ARTICLES

THE DOMAIN OF TORTS

*Alex Stein**

This Article advances a novel positive theory of tort law. The Article's core insight is that the benefit *from the harm-causing activity determines the form and substance of tort liability. This finding is surprising and innovative, since tort scholars universally believe that the doctrines determining individuals' liability for accidents—negligence, causation, and damage—are driven by harms, not benefits. Specifically, the Article shows that our tort system operates in two modes—private and public—rather than one, as conventional accounts erroneously suggest. The mode and the rules allocating liability for accidents are determined by the type of benefit sought by the alleged tortfeasor. If the benefit is purely private, the tortfeasor will be liable for the harm whenever she exposes the victim to a nonreciprocal risk, no matter how significant that private benefit is relative to the harm. By excluding cost-benefit analysis and favoring reciprocity and equality principles, the system discourages the production of private benefits even when they are economically more valuable than the victim's safety. When the benefit accompanying the harm-causing activity is public, however, tort law adopts a strictly utilitarian approach and focuses on minimizing the sum of costs of accidents and costs of accident prevention. Liability thus is imposed based on the famous Learned Hand formula (and similar formulations): No liability will be imposed if the benefit from the activity is greater than the expected harm and precautions are too costly.*

This insight has far-reaching implications. Scholars interpret the tort system's goal as promoting fairness and corrective justice or, alternatively, economic efficiency, but not both. The Article demonstrates

* Professor of Law, Brooklyn Law School. Visiting Professor of Law, Harvard Law School (Fall 2016). I thank Julian Arato, Shyam Balganesh, Eyal Benvenisti, Mitch Berman, Anita Bernstein, Rick Bierschbach, Guido Calabresi, Richard Cleary, Shahar Dillbary, Heather Elliott, Eric Feldman, Jill Fisch, Dov Fox, Cynthia Godsoe, John Goldberg, Patrick Goold, Zohar Goshen, Susan Hamill, Susan Herman, Paul Horowitz, Morton Horwitz, Ted Janger, Louis Kaplow, Leo Katz, Adam Kolber, Gideon Parchomovsky, Stephen Perry, Alex Raskolnikov, Chris Robertson, David Rosenberg, Kate Shaw, David Skeel, Henry Smith, Reilly Steel, Adam Steinman, Aaron Twerski, Fred Vars, Polk Wagner, and participants at workshops and seminars at Brooklyn Law School, Harvard Law School, University of Alabama Law School, and University of Pennsylvania Law School, for excellent comments and suggestions. I am also grateful to Brooklyn Law School for generously supporting this work through the Dean's Summer Research Stipend.

that this dichotomous view is fundamentally mistaken. The case law reveals that our tort system promotes fairness and corrective justice only when it operates in the private mode, but when the system switches to the public mode, it balances victims' safety against the production of public benefits.

INTRODUCTION

[T]he general rules . . . that I must so use my real estate as not to injure my neighbor[] are much modified by the exigencies of the social state. We must have factories, machinery, dams, canals and railroads. They are demanded by the manifold wants of mankind, and lay at the basis of all our civilization. If I have any of these upon my lands, and they are not a nuisance and are not so managed as to become such, I am not responsible for any damage they accidentally and unavoidably do my neighbor. He receives his compensation for such damage by the general

> *good, in which he shares, and the right which he has to place the same things upon his lands.*[1]
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> *[F]or more than 150 years courts have recognized that a defendant breaches no duty of care merely by operating socially beneficial machinery in a manner that is regular and necessary, even if . . . some injury or damage ensues.*[2]

This Article unfolds a novel descriptive account of the goals, scope, structure, and conceptual foundations of our system of torts. To demarcate the core area governed by this system, the Article develops a distinction between three basic types of human interactions: (1) mutually wanted, (2) coercive, and (3) mutually unwanted. Our tort system primarily regulates accidents as mutually unwanted interactions that result in harm to one of the parties. Mutually wanted and coercive interactions are governed, respectively, by contract law and criminal law.[3] They give rise to tort liability only in special cases that occupy the interface between torts, contracts, and crimes. These special cases have a common characteristic: Their transfer into the domain of torts correlates with the public interest in regulating the underlying interaction.[4] For mutually wanted interactions, conceptualized as contracts, an increase in the public interest triggers the imposition of tort liability whenever the interaction causes damage to one of the parties.[5] For coercive interactions identified as crimes, a decline in the public interest prompts policymakers to substitute harsh criminal penalties for the compensatory remedy of the law of torts.[6]

The Article's distinction between these three basic types of human interactions does more than map out the interplay between torts, contracts, and crimes. It also plays a critical role in understanding the tort system's internal mechanisms that allocate individuals' responsibility for accidental harm.

Accidents, identified here as mutually unwanted interactions, have a unique risk-benefit structure that separates them from coercive and mutually wanted interactions. Mutually wanted and coercive interactions

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1. Losee v. Buchanan, 51 N.Y. 476, 484–85 (1873) (Earl, C.J.).

2. Parsons v. Crown Disposal Co., 936 P.2d 70, 72 (Cal. 1997).

3. See Alan Schwartz & Robert E. Scott, Contract Theory and the Limits of Contract Law, 113 Yale L.J. 541, 544 (2003) (formulating contract law's goal as helping "contracting parties to maximize the joint gains . . . from transactions"); Alex Stein, Corrupt Intentions: Bribery, Unlawful Gratuity, and Honest-Services Fraud, 75 Law & Contemp. Probs. 61, 61 (2012) [hereinafter Stein, Corrupt Intentions] (rationalizing criminal law as a system that prohibits and punishes actions that apply force or fraud against nonconsenting victims).

4. See infra section V.B.2 (showing whether certain interaction is subject to regulation depends on the level of public interest).

5. See infra notes 475–479 and accompanying text (examining how tort liability interplays with contract law).

6. See infra notes 472–474 and accompanying text.

have one thing in common: They embody the full amount of the parties' costs and benefits (perverse and legitimate). Mutually unwanted interactions, on the other hand, reflect only the actors' costs, but not the benefits. The reason is this: *Mutually unwanted interactions never take place as standalones.* Rather, they are by-products of other uncoordinated activities that promote the actors' and society's benefits while creating an unwanted risk of accidental harm. The socially optimal volume of accidents—unlike that of coercive interactions identified as crimes—therefore cannot be zero. Nor can it be one hundred percent, as is the case with mutually wanted interactions identified as contracts. Banning every accident-prone activity would suppress the benefits that those activities generate. Conversely, allowing actors to carry out any accident-prone activity and get off scot-free would create more harm than good because then self-seeking actors would indiscriminately put other people in harm's way.[7] The tort system consequently must develop and implement socially beneficial trade-offs between different benefits and risks of accident. As the rest of the Article demonstrates, the system implements those trade-offs by formulating multiple rules that determine legal consequences for actors' unwanted interactions.

These rules form the central core of our system of torts. They determine the actor's fault, predominantly conceptualized as negligence, and consequent responsibility for the accident.[8] They also provide criteria for identifying the victim's damage and for determining the causal nexus between the negligence and the harm.[9] Courts and scholars have formed no consensus as to what those rules say and purport to achieve. Instead, they have developed different and potentially conflicting interpretations of "negligence," "damage," and "causation" that coalesce around two big ideas about our tort system's goals.[10]

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7. See Henry Hansmann & Reinier Kraakman, Toward Unlimited Shareholder Liability for Corporate Torts, 100 Yale L.J. 1879, 1883 (1991) (explaining limitations on liability for tort damages encourage actors and firms to externalize risk of harm).

8. See W. Page Keeton et al., Prosser and Keeton on the Law of Torts § 4, at 23 (5th ed. 1984) (underscoring the central role fault plays in the American tort system); Robert L. Rabin, Perspectives on Tort Law 1 (4th ed. 1995) (same); see also Stephen R. Perry, The Impossibility of General Strict Liability, 1 Canadian J.L. & Juris. 147, 147–48, 161–68 (1988) (showing fault-free liability for damages is unworkable).

9. Keeton et al., supra note 8, § 1, at 4.

10. See Scott Hershovitz, Harry Potter and the Trouble with Tort Theory, 63 Stan. L. Rev. 67, 67 (2010) (describing leading tort theories as creating a fairness–efficiency divide); Richard A. Posner, The Concept of Corrective Justice in Recent Theories of Tort Law, 10 J. Legal Stud. 187, 189–91 (1981) [hereinafter Posner, Concept of Corrective Justice] (juxtaposing deterrence against corrective justice explanations of our tort system); Gary T. Schwartz, Mixed Theories of Tort Law: Affirming Both Deterrence and Corrective Justice, 75 Tex. L. Rev. 1801, 1801 (1997) (noting some scholars perceive the tort system as geared toward optimal deterrence while others interpret it as geared toward corrective justice); Ernest J. Weinrib, Deterrence and Corrective Justice, 50 UCLA L. Rev. 621, 623–25 (2002) [hereinafter Weinrib, Deterrence] (discussing the fairness–efficiency divide).

One of those ideas holds that the tort system promotes fairness and corrective justice.[11] To attain this moral goal, the system sets up a bilateral framework of safety-related rights and duties. This framework grants safety rights to potential victims of accidents and imposes correlative duties to take precautions upon actors whose conduct might accidentally harm other people.[12] By setting up this framework, the system creates an equilibrium of equality and reciprocity between actors and their prospective victims. An actor has a duty to respect this equilibrium whenever she acts in a way that puts another person in harm's way or undertakes, expressly or implicitly, to protect another person against harm.[13] An actor disrupts the equilibrium and consequently acts "negligently" when she imposes a disproportionate and hence nonreciprocal risk of harm on another person.[14] The risk created by the actor is considered nonreciprocal—and therefore wrongful—when it is manifestly more severe than the ordinary and commonly expected risks of harm to which people expose one another in their daily affairs.[15] When a nonreciprocal and wrongful risk, for which the actor is responsible, results in an accident that causes the victim physical injury, property damage, or other recognized harm, the actor becomes obligated to compensate the victim for her damage.[16] The compensation amount that the actor would have to pay the victim must provide the victim with an adequate monetary substitute for her deprivation.[17] By compensating the victim, the wrongdoer is deemed to have righted the wrong.[18]

Another school of thought views the tort system from a completely different angle, according to which the system is designed to minimize the total sum of the costs of accidents and the costs associated with accident prevention, private and social.[19] To accomplish this economic

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11. Major works that promote and articulate this idea include: Jules L. Coleman, Risks and Wrongs 209 (1992) [hereinafter Coleman, Risks and Wrongs]; Ernest J. Weinrib, Corrective Justice 9 (2012) [hereinafter Weinrib, Corrective Justice]; George P. Fletcher, Fairness and Utility in Tort Theory, 85 Harv. L. Rev. 537, 538–39 (1972); John C.P. Goldberg & Benjamin C. Zipursky, Torts as Wrongs, 88 Tex. L. Rev. 917, 918–19 (2010); Heidi M. Hurd, The Deontology of Negligence, 76 B.U. L. Rev. 249, 250–51 (1996); Gregory C. Keating, Reasonableness and Rationality in Negligence Theory, 48 Stan. L. Rev. 311, 312–13 (1996); Stephen R. Perry, The Moral Foundations of Tort Law, 77 Iowa L. Rev. 449, 449–50 (1992); Richard W. Wright, Right, Justice, and Tort Law, *in* Philosophical Foundations of Tort Law 159, 182 (David G. Owen ed., 1995).

12. See Weinrib, Corrective Justice, supra note 11, at 44–45 (explicating the right–duty–remedy mechanism of corrective justice).

13. Keeton et al., supra note 8, § 31, at 169, § 56, at 375, 378–82.

14. See Fletcher, supra note 11, at 540–44.

15. See id.

16. See id.

17. See id. at 550–51.

18. See id. at 551.

19. Major works affiliated with this school of thought include: Guido Calabresi, The Costs of Accidents: A Legal and Economic Analysis 26, 30 (1970) [hereinafter Calabresi,

goal, the system requires actors whose conduct creates a risk of harm to another person to take every precaution that costs less than the expected harm it prevents.[20]

Correspondingly, the system defines faulty conduct or "negligence" as the actor's failure to reduce the expected harm to the victim—measured by the cost of the harm multiplied by the harm's probability—by taking precautions that are cheaper than the expected harm.[21] To incentivize actors to take the requisite precautions and avoid chilling socially beneficial conduct, the system applies special rules of causation and damage. These rules align actors' expected compensation payouts with the socially desirable amount. When the expected payout discourages actors from carrying out a socially beneficial activity, the rules reduce the payout and sometimes grant actors absolute immunity against liability in tort.[22] Conversely, when the tort system anticipates underenforcement of the requisite safety standard on account of scarce resources (or for any other reason), it lowers the causation requirements for plaintiffs and makes negligent actors pay more than the damage they cause.[23]

For the vast majority of tort scholars and practitioners, the fairness–efficiency divide is the most important unresolved issue in tort theory.[24] Both sides to this debate view the two interpretations of our tort system as fundamentally incompatible with each other.[25] Against this understanding, this Article argues that the incompatibility view is accurate only as a characterization of unrealistically one-sided *normative* theories that use fairness or, alternatively, efficiency as the sole criterion for allocating risks of accident. As a descriptive matter, the incompatibility view misses

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Costs of Accidents]; William M. Landes & Richard A. Posner, The Economic Structure of Tort Law 4–9 (1987); Richard A. Posner, Economic Analysis of Law 191–251 (9th ed. 2014) [hereinafter Posner, Economic Analysis of Law]; Steven Shavell, Foundations of Economic Analysis of Law 175–285 (2004); Guido Calabresi & Jon T. Hirschoff, Toward a Test for Strict Liability in Torts, 81 Yale L.J. 1055, 1057–59 (1972); Mark F. Grady, A New Positive Economic Theory of Negligence, 92 Yale L.J. 799, 799–801, 814–20 (1983); see also Robert L. Rabin, The Historical Development of the Fault Principle: A Reinterpretation, 15 Ga. L. Rev. 925, 930–31 (1981) (arguing the communitarian explanation of liability for accidents aligns with efficiency).

20. Posner, Economic Analysis of Law, supra note 19, at 192–93.

21. Id.

22. See infra notes 369–386, 417–424 and accompanying text (discussing limitations and statutory caps on tort compensation in medical malpractice cases).

23. See infra notes 301–343 and accompanying text (citing and discussing cases illustrating causation rules).

24. See supra note 10 (listing major scholarly works that represent both sides of the fairness–efficiency divide).

25. See, e.g., Hershovitz, supra note 10, at 68; Posner, Concept of Corrective Justice, supra note 10, at 201–06 (offering an economic explanation for corrective justice); Schwartz, supra note 10, at 1828 (suggesting a mixed theory of tort law "assessing negligence law as a practice which, at stage one, seeks to deter negligence generally," and "at stage two, acknowledges the incomplete success of its stage-one effort and accordingly recognizes the corrective justice rights of those . . . victimized by negligence").

the target completely: It fails to give a proper description of how our tort system actually works.

Scholars who hold the incompatibility view make an implicit assumption that accidents have a uniform risk-benefit structure that should determine whether tortfeasors should be tolerated or penalized. This assumption, however, is fundamentally flawed. Accidents have a dual, rather than uniform, risk-benefit structure. All accident-prone activities generate benefits, but those benefits are not equal. Some of them are fully consumed by the actor who generates them while creating the risk of harm for another person. Other benefits go to the society at large as well. Benefits falling into the first category are private. Benefits falling into the second category are public.

This distinction has hitherto not received the scholarly attention it deserves. Yet, it is critical for understanding our tort system. As this Article will demonstrate, this system uses two different sets of rules, as opposed to one, to regulate accidents. Accidents incidental to conduct that generates purely private benefits are regulated by the rules of negligence, causation, and damage that promote fairness and corrective justice.[26] Accidents incidental to activities that produce public benefits (alongside the actor's private gain) are regulated by the rules of negligence, causation, and damage that promote social welfare.[27] The fairness–efficiency divide that exists in our tort system is therefore superficial. Whether a court deciding a tort case should apply the welfare-oriented rather than the fairness-based set of rules, or vice versa, depends on the private or public categorization of the benefit generated by the actor's risky activity.[28] Conceptually, the fairness-based set of rules belongs to private law and the welfare-oriented set affiliates with public law. The two sets of rules thus do not contradict one another. Rather, they implement different regulatory mechanisms—private and public—and apply to different kinds of accidents.[29]

Consider the following scenario. Arnold brings an inflatable bouncy house to his backyard in preparation for his daughter's sixth birthday party.[30] The house goes airborne, lands on Victoria's porch, and causes property damage in the amount of $2,000. Such accidents occur very

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26. See infra notes 89–94 and accompanying text (identifying corrective justice as the goal in regulating activities that generate private benefits).

27. See infra notes 101–102 and accompanying text (identifying social welfare as the goal in regulating activities that generate public benefits).

28. See infra section I.B (identifying and outlining the "benefit principle").

29. Cf. Weinrib, Deterrence, supra note 10, at 626–28, 639 (arguing that corrective justice, as a system of correlating rights and wrongs, is incompatible with deterrence while acknowledging that deterrence can "further[] corrective justice while leaving it intact").

30. See, e.g., Inflatables from Windy City Popcorn, Windy City Popcorn Party Rentals, http://www.windycitypopcorn.com/inflatables.php [http://perma.cc/C8ST-XDX5] (last visited Nov. 1, 2016) (advertising inflatables).

rarely, say, in one out of one hundred cases. Damage sustained by Victoria is typical for this type of accident. The fun and excitement that the bouncy house was supposed to bring to Arnold's party therefore vastly exceed Victoria's expected harm ($20). Unimpressed by this fact, Victoria takes Arnold to court.

Under the fairness-based rules, the court will have to determine whether the risk of harm to which Arnold exposed Victoria was reciprocal. This determination will depend on whether inflatables are commonplace and acceptable in Arnold and Victoria's residential community. If they are, the court will not hold Arnold responsible for Victoria's damage. If they are not, the court will determine that Arnold imposed on Victoria a nonreciprocal risk of damage and order him to pay her $2,000.[31]

The welfare-oriented approach, on the other hand, would grant Arnold a flat exemption from liability for Victoria's damage if his activity brought the total cost of damage and damage avoidance to the minimum. Our tort system, however, will tell the court not to apply this approach in *Victoria v. Arnold*. The system will do so because the categorical welfare-oriented approach is problematic in one fundamental respect: It treats Arnold's private benefit from the bouncy house as an economic twin of a public benefit. The two benefits, however, are not economic twins nor even distant cousins. The fun and excitement that the bouncy house brings to Arnold's backyard confer no benefits on the society at large. Letting Arnold go scot-free would consequently put his private enjoyment ahead of Victoria's safety. This prioritization would violate the equality equilibrium between Arnold and Victoria even when Arnold's precautions against accident cost more than Victoria's expected damage.

When it comes to risky activities that generate public benefits, our tort system takes a different path: It switches from corrective justice to welfare and becomes unwilling to immunize victims' safety interest against utilitarian trade-offs.[32] Consider the following set of facts: "During the mad scramble that usually follows hard upon an airplane's arrival at the gate, a briefcase fell from an overhead compartment and seriously injured [the] plaintiff."[33] In this case, the victim's injury originates from the risk incidental to an activity that produces public benefit: fast transportation and mobility of people and goods. The air carrier could minimize this risk only by reducing the benefit. For example, it could

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31. Victoria's suit can proceed under both negligence and a private nuisance theory. See Keeton et al., supra note 8, § 88, at 629–30. For a classic account, see William L. Prosser, Nuisance Without Fault, 20 Tex. L. Rev. 399, 406–07 (1942) (showing "extraordinary" risky activities trigger liability and contrasting them with a "'natural' condition or activity" that "is sanctioned by the needs and customs of the community, so that it is not required to pay its way in terms of resulting damage").

32. See infra section I.B (identifying and explaining the switch from corrective justice to welfare according to the "benefit principle").

33. Andrews v. United Airlines, Inc., 24 F.3d 39, 40 (9th Cir. 1994).

retrofit the overhead compartments in its airplanes, but then it would have to ground those airplanes and cancel flights, or, alternatively, create congestions in air traffic.

A court's attempt to decide this case by applying the private mechanism of accident regulation and its equality and reciprocity standards would be futile. As an initial matter, the disparity in power and operations between air carriers and passengers makes it difficult to set up a metric for comparing the risks of damage to which they mutually expose each other and for estimating whether these risks are disproportionate, and hence wrongful, or routine and reciprocal, and hence justified. Second, because the plaintiff benefits from air transportation, she has no plausible claim for an entitlement that would put her safety ahead of other passengers' convenience or give her safety a protection that reduces the quality of air transportation for all people who use airplanes. More fundamentally, under our system—and, indeed, under any plausible vision of political morality—a person's demand for safety that comes at the expense of other people's well-being has no a priori validity.[34] For all these reasons, whether the air carrier's failure to retrofit overhead compartments in its airplanes constituted negligence can be determined only by a cost-benefit analysis. The public mechanism of accident regulation consequently takes over this type of tort case.

The two mechanisms of accident regulation—private and public—do not only employ different concepts of "negligence." Their "damage" and "causation" concepts also differ from one another. The private mechanism uses these concepts to create a match between the victim's safety entitlement, the entitlement's violation by the actor, and the compensation that the actor must pay the victim.[35] The public mechanism, on the other hand, takes an unqualifiedly instrumental view on both "causation" and "damage."[36] When a victim's damage is causally uncertain, the public mechanism makes it easier for her to prove causation in order to ensure that negligent actors do not get off scot-free and remain undeterred.[37] Conversely, when tort liability threatens to chill the production of a public benefit, the mechanism reduces the amount of

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34. See John Rawls, A Theory of Justice 60 (1971) ("[E]ach person is to have an equal right to the most extensive basic liberty compatible with a similar liberty for others. . . . [S]ocial and economic inequalities are to be arranged so that they are . . . reasonably expected to be to everyone's advantage . . . .").

35. See Weinrib, Corrective Justice, supra note 11, at 44–45, 87–97 (explaining the correlativity of rights, duties, and remedies under corrective justice).

36. See Landes & Posner, supra note 19, at 229 ("If the purpose of tort law is to promote economic efficiency, a defendant's conduct will be deemed the cause of an injury when making him liable for the consequences of the injury will promote an efficient allocation of resources to safety and care.").

37. See infra notes 301–343 and accompanying text (outlining and explaining victim-friendly causation rules with case examples).

compensation that actors pay their victims.[38] Courts applying the public mechanism obligate negligent actors to compensate victims in the amount that creates optimal deterrence. Negligent actors never pay compensation below or above that amount. Their payouts incentivize conduct that minimizes the total sum of the costs of accidents and the costs of preventing accidents.[39]

The public mechanism of accident regulation promotes an additional economic goal: reduction of the costs of adjudication. To that end, the public mechanism employs formal rules that define actors' negligence and causal responsibility for victims' harm in a way that allows courts to streamline their proceedings and decisions on tort liability.[40] Rules that perform this function realize economies of scale not available under the private mechanism.[41] The private mechanism generates no such economies because it is geared toward attaining corrective justice between individual actors inter se.[42] This mechanism sets up a framework of safety rights, the matching duties to take precautions, and the violator's obligation to pay the victim the amount of money that makes good her damage.[43] The tort system's economies are not allowed to change anything in that bilateral framework of rights and duties. If they do, the private mechanism would become public and no longer deliver corrective justice.[44]

The conventional view of the tort system as consisting of three pillars—negligence, causation, and damage—is therefore descriptively inaccurate. This view is accurate only in a narrow semantic sense, but not substantively.[45] As far as substance is concerned, each of the three pillars has an independent meaning that can be private or public, depending on the mechanism to which it belongs and that mechanism's goal. As this

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38. See infra section IV.B (describing caps on tort victims' damages and the abolition of the "collateral source" rule).

39. See Landes & Posner, supra note 19, at 229 (explaining welfare-driven adjustments of tortfeasors' scope of liability).

40. See generally James A. Henderson Jr., Process Constraints in Tort, 67 Cornell L. Rev. 901 (1982) (explaining the connection between substantive tort rules and costs of adjudication).

41. See Alex Stein, Inefficient Evidence, 66 Ala. L. Rev. 423, 432–39 (2015) (explaining how legal systems realize economies of scale through evidentiary rules and providing examples from the torts area).

42. See infra notes 89–94 and accompanying text (describing the private mechanism of accident regulation).

43. See infra notes 97–100 and accompanying text (explaining how the private mechanism operates).

44. See Ernest J. Weinrib, The Idea of Private Law 5 (1995) [hereinafter Weinrib, Private Law] (disavowing functionalism and underscoring "the purpose of private law is to be private law").

45. Cf. Shyamkrishna Balganesh & Gideon Parchomovsky, Structure and Value in the Common Law, 163 U. Pa. L. Rev. 1241, 1255–62 (2015) (distinguishing between "jural" and "normative" meanings of legal concepts).

Article will explain, the private mechanism of accident regulation interprets negligence, causation, and damage in terms of the victim's entitlement to protection against disproportionate, or nonreciprocal, risks of harm and the actor's correlative duty to avoid or mitigate those risks. The public mechanism interprets these pillars of liability through the lens of efficiency analysis that relies on economics and statistical information.

Mapping of the domain of torts does not stop here. The analytical scheme developed here helps to uncover the "doctrinal migrations": a cross-field dynamic that shapes the contours of our tort system. This dynamic is important, but scholars and policymakers have not given it the attention it deserves.

Oftentimes, public regulation of accidents utilizes specialized knowledge and safety standards of the relevant industry. When such regulation gets to define negligence, causation, and damage, it merges the tort system with—and, in some cases, replaces it by—regulatory law. Thus far, our tort system has experienced three big mergers or partial migrations: the merger of medical malpractice laws and health law; the merger of products liability, federal regulation, and consumer protection laws; and the merger of workplace accident laws and labor law.[46] Similar to the migration of liability across the lines separating torts from contracts and crimes, these mergers are driven by public interest. An increase in the public interest in regulating a particular type of accident moves that type of accidents away from the law of torts and toward regulatory law.

This Article's descriptive theory of the law of torts unfolds in five parts. Part I lays the analytical foundations for the theory. Parts II, III, and IV show how the doctrines of negligence, causation, and damage, respectively, operate under both private and public regulation of accidents. Part V identifies, illustrates, and explains the migration and merger phenomenon.

I. GROUNDWORK

This Part lays the foundations for the positive account of tort law set forth in Parts II, III, IV, and V. Section I.A analyzes the unique risk-benefit structure of accidents, as contrasted with mutually wanted and coercive interactions regulated, respectively, by contract law and criminal law. Unlike mutually wanted and coercive interactions that embody the full amount of the parties' costs and benefits, accidents encompass only the parties' costs, but not the benefits. As demonstrated below, accidents are not standalones. Rather, they are unwanted by-products of the parties' uncoordinated activities that aim at producing benefits while also creating a risk of harm. The socially desirable volume of accident-prone activities consequently depends on their benefits and whether those

46. See infra section V.B.1.

benefits offset the expected harm. Those benefits are not normative equals. Rather, they fall into two separate categories: private and public. Benefits fully consumed by the actor who generates them are private, while benefits that go to society as well are public.

Based on this analysis, section I.B singles out the "benefit principle" as a key organizing principle of the law of torts. As demonstrated in section I.B, this principle explains the bi-modal regulatory regime set by our tort system for activities causing accidental harm. When the benefit from the accident-causing activity is private, the system applies rules that promote fairness and corrective justice. These rules protect victims against nonreciprocal imposition of the risk of harm while refusing to prioritize the actor's private benefit, no matter how valuable it is economically, over the victim's safety interest. When the benefit arising from the accident-causing activity is public, the system switches to an efficiency mode and applies rules that minimize the overall costs of accidents. Under this mode, actors who produce public benefits are allowed to expose other people to a risk of harm when the value of the benefit exceeds the expected harm to the victim.

Section I.C outlines these two modes of the tort system's operation, identified, respectively, as the private and the public mechanisms of accident regulation. Specifically, it reveals that the three core doctrines of tort liability—negligence, causation, and damage—operate differently under those mechanisms.

A. *The Anatomy of Accidents*

Humans interact with each other cooperatively, coercively, and accidentally. These interactions form three distinct legal categories: contracts, crimes, and torts. Contract law regulates interactions that are mutually wanted.[47] Criminal law regulates interactions wanted by one party (the perpetrator acting by force or fraud) and unwanted by another (the victim).[48] Tort law, in turn, regulates interactions that are mutually unwanted: It allocates the financial responsibility for physical, proprietary, emotional, and economic harms that parties to such interactions accidentally endure.[49] At its margins, the law of torts regulates both coercive and mutually wanted interactions. Specifically, it makes actors financially responsible for harms they intentionally inflict upon other people,[50] and it also tells which contractual allocations of people's

47. See Posner, Economic Analysis of Law, supra note 19, at 95.

48. See id. at 253 (conceptualizing criminal conduct as coercive transfer).

49. See Shavell, supra note 19, at 175 (describing the law of torts as accident law).

50. See Posner, Economic Analysis of Law, supra note 19, at 253 (analogizing intentional torts to crimes because they "represent a pure coercive transfer either of wealth or of utility from victim to wrongdoer"); infra notes 469–471 and accompanying text (observing intentional torts stem from criminal law).

responsibility for accidents will and will not be recognized as valid and enforceable.[51] The focal point of our tort system, however, is accidents that originate from people's mutually unwanted interactions. The distinct and by far most important, as well as most complicated, components of our tort system regulate accidental harms.[52]

This insight provides the key to understanding our system of torts. Mutually unwanted interactions, or accidents, have a unique structure that sets them apart from coercive and mutually wanted interactions. Mutually wanted and coercive interactions encompass all of the parties' costs and benefits (perverse and legitimate). Mutually unwanted interactions, on the other hand, embody only the actors' costs, but not the benefits. The reason is this: Mutually unwanted interactions result from other activities that actors independently carry out to their benefit. More precisely, mutually unwanted interactions and harm resulting therefrom are by-products of individually desired and beneficial, but uncoordinated, activities of two or more actors.

This analytical point undergirds the prevalent social policies toward crimes and contracts, on the one hand, and torts, on the other hand. For coercive interactions, identified as crimes, the socially desirable volume is zero.[53] Such interactions perversely improve the perpetrator's well-being by inflicting suffering on the victim. Coercion and free exchange are functional opposites. Correspondingly, for mutually wanted interactions, identified as contracts, the socially desirable volume is one hundred percent. Such interactions improve the actors' well-being and navigate assets to their most efficient users.[54] Unsurprisingly, criminal law imposes a general ban on coercive interactions of all kinds.[55] Contract law, on the

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51. See infra notes 478–479 and accompanying text (specifying certain liabilities that cannot be waived).

52. See, e.g., Goldberg & Zipursky, supra note 11, at 917 (describing and criticizing the prevalent understanding of tort law as "accident-law-plus"); John Fabian Witt, Toward a New History of American Accident Law: Classical Tort Law and the Cooperative First-Party Insurance Movement, 114 Harv. L. Rev. 690, 699–706 (2001) (explaining how our tort system transformed itself into accident law over the course of the last two centuries).

53. See Ackerman v. Schwartz, 947 F.2d 841, 847 (7th Cir. 1991) ("The optimal amount of fraud is zero . . . ."); John C. Coffee, Jr., Does "Unlawful" Mean "Criminal"?: Reflections on the Disappearing Tort/Crime Distinction in American Law, 71 B.U. L. Rev. 193, 194 (1991) ("[T]here cannot be an 'optimal' rate of crime . . . .").

54. See Posner, Economic Analysis of Law, supra note 19, at 95; see also Robin Kar, Contract as Empowerment, 83 U. Chi. L. Rev. 759, 760–61, 771–76 (2016) (explaining contract law as advancing and mediating between autonomy, liberty, efficiency, fairness, and trust).

55. See Stein, Corrupt Intentions, supra note 3, at 61 ("[T]he legal system should impose criminal liability on a person who advances his goals by using force or artifice instead of a voluntary exchange [because these] are inherently coercive behaviors, unresponsive to the market mechanisms that put exchange prices on what people want to achieve.").

other hand, facilitates voluntary bargains and makes them generally enforceable.[56]

With mutually unwanted interactions, identified as accidents, things are markedly different. The socially desirable volume of such interactions cannot be zero because, unlike crimes, such interactions are not stand-alones and thus cannot be suppressed individually. The legal system can only suppress them together with the accompanying beneficial activities.[57] Benefits generated by some of those activities—medical care, air transportation, and many others—are socially indispensable. Whether the law should ban an accident consequently depends (among other things) on the difference between the expected harm and the ban's social cost that includes the foregone benefit.[58] From a global social standpoint, the ban's cost includes not only the cost of formulating and enforcing the appropriate legal rules but also the lesser of the following two costs: (1) the cost of implementing safety measures that prevent the accident[59] and (2) the value of the beneficial activity that causes the accident.[60] When this aggregate cost is greater than the expected harm, banning the accident would be against society's interest.[61]

Because accidents are not contracts, their socially desirable volume cannot be one hundred percent either. Harm resulting from an accident may well exceed the value of the activity that causes the accident. Worse yet, mutually unwanted interactions do not replicate free exchange in allocating the resulting benefits and harms. Absent contractual restraint or other penalties that make actors internalize the costs of their activities, a self-seeking individual will engage in any activity that benefits her privately. The prospect of causing harm to other people, as well as the amount of such externalized harm, would not enter into her cost-benefit calculation.[62]

Because accidents are not normative equals of one another, the tort system has no choice but to regulate them discriminately rather than on a global basis. Legal frameworks from which tort law draws the requisite rules, remedies, and penalties account for yet another important

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56. See Posner, Economic Analysis of Law, supra note 19, at 95.

57. See Calabresi, Costs of Accidents, supra note 19, at 17–18 (arguing accidents and beneficial activities are intertwined).

58. See Landes & Posner, supra note 19, at 85–88 (outlining cost-benefit analysis as a guiding principle of accident law).

59. See Posner, Economic Analysis of Law, supra note 19, at 191 (explaining the relevance of precaution costs for identifying tortious conduct).

60. See id. (alluding to the need to account for expected benefits).

61. See Calabresi, Costs of Accidents, supra note 19, at 18–20, 26–31; Posner, Economic Analysis of Law, supra note 19, at 191–96 (illustrating the cost-benefit analysis).

62. See, e.g., Hansmann & Kraakman, supra note 7, at 1882–83 (noting shareholders' limited liability makes the firm willing to increase profits by externalizing tort risks to third parties).

difference between mutually wanted, coercive, and mutually unwanted interactions. Mutually wanted interactions are regulated by private law that implements the parties' private agreement. This law informs the parties—and when it becomes necessary, the court—about the rules, remedies, and penalties that govern their relationship.[63] Coercive interactions, in turn, are regulated by public law that implements society's vision of rights and wrongs. This law bans coercive behavior and informs the prospective perpetrator—and in due course, the prosecutor, the court, and the victim—about the applicable criminal sanction.[64]

Accidents, by contrast, are governed by two regulatory mechanisms: private and public. The private mechanism allocates the risks and the costs of accidents by applying the principles of fairness and corrective justice.[65] These principles grant every person an entitlement obligating other people not to expose her to a disproportionate risk of sustaining harm, while imposing upon her an equivalent obligation toward other people.[66] A risk of harm will cross the proportionality threshold when it exceeds the expected, socially acceptable, and consequently normal, level of risk to which people routinely expose each other in their daily interactions.[67] The fairness principle thus distinguishes between reciprocal, hence permissible, and nonreciprocal, therefore impermissible, risks of harm.[68] Harm resulting from materialization of a reciprocal risk is considered a misfortune that gives the victim no recourse against another person. On the other hand, when a victim suffers harm that originates from a nonreciprocal risk created by another person, that person becomes liable in tort. The consequence of that liability is the perpetrator's duty to make the victim whole by compensating her for the harm caused.[69]

The public mechanism aims at achieving a different goal: augmentation of social welfare.[70] To promote this goal, the mechanism allocates the financial responsibility for accidental harm in a way that incentivizes

63. See, e.g., Posner, Economic Analysis of Law, supra note 19, at 95 (describing the role of contract law as facilitating parties' exchange and setting up rules and remedies to take care of opportunism and unforeseen contingencies).

64. See id. at 253–55 (describing the function of criminal law as setting up prohibitions on and penalties for coercive behavior).

65. See Fletcher, supra note 11, at 542 (stating the private law principle of reciprocity and associating it with corrective justice and fairness).

66. See id. ("Cases of liability are those in which the defendant generates a disproportionate, excessive risk of harm, relative to the victim's risk-creating activity.").

67. See id. at 540–42.

68. See id.

69. See Weinrib, Private Law, supra note 44, at 56 ("Corrective justice . . . treats the wrong, and the transfer of resources that undoes it, as a single nexus of activity and passivity where actor and victim are defined in relation to each other."); id. at 62–63 (explaining corrective justice requires the wrongdoer and the victim be brought back to their pre-wrong positions).

70. See Landes & Posner, supra note 19, at 1 (arguing tort law is designed to promote efficiency and therefore optimize social welfare).

actors to minimize the total sum of the costs of accidents and the costs of preventing accidents.[71] The mechanism makes an actor liable to pay for the victim's harm when the actor creates a risk of an accident and then fails to prevent it by taking precautions that cost less than the expected harm.[72]

The principal beneficiary of this compensation duty, however, is society at large, not the victim. The public mechanism imposes this duty to motivate all actors to prevent accidents when doing so costs less than the expected harm to the victim.[73] The victim recovers compensation for two reasons. First, she is the most efficient law enforcer: She has a clear informational advantage over the government, which cannot control every risk-creating activity. All she needs is a motivation to sue the actor, and the compensation entitlement gives her that motivation.[74] As importantly, the victim usually needs money to protect her health or another aspect of personal well-being against further deterioration. Obligating the defaulting actor to compensate the victim for her harm is the most effective way of giving the victim the money she needs.[75]

These mechanisms originate from two conceptually and functionally separate, yet equally important, branches of the law: private and public.[76] Both mechanisms are part of the same system of rules, identified as the law of torts, but this commonality should not blur the differences between the private and the public regulation of accidents. These differences are fundamental.[77]

Failure to account for these differences distorts the understanding and application of tort doctrine. As this Article reveals, conflicting tort theories that allude to corrective justice and fairness, on one side, and to welfare and economic efficiency, on the other side, talk past each other. The economic efficiency theory best explains our system's public regulation of accidents. Corrective justice, on the other hand, offers the most appealing explanation for the system's private law aspects. This explanation individuates the duty to avoid accidents by underscoring the bilateral character of the right against being harmed and the correlative obliga-

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71. See Posner, Economic Analysis of Law, supra note 19, at 191–96.

72. See id. at 192–93.

73. See id.

74. See Alex Stein, Of Two Wrongs that Make a Right: Two Paradoxes of the Evidence Law and Their Combined Economic Justification, 79 Tex. L. Rev. 1199, 1219–20 (2001) [hereinafter Stein, Two Wrongs] (arguing tort victims are best positioned to enforce safety standards because of their superior information and motivation to sue).

75. Under Judge Guido Calabresi's system, consequences of the victim's uncompensated harm count as a "secondary" social cost that needs to be minimized as well. See Calabresi, Costs of Accidents, supra note 19, at 27–28.

76. See supra text accompanying notes 26–44 (explaining the two mechanisms).

77. See infra section I.C (demonstrating how the private and public mechanisms of accident regulation use different rules and have different scopes of application).

tion to avoid harm to another person. The bilateral structure of duties and rights is a core characteristic of cases falling under the private law of accidents. For a good illustration of such cases, return to the "bouncy house" example,[78] or consider a tort action successfully prosecuted by a garden's owner against a rider of a hot air balloon who crashed into his flowers and vegetables.[79] Cases that call for public regulation involve multiple interests of unspecified individuals and groups of people that do not sit well on Hohfeld's boilerplate.[80] The "falling bag" case provides a good illustration for this public type of case, as it implicates the convenience and security of air passengers in general.[81] Corrective justice and efficiency theories therefore do not compete over the same space in the system of torts. Instead, they animate two different legal mechanisms—private and public—that operate alongside one another.

B. *The Benefit Principle*

> *Chief among the factors which must be considered is the social value of the interest which the actor is seeking to advance . . . . The public interest will justify the use of dangerous machinery, so long as the benefits outweigh the risk . . . .*[82]

Benefits generated by accident-prone activities are the key to understanding how the private and public mechanisms work and the types of accident to which they apply. Accidental harm is an unwanted by-product of activities that actors carry out to their benefit without coordinating with one another. For example, a guest's injury on a host's premises is a by-product of the guest's use of the premises and the host's maintenance of them according to her own vision. Industrial smoke emissions that reach residential areas are a by-product of factory operations and people living near the factory. The bouncy house accident is a by-product of Arnold's preparation for the party and Victoria residing near Arnold's house. The falling bag case, in turn, features an accident that similarly results from an individually desired, yet imperfectly coordinated, activity: airplane transportation with overhead compartments that allow for convenient storage and removal and occasionally an accidental fall of luggage.

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78. See supra text accompanying notes 30–31.

79. Guille v. Swan, 19 Johns. 381, 381 (N.Y. Sup. Ct. 1822).

80. This refers to Professor Wesley Newcomb Hohfeld's system of formal legal entitlements and their correlatives. See generally Wesley Newcomb Hohfeld, Some Fundamental Legal Conceptions as Applied in Judicial Reasoning, 23 Yale L.J. 16 (1913).

81. See supra note 33 and accompanying text (describing the facts of the "falling bag" case).

82. Keeton et al., supra note 8, § 31, at 171–72; see also Oliver Wendell Holmes, Jr., The Common Law 94–95 (Little, Brown & Co., 45th prtg. 1923) (1881) (rationalizing the historic shift from strict liability to negligence by the fact that many accident-prone endeavors benefit society in general and therefore must not be chilled).

There is a critical distinction among the kinds of benefits generated by the accident-prone activities in these examples. Some of those benefits—those in the guest injury and bouncy house cases—are private, while others—those in the smoke pollution and falling bag cases—are public. Private benefits are ones that improve the well-being of a single person: the actor (and her private beneficiaries, such as family and friends). Public benefits, on the other hand, improve the welfare of society in general (while also generating private gains for their producers). The volume of public benefits' production is socially beneficial in and of itself. As this volume increases, goods and services that people need become more abundant and more effective, as well as better known and consequently safer for consumers and society at large.[83] Competition among the goods' and services' producers—another public benefit—reduces their price for consumers.[84] Benefits that are strictly private generate no such advantages for society.

The distinction between private and public benefits, however, is not written in stone and has some gray areas as well.[85] What courts see as "private" as opposed to "public," or vice versa, may not be universally agreeable and may even be mistaken.[86] Furthermore, this distinction depends on the preferences that exist in a given society.[87] For the most part, however, courts can easily tell whether a benefit is public or private.[88]

When an accident results from an actor's pursuit of a strictly private benefit, courts apply the private mechanism of accident regulation and its fairness rules. Under this mechanism, an actor assumes liability for damages she causes to another person when she exposes that person to a

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83. See, e.g., Matias Busso & Sebastian Galiani, The Causal Effect of Competition on Prices and Quality: Evidence from a Field Experiment 23–24 (Nat'l Bureau of Econ. Research, Working Paper No. 20054, 2014), http://www.nber.org/papers/w20054.pdf (on file with the *Columbia Law Review*) (providing empirical evidence and outlining an economic theory predicting the volume of competitive production reduces the product's prices while guaranteeing quality).

84. See Freedom Holdings, Inc. v. Spitzer, 447 F. Supp. 2d 230, 252 (S.D.N.Y. 2004) ("Classically, the public good is enhanced by free competition in pricing and vigorous and relatively unfettered advertising and marketing.").

85. See, e.g., Duncan Kennedy, The Stages of the Decline of the Public/Private Distinction, 130 U. Pa. L. Rev. 1349, 1351–54 (1982) (questioning the general validity of the public–private distinction).

86. See, e.g., Exner v. Sherman Power Constr. Co., 54 F.2d 510, 514 (2d Cir. 1931) (categorizing explosives storage as an activity that benefited the actor alone while ignoring the activity's social value).

87. See Morton J. Horwitz, The History of the Public/Private Distinction, 130 U. Pa. L. Rev. 1423, 1426–28 (1982) (discussing the historical, political, and cultural contingency of the public–private distinction).

88. Historically, this distinction can be traced to Chief Justice Lemuel Shaw's decision in Brown v. Kendall, 60 Mass. (6 Cush.) 292 (1850). See Fletcher, supra note 11, at 566 (noting *Brown v. Kendall* "laid the groundwork . . . for exempting socially useful risks from tort liability").

disproportionate, and hence nonreciprocal, risk of harm.[89] On the other hand, when an accident is brought about by an activity that generates public benefits, courts apply the utility-driven public mechanism.[90] Under this mechanism, an actor can become responsible only for damage she causes to another person when she fails to take precautions that cost less than the expected damage.[91]

Courts draw this distinction for a good reason. When the benefit incidental to an accident-prone activity is private, allowing the actor to pursue it by putting another person's body or property in harm's way can never be justified.[92] A system that grants actors such a license fails to accord the victim's safety interest the same weight it assigns to the actor's private gain. By allowing the actor to expose the victim to a risk of harm and get off scot-free when that risk materializes, the system treats the actor as worthier than the victim, which is fundamentally unfair. This unfairness does not diminish when the actor's private gain exceeds the economic value of the victim's safety.[93] The fact that the actor gains a lot by causing the victim a much lesser harm is of no consequence because the victim's interest is still being sacrificed for the actor's private benefit. Fairness requires that the actor make the victim whole by paying for her damage. This requirement is the essence of corrective justice.[94]

This requirement has only one exception that extends to permitted risky activities. These activities include people's daily interactions that create reciprocal risks of harm for individuals involved. Examples of such activities include driving cars according to traffic rules, walking on a street, playing football, and rushing into a crowded train. These activities are considered normal, and hence socially acceptable and not negligent, for a number of reasons. First, people cannot function in a prosperous community without being able to carry out these and similar activities. Risks of accident brought about by these activities are also not severe and

89. See, e.g., Restatement (Second) of Torts § 292 (Am. Law Inst. 1965) (noting the importance of "the social value which the law attaches to the interest which is to be advanced or protected by the conduct" in determining negligence); see also id. § 298 cmt. b ("[I]f the act has little or no social value and is likely to cause any serious harm, it is reasonable to require close attention and caution.").

90. See infra notes 169–179, 190–245 and accompanying text (explaining how the public mechanism works, citing relevant case law, and providing illustrations).

91. See infra note 163 (citing cases that illustrate this point).

92. See Weinrib, Private Law, supra note 44, at 62–63 (explaining that allowing one person to advance her private goals by sacrificing another person's well-being is fundamentally unjust).

93. See Richard W. Wright, The Standards of Care in Negligence Law, *in* Philosophical Foundations of Tort Law, supra note 11, at 249, 256 [hereinafter Wright, Standards of Care] ("[I]t is impermissible to use someone as a mere means to your ends by exposing him (or his resources) to significant foreseeable unaccepted risks, regardless of how greatly the benefit to you might outweigh the risk to him.").

94. Weinrib, Private Law, supra note 44, at 62–63.

consequently tolerable.[95] Most importantly, these risks are reciprocal and therefore engender no inequality between actors and victims.[96]

To illustrate this point and see how our tort system regulates accident-prone activities that generate private benefits, consider a case in which a guest is injured on the host's premises. The system properly requires the premise owner to make her visitors, at a minimum, as safe as she is.[97] Failure to provide this level of safety would impose a disproportionate, hence nonreciprocal, risk of harm on the visitor. Consequently, the owner must compensate the visitor for the resulting damage. Allowing the owner to get off scot-free would treat her property right as more valuable than the guest's interest in her bodily safety. Any such prioritization violates the equality equilibrium between the two sides, so our tort system does not allow it. The same reciprocity standard applies to the bouncy house case.[98] Because Arnold's benefit from the bouncy house is private, the tort system cannot put it ahead of Victoria's safety. The system consequently obligates Arnold to pay Victoria for the damage to her porch. This payment will restore the balance of equality that Arnold violated.

The tort system need not worry about excessively deterring accident-prone activities that produce private benefits. Because private benefits are consumed in their entirety by actors who generate them, each of these actors must decide for herself whether she values her private benefit strongly enough to risk liability in tort. As importantly, actors acquire their ability to produce private benefits in a social environment that protects them against nonreciprocal endangerments by other people. This protection comes with an obligation to respect that social environ-

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95. Consider a case featuring a mobility-trained blind person, familiar with his surroundings, who accidentally collided with—and injured—another person on his way to a restroom. Roberts v. State, 396 So. 2d 566, 567–68 (La. Ct. App. 1981). In that case, the risk of accident to which the defendant exposed the plaintiff was socially acceptable and hence reciprocal since "[t]he man who is blind . . . is entitled to live in the world and to have allowance made by others for his disability." Id. at 567 (quoting W. Prosser, The Law of Torts, § 32, at 151–52 (4th ed. 1971)). The court therefore properly decided that the defendant was not negligent. Id. at 569. Notably, this decision of a Louisiana court was about an activity that pursued a distinctly private benefit. This factor separates the case from the Louisiana Supreme Court precedents that apply the Learned Hand formula to accident-causing activities that produced public benefits. See, e.g., Chambers v. Vill. of Moreauville, 85 So. 3d 593, 597–99 (La. 2012) (holding a public entity assumes liability in tort only when its action shows negligence under the "risk-utility balancing test [that] requires balancing the gravity and the risk of harm against the individual and societal utility and the cost and feasibility of repair"); Reed v. Wal-Mart Stores, Inc., 708 So. 2d 362, 364–65 (La. 1998) (holding a department store not negligent because the social utility of the hazard it created exceeded the expected harm).

96. Fletcher, supra note 11, at 542.

97. See Keeton et al., supra note 8, § 60, at 414 ("[T]he guest understands when he comes that he is to be placed on the same footing as one of the family.").

98. See supra text accompanying notes 29–30.

ment and its safety-related conventions.[99] Finally and perhaps most critically, protection against nonreciprocal endangerments improves the quality of people's lives in a civil society: It guarantees them equal freedom and promotes their mutual benefit.[100] This virtue offsets many of the private benefits that the reciprocity standard obligates actors to forego.

Things are markedly different when it comes to public benefits. When an accident-prone activity generates such a benefit, the court "must decide whether the *social* value and utility of the hazard outweigh, and thus justify, its potential harm to others."[101] Consider again the factory case. Making the factory pay hefty compensation for smoke emissions may slow down its production, or even close it. As a result, society as a whole will be denied the benefit of the otherwise affordable goods that will become more expensive or altogether disappear from the market. These goods often include food or necessary medication. The tort system therefore will do well to ascertain whether the smoke seriously imperils the residents' health. If it does not, the system should allow the factory to emit smoke to the extent necessary for its operations. If it does, the system should allow residents to obtain an injunction against the factory. Alternatively, the system may allow the factory to emit smoke while requiring that it compensate residents for the resulting damage. Under neither scenario should the system evaluate the factory's conduct by reference to reciprocal risks or a similar fairness-based standard.

Courts, indeed, do not use any of those standards in cases involving accident-prone activities that produce public benefits. Instead, they determine whether the actor acted negligently by applying the Hand formula.[102] Courts accord preference to this formula for a number of good reasons. The reciprocal risk standard works well in interactions between individuals that generate no public benefits, but trying to apply it to actors who produce public benefits—airline companies, manufacturers, physicians, government agents, and the like—is very hard, if not altogether impossible. Corporate, governmental, and professional actors do not get exposed to the same risks that they create in the course of their business. Other fairness standards also do not seem to fit here, for a good reason too. Activities that produce public benefits have multiple beneficiaries whose interest in the benefits—education, transportation, food, and medications, to mention just a few—is at least as worthy of protection as the victim's safety interest. Critically, the victim herself enjoys public benefits. She enjoys fast and convenient air transportation

99. See Fletcher, supra note 11, at 543 ("The paradigm of reciprocity holds that we may be expected to bear, without indemnification, those risks we all impose reciprocally on each other. If we all drive, we must suffer the costs of ordinary driving.").

100. See Keating, supra note 11, at 342–43.

101. Reed v. Wal-Mart Stores, Inc., 708 So. 2d 362, 365 (La. 1998) (emphasis added).

102. See, e.g., infra note 163 (citing cases in which courts apply the Hand formula). For an explanation of the Hand formula, see infra notes 152–156 and accompanying text.

that would have been much slower and more inconvenient if airline companies were required to retrofit overhead compartments in their airplanes; she also can afford buying medications that would have been prohibitively expensive if drug manufacturers' tort liability were unlimited. These and other benefits offset victims' inability to recover compensation for accidental harm.

The distinction between private and public benefits did not escape the tort scholars' attention. Adherents of efficiency goals alluded to this distinction in various contexts.[103] Scholars favoring fairness and corrective justice did so as well.[104] Both camps of scholars, however, stopped short of acknowledging the centrality of this distinction to understanding how our tort system works. Reasons that explain this omission are not altogether clear, but they certainly include the conflation of the normative and the positive theories of tort law.[105] Consider, for example, Professor William Landes and Judge Richard Posner's seminal treatise that expounds "the hypothesis that the rules of the Anglo-American common law of torts are best explained as if designed to promote efficiency in the sense of minimizing the sum of expected damages and costs of care."[106] Similarly to other economic accounts of tort law,[107] this treatise makes a simplifying assumption that the private costs of avoiding accidents are the same as the public costs of avoiding accidents.[108] This

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103. See, e.g., Clayton P. Gillette & James E. Krier, Risk, Courts, and Agencies, 138 U. Pa. L. Rev. 1027, 1028–29 (1990) (distinguishing between private and public risks of harm); Ariel Porat & Eric Posner, Offsetting Benefits, 100 Va. L. Rev. 1165, 1177–79 (2014) (distinguishing between social and private benefits and arguing a victim's compensation should equal her private loss minus any social benefit generated by the wrongdoer).

104. See, e.g., Wright, Standards of Care, supra note 93, at 263–64 (distinguishing between defendants who put plaintiffs in harm's way to promote their private utility and defendants engaged in socially essential activities).

105. See, e.g., William Powers, Jr., On Positive Theories of Tort Law, 66 Tex. L. Rev. 191, 197–99 (1987) (reviewing William M. Landes & Richard A. Posner, The Economic Structure of Tort Law (1987), and showing how the work conflates normative with positive theories of tort law).

106. Landes & Posner, supra note 19, at 312; see also id. at 8 (observing "the noneconomic literature does not provide an alternative *positive* theory of tort law to the economic theory expounded in this book").

107. See, e.g., Robert Cooter & Thomas Ulen, Law & Economics 336–37 (5th ed. 2008) (lumping together private and social costs of avoiding accidents); Shavell, supra note 19, at 178 (treating all costs of care and accidents as social); John Prather Brown, Toward an Economic Theory of Liability, 2 J. Legal Stud. 323, 324–25 (1973) (postulating every cost of avoiding accidents is social); J. Shahar Dillbary, Tortfest, 80 U. Chi. L. Rev. 953, 956–57 (2013) (showing the addition of actors that inflict the same indivisible harm can be efficient by treating public benefits from power plants, farming, sewer systems, landfills, gas stations, cellular phone towers, and cement factories as economically equivalent to (albeit not as valuable as) a private benefit from camping); Keith N. Hylton, A Missing Markets Theory of Tort Law, 90 Nw. U. L. Rev. 977, 996 (1996) ("The total social benefits from any activity are equal to the sum of private and external benefits . . . .").

108. Landes & Posner, supra note 19, at 87 (presenting and commending a global cost-benefit analysis).

assumption makes it fairly easy to calculate the costs of precautions under the Hand formula, but it also increases those costs for actors who generate private benefits for themselves and no benefits for society. As a result, these actors acquire exemptions from liability that have never been recognized by our courts.

Assume that the balloon rider who became a tort celebrity after winds pushed him onto another person's garden did not endanger anyone's life or limb and that his thrill and self-fulfillment were more valuable than the ruined potatoes, radishes, and flowers.[109] Under these assumptions, the Hand formula would exonerate the balloonist at the garden owner's expense. Our tort system, however, grants no such exemptions from liability because it refuses to put an actor's private benefit, no matter how large it is, ahead of the safety interest of another person. The balloonist exposed the garden owner to an abnormal, and hence nonreciprocal, risk of damage and the court therefore properly held him liable.[110] This decision aligns with fairness and corrective justice and has nothing to do with the Hand formula. Landes and Posner nonetheless fitted it into their theory by postulating that the balloonist's activity was "frivolous" and "not valuable."[111] Based on this postulation, they concluded that having the balloonist pay for the potatoes, radishes, and flowers, thereby motivating him to abandon ballooning, was "the optimal method of accident avoidance."[112]

This analysis is wrong. The balloonist's activity was valuable. Putting it on a general utility scale could make it a fair competitor to the plaintiff's plants. Yet, because this activity generated only a private, rather than public, benefit, the court properly characterized it as abnormally dangerous. As a general matter, our courts have never allowed an actor's private benefit to override a victim's safety interest. All of their benefit-versus-safety calculations under the Hand formula or a similar standard were made in connection with activities generating public benefits.[113] Explaining this uniformity by making an artificial postulation that all private benefits are "frivolous" and have low value thus cannot be right.

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109. See Guille v. Swan, 19 Johns. 381, 381 (N.Y. Sup. Ct. 1822). This assumption of no endangerment is warranted because the balloonist's descent caused no physical injuries to any other person. In *Indiana Harbor Belt Railroad Co. v. American Cyanamid Co.*, Judge Posner categorized the balloonist's adventure as "abnormally dangerous" and triggering strict liability for the destroyed vegetables and flowers because he "could have crashed into the crowd rather than into the vegetables," 916 F.2d 1174, 1176–77 (7th Cir. 1990), but this reasoning is fundamentally misguided. As the Restatement explains, "[t]his strict liability is limited to the kind of harm, the possibility of which makes the activity abnormally dangerous." Restatement (Second) of Torts § 519(2) (Am. Law Inst. 1977).

110. *Guille*, 19 Johns. at 383.

111. Landes & Posner, supra note 19, at 114; see also id. at 110 (describing a person's owning a ferocious dog as not valuable).

112. Id. at 115.

113. See infra note 163.

A much better way of understanding our tort system is to acknowledge and explain the courts' refusal to ever consider private benefits as an actor's justification for imposing a risk of damage on another person.

Consider now the school of thought that views our tort system as a promoter of fairness and corrective justice. Scholars affiliated with this school of thought support their positive accounts of the law with a remarkably small number of court decisions.[114] All of those decisions are about accident-prone activities that generated private benefits for the actors and no substantial benefits for society.[115] The proponents of fairness and corrective justice offer no explanation for courts' decisions that account for public benefits under the Hand formula or a similar standard. Instead, they make a factually incorrect description of those decisions by calling them esoteric,[116] and they also accuse the formula, along with the entire economic approach to torts, of setting up a crude utilitarian regime that sacrifices individuals' safety for the sake of general welfare.[117] This accusation is false. First, contrary to what some corrective justice scholars say about the Hand formula,[118] this formula, as applied by our courts, does not allow private benefits to determine the actor's costs of precautions. Second and most important, the inclusion of public benefits in calculating the costs of precautions does not sacrifice any individual's safety for the sake of social welfare. Rather, our tort system reduces the safety of all individuals to the extent necessary for the cost-effective production of public benefits that those individuals enjoy.[119]

When a person enjoys public benefits on equal terms with other members of her society while being exposed to a cost-justified risk of

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114. See, e.g., Jules L. Coleman, The Practice of Corrective Justice, 37 Ariz. L. Rev. 15 (1995) (citing no court decisions); Benjamin C. Zipursky, Sleight of Hand, 48 Wm. & Mary L. Rev. 1999, 2033–40 (2007) (arguing the negligence standard is animated by "civil competency" rather than by the Hand formula but citing no American cases).

115. See, e.g., *Guille*, 19 Johns. at 383; infra note 241 (citing cases).

116. E.g., Richard W. Wright, Hand, Posner, and the Myth of the "Hand Formula," 4 Theoretical Inquiries L. 145, 148 (2003) [hereinafter Wright, Myth of Hand Formula] ("[T]he aggregate-risk-utility test is infrequently mentioned by the courts, almost never included in jury instructions, rarely actually employed in judicial opinions, and almost never explains the actual results reached by the courts."); see also Ronald J. Allen & Ross M. Rosenberg, Legal Phenomena, Knowledge, and Theory: A Cautionary Tale of Hedgehogs and Foxes, 77 Chi.-Kent L. Rev. 683, 701–04 (2002) (asserting the "real world of negligence litigation" has rarely employed the Hand formula); Stephen G. Gilles, The Invisible Hand Formula, 80 Va. L. Rev. 1015, 1046–47 (1994) (suggesting parties rarely make cost-benefit arguments).

117. See, e.g., Wright, Myth of Hand Formula, supra note 116, at 146–48.

118. See id. at 147 (suggesting the Hand formula runs contrary to the common-sense morality under which imposition of foreseeable risks on others violates equal dignity and autonomy and is unjust, regardless of the benefit to the risk creator).

119. This core principle originates from Losee v. Buchanan, 51 N.Y. 476, 485 (1873), and similar decisions. Infra notes 190–203 and accompanying text; see also Parsons v. Crown Disposal Co., 936 P.2d 70, 72 (Cal. 1997) (noting this principle is more than 150 years old).

sustaining uncompensated accidental harm, she is not making any personal sacrifice. Indeed, she can use the savings she makes from being able to enjoy public benefits at a low or zero cost for purchasing first-party insurance. A person will have a morally valid complaint against the system when she is denied equal enjoyment of public benefits,[120] but then her remedy should be the elimination of the inequality rather than removal of the Hand formula.

C. *Public vs. Private Mechanism of Accident Regulation*

For a number of reasons, the public mechanism of accident regulation works better than the private mechanism in controlling accident-prone activities that produce public benefits. The public mechanism improves society's welfare along three economic dimensions that the private mechanism leaves out. These dimensions are the scarcity of goods, positive externalities, and economies of scale.

Begin with scarcity. Producers of goods or services who pay substantial amounts of compensation to tort victims might reach a breaking point that will force them to revise their business plans. They will need to choose between discontinuing the goods' production and making the goods safer than before. Discontinuing the goods' production will reduce competition on the market for those goods. The goods' prices will then go up, and fewer people will be able to afford them. Safety improvement will also decrease the goods' affordability. The goods' producers will shift the improvement's cost (or part of that cost) to people who need those goods by charging them higher prices.

To be sure, the increase of production costs is not always to society's detriment. When the goods can be produced more safely at an economically attractive cost, the tort system will do well to impose liability upon actors who fail to implement the appropriate safety measures. However, when the relevant safety measures cost more than the expected damage, the system should avoid imposing liabilities, since doing so will slow down the production of the goods to society's detriment.

Fairness-based rules that go into the private mechanism of accident regulation do nothing to prevent such chilling effects. Indeed, these rules' pivotal goal is to give individuals safety rights that cannot be set aside on utilitarian grounds. As already explained, these rules make perfect sense when applied to accident-prone activities that generate

120. Remarkably, progressive critics of the American tort system gloss over the inequities in the allocation of public benefits. See generally, e.g., Richard L. Abel, Torts, *in* The Politics of Law 445, 449–62 (David Kairys ed., 3d ed. 1998) (criticizing the tort system for failing to remedy inequities in allocation of risks of harm and for commodifying pain, suffering, and personal relations).

strictly private benefits for actors.[121] Scarcity of private benefits is not a huge problem for society at large. Using fairness-based rules to stifle the production of public benefits, however, is not a good social policy. Unsurprisingly, our tort system has never adopted that policy and its broad criteria for negligence. Instead, it narrows liability for producers of public benefits by capping their requisite precautions against accidents at the cost of the expected harm.[122]

Consider now positive externalities. Activities that benefit society at large produce three types of benefit: direct, systemic, and informational. The direct benefit is delivered by the actor's immediate activity: for instance, a cataract surgery or a flight from Philadelphia to Boston. The systemic benefit is produced by the activity's contribution to the competition on the market for the underlying good. Increased competition increases production and, correspondingly, decreases the good's scarcity and price. The good consequently becomes more affordable to people who need it. The good's competitive production and multiple uses also generate valuable information about its utility and safety.[123] These benefits provide another compelling reason for the tort system to use the public mechanism that limits the costs of precautions against accidents to the amount of the expected harm.

Boilerplate rules that realize economies of scale are another virtue of the public mechanism of accident regulation. Activities generating public benefits are recurrent and so are the accidents that result from these activities.[124] Boilerplate rules equip courts with decisional shortcuts for determining negligence and causation in multiple cases that involve the same factual pattern. These shortcuts include presumptions of fault and the consequent responsibility for the accident that courts must automatically assign to actors (and sometimes to victims as well).[125] Under products liability rules, for example, manufacturers, sellers, and suppliers of a product identified as defective automatically assume liability for

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121. See supra notes 93–100 and accompanying text (justifying the fairness-based rules as applied to activities generating private benefits).

122. See infra section II.B (discussing in detail how courts define negligence for producers of public benefits and providing examples).

123. See, e.g., Richard A. Posner, Strict Liability: A Comment, 2 J. Legal Stud. 205, 211 (1973) ("[C]ompetition among sellers generates [safety-related] information about the products sold.").

124. Accident-prone activities that produce strictly private benefits are not as recurrent as activities that produce public benefits. This difference may have to do with our culture that prioritizes work over leisure. See David Sturt & Todd Nordstrom, Why Americans Don't Like Vacations . . . or Work, Forbes (June 10, 2014), http://www.forbes.com/sites/davidsturt/2014/06/10/why-americans-dont-like-vacations-or-work (on file with the *Columbia Law Review*) (explaining the shortage of leisure opportunities for Americans is caused by "our culture that believes, at its core, that the harder we work, the more we will succeed").

125. See Louis Kaplow, Rules Versus Standards: An Economic Analysis, 42 Duke L.J. 557, 563–64 (1992) (showing rules are best suited to regulate recurrent conduct).

damages resulting from the product's defect.[126] The victim does not need to prove that the defect resulted from the actor's failure to take precautions that cost less than the expected damage.[127] Based on past experience and general knowledge, the rules presume that this failure is present.[128] Boilerplate rules also include statutory and regulatory duties to take specified precautions against certain types of accidents.[129] Failure to take those precautions constitutes negligence per se, and the court must deem the actor liable for the resulting accident.[130] Boilerplate rules include presumptions of adequate care as well.[131] These presumptions provide a predetermined list of precautions against accident that actors must implement. Actors complying with this list are deemed faultless and will bear no liability for accidents that might still happen.[132]

Causation rules used by the public mechanism rely on statistics and public policy.[133] Occasionally, they also shift the burden of proof to negligent actors by requiring them to provide evidence disassociating their negligence from the victim's damage.[134] Similar to the negligence pre-

126. See Keeton et al., supra note 8, §§ 98–99, at 692–702.

127. Id. § 98, at 693.

128. Id.; see also Scott v. Dutton-Lainson Co., 774 N.W.2d 501, 504–06 (Iowa 2009) (explaining manufacturing-defect claims do not require proof of inadequate precautions); Restatement (Third) of Torts: Prods. Liab. § 2 cmt. a (Am. Law Inst. 1998) (supporting the strict liability rule and observing "[i]n many cases manufacturing defects are in fact caused by manufacturer negligence but plaintiffs have difficulty proving it").

129. See Keeton et al., supra note 8, § 36, at 229–31.

130. See id.

131. See id. at 233.

132. See id.

133. See, e.g., Sindell v. Abbott Labs., 607 P.2d 924, 936–38 (Cal. 1980) (finding manufacturers of a carcinogenic drug liable according to their shares in the market of the drug); Matsuyama v. Birnbaum, 890 N.E.2d 819, 828–35 (Mass. 2008) (imposing liability for lost chances to recover); Dickhoff v. Green, 836 N.W.2d 321, 327–37 (Minn. 2013) (imposing liability for a victim's reduced chance to survive). For an early decision that relied on statistics and public policy in determining causation, see Stubbs v. City of Rochester, 124 N.E. 137, 139–40 (N.Y. 1919). For an analysis of current law, see Ariel Porat & Alex Stein, Tort Liability Under Uncertainty 59–67 (2001) [hereinafter Porat & Stein, Tort Liability Under Uncertainty] (analyzing market-share liability cases); Ariel Porat & Alex Stein, Indeterminate Causation and Apportionment of Damages: An Essay on Holtby, Allen, and Fairchild, 23 Oxford J. Legal Stud. 667, 682–88 & n.47 (2003) [hereinafter Porat & Stein, Indeterminate Causation] (analyzing decisions that imposed liability for lost chances to recover and increased risk of injury and criticizing their calculus of damages). See generally Saul Levmore, Probabilistic Recoveries, Restitution, and Recurring Wrongs, 19 J. Legal Stud. 691, 721–26 (1990) (analyzing policy reasons for awarding victims fractional probability-based compensation).

134. See Zuchowicz v. United States, 140 F.3d 381, 388 n.6 (2d Cir. 1998) ("In the last fifty years the strictness of the requirement that the plaintiff show that without defendant's act or omission the accident would not have occurred has been mitigated in several types of cases. . . . [T]he modern trend is to place the burden on the defendants to disprove causation."); see also, e.g., Haft v. Lone Palm Hotel, 478 P.2d 465, 475–78 (Cal. 1970) (en banc) (requiring a negligent defendant to disprove causation).

sumptions, these rules create decisional shortcuts that utilize the existing knowledge to streamline courts' decisions on causation issues. Causation rules that belong to the public mechanism serve yet another—more fundamental—purpose. They incentivize actors to take cost-efficient precautions against damage.[135] To create this incentive, the rules narrow causality-based escape routes, or exits, from liability for negligent actors.[136]

These rules bring into our tort system the advantages and the disadvantages of standardization. Standardization is good for our system for three reasons: (1) It tells actors what precautions they should take to fend off the prospect of paying tort compensation, (2) it saves time and resources that courts would otherwise have to spend on adjudicating complex issues of liability and causation, and (3) it also reduces the possibility of judicial error in determinations of liability.[137] Standardization of liability, however, also has a downside: It increases the risk of liability for innovators working on safety improvements and induces them to slow down, and sometimes altogether abandon, the innovation process.[138] The overall trade-off between the systemic gains from standardization and the innovation losses may still be positive, but our tort system can still make itself more welcoming of innovation.[139]

Causation rules that belong to the public mechanism thus sail apart from the private law rules of causation. "Cause in fact" and "proximate cause" rules that go into the private mechanism of accident regulation focus on the etiology of the victim's damage and whether it falls within the scope of the risk to which the actor exposed the victim in violation of the victim's entitlement to safety.[140] The private mechanism of accident regulation uses these strict rules to ensure that tort compensation rights the wrong and creates no shortfalls, windfalls, or spillovers.[141] This

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135. See Landes & Posner, supra note 19, at 229 (explaining that welfare-driven rules of causation must be formulated to incentivize cost-efficient precautions against damage).

136. See infra notes 301–343 and accompanying text (citing decisions relaxing causation requirements for public policy reasons).

137. See Gideon Parchomovsky & Alex Stein, Catalogs, 115 Colum. L. Rev. 165, 175 (2015) [hereinafter Parchomovsky & Stein, Catalogs] (noting "the scholarly consensus . . . that under realistic conditions . . . [bright-line] rules are superior to standards in guiding individual behavior, as well as in enhancing social welfare, since rules reduce adjudicative costs and minimize the twin risks of judicial error and misuse").

138. See Gideon Parchomovsky & Alex Stein, Torts and Innovation, 107 Mich. L. Rev. 285, 286–89, 303–08 (2008) (demonstrating the tort system's reliance on customary technologies as benchmarks for adequate care stifles innovation).

139. See id. at 308–14 (offering ways to remedy the tort system's anti-innovation bias).

140. See Weinrib, Private Law, supra note 44, at 10–11.

141. See id. at 11–12 ("[W]hile a functionalist might regard causation as an indirect way of achieving market deterrence or some other extrinsic goal, an internal account treats causation as causation, that is, as a concept that represents the unidirectional sequence from action to effect."); Richard W. Wright, Causation in Tort Law, 73 Calif. L. Rev. 1735, 1788–98, 1827–28 (1985) [hereinafter Wright, Causation in Tort Law] (interpreting "cause in fact" to require the defendant's wrongful act be a "necessary element of a

mechanism sets up a framework of corrective justice and fairness between the actor and the victim inter se. This framework positions individuals' entitlements to safety above augmentation of welfare.

The public mechanism also does not skip over compensation that tort victims recover. This mechanism uses special damage rules that remedy the overenforcement and underenforcement of the law.[142] The rules do so, respectively, by decreasing and increasing the victim's compensation amount relative to her actual damage.[143] They set aside the strict foundational requirement of the private mechanism that tort compensation fit the victim's actual damage. Importantly, these rules also become applicable when the private mechanism systematically fails to punish tortfeasors due to the scarcity of evidence, high litigation costs, or a similar predicament. Under any such scenario, the safety problem stops being private and becomes public, which triggers the application of the public mechanism and its compensation rules.

* * *

This reconceptualization of the law of torts has profound implications for doctrine and theory. Tort doctrine is generally perceived as a law of harms,[144] yet it is also, in a large measure, a law of benefits. Although tort doctrine is commonly understood as consisting of three core components—negligence, damage, and causation—that apply across the board, this unified view is semantically correct but substantively incomplete and misguided. Substantively, each of the three components of the tort doctrine has two different meanings: private and public. The concept of negligence animating the public mechanism of accident regulation is not identical to negligence under the private mechanism. Causation and damage rules used by the two mechanisms are also far from being functional twins. Our tort doctrine consequently has six core components rather than three.

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sufficient set" of causes (NESS) leading to the plaintiff's damage and associating this requirement with corrective justice).

142. See infra section IV.A (explaining how damages rules are applied differently in public and private cases).

143. See infra section IV.A.

144. See, e.g., Keeton et al., supra note 8, § 1, at 4–5 (describing the tort system as rules remedying wrongful inflictions of harm by entitling victims to compensation from wrongdoers).

II. NEGLIGENCE: PRIVATE AND PUBLIC

A. *Theory*

"Negligence" has two textbook definitions.[145] According to one of them, an actor can be negligent only in a second-personal sense. That is, an actor becomes negligent only when she acts unreasonably toward another human being, and by doing so, she puts that person—identified as a "neighbor"—in harm's way.[146] To act "unreasonably," the actor must do something that exposes the neighbor to a disproportionate or non-reciprocal risk of harm—an endangerment that exceeds the level of risk socially accepted as necessary, disrespects the neighbor's reasonable expectation for safety, and violates the equality between the parties by unilaterally prioritizing her interest above the neighbor's.[147] Under this framework, an actor owes her potential victim a duty to avoid negligence when she takes an action that exposes the victim to a risk of damage or, alternatively, undertakes to keep the victim out of harm's way. By endangering another person or by making that person rely on her help, the actor makes that person entitled to her precautions against harm. This entitlement obligates the actor to treat the victim's safety interest as equally important as her own goals.[148]

This broad formulation of negligence squarely belongs to private law. It builds on fairness, corrective justice, and a bilateral relationship between the actor and her potential victim.[149] Under this formulation, the actor–victim relationship encompasses the victim's *authority* over the actor, the actor's *accountability* to the victim, and the restorative compensation that the actor must pay the victim when her negligence causes the victim harm.[150] The negligence doctrine thus protects the victim's safety interest only when the actor does something to affect the safety of that specific victim. Any such victim-related action makes the actor accountable to the victim. This second-personal accountability and the victim's correlative authority to make the actor pay for the harm done do not depend on any general socioeconomic policies. Instead, they are determined by the specifics of the parties' relationship, their mutual

145. See Keith N. Hylton, Tort Law: A Modern Perspective 102–21 (2016) (outlining moral and economic definitions of negligence).

146. See Weinrib, Corrective Justice, supra note 11, at 38–39.

147. See Fletcher, supra note 11, at 540–42.

148. Id. at 547, 550, 554, 569 (underscoring the importance of equal protection against risk of harm).

149. See Weinrib, Private Law, supra note 44, at 62–66 (explaining that equality between doer and sufferer and the correlativity of their relationship are essential characteristics of corrective justice).

150. See Stephen Darwall, The Second-Person Standpoint: Morality, Respect, and Accountability 5–9 (2006).

expectations, and their duty to treat one another with equal concern and respect.[151]

Another definition of negligence—popularized as the Learned Hand or the Hand-Posner formula—is narrower.[152] While adopting what this Article calls the public mechanism of accident regulation, the Hand formula definition hews to economic efficiency.[153] Under this definition, an actor must accompany her risky activity with precautions that mount an economically efficient response to another person's expected harm (calculated by multiplying the harm's probability by its negative dollar value or the cost of fixing the harm).[154] Correspondingly, an actor becomes negligent only when she can prevent the harm to another person by taking precautions that cost less than the expected harm but fails to do so. Formally, an actor is negligent when $B < PL$, with B denoting the cost, or the burden, of the requisite precautions against harm, and P and L representing, respectively, the probability and the magnitude of the loss that the actor's contemplated activity might bring about.[155] To put it in marginal terms, any precaution that the actor can add to the precautions already taken becomes mandated when its cost falls below the value of the ensuing reduction in the harm's probability or magnitude.[156]

Scholars disagree over which of these definitions is the more attractive from a normative standpoint.[157] This disagreement stems from the more general competition between fairness and utility that has no easy or accepted solution.[158] Scholars are also divided over the meaning of "negligence" under positive law and which of the two definitions captures that meaning the closest.[159] As part of that debate, scholars have carried out quantitative studies of American courts' negligence decisions.[160] These studies show that most courts do not expressly rely on the

151. Stephen Darwall, Morality, Authority, and Law 135–39 (2013).

152. See United States v. Carroll Towing Co., 159 F.2d 169, 173 (2d Cir. 1947) (putting forth the original statement of the Hand formula); Posner, Economic Analysis of Law, supra note 19, at 192–93 (stating the Hand formula in marginal terms).

153. See Posner, Economic Analysis of Law, supra note 19, at 191–93 (relating the Hand formula to efficiency).

154. Id. at 192.

155. Id.

156. Id.

157. See supra notes 11, 19 (citing sources from different schools of thought).

158. See, e.g., Louis Kaplow & Steven Shavell, Fairness Versus Welfare 52–61 (2002) (arguing against fairness and in favor of policies driven by welfare economics).

159. Compare Posner, Economic Analysis of Law, supra note 19, at 194–96 (attesting that courts have adopted the Hand formula), with Allen & Rosenberg, supra note 116, at 700–01 (arguing courts do not use the Hand formula), Gilles, supra note 116, at 1046–47 (same), and Wright, Myth of Hand Formula, supra note 116, at 150 (same).

160. See Wright, Myth of Hand Formula, supra note 116, at 151–52 (summarizing studies that conclude courts rarely use the Hand formula, with the Louisiana Supreme Court and the United States Court of Appeals for the Seventh Circuit being the only exceptions).

Hand formula.[161] More contestably, the studies also claim that most courts do not use this formula even implicitly.[162]

This claim is overstated. In fact, courts routinely compare costs of precautions with expected harm, and they have done so even since decades before the invention of the Hand formula.[163] Furthermore, courts not using the Hand formula expressly do not make negligence decisions in a normative vacuum. They must use some criteria to distinguish negligent from non-negligent behavior. Whether those criteria include fairness and corrective justice is a separate question that awaits resolution. But the existing quantitative studies fail to show affirmatively—and hence do not establish—that courts base their negligence decisions on fairness and corrective justice.[164]

The absence of a clear precedent that prefers one negligence definition to another is not surprising. Courts need not commit themselves to some specific notion of fairness or efficiency as a decisive criterion for all negligence decisions. Nor do they need to adopt, once and for all, the private or the public mechanism of accident regulation. For common law courts, using these mechanisms interchangeably, by adjusting them to

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161. Id. at 151.

162. Id.

163. See, e.g., R.R. Co. v. Stout, 84 U.S. 657, 662 (1873) (affirming the negligence finding against a railroad company that failed to prevent a both foreseeable and serious accident that injured the plaintiff without incurring "any . . . expense or inconvenience" besides "the trifling expense of replacing [the] latch"); Adams v. Bullock, 125 N.E. 93, 93–94 (N.Y. 1919) (Cardozo, J.) (finding a trolley company not responsible for an electrocution of a boy who swung a wire from across the bridge bringing it in contact with the trolley wire, because the probability of such an accident was too small while the burden of precautions was enormous); see also Cooley v. Pub. Serv. Co., 10 A.2d 673, 676–77 (N.H. 1940) (formulating negligence as a matter of cost-benefit analysis); Osborne v. Montgomery, 234 N.W. 372, 376 (Wis. 1931) (same); Landes & Posner, supra note 19, at 104 (analyzing *Osborne* and *Cooley*); Richard A. Posner, A Theory of Negligence, 1 J. Legal Stud. 29, 29–35 (1972) (sampling 1,528 decisions on accidents delivered by appellate courts between 1875 and 1905 to show courts' massive reliance on cost-benefit analysis in identifying negligence); Henry T. Terry, Negligence, 29 Harv. L. Rev. 40, 42–44 (1915) (outlining the negligence doctrine through cost-benefit analysis used by courts). For contemporary decisions applying the formula, see, e.g., In re City of New York, 522 F.3d 279, 284–85 (2d Cir. 2008); Shanklin v. Norfolk S. Ry. Co., 369 F.3d 978, 997 (6th Cir. 2004); McCarty v. Pheasant Run, Inc., 826 F.2d 1554, 1556–58 (7th Cir. 1987); Chambers v. Village of Moreauville, 85 So. 3d 593, 597–98 (La. 2012); Levi v. Sw. La. Elec. Membership Coop., 542 So. 2d 1081, 1087 (La. 1989); Spagnulo v. Commonwealth Dep't of Envtl. Mgmt., No. 2003191, 2006 WL 1238671, at *4–5 (Mass. Super. Ct. 2006); Jerkins v. Anderson, 922 A.2d 1279, 1286–87 (N.J. 2007); Smith v. Johnston, 591 P.2d 1260, 1262–63 (Okla. 1978); Raab v. Utah Ry. Co., 221 P.3d 219, 232–33 (Utah 2009); see also Bass v. Gopal, Inc., 716 S.E.2d 910, 915 (S.C. 2011) (adopting Judge Posner's formulation of a business owner's obligation to protect patrons from crime as a duty to "'increase its expenditures on security until the last dollar buys a dollar in reduced expected crime costs [to patrons]'" (quoting Shadday v. Omni Hotels Mgmt. Corp., 477 F.3d 511, 514 (7th Cir. 2007))).

164. See supra note 116 (citing studies that only show courts rarely apply the Hand formula).

the circumstances of individual cases, is often a more sensible strategy.[165] Case-specific factors often indicate what mechanism should govern the case at hand. For cases involving an accident-prone activity that produces a predominantly private benefit, the fairness-based private mechanism of accident regulation would be more befitting. Cases involving substantial public benefits, on the other hand, call for the application of the efficiency-driven public mechanism.

If the Hand formula were to apply to a case brought by a guest who is injured on his host's premises, the court would have to carry out an investigation into how to maintain the owner's property most effectively in view of the potential hazard to the guest. This investigation would usually be costly and unproductive. Worse yet, it would also undermine the foundational assumption of property law that private uses of property, even idiosyncratic ones, are most efficient.[166] Even in the best case scenario, in which the court successfully identifies the owner's path to a cost-effective allocation of risks and resources, this information and the court's decision would be good only for the case at bar. Thus the court's investigation would generate no economies of scale. All of its costs would go into one single case instead of being spread across many decisions that use the same or similar information.

In adjudicating accident-causing activities that produce private benefits, courts therefore will do well to steer away from the Hand formula. Instead, they should focus on the parties' expectations from each other. Under this private law criterion, the guest justifiably expected the owner to treat his safety on her premises as equally valuable as her own safety for a simple reason: Premise owners routinely instill this expectation in their guests. The premise owner therefore impliedly commits herself to this conventional practice by inviting the guest to her premises.[167] To satisfy this justified expectation, the owner must protect the guest against every known hazard. Failure to do so would constitute negligence.[168]

Compare this scenario with a falling accident that takes place at a hospital, a nursing home, or a department store—a category of cases involving systematic production of public benefits. For such cases, the Hand formula is most suitable because the guidance it provides helps

165. Cf. Shyamkrishna Balganesh, The Pragmatic Incrementalism of Common Law Intellectual Property, 63 Vand. L. Rev. 1543, 1568–70 (2010) (providing an insightful account of common law's incrementalism in the intellectual property context).

166. See Henry E. Smith, Property and Property Rules, 79 N.Y.U. L. Rev. 1719, 1727–31, 1755–56 (2004) (defending a decentralized property system in which owners increase wealth by making individualized choices between utilizations of assets that are numerous and heterogeneous).

167. See Keeton et al., supra note 8, § 61, at 422 (rationalizing premise owners' liability on the implied assurance of safety and noting this rationale is prevalent).

168. See id. § 60, at 412–13.

courts make decisions that enhance social welfare.[169] This guidance is both implementable and cost effective: Acting upon it in every case would minimize the overall costs of accidents and precautions against accidents. Equally importantly, the guidance will also be generalizable: Courts can deduce from it specific rules of conduct that actors in the relevant industry can easily understand and follow. Formulating such guidance therefore generates economies of scale that justify the costs of the courts' investigations.

The factory case falls into the same "public benefit" category. The Hand formula consequently will work well in that case, too. Indeed, the formula offers here the only plausible criterion that the court can use to determine negligence, since the fairness-based criteria would not work well. Trying to apply the reciprocity or another fairness criterion to this and similar cases would produce a stalemate. Fairness cannot tell how much smoke the factory can emit nor does it offer a compelling reason for enjoining the factory from emitting smoke altogether by stopping or slowing down its operation. Because residents also enjoy public benefits generated by this or other factories, their claim against smoke emissions becomes compelling only when those emissions are more detrimental than beneficial to society.

Requiring that the factory treat residents' safety as equally valuable as its own safety would also be futile. This criterion works well only when an actor's risky activity generates a private benefit for herself and no public benefits whatsoever. Cases involving public benefits provide no equality benchmark that courts can work with. There is therefore only one plausible standard that courts can use. They can, and indeed should, require that the factory take precautions commensurate with the magnitude and the probability of the harm caused by the smoke. Under this standard, the factory and similar actors will be obligated to take every precaution that costs less than the damage it prevents. There is nothing in the fairness concept that could expand the residents' entitlement to the factory's precautions beyond this economic threshold.

To sum up, in cases involving accident-prone activities that generate public benefits, fairness standards provide no reconciliation for the parties' conflicting claims concerning the scope of the actor's duty of care. The victim's appeal to fairness will thus never be strong enough to block or slow down the accident-prone production of public benefits. Because fairness also favors the undisrupted supply of socially valuable goods, any such appeal will be tautological and devoid of substance. The Hand formula therefore provides a much more preferable solution for such cases.

This analysis helps explain the intuitive appeal of two conflicting, yet influential, tort theories developed respectively by Professor George

169. See id. § 61, at 425–27.

Fletcher and Judge Richard Posner.[170] Fletcher's theory distinguishes between actors' reciprocal and nonreciprocal exposures to a risk of harm.[171] Reciprocal exposures are legitimate and hence not wrongful, while nonreciprocal exposures are illegitimate and wrongful.[172] Reciprocity of the risks that actors both face and create for each other sets up an equilibrium between those actors.[173] An actor is at fault when she disrupts that equilibrium by exposing the potential victim to a disproportionate—and hence excessive and nonreciprocal—risk of sustaining damage.[174] An actor also acts negligently when she creates a reciprocal risk for another person but fails to take the normal precautions to fend off the prospect of harm for that person. Such failures, too, violate the reciprocity requirement.[175]

Posner's theory, on the other hand, holds that an actor is negligent when she fails to act according to the Hand formula.[176] Whenever an actor creates a risk for another person or undertakes to guard against such risk, she ought to take all available precautions that cost less than the expected damage they prevent.[177] The expected damage benchmark for precautions profoundly differs from Fletcher's reciprocity benchmark. Under the expected damage benchmark, an actor must discount the full amount of the anticipated harm by her probability of not causing that harm.[178] For example, when an actor has a ten percent chance of causing harm in the amount of $100,000, she must think of herself as standing to inflict on the prospective victim a $10,000 damage. Consequently, the cost of precautions the actor would have to take is capped at $10,000.

This calculation presupposes repeated conduct that randomly distributes precautions across multiple cases. In ninety percent of those cases, these precautions are completely unnecessary because the prospective victim would stay out of harm's way even if the actor does not implement them. As a result, the actor wastes up to $10,000 on each of

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170. See Posner, Economic Analysis of Law, supra note 19, at 191–94; Fletcher, supra note 11, at 540–43.

171. For another theory of reciprocity in risk imposition, see Charles Fried, An Anatomy of Values 183–206 (1970).

172. See Fletcher, supra note 11, at 540–43.

173. Id.; see also id. at 547 (indicating the reciprocity standard justifies the "level of risk to which all members of the community contribute in roughly equal shares").

174. Id. at 542.

175. Fletcher's theory alludes to "strict liability," but it actually incorporates fault. Id. at 543–44. Under this theory, actors assume responsibility only when they impose nonreciprocal, and hence excessive, risks of harm upon other people. Id. at 542. Actors are also excused when they cause accidents they could not reasonably avoid. Id. at 541. Fletcher expressly acknowledges that his notions of strict liability and negligence overlap with each other in most cases. Id. at 549.

176. See Posner, Economic Analysis of Law, supra note 19, at 191–92.

177. See id.

178. See id.

those individually unspecified cases. The upside of this strategy is the remaining ten percent of the cases: In each of those cases, the actor prevents a $100,000 damage by spending at most $10,000 on precautions. This randomizing strategy also produces defensible results in cases in which precautions capable of preventing the damage cost more than the expected damage. For example, when an actor has a ten-percent chance of causing harm in the amount of $100,000, which can only be prevented by taking precautions that cost $15,000, the Hand formula would not impose a duty to take the precautions. This exemption has an upside: In ninety percent of the cases, in which the actor's precautions are not needed at all, not taking them saves $15,000 per case. The exemption, however, also has a downside: It permits the actor to cause damage in the amount of $100,000, preventable at $15,000, in ten percent of the cases.

The Hand formula works best with activities that produce public benefits. Any other formulation of negligence would either overprotect or underprotect the victims' safety interest. Exonerating the actor who could avoid damaging the victim by taking precautions that cost less than the expected damage would give the victim insufficient protection. The victim's safety interest would thus be sacrificed for no good reason. Conversely, holding the actor negligent when the cost of precautions is greater than the expected damage would overprotect the victim by allowing her safety interest to block the production of a more valuable public benefit. The American system does not give accident victims such enhanced protection because they cannot justifiably claim it for themselves while enjoying public benefits, the affordability of which depends on keeping the costs of precautions against accidents economically feasible.[179] Similar to other people affected by their society's collective choices, accident victims must take the bitter with the sweet.[180]

With the private benefits that society does not enjoy, things are profoundly different, for the tort system does not privilege an actor's private benefit over the victim's safety interest upon finding the benefit to be more valuable.[181] Because the victim does not partake of the benefit, the system does not allow the actor to compromise the victim's safety and get off scot-free while generating that benefit for herself. When such an actor exposes the victim to a nonreciprocal risk of sustaining damage and the risk materializes, the system obligates the actor to compensate the victim, consistent with Fletcher's interpretation of "fault."[182]

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179. See supra text accompanying note 102 (illustrating the trade-off).

180. See generally Guido Calabresi & Philip Bobbitt, Tragic Choices 18–24 (1978) (explaining the inevitability of social trade-offs that compromise individuals' personal safety).

181. See supra section I.B (giving reasons for treating private benefits differently).

182. This principle was well formulated by Lord Reid in the landmark British House of Lords decision, Bolton v. Stone [1951] AC 850 (HL) 867 (appeal taken from Eng.) ("What a man must not do . . . is to create [substantial] risk . . . . In considering that matter . . . I

Fletcher's theory assigns no significance to the economic efficiency of actors' conduct.[183] For that theory, the only thing that matters is whether the actor violated the equality equilibrium by exposing the victim to a nonreciprocal—and hence excessive—risk of harm.[184] More fundamentally, Fletcher's theory a priori rejects Judge Posner's utilitarian license to sacrifice a victim's $100 asset when avoiding the asset's destruction costs the actor more than $100. The whole point of that theory and all other fairness-based accounts of the tort system is to impose a deontological constraint on actors' freedom to risk other people's well-being.[185] Unsurprisingly, all of the court decisions that Fletcher uses to illustrate his theory involve accident-prone activities that generate private benefits or benefits assumed to be private.[186] His other examples do not support the theory.[187] By the same token, Judge Posner's

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do not think . . . it . . . right to [consider] the difficulty of remedial measures. If cricket cannot be played on a ground without creating a substantial risk . . . it should not be played there at all."); see also Wright, Myth of Hand Formula, supra note 116, at 185–88, 211 (stating negligence law does not allow a person "to put others at even greater risk for [her] solely private benefit if [her] expected private gain outweighs the others' expected losses" while acknowledging that courts resort to utility calculations in cases involving public benefits). But see Weinrib, Private Law, supra note 44, at 147–52 (commenting that Lord Reid's formulation represents "the English and Commonwealth approach to reasonable care," which contrasts with American tort law's broad application of the Hand formula).

183. See Fletcher, supra note 11, at 540, 569–70 (arguing "[t]he social costs and utility of the risk are irrelevant" and individuals' right to be protected against unexcused nonreciprocal risks trumps social utility). But see id. at 571 (acknowledging "the paradigm of reasonableness" based on a cost-benefit analysis of actors' behavior "still holds sway over the thinking of American courts").

184. See id. at 569–70.

185. See id.

186. See id. at 544 n.21 (citing McKee v. Trisler, 143 N.E. 69, 69 (Ill. 1924) (adjudicating the killing of the plaintiff's mule and injury to another mule owned by the plaintiff by the defendant's bull)); id. at 545 n.30 (citing Rylands v. Fletcher (1868) 3 LRE & I App. 330 (HL) 338–40 (appeal taken from Eng.) (indicating the reservoir causing the plaintiff's damage was constructed by the defendant at his own risk and for his own benefit)).

187. One of Fletcher's examples, see id. at 570, is a case in which the New York's Court of Appeals mentioned, in connection with lasting air pollution arising from a large cement plant operation, that the law requires it to "decide[] the rights of parties before it" and not "use a decision in private litigation as a purposeful mechanism to achieve direct public objectives greatly beyond the rights and interests before the court," Boomer v. Atl. Cement Co., 257 N.E.2d 870, 871 (N.Y. 1970). Ultimately, however, the court carried out a cost-benefit analysis and granted the afflicted property owners a liability-rule protection. Specifically, it granted the injunction sought by the owners "conditioned on the payment of permanent damages . . . which would compensate them for the total economic loss to their property" and ruled that the defendant will be able to remove the injunction after paying the owners "such permanent damages as may be fixed by the court." Id. at 872–73. This ruling was a standard application of the nuisance doctrine, which balances private property interests against social welfare. See Thomas W. Merrill, Trespass, Nuisance, and the Costs of Determining Property Rights, 14 J. Legal Stud. 13, 14 (1985) (indicating nuisance liability is a function of a cost-benefit analysis).

real-world illustrations of the Hand formula feature an accident-prone activity that produces public benefit.[188] The two types of risky activity fall under two different liability regimes identified here as the private and the public mechanisms of accident regulation.

The Hand formula defines negligence with greater precision and more narrowly than the private mechanism of accident regulation and its fairness and reciprocity standards. By adopting this formula, the public mechanism of accident regulation narrows the entry into tort liability for actors who generate public benefits.[189] Defendants whose activities produce no such benefits and consequently fall under the private mechanism face a much broader entry into liability in tort. This difference has an obvious explanation. The public mechanism narrows victims' rights in order not to chill the production of public benefits. The private mechanism, for its part, gives victims more expansive entitlements to safety because these entitlements do not stop the production of public, as opposed to private, benefits.

Table 1 below summarizes this legal phenomenon.

Another example brought by Fletcher is air carriers' strict liability for damages caused by objects falling from an aircraft. Fletcher, supra note 11, at 570; see also Restatement (Second) of Torts § 520A (Am. Law Inst. 1977). This example features a conclusive presumption of negligence that can be justified on cost-efficiency grounds as well. See infra note 240.

Fletcher also cites a famous case in which a defendant moored his ship to a private dock without permission from the dock owner in order to prevent it from being carried away by a severe storm, ultimately damaging the dock as the storm ran its course. See Fletcher, supra note 11, at 544 (citing Vincent v. Lake Erie Transp. Co., 124 N.W. 221 (Minn. 1910)). The defendant was faultless, but the court nonetheless decided that he must compensate the dock owner for the damage to the dock. *Vincent*, 124 N.W. at 221–22. This decision is beside the point because it awarded the dock owner the standard remedy for intentional trespass that does not involve balancing of costs and benefits. See Merrill, supra, at 16. This decision also aligns with tort law's goal of maximizing social welfare. See Gideon Parchomovsky & Alex Stein, Reconceptualizing Trespass, 103 Nw. U. L. Rev. 1823, 1849–52 (2009) (justifying *Vincent* by the social need to prevent extortionary holdouts and minimize transaction costs).

188. See Posner, Economic Analysis of Law, supra note 19, at 194–95 (illustrating adoptions of the Hand formula by cases featuring water supply, public transport, and mining operations).

189. The entry–exit taxonomy originally appeared in the classic analysis of contract law. See Grant Gilmore, The Death of Contract 47–48 (1974). For its first introduction into tort theory, see Alex Stein, Toward a Theory of Medical Malpractice, 97 Iowa L. Rev. 1201, 1202–03 (2012) [hereinafter Stein, Theory of Medical Malpractice].

TABLE 1: TWO FACES OF "NEGLIGENCE"

		Standard			
		Public Regulation	**Private Regulation**	**Goal**	**Entry into Liability**
Benefit of Activity	**Public**	Hand Formula		Welfare	Narrow
	Private		Equality & Reciprocity	Corrective Justice	Broad

B. *Illustrations*

The first and historically most significant illustration of this Article's theory is *Losee v. Buchanan*—a seminal decision of the New York Court of Appeals.[190] This widely cited precedent explicitly separated accident-prone activities that produce public benefits from activities that produce no such benefits while creating a risk of harm for other people.[191] To date, scholars have paid virtually no attention to this aspect of *Losee*. This section will rectify this omission.

The facts of *Losee* are remarkable. An industrial steam boiler, owned and operated by the Saratoga Paper Company at its mill, exploded and caused massive damage to the neighboring properties.[192] The victims sued the company (and related parties) for tort damages but could not prove the company's negligence because there was none.[193] The company could not have done anything to prevent the explosion short of shutting down the boiler, which was not economically feasible.[194] The victims argued that they nonetheless were entitled to recover compensation from the company pursuant to a then-recent English case—and presently, a classic casebook decision—*Rylands v. Fletcher*.[195] In that case, the defendant had excavated a reservoir on his land for the storage of water for his mill.[196] The water burst through old mine shafts and poured into the neighboring mine that belonged to the plaintiff, rendering the mine inoperative.[197] The defendant had no fault in that accident, which was not reasonably foreseeable. The plaintiff, however, was even more

190. See 51 N.Y. 476 (1873).

191. See id. at 484–85; Prosser, supra note 31, at 409 n.71 (observing *Losee* "[has] been extensively followed").

192. *Losee*, 51 N.Y. at 476.

193. Id. at 478.

194. Id. at 485 (stating the company was faultless).

195. (1868) 3 LRE & I App. 330 (HL) (appeal taken from Eng.).

196. Id. at 332.

197. Id.

innocent than the defendant because he did nothing to contribute to the accident.[198] The court consequently ruled in the plaintiff's favor and the House of Lords affirmed that ruling.[199]

The *Losee* court disagreed with the victims and decided that the company was not liable.[200] On its way to this conclusion, the court reasoned that *Rylands v. Fletcher* was "in direct conflict with the law as settled in this country."[201] American tort law, the court explained, sets up a distinct negligence standard for imposing tort liability upon defendants whose accident-prone activities generate public benefits.[202] In the court's words:

> [T]he general rules that . . . I must so use my real estate as not to injure my neighbor, are much modified by the exigencies of the social state. We must have factories, machinery, dams, canals and railroads. They are demanded by the manifold wants of mankind, and lay at the basis of all our civilization. If I have any of these upon my lands, and they are not a nuisance and are not so managed as to become such, I am not responsible for any damage they accidentally and unavoidably do my neighbor. *He receives his compensation for such damage by the general good, in which he shares, and the right which he has to place the same things upon his lands.*[203]

This decision marks the shift from the private law standards of reciprocity and equality to the public mechanism of accident regulation.[204] Under the private mechanism, every prospective tort victim has a right against court rulings that prioritize the actor's benefit from a risky activity over her safety interest. This right remains intact even when the objective market value of the actor's private benefit is greater than the expected harm to the victim.[205] When it comes to the production of public benefits, however, the victim has no valid claim for enjoining the system from treating her safety interest as defeasible and contingent upon cost-benefit trade-offs.[206] Public benefits, as the *Losee* court explained, are part

198. Id. at 338–40 (explaining the defendant, although innocent, was still liable because he acted at his own peril).

199. Id. at 338–39.

200. Losee v. Buchanan, 51 N.Y. 476, 492–93 (1873).

201. Id. at 487.

202. Id. at 484–85.

203. Id. (emphasis added); see also Beatty v. Cent. Iowa Ry. Co., 12 N.W. 332, 334 (Iowa 1882) ("All persons must accept the advantages of . . . [train transportation] with the dangers and inconveniences which necessarily attend it. The price of progress cannot be withheld.").

204. For similar reasoning, see Chi., B. & Q. R. Co. v. Krayenbuhl, 91 N.W. 880, 882–83 (Neb. 1902).

205. See supra notes 92–93 and accompanying text (explaining balancing costs and benefits is unfair for strictly private activities).

206. See supra notes 101–102 and accompanying text (arguing accident-causing activities producing public goods are judged by balancing social utility against expected harm).

of "the general good, in which [the victim] shares."[207] The victim cannot justifiably demand that her safety interest be exempted from trade-offs that promote the production of public benefits of which she partakes.

This precedent is 144 years old. Yet, it perfectly accords with present-day doctrine.[208] Consider the precedential decision on the so-called "baseball rule" that the Supreme Court of Missouri delivered in 2014.[209] This decision holds that baseball spectators accidentally injured by stray balls and bats cannot successfully sue clubs or players.[210] Such injuries are not uncommon and can even be fatal,[211] but the court estimated that they could only be prevented at a socially unaffordable cost: ruining the spectators' "joy that comes with being close enough to the Great American Pastime to smell the new-mown grass, to hear the crack of 42 inches of solid ash meeting a 95-mph fastball, or to watch a diving third baseman turn a heart-rending triple into a soul-soaring double-play."[212] This emphatic statement categorized professional baseball as a valuable public benefit. Based on this categorization, the court decided that the creation of risks that are "a necessary and inherent part of the game" can never be negligent.[213] The court also ruled that spectators who enjoy the close view of the game willfully assume the risk of being hit by stray balls and bats.[214] This primary assumption of risk, the court held, precludes tort suits against the club and the players.[215]

The court, however, refused to recognize ancillary baseball-fan entertainment as a "necessary and inherent part of the game."[216] In the case at

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207. *Losee*, 51 N.Y. at 485.

208. The *Losee* principle also applies in nuisance cases. See Prosser, supra note 31, at 418–22 (explaining production of public benefits often precludes nuisance remedies and citing cases).

209. Coomer v. Kan. City Royals Baseball Corp., 437 S.W.3d 184, 194 (Mo. 2014) (en banc).

210. Id. (citing Anderson v. Kan. City Baseball Club, 231 S.W.2d 170, 172 (Mo. 1950)).

211. See, e.g., Catherine Cloutier, How Often Are Baseball Spectators Injured During Game Play?, Bos. Globe (June 9, 2015), http://www.bostonglobe.com/metro/2015/06/09/how-often-are-baseball-spectators-injured/bVBG1iYz8u0dy1DLGx0cmI/story.html [http://perma.cc/LB3B-4AXG] (reporting on average thirty balls per game entered the stands at Fenway Park, the home of the Boston Red Sox, injuring thirty-six to fifty-three spectators per season during a five-year period in the 1990s); Ed Edmonds, Commentary: Baseball Needs to Reduce the Risk of Fan Injury, Chi. Trib. (Aug. 24, 2015), http://www.chicagotribune.com/news/opinion/commentary/ct-baseball-fans-injuries-mlb-bat-line-drive-ball-perspec-0825-jm-20150824-story.html [http://perma.cc/R9QD-E5FU] (reporting non-negligible incidences of serious injuries among baseball spectators). See generally Robert M. Gorman & David Weeks, Death at the Ballpark (2d ed. 2015) (providing an empirical account of baseball fatalities).

212. *Coomer*, 437 S.W.3d at 188; see also id. at 196 (discussing a similar observation that social costs of preventing spectator injuries would be high).

213. Id. at 195.

214. Id. at 194–99.

215. Id. at 194–97.

216. Id. at 195, 197–99.

bar, Sluggerrr, the Kansas City Royals mascot, used an air gun to shoot hotdogs to fans. One of those hotdogs struck the plaintiff in his eye, causing him retinal detachment.[217] The court ruled in connection with this accident that the jury should assess whether Sluggerrr exercised reasonable care and whether the plaintiff was comparatively negligent without ascribing any special value to the shooting of hotdogs at the stadium.[218] Under the taxonomy of this Article, this ruling categorized the benefit from the shooting of hotdogs as private rather than public.[219]

The oft-cited British decision from *Rylands v. Fletcher* involved an application of the private mechanism of accident regulation—quite possibly, an incorrect one. In that case, the accident-prone activity carried out by the defendant produced public benefits by facilitating the mill's operation. The Exchequer Court and the House of Lords paid no regard to this factor and proceeded on the assumption that the defendant's water reservoir benefited only himself.[220] The House of Lords decision consequently created a private law doctrine that imposes strict liability for damages.[221] American courts have generally declined to follow *Rylands* in this broad format.[222] Instead, they interpreted that decision as a basis for imposing liability for ultrahazardous activities.[223] American courts also have narrowed the scope of the ultrahazardous-activity doctrine by effectively confining its application to activities that generate private benefits.[224] Liability imposed by this doctrine is therefore not genuinely strict: When a pursuer of a private benefit exposes another person to an unusually severe—and hence nonreciprocal—risk of accident, she violates that person's safety for no good reason. Any such violation has a fault element in it and thus can properly be categorized as negligence as well.[225]

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217. Id. at 188–89.

218. Id. at 203–04.

219. For cases that similarly emphasize social utility, see Taco Bell, Inc. v. Lannon, 744 P.2d 43, 49–50 (Colo. 1987) (emphasizing the social utility of not taking precautions as a key factor in negligence decisions); Broussard v. State, 113 So. 3d 175, 181–86 (La. 2013) (finding the social utility of elevators justifies greater risk of accident).

220. Rylands v. Fletcher (1868) 3 LRE & I App. 330 (HL) 338–40 (appeal taken from Eng.) (indicating the defendant constructed the reservoir at his own risk and for his own benefit).

221. Keeton et al., supra note 8, § 78, at 548–51.

222. Id. (noting American courts generally reject *Rylands* except as authority for making defendants liable for damages caused by abnormally hazardous activities); cf. Prosser, supra note 31, at 400, 406–09 (noting only a minority of American courts have fully adopted *Rylands*).

223. See Keeton et al., supra note 8, § 78, at 548–51.

224. See infra text accompanying notes 226–235 (discussing the scope of the ultrahazardous-activity doctrine).

225. Here and in all other contexts of American tort law, the negligence–strict liability divide is "entirely a matter of definition, rather than substance, and the argument leads only to a pointless dispute over the meaning of a word." Keeton et al., supra note 8, § 75,

To see how the ultrahazardous-activity doctrine works, compare the classic holding of *Guille v. Swan*,[226] which applied the private mechanism, with Judge Posner's decision in *Indiana Harbor Belt Railroad Co. v. American Cyanamid Co.*[227] In *Guille*, the defendant rode a hot air balloon over New York City and descended into the plaintiff's garden, from which he was rescued by spectators who stepped indiscriminately on the plaintiff's vegetables and flowers.[228] The defendant's landing involved no negligence on his part—according to the court, he was "at the sport of the winds"—but the court still found him liable because riding a hot air balloon over a densely populated urban area was abnormally hazardous.[229]

This categorization of the defendant's activity did not match the plaintiff's damage, which was relatively minor. Arguably, the defendant's benefit from his aerial adventure exceeded the expected damage to the plaintiff's vegetables and flowers. The court, however, did not even consider that possibility. The defendant's adventure was beneficial only to himself and produced no offsetting benefits for the society at large. For that reason, the case was not governed by the public mechanism of accident regulation and its cost-benefit analysis. Instead, it was controlled by the private mechanism that made the defendant liable for the plaintiff's damage. This liability was well deserved because the defendant exposed the plaintiff to a nonreciprocal risk of property damage.[230]

In *Indiana Harbor*, things were markedly different. This case involved a spillage of a hazardous chemical from a railroad tank car. The defendant's activity—transporting the chemical on a train through the Chicago metropolitan area—was as risky as riding a hot air balloon above New York City.[231] This activity, however, generated a substantial public benefit capable of offsetting the risk. To generate this benefit, the activity utilized the railroad network as a hub-and-spoke system with the city of Chicago being the hub.[232] Based on this factor, Judge Posner refused to categorize

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at 536; see also Posner, Economic Analysis of Law, supra note 19, at 209 ("[I]t would be a mistake to dichotomize negligence and strict liability.").

226. 19 Johns. 381, 381–82 (N.Y. Sup. Ct. 1822).

227. 916 F.2d 1174, 1177–82 (7th Cir. 1990). For an insightful analysis of this decision, see generally David Rosenberg, The Judicial Posner on Negligence Versus Strict Liability: *Indiana Harbor Belt Railroad Co. v. American Cyanamid Co.*, 120 Harv. L. Rev. 1210 (2007) (arguing Posner "changed the portrayal of strict liability" by introducing the "activity-level effect").

228. *Guille*, 19 Johns. at 381.

229. Id. at 383.

230. Cf. Restatement (Second) of Torts § 519(2) (Am. Law Inst. 1977) (limiting actors' liability "to the kind of harm, the possibility of which makes the activity abnormally dangerous").

231. See *Ind. Harbor*, 916 F.2d at 1175.

232. Id. at 1180.

the activity as abnormally hazardous for purposes of strict liability and held that the regular negligence rule controlled the case.[233]

In another decision that applied the ultrahazardous-activity doctrine, Judge Posner made the public–private benefit distinction unmistakably clear.[234] He wrote:

> Keeping a tiger in one's backyard would be an example of an abnormally hazardous activity. The hazard is such, relative to the value of the activity, that we desire not just that the owner take all due care that the tiger not escape, but that he consider seriously the possibility of getting rid of the tiger altogether; and we give him an incentive to consider this course of action by declining to make the exercise of due care a defense to a suit based on an injury caused by the tiger—in other words, by making him strictly liable for any such injury.[235]

Under this formulation, when a risky activity brings about no substantial benefits to society, the actor will bear strict liability for any damage that her activity causes to the victim. The actor's private benefit from that activity is immaterial. This benefit, no matter how large, provides no reason for absolving the actor from the obligation to compensate the victim because the risk she exposes the victim to is nonreciprocal. Although the actor's liability for the victim's damage is technically strict, her activity is not faultless. Rather, this activity constitutes negligence because it imposes a nonreciprocal risk of harm on another person.[236]

On the other hand, when a hazardous activity benefits society at large—as in cases involving the production or provision of vital goods, services, and rescue[237]—the reciprocity standard and the entire private mechanism of accident regulation disappear from the scene and the public mechanism takes over. Under this mechanism, the actor assumes liability for the victim's damage only when she fails to take effective precautions that cost less than the expected damage. When no such failure is proven to be present, the court will hold the actor not liable and the victim will receive no compensation. The victim's compensation, in the words of the landmark *Losee* decision, will be "the general good, in

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233. Id. at 1181–82.

234. G.J. Leasing Co. v. Union Elec. Co., 54 F.3d 379, 386 (7th Cir. 1995).

235. Id.

236. Cf. Jeremiah Smith, Liability for Substantial Physical Damage to Land by Blasting—The Rule of the Future. II, 33 Harv. L. Rev. 667, 672 (1920) (conceptualizing the ultrahazardous activity rule as imposing liability for the actor's choice of an abnormally dangerous activity—identified as "negligence of the first description"—because it is as wrongful as carrying out a risky activity unaccompanied with adequate precautions against harm, or "negligence of the second description").

237. See, e.g., Ind. Consol. Ins. Co. v. Mathew, 402 N.E.2d 1000, 1003 (Ind. Ct. App. 1980) ("The law values human life above property.").

which [she] shares."[238] Because the victim partakes of public benefits, she cannot justifiably stall these benefits' production by demanding that her safety interest, unlike that of other members of her society, be exempt from the necessary risk-benefit trade-offs.

The Second Restatement of Torts recognizes this principle. According to this Restatement, in determining whether an activity falls into the "abnormally dangerous" category, courts must consider the "extent to which its *value to the community* is outweighed by its dangerous attributes."[239] The Restatement gives no recognition to the actor's private benefit from the dangerous activity. Moreover, it expressly excludes from the "abnormally dangerous" category any "activity . . . carried on in pursuance of a public duty imposed upon the actor as a public officer or employee or as a common carrier."[240] Remarkably, this exclusion extends to activities involving explosives that would be considered ultrahazardous if carried out in pursuit of a private benefit.[241]

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238. Losee v. Buchanan, 51 N.Y. 476, 485 (1873).

239. See Restatement (Second) of Torts § 520(f) (Am. Law Inst. 1977) (emphasis added).

240. Id. § 521. According to the Restatement, air carriers are strictly liable for "physical harm to land or to persons or chattels on the ground . . . caused by the ascent, descent or flight of aircraft, or by the dropping or falling of an object from the aircraft." Id. § 520A. This exception to the negligence principle has an explanation that invokes a conclusive presumption of fault: "The risk of harm to those on the ground is sufficiently obvious if anything goes wrong with the flight." Id. § 520A cmt. c; see also Bethel v. N.Y.C. Transit Auth., 703 N.E.2d 1214, 1216–18 (N.Y. 1998) (reaffirming the abolition of "the highest degree of care" standard for common carriers). Courts that still hold common carriers to the "utmost care" standard do so because common carriers enjoy economies of scale and access to technologies. See, e.g., Andrews v. United Airlines, 24 F.3d 39, 41 (9th Cir. 1994) (holding in relation to a bag-falling accident that the airline industry's mode of operation and access to technologies may impose a duty to prevent such accidents).

241. Restatement (Second) of Torts § 521 cmt. A; see also Toms v. Calvary Assembly of God, Inc., 132 A.3d 866, 881 (Md. 2016) (declining to categorize licensed public fireworks as ultrahazardous because "fireworks play an important role in our society, and are often met with much fanfare . . . [and although] not all segments of the population may enjoy fireworks displays, . . . the social desirability of fireworks appear to outweigh their dangerous attributes"); cf. Klein v. Pyrodyne Corp., 810 P.2d 917, 920-21, amended by 817 P.2d 1359 (Wash. 1991) (categorizing unlicensed fireworks as non-beneficial to society hence ultrahazardous). Compare Exner v. Sherman Power Constr. Co., 54 F.2d 510, 514 (2d Cir. 1931) ("When . . . the defendant, though without fault, has engaged in the perilous activity of storing large quantities of a dangerous explosive for use in his business, we think there is no justification for relieving it of liability, and that the owner . . . rather than a third person . . . should bear the loss."), and Wallace v. A.H. Guion & Co., 117 S.E.2d 359, 360–62 (S.C. 1960) (citing *Exner* and upholding the same principle), with Haddon v. Lotito, 161 A.2d 160, 163–64 (Pa. 1960) (holding public fireworks are not ultrahazardous). For a similar differentiation between public and private benefits generated by the underlying risky activity, compare Blankenship v. CRT Tree, No. 80907, 2002 WL 31195215, at *9 (Ohio Ct. App. Oct. 3, 2002) (citing and agreeing with precedents categorizing bungee jumping and bouncing as ultrahazardous), with Hoven v. Kelble, 256 N.W.2d 379, 385–93 (Wis. 1977) (refusing to impose strict liability on providers of medical care).

Formulations of negligence in major tort treatises similarly acknowledge the presence of the public–private benefit distinction. For example, the classic treatise of William Prosser and W. Page Keeton underscores the centrality of the "social utility" factor in the courts' applications of the Hand formula,[242] as does the more contemporary treatise of Professor Dan Dobbs.[243] According to these learned treatises, courts routinely include in the actor's burden of precautions the social value of a risky activity that she must forego to avoid an accident.[244] Courts allow no such inclusion for activities that generate a strictly private benefit for the actor while imposing a risk of harm on another person.[245] As already explained, such activities fall under the private, rather than public, mechanism of accident regulation. For an actor to be vindicated, such activities therefore must satisfy the reciprocity or a similar fairness-based standard rather than the Hand formula's demand for $B \geq PL$.

III. CAUSATION: PRIVATE AND PUBLIC

A. *Theory*

The doctrine of causation consists of two independent requirements: cause in fact and proximate cause.[246] To satisfy the first requirement, the alleged tort victim must establish as a matter of fact that she would have suffered no damage if the negligent actor had taken the requisite precautions against that damage.[247] To satisfy the second requirement, the victim must convince the court that her damage results from the actor's negligence as a matter of law.[248] To this end, she needs to show that her damage was among the reasons that made the actor's conduct negli-

242. See Keeton et al., supra note 8, § 31, at 171–72 ("Chief among the factors which must be considered is the social value of the interest which the actor is seeking to advance . . . . The public interest will justify the use of dangerous machinery, so long as the benefits outweigh the risk . . . .").

243. See Dan B. Dobbs, The Law of Torts § 144, at 337–40 (2000) [hereinafter Dobbs, Law of Torts] (stating the social utility of a defendant's conduct plays a pivotal role in courts' determinations of negligence).

244. See id. at 339 & n.11 (reporting courts weigh the utility of a defendant's conduct to society to offset a victim's expected harm, while describing as controversial a similar setoff of private benefits); Keeton, et al., supra note 8, § 31, at 171–72 ("Against [the] probability, and gravity, of the risk, must be balanced in every case the utility of the type of conduct in question."); see also Parsons v. Crown Disposal Co., 936 P.2d 70, 80 (Cal. 1997) (underscoring social utility as a core factor that can justify accident-causing activities).

245. See Dobbs, Law of Torts, supra note 243, § 144, at 339 & n.11 (stating, under negligence doctrine, private benefit generally does not justify damaging another person).

246. Id. § 167, at 407–09.

247. Id. § 168, at 409–10.

248. Id. § 182, at 448–50.

gent.[249] The victim's damage thus must fall within the scope of the risk created by the actor's negligent conduct.[250]

Similar to negligence, each of those requirements has a dual meaning determined, respectively, by the private and public mechanisms of accident regulation. Tort scholars paid hitherto scant attention to this duality.[251] This Part aims to fill this gap. The proceeding discussion focuses on the core doctrine of causation without considering causality-based defenses known as comparative fault,[252] contributory negligence,[253] and avoidable consequences.[254] These defenses become available to negligent actors who can show that the victim's damage was wholly or partially self-inflicted.[255] Under such circumstances, the actor becomes entitled to reduce her compensation obligation to the victim by the amount of damage that the victim negligently brought upon herself.[256] These defenses operate in roughly the same way under both private and public mechanisms of accident regulation. Other defenses that negligent actors can invoke are based on the victim's consent to the risk of accident[257] or waiver of the right to sue the actor in tort.[258] These defenses occupy the contract–tort interface analyzed below in Part V.

1. *Cause in Fact.* — The cause-in-fact requirement is a core component of corrective justice promoted by the private accident-regulation mechanism. To have a justified recourse to the actor's money and assets, the alleged victim must establish that she was wronged by that actor.[259] More precisely, the victim must prove that but for the wrong perpetrated by the actor she would not have been damaged.[260] Proof of "but-for"

249. See Restatement (Third) of Torts: Liab. for Physical & Emotional Harm § 29 (Am. Law Inst. 2005) ("An actor's liability is limited to those harms that result from the risks that made the actor's conduct tortious.").

250. Id. § 30 ("An actor is not liable for harm when the tortious aspect of the actor's conduct was of a type that does not generally increase the risk of that harm.").

251. For one salient exception, see David Rosenberg, The Causal Connection in Mass Exposure Cases: A "Public Law" Vision of the Tort System, 97 Harv. L. Rev. 849, 860 (1984) (proposing introduction of probabilistic recovery and class actions for cases involving mass-exposure accidents).

252. See Dobbs, Law of Torts, supra note 243, § 201, at 503–04.

253. See id. § 199, at 494–96.

254. See id. § 203, at 510–11.

255. See id. § 202, at 508–10 (stating comparative fault is one factor in the determination of causation).

256. For the fault–causality criteria permitting the requisite reduction of compensation, see id. §§ 202–203, at 508–11.

257. Id. § 211, at 534–35 (outlining the assumption of risk defense).

258. Id. §§ 213–214, at 541–46 (outlining rules regulating express and implied agreements not to sue).

259. See supra notes 140–141 (citing sources to illustrate the wrongfulness standard under corrective justice).

260. See Dobbs, Law of Torts, supra note 243, §§ 168–169, at 409–12 (outlining the but-for test for causation). Courts also follow the NESS standard articulated by Professor

causation is necessary for a simple reason: When the actor's misdeed causes the alleged victim no harm, the actor does no wrong *to that specific person*. Even when the actor acts negligently against that person's interest, the person would turn into a real victim only when she actually suffers damage from that negligence.[261] When the actor's negligence has no bad consequences for the prospective victim, it is inconsequential. The fact that the person was merely lucky to stay out of harm's way is inconsequential as well. Under the private mechanism of accident regulation, the prospective victim's luck benefits the actor as well.

The public mechanism of accident regulation treats the cause-in-fact requirement differently. This mechanism ascribes no intrinsic value to the wrongs, the rights, and the remedies that define the second-personal relationship between the actor and the victim. Instead, it cares about motivating actors to take cost-efficient precautions against harm and eliminating chilling effects on the production of public benefits.[262] These ex ante incentives do not depend on the factual accuracy of the causal attribution of the victim's damage to the actor's misdeed.[263] To set these incentives right, all the tort system needs to do is design a reliable proxy that will connect the actor's conduct to the relevant risk of harm and identify the most efficient enforcer of the requisite safety standard. Based on that proxy, the system can separate cases in which it will respond to the standard's violation from cases in which it will forego the standard's enforcement.[264]

An alternative to this damage-focused enforcement strategy is ex ante regulation of accident risks. As Professor Steven Shavell explains in his recent article, however, ex ante regulation of risks often requires costly monitoring.[265] Shavell's prime example is the regulation obligating restaurants to have a functioning fire sprinkler system. He shows that the duty to have a functioning fire sprinkler system in a restaurant is best enforced through a system of torts and not by ex ante regulation. The reason is simple: Inspecting each and every eating establishment to

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Richard Wright. See Wright, Causation in Tort Law, supra note 141, at 1774; see also Restatement (Third) of Torts: Liab. for Physical & Emotional Harm § 26 (Am. Law Inst. 2005) (categorizing tortious conduct as a factual cause of harm in all cases in which "the harm would not have occurred absent the conduct"); id. § 27 (stating multiple acts "each of which . . . alone would have been a factual cause of the physical harm at the same time in the absence of the other act(s)" will also satisfy the cause-in-fact requirement). Under both NESS and "multiple sufficient causes" scenarios, the defendant's conduct constitutes cause in fact because it ensures that the plaintiff sustains injury.

261. See supra notes 140–141 and accompanying text.

262. See Guido Calabresi, Concerning Cause and the Law of Torts: An Essay for Harry Kalven, Jr., 43 U. Chi. L. Rev. 69, 78–84 (1975) [hereinafter Calabresi, Concerning Cause].

263. See id.

264. See id.

265. See Steven Shavell, A Fundamental Enforcement Cost Advantage of the Negligence Rule over Regulation, 42 J. Legal Stud. 275, 284–85 (2013).

ensure that it has an operating sprinkler system is just too costly. A far more expedient strategy is to carry out a post-fire inspection of the restaurant as part of the tort action.[266] Private enforcement via tort suits will only target those restaurants that caught on fire—a much smaller number than that of all restaurants in the relevant locality.[267] Furthermore, the right to force this inspection on a restaurant will be bestowed on the individual victim. The victim will also be given an incentive to enforce the safety standard. If she proves that the restaurant had no functioning fire sprinkler system, she would receive a court verdict ordering the restaurant to compensate her for her damage.

Under the public regulation mechanism, the court will grant the victim recovery even when she cannot prove that the restaurant could have extinguished the fire if it had employed a good sprinkler system. All the victim needs to show is that such a scenario was a real possibility or, in the legal jargon, that the absence of a functioning sprinkler system at the restaurant "substantially" or "materially" contributed to the fire accident.[268] When the victim's evidence meets the requisite "substantial factor" threshold, the court will obligate the restaurant to compensate her for her entire damage.[269] The victim need not prove that, but for the restaurant's failure to have working sprinklers in place, she would have stayed out of harm's way.[270] This demanding proof requirement belongs only to the private, as opposed to the public, mechanism of accident regulation.

The public mechanism uses these rules to narrow the causality-based exit from liability for negligent actors. To achieve the same result, the mechanism sometimes reverses the burden of proof by requiring the negligent actor to produce evidence that credibly disassociates her

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266. Id. at 278–82.

267. Id. at 281–82.

268. See Keeton et al., supra note 8, § 41, at 267 (stating the "substantial factor" standard "has found general acceptance").

269. See Dobbs, Law of Torts, supra note 243, § 173, at 420–21 (observing "[c]ourts are avowedly liberal" with the proof of causation when the defendant is shown to have violated an industry's safety standard that guards against "the kind of harm suffered by the plaintiff" and citing cases involving pharmaceutical negligence and ill maintenance of residential buildings and public amenities). Such determinations of cause in fact were anticipated by Wex S. Malone, Ruminations on Cause-in-Fact, 9 Stan. L. Rev. 60, 72–75, 94–97 (1956).

270. See Dobbs, Law of Torts, supra note 243, § 173, at 421 (describing inferences of but-for causation). For salient illustrations of this approach, see Lasha v. Olin Corp., 625 So. 2d 1002, 1003, 1005–06 (La. 1993) (allowing the preponderance-of-the-evidence standard to override the more stringent but-for test for cause in fact in the presence of multiple causal factors that included the defendant's negligence); Bostic v. Ga.-Pac. Corp., 439 S.W.3d 332, 344 (Tex. 2014) ("While but for causation is a core concept in tort law, it yields to the more general substantial factor causation in situations where proof of but for causation is not practically possible . . . .").

wrongdoing from the victim's damage.[271] In cases involving medical malpractice or a mass accident, courts also may grant the victim compensation that reflects the probability of her causal allegations against the wrongdoer.[272] Actors consequently should expect to pay their victims compensation whenever they fail to implement precautions commensurate with the victim's expected damage.

The private mechanism does not penalize negligent actors in the same way except when they also create causal uncertainty (for example, by destroying evidence critical to their victims' suit).[273] At the same time, the entry into tort liability set by the private mechanism for negligent actors is much broader than the public mechanism's Hand formula.[274]

Table 2 below summarizes these two cause-in-fact requirements and their respective roles in the system of torts.

TABLE 2: TWO FACES OF "CAUSE IN FACT"

		Standard		
		Public Regulation	**Private Regulation**	**Exit from Liability**
Benefit of Activity	**Public**	Substantial Factor; Probabilistic Recovery; Reversed Burden of Proof		Narrow
	Private		But-for / NESS	Broad

271. See, e.g., Transorient Navigators Co. v. M/S Southwind, 714 F.2d 1358, 1368–69 (5th Cir. 1983) (holding a violation of a sailing rule to be the reason for presuming that the violator caused the subsequent collision of vessels). For additional examples, see Kenneth S. Abraham, Self-Proving Causation, 99 Va. L. Rev. 1811, 1838–42 (2013). For a novel explanation of "relaxed causation" rules that apply to group activities, see generally J. Shahar Dillbary, Causation Actually, 51 Ga. L. Rev. 1 (2016) (showing that relaxed causation induces cost-efficient infliction of indivisible harm by multiple tortfeasors who split the obligation to compensate the victim).

272. See supra note 133 (citing cases to illustrate the use of statistics and probabilistic recovery theory in medical malpractice suits).

273. For an early precedent establishing this principle, see Allison v. Chandler, 11 Mich. 542, 554 (1863) ("The nature of the case is such that the wrong-doer has chosen to make it; and upon every principle of justice, *he* is the party who should be made to sustain all the risk of loss which may arise from the uncertainty . . . result[ing from] his own wrongful act."); see also Porat & Stein, Tort Liability Under Uncertainty, supra note 133, at 169–70 (arguing penalizing tort defendants for causing evidential damage is consistent with corrective justice); Ernest J. Weinrib, Causal Uncertainty, 36 Oxford J. Legal Stud. 135, 142–46 (2016) (explaining corrective justice protects victims' remedial right to establish liability for wrongful injury).

274. See supra section II.A (discussing the distinction between the public and private definitions of negligence).

The cause-in-fact requirement thus has two meanings. Yet, as with negligence, this duality does not establish that causation doctrine is unintelligible. The two different meanings, or faces, of "cause in fact" belong to two different liability regimes identified here as public and private mechanisms of accident regulation. The private mechanism applies only to accident-prone activities that produce private benefits, while the public mechanism of accident regulation controls accident-prone activities that generate public benefits. Hence, there is no real conflict between these two visions of cause in fact. Their simultaneous presence in our tort system does not make the system unprincipled, incoherent, or incomprehensible.

The private regulation of accidents geared toward attaining corrective justice, however, does not unexceptionally adhere to the rigid but-for standard. When a negligent actor destroys evidence that could help the victim prove causation, the private mechanism may reverse the burden of proof and hold the actor causally responsible for the victim's damage unless she proves by a preponderance of the evidence that she did not cause that damage.[275] The private mechanism may also substitute the but-for standard with more flexible, as well as more plaintiff-friendly, criteria for cause in fact: "substantial factor" and even "probabilistic recovery." These substitutions may occur when the victim sustains probabilistic or actuarial harm that negatively affects her life: for example, when she experiences a substantial decrease in her chances to recover from illness, or when her chances to become seriously ill in the future substantially increase.[276]

2. *Proximate Cause.* — The classic formulation of the proximate cause requirement hews to corrective justice and positions itself within the private mechanism of accident regulation. Under this formulation, a tort victim can recover compensation only for the harms she was entitled to be protected against by the actor.[277] The victim's harm must be among the reasons that make the actor's conduct negligent.[278] Put differently,

275. See Summers v. Tice, 199 P.2d 1, 3–4 (Cal. 1948) (holding when the individual cause of the victim's injury is unproven but evidence shows two or more actors acted carelessly and one of them caused the injury, it is incumbent on each actor to prove by a preponderance of the evidence that he did not cause the injury). This rule originates from Armory v. Delamirie (1722) 93 Eng. Rep. 664 (KB); 1 Str. 505; see e.g., Goodman v. Praxair Servs., Inc., 632 F. Supp. 2d 494, 517 n.12 (D. Md. 2009) (summarizing the spoliation doctrine and tracing it to *Armory v. Delamirie*).

276. See, e.g., Christopher H. Schroeder, Corrective Justice and Liability for Increasing Risks, 37 UCLA L. Rev. 439, 462–73 (1990) (asserting liability for increasing risk of harm for another person is compatible with corrective justice). But see Stephen R. Perry, Risk, Harm, and Responsibility, *in* Philosophical Foundations of Tort Law, supra note 11, at 321, 336 (explaining a deterministic view of causes and effects rejects the notion of risk damage).

277. See Restatement (Third) of Torts: Liab. for Physical & Emotional Harm § 29 (Am. Law Inst. 2005).

278. Id.

the victim's right and the actor's wrong must be exact Hohfeldian correlatives; the right must define the wrong.[279] The duty of care that the actor owed to the victim consequently must include an obligation to prevent or avoid the damage sustained by the victim.[280] Then, when the actor defaults on that harm-specific obligation and causes the victim damage she was entitled to be protected against, the actor becomes liable in tort and must pay the victim for her damage.[281]

The Third Restatement of Torts provides a classic illustration of these rules:

> Richard, a hunter, finishes his day in the field and stops at a friend's house while walking home. His friend's nine-year-old daughter, Kim, greets Richard, who hands his loaded shotgun to her as he enters the house. Kim drops the shotgun, which lands on her toe, breaking it.[282]

In this hypothetical case, Kim's entitlement to Richard's precautions is limited in scope: It encompasses Kim's protection against shooting injuries and nothing else.[283] Consequently, Kim has no right to obligate Richard to protect her toe against falling objects. For his part, Richard, of course, could protect Kim's toe at no extra cost to himself since he already had a duty not to hand his shotgun to her. This fact, however, is merely accidental and inconsequential for corrective justice.

Under the public mechanism, things could change rather dramatically. This mechanism obligates actors to internalize all the costs and, correspondingly, all the risks created by their conduct. This obligation is subject to the Hand formula, which creates an exception to the internalization rule by allowing actors not to take precautions that cost more than the expected harm.[284] Richard, however, could not take advantage of that exception. All he could do is make a plausible argument that the harm to Kim's toe called for no precautions whatsoever because it was remote and improbable, on top of not being very serious. This argument, however, is doomed to fail because the expected harm to Kim's toe was above $0,

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279. See Hohfeld, supra note 80, at 28–32 (explaining the correlativity of rights, wrongs, and remedies).

280. Dobbs, Law of Torts, supra note 243, § 182, at 449–50 (explaining the co-dependency of proximate cause and duty of care).

281. See Ariel Porat, Misalignments in Tort Law, 121 Yale L.J. 82, 84–85 (2011); see also Coleman, Risks and Wrongs, supra note 11, at 346 (arguing a victim's damage should be actionable only when it falls "within the scope of the risks that make that aspect of [the defendant's] conduct at fault"); Weinrib, Private Law, supra note 44, at 159 ("The consequences for which the defendant is liable are restricted to those within the risks that render the act wrongful in the first place.").

282. Restatement (Third) of Torts: Liab. for Physical & Emotional Harm § 29 cmt. d, illus. 3.

283. Id.

284. See supra notes 152–156 and accompanying text.

while Richard's marginal cost of preventing it equaled $0. Hence, $B < PL$.[285]

This discrepancy should not come as a surprise. Protecting rights and inducing cost-efficient conduct are two different missions of the law of torts. Those missions are equally important, but they also differ from each other conceptually and operationally.[286] The Restatement's view that Richard should assume no liability for Kim's injury represents the private mechanism of accident regulation that focuses on the protection of rights. This view presents a perfectly correct statement of the law, and here is why: Richard's activity (handing his gun over to Kim) generated a strictly private benefit (Richard's convenience) and no benefits for the society as a whole. This factor widens Richard's entry into negligence, but at the same time it also widens his causality-based exit from liability.

With this in mind, consider the operation of the proximate cause requirement under the public mechanism of accident regulation. Consider the following case:

> An obstetrician negligently fails to notice that the patient's fetus is oversized—which requires a C-section delivery—and delivers the baby naturally. A knot of the umbilical cord that had no prior indications asphyxiated the baby, and the baby died. The umbilical cord problem was completely unforeseeable, yet a C-section would have saved the baby's life. Is the obstetrician liable?[287]

This case appears to be identical to the hypothetical case of *Kim v. Richard*,[288] but it is not. In *Kim v. Richard*, the benefit produced by the defendant's accident-prone activity was private. In the present case, the benefit was public because it included baby delivery and neonatal care. Correspondingly, the court should decide the proximate cause issue by applying the public mechanism of accident regulation.

The public mechanism narrows the scope of negligence and the entry into tort liability for actors such as doctors, nurses, and hospitals, who produce public benefits.[289] Such an actor can only be liable when she causes harm to another person by failing to take precautions against the risk she is responsible for when those precautions cost less than the expected harm.[290] Our tort system put this economic limitation in place

285. See Porat, supra note 281, at 126 n.127 (arguing the risk to the child's toe should be accounted for in the negligence determination).

286. See Posner, Concept of Corrective Justice, supra note 10, at 201–06 (discussing the tension between individual rights and social welfare in tort law).

287. This hypothetical originates from the Israel Supreme Court decision in CA 2714/02 Doe v. Bnei Zion (Haifa) Med. Ctr. 58(1) PD 516 (2003).

288. See supra text accompanying note 282.

289. See supra section II.A (observing cost-benefit analysis is applied in identifying negligence in activities that generate public benefits).

290. See supra notes 152–156 and accompanying text (explaining the Hand formula).

in order not to discourage the production of public benefits. With "proximate cause," the public mechanism does the exact opposite: It expands the scope of the risk for which negligent actors are responsible in order to narrow their exit from liability and make them pay for damages that they fail to prevent whenever the expected damage is costlier than the prevention or avoidance of the accident.[291] As demonstrated in section III.A.1, the mechanism interprets the cause-in-fact requirement to produce the same effect.

Under this mechanism, when applicable medical standards require a doctor to deliver a patient's baby by a C-section, the doctor ought to make sure that the patient gets all the benefits from having the baby delivered sooner (by a C-section) rather than later (vaginally). These benefits include the patient's opportunity to resolve unanticipated—yet, not altogether improbable—crisis situations similar to the umbilical cord emergency that ended up in a tragedy in the case at bar. Hence, because the obstetrician was already obligated to carry out a C-section, her marginal cost of saving the baby's life was $0. For the same medical reason, the patient faced no additional pain or risks either. The expected gain, on the other hand, was well above $0: It equaled the very low ex ante probability of the umbilical cord accident multiplied by the value of the baby's life. The welfare-driven economic analysis consequently identifies the obstetrician's malpractice as the proximate cause of the baby's death.

Table 3 summarizes the two proximate cause requirements—private and public—and their respective roles in our system of torts.

TABLE 3: TWO FACES OF "PROXIMATE CAUSE"

		Standard		
		Public Regulation	**Private Regulation**	**Exit from Liability**
Benefit of Activity	**Public**	Cost-Benefit Analysis		Narrow
	Private		Damage Tracks Duty	Broad

As Table 3 demonstrates, the private mechanism of accident regulation focuses exclusively on the victim's safety rights and on the actor's correlative duty to respect these rights. The public mechanism, in contrast, cares about keeping accident risks at a socially optimal level, and for that reason it requires actors to eliminate every risk that can be prevented at

291. See Stein, Theory of Medical Malpractice, supra note 189, at 1203–07 (unveiling the entry–exit design of medical malpractice laws across the United States).

an economically justified cost. Conceptually, both mechanisms carry out the "scope of the risk" analysis, but they perform that analysis in two different ways. The private mechanism defines "scope of the risk" by a Hohfeldian derivation of the victim's right to receive protection against accidental harm from the actor's duty of care.[292] The public mechanism, for its part, defines "scope of the risk" as including every risk that the actor could prevent by taking precautions that cost less than the total expected damage. This definition narrows the exit from liability for negligent actors.

B. *Illustrations*

Consider a Virginia Supreme Court decision featuring a married couple, Lena and John, and the doctrine of cause in fact.[293] A miscommunication between Lena and John, who together had driven to a friend's house, caused Lena to believe that John left the friend's house and walked home.[294] In fact, John was squatting behind the couple's car, waiting for Lena to come out and drive him home.[295] After leaving the friend's house, Lena entered the car, started the engine, backed up without looking in the rearview mirror, and ran over John.[296] In the ensuing suit for damages, it was established that Lena's failure to look in the rearview mirror while driving her car backwards constituted negligence.[297] However, the court also determined that "her looking in the rearview mirror would not have detected [John's] presence."[298] As a result, John was unable to prove that but for Lena's negligent driving, he would not have been injured and lost the case.[299]

This case was properly decided under the private mechanism of accident regulation.[300] By contrast, when a similar accident falls under the public mechanism, the actor might find herself liable. For example, courts normally impose liability on a physician who mistreats a terminal patient by negligently failing to diagnose the presence of a malignant brain tumor, from which the patient was about to die.[301] The fact that the

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292. See Hohfeld, supra note 80, at 30–32 (theorizing that one's having a right entails the other party's owing a correlative duty).

293. See Jordan v. Jordan, 257 S.E.2d 761 (Va. 1979).

294. Id. at 762–63.

295. Id.

296. Id.

297. Id.

298. Id.

299. Id. at 763.

300. See supra notes 259–261 and accompanying text (explaining but-for causation under the private mechanism).

301. See, e.g., Mickels v. Danrad, 486 S.W.3d 327, 330–31 (Mo. 2016).

patient was doomed to die soon after receiving proper treatment is not a defense.[302]

Consider the Utah Supreme Court decision in *Alder v. Bayer Corp.*[303] that applied the cause-in-fact doctrine in a case involving a manufacturer's negligent installation and servicing of an x-ray machine at a hospital.[304] The manufacturer's negligence included failure to secure ventilation that could drive away chemical fumes coming from the machine.[305] Shortly after the machine's installation, two technicians who operated it developed chronic fatigue and other symptoms.[306] They sued to recover for that harm, but the trial court ruled that their causation evidence was not sufficient to move the case to the jury.[307] The Utah Supreme Court disagreed.[308] It held that the safety protocol that the manufacturer violated aimed at preventing the type of harm suffered by the technicians.[309] Under such circumstances, it explained, temporal proximity between the harm and the violation can properly substitute for causation evidence.[310] This ruling continues an established common law practice to narrow the exit from liability for providers of goods and services who violate safety regulations and standards.[311]

The final example features a landmark decision delivered by Judge Calabresi on behalf of the Second Circuit in *Zuchowicz v. United States.*[312] As a result of pharmaceutical or physician negligence, a naval hospital patient overdosed on the drug Danocrine, developed a rare and fatal pulmonary illness, and passed away.[313] Her husband filed a suit against the United States pursuant to the Federal Tort Claims Act and applicable Connecticut law.[314] The absence of medical data prevented the plaintiff from establishing the requisite but-for causation by a preponderance of the evidence.[315] The trial court nonetheless decided the case in his favor

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302. Id. at 331 ("This approach keeps the question of the time and date of the decedent's death out of the causation analysis and confines it to the damages analysis where it belongs.").

303. 61 P.3d 1068 (Utah 2002).

304. Id. at 1071.

305. Id. at 1072.

306. Id.

307. Id. at 1071.

308. Id. at 1089.

309. Id.

310. Id. at 1089–90.

311. See Keeton et al., supra note 8, § 41, at 270 (explaining that in cases involving "violation of some statutory safety regulation . . . the court [cannot] overlook the fact that the injury . . . is precisely the sort of thing that proper care . . . intended to prevent" and "accordingly allow a certain liberality" in jury decisionmaking).

312. 140 F.3d 381, 383 (2d Cir. 1998).

313. Id. at 384–85.

314. Id. at 383, 387–89.

315. Id. at 389.

by relying on an expert opinion that identified the overdose of Danocrine as comparatively the most probable cause of the patient's fatal illness.[316] Based on the expert's differential etiology analysis,[317] the court determined that the probability that the patient died from that overdose exceeded the probability of all other known hypotheses.[318]

Judge Calabresi affirmed this determination.[319] He held that the expert's testimony alone was good enough to satisfy the requisite cause-in-fact requirement.[320] The legal basis for that holding was the oft-neglected —yet critical—doctrinal nexus between statutory and professional safety standards and the two pillars of the causation doctrine: cause in fact and proximate cause. According to Judge Calabresi, when the plaintiff proves that the defendant violated a statutory, professional, or other well-articulated safety standard—labeled by Prosser "a plain common law duty of care"[321]—and when the victim's injury falls within the scope of the risk aimed to be eliminated or reduced by that standard, the plaintiff needs only a scintilla of evidence to establish cause in fact.[322] The plaintiff need not satisfy the strict but-for standard, nor does she even need to prove cause in fact by a preponderance of the evidence.[323] As Judge Calabresi explains, "[a]t one time, courts were reluctant to say in such circumstances that the wrong could be deemed to be the cause," but "[a]ll that has changed."[324]

The changes that Judge Calabresi had in mind are profound and go beyond the rule he formulated in *Zuchowicz*.[325] Under extant law, victims of medical malpractice can prove causation by a "reasonable medical probability" instead of preponderance of the evidence.[326] In the medical malpractice area, state courts increasingly adopt the probabilistic recovery doctrine that entitles victims to receive fractional compensation that equals the full amount of the victim's harm multiplied by the patient's lost chances to recover from illness.[327]

Move now to the proximate cause doctrine. Under this doctrine, harm inflicted on the victim by a negligent party's action must be among

316. Id. at 385–86, 389–90.

317. Id. at 385–86.

318. Id. at 383.

319. Id. at 389–90.

320. Id.

321. Id. at 391 (quoting Keeton et al., supra note 8, § 41, at 270).

322. Id.

323. Id.

324. Id. at 390.

325. See Calabresi, Concerning Cause, supra note 262, at 71–73 (articulating a public law paradigm of causation standards geared toward augmentation of social welfare).

326. See Stein, Theory of Medical Malpractice, supra note 189, at 1218–22 (citing cases in which courts relaxed causation requirements in medical malpractice cases).

327. Id. at 1225–26; see also supra note 133 (citing cases).

the reasons that make the action negligent.[328] If it is not among those reasons, the court will deny the victim compensation for that harm.[329] The victim's harm consequently must track the duty to take precautions that the actor violated. This connection between duty and proximate cause stands at the crossroads between the private and the public mechanisms of accident regulation.

Courts that apply the private mechanism tend to interpret this connection differently from courts using the public mechanism. Under the private mechanism, the actor's duty of care is coextensive with foreseeability of the victim, the harm, and the circumstances of the accident.[330] Ordinary people are not supposed to take care of unforeseeable accidents, unforeseeable victims, and unforeseeable harms.[331] Courts, however, have increasingly come to realize that producers of public benefits—who enjoy the narrow definition of negligence under the Hand formula and its conceptual equivalents—have gone a long way to separate themselves from the proverbial "reasonable man on the Clapham omnibus."[332] These actors are predominantly corporations and skilled professionals whose performance should track their competitive industries' state of the art.[333] The scope of the risk that these actors should be responsible for is not unlimited. The railway companies' duties of care still do not include the prevention of outlandish scenarios, akin to Helen Palsgraf's injury from the scales that fell upon her due to the blast from the explosives that a passenger dropped on the ground after being negligently pushed by the railroad employees into a moving train.[334] This scope, however, includes more risks than the private mechanism's concept of foreseeability can plausibly encompass.

Medical malpractice, once again, is a case in point. In 2013, the Georgia Court of Appeals decided a tragic case that involved an elderly patient with an arthritic knee.[335] The patient's doctors injected that knee with a medication drawn from a contaminated multidose vial.[336] As a result, the patient developed excruciating pain in her knee and became

328. Restatement (Third) of Torts: Liab. for Physical & Emotional Harm § 29 (Am. Law Inst. 2005).

329. Id. § 30.

330. Weinrib, Private Law, supra note 44, at 65.

331. See Dobbs, Law of Torts, supra note 243, § 187, at 463 (explaining the general foreseeability standard as limiting actors' liability to harms that "a reasonable and prudent person would seek to avoid").

332. See Percy H. Winfield, Ethics in English Case Law, 45 Harv. L. Rev. 112, 126 (1931) (mentioning a "negligence" definition that refers to "how the man on the Clapham omnibus would act in the common affairs of life").

333. See Keeton et al., supra note 8, § 32, at 185–87.

334. See Palsgraf v. Long Island R.R., 162 N.E. 99, 99 (N.Y. 1928).

335. Ga. Clinic v. Stout, 747 S.E.2d 83 (Ga. Ct. App. 2013).

336. Id. at 87.

severely depressed.[337] The doctors treated her for the pain in the knee but neglected the depression.[338] After a short period of time, the patient committed suicide by jumping from the window of her fourteenth-floor apartment.[339] She left behind a suicide note saying that she could not take her pain anymore and preferred to die.[340] The patient's estate won the wrongful-death action against the doctors and was awarded, on top of compensatory damages, punitive damages in the amount of $2,500,000.[341]

The court of appeals affirmed this verdict.[342] With regard to the proximate cause issue, the court held that the testimony of a psychiatric expert, citing studies that connect suicide to severe pain and untreated depression, allowed the jury to include the patient's depression and suicide among the risks to which orthopedic doctors should attend.[343]

IV. DAMAGE: PRIVATE AND PUBLIC

A. *Theory*

The concept of "damage" used by our tort system has two different meanings that resonate with the dual understanding of "negligence" and "causation." One of these meanings is factual and the other constructive or legal. The factual meaning refers to the actual damage that the actor inflicted on the victim by acting negligently against the victim's protected safety interest. The constructive meaning represents the damage amount that the tort system obligates the actor to pay on policy grounds when the victim's actual damage is below or above the imputed amount.[344]

Our tort system uses these two meanings to promote different goals. The factual meaning is a core element of the private mechanism of accident regulation that promotes fairness and corrective justice. Corrective justice requires that the actor pay the victim compensation that equals the damage inflicted on that victim.[345] This payment reinstates the victim's right and eradicates the actor's wrong. Forcing the actor to pay more is unfair to the actor. Allowing the actor to pay less is unfair to the victim.

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337. Id.

338. Id.

339. Id.

340. Id.

341. Id. at 88.

342. Id. at 91.

343. Id.

344. See infra section IV.B (discussing cases in which tort law adjusts remedies in accordance with the social utility of the underlying activities).

345. See Weinrib, Private Law, supra note 44, at 117 (noting corrective justice requires tortfeasors to pay victims for their factual losses, which represent "the shortfall from one's due").

The constructive meaning, on the other hand, belongs to the public mechanism of accident regulation. This mechanism increases and reduces the compensation amounts payable by negligent actors in tune with the underlying public interest.[346] To strengthen actors' incentive to implement safety measures, the mechanism increases the compensation duty for those actors.[347] When actors' liability for accidental damages motivates them to reduce or altogether abandon the production of public benefits, the mechanism reduces their compensation duty relative to their victims' actual harm.[348] These two policy tools are functional equivalents of taxes and subsidies. The public mechanism uses these tools to counteract, interchangeably, underenforcement and overenforcement of the law. When neither underenforcement nor overenforcement is present, making actors pay victims for their actual damages sets the right incentive for actors' precautionary measures against accidents. The public mechanism then imposes on negligent actors the same compensation duty as the private mechanism.

The factual approach to damages makes the compensation amount equal to the objective value of the victim's asset that the negligent actor damaged or destroyed. This asset can be anything that has value, including the victim's life, bodily integrity, health, property, business, and mental and emotional well-being.[349] The monetary equivalent of the damage to, or destruction of, the asset is the cost of repair or replacement.[350] Courts can determine that cost by combining relevant evidence with their general understanding of the world.[351]

Under the constructive approach, the monetary equivalent of the damaged or destroyed asset serves only as a baseline, or a default amount, for the court's decision. As already explained, the constructive approach gives courts the power to increase this amount as they deem necessary for counteracting the underenforcement of the law and the resulting shortfall in deterrence or, alternatively, for mitigating the overenforcement of the law and its chilling effect on socially beneficial activities. Critically, underenforcement of the law may play into the hands of two types of actors: actors whose accident-prone activities are self-serving and

346. See infra section IV.B (illustrating the effect of the public mechanism on tort compensation).

347. For a classic account of damage multipliers, see generally A. Mitchell Polinsky & Steven Shavell, Punitive Damages: An Economic Analysis, 111 Harv. L. Rev. 869 (1998) (developing efficiency-based criteria for imposing and calculating punitive damages).

348. This policy explains statutory caps on damages payable by government agencies and providers of medical care. See Dobbs, Law of Torts, supra note 243, § 384, at 1071–72.

349. Id. § 377, at 1047–53; see also Spokeo Inc. v. Robins, 136 S. Ct. 1540, 1548–49 (2016) (defining harm for standing purposes as including tangible and intangible damages).

350. See 1 Dan B. Dobbs, Dobbs Law of Remedies: Damages-Equity-Restitution § 5.13(1), at 835–36 (2d ed. 1993) (outlining damage assessment methods based on fair-market, replacement, and intrinsic values of damaged or destroyed assets).

351. See id.

generate no public benefits whatsoever and actors who produce public benefits. When underenforcement is systemic and negligent actors go scot-free, the compromised safety becomes a public problem. The distinction between the two types of accident-prone activities thus becomes inconsequential. The tort system consequently switches from the private to the public mechanism of accident regulation.[352]

These dynamics are summarized in Table 4 below.

TABLE 4: TWO FACES OF "DAMAGE"

		Standard	
		Public Regulation	**Private Regulation**
Types of Activities	**Activities Producing Public Benefit**	Incentive for Socially Beneficial Conduct (Constructive or Imputed Damage)	
	Activities Producing Private Benefit		Infringed Entitlement (Actual Damage)
	Activities Subject to Systematic Underenforcement	Incentive for Socially Beneficial Conduct (Constructive or Imputed Damage)	

B. *Illustrations*

The most obvious illustration of this theory is the cap on damages that courts can award tort victims. Lawmakers set those caps to minimize the chilling effect on accident-prone activities that produce public benefits.[353] The prospect of paying victims high amounts of compensation may make it rational for actors to steer away from those activities, albeit to society's detriment. For example, an obstetrician facing the prospect of paying millions of dollars in compensation for newborns' neurological injuries may decide to limit her practice to gynecology. Unsurprisingly, caps on tort victims' damages are prevalent in the area of medical malpractice.[354]

Among the many cases in which courts have increased actors' compensation duty in order to remedy shortfalls in deterrence, *Mathias v.*

352. See, e.g., Jacque v. Steenberg Homes, Inc., 563 N.W.2d 154, 159–63 (Wis. 1997) (stating and applying the principle that punitive damages should be awarded to counter underenforcement in private trespass cases).

353. See, e.g., Stein, Theory of Medical Malpractice, supra note 189, at 1253–54 (discussing statutory limits on doctors' and hospitals' financial responsibility for malpractice).

354. See infra notes 417–424 and accompanying text.

Accor Economy Lodging stands out as most remarkable.[355] The plaintiffs, a brother and sister, were bitten by bedbugs while staying at the defendants' motel. The defendants knew about the bedbug infestation, but they did nothing to fix the problem and concealed it from the guests.[356] The jury awarded each of the two plaintiffs $5,000 in compensatory damages and $186,000 in punitive damages.[357] The Seventh Circuit decision, delivered by Judge Posner, affirmed this award of punitive damages.[358] Judge Posner's decision relied on an exception to the Supreme Court's constitutional limitation on punitive damages and used simple economic logic.[359] Motel guests other than the two plaintiffs were unlikely to sue the defendant because of opportunity costs and high litigation expenses. The motel had 191 rooms—a factor that aligned with the total compensation amount of $191,000 the jury awarded each plaintiff.[360] The jury's verdict thus made the defendant pay an entirely reasonable penalty of $2,000 per room. This penalty roughly matched the damage that the defendant caused.[361] Having the defendant pay a lesser amount would have diluted the deterrence effect on similarly situated actors in the hotel industry.[362]

Because this decision dealt with the hotel industry, which produces public benefits, it properly applied the public mechanism of accident regulation. This mechanism calls for aligning the defendant's compensation duty with the full amount of damage it recklessly caused. Allowing the defendant to pay a lesser amount runs afoul of our tort system's deterrence policies.

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355. 347 F.3d 672 (7th Cir. 2003).

356. Id. at 673–75.

357. Id. at 674.

358. Id. at 678.

359. Id. at 675–77. In *State Farm Mutual Automobile Insurance Co. v. Campbell*, the Supreme Court held that "few awards exceeding a single-digit ratio between punitive and compensatory damages, to a significant degree, will satisfy due process" and that "four times the amount of compensatory damages might be close to the line of constitutional impropriety." 538 U.S. 408, 425 (2003). The exception invoked by Posner, see *Mathias*, 347 F.3d at 675–76, was designed for cases in which "'a particularly egregious act has resulted in only a small amount of economic damages,'" *State Farm*, 538 U.S. at 425 (quoting BMW of N. Am., Inc. v. Gore, 517 U.S. 559, 582 (1996)).

360. *Mathias*, 347 F.3d at 678.

361. Id.

362. See Polinsky & Shavell, supra note 347, at 887–96 (explaining that, in order to make tortfeasors internalize damage, courts should multiply plaintiff's actual damage by the reciprocal of the probability of law enforcement). But see Steven Shavell, On the Proper Magnitude of Punitive Damages: *Mathias v. Accor Economy Lodging, Inc.*, 120 Harv. L. Rev. 1223, 1226–27 (2007) (noting that when a wrongdoer damages clients, as opposed to third parties, punitive damages may be unnecessary because unhappy clients can ruin the wrongdoer's reputation).

A second illustration is provided by the common law "collateral source" rule[363] and its statutory abolitions.[364] The collateral source rule holds that a wrongdoer cannot benefit from payments for the victim's damage made by outside sources such as insurance companies, government agencies, and private donors.[365] Such payments belong to the victim alone.[366] Whether the victim made a subrogation agreement with the payer that enables that person or organization to recover her compensation from the actor is of no consequence.[367] This rule belongs to the private mechanism of accident regulation that confines its operation to the bilateral relationship between the victim and the actor.[368]

The public mechanism works differently. To prevent chilling effects on activities that produce public benefits, this mechanism often allows actors to reduce their compensation duty by the payments that the victim receives from outside sources. Many states have legislated statutes implementing this policy.[369] These statutes abolished the collateral source rule and allowed (and in some cases, mandated) courts to account for different collateral source payments in determining the victim's compensation.[370] These statutes predominantly benefit the government and providers of medical care.[371]

Courts also apply the public mechanism directly by imposing limits on the collateral source rule. Consider a recent decision of the Delaware Supreme Court, *Stayton v. Delaware Health Corp.*[372] Ms. Diane Stayton was seventy-six years old, wheelchair bound, and a resident of a healthcare and rehabilitation center (HCRC).[373] She was paralyzed in one of her arms and one of her legs and had also suffered from a stroke.[374] Despite this condition, Stayton attempted to light a cigarette while unsupervised.[375] She did so unsuccessfully, caught her clothing on fire, and sustained severe burns.[376] Over thirty physicians and other healthcare providers treated Stayton during her nearly six-month stay at a special burn-treatment facility.[377] This treatment was successful and, understan-

363. See Dobbs, Law of Torts, supra note 243, § 380, at 1058–59.

364. See id. at 1059–61.

365. Id. at 1058–59.

366. Id.

367. Id.

368. See Restatement (Second) of Torts § 920A cmt. b (Am. Law Inst. 1979) (explaining the collateral source rule).

369. See Dobbs, Law of Torts, supra note 243, § 380, at 1059–61.

370. Id.

371. Id.

372. 117 A.3d 521 (Del. 2015).

373. Id. at 523.

374. Id.

375. Id.

376. Id.

377. Id.

dably, costly as well: Its sticker price was $3,683,797.11.[378] Luckily for Stayton, she was entitled to Medicare—a federal health insurance for people who have reached the age of sixty-five and are eligible for Social Security retirement benefits.[379] Pursuant to the Medicare rules, Stayton's medical bill was written off by 93%.[380] The burn-treatment facility billed Medicare for only $262,550.17.[381]

Stayton sued HCRC in connection with the burning accident, alleging, quite properly, negligent supervision.[382] She demanded that HCRC pay her $3,683,797.11 in economic damages and argued that HCRC should not benefit from the Medicare write-off.[383] According to her, the collateral source rule did not allow wrongdoers to benefit from such deductions.[384]

The court decided that Stayton's medical expense damages amounted to $262,550.17.[385] The court ruled that the sum of $3,421,246.94 that the burn-treatment facility wrote off was paid by no one; rather, it was negotiated down by Medicare, which took advantage of its bargaining power, and for that reason the collateral source rule did not apply.[386]

This decision properly abandoned the private mechanism of accident regulation that obligates the wrongdoer to pay the victim the undiscounted market-based amount of her economic damage. Because the defendant's activity produced public benefit (medical care), the court was right to use the public mechanism in determining the amount of compensation that the plaintiff should recover. This amount should not discourage the provision of medical care to elderly patients (as would have been the case if the court awarded the plaintiff $3,683,797.11). The requisite amount, however, should also be large enough to motivate care providers to deliver good treatment to their patients. As the court expressly acknowledged, "poor and disabled persons covered by government programs will [now] receive the lowest recovery in litigation."[387] This recognition of a shortfall in deterrence gives reason for imposing punitive damages, but Stayton did not ask the court to impose such damages on HCRC.[388] As a result, the deterrence issue remains unsettled.

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378. Id.
379. Id. at 523–24.
380. Id. at 523.
381. Id. at 522–23.
382. Id.
383. Id. at 526.
384. Id.
385. Id. at 534.
386. Id. at 530–34.
387. Id. at 532.
388. Id. at 526 (listing Stayton's arguments).

V. DOCTRINAL MIGRATIONS

This Part identifies and explains yet another important dynamic that shapes the contours of our tort system: doctrinal migration. This term refers to the complete or partial removal of accidents from the tort system to other regulatory regimes and, conversely, to the expansion of tort liability to mutually wanted and coercive interactions that fall under the purview of contract law and criminal law. This dynamic includes the imposition of tort liability as a principal penalty for intentional wrongdoings, the emergence and development of the "public policy" doctrine that voids contractual limitations on tort liability, the relocation of workplace accidents from tort law into labor law, the derivation of medical malpractice rules from health law, and finally the merger between products liability, federal regulation, and consumer protection.

The doctrinal migrations underscore the centrality of public interest. Whether a potentially harmful interaction between individuals will give rise to tort liability or, alternatively, will be governed by contract, criminal, or regulatory laws depends on the public interest in that interaction. Rises and declines in the public interest trigger substitutions between these behavior-controlling frameworks. Section V.A provides the theoretical basis for the doctrinal migration phenomenon, and section V.B illustrates it.

A. *Theory*

Finding the right balance between victims' safety, actors' freedom, and society's welfare is a herculean task. Policymakers usually do not have enough information for striking that balance and for setting up detailed rules that could tell actors and prospective victims how to minimize risks of accident.[389] For that reason, our tort system uses general formulations of negligence, causation, and damage that courts can apply on a case-by-case basis.[390]

Shortage of information, however, is not the universal condition of our government. Sometimes the government amasses enough information about accidents and precautions to formulate detailed rules for actors capable of causing an accident.[391] The government does so in relation to accidents that are either recurrent or particularly severe—factors

389. See Cass R. Sunstein, On Fairy Tales, 1 Harv. L. & Pol'y Rev. 371, 371 (2007) (describing as a fairy tale "the Great Society" in which "government officials are well-informed, well-motivated, and very wise").

390. For choices of different regulation formats, such as rules and standards, see Parchomovsky & Stein, Catalogs, supra note 137, at 166–72.

391. See Posner, Economic Analysis of Law, supra note 19, at 493 (observing "regulatory agencies are specialized and have more flexible means of obtaining information").

increasing the public interest in setting up detailed regulation.[392] The distinction drawn earlier in this Article between different accident-prone activities—those that generate strictly private benefits and those that additionally produce public benefits—plays an important role here as well.[393] Activities that generate private benefits for the actor while being capable of causing recurrent or severe accidents do not call for detailed regulation. The government should flatly prohibit those activities and accompany their prohibition with severe administrative penalties and possibly with criminal penalties as well. Detailed regulation is needed only for accident-prone activities that produce public benefits. This distinction explains the government's detailed regulation of socially beneficial activities as multifaceted and diverse as medical care; construction works; manufacture of cars, firearms, and medical drugs and devices; and operation of electricity grids and nuclear plants.[394]

The phenomenon of doctrinal migration occurs when government regulation becomes more detailed and more comprehensive. When the government's regulatory provisions do no more than separate wrongdoings or negligence from adequate care, the resulting migration will be only partial: The tort system and regulatory law will then be operating in tandem.[395] When the regulation determines negligence and causation, the migration of the relevant category of accidents into regulatory law will be nearly complete. When the regulation determines negligence, causation, and damage, the doctrinal migration will be accomplished: The relevant accident category will then be relocated completely from the law of torts into regulatory law.

Doctrinal migration also occurs outside the core area of the tort system occupied by accidents. Specifically, it takes place on the system's borders that separate the domain of torts from those of contracts and crimes. The contract–tort interface is occupied by rules regulating agreements that determine the actor's level of care and the victim's consent to a risk of accident. Such privatization of safety standards may run against

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392. For analyses of common law versus administrative regulation of risks of accident, see id. at 491–95 (weighing pros and cons of the two systems of risk regulation); Gillette & Krier, supra note 103, at 1036–46 (same).

393. See supra Parts II–IV (analyzing the differences between private and public mechanisms of accident regulation).

394. For a survey and economic analysis of some of these regulatory areas, see Posner, Economic Analysis of Law, supra note 19, at 503–27.

395. The Atomic Energy Damages (Price-Anderson) Act of 1957, 42 U.S.C. § 2210 (2012), illustrates such migration. The Act sets up a complex regulatory mechanism for nuclear accidents that combines tort liability with a pooled compensation fund, insurance, and limits on compensation. See id. §§ 2210(a)–(b) (describing insurance requirements); id. § 2210(e) (setting a limit on aggregate liability and establishing that Congress may appropriate funds to cover damage beyond the limit). See generally Dan M. Berkovitz, Price-Anderson Act: Model Compensation Legislation?—The Sixty-Three Million Dollar Question, 13 Harv. Envtl. L. Rev. 1 (1989) (reviewing the history of the Act).

public interest, an event that triggers the contract–tort migration: Tort liability rules that normally regulate mutually unwanted interactions will override the parties' agreement.[396]

The crime–tort interface accommodates rules of tort liability that apply to coercive interactions generally qualifying as crimes. Some of these tortious interactions—assault, battery, and false imprisonment, to name just a few—are also punishable as crimes.[397] Other interactions (e.g., intentional infliction of emotional distress, defamation, and employment discrimination) are considered not harmful enough to justify the imposition of criminal penalties.[398] The government consequently privatizes law enforcement by granting the victim the power to sue the actor for compensatory damages and, in appropriate cases, for punitive damages as well.[399] By doing so, it relocates the regulation of the underlying activities from criminal law to the law of torts.[400]

Whether crimes and contracts will migrate into the domain of torts critically depends on the level of public interest in the underlying interactions, coercive and mutually wanted. High-level public interest will account for the migration of contracts into the domain of torts. A low level of public interest, on the other hand, will explain the migration of crimes into the torts area. The same reasoning explains the migration of accidents that normally constitute torts into the domains of criminal law and contract. A high level of public interest might make an accident a criminal offense. Conversely, a low level of public interest will often allow actors and potential victims to contract away the actor's liability for an anticipated accident.[401]

Table 5 summarizes the doctrinal migrations affecting our tort system.

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396. See infra section V.B (illustrating the migration dynamic by the rules that dilute the assumption of risk defenses and invalidate agreements to lower the level of care and release actors from liability for personal injuries).

397. For overlaps between torts and crimes, see Dobbs, Law of Torts, supra note 243, § 2, at 4–5; Keeton et al., supra note 8, § 2, at 7–9.

398. See generally Avlana K. Eisenberg, Criminal Infliction of Emotional Distress, 113 Mich. L. Rev. 607 (2015) (describing the mainline doctrine that does not criminalize indignity and verbal harassment alongside statutory reforms that impose criminal penalties for malicious inflictions of emotional distress). For thoughtful criticism of the government's failure to criminalize discriminatory practices that target race and gender, see Julie Chi-hye Suk, Equal by Comparison: Unsettling Assumptions of Antidiscrimination Law, 55 Am. J. Comp. L. 295, 330–35 (2007) (criticizing courts' and lawmakers' emphasis on infliction of material harm as a prerequisite for criminalization).

399. Cf. Stein, Two Wrongs, supra note 74, at 1219–20 (rationalizing tort victims' right to file suits by their superior knowledge and motivation).

400. See infra section V.B.2 (illustrating this doctrinal migration).

401. See infra section V.B.2 (outlining such examples in positive law).

TABLE 5: DOCTRINAL MIGRATIONS

		To			
		Torts	**Contracts**	**Criminal Law**	**Regulatory Law**
From	**Torts**		Low level of public interest	High level of public interest	High level of public interest
	Contracts	High level of public interest			
	Criminal Law	Low level of public interest			

B. *Illustrations*

1. *Movements from Torts to Regulatory Law.* — Medical malpractice and workers' compensation systems are the most salient, as well as the most significant, illustrations of a switch from the traditional tort regime to regulatory law.[402] Another good example is the synergy between products liability, federal regulation, and consumer protection.[403] These dynamics, outlined in this section, are driven by the special public interest in medical care and in the protection of workers' and consumers' welfare.

Begin with medical malpractice. As of the last quarter of the previous century, this system of liability had undergone a series of statutory reforms that merged it with health law.[404] Chief among those reforms was a wholesale redesign of the court-dependent negligence standard into a catalog of specialized rules of medical care.[405] Under extant law, whether a doctor commits malpractice does not depend on vague notions of "adequate care" or "good practice," as it did in the past.[406] Rather, it depends on whether the doctor treated the patient in accordance with the specific rules, practices, and protocols established by the medical profes-

402. Another example of migration is the establishment of a special no-fault compensation program for vaccine-related injuries pursuant to the National Childhood Vaccine Injury Act of 1986, 42 U.S.C. § 300aa-1 (2012). See Lauren L. Haertlein, Immunizing Against Bad Science: The Vaccine Court and the Autism Test Cases, 75 Law & Contemp. Probs. 211, 213–17 (2012) (outlining the Vaccine Court's procedures and decisions that impose no-fault liability for injuries caused by vaccines and rely on in-table presumptions of causation).

403. See infra notes 463–468 and accompanying text (describing how consumer protection law fills gaps left by products liability law).

404. See Stein, Theory of Medical Malpractice, supra note 189, at 1249–57 (surveying and analyzing medical malpractice reforms).

405. See id. at 1249.

406. See id.

sion.[407] These rules, practices, and protocols embody the profession's calculation of the relevant risks and benefits.[408]

To identify the controlling professional standards, courts consequently must rely on expert witnesses.[409] These witnesses must practice medicine in the same specialty area as the defendant doctor.[410] Many states also require that an expert's statement—identifying the requisite rule, practice, or protocol and the defendant's deviation therefrom—be submitted to court with the filing of the lawsuit or shortly thereafter.[411] As a result, subject to a few exceptions, courts no longer have the power to determine medical-care standards by themselves.[412] Our medical malpractice laws have delegated most of this power to the medical profession.[413] What constitutes optimal medical care is a matter of doctors' collective decisions. As a result of this reform, doctors who treat patients according to their specialty's internal rules and protocols have less fear of malpractice liability.[414] Their incentive to resort to defensive medicine consequently becomes smaller[415] and the premiums they pay for liability insurance arguably get smaller as well.[416]

The regulatory reforms in that area have affected remedies as well. Many states have enacted statutes capping compensation for medical

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407. See id. at 1236–39.

408. See id.

409. See id. 1238–40, 1252.

410. For recent court decisions that strictly apply the "same specialty" requirement, see Smith v. Fisher, 143 So. 3d 110, 120–25 (Ala. 2013) (disqualifying a board-certified internal medicine specialist as a witness against a neurosurgeon); Baker v. Univ. Physicians Healthcare, 296 P.3d 42, 46–50 (Ariz. 2013) (disqualifying a board-certified physician specializing in internal medicine, hematology, and oncology as a witness against a board-certified pediatric hematologist-oncologist); Hankla v. Postell, 749 S.E.2d 726, 728–30 (Ga. 2013) (disqualifying a board-certified obstetrician and gynecologist who handled over 1,000 deliveries as a witness to describe midwife malpractice). But see Wilkins v. Conn. Childbirth & Women's Ctr., 104 A.3d 671, 679–81 (Conn. 2014) (holding 4–3 that a board-certified obstetrician and gynecologist was eligible to testify in a suit attributing malpractice to a midwife).

411. See Benjamin Grossberg, Comment, Uniformity, Federalism, and Tort Reform: The *Erie* Implications of Medical Malpractice Certificate of Merit Statutes, 159 U. Pa. L. Rev. 217, 222–25 (2010) (surveying certificate-of-merit requirements for medical malpractice suits).

412. See, e.g., Stein, Theory of Medical Malpractice, supra note 189, at 1228–32 (describing exceptional cases relating to mismanagement of medical resources and personnel in which courts determined the medical-care standards by themselves).

413. See id. at 1203–05.

414. See id. at 1207–08, 1216 (explaining doctors can avoid malpractice by simply going by the book).

415. See id.

416. The argument on premiums, however, is empirically debatable. See Ronen Avraham & Max Schanzenbach, The Impact of Tort Reform on Private Health Insurance Coverage, 12 Am. L. & Econ. Rev. 319, 320 (2010).

malpractice victims.[417] These statutes predominantly capped compensation for pain, suffering, loss of consortium, emotional distress, and all other noneconomic damages.[418] Only a few of them capped economic damages as well.[419] Caps set by these statutes vary from one jurisdiction to another. Back in 1975, the California legislature set the maximal recovery amount for noneconomic damages at $250,000,[420] and a recent referendum refused to update this sum.[421] More generous caps were set at $1,500,000.[422] Plaintiffs' attorneys have challenged the caps on constitutional grounds with varying success.[423] Recently, however, the Florida Supreme Court issued an important decision that voided Florida's $1,000,000 cap on noneconomic damages, recoverable for wrongful death caused by medical malpractice, after finding that the government had no rational reason for discriminating against victims of medical malpractice relative to other tort victims.[424]

Regulatory reforms driven by public interest have also put in place a special health law remedy for medical malpractice. The Health Care Quality Improvement Act of 1986 (HCQIA) set up the National Practitioner Data Bank, which collects information about malpractice-related verdicts, settlements, penalties, and payments of compensation.[425] To facilitate the Bank's operation, the HCQIA imposes expansive reporting duties on both public and private actors that investigate, adjudicate, and settle medical malpractice complaints.[426] Critically, the HCQIA also lays down an irrebuttable presumption that attributes to hospitals and other medical care organizations full knowledge of their doctors' malpractice records.[427] This presumption exposes corporate providers of medical care to tort liability for negligent hiring and credentialing of physicians.[428] As a consequence, hospitals and other medical care organizations have a strong incentive not to hire or contract with doctors with a malpractice record. Doctors, in turn, have a strong incentive to avoid medical malpractice.

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417. See Stein, Theory of Medical Malpractice, supra note 189, at 1253–54.

418. Id. at 1253.

419. Id.

420. See Cal. Civ. Code § 3333.2(b) (West 2016).

421. See California Proposition 46, Medical Malpractice Lawsuit Cap and Drug Testing of Doctors (2014), Ballotpedia, http://ballotpedia.org/California_Proposition_46,_Medical_Malpractice_Lawsuits_Cap_and_Drug_Testing_of_Doctors_(2014) [http://perma.cc/U7GV-LHRD] (last visited Nov. 1, 2016) (reporting the defeat of legislative reform to increase the damage cap to over $1,000,000).

422. See Stein, Theory of Medical Malpractice, supra note 189, at 1253.

423. Id. at 1253–54.

424. Estate of McCall v. United States, 134 So. 3d 894, 905–12 (Fla. 2014).

425. 42 U.S.C. §§ 11131–11134 (2012).

426. Id.

427. Id. § 11135(b).

428. See Stein, Theory of Medical Malpractice, supra note 189, at 1232.

By specializing the physicians' duty of care, the regulatory reforms have reshaped the doctrine of causation as well. As an actor's duty of care defines the scope of the risk that falls under her responsibility,[429] for doctors, the scope of the risk includes all medical information pertaining to the pros and cons of the available treatments and their effects on the patient. As a result, doctors managing a patient's pain might find themselves responsible for the patient's death when the pain becomes unbearable and the patient develops depression and commits suicide.[430] Courts also have utilized medical statistics to establish the "lost chance" doctrine that entitles a patient to recover compensation from a doctor who did not treat her properly, even when the patient is unable to prove by a preponderance of the evidence that her injury resulted from the doctor's malpractice.[431] Under the "lost chance" doctrine, the patient needs to prove only that the doctor's malpractice might have worsened, or might have failed to improve, her medical condition.[432] The doctor will then have to compensate the patient for her lost chance: the probability of the counterfactual scenario in which the patient recovers from her illness after receiving adequate treatment.[433] To calculate the patient's compensation, the court must multiply this probability by the full amount of the patient's damage.[434] This doctrine does not allow malpractitioners to seek refuge in the patient's preexisting condition.[435]

The second migration example comes from the workers' compensation statutes that relocated workplace accidents from the law of torts to labor law.[436] This relocation started in 1908, was nearly complete by 1921,[437] and was even more salient and more comprehensive than the migration of medical malpractice into health law. Between 1908 and 1921, most states enacted workers' compensation statutes that proceeded on the theory that "the cost of the product should bear the blood of the workman."[438] Under these statutes, employers bear the financial burden associated with their employees' work-related injuries. To relieve themselves from that burden, employers purchase compulsory liability insu-

429. See supra notes 330–331 and accompanying text (illustrating the nexus between an actor's duty of care and the scope of liability for resulting harm).

430. See, e.g., Ga. Clinic v. Stout, 747 S.E.2d 83, 88–91 (Ga. Ct. App. 2013).

431. See supra note 133 (citing cases that allowed proof of causation by reduced chances of recovery).

432. Porat & Stein, Indeterminate Causation, supra note 133, at 679–82 (analyzing decisions that imposed liability for lost chances to recover).

433. Id.

434. Id.; see also cases cited supra note 133 (awarding victims fractional probability-based compensation).

435. See Stein, Theory of Medical Malpractice, supra note 189, at 1225–26.

436. These statutes are analyzed in Keeton et al., supra note 8, § 80, at 572–80.

437. Id. at 573.

438. Id.

rance and shift the cost of the insurance to consumers who buy their products.[439]

The workers' compensation statutes hold employers strictly liable for their employees' work-related injuries and illnesses.[440] An injured employee's compensation entitlement consequently does not depend on her employer's fault, nor does it require strong evidence of causation.[441] The statutes also do not allow the employer to reduce its compensation duty by invoking contributory negligence, assumption of risk, or the "fellow servant" defense that shifts the employer's responsibility for the employee's injury to a coworker.[442] Most of the workers' compensation statutes, however, limit the compensation amounts that injured employees can recover.[443] This scheme of employers' labor law obligations supplants the core concepts of negligence, causation, and damage.[444]

The Federal Employers Liability Act (FELA), as interpreted by courts, follows a similar modus operandi.[445] As a formal matter, FELA conditions an employee's entitlement to compensation on the presence of negligence on the part of her federal employer. Courts, however, have interpreted this condition in a way that allows the employee to prevail with minimal proof of negligence.[446] Courts also have lowered the employee's burden of proving causation.[447] To recover compensation from her federal employer, an employee needs only to establish *some* causal connection between her illness or injury and her job.[448] She need not satisfy the rigid but-for standard set by the private mechanism of accident regu-

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439. Id.

440. Id.

441. Id.

442. Id.

443. Id. at 574.

444. See Orin Kramer & Richard Briffault, Workers Compensation: Strengthening the Social Compact 1–2 (1991) (stating that statutory workers' compensation schemes grew out of the inadequacies of tort law).

445. 45 U.S.C. §§ 51–60 (2012). FELA remedies are also available to seamen suing the United States pursuant to the Jones Act of 1915 and the Merchant Marine Act of 1920. See Keeton et al., supra note 8, § 80, at 580.

446. See Keeton et al., supra note 8, § 80, at 578–79; see also Rogers v. Mo. Pac. R.R., 352 U.S. 500, 506 (1957) (holding even slight evidence of negligence gets an employee's suit to a jury); Lancaster v. Norfolk & W. Ry. Co., 773 F.2d 807, 820 (7th Cir. 1985) (same); Mendoza v. S. Pac. Transp. Co., 733 F.2d 631, 632–33 (9th Cir. 1984) (same); Heater v. Chesapeake & Ohio Ry. Co., 497 F.2d 1243, 1246–47 (7th Cir. 1974) (same).

447. See CSX Transp., Inc. v. McBride, 564 U.S. 685, 695–71 (2011) (noting FELA has relaxed the common law causation requirement).

448. Id. at 705 (holding a FELA defendant assumes liability "if [its] negligence played a part—no matter how small—in bringing about the injury" (internal quotation marks omitted) (quoting Seventh Circuit Jury Instructions (Joint Appendix at 31a, *CSX Transp.*, 564 U.S. 685 (No. 10-235)))).

lation.[449] Nor is she required to furnish evidence that meets the public mechanism's "substantial factor" requirement.[450] Any contribution by an unsafe workplace condition to the employee's injury will suffice, no matter how small it was.[451]

Moreover, the Supreme Court also has allowed railroad employees who contracted asbestosis at their work to recover compensation for their future chances to develop mesothelioma.[452] The Court affirmed that award in the form of compensation for the employees' fear of developing that fatal cancer.[453] Similar to state workers' compensation legislation, FELA also does not allow the employer to rely on the assumption of risk and the causality-based defenses (including the fellow-servant rule).[454] Under this framework, worker rights originating from labor law push aside the system of torts.

The third and last illustration is the synergy between products liability, federal safety regulation, and consumer protection statutes. Under the U.S. torts system, manufacturers, wholesalers, and retailers of defective products bear strict liability for accidental damages caused by those products.[455] This liability is not fault free. Defendants in products liability actions can be held liable only upon a showing that the product in question has a defect in its design, manufacture, or accompanying information about hazards.[456] Such defects originate from some mistake, omission, or breach of an express or implied warranty—misconducts that often constitute negligence as well.[457] Products liability rules can consequently be viewed as creating an irrebuttable presumption of negligence against manufacturers and suppliers of defective products.[458] These rules interact with two important regulatory frameworks: federal regulation and consumer protection.

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449. See id. (interpreting the causation test prescribed by FELA as satisfied so long as defendant's negligence "played a part" (internal quotation marks omitted) (quoting *Rogers*, 352 U.S. at 503)).

450. Id.

451. Id.

452. Norfolk & W. Ry. Co. v. Ayres, 538 U.S. 135, 152–59 (2003).

453. Id.

454. See Keeton et al., supra note 8, § 80, at 573.

455. See Dobbs, Law of Torts, supra note 243, § 352, at 970–72.

456. Id. §§ 354–355, at 977–81.

457. Id. § 354, at 979 (noting design and warning defects claims are increasingly decided using negligence principles while manufacturing defects claims are dealt with under strict liability).

458. See, e.g., Phipps v. Gen. Motors Corp., 363 A.2d 955, 958 (Md. 1976) ("[P]roof of a defect rendering a product unreasonably dangerous is a sufficient showing of fault on the part of the seller to impose liability without placing an often impossible burden on the plaintiff of proving specific acts of negligence." (citing McCormack v. Hankscraft Co., 154 N.W.2d 488, 500 (Minn. 1967); Dippel v. Sciano, 155 N.W.2d 55, 63 (Wis. 1967))).

Lawmakers set these interactions in motion to promote two different public interests. Federal regulation of products such as cars and medical devices creates standardization and economies of scale.[459] Furthermore, the absence of uniform federal standards exposes manufacturers to the prospect of excessive products liability under state laws.[460] Manufacturers facing this prospect increase their products' prices without making those products safer than before.[461] By stepping in to preclude states from modifying its uniform safety requirements, federal regulation prevents this race to the bottom.[462]

Consumer protection laws interacting with the rules of products liability perform a different regulatory role. They compensate for the tort system's unwillingness to recognize pure economic losses as compensable damage.[463] This unwillingness stems from the fact that pure economic losses—for example, transactional overpayments and loss of sales—do not reduce society's welfare but merely change its distribution among individuals and firms.[464] For that reason, there is little public interest in regulating such losses save for some exceptional cases.[465] Consumer protection is one of those cases. There is strong public interest in preventing firms from taking advantage of their superior information and bargaining power in order to force consumers into transactions that do not give them fair value for their money.[466] This interest is also at play in the case of misleading product warnings that compromise the safety—and hence the value—of consumer products. Such warnings are the same as false advertising or a deceptive trade practice that violates consumer

459. See, e.g., William W. Buzbee, Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction, 82 N.Y.U. L. Rev. 1547, 1603 (2007) ("The more rigid the product mandate, especially for products with a large market, the greater the justification for a single rule that provides certainty, economies of scale, and avoidance of market balkanization.").

460. See Samuel Issacharoff & Catherine M. Sharkey, Backdoor Federalization, 53 UCLA L. Rev. 1353, 1370–72, 1386–89 (2006).

461. Alan Schwartz, Statutory Interpretation, Capture, and Tort Law: The Regulatory Compliance Defense, 2 Am. L. & Econ. Rev. 1, 17 (2000) (arguing uniformity reduces costs and coordinated regulation contributes to increased product safety as a whole).

462. See Issacharoff & Sharkey, supra note 460, at 1386–89; see also Daniel A. Farber, Environmental Federalism in a Global Economy, 83 Va. L. Rev. 1283, 1284 (1997) (making a similar point to underscore environmental regulation advantages).

463. See, e.g., Madison Ave. Gourmet Foods, Inc. v. Finlandia Ctr., Inc., 750 N.E.2d 1097, 1103 (N.Y. 2001) (holding pure economic damage is not actionable in tort).

464. See W. Bishop, Economic Loss in Tort, 2 Oxford J. Legal Stud. 1, 4–6 (1982).

465. See Victor P. Goldberg, Recovery for Economic Loss Following the Exxon *Valdez* Oil Spill, 23 J. Legal Stud. 1, 4–7 (1994) (discussing the "fishermen rule" and its economic rationale).

466. See Robert B. Reich, Toward a New Consumer Protection, 128 U. Pa. L. Rev. 1, 19–23 (1979).

protection statutes.[467] Those statutes consequently function as substitutes for products liability.[468]

2. *Migrations Between Torts, Contract Law, and Criminal Law.* — As a historical matter, the torts of battery, assault, and false imprisonment originate from crimes.[469] They remain criminal behaviors today as well,[470] but their severity varies from one case to another and does not always trigger criminal charges. Whether a person will be criminally prosecuted for battery, assault, or false imprisonment depends on the public interest in the prosecution.[471] When this interest is low or not present, the government will not file criminal charges against the actor. Tort compensation consequently becomes the victim's only recourse.[472]

Many intentional inflictions of harm on another person are not considered criminal. The general assumption about such behaviors holds that the public interest in suppressing them is not strong enough to justify the government's resort to criminal law.[473] Examples of such noncriminal behaviors include defamation, intentional infliction of emotional distress, deliberate disruption of another person's business, and employment discrimination. For deterring such behaviors and protecting victims' interests, tort liability will suffice.[474] Lack of public interest in criminal prosecutions thus turns those potentially criminal behaviors into torts.

Move now to the domain of contracts. As a general matter, courts operating in that domain do not examine the substance and social desi-

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467. See, e.g., Am. Shooting Sports Council, Inc. v. Att'y Gen., 711 N.E.2d 899, 904 (Mass. 1999) (authorizing the state attorney general, "in the interests of consumer protection, to regulate the sale of products that are unsafe or defective in ways that a purchaser cannot foresee").

468. For illustrations of the synergy between products liability and consumer protection statutes, see In re Zyprexa Prods. Liab. Litig., 671 F. Supp. 2d 397, 430–31 (E.D.N.Y. 2009) (applying a consumer protection statute to drugs that have side effects); Pelman v. McDonald's Corp., 237 F. Supp. 2d 512, 520–28 (S.D.N.Y. 2003) (applying a consumer protection statute to obesity inducing food), vacated in part, 396 F.3d 508 (2d Cir. 2005).

469. See Dobbs, Law of Torts, supra note 243, § 2, at 4.

470. See Model Penal Code §§ 211.1, 212.3 (Am. Law Inst. 1985).

471. See, e.g., Stephanos Bibas, Prosecutorial Regulation Versus Prosecutorial Accountability, 157 U. Pa. L. Rev. 959, 983 (2009) (noting prosecutors should promote public interest but whether they align with this ideal is unclear).

472. See Mathias v. Accor Econ. Lodging, Inc., 347 F.3d 672, 676 (7th Cir. 2003) ("[O]ne function of punitive-damages awards is to relieve the pressures on an overloaded system of criminal justice by providing a civil alternative to criminal prosecution of minor crimes.").

473. See Kenneth W. Simons, The Crime/Tort Distinction: Legal Doctrine and Normative Perspectives, 17 Widener L.J. 719, 719–20 (2008) (explaining state interest in the prosecution of offenders is a core factor separating crimes from torts).

474. See, e.g., Margaret H. Lemos & Alex Stein, Strategic Enforcement, 95 Minn. L. Rev. 9, 30–40 (2010) (proposing strategic use of tort remedies for deterring employment discrimination).

rability of parties' undertakings.[475] Instead, they apply the bargain principle that obligates parties to abide by their mutual promises.[476] However, contracts that reduce a party's obligation to prevent accidental harm to another party often become a matter of public concern.[477] This observation holds true of all contracts regulating the supply of goods and services that are important for society. Those goods and services range from recreational activities such as skiing to delivery of vital medical care.[478] Contractual stipulations and waivers that allow providers of such goods and services to deviate from the requisite safety standards run against public interest.[479] The legal system consequently voids such stipulations and waivers and brings tort liability into play.

CONCLUSION

Guido Calabresi and Douglas Melamed ended their path-breaking article on property and liability rules with an important—yet, oft-forgotten—methodological caveat. They wrote:

> Framework or model building has two shortcomings. The first is that models can be mistaken for the total view of phenomena, like legal relationships, which are too complex to be painted in any one picture. The second is that models generate boxes into which one then feels compelled to force situations which do not truly fit.[480]

Top-down theories that portray our tort system as promoting optimal deterrence, or alternatively corrective justice, as a single goal did not heed this caveat. These theories consequently suffer from the twin vices of

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475. See, e.g., Fortis Benefits v. Cantu, 234 S.W.3d 642, 649 n.41 (Tex. 2007) ("As a rule, a court should not by judicial fiat insert non-existent language . . . into parties' agreed-to contracts . . . ."); see also Robert E. Scott & Jody S. Kraus, Contract Law and Theory 23–26 (5th ed. 2013) (underscoring contracting parties' autonomy as a basis for liability under contract law).

476. See generally Melvin Aron Eisenberg, The Bargain Principle and Its Limits, 95 Harv. L. Rev. 741 (1982) (describing the role of the bargain principle in contract law).

477. See Dobbs, Law of Torts, supra note 243, § 213, at 542–43 (noting courts will impose duties for public policy reasons).

478. See id. at 542–43 (describing public policy limits on consent and providing examples); see also, e.g., Hanks v. Powder Ridge Rest. Corp., 885 A.2d 734, 741–44 (Conn. 2005) (invoking public policy to void a resort operator's release from tort liability for a snow tuber's injuries).

479. See, e.g., Tunkl v. Regents of the Univ. of Cal., 383 P.2d 441, 447 (Cal. 1963) (voiding an advance release from medical malpractice liability on public policy grounds); Porubiansky v. Emory Univ., 275 S.E.2d 163, 169 (Ga. Ct. App. 1980) (same), aff'd, 282 S.E.2d 903 (Ga. 1981); see also Reardon v. Windswept Farm, L.L.C., 905 A.2d 1156, 1161–63 (Conn. 2006) (voiding releases of operator liability for horseback riding).

480. Guido Calabresi & A. Douglas Melamed, Property Rules, Liability Rules, and Inalienability: One View of the Cathedral, 85 Harv. L. Rev. 1089, 1127–28 (1972).

oversimplification and superimposition that Calabresi and Melamed warned about.

This Article's positive theory of the law of torts works its way bottom-up. It identifies the essential features that separate torts from contracts, on the one hand, and crimes, on the other, and then develops a coherent and comprehensive account of our tort system that best fits case law and statutory law. This account reveals that our tort system operates in two modes. In some cases, it promotes fairness and corrective justice; in others, it sets up incentives for minimizing the total cost of accidents and accident avoidance.

The system's choice between these two modes depends on the benefit generated by the underlying accident-prone activity. When the benefit from the activity is purely private, the system applies rules that promote fairness and corrective justice. These rules treat individuals as equal members of a civilized community founded upon reciprocity and mutual respect by refusing to prioritize one person's private benefit, no matter how large it is, over another person's safety interest. When the benefit arising from the accident-prone activity is public, however, the system switches to an efficiency mode and applies rules that minimize the overall cost of accidents. These rules allow actors who produce public benefits to expose other people to a risk of harm when the value of the benefit exceeds the expected harm to the victim. Because the victim enjoys, or is presumed to enjoy, the public benefit generated by the risky activity, the system gives her no entitlement to enjoin or raise the cost of the benefit's production at the community's expense. This bi-modal operation of our tort system accounts for the existing variations in the doctrines of negligence, causation, and damage.

This bottom-up account of tort law makes two principal contributions. First and most important, it offers a comprehensive descriptive account of how our tort system works by analyzing the system's scope and interplay with other branches of the law and by uncovering important dynamics that animate the doctrines of negligence, causation, and damage. Second, it identifies the virtues of the bi-modal regulation of accidents that interchangeably promotes welfare and corrective justice and redefines the criteria for evaluating the advantages and the shortcomings of our system of torts.