P.2d 1033, 1036-37 (1974). Another approach would be to impose liability on the seller if either test, cost-benefit or "reasonable consumer expectation," is satisfied. *E.g.*, Montgomery & Owen, *Reflections on the Theory and Administration of Strict Tort Liability for Defective Products*, 27 S.C.L. REV. 803, 846 (1976). A variation on this second synthesis is to use one of the two tests as the primary standard, while employing the other as a secondary standard when the results under the primary standard offend some (intuitive) notion of "correct" decision. *Cf., e.g., id.* at 818 (cost-benefit as primary test); Shapo, *A Representational Theory of Consumer Protection: Doctrine, Function, and Legal Liability for Product Disappointment*, 60 VA. L. REV. 1109, 1225, 1294, 1370 (1974) ("Seller-induced consumer expectation" as initial and principal focus in decision); *see* notes 47, 94 *infra* and APPENDIX 2 for further discussion of Shapo's approach.

47. Marshall Shapo, for example, views UDPD as existing when a product fails to satisfy those consumer expectations which result from the seller's representations. Shapo, *supra* note 46, at 1369. For further discussion of Shapo's model, *see* note 94 *infra* and APPENDIX 2. Although consistent with the RESTATEMENT (SECOND) OF TORTS in many respects, Shapo's model is intended to "provide a completely new approach." *Id.* at 1370; *see id.* at 1251-58.

48. The strict-liability framework of Calabresi and Hirschoff, for example, emphasizes cost reduction and places liability on the person best able to determine the relationship of costs to benefits and to reduce costs. Calabresi & Hirschoff, *supra* note 3. *See, e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS (1970). See APPENDIX 2 for further discussion of this standard. This approach rejects the RESTATEMENT (SECOND) OF TORTS concern with UDPD and searches instead for the best cost evaluator/preventor. *Compare* Calabresi & Hirschoff, *supra* note 3, at 1064-65, *with* RESTATEMENT (SECOND) OF TORTS § 402A, Comments j, k, & n (1965).

Another alternative is the approach of the California Supreme Court, which rejects the RESTATEMENT position and requires only that the plaintiff prove a defect; there is no need to prove that it is unreasonably dangerous. Cronin v. J.B.E. Olson Corp., 8 Cal. 3d 121, 501 P.2d 1153, 104 Cal. Rptr. 433 (1972).

49. *See* note 2 and accompanying text *supra*.

50. *See, e.g.*, United States v. Carroll Towing Co., 159 F.2d 169 (2d Cir. 1947); RESTATEMENT (SECOND) OF TORTS § 282, Comment c, §§ 291-293 (1963); RESTATEMENT OF TORTS §§ 519, 520(a) (1938); RESTATEMENT (SECOND) OF TORTS §§ 519, 520(a) - 520(c), 520(f) (Tent. Draft No. 10, 1964); W. PROSSER, *supra* note 1, at § 31; Posner, *A Theory of Negligence*, 1 J. LEGAL STUD. 29 (1972); Terry, *Negligence*, 29 HARV. L. REV. 40 (1915).

a similar efficiency calculus is proposed for defining UDPD. A second model of reasonable behavior is reflected in the concept of an average, normal man whose perceptions and capabilities can be used in evaluating the reasonableness of harm-causing conduct.[51]

This abstract "reasonable man," now acting as a consumer rather than as an injurer,[52] could be employed to determine the existence of UDPD. Thus, the analysis of UDPD cannot only use existing theoretical discussions of the fault system but also elucidate these discussions.

The jurisprudential framework sketched in this article can assist the comparison of these approaches to UDPD in several ways. First, the formal criteria of minimal ambiguity and justification can be used to evaluate each test. Second, the doctrinal proposals can be viewed in terms of officials' distribution and enforcement of entitlements. Finally, both tests are proposed/used: (1) in related, "fault"-oriented tort doctrines, (2) in granting and enforcing entitlements in other areas of the law,[53]

51. *See, e.g.*, RESTATEMENT (SECOND) OF TORTS §§ 519, 520 (d), (e) (Tent. Draft No. 10, 1964); W. PROSSER, *supra* note 1, at §§ 32-33.

52. In traditional fault analysis, the injurer could be the defendant (negligence) and/or the plaintiff (contributory negligence). For further discussion of the two-fold nature of the negligence test, see note 21 *supra*. The effects of the shift in viewing the "reasonable man" from an injuring-acts-perspective to a consumer-knowledge-perspective should be kept in mind because the reasonableness of some of the victim's acts is irrelevant under § 402A. RESTATEMENT (SECOND) OF TORTS § 402A, Comment n (1965).

53. The concept of reasonable expectations is a core concept in contract law. Professor Corbin, for example, begins his treatise by asserting that the "Main Purpose of Contract Law is the Realization of Reasonable Expectations Induced by Promises." A. CORBIN, CORBIN ON CONTRACTS 1 (One vol. ed. 1952). Cost-benefit analysis is central to numerous types of administrative determinations. *See, e.g.*, Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402 (1971), in which the analysis of available alternative highway routes is viewed in terms of balance of costs vis-à-vis benefits of route through public parkland.

From a more general perspective, the central role that these two models play in modern legal systems is reflected, for example, by Rosco Pound's five "jural postulates of civilized society in our time and place." R. POUND, SOCIAL CONTROL THROUGH LAW 113-15 (1942). One of these postulates is directed toward "expectations" while another is directed toward unreasonable risk. *Id.* at 114. A similar indication of the importance of these two models is Roberto Unger's assertion that the use of broad, policy-oriented standards in modern jurisprudence, *see* notes 115-22 and accompanying text *infra*, invites "their appliers to make use of the technician's conception of efficiency or the layman's view [expectation] of justice." R. UNGER, *supra* note 34, at 199. Similarly, Judge Cardozo, who considered law as concerned with "social welfare," viewed social welfare as a concept defined either by "expediency or prudence" or by "the social sense of justice, whether formulated in creed or system, or immanent in the common mind." B. CARDOZO, THE NATURE OF THE JUDICIAL PROCESS 72 (1921).

and (3) in the analysis of related issues in other disciplines.[54] Jurisprudential analysis of these tests in other settings is, therefore, relevant in evaluating them within the context of section 402A.

A. *The "Cost-Benefit" Model*

1. The Basic or Core Model. The cost-benefit or efficiency approach to entitlements has been formulated in various ways,[55] but there is a common core of agreement on the basic principle

54. The concept of a rational maximizer is found, for example, in philosophy and economics, *see* note 55 *infra*, while the concept of "reasonable" or "representative" expectations is developed in such disciplines as sociology, *see, e.g.*, G. HOMANS, SOCIAL BEHAVIOR: ITS ELEMENTARY FORMS 72-78, 232-47, 265-76 (1961); 225-68 (rev. ed. 1974); W. RUNCIMAN, RELATIVE DEPRIVATION AND SOCIAL JUSTICE (1960); P. SELZNICK, LAW, SOCIETY, AND INDUSTRIAL JUSTICE (1969); philosophy, *see, e.g.*, J. RAWLS, *supra* note 29 at 64; and economics. *See, e.g.*, H. Hochman, *Rule Change and Transitional Equity*, REDISTRIBUTION THROUGH PUBLIC CHOICE 320 (H. Hochman & G. Peterson eds. 1974). See note 90 *infra* for further discussion of expectation models.

55. For example, such proposals have taken the form of:

(1) Utilitarian philosophical proposals that entitlements should be distributed and enforced in the manner which will maximize happiness or utility and minimize pain, *e.g.*, J. S. MILL, UTILITARIANISM (1863).

(2) Economic proposals that entitlement issues should be viewed from an efficiency perspective which focuses on maximizing or optimizing happiness/utility by striving to satisfy two conditions:

(a) The level of any output X should be such that the marginal social utility (MSU) of X is equal to its marginal social cost (MSC).

(b) The level of any number of outputs (X_1, X_2, . . . , X_n) should be such that the ratio of the marginal social utility of each output to the marginal social cost of that output equals the corresponding ratio for other commodities.

Thus, efficiency requires that the following be satisfied:

$$MSU_x = MSC_x$$

$$\frac{MSU_{x_1}}{MSC_{x_1}} = \frac{MSU_{x_2}}{MSC_{x_2}} =. \frac{MSU_{x_n}}{MSC_{x_n}}$$

Given the difficulties with defining utility (*see* note 67 and accompanying text *infra*) economists often impose as a third condition for efficiency the requirement that there be an optimal price system. *See, e.g.*, W. BAUMOL, ECONOMIC THEORY AND OPERATIONS ANALYSIS 379-408 (3d ed. 1972); N. BOWIE, *supra* note 37, at 24-27.

(3) Pragmatic proposals concerning the most efficient solution of particular "real-world" problems by systematic examination of a given number of possible solutions in order to select the optimum alternative(s). *See, e.g.*, H. RAIFFA, DECISION ANALYSIS 295 (1970). E. MISHAN, ECONOMICS FOR SOCIAL DECISIONS (1972).

(4) Legal proposals concerning the proper doctrinal test for determining (a) fault, *see, e.g.*, United States v. Carroll Towing Co., 159 F.2d 169 (2d Cir. 1947); RESTATEMENT (SECOND) OF TORTS §§ 291-295 (1965); and (b) UDPD. *See* authorities cited in note 69 *infra*.

that "more is better" and on the decision norm that:

> Given two courses of action, *A* and *B*, if *B* would result in more happiness for society than *A*, then officials ought to "choose" *B*.[56]

This core conception of proper/reasonable/rational behavior supports the following test for a definition of UDPD:

> Given two courses of action, *A* (selling a product in *X* condition) and *B* (not selling the product or selling it in $\sim X$ condition),[57] if *B* would result in more happiness for society than *A*, then officials should decide that the product has an UDPD if course *A* is followed.

The application of this model requires: first, some measure of benefits (*i.e.*, increases in "happiness") and costs (*i.e.*, pain, unhappiness, or decreases in happiness) so that comparisons may be made; and second, some probability assessments (p) of the occurrence potential of particular benefits ($b_1, b_2, \ldots b_n$) and costs ($c_1, c_2, \ldots c_n$) so that the expected benefits and costs for each alternative can be calculated in some such manner as:

$$\text{Potential costs} = (c_1 \times p_{c_1}) + (c_2 \times p_{c_2}) + \ldots + (c_n \times p_{c_n})$$

$$\text{Potential benefits} = (b_1 \times p_{b_1}) + (b_2 \times p_{b_2}) + \ldots + (b_n \times p_{b_n})$$

2. Evaluation in Terms of Formal Criteria. Inherent in the use of this basic model are a number of limitations,[58] which can be categorized in terms of the two formal criteria for evaluating normative doctrine: ambiguity and justification:

> (1) Efficiency analysis is imprecise because of certain built-in ambiguities in the core model.

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56. For a discussion of the complexity involved in "choosing" a particular course of conduct, see notes 8-29 and accompanying text *supra*.

57. The symbol "$\sim$" indicates the negation of whatever follows.

58. The textual criticisms of the limits of the model should be distinguished from criticisms of *misuse* of the model. An example of such misuse is the tendency to confuse the model's assumption that man can usefully *be viewed as* a rational maximizer with a broader assumption that man *is* a rational maximizer. This confusion blurs the distinction between the "efficient" solution to a problem and the proper "real-world" solution. *See, e.g.*, Baker, *The Ideology of the Economic Analysis of Law*, 5 PHILOSOPHY & PUB. AFFAIRS, 3 (1975); Buchanan, *Good Economics — Bad Law*, 60 VA. L. REV. 483 (1974); Leff, *Economic Analysis of Law: Some Realism about Nominalism*, 60 VA. L. REV. 451, 470-74, 477-82 (1974); Polinsky, *Economic Analysis as a Potentially Defective Product: A Buyer's Guide to Posner's Economic Analysis of Law*, 87 HARV. L. REV. 1655 (1974); Tribe, *Policy Science: Analysis or Ideology?*, 2 PHILOSOPHY & PUB. AFFAIRS 66 (1972).

(2) Efficiency analysis alone cannot justify (a) any particular resolution of the innate ambiguities or (b) any particular allocation and enforcement of entitlements in society.

(a) Ambiguity. Any specific cost-benefit formulation of "proper" behavior is inherently ambiguous if it does not include a definition of the scope of items being evaluated. For example, if a product p_1 of a class of of products P is used by u_1 of a class of users U, does the analysis involve optimizing benefits vis-à-vis costs in terms u_1's use of p_1 or of U's use of P?[59] If classes of products and/or of users are to be considered, how is the scope of each class to be determined?[60] Even if such classes can be defined there will still be ambiguities in the relationships among classes and subclasses. For example, a product p_1 (or class of products P) will have a class of costs C associated with its use. In a particular situation certain potential costs of this class (c_1, c_2, . . . c_n) will be directed toward one class of users U_1, while others (c_{n+1}, c_{n+2} . . . c_{n+m}) will be directed toward another class of users U_2. If u_1 of the class U_1 is injured by the product, is the subclass of the potential costs directed toward U_2 relevant for the cost-benefit comparisons involving u_1?[61]

59. *See, e.g.,* N. BOWIE, *supra* note 35, at 31-32; R. WASSERSTROM, THE JUDICIAL DECISION (1961); Rawls, *Two Concepts of Rules*, 64 PHILOSOPHICAL REV. 3 (1955). See notes 71, 76, 78 *infra* for further discussion of this issue.

60. This is not a minor problem because nearly all similar items can be viewed both as having subsets and as being subsets of some larger aggregation. Consider, for example, the problems if U and P have subclasses — *e.g.,* "new P" and "used P;" presently living U and future U — and if U and P are themselves subclasses of larger aggregations — *e.g.,* if P is a car of X type, then P is a subclass of the class of all automobiles; U is a subclass of all humans, past, present, and future. At some point a line must be drawn and drawing such a line presents the problem of distinguishing "like cases" from "unlike cases." See note 33 *supra.* The classification problem is discussed further in note 72 *infra.*

61. The problems resulting from this inherent ambiguity are presented in many "proximate cause" and "duty" cases, particularly where non-users (bystanders) are involved. *See, e.g.,* Palsgraf v. Long Island R.R., 248 N.Y. 339, 162 N.E. 99 (1928), (Mrs. Palsgraf, a bystander, can be viewed as similar to u_1 in the textual example while the passenger with the package is u_2.); RESTATEMENT (SECOND) OF TORTS, §402A, Comment o (1965) ("*Injuries to non-users and non-consumers.* . . . The Institute expresses neither approval nor disapproval of expansion of the rule to permit recovery by such persons.") (emphasis in original). Even if the analysis in the textual example were limited to u_1, there would still be the problem of determining which risks of the set (c_1, c_2, . . . , c_n) are relevant. *Compare, e.g.,* Seely v. White Motor Co., 63 Cal. 2d 9, 403 P.2d 145, 45 Cal. Rptr. 17 (1965) *with, e.g.,* Santor v. A. & M. Karaghensian, Inc., 44 N.J. 52, 207 A.2d 305 (1965); *compare, e.g., In re* Polemis, 3 K.B. 560, All E.R. 40 (Ct. App. 1921) *with, e.g.,* Overseas Tankship (U.K.) Ltd. v. Morts Dock & Engineering Co. Ltd. (The Wagon Mound), [1961] A.C. 388 and Overseas Tankship (U.K.) Ltd. v. The Miller Steamship Co. (The Wagon Mound (No. 2)) [1966] 1 A.C. 617. Defining the relevant costs can be

Other ambiguities emerge concerning the exact nature of the comparison of costs and benefits. First, many formulations of cost-benefit analysis do not specify whether one is maximizing the ratio of costs to benefits or the excess of benefits over costs.[62] For example, if the following mutually exclusive alternatives are the only practical alternatives and if the costs and benefits in each have been discounted by probability assessments, which is reasonable or preferable?

Alternative *A*: Cost is 100, benefit is 200. (Ratio of costs-benefits 1:2.000 while excess benefits are 100).

Alternative *B*: Cost is 150, benefit is 275. (Ratio of costs-benefits 1:1.833 while excess benefits are 125).

The uncertainty in the comparison is increased when one considers variations in attitudes toward certain types of potential costs and benefits. For example, which of the following mutually exclusive alternatives is reasonable or preferable?

Alternative *A*:

Potential costs = 1,000,000 units (death) x .0001 = 100 units

Potential benefits = 1,000,000 units x .1 = 100,000 units

Aternative *B*:

Potential costs = 100 units (lost leisure) x 1 = 100 units

Potential benefits = 1000 units x 1 = 1000 units

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restated as an attempt to distinguish between all costs (or "harms") and all legally cognizable costs (or in the schematic system of the RESTATEMENT (SECOND) OF TORTS §§ 1, 7 (1965)) "injuries" in the terminology of the RESTATEMENT. In a theoretical sense some such distinction is necessary if the concept of right (*i.e.*, legally protected interests or costs, *id.*) is to have any meaning. The distinction is also necessary from a practical point of view. *See* note 65 and accompanying text *infra*.

The "process" becomes even more complicated when one considers classes of injurers. For example, designing a "safer" product may so involve the entire industry producing the product that it is "unfair" to focus on only one seller of the class of sellers. *Cf.*, *e.g.*, Boomer v. Atlantic Cement Co., 26 N.Y. 2d 219, 257 N.E.2d 870, 309 N.Y.S.2d 312 (1970):

> [T]echniques to eliminate dust and other annoying by-products of cement making are unlikely to be developed by any research the defendant can undertake within any short period, but will depend on the total resources of the cement industry Nationwide and throughout the world. The problem is universal wherever cement is made.
>
> For obvious reasons the rate of the research is beyond control of defendant. If at the end of 18 months the whole industry has not found a technical solution a court would be hard put to close down this one cement plant if due regard be given to equitable principles.

Id. at 225-26, 257 N.E.2d at 873, 309 N.Y.S.2d at 317.

62. One resolution of this ambiguity is proposed in E. MISHAN, *supra* note 55, at 134-

The ratio of potential benefits to costs in Alternative *A* (1000:1) is much greater than the ratio in Alternative *B* (10:1); nevertheless, many persons would prefer the certain return in Alternative *B* to a one-in-ten thousand chance of death in Alternative *A* because death is so uniquely total and final.[63] A third ambiguity in the comparison of risks and benefits occurs when it is not clear whether the concern is with the sum of costs versus the sum of benefits or with the marginal increases in cost and benefits. Under either test the conduct from *O* to *E* in the graph below is reasonable and the conduct from *O* to *G* is unreasonable. However, the particular formulation chosen will have a variable impact on whether the conduct from *E* to *H* and from *G* to *H* is viewed as reasonable because at any point between *O* and *H* on *OEH* the sum of benefits exceeds the sum of costs although on *EH* the marginal costs exceed the marginal benefits. On the other hand, at any point between *O* and *H* on *OGH* the reverse is true, *i.e.*, at all points between *O* and *H* on *OGH* the sum of costs exceeds the sum of benefits while on *GH* the marginal benefits exceed the marginal costs.

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63. Some people — *e.g.*, an Evel Knievel — would be willing to attempt to cross a river with a rocket-equipped motorcycle, while others would not, even though a potential gain of millions of dollars were involved. Another example of special concern for "catastrophic" loss is reflected in RESTATEMENT (SECOND) OF TORTS § 293(d), Comment d (1965). Some proposed strategies for making "rational" decisions where "risk" is involved are discussed in, *e.g.*, W. BAUMOL, ECONOMIC THEORY AND OPERATIONS ANALYSIS 576-82 (3d ed. 1972).

The difficulties involved in comparing diverse "goods" like leisure and life in terms of equivalent units are discussed in notes 67 & 68 and accompanying text *infra*.

64. *See, e.g.*, J. RAWLS, *supra* note 29, at §§ 27 & 30. Both of the conceptions in the text support intuitively offensive positions. For example:

> —If the former conception (total happiness) is chosen, a society of 1,000,000,000 persons with a total net benefit of 1,000,000,000 units per year (1 unit per person) should be preferable to a society with 1,000 persons and total net benefits of 500,000,000 units (500 units per person).
>
> —If the latter approach (average happiness) is chosen, then the manufacturer of a drug that killed large numbers of people would be allowed to argue that his action is "efficient" (because it increased *average* benefits per person) and therefore "reasonable" and "proper."

The manufacturer's argument would be difficult to support because the costs resulting from the death — *e.g.*, grief of persons who loved the deceased, financial loss to those dependent on the deceased, and general fear of those who might suffer a similar fate —

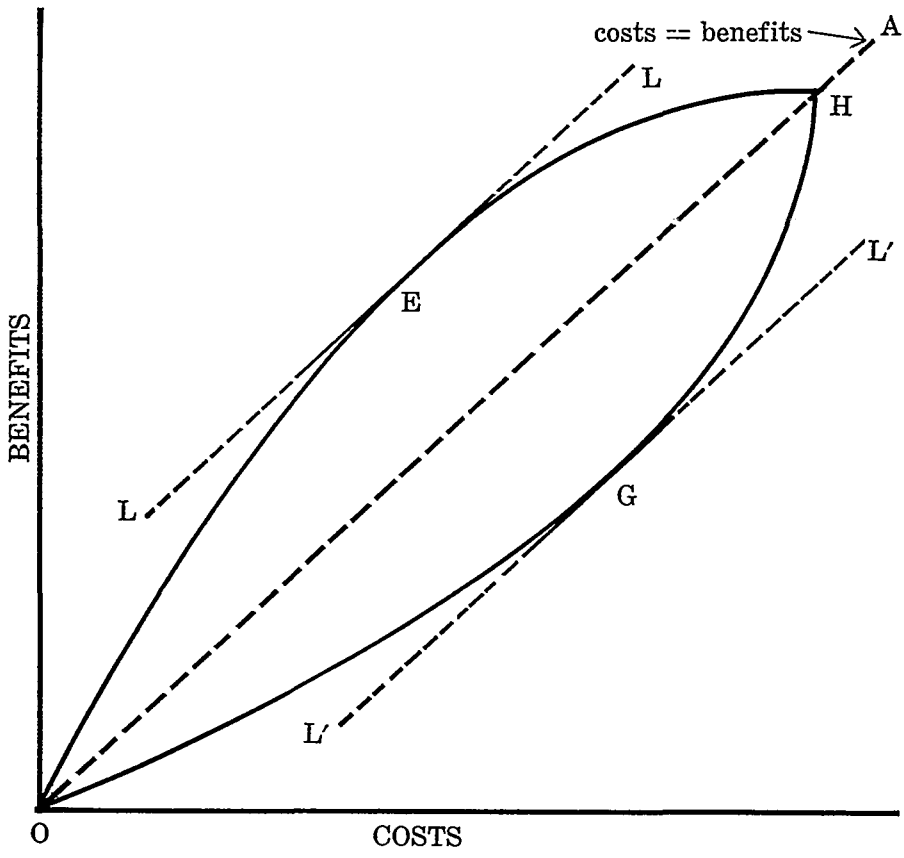

Figure 1 — Graph of Variations in Relationship of Costs to Benefits (The Line *LL* and the Line *L' L'* are parallel to *OA)*

A final ambiguity concerning efficiency proposals is that the core conception does not indicate whether one is maximizing the total amount of happiness in society or the average amount of happiness per person.[64]

The practical process of identifying and evaluating costs and benefits is also plagued by ambiguity. This uncertainty has several dimensions:

> (1) There are so many possible alternative products and so many potential costs and benefits associated with any product that it simply is not practical to attempt to weigh all these variables. But how does one determine which alternatives and

would probably have a large impact on the utilitarian calculus. Further, it would be intuitively offensive to many persons even to grant the manufacturer the *opportunity* to attempt to prove that society is "better" solely because the drug killed a member of society.

which of the potential costs and benefits will be considered?[65] For example, should aesthetic injury from nonbiodegradable containers count in determining UDPD?[66]

(2) How is the worth of the various costs and benefits determined?[67] For example, what is a (statistical) life worth?[68]

(3) How are the uncertainties of the "real world" handled?[69] For example, forecasting potential costs and benefits is such an imprecise undertaking that "good-faith," nonnegligent mis-

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65. *See, e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS 198-235 (1970). The issue in the text above exists where there is a statistical certainty that the product will be involved in some accidents and the plaintiff asserts that the cost-benefit examination of the product design should include possible reductions in the injury costs in such "inevitable" accidents. *Compare, e.g.*, Larsen v. General Motors Corp., 391 F.2d 495 (8th Cir. 1968) (cost included) *with, e.g.*, Evans v. General Motors Corp., 359 F.2d 822 (7th Cir. 1966), *cert. denied*, 385 U.S. 836 (cost not included); *see generally* APPENDIX 2. The practical problem of determining what costs and benefits count in *any* comparison overlaps somewhat with the conceptual issue, raised in note 61 and accompanying text *supra*, of whether a cost in one comparison will count in another comparison.

66. In another context, RESTATEMENT (SECOND) OF TORTS § 402A, Comment h at 352 (1965), provides that there is no apparent reason "for distinguishing between the product itself and the container in which it is supplied."

67. *See, e.g.*, N. BOWIE, *supra* note 35, at 16-19, 29-30, 40-46. One proponent of cost-benefit approaches to liability, Learned Hand, candidly admitted that the items to be compared could not be quantified:

> The degree of care demanded of a person by an occasion is the resultant of three factors: the likelihood that his conduct will injure others, taken with the seriousness of the injury if it happens, and balanced against the interest which he must sacrifice to avoid the risk. All these are practically not susceptible of any quantitative estimate, and the second two are generally not so, even theoretically. For this reason a solution always involves some preference, or choice between incommensurables . . . .

Conway v. O'Brien, 111 F.2d 611, 612 (2d Cir. 1940), *rev'd on other grounds*, 312 U.S. 492 (1941).

The process of identifying and measuring costs and benefits is complicated by two considerations. First, the "values" underlying this evaluative process change over time. *See, e.g.*, J. LUCAS, *supra* note 7, at § 39 at 170 (1966); *cf., e.g.*, VALUES AND THE FUTURE (K. Baier & N. Rescher eds. 1969). Thus, an act which is efficient in terms of its potential costs and benefits as measured at a given point in time might be inefficient when measured against the value scheme of another era. Second, the distinction between cost and benefit is not always clear because any such distinction rests on an underlying concept of "good," which presents the difficult questions of substantive justice. *See* notes 33-34 *supra*, note 36 and accompanying text *supra*, and notes 115-38 and accompanying text *infra*.

68. For a discussion of the value of a (statistical) life, see *e.g.*, C. FRIED, AN ANATOMY OF VALUES 207-36 (1970). For indications that the concept of a person or a life is also ambiguous, *cf., e.g.*, Roe v. Wade, 410 U.S. 113 (1973); N. ST. JOHN-STEVAS, LIFE, DEATH AND THE LAW (1961).

69. For a general discussion of the difficulties involved in applying cost-benefit analysis to the "real world," see, *e.g.*, S. SCHOEFFLER, THE FAILURE OF ECONOMICS: A DIAGNOSTIC STUDY 7-41 (1955).

takes will be made and nonefficient acts will occur.[70] Will these acts be measured in terms of forecasts or in terms of actual costs and benefits?[71]

(4) Which "real world" institution or "official" should make the assessments?[72] What procedures should the designated insti-

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70. *See, e.g.*, R. AYRES, TECHNOLOGICAL FORECASTING AND LONG-RANGE PLANNING (1969), J. MARTINO, TECHNOLOGICAL FORECASTING FOR DECISION MAKING (1972). The process becomes even more complicated if one includes the problem, discussed in note 67 *supra*, of forecasting changes in values.

71. The seller would be liable under traditional negligence principles if the foreseeable potential costs resulting from error outweighed the foreseeable potential costs of avoiding such error. It has been argued that such negligence calculation should be irrelevant in product liability cases because it is more "efficient" in terms of administrative costs to consider only the facts as known at the time of trial since an "enormous amount of the time of courts, investigations and lawyers can be expended in an effort to ascertain whether a . . . [product] involved a risk . . . that could have been known prior to experience with its use . . . ." Keeton, *Products Liability — Inadequacy of Information*, 48 TEX. L. REV. 398, 409 (1970); *see, e.g., Phillips v. Kimwood Mach. Co.*, 269 Ore. 485, 525 P.2d 1033 (1974). Although this argument has merit, *see* note 76 *infra*, the concern with administrative costs presents new questions:

(1) Why is a consideration of costs versus benefits based on the facts known at the time of trial worth the administrative cost? The benefits from preventing losses are not the answer because the losses involved in the trial, being unpredictable, should not/could not have been prevented while future losses, which are now foreseeable, could be prevented by liability for negligence. One might justify this approach on the ground that our present knowledge of foreseeable costs can be improved if we adopt a doctrine which gives the plaintiff an incentive to bring suit and thus improve our knowledge of past costs. *Cf., e.g.*, Calabresi, *Concerning Cause and the Law of Torts: An Essay for Harry Kalven, Jr.*, 43 U. CHI. L. REV. 69, 88 (1975). Other concerns might also justify the result but such concerns require either: (a) an expanded cost-benefit analysis like that in note 76 *infra;* or (b) a reliance on nonefficiency values, see notes 79-86 and accompanying text *infra.*

(2) Why would a determination of foreseeability ever be worth the cost? Keeton argues that the costs and benefits of the product should be evaluated on the basis of knowledge available at the time of trial, but that the adequacy of warnings should be tested against the reasonable foreseeability of their reaching the consumer rather than the actual receipt of the warning by the consumer:

> *Yet there are too many reasons, including misconduct of physicians and others, to subject makers of drugs to liability for harm resulting from a good drug just because the victim did not receive actual notice of the danger and could have arrived at a different decision.*

Keeton, *supra*, at 413 (emphasis in original). This concern for subjecting drug makers to liability where events are beyond their control is understandable. However, even though unforeseeable costs are also beyond the manufacturers' control, Keeton would subject them to liability if total costs (including unforeseeable costs) exceed total benefits.

(3) Would the test be symmetrical so that a "negligent" manufacturer is not liable if his product has such unexpected side benefits that at the time of trial the benefits exceed the costs?

72. Issues concerning the proper institution present not only the problem of choosing

tution use in making assessments?[73]

Even if the preceding ambiguities could be resolved, there still would remain the problem of using efficiency assessments to determine proper entitlement decisions. For example, a conclusion that the benefits of an act/product (or class of acts/products) exceed the costs does not determine:

(1) Who should be granted a particular entitlement as between the actor and those initially suffering the costs? For example, the benefits of manufacturing, selling, and driving automobiles

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between legislative, judicial, and administrative forums but also of choosing the appropriate governmental unit in our federal system: federal, state, or local government. *Cf., e.g.*, Heller, *The Importance of Normative Decisionmaking: The Limitations of Legal Economics as a Basis for a Liberal Jurisprudence - As Illustrated by the Regulation of Vacation Home Development*, 1976 WIS. L. REV. 385, 466-68.

Certain efficiency-oriented proposals have been made. *See, e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS, 146-47, 225-26, 251 (1970); Henderson, *Judicial Review of Manufacturers' Conscious Design Choices: The Limits of Adjudication*, 75 COLUM. L. REV. 1531 (1973); Henderson, *Design Defect Litigation Revisited*, 61 CORNELL L. REV. 541 (1976); *cf., e.g.*, Calabresi & Hirschoff, *supra* note 3, at 1055, 1060-61. Yet these proposals are subject to criticism. Calabresi's approach, for example, requires some criteria for defining classes of sellers/users/products/costs/benefits, *see* notes 59-61 and accompanying text *supra*, and he himself candidly acknowledges some of the difficulties with developing such criteria. *Cf.* G. CALABRESI, *supra*, at 145-47. Henderson's approach also exemplifies the crucial role that classification plays in efficiency analysis. He defines "design" as the class of acts involved in developing a "blueprint" of a completed product. This definition excludes from design the development and implementation of manufacturing and testing procedures for producing a product which conforms to the design "blueprint." Based on this classification of "design"/"non design" acts, Henderson argues that: (1) evaluating design is a complex undertaking involving many interrelated variables while determining nonconformity with design is a simple task; (2) courts are not capable of evaluating complex decisions based on interrelated variables; and (3) courts, therefore, should not review design decisions and should impose liability only for nonconformity. However, one could rationally classify not only "design" decisions but also decisions concerning manufacturing technique and the nature and amount of quality control as complex decisions involving interrelated variables. (How much expensive testing for nonconformity is "enough"?). This classification supports an argument that courts should never address any product-related injuries because even nonconformity results from a complex design decision. In short, Henderson's scheme is based on an implicit, underlying classification system of complex and non-complex acts which is not necessarily correct. *Cf.* Twerski, Weinstein, Donaher, & Piehler, *The Use and Abuse of Warnings in Products Liability - Design Defect Litigation Comes of Age*, 61 CORNELL L. REV. 495 (1976).

Even if an efficiency-oriented proposal could be developed for identifying the "proper" forum, there still would be problems where the "proper" forum is not available for some reason and where the forum suggested by efficiency conflicts with the forum suggested by such other values as "majoritarian democracy." *See* notes 79-86 and accompanying text *infra*.

73. If, for example, a court is designated as the "proper" forum, a number of issues arise concerning burdens of pleading and proof, rights to counsel and expert witnesses, etc.

may exceed the costs, but this does not dictate a conclusion that persons injured by automobiles are not entitled to be free from injury.[74]

(2) How should a system, after granting an entitlement to those initially suffering costs, respond to a crossing of the border defined by that entitlement? While cost-benefit analysis can indicate whether the act should be prohibited, there are still ambiguities. If the costs exceed the benefits, then efficiency dictates that the act should be prohibited, but it does not necessarily determine whether punishment, treatment, restraint, or self-help is the appropriate response.[75] If the benefits exceed costs, then the act should be allowed in an efficient society. However, requiring compensation and doing nothing are both equally plausible so long as one looks only to the costs and benefits of the act.[76] Moreover, efficiency analysis is often neutral as to the particular approach to compensation.[77]

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74. Granting the entitlement to those injured and requiring compensation by the actor(s) would arguably internalize the cost and thus not only provide incentives for safer automobiles and safer conduct but also result in a more "efficient" social allocation. *See, e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS 68-75, 136-38, 144-50 (1970); E. MISHAN, *supra* note 55, at 85-100. The point is not that liability should always be imposed on the actor(s) but rather that efficiency analysis cannot tell officials to whom entitlements should be granted because in theory, neither approach — granting the entitlement to the actor(s) or to those "injured" — is necessarily more likely to result in an efficient solution. *See, e.g.*, G. CALABRESI, *supra* at 135-37; Coase, *The Problem of Social Cost*, 3 J. OF L. AND ECON. 1 (1960).

One might go beyond the limits of theoretical models and devise a "practical" set of efficiency guidelines for determining who should bear the costs, *see, e.g.*, G. CALABRESI, *supra* at 136-97; *cf., e.g.*, R. POUND, SOCIAL CONTROL THROUGH LAW 109-12 (1942), but even with such guidelines efficiency analysis alone cannot determine the "proper" allocation. *See, e.g.*, G. CALABRESI, *supra*, at 90-94, 160. Thus, from both a practical and theoretical perspective, the cost-benefit model does not (always) provide solutions to the problems of granting entitlements. *See, e.g.*, G. CALABRESI, *supra*, at 135-97; R. POSNER,ECONOMIC ANALYSIS OF LAW 94 (1972). Given this limit on efficiency analysis, some alternative, non-efficiency framework is needed in (at least some) allocation decisions. The problems involved in developing this framework are similar to the problems involved in determining whether prohibition should involve compensation. *See* note 13 *supra*.

75. In theory, one could assess these alternatives in cost-benefit terms and select the alternative which is most efficient. In practice, however, this would be virtually impossible because of the various limits of any such cost-benefit analysis. *See* notes 59-74 *supra* and notes 76-86 and accompanying text *infra*.

76. If the cost-benefit analysis is expanded beyond the act(s) involved to include administrative costs and indirect costs, then the analysis would dictate the response as follows:

(1) If the costs of responding by compensation exceed the benefits of compensation, then there should be no response. *Cf., e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS 225-26 (1970).

(2) If the benefits of compensation exceed the costs, then there should be compensation.

(b) Justification. — These ambiguities might be resolved by formulating a detailed, explicit efficiency test of UDPD. However, such an approach raises problems of justification because one must support the selection of the chosen formula over some alternative, equally plausible interpretation of the inherently ambiguous directive: "Act so that happiness is maximized." "Maximizing happiness" could mean either:

> Formula 1: Maximize in the case of the use of this product (p_1) of the class of products (P) by user/consumer (u_1) of the class of users/consumers (U).
>
> or
>
> Formula 2: Maximize in all cases of the use of P by U.

Efficiency analysis alone cannot indicate which formulation to choose.[78] Consequently, one must go beyond benefit maximization to justify preferring Formula 1 to Formula 2.

Problems also arise in justifying the use of efficiency to determine the allocation and enforcement of rights when this determination offends other values such as equality or liberty.[79] Since UDPD decisions, like all entitlement decisions, involve a distribution of scarce goods,[80] it is not surprising that these decisions reflect concerns not only with efficiency[81] but also with equality.[82]

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77. *See, e.g.*, R. Posner, *Strict Liability: A Comment*, 2 J. LEGAL STUD. 205, 212, 220-21 (1973); *compare, e.g.*, United States v. Carroll Towing Co., 159 F.2d 169 (2d Cir. 1947) (compensation for border crossing required where potential costs exceed potential benefits) *with, e.g.*, Vincent v. Lake Erie Transp. Co., 109 Minn. 456, 124 N.W. 221 (1910) (compensation required where potential benefits exceed potential costs). *See* notes 19-22 and accompanying text *supra* and APPENDIX 1 for discussions of the variety of possible approaches to compensation.

78. *See* note 59 and accompanying text *supra*. Tests which include the costs of individualizing in Formula 1, *see* notes 71-72, 76 *supra*, are based on an implicit assumption that Formula 2 is the proper formulation. Richard Wasserstrom has proposed a two-step procedure which is designed to mitigate the problem somewhat:

> (1) Consult the existing utilitarian rule based on maximizing for all similar cases.
>
> (2) Consider whether the facts of the present case suggest a *new* utilitarian rule that will result in greater utility in future cases than the existing rule. If such a more efficient rule exists, adopt it.

R. WASSERSTROM, THE JUDICIAL DECISION 138-71 (1961). This procedure, however, clearly is based on an acceptance of Formula 2.

79. *See, e.g.*, N. BOWIE, *supra* note 35, at 20-24, 30-39, 47-49; Baker, *The Ideology of the Economic Analysis of Law*, 5 PHILOSOPHY AND PUB. AFF. 3 (1975); *cf., e.g.*, Buchanan, *In Defense of Caveat Emptor*, 38 U. CHI. L. REV. 64 (1970).

80. *See* notes 8 & 9 and accompanying text *supra*.

81. *See* note 89 *infra* and APPENDIX 2.

Yet values such as efficiency and equality can conflict.[83] Similarly, liberty and efficiency can conflict.[84] For example, should sellers and consumers be allowed to sell and use products which are unreasonably dangerous or should such products be prohibited? Efficiency analysis indicates that the products should be prohibited in all cases; a concern for liberty suggests that if these persons are always willing and able to compensate for crossings or if persons threatened by the products consent to crossings, then officials should never prohibit such products.[85] If

82. *See, e.g.,* Escola v. Coca Cola Bottling Co., 24 Cal.2d 453, 150 P.2d 436 (1944) ("The cost of an injury and the loss of time and health may be an overwhelming misfortune to the person injured, and a needless one, for the risk of injury can be insured by the manufacturer and distributed among the public as in cost of doing business." *Id.* at 462, 150 P.2d at 441 (Traynor, J., concurring)); Henningsen v. Bloomfield Motors, Inc., 32 N.J. 358, 161 A.2d 69 (1960) (Recovery based on implied warranty justified in part by assertion that "the burden of losses consequent upon use of *defective articles* is borne by those who are in a position to either control the danger or *make an equitable distribution of the losses when they do occur.*" *Id.* at 379, 161 A.2d at 81.) (emphasis added); RESTATEMENT (SECOND) OF TORTS § 402A, Comment c at 350 (1965) ("[P]ublic policy demands that the burden of accidental injuries caused by products intended for consumption be placed upon those who market them, and be treated as a cost of production against which liability insurance may be obtained; . . ."); G. CALABRESI, THE COSTS OF ACCIDENTS 39-67 (1970) (See notes 153, 160 *infra* for further discussion of this concept within Calabresi's model); Franklin, *Tort Liability for Hepatitis: An Analysis and A Proposal,* 24 STAN. L. REV. 439, 463-64 (1972).

83. *See, e.g.,* N. BOWIE, *supra* note 35 at 20-24; *but see* notes 87 & 88 and accompanying text *infra.* For discussion of conflict where product-caused injuries are involved, see notes 154 & 167 and accompanying text *infra.*

84. *Cf., e.g.,* N. BOWIE, *supra* note 35 at 23-24; *but see* notes 87-88 and accompanying text *infra.*

85. The issue of the propriety of prohibiting persons from voluntarily encountering "unreasonable" risks has been presented in the review of statutes which prohibit persons from riding motorcycles without helmets. *See, e.g.,* Simon v. Sargent, 346 F. Supp. 277 (D. Mass.), *aff'd mem.,* 409 U.S. 1020 (1972) (prohibition allowed since injuries indirectly affect other persons); Everhardt v. City of New Orleans, 208 So. 2d 423 (La. App. 1968) (prohibition not allowed); American Motorcycle Ass'n v. Davids, 158 N.W.2d 72 (Mich. App. 1968) (prohibition not allowed); People v. Carmichael, 58 Misc. 2d 584, 279 N.Y.S. 2d 272 (Ct. Spec. Sess. 1967) (prohibition not allowed); Robertson, *An Instance of Effective Legal Regulation: Motorcyclist Helmet and Daytime Headlamp Laws,* 10 LAW AND SOC'Y REV. 467 (1976) (empirical study indicating that "[m]otorcycle helmet use laws represent social policy that has been effective in achieving the purpose of reducing fatal injuries." *Id.* at 475). For more general discussions of the question of why officials should ever prohibit behavior rather than require compensation, see R. NOZICK, ANARCHY, STATE AND UTOPIA, 59-87 (1974) and Calabresi & Melamed, *supra* note 8, at 1124-27. Where consent is given to a border crossing, it would seem that liberty values are compromised if the officials either prohibit the crossing or require compensation because both prohibition and compensation are the equivalent of denying the right to consent to crossings. *See, e.g.,* J. MILL, ON LIBERTY; *cf., e.g.,* Calabresi & Melamed, *supra,* at 1111-15. For further authorities concerning consent, see note 11 *supra.*

efficiency should not always prevail in situations like these where values conflict, then some broader approach must be proposed for resolving the conflict in particular cases or classes of cases.[86]

Since concepts such as liberty and equality have at least as much potential ambiguity as efficiency,[87] it would be possible to

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Economic models of efficiency often assert that there is no conflict between efficiency and liberty because liberty is furthered by a cost-benefit perspective so long as free markets, based on the free choices of producers and consumers, dictate decisions. *See, e.g.*, N. BOWIE, *supra* note 35, at 38-39, 48-49, 68-70 (1971); Baker, *The Ideology of the Economic Analysis of Law*, 5 PHILOSOPHY & PUB. AFF. 3, 32-33 (1975). However, this assertion is subject to several objections:

(1) The conditions necessary for an ideal free market do not exist in the real world. *See, e.g.*, W. BAUMOL, ECONOMIC THEORY AND OPERATIONS ANALYSIS 392-95 (3d ed. 1972); N. BOWIE, *supra*, at 68-70; Bator, *The Anatomy of Market Failure*, 72 Q. J. ECON. 351 (1958).

(2) The limits imposed by the market on behavior are not necessarily less undesirable than limits imposed by officials. N. BOWIE, *supra*, at 48-49, 70-75. This can be a serious problem where an unequal distribution of income or talents results in wide variations in the "freedom" of individuals as consumers or producers in the free market, *see, e.g.*, W. BAUMOL, *supra*, at 389, or where deviations from the ideal market result in producers/sellers having considerable control over workers and consumers. *See, e.g.*, Baker, *supra*, at 36-41.

(3) Free markets require the prohibition of "intentional" border crossings without consent even where compensation is offered. *See, e.g.*, R. NOZICK, *supra*, at 63-71; Calabresi & Melamed, *supra*, at 1111-15. Yet the mass production and sale of products involves statistically certain border crossings to persons who may not have consented — *e.g.*, bystanders. See APPENDIX 2 ("Certain"/"intentional" crossings exist not only in Case 11, but also in Cases 01 and 10.) Prohibiting such production and sale would often be inefficient, *see* Calabresi & Melamed, *supra*, at 1111-15, yet allowing it would seem to infringe on the liberty of those who did not consent to the crossings. This infringement is reduced considerably if the amount of compensation could be set by the person whose border is crossed because he could not complain of being denied any potential benefits from bargaining. However, allowing these persons to determine unilaterally the value of their injury would present problems — for example, they would be tempted to overstate the value which could lead to an inefficient result. *Id.*

(4) Even if liberty is furthered by a free market, it is debatable whether a free market maximizes utility if there is gross disparity in the distribution of income. *See, e.g.*, Baker, *supra*, at 27-37. In this situation, efficiency (defined in terms of maximizing utility) is reduced for the sake of liberty.

86. The possibility of such conflict is usually noted in the formulation of cost-benefit tests, but the tests do not indicate any particular resolution of the problem. *See* note 89 *infra*, text accompanying notes 115-22 *infra*, and APPENDIX 2.

87. The ambiguity of equality is reflected in the discussion of the principle "treat like cases alike" in note 33 *supra*. For a more complete development of possible meanings of equality, see N. BOWIE, *supra* note 35, at 50-76. For a discussion of the argument that liberty, defined in economic terms, is consistent with efficiency see note 85 *supra*. Some possible meanings of both liberty and equality are discussed in J. RAWLS, *supra* note 29, at § 12.

minimize the conflict among values by adopting a particular definition. For example, if one defined "equality" in terms of equal opportunity (rather than equal distribution of goods) and defined "efficiency" in terms of a market where, *inter alia,* all sellers have an equal opportunity to produce and sell, then equality and efficiency could be consistent. However, this definitional solution to value conflict does not eliminate the problem of justification because one still must justify the selection of a particular formulation of equality and efficiency.[88]

3. Summary Evaluation of Existing Cost — Benefit Proposals for Identifying UDPD. — No single article could evaluate the various specific methods of clarifying and justifying "ought"-oriented, cost-benefit approaches to the general social tasks of granting and enforcing entitlements. It is sufficient for present purposes to emphasize that where such a model is proposed for the specific purpose of identifying UDPD, the need to clarify and justify the underlying cost-benefit model is often ignored.[89] Some

88. *See* discussion accompanying note 78 *supra.*

89. For examples of such proposals, see Keeton, *Product Liability and the Meaning of Defect,* 5 ST. MARY'S L. J. 30 (1973); Keeton, *Roger Traynor and the Law of Torts,* 44 S. CALIF. L. REV. 1045 (1971); Keeton, *Products Liability — Inadequacy of Information,* 48 TEX. L. REV. 398 (1970); Keeton, *Manufacturer's Liability: The Meaning of "Defect" in the Manufacture and Design of Products,* 20 SYRACUSE L. REV. 559 (1969); Keeton, *Products Liability — Liability without Fault and the Requirement of a Defect,* 41 TEX. L. REV. 855 (1963); Montgomery & Owen, *supra* note 46, at 803; Vetri, *Products Liability: The Developing Framework for Analysis,* 54 ORE. L. REV. 293, 302-04, 309-10 (1975); Wade, *On the Nature of Strict Tort Liability for Products,* 44 MISS. L.J. 825, 837 (1973); Wade, *Strict Tort Liability of Manufacturers,* 19 SW. L.J. 5 (1965); but *cf., e.g.,* Keeton, *Products Liability — Some Observations about Allocation of Risks,* 64 MICH. L. REV. 1329 (1966).

Two points should be made concerning these proposals. First, many of the articles are only partly concerned with developing "ought"-oriented purposes. Thus, a criticism in terms of the criteria for evaluating such proposals should not be interpreted as a criticism of the social contributions of these articles to such tasks as cataloguing and reconciling cases. *See* text at conclusion of paragraph following note 34 *supra.* Second, the articles do not completely ignore considerations raised by the criteria of justification and minimal ambiguity. For example, some of these proposals incorporate "tradition" as a justification for adopting a cost-benefit perspective and as a means of resolving ambiguity. *See, e.g.,* Montgomery & Owen, *supra,* at 812-14. Other justifications in addition to tradition are: (1) cost-benefit analysis "inheres in the phrase 'unreasonably dangerous,'" Montgomery & Owen, *supra,* at 814; (2) the (particular) proposed analysis does not stray "too far from accepted doctrine," *id.* at 817; and (3) the (particular) proposal is administratively efficient and practical, *id.; see* note 71 *supra.* Alternative approaches to ambiguity are: (1) an implicit approach, adopted by nearly all writers, that resolves ambiguity by the sheer number of fact situations discussed; (2) the presentation of an extremely detailed proposal, *e.g.,* Vetri, *supra* at 305-14; and (3) the replacement of ambiguity as a central concern by the need for "flexibility," *e.g.,* Montgomery & Owen, *supra,* at 838-39; *see* note 35 *supra; cf.* notes 117-21 *infra.*

implications of this omission are discussed below in Part III.

B. The "Reasonable Consumer Expectation" Model

1. The Basic or Core Model. — Although there are various specific formulations of expectation models,[90] all such proposals are based on the following principle:

> Given two courses of action, *A* and *B*, if *B* conforms to what the members of society would expect of a "good" society and *A* does not, then officials ought to "choose" *B*.[91]

Despite these occasional references to the issues presented by the need to provide justification and minimize ambiguity, the articles indicate a pattern of inadequate treatment of these issues. For example, the use of tradition to justify and clarify cost-benefit proposals involves three difficulties. First, the use of an "is" — tradition, convention, custom or "accepted doctrine" — to justify an "ought" — cost-benefit — is subject to the criticism that existing law cannot justify itself. *Cf., e.g.*, E. BARKER, GREEK POLITICAL THEORY 74-89, 184-87 (1918); S. PUFENDORF, DE JURE NATURAE ET GENTIUM Ch. III §§ 7-9 (1672) *quoted in*, G. CHRISTIE, JURISPRUDENCE 161, 171-73 (1973); Atkinson & Montefiore, *"Ought" and "Is"*, 33 PHILOSOPHY 29 (1958). *See generally*, L. STRAUSS, NATURAL RIGHT AND HISTORY (1953); SOPHOCLES, ANTIGONE (c. 441 B.C.). Second, this approach assumes that the cost-benefit tradition in tort law is unambiguous, which it is not. *See, e.g.*, notes 60-61, 63, 65, 67, 71-73, 77 and accompanying text *supra*. Finally, although a tradition of dealing with problems in a particular way is entitled to considerable deference, problems arise insofar as conflicting traditions are involved — for example, consumer expectation traditions, *see* notes 90-94 and accompanying text *infra*, and libertarian and egalitarian traditions, *see* notes 79-86 and accompanying text *supra*. It is not enough to point to tradition as a justification: one must also indicate why one tradition is superior to other, conflicting traditions.

90. For example, such proposals have taken the form of:

(1) Empirically-oriented models designed to describe or predict behavior on the basis of expectations. *See, e.g.*, G. HOMANS, SOCIAL BEHAVIOR: ITS ELEMENTARY FORMS 72-78, 232-47, 265-77 (rev. ed. 1974).

(2) "Ought"-oriented models which are designed:

(a) to illustrate how officials will/should decide in an "efficient" society. *See, e.g.*, H. HART, *supra* note 8, at 88-89, 191-93, 195-97; Hubbard, *"One Man's Theory . . .": A Metatheoretical Analysis of H.L.A. Hart's* MODEL OF LAW, 36 MD. L. REV. 39 (1976); or

(b) to assert/illustrate that the realization of the (reasonable) expectations/desires/purposes of citizens ought to dictate ethical decisions because such expectations/desires/purposes are inherently good or deserving of respect. *See, e.g.*, L. FULLER, *supra* note 29; J. HALL, LIVING LAW OF DEMOCRATIC SOCIETY (1949); R. POUND, SOCIAL CONTROL THROUGH LAW 114 (1942); Fletcher, *Fairness and Utility in Tort Theory*, 85 HARV. L. REV. 537 (1972); *cf.* note 85 *supra*. This type of expectation model applies with particular force where officials are themselves responsible for expectations. *See, e.g.*, J. RAWLS, *supra* note 29, at §§ 17, 38, 48.

"Ought"-oriented expectation models for deciding specific legal issues, *see, e.g.*, note 53 *supra* and note 94 *infra*, are often based on a combination of both "ought"-oriented perspectives. *See, e.g.*, Shapo, *supra* note 46, at 1378-88.

91. For a discussion of the complexity involved in "choosing" a particular course of

The application of this core principle requires that the members of society (or some "significant" portion of them, *e.g.*, consumers)[92] share common expectations. Where no such agreement exists, it is necessary to distinguish somehow between expectations which are "proper," "fair," "legitimate," "representative," "normal," or "reasonable,"[93] and those which are not. In such a case the basic model becomes:

> Given two courses of action, *A* and *B*, if *B* conforms to what is "reasonably" expected of a "good" society by the members of a particular society (or some "significant" portion of those members) and *A* does not, then officials ought to "choose" *B*.

This core concept concerning proper official decisions supports the following test for UDPD:[94]

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conduct, see notes 8-29 and accompanying text *supra*. This principle is not trivial because, even though all members of society (including officials) might agree concerning *A* and *B*, a "bad" official might choose *A* because of a reason such as self-interest or ignorance.

92. Identifying "significant" segments of society will present the "justification" problems involved in any classification scheme. *See* note 60 and accompanying text *supra*.

93. Although each of these terms overlaps to a considerable extent, the distinct connotations of each would have to be elaborated in any complete consumer expectation model.

94. Two broad, overlapping doctrinal categories are based on this core model because consumer expectations can be divided into two general groups. First, there are those expectations that result or could result from some communication between the seller and the consumer. Second, there are expectations that arise from other sources. The first set of expectations encompasses both an affirmative aspect (material misrepresentation) and a negative aspect (inadequate warning). Affirmative misrepresentations are addressed by strict liability doctrines, *e.g.*, RESTATEMENT (SECOND) OF TORTS §402B (1965), and by more traditional doctrines such as fraud. *See, e.g.*, Shapo, *supra* note 46 at 1155-1251. The adequacy of a warning is determined in large part by what is generally known and recognized by consumers, *see, e.g.*, RESTATEMENT (SECOND) OF TORTS §402A, Comment j (1965), and is, therefore, measured against the second set of expectations — those arising from sources other than the seller.

Marshall Shapo has offered an expectation model for products liability decisions which centers initially and principally on seller-induced consumer expectations. Shapo, *supra*, at 1370 (1974); see APPENDIX 2 for further development of this approach. In Shapo's model, representations of a seller include not only statements made directly about a product but also statements and conduct that take advantage of consumer expectations that are generally known to exist; the act of marketing becomes itself a kind of representation in this context. As a result of this concern with existing consumer expectations, some of the issues raised in notes 96-102 and accompanying text *infra* are relevant to Shapo's model, and he discusses these issues in developing his concept of consumer expectations. *Id.* at 1124-29, 1289-92, 1302-17, 1339-41, 1362-69. This discussion is informative, but it does not contain solutions. For example, Shapo dismisses the question of whether one considers a particular consumer or a class of consumers, *see* text accompanying note 96 *infra*, simply by noting that a court should consider the "intelligence and knowledge of consumers *generally* and of the disappointed consumer in *particular*." *Id.* at 1370 (emphasis added).

> Given two courses of action, A (selling a product in X condition) and B (not selling the product or selling the product in $\sim X$ condition), if B conforms to or exceeds reasonable consumer safety expectations and A does not conform, then officials should decide that the product has an UDPD if course A is followed.

2. Evaluation in Terms of Formal Criteria. — The "reasonable consumer expectation" model presents a number of problems when considered in terms of the proposed formal criteria.[95] First, any test for identifying such expectations involves potential ambiguities similar to those involved in the cost-benefit analysis — for example:

This non-answer to the issue of individualization *versus* categorization reflects Shapo's lack of a substantive theory of the just distribution and enforcement of entitlements. *See id.* at 1205, 1383-86. Although Shapo has a short discussion of substantive principles, *id.* at 1384-86, his approach is basically a "process" model in which social facts, *id.* at 1274, and citizen perceptions of justice, *see id.* at 1291-92, 1384-86, combine with the intuitive perceptions of judges, *cf. id.* at 1306, to determine the appropriate response in a given case. *See id.* at 1225, 1324, 1370-71. Although Shapo argues that his proposed scheme "ought" to be adopted, *see id.* at 1371-88, he does not develop a model of a "just court," *see* note 122 *infra* and accompanying text, and thus does not address the issues presented by the limits inherent in any process model of what doctrine "ought" to be. *See* note 34 *supra; cf.* text accompanying note 38 *supra.*

Reed Dickerson has offered a multi-faceted expectation model which defines a "defective" product as one which meets the following criteria:

> (1) The product carries a significant physical risk to a definable class of consumer and the risk is ascertainable at least by the time of trial.
>
> (2) The risk is one that the typical member of the class does not anticipate and guard against.
>
> (3) The risk threatens established consumer expectations with respect to a contemplated use and manner of use of the product and a contemplated minimum level of performance.
>
> (4) The seller has reason to know of the contemplated use and, possibly where injurious side effects are involved, has reasonable access to knowledge of the particular risk involved.
>
> (5) The seller knowingly participates in creating the contemplated use, or in otherwise generating the relevant consumer expectations, in the way attributed to him by the consumer.

Dickerson, *Products Liability: How Good Does a Product Have To Be?*, 42 IND. L.J. 301, 331 (1967). Dickerson's discussion of this model is helpful, *id.* at 305-18, but like Shapo's model it basically relies on a process to determine "reasonable" expectations. For example, he notes that a "judgment as to the reasonable expectations for a particular product . . . is a familiar exercise in judicial empathy." *Id.* at 307.

95. A complete analysis of the "reasonable consumer expection" model would be very similar to the analysis of the cost-benefit model because the underlying problems are so similar. *See* notes 96-102 *infra.* Therefore, the textual discussion of the expectation model is brief to minimize repetitive analysis.

(1) Is the reasonable consumer/user measured against the particular consumer (u_1), the class of all consumers (U), or some particular subclass of consumers ($u_1, u_2, \ldots, u_n$)?[96]
(2) How is the "reasonableness" of expectations determined?[97]
(3) Who should determine reasonableness?[98]

Second, any particular unambiguous proposal must be justified as superior not only to (a) other unambiguous consumer expectation proposals,[99] but also to (b) nonconsumer approaches for allocating and enforcing entitlements — for example, "reasonable seller expectation" models or cost-benefit models.[100] The expectation model would appear to fare better in terms of the justification criterion because it is broad enough to include conflicting values if we assume that a "reasonable consumer" would consider efficiency, equality, liberty, etc. Thus, it would seem to be superior to the efficiency model.[101] However, this "superiority" is purchased at the cost of extreme ambiguity unless precise guidance is given on how a "reasonable consumer" would evaluate these conflicting values.[102]

III. EVALUATION OF THE FRAMEWORK AND THE ANALYSIS

A. Utility of the Framework and the Analysis

This article has developed a jurisprudential framework for viewing doctrine within a social context and for developing and

96. *See* notes 59-61 and accompanying text *supra* for similar ambiguities in the cost-benefit model. This problem inherent in expectation analysis arises not only in strict products liability, *see, e.g.*, Shapo, *supra* note 46, at 1304-11, but also in negligence analysis. *See* notes 51-52 and accompanying text *supra*; *cf., e.g.*, W. PROSSER, *supra* note 1, at 158-66.

97. *See* note 67 and accompanying text *supra* for similar ambiguities in cost-benefit model. The problems with consumer expectation also parallel problems with defining "reasonable man" in negligence analysis. *See* notes 51-52 and accompanying text *supra; cf., e.g.*, W. PROSSER, *supra* note 1, at §§ 32-33, 35-36.

98. For discussion of similar problems with cost-benefit analysis see note 72 and accompanying text *supra.* Parallel difficulties also arise in using concept of "reasonable man" in negligence analysis. *See* notes 51-52 and accompanying text *supra; cf., e.g.*, W. PROSSER, *supra* note 1, at § 37.

99. For example, the question posed in the text accompanying note 89 *supra* could have a number of different answers that are consistent with "consumer expectation" analysis. *See* discussion of similar problems in the cost-benefit model at text accompanying note 78 *supra.*

100. *Cf., e.g.*, Dickerson, *Products Liability: How Good Does a Product Have to Be?*, 42 IND. L.J. 301, 318-31 (1967).

101. *See* notes 79-86 and accompanying text *supra.*

102. *See* notes 115-20, 163-74 and accompanying text *infra.*

evaluating "ought"-oriented doctrinal proposals in terms of two criteria: minimal ambiguity and justification. These criteria were illustrated by critically analyzing cost-benefit and consumer expectation approaches to the definition of an unreasonably dangerous product defect (UDPD). The framework and analysis are intended to provide useful insights into the practical process of deciding products liability cases and into the basic theoretical structure both of UDPD doctrines and of related tort concepts of "reasonableness."

1. Practical Utility. — The proposed framework views doctrine as the patterns emerging from specific decisions of officials.[103] From this perspective it follows that an "ought"-oriented doctrine consists of patterns which ought to exist.[104] Thus, a model which purports to illustrate how UDPD decisions ought to be decided must be able to direct, assist, or guide a judge (who is surely an "official")[105] in resolving such issues as:

(1) Whether a jury should consider the issue of UDPD?
(2) Whether particular evidence is relevant to UDPD?
(3) Whether particular jury instructions for determining UDPD are appropriate?

The preceding analysis of two possible tests of UDPD indicates that, as presently formulated, they are ambiguous directives and that they are not justified except in terms of the subjective preference of their proponents.[106] Consequently, the judge is left largely to decide for himself how issues "ought" to be decided.[107] This article has not proposed a "better test," and some limited use of these tests may not be unreasonable:[108] for example, where the

103. *See* text following note 26 *supra.*

104. *See* notes 29-34 and accompanying text *supra.*

105. Even though "official" is a somewhat vague term, it would seem that a judge is clearly an "official." *See, e.g.,* Rumble, *Law as the Effective Decisions of Officials: A "New Look" at Legal Realism,* 20 J. PUB. L. 215, 224-26 (1971).

106. *See* note 89 and accompanying text *supra.*

107. If sufficiently developed, these frameworks do provide a judge with some guidance. *See* note 120 and accompanying text *infra.*

108. It is often asserted that a "weak" theory is superior to no theory. *See, e.g.,* J. LUCAS, *supra* note 7, at §6. A similar assertion — *i.e.,* that a "bad" product can be superior to no product — is contained in RESTATEMENT (SECOND) OF TORTS § 402A, Comment k (1965):

> There are some products which, in the present state of human knowledge, are quite incapable of being made safe for their intended and ordinary use. These are especially common in the field of drugs. An outstanding example is the vaccine for the Pasteur treatment of rabies, which not uncommonly leads

efficient result coincides with the consumer expectation result, and where the decision is clearly consistent with other values. (Of course, in such clear cases it is likely that the decision could be made without any "test.") Nevertheless, extreme care is required in applying these doctrinal tests. This article not only warns of the need for such care[109] but also indicates the particular limits of the tests.

2. *Theoretical Utility.* — Placing normative doctrine within a broader social framework and evaluating doctrinal proposals in terms of the formal criteria indicates:

> (1) That any efficiency or consumer expectation model will encounter certain identifiable difficulties of ambiguity and justification, and
> (2) That these difficulties underlie not only issues concerning UDPD but also many of the classic recurring tort issues, which are necessarily intractable because they result from the inherent limits of the basic models.[110]

Thus, the analysis indicates a number of fundamental "stress points" at the core of tort doctrine.

An appreciation of these points can play a vital role in evaluating and developing alternative approaches to doctrine. As indicated above, there are three basic nonfault alternatives to cost-benefit or consumer expectation models for product-caused injuries:

> (1) Some synthesis of the two *Restatement* perspectives on UDPD, *e.g.*, cost-benefit analysis from the perspective of the expectations of the reasonable consumer.[111]
> (2) The acceptance of UDPD as relevant and the adoption of a different perspective from that suggested by the *Restatement.*[112]

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to very serious and damaging consequences when it is injected. Since the disease itself invariably leads to a dreadful death, both the marketing and the use of the vaccine are fully justified, notwithstanding the unavoidable high degree of risk which they involve. Such a product, properly prepared, and accompanied by proper directions and warning, is not defective, nor is it *unreasonably* dangerous.

109. Note the importance of warnings in determining liability for unavoidably unsafe products pursuant to the portion of Comment k to § 402A of the RESTATEMENT (SECOND) OF TORTS (1965) *quoted* in note 108 *supra.*

110. *See, e.g.,* notes 61, 65-66, 71, 74, 96-98 and accompanying text *supra; cf., e.g.,* notes 49-52 and accompanying text *supra.*

111. *See* note 46 and accompanying text *supra.*

112. *See* note 47 and accompanying text *supra.*

(3) The adoption of a framework which rejects both the *Restatement* and UDPD as determinative.[113]

A brief evaluation of these three alternatives in terms of the formal criteria of ambiguity and justification indicates stress points similar to those discovered in the cost-benefit and consumer expectation models.

The first alternative is arguably an improvement because a synthesis would more accurately reflect the multidimensional aspects of the real world than would either an efficiency model or a consumer expectation model.[114] However, this combination of the two models presents the same problems of ambiguity and justification as the underlying models.

Proposals which adopt the second or third alternative utilize a particular structure for deciding products liability cases:[115]

(1) A set (G) of policies or goals for law, accident law, tort law, or product-liability law is identified. It is conceded that the particular goals (g_1, g_2, . . . , g_n) within set G may conflict and/or that G may conflict with other policies or goals, but the valuation of the relevant goals is omitted because it would involve substantive determinations of justice.
(2) A doctrine is proposed to indicate UDPD and/or to identify the proper loss-bearer. This doctrine often consists of a set (D) of interrelated, potentially conflicting subdoctrines (d_1, d_2, . . . , d_n).
(3) A decisionmaker is selected and told to follow D (or d_1) except where it does not maximize for G (or some other unspecified goal or policy), in which case either d_2 or d_3 or . . . or d_n (or some alternative, unspecified doctrine) should be used.

Underlying such approaches is a cost-benefit perspective on the "reasonableness"/"rationality"/"goodness" of a decision:

Given two possible decisions, A and B, if B would result in a greater realization of the goals or policies than A, then officials ought to adopt B as the decision.

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113. *See* note 48 and accompanying text *supra*.

114. *Cf.* note 58 *supra*.

115. See APPENDIX 2 for two specific examples of this formal structure. The "balancing" approach implicit in the structure in the text, particularly Step 3, is also typical of proposals in other areas of the law. *See, e.g.*, F. NORTHRUP, THE COMPLEXITY OF LEGAL AND ETHICAL EXPERIENCE 45-48 (1959). For discussions of this model in a judicial context, see, *e.g.*, R. POUND, SOCIAL CONTROL THROUGH LAW 63-102 (1942); R. UNGER, *supra* note 34, at 194-210; PROCESSES OF CONSTITUTIONAL DECISIONMAKING 987-1004 (P. Brest, ed. 1975).

Thus, the second and third alternatives present the same problems as the cost-benefit test of UDPD even though the efficiency analysis is at another level.[116]

Because not only cost-benefit and expectation models but also the three basic alternative models are subject to criticism in terms of the two formal criteria of ambiguity and justification, a question arises: Why are such models so common? There are several possible explanations. First, the social world is complex and often (appears) contradictory. Entitlement doctrine, therefore, merely reflects its social setting when it recognizes the need to reconcile potentially conflicting policies.[117] Second, more precise formulation of doctrine would result in "too much" rigidity. Given the limits of language and the difficulties involved in determining existing conditions and predicting future conditions, flexibility is necessary and desirable.[118] Third, this flexibility is not the same as the lack of a rule because the two primary purposes of rules, the guidance of citizens and officials and the limiting of governmental abuse,[119] are accomplished to the extent that each of the five models identifies particular criteria to be considered and thus facilitates:

(a) the process of making decisions;
(b) the process of justifying decisions;
(c) the process of reviewing decisions;
(d) the process of criticizing decisions; and
(e) the process of predicting decisions.

Thus, such frameworks play a central role in assuring formal or

116. For an explicit conversion of a negligence-oriented cost-benefit framework to a framework for comparison of goals or values, see Learned Hand's decision in United States v. Dennis, 183 F.2d 201 (2d Cir. 1950), *aff'd*, 341 U.S. 494 (1951):

> In each [first amendment] case they must ask whether the gravity of the "evil," discounted by its improbability, justifies such invasion of free speech as is necessary to avoid the danger.

Id. at 212. For discussion of Learned Hand's cost-benefit formula for negligence, see note 67 *supra*.

117. *See, e.g.*, Calabresi, *Concerning Cause and the Law of Torts: An Essay for Harry Kalven, Jr.*, 43 U. CHI. L. REV. 69 (1975); *cf., e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS 24-31 (1970); Calabresi & Hirschoff, *supra* note 3, at 1055; Shapo, *supra* note 46, at 1371-80. The trust of this position is exemplified in the following statement by Plato concerning the limits of rules: "A perfect simple principle can never be applied to a state of things which is the reverse of simple." PLATO, STATESMAN 294C (Jowett trans.). A similar position is reflected in note 35 *supra*.

118. *See* notes 35 & 89 *supra*.

119. *See, e.g.*, L. FULLER, THE MORALITY OF LAW (rev. ed. 1969).

procedural justice.[120] Finally, substantive justice involves underlying notions and issues that are metaphysical, mysterious, elusive, and/or subjective, and/or involves decisions that are more properly left to "social/political" decisionmakers.[121]

Although these arguments have clear merit, two points should be emphasized. First, none of the proposals offered for dealing with product-related injuries develops a model of "just institutions" for applying the formal doctrine.[122] All five alternatives are designed at least in part for courts,[123] yet no model of a "just court" is ever developed even though such an institution plays a crucial role in implementing these normative decisional frameworks. There may be good reasons for this omission. One could argue, for example, that the present process of judicial decisionmaking should be accepted without question in order to simplify analysis, that no theoretical model of a just court is likely to be adopted, and/or that the development of such a model presents difficult value choices that are best left to "social/political" decisionmakers. The point is not that an otherwise useful doctrinal model is "bad" or useless because it lacks a model of just institutions; rather, it is imperative that the limitations of such a doctrinal model be recognized when it is applied in actual decisions.[124] Second, even if the concept of just institu-

120. *Cf., e.g.*, K. DAVIS, DISCRETIONARY JUSTICE (1969); J. LUCAS,THE PRINCIPLES OF POLITICS §§ 20, 24-25, 27-28, 30, 54-55 (1966). Procedural justice is discussed in note 33 *supra*. These frameworks facilitate justification as defined in note 36 *supra* because they constitute a rough list of "relevant universal characteristics."

121. *See, e.g.*, G. CALABRESI, THE COSTS OF ACCIDENTS 25, 292 (1970); see discussion by Shapo, *supra* note 46, at note 94 *supra*. The problems presented by various notions of justice are discussed in notes 29-34, 36-39 and accompanying text *supra*.

This explanation raises a number of fundamental issues concerning the nature of "values." The position in the text reflects the "modern" view that "values" are not absolute but rather are a function of the particular individual involved and his culture (or subculture). *See, e.g.*, L. STRAUSS, NATURAL RIGHT AND HISTORY (1953); R. UNGER, KNOWLEDGE AND POLITICS 67-102 (1975); R. UNGER, *supra* note 34, at 76-86; Heller, *The Importance of Normative Decision-Making: The Limitations of Legal Economics as a Basis for a Liberal Jurisprudence — As Illustrated by the Regulation of Vacation Home Development*, 1976 WIS. L. REV. 385, 468-85. In contrast to the position stated in these texts is the "classical" perspective that absolute values do exist and can be discovered by man. *See, e.g.*, L. STRAUSS, *supra*, at 81-164; R. UNGER, KNOWLEDGE AND POLITICS *supra*; R. UNGER, LAW IN MODERN SOCIETY, *supra*.

122. For an example of such a model, *see* J. RAWLS, *supra* note 29, at §§ 31-59. For a discussion of the problems involved in developing such a framework, see notes 33-34 *supra* and authorities cited in note 138 *infra*.

123. *See* notes 105-09 and accompanying text *supra*.

124. *Id.*

tions were developed, the crucial role of substantive justice would remain: entitlement decisions are made and these decisions involve the evaluation of conflicting goals, the determination of what constitutes "too much" rigidity, and the exercise of discretion that can be abused and that renders decisions unpredictable. Thus, despite their substantial strengths and despite their justifiable omission of certain concerns, the existing models are nonetheless incomplete as guides for "proper" decisionmaking in that they lack models of just institutions and of substantive justice.

B. The Limits of the Framework and Analysis

A framework has been sketched which can be used to view doctrine from a social perspective and to analyze proposals concerning "proper" doctrine in terms of two formal criteria. Specific doctrinal solutions to the problems raised by the framework were neither promised nor offered.[125] Similarly, substantive criteria for evaluating "ought"-oriented doctrine were not developed.[126] The framework is thus subject to the same criticisms that were addressed to proposals concerning the "proper" approach to (product-caused) injuries.[127] It is incomplete because it omits substantive proposals for resolving the underlying issues of substantive justice.

IV. CONCLUSION: BEYOND FORMAL, ANALYTICAL FRAMEWORKS TO METAPHYSICS AND SUBSTANTIVE JUSTICE

Having concluded that formal frameworks have particular strengths and weaknesses, it is necessary to consider two basic questions concerning the weaknesses: Can we go beyond constructing formal doctrinal frameworks for analyzing (product) injury cases and beyond constructing formal jurisprudential frameworks for analyzing doctrinal frameworks? If so, how do we proceed? Answering such ultimate questions is difficult, if not impossible, at present. Nevertheless, several points seem highly relevant.

First, entitlement doctrines (whether viewed in terms of behavior, rules, or proper decisions),[128] including UDPD proposals,

125. *See* note 6 and accompanying text *supra.*
126. *See* notes 38-39 and accompanying text *supra.*
127. *See* text following note 122 *supra.*
128. *See* notes 27-34 and accompanying text *supra.*

inevitably involve decisions concerning the "worthiness" of persons and conduct. Such decisions raise questions of substantive justice which involve metaphysical issues concerning life, purpose, and the relationships of people (past, present, and future)[129] to one another.[130] The official resolution of these various related issues necessarily results in the imposition of a particular view of what society "ought" to do. At this point, value relativism ends.

Second, since there are no fully adequate answers to these metaphysical questions,[131] there can likewise be no completely adequate answer to the question of what doctrine ought to be.

Third, despite these uncertainties, entitlement (and, therefore, substantive justice and metaphysical) decisions must be made.[132]

Fourth, since UDPD decisions must be made and since these decisions involve substantive justice/metaphysical issues that lack (clear) answers, a decisionmaker has two alternatives — to ignore these difficult questions or to address them explicitly. It is my assertion that the latter alternative should be adopted because UDPD decisions should be "ought"-oriented and should be made on the basis of an explicit consideration of the basic underlying issues.[133] Doctrinal frameworks, whether couched in terms of cost-benefit, reasonable consumer expectations, or some alternative perspective, can assist and guide this consideration but they cannot supplant it.

Fifth, to the extent that "officials" try to conform definitions of UDPD to norms of proper decisionmaking, actual decisions can be used as a rough reflection of what UDPD "ought" to be, particularly where these "officials" attempt to justify their decision both in terms of formal justice and in terms of substantive justice or metaphysics.

Finally, although the exact content of metaphysical considerations will vary, such substantive models are likely to resemble, at least in form, "religious" proposals such as:[134]

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129. *See* text accompanying note 66 *supra*; *see* note 67 *supra*.

130. *See* notes 14-15, 29-34, 67-69, 99-102 and accompanying text *supra* and text following note 122 *supra*. *See generally, e.g.*, R. UNGER, LAW IN MODERN SOCIETY (1976).

131. *Cf.* notes 38-39 and accompanying text *supra*.

132. *See* note 29 *supra*.

133. *See* note 120 and accompanying text *supra*.

134. *Cf., e.g.*, P. TILLICH, LOVE, POWER, AND JUSTICE (1954); R. UNGER, KNOWLEDGE AND POLITICS 290-96 (1975).

> In as much as ye had done it unto one of the least of these my brethren, ye have done it unto me.[135] (*I.e.*, decide cases/make rules in such a manner that the least fortunate members of society are benefited.)[136]

Such metaphysical proposals will sound unfamiliar (and perhaps inappropriate)[137] to some. Moreover, like all "ought"-oriented

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135. *Matthew* 25:40 (King James). There are interesting parallels in the perspective on justice and law between this article and the New Testament. For example, Jesus asserts that the "law" (sacred rules in the Old Testament) is based on a particular conception of "social justice":

> But when the Pharisees heard that he had silenced the Sad'ducees, they came together. And one of them, a lawyer, asked him a question, to test him. "Teacher, which is the great commandment in the law?" And he said to him, "You shall love the Lord your God with all your heart, and with all your soul, and with all your mind. This is the great and first commandment. And a second is like it, *You shall love your neighbor as yourself. On these two commandments depend all the law and the prophets.*"

Matthew 22:34-40 (Revised Standard 1962) (emphasis added). Since the Second Commandment presents a formal model of justice, Jesus is forced to offer parables that provide substantive content. *See, e.g., Luke* 10:25-37 (concept of "neighbor" in Second Commandment illustrated through the use of the parable of "the good Samaritan"); *Matthew* 25:40 (quoted in text above).

136. *Cf.* J. RAWLS, *supra* note 29. The general concept underlying the Rawlsian approach to justice is that:

> All social primary goods—liberty and opportunity, income and wealth, and the bases of self-respect—are to be distributed equally unless an unequal distribution of any or all of these goods is to the advantage of the least favored.

Id. at 303. This approach has been suggested as relevant not only to entitlement analysis generally, *see, e.g.*, Michelman, *supra* note 8, at 1165 (1967), but also to products liability assessments. *E.g.*, Shapo, *supra* note 46, at 1383-86. The parallels of Rawls' system to Christian views has been noted by others. *E.g.*, Merritt, *Justice of Fairness: A Commentary on Rawls' New Theory of Justice*, 26 VAND. L. REV. 665, 686 (1973).

137. Such statements would appear to offend both political and religious concerns for separating "officials" from religion. *See, e.g.*, U.S. CONST. amend. I; J. YODER, THE POLITICS OF JESUS (1972). The following quotation from Martin Luther's SECULAR AUTHORITY: TO WHAT EXTENT IT SHOULD BE OBEYED, PE, III, 237, reflects one view concerning the inappropriateness of using the Bible as a basis for political decisions:

> A man who would venture to govern an entire community, or the world, with the Gospel would be like a shepherd who should place in one fold wolves, lions, eagles, and sheep together and say, "Help yourselves, and be good and peaceful among yourselves; the fold is open, there is plenty of food; have no fear of dogs or clubs." The sheep, forsooth, would keep the peace and would allow themselves to be fed and governed in peace, but they would not live long.

Quoted in Forrester, *Martin Luther and John Calvin*, in HISTORY OF POLITICAL PHILOSOPHY at 301 (L. Strauss & J. Cropsey eds.) (2d ed. 1963).

Since not all people hold absolute views on the appropriateness of this separation, *see, e.g.*, YODER, *supra*, at 15-23, appraisals of "appropriateness" may vary according to the type of "official" involved. For example, the same person might approve such statements when made by democratically elected legislators but not when made by non-elected judges. Such a response requires some "justification" for distinguishing between judges and legislators since both make distributive decisions in our society. *See* note 72 *supra*.

doctrines, they should be subjected to critical analysis,[138] and it would not be surprising if such analysis indicated that these particular proposals are fatally insufficient as guides for officials such as American judges. But present proposals, such as tests for identifying UDPD, concerning the proper allocation and enforcement of entitlements will not be complete until the importance and role of the ultimate questions are recognized and explicitly addressed. Thus, in order to escape formal frameworks which involve the balancing of conflicting values, it is necessary to return not merely to considerations of natural law but ultimately to questions of divine law. Until this inquiry is undertaken we shall suffer the centuries-old curse of the Prophet Amos:

> Behold, the days come, saith the Lord God, that I will send a famine in the land, not a famine of bread, nor a thirst for water, but of hearing the words of the Lord.[139]

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138. For criticism of the Rawlsian framework (discussed in note 136, *supra)* see, *e.g.*, B. BARRY, THE LIBERAL THEORY OF JUSTICE (1973); READING RAWLS (N. Daniels ed. 1974). A discussion of some of the problems of utilizing the Rawlsian framework as a guide to decisionmaking by American judges is contained in Michelman, *In Pursuit of Constitutional Welfare Rights: One View of Rawls' Theory of Justice,* 121 U. PA. L. REV. 962 (1973). For a summary of the limits of the New Testament framework, discussed in note 135 *supra,* as the basis for "ought-oriented" doctrine, see, *e.g.*, J. YODER, THE POLITICS OF JESUS 15-23, 244-50 (1972).

139. *Amos* 8:11, (King James). A more recent version of this predicament in modern times is found in the last sentence of R. UNGER, KNOWLEDGE AND POLITICS 295 (1975): "But our days pass, and still we do not know you fully. Why then do you remain silent? Speak, God."A similar concern with the importance of a concept of God in providing a foundation for "scientific" analysis is developed in C. CHURCHMAN, THE DESIGN OF INQUIRING SYSTEMS: BASIC CONCEPTS OF SYSTEMS AND ORGANIZATION (1971).

APPENDIX 1

APPROACHES TO COMPENSATION PRIOR TO BORDER CROSSING

An appreciation of the various methods of compensating prior to border crossings requires the development of subcategories of border crossings:

		WHICH PERSON IN POPULATION	
		certain	uncertain
BOUNDARY CROSSING	certain	11	10
	uncertain	01	00_1 00_2

FOUR CASES OF BOUNDARY CROSSINGS

The following examples illustrate each of the four cases:[140]

Case *11*: *A* shoots *B* with a gun known to be loaded and functional; *X* sells *Y* a product that is defective and that will injure *Y* because of such defect.

Case *01*: *A* places one bullet in a gun, spins the chamber, aims the gun at *B*'s head, and pulls the trigger; *X* sells *Y* a product from a group of which a given percentage of a given number of the products contain a defect which causes injury.

Case *10*: *A* fires a gun known to be loaded and functional into a crowd at random; *X* sells each member of a group of persons a product and at least one of the products sold to the group contains a defect which will cause injury.

140. *See* note 141, *infra.*

Case *00*: *A* places one bullet in a gun, spins the chamber, aims the gun at a crowd, and pulls the trigger; *X* sells each member of group of persons a product and there is a chance that at least one of the products sold to the group contains a defect which will cause injury.

Certainty in the table refers to statistical "certainty" within some small parameters of accuracy. For example, if, given such parameters, there is a statistical likelihood that one out of 1,000 borders will be crossed and a sufficient number of borders are potentially involved, then there is a statistical certainty that a border will be crossed.[141] Since uncertainty in this case exists only as to which person's border will be crossed, case *10* is involved. If there were only ten people involved, then case *00* would be involved because there would be no statistical certainty that a border would be crossed. However, since case *00* would also be involved if no probability statements could be made, case *00* has two subsets:

00_1 : Situations where probability of person/crossing both less than 1.

00_2 : Situations where no probability statements can be made.

Precrossing compensation is possible in 00_1 but not in 00_2 because the latter lacks the requisite probability statements.

141. The exact number depends upon whether the events are independent, and if so, the parameters of accuracy that are used. If the 1,000 events are not independent, then the likelihood of the event increases with each nonoccurence. For example, in a gun with 1000 chambers and one bullet randomly placed in one chamber, the probability of the gun firing (the event) the first time the trigger is pulled is 1/1000. If it does not fire the first time, the probability is 1/999, and so on until, if it has not fired in the first 999 trials, then the probability of the last firing is 1/1. However, if the events are independent, then the probability of each trial considered separately is the same. If the gun chamber in the above example is spun randomly after each pulling of the trigger, the probability (p) of the gun firing each time is 1/1000. Yet even with independent events, the probability of a firing in a sufficient number of trigger pullings considered as a whole approaches certainty. More specifically, if the independent trigger-pullings are considered together, the probability of a firing within any number of firings (n) is $[1 - (1-p)^n] = [1 - (.999)^n]$. *See, e.g.*, S. LIPSCHUTZ, FINITE MATHEMATICS 217 (1966); E. PARZEN, MODERN PROBABILITY THEORY AND ITS APPLICATIONS 179 (1960). Consequently, the probability of the gun firing the first time is .001, the second time is .00199, and thousandth time is .63. The probability is .95 on the 2994th, .99 on the 4602nd, and .999 on the 6904th. (The author would like to express his appreciation to David King of the University of South Carolina Department of Sociology for his assistance in writing this footnote.)

Based on this subcategorization, the approach to precrossing compensation would vary according to which of the four cases is involved:

11 Compensation given to person whose border is to be crossed.[142]

01 Compensation is paid as a lump sum to the person threatened but the amount is discounted by the probability of its occurrence.[143]

10 Compensation given on a pro rata basis to each person in the class of people threatened,[144] or set aside in a pool prior to crossings to pay for actual crossings.[145]

00_1 Compensation is given on a discounted, pro rata basis to each person in the class of people threatened,[146] or set aside in a pool to pay them for crossings.[147]

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142. An example of this proposition is liquidated damages paid for a continuing nuisance. *See, e.g.*, Boomer v. Atlantic Cement Co., 26 N.Y.2d 219, 257 N.E.2d 870, 309 N.Y.S.2d 312 (1970).

143. For example, the amount of an eminent domain award often reflects the diminution in value resulting from the risk imposed by the condemnor's use of the property. *See, e.g.*, Heddin v. Delhi Gas Pipeline Co., 522 S.W.2d 886 (Tex. 1975) (condemnation award should reflect risk that pipeline carrying deadly gas would leak). Similarly, the reduced price of "risky" products vis-à-vis "safe" products often reflects such compensation. There is no insurance aspect to case *01* because there is no spreading and no full payment if the injury actually occurs. Thus, preborder-crossing compensation in *01* differs from the insurance schemes suggested for cases *10* and *00*, in notes 145 & 147 *infra*. *See* note 144 *infra*.

144. Examples here would include situations like those in note 143 *supra*. However, with case *10* a *class* of condemnees or purchasers is involved, and there is a statistical certainty that at least one member of the class will be injured.

145. Such an approach is used in schemes requiring third-party insurance for those engaged in the activity. Where numerous actors — for example, automobile drivers — or numerous products — for example, automobiles — are involved, the class of actors/products can be treated as a unit. It is often statistically certain that some members of this unit will be involved in border crossings even though no particular member of the class is certain to be so involved.

146. An example here would parallel the situation in note 144 *supra*, but with case 00_1 there is no statistical *certainty* of a crossing.

147. An example of such an approach is compulsory third-party insurance for those engaged in the activity.

APPENDIX 2

FORMAL STRUCTURE OF PROPOSALS FOR DECIDING PRODUCT LIABILITY CASES

This appendix supports and illustrates the textual assertion that proposals for allocating liability for product-"caused" injuries follow a particular pattern by briefly examining two such proposals.[148] The tests are presented in symbolic form and it is assumed that the reader has some prior knowledge of the particular proposals.

It should be kept in mind that the analysis does not (and is not intended to) show that these models are "bad."[149] Instead, it merely indicates the existence and nature of the limits of these models so that they can be used with a greater appreciation of their limits.

A. The Calabresi/Hirschoff Test

Building on the framework for accident analysis developed by Calabresi in the *Costs of Accidents*,[150] Guido Calabresi and Jon Hirschoff propose the following efficiency test for (strict) liability:[151]

(1) *Goals* (*G*)

(i) $G = \{$ justice (g_1), cost reduction $(g_2)\}$ [152]

(ii) $g_2 = \{$primary cost reduction (g_{2_1}), secondary cost reduction (g_{2_2}), tertiary cost reduction $(g_{2_3})\}$.[153]

(iii) interdependence and potential conflict ($\updownarrow$ = interdependent and potentially conflicting) [154]

1) $g_1 \updownarrow g_2$

2) $g_{2_1} \updownarrow g_{2_2} \updownarrow g_{2_3}$

148. *See* text accompanying note 115 *supra*.

149. *See* notes 117-23 and accompanying text *supra*.

150. G. CALABRESI, THE COSTS OF ACCIDENTS (1970) [hereinafter COSTS].

151. Calabresi & Hirschoff, *Toward a Test for Strict Liability in Torts*, 81 YALE L.J. 1055 (1972) [hereinafter *Strict Liability*].

152. COSTS at 24-31.

153. In *Strict Liability* g_{2_2} is referred to as a distributional consideration (*id.* at 1077-78) rather than as the reduction of secondary costs as in COSTS at 27-28, 39-67.

154. COSTS at 29.

(2) *Doctrine (D)*

(i) $D = \{d_1, d_2, d_3\}$

(ii) 1) d_1 = maximize g_{2_1} (and g_{2_2})[155] by placing liability on person best able to accomplish g_{2_1}.

2) d_2 = maximize g_{2_2}.

3) d_3 = maximize g_1.[156]

(iii) $d_1 \uparrow\downarrow d_2 \uparrow\downarrow d$.[157]

(3) *Instructions to Court*

(i) use d_1[158]

(ii) exceptions to use of d_1:

1) use d_2 if

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155. *Strict Liability* at 1060-61. The explicit assertion that g_{2_1}(reduction of primary costs) and the implicit assertion that g_{2_3}(reduction of tertiary costs) is always maximized by this approach reflect a number of underlying factual assumptions:

(1) either that the private party (or class of parties) subjected to liability can usually (or always) make the evaluation more cheaply than a court or that a significant amount of such nonjudicial evaluation would occur anyway — *i.e.*,

$$\text{private } g_{2_3} < \text{judicial } g_{2_3}$$

OR

$$\text{private } g_{2_3} < (\text{judicial } g_{2_3} + \text{private } g_{2_3} \text{ occurring anyway})$$

(2) that the cost of such nonjudicial evaluation is (generally) less than the resulting savings in primary costs (g_{2_1}) — *i.e.*,

$$g_{2_1} > \text{private } g_{2_3}$$

(3) that the primary cost reduction (g_{2_1}) resulting from the nonjudicial evaluation is such that:

(a) it usually (or always) exceeds such savings by judicial evaluation, *see, e.g.*, Calabresi, *Optimal Deterrence and Accidents*, 84 YALE L.J. 656, 669-70 (1975) — *i.e.*,

$$\text{private } g_{2_1} > \text{judicial } g_{2_1}$$

AND/OR

(b) the ratio of primary cost reduction (g_{2_1}) resulting from nonjudicial evaluation to the tertiary costs of such evaluation (g_{2_3}) always (or usually) exceeds the corresponding ratio of cost reduction resulting from judicial evaluation to judicial evaluation costs — *i.e.*,

$$\text{private } (g_{2_1} : g_{2_3}) > \text{judicial}(g_{2_1} : g_{2_3}).$$

See note 62 and accompanying text *supra*. The first two assumptions are questionable since the Calabresi/Hirschoff approach requires that the court determine not only who can most cheaply assess the costs and benefits but also who can best implement actions which reduce primary costs. *Strict Liability* at 1060, n. 19. *See* COSTS at 135. Moreover, the choice of the particular doctrine (d_1, d_2 or d_3) covered involves considerable tertiary costs. *See* notes 159-61 and accompanying text *infra*.

156. COSTS at 25-26. *See also id.* at 31-33.

157. This follows from $g_1 \uparrow\downarrow g_2$, $g_{2_1} \uparrow\downarrow g_{2_2}$.

158. *Strict Liability* at 1060-61.

i) plaintiff and defendant are equal in respect to maximizing g_{2_1} (and g_{2_3});[159] or
ii) $g_{2_1} < g_{2_2}$.[160]
2) use d_3 if $g_2 < g_1$.[161]

The crucial omissions from this model occur at two points. First, in the instructions to the court there is no guidance on the comparative evaluation of g_{2_1} versus g_{2_2}, and g_1 versus g_2. Second, the person made liable under d_1 or d_2 is given no guidance on how as assess g_{2_1}. For example, if the manufacturer of a product is held liable under d_1, he will be faced with the ambiguities in the efficiency model discussed in the text;[162] yet, because no resolution of these problems is presented, his decision may not be "efficient."

B. The Shapo Model

Marshall Shapo presents a consumer expectation model for determining liability:[163]

(1) *Goals (G).*
1 (i) $G = \{g_1, g_2, g_3, g_4, g_5, g_6, g_7, g_8\}$[164]

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159. *Id.* at 1083-84.

160. COSTS at 39-67. *See Strict Liability* at 1076-84. COSTS and *Strict Liability* vary here somewhat because COSTS leaves the identity of the decisionmaker — *e.g.*, court, legislature, or administrative agency — open while *Strict Liability* is addressed to a particular institution — courts. *Strict Liability*, therefore, involves questions concerning the "proper" and actual decision processes of courts. Although the consideration of these issues is not developed in great detail, *Strict Liability* appears to conclude: (1) that, whatever one's view of the proper role of courts, distributional considerations *are* involved; (2) that the adoption of d_2 depends in part on one's view of the extent to which these considerations are involved; and (3) that the cases suggest that courts in fact follow a pattern like that in the text — *i.e.*, follow d_2 if either exception exists.

161. COSTS at 25-26.

162. *See* text accompanying notes 58-77 *supra*.

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

164. *See id.* at 1371-88. The subscripted numbers parallel the numbers used by Shapo in his eight subject headings:
(1) Incentive for the Production of Useful Goods,
(2) Accident Prevention,
(3) Loss Distribution,
(4) Division of Lawmaking Functions,
(5) Economic Stability,
(6) Controlling the Abuse of Power,
(7) Justice, and
(8) Respect for Law.

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(ii) $g_1 \uparrow\downarrow g_2 \uparrow\downarrow \ldots g_8$ [165]

(2) *Doctrine (D).*

(i) $D = \{d_1, d_2, \ldots, d_{13}\}$ [166]

(ii) $d_1 \uparrow\downarrow d_2 \uparrow\downarrow \ldots \uparrow\downarrow d_{13}$ [167]

(iii) $d_1 = \{d_{1_1}, d_{1_2}\}, d_3 = \{d_{3_1}, d_{3_2}\}, d_5 = \{d_{5_1}, d_{5_2}\}, d_6 = \{d_{6_1}, d_{6_2}\}, d_{12} = \{d_{12_1}, d_{12_2}\}, d_{13} = \{d_{13_1}, d_{13_2}\}$ [168]

The elements of G seem to overlap in many instances. For example, abuse of power (g_6) appears to be defined, at least in part, by reference to "proper" use of power, and "proper use" is defined by reference to other goals — *e.g.*, g_1 and g_7.

165. *See id.* The potential for conflict clearly exists, for example, between g_2 (accident prevention) and g_7 (justice/fairness). To the extent that goals overlap, *see* note 164 *supra*, conflict is reduced.

166. The reference is to the 13 factors listed in *Shapo* at 1370-71 and the subscripted numbers correspond to his numbers:

> Considerations relevant to decision making on the basis of this model would include:
>
> 1. The nature of the product as a vehicle for creation of persuasive advertising images, and the relationship of this factor to the ability of sellers to generate product representations in mass media;
>
> 2. The specificity of representations and other communications related to the product;
>
> 3. The intelligence and knowledge of consumers generally and of the disappointed consumer in particular;
>
> 4. The use of sales appeals based on specific consumer characteristics;
>
> 5. The consumer's actions during his encounter with the product, evaluated in the context of his general knowledge and intelligence and of his actual knowledge about the product or that which reasonably could be ascribed to him;
>
> 6. The implications of the proposed decision for public health and safety generally, and especially for social programs that provide coverage for accidental injury and personal disability;
>
> 7. The incentives that the proposed decision would provide to make the product safer;
>
> 8. The cost to the producer and other sellers of acquiring the relevant information about the crucial product characteristic and the cost of supplying it to persons in the position of the disappointed party;
>
> 9. The availability of the relevant information about the crucial product characteristic to persons in the position of the disappointed party and the cost to them of acquiring it;
>
> 10. The effects of the proposed decision on the availability of data that bear on consumer choice of goods and services;
>
> 11. Generally, the likely effects on prices and quantities of goods sold;
>
> 12. The costs and benefits attendant to determination of the legal issues involved, either by private litigation or by collective social judgment;
>
> 13. The effects of the proposed decision on wealth distribution, both between sellers and consumers and among sellers.

167. This interrelation and potential conflict exist because emphasizing one factor — *e.g.*, g_2 — can often result in a de-emphasis of another — *e.g.*, g_{13}.

168. *Shapo* at 1370-71. The subscripted numbers (1, 3, 5, 6, 12, 13) parallel the

(iv) $d_{1_1} \uparrow\downarrow d_{1_2}, d_{3_1} \uparrow\downarrow d_{3_2}, d_{5_1} \uparrow\downarrow d_{5_2}, d_{6_1} \uparrow\downarrow d_{6_2}, d_{12_1} \uparrow\downarrow d_{12_2}, d_{13_1} \uparrow\downarrow d_{13_2}$ [169]

(3) *Instructions.* Consider D and determine liability.[170]

It can be argued that D maximizes G better than any alternative doctrine[171] and that better decisions are likely where relevant factors are considered pursuant to D.[172] However, given the potential conflict within D and G, this argument relies upon judicial discretion, applied in case-by-case manner, to produce "proper" entitlement decisions.[173] Moreover, because of the conflicts within D and within G, Shapo's approach provides limited guidance in the exercise of this discretion.[174]

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numbers which Shapo uses to identify the "considerations relevant to decision making." *Id.* at 1370. Those considerations are quoted in note 167 *supra.*

169. An example of such internal conflict in d_3 is discussed in note 94 *supra.*

170. *Shapo* at 1370-71.

171. *Id.* at 1371-88.

172. *See* note 120 and accompanying text *supra.*

173. *See* note 94 *supra.*

174. *See* text following note 122 *supra.*