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Property and Half-Torts

ABSTRACT. The idea that a tort can be split analytically into two parts—risk and harm—underlies a great deal of torts scholarship. Yet the notion has been all but ignored by property scholars employing Calabresi and Melamed’s famous entitlement framework. Thus, in discussing an “entitlement to pollute,” scholars rarely distinguish *inputs* to pollution (a factory’s emission of fumes from a smokestack) from *outcomes* of pollution (a neighbor’s grimy linens or respiratory distress). Instead, “pollution” is viewed as a single unified event that one party or the other receives an entitlement to control. This failure to conceptually separate risky inputs from harmful outcomes has led to imprecise and inaccurate ways of thinking and talking about entitlements. Property theory has suffered as a result, as has our understanding of how property and torts relate to each other. In this Article, I make a start at bringing the concept of the divided tort—here termed “half-torts”—into the property picture. Doing so generates a reformulated entitlement framework that fits more comfortably with moral intuitions, highlights the potential roles of luck and self-help in producing outcomes, and clarifies the available menu of alternatives for addressing property conflicts. The approach taken here advances a functional view of property as a container designed to collect inputs and outcomes with some regularity.

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INTRODUCTION

For decades, two focal points have dominated the economic analysis of property conflicts—the Coase Theorem,¹ and the entitlement framework set out by Guido Calabresi and Douglas Melamed (“C&M”).² Property scholars working in the Coase/C&M tradition view a dispute between a smoke-spewing factory and a suffering neighbor as a reciprocal event³ that calls for decisions about which party holds the entitlement to pollute and what type of legal protection will be afforded that entitlement.⁴ While this elegant, canonical approach has had tremendous staying power, there have been recurring hints in the literature that something important is missing. Thomas Merrill and Henry Smith have suggested that the standard economic account of property conflicts went astray by failing to recognize key characteristics of property rights.⁵ My diagnosis is different. The conventional view of property entitlements falters not because it ignores property theory, but rather because it

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1. The Coase Theorem, although not labeled as such by the author, is presented in R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960). Thomas Merrill and Henry Smith have identified *The Problem of Social Cost* as “the starting point of most modern discussions of the economics of property rights.” Thomas W. Merrill & Henry E. Smith, *What Happened to Property in Law and Economics?*, 111 YALE L.J. 357, 366 (2001); see *id.* at 366 n.41 (discussing the influence of Coase’s article).
 2. See Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972). Although the authors modestly emphasized that theirs was only “one view” of the Cathedral, *id.* at 1089 n.2, it remains the one that most law and economics scholars use as a starting point for the analysis of land use entitlements. The literature employing the C&M framework is vast and growing. For a recent overview, see Henry E. Smith, *Property and Property Rules*, 79 N.Y.U. L. REV. 1719, 1720-22 (2004). See also Jeff L. Lewin, *Compensated Injunctions and the Evolution of Nuisance Law*, 71 IOWA L. REV. 775, 801-02 (1986) (“The ‘modern’ approach to the law of nuisance . . . integrates the theories of Coase and of Calabresi and Melamed”); Merrill & Smith, *supra* note 1, at 380 (observing that Calabresi and Melamed’s “article is probably second only to Coase’s 1960 article in terms of its influence in shaping modern economic conceptions of property rights”).
 3. See Coase, *supra* note 1, at 2 (discussing the reciprocal nature of causation). The idea that causation is reciprocal has been heavily criticized. See Merrill & Smith, *supra* note 1, at 392-94 (reviewing the arguments of others, and presenting their own version based on the in rem nature of property).
 4. See Calabresi & Melamed, *supra* note 2, at 1090.
 5. See Merrill & Smith, *supra* note 1, at 385-97 (discussing some implications of the failure of economic analysis to recognize the in rem nature of property rights); see also Smith, *supra* note 2, at 1759-60 (explaining that in rem rights are typically protected through exclusion, which operates to secure a wide range of unspecified potential uses, whereas liability rules typically focus on specific uses).

neglects a core insight of tort theory—that risky activities are conceptually distinct from harmful outcomes.

The idea that a tort can be split analytically into two parts—risk and harm—underlies a great deal of torts scholarship and is a central, if implicit, theme in Calabresi’s groundbreaking work, *The Costs of Accidents*.⁶ Yet the notion has been all but ignored in property circles. For example, in discussing an “entitlement to pollute,” scholars rarely distinguish *inputs* to pollution (a factory’s emission of fumes from a smokestack) from *outcomes* of pollution (a neighbor’s grimy linens or respiratory distress).⁷ Instead, “pollution” is viewed

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6. GUIDO CALABRESI, *THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* (1970). The analytic division of the tort underlies the book’s important insight that the law could separate its deterrence function from its arrangements for compensating victims of accidents. See Catherine M. Sharkey, *Revisiting the Noninsurable Costs of Accidents*, 64 MD. L. REV. 409, 411-12 (2005) (“Calabresi’s key insight was that there was no necessary link between compensating victims and deterring or punishing injurers.”). Dividing risk from harm is a predicate for assessing alternative approaches to reducing accident costs. See, e.g., ARIEL PORAT & ALEX STEIN, *TORT LIABILITY UNDER UNCERTAINTY* 103-10 (2001) (comparing “risk-based liability” and “damage-based liability”); Steven Shavell, *Liability for Harm Versus Regulation of Safety*, 13 J. LEGAL STUD. 357, 357 (1984) [hereinafter Shavell, *Liability*] (distinguishing tort liability, which reduces accident costs “through the deterrent effect of damage actions that may be brought once harm occurs,” from regulations, which “modify behavior in an immediate way through requirements that are imposed before, or at least independently of, the actual occurrence of harm”).

The risk-harm distinction closely relates to the literature comparing *ex ante* (or act-based) and *ex post* (or harm-based) approaches to torts and crimes. See, e.g., Robert Innes, *Enforcement Costs, Optimal Sanctions, and the Choice Between Ex-Post Liability and Ex-Ante Regulation*, 24 INT’L REV. L. & ECON. 29 (2004); Steven Shavell, *The Optimal Structure of Law Enforcement*, 36 J.L. & ECON. 255 (1993) [hereinafter Shavell, *Optimal Structure*]; Donald Wittman, *Prior Regulation Versus Post Liability: The Choice Between Input and Output Monitoring*, 6 J. LEGAL STUD. 193 (1977); Nuno Garoupa & Marie Obidzinski, *The Scope of Punishment: An Economic Theory of Harm-Based vs. Act-Based Sanctions* (Ctr. for Econ. Policy Research, Discussion Paper No. 5899, 2006).

Bifurcating the tort into risk and harm also focuses analytic attention on risks that fail to materialize as harms, and on harms that are not tethered to any legally cognizable risk. How these unpaired risks and harms should be regarded by the law has generated a rich and interesting literature. See, e.g., PORAT & STEIN, *supra*, at 101-29; Ronen Avraham & Issa Kohler-Hausmann, *Accident Law for Egalitarians*, 12 LEGAL THEORY 181 (2006); Richard A. Epstein, *Luck*, 6 SOC. PHIL. & POL’Y 17 (1988); Claire Finkelstein, *Is Risk a Harm?*, 151 U. PA. L. REV. 963 (2003); Stephen R. Perry, *Risk, Harm, and Responsibility*, in PHILOSOPHICAL FOUNDATIONS OF TORT LAW 321 (David G. Owen ed., 1995); Christopher H. Schroeder, *Causation, Compensation and Moral Responsibility*, in PHILOSOPHICAL FOUNDATIONS OF TORT LAW, *supra*, at 347; Jeremy Waldron, *Moments of Carelessness and Massive Loss*, in PHILOSOPHICAL FOUNDATIONS OF TORT LAW, *supra*, at 387.

7. Similar ambiguity attends courts’ use of the word “nuisance.” See RESTATEMENT (SECOND) OF TORTS § 821A cmt. b (1979) (observing that courts often use the term “nuisance” in three

as a single unified event that one party or the other receives an entitlement to control. This failure to conceptually separate inputs from outcomes has led to imprecise and inaccurate ways of thinking and talking about entitlements. Property theory has suffered as a result, as has our understanding of how property and torts relate to each other. In this Article, I make a start at bringing the notion of the divided tort—here termed “half-torts”⁸—into the property picture.

Breaking a tort into the components of risk and harm transforms property theory in at least three ways. First, a half-torts perspective generates a more useful and precise way of understanding land use entitlements. In the standard factory-neighbor land use conflict, the law must make decisions about each half of the tort—whether risk production of a given sort will be permitted, and how the costs of any resulting harm will be allocated. Following Ronald Coase, the “resulting harm” can stem from a societal decision to *disallow* an activity as well from a societal decision to allow it.⁹ But the two kinds of harm are fundamentally different. Only the former, the costs associated with prohibition, can be coercively imposed by the state. The latter sort of harm, stemming from permissible risk production, can be intercepted by self-help or luck.¹⁰ By separating risk from harm, this Article offers a reformulation of society’s matrix of entitlement choices that not only aligns more closely with

different ways: to refer to a harmful activity, to refer to harmful results, and to refer to the combination of the two as well as to the conclusion that liability exists).

8. I do not mean to suggest symmetry, much less identity, between the two parts. I call them “halves” only to conveniently express that each is one of two parts that together form a larger unit. The functional separation of risk and harm is distinct from another “halving” idea that has received attention—the idea of splitting an entitlement between two parties in an effort to facilitate bargaining. See Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing a Legal Entitlement To Facilitate Coasean Trade*, 104 YALE L.J. 1027 (1995).
9. See Coase, *supra* note 1, at 2.
10. This distinction underlies the asymmetries that have been identified in the C&M framework. See Frank I. Michelman, *There Have To Be Four*, 64 MD. L. REV. 136, 147-52 (2005) (discussing asymmetries in “remedial entailments” in the C&M framework); Jeanne L. Schroeder, *Three’s a Crowd: A Feminist Critique of Calabresi and Melamed’s One View of the Cathedral*, 84 CORNELL L. REV. 394, 433-35 (1999) (observing that the allocation of an entitlement to the factory is not symmetrical with the allocation of an entitlement to the homeowner, because only the latter requires state enforcement for its vindication); Henry E. Smith, *Exclusion and Property Rules in the Law of Nuisance*, 90 VA. L. REV. 965, 1019-21 (2004) [hereinafter Smith, *Exclusion*] (explaining how a full understanding of property rights points to an asymmetry in the C&M entitlement framework); Henry E. Smith, *Self-Help and the Nature of Property*, 1 J.L. ECON. & POL’Y 69, 72-76 (2005) [hereinafter Smith, *Self-Help*] (challenging claims of “symmetry” among entitlements in the C&M framework based on observations about boundaries and self-help).

moral intuitions and ordinary practice, but also highlights the role of social judgments about the appropriate sphere of coercive force.¹¹

Second, the half-torts perspective advances a functional understanding of property as an arrangement designed to charge inputs and outcomes to the account of a single owner.¹² Property boundaries backed by exclusion rights mark out domains in which bets can be made and collected on by the same party.¹³ Nonetheless, cross-boundary impacts are commonplace. When risk-producing activities operate at a scale that exceeds the scope of property holdings,¹⁴ half-torts appear on opposite sides of a property line. The property metaphor that best captures these imperfectly scaled attempts to group inputs and outcomes is neither an impenetrable walled enclave nor an indeterminate bundle of sticks, but rather a leaky bucket of gambles.¹⁵

Finally, conceptually separating risk production from harm manifestation sheds important light on the law's arsenal of responses to property conflicts. Tort law addresses such conflicts by pairing together specific instances of

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11. My reformulated matrix separates society's choice about risk production from its choice about liability for the harm that results from that choice—a move similar to one Frank Michelman has suggested. See Michelman, *supra* note 10, at 147-52 (diagnosing and suggesting a way of resolving C&M's "conflation of entitlement assignment with liability assignment").
 12. See Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 355 (1967) ("If a single person owns land, he will attempt to maximize its present value by taking into account alternative future time streams of benefits and costs and selecting that one which he believes will maximize the present value of his privately-owned land rights."). The insight that a single owner would make maximizing decisions over time underpins the "single owner" test for assessing the efficiency of legal arrangements. See Richard A. Epstein, *Holdouts, Externalities, and the Single Owner: One More Salute to Ronald Coase*, 36 J.L. & ECON. 553, 557 (1993) (explaining that the single owner approach deals with problems generated by divided control over resources by "seek[ing] to create that legal arrangement that induces all the parties to behave in the same fashion as would a single owner who owned all the relevant resources").
 13. See, e.g., Smith, *supra* note 2, at 1729 ("[O]wners make bets in situations of uncertainty and are rewarded or punished depending on how those bets turn out later when the uncertainty is resolved."); see also *infra* Section II.B (further developing the gambling metaphor for property). My approach both builds on and diverges from the extensive analysis of the exclusion right provided by Smith in several recent articles. See, e.g., Smith, *Exclusion*, *supra* note 10; Henry E. Smith, *Exclusion Versus Governance: Two Strategies for Delineating Property Rights*, 31 J. LEGAL STUD. S453 (2002); Smith, *supra* note 2.
 14. See Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1332-35 (1993) (discussing matters of scale in land holdings). While I focus primarily on land use examples, I also discuss how the theory might be extended to the autonomous realms associated with personal property and with one's person. See *infra* Section II.E.
 15. The two components of this metaphor—the "bucket" and the idea of bets or gambles—have been previously explored by others, including Smith. See *infra* Section II.B.

realized harms and particular risky actions. Regulation, in contrast, can bring legal pressure to bear on either risks or harms in isolation. While a significant literature exists on the choice between tort liability and regulation, the connections between these ideas and property theory remain underexplored. Recognizing that property holdings may be improperly scaled for particular risk-producing activities suggests the possibility of rescaling those holdings to better contain the outcomes of those activities. Property can be rescaled on a wholesale basis, through a reconfiguration of the property interests themselves, or selectively, through customized contract provisions that add or subtract responsibility for particular inputs or outcomes.¹⁶

This Article proceeds in three Parts. Part I works through a reconfigured taxonomy of property entitlements in the nuisance context that takes into account both halves of the tort. I explain how this reformulation advances and refines our understanding of property theory and reconciles it with tort theory. Part II turns to the significance of property boundaries. While Part I focuses on how property and tort fit together in a unified framework, Part II examines how property uniquely manages risk by bundling inputs and outcomes within physical or conceptual boundaries. My approach recasts torts as mismatches between the scale of property entitlements and that of various risk-producing activities. Part III explores how tort law and other legal alternatives might operate to address shortfalls in property scale by putting legal pressure on risk, shifting the allocation of liability for harm, or addressing both risk and harm simultaneously through contractual or across-the-board changes in the contours of particular property holdings.

I. HALF-TORTS IN THE CATHEDRAL

“Only rarely are Property and Torts approached from a unified perspective.”¹⁷ So begins Calabresi and Melamed’s enormously influential 1972 article. Perhaps no article has done more to unify thinking about property and torts. Yet, interestingly, the vision of property entitlements it developed did little to incorporate tort theory’s distinction between risk production and the manifestation of harm. Adding this element to the analysis yields a clearer and

16. See YORAM BARZEL, *ECONOMIC ANALYSIS OF PROPERTY RIGHTS* 77-80 (2d ed. 1997) (explaining how different elements of variability in outcomes may be allocated among the parties to a transaction).

17. Calabresi & Melamed, *supra* note 2, at 1089.

more precisely specified understanding of how entitlements work—one that better situates property and tort within a single conceptual framework.¹⁸

A. *Splitting the Nuisance*

Consider the standard nuisance example—a factory that expels pollutants to the detriment of a neighboring homeowner.¹⁹ This situation is usually understood to require a decision as to which of the two parties holds a unified legal right (“the entitlement”) as well as a decision about how that entitlement will be protected.²⁰ This way of describing the problem falters, however, when we divide the factory’s act of pollution into two parts: the production of fumes on the one hand, and the dirtying of lungs or linens on the other. When the factory holds what has been described as “the entitlement,” it does not, in fact, hold the right to carry out the completed tort of harming the neighbor—nor even, as Smith has emphasized, the right to see that the fumes make their way over the neighbor’s property line.²¹ Indeed, it is not even accurate to say that the factory holds an entitlement “to pollute,” if “pollution” is understood in terms of negative end results for the neighbor. Rather, the factory holds only the privilege of engaging in the activity that produces fumes.²²

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18. An important antecedent of my approach is found in Robert Cooter’s work. See Robert Cooter, *Unity in Tort, Contract, and Property: The Model of Precaution*, 73 CAL. L. REV. 1 *passim* (1985) (examining how an approach that he terms “double responsibility at the margin” would provide incentives to both parties in interactions in tort, contract, and property).
 19. For a discussion of the prevalence and implications of this example, see Carol M. Rose, *The Shadow of The Cathedral*, 106 YALE L.J. 2175 (1997).
 20. See Calabresi & Melamed, *supra* note 2, at 1090–93. *But see* Smith, *Self-Help*, *supra* note 10, at 73–76 (critiquing this formulation).
 21. See Smith, *Self-Help*, *supra* note 10, at 75–76. Smith noted that the factory *could* have (but typically would not have) an easement that would entitle it to channel fumes onto the neighbor’s property. *Id.* Smith’s critique of the entitlement in the C&M framework relies on the significance of property boundaries, whereas mine turns on a more fundamental distinction between a legal entitlement to engage in an activity and a legal entitlement to bring about a particular outcome. While boundaries are important for reasons I discuss *infra* Section II.C, I argue that their significance can only be fully appreciated once the basic move of separating risk creation from harm manifestation has been made.
 22. The statement in the text combines two points that will be developed below. First, “privileges” are different from “rights” in the Hohfeldian taxonomy, in that they cannot be coercively enforced by the state. See WESLEY NEWCOMB HOHFELD, *FUNDAMENTAL LEGAL CONCEPTIONS AS APPLIED IN JUDICIAL REASONING AND OTHER LEGAL ESSAYS* 36–42 (Walter Wheeler Cook ed., 1923); Schroeder, *supra* note 10, at 444–45 (applying Hohfeld’s distinction between rights and privileges to the factory example); Smith, *Self-Help*, *supra* note 10, at 76 (same). Second, the entitlement that might be held by the factory relates to

The two parts of a pollution event—fume production on one side and manifestations like grime and wheezing on the other—correspond to the division between risk and harm that runs through much of torts scholarship. To be sure, most torts scholarship highlighting the risk/harm dichotomy focuses on highly stochastic events such as inattentive driving, in which random factors mediate between the risky action and the harmful outcome.²³ But even if we assume that luck plays no role in a given nuisance dispute, self-help can intervene between the production of fumes and the harm to the neighbor.²⁴ The neighbor in the story might mitigate the harm by rearranging her activities on her property, drying her clothes indoors, closing her windows and installing air purifiers, or even (to use Smith's example) installing giant fans to counteract the fumes.²⁵ These measures are not costless, but the possibility that they might be undertaken to avert the harm of pollution establishes that the factory's entitlement runs only to the risk-creating conduct and not to any particular harmful result.

The approach pioneered by Calabresi and Melamed and followed by countless scholars can be encapsulated in a two-by-two grid that breaks down the possible resolutions of a two-party land use conflict along two dimensions: (1) which party holds the entitlement; and (2) whether the

the pursuit of a permissible end (the manufacturing activity that produces the fumes) rather than to the pursuit of a forbidden end (harming someone else with pollution). See Schroeder, *supra* note 10, at 444 (explaining that the factory's entitlement "relates to producing widgets, which incidentally cause pollution"); see also Jonathan Remy Nash, *Framing Effects and Regulatory Choice*, 82 NOTRE DAME L. REV. 313, 360-61, 370-71 (2006) (observing that the notion of an entitlement to pollute erroneously suggests that no benefit is derived from the activity that produces the pollution, and arguing for a reframing that would focus attention on the beneficial activity of which the pollution is a byproduct).

23. See, e.g., Waldron, *supra* note 6, at 387 (presenting an example involving two equally inattentive drivers, Fortune and Fate, only one of whom causes an accident). Literature on "moral luck" consistently employs this type of example to illustrate the way that luck influences how equivalent actions turn out. See, e.g., THOMAS NAGEL, *MORTAL QUESTIONS* 28-29 (1979) (discussing an unlucky driver who runs over a child); BERNARD WILLIAMS, *MORAL LUCK: PHILOSOPHICAL PAPERS 1973-1980*, at 28 (1981) (same); John C.P. Goldberg & Benjamin C. Zipursky, *Tort Law and Moral Luck*, 92 CORNELL L. REV. (forthcoming Sept. 2007) (manuscript at 13-17, on file with author).
24. This point is well recognized. See, e.g., Calabresi & Melamed, *supra* note 2, at 1118-19 (discussing which party is the "cheapest cost avoider"); see also WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF TORT LAW* 113-14 (1987) (suggesting that the potential for self-help and other complications of causality explain the law's differential treatment of damage from the vibrations of blasting operations and damage from airborne debris from those operations).
25. See Smith, *Exclusion*, *supra* note 10, at 1012.

entitlement is protected by a property rule or a liability rule.²⁶ My reformulation asks two somewhat different questions: (1) whether risk production (of a specified type) is permitted or forbidden; and (2) who bears any costs that result from society’s answer to the first question. Using the standard example in which the risk production in question is the emission of pollutants into the air, we can construct Figure 1, a reformulation of C&M’s four-rule schema.

Figure 1.
THE FOUR RULES, REFORMULATED

		COST ALLOCATION	
		FACTORY BEARS COST	HOMEOWNER BEARS COST
RISK INPUT RULE	EMISSIONS PERMITTED	<i>A</i> Factory may emit; must pay for harm	<i>B</i> Factory may emit without paying
	EMISSIONS FORBIDDEN	<i>C</i> Factory must stop emitting at its own expense	<i>D</i> Factory must stop emitting; homeowner must pay stopping costs

The two rows in Figure 1 contain two different risk input rules: in the top row, emissions are permitted, and in the bottom row, emissions are

26. See Calabresi & Melamed, *supra* note 2, at 1115-18. Although there was no actual table in the original version, the two-by-two layout is suggested by the description in the text. See Michelman, *supra* note 10, at 142-46. Here is a typical rendering of the grid, using the standard factory/homeowner example:

		ENTITLEMENT HOLDER	
		HOMEOWNER	FACTORY
FORM OF ENTITLEMENT PROTECTION	PROPERTY RULE	<i>Rule 1</i> Factory is enjoined	<i>Rule 3</i> No relief
	LIABILITY RULE	<i>Rule 2</i> Factory can pollute and pay damages	<i>Rule 4</i> Homeowner can stop pollution by paying stopping costs

forbidden.²⁷ The phrase “emissions permitted” as used here denotes only the privilege to put the pollutants into the air and not the right to make the pollutants enter the homeowner’s lungs or laundry. Only one risky input appears in this simple example, and it is carried out by only one party—the factory—rather than reciprocally by both parties.²⁸ The two columns represent two different rules for allocating the costs of any resulting harm: in the left column, the factory bears the costs, and in the right column, the homeowner bears the costs. Following Coase, harm can result from a risk production rule that *denies* the factory the privilege of emitting, just as surely as it can result from a risk input rule that allows the factory to emit pollutants.²⁹

Working through this reformulated two-by-two grid produces a sense of *déjà vu*; the four rules produced by this new pair of questions look at first glance to be nearly identical to those that have long appeared in the dominant C&M model.³⁰ There is a cell in which the factory can emit but must pay for

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27. Even though the framework contemplates only a binary choice between “permitting” or “forbidding” a given activity, it can accommodate fine-grained distinctions in legal rules between different manners, intensities, or levels of care in a given realm of action by simply defining “the activity” under analysis with a greater level of precision. For example, emitting pollutant X might be a different activity than emitting pollutant Y, emitting with a scrubber might be a different activity than emitting without a scrubber, and so on. See CALABRESI, *supra* note 6, at 113-14 (explaining that a restriction on a given activity is equivalent to a prohibition operating at a finer level of generality); A. Mitchell Polinsky, *Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies*, 32 STAN. L. REV. 1075, 1087 (1980) (discussing “intermediate” entitlements that might, for example, permit a factory’s output up to a particular level but prohibit it beyond that level). Because the choice among the four grid cells can be made separately for each activity, it is possible not only to make fine distinctions between activities that are forbidden and those that are permitted, but also between those for which liability is shifted to the actor and those for which liability remains with the victim. We might distinguish, for example, between the activity of “driving while giving full attention to the road” and that of “driving while talking on a cell phone.” Even if both activities are permitted, the cost allocation rule might be different in the two cases. Costs might remain on the victim for harms that result when a driver gives full attention to the road but be shifted to the driver when she drives while using a cell phone. Rather than define the precise activities ahead of time, we might set the switchpoints among legal treatments based on a standard such as fulfillment of all cost-justified precautions, as with a negligence rule. For a further discussion of how negligence interacts with the Figure 1 framework, see *infra* Subsection III.B.1.
28. As I discuss *infra* Section I.D, implicit normative judgments lie behind a determination that a particular activity is risk-producing as opposed to forming part of the background conditions against which risky actions are taken.
29. See Coase, *supra* note 1, at 2.
30. Interestingly, the reformulation also bears a close resemblance to a taxonomy developed by Stephen Marks in his examination of the line between torts and crime. See Stephen Marks,

any damage that results;³¹ another in which it can emit without paying;³² a third in which it must stop emitting at its own expense;³³ and a fourth in which it must stop emitting, but the stopping costs are borne by the homeowner.³⁴ Yet, on closer examination, Figure 1's reformulation introduces at least four important refinements.

First, the reformulation highlights a key difference between the harms featured in Figure 1's top row (in which the risk-producing activity is permitted) and those in the bottom row (in which it is forbidden). The latter are the direct product of state coercion, but the former are not and can therefore be influenced by stochastic factors and self-help.³⁵ Second, and closely related, entitlements granted to risk producers extend, at most, to

Utility and Community: Musings on the Tort/Crime Distinction, 76 B.U. L. REV. 215 (1996). Marks presented a model in which "society divides activities into three categories: prohibited activities, activities that are permissible only if accompanied by compensation, and unconditionally permissible activities." *Id.* at 224. Just as Calabresi and Melamed observed that their Rule 4 could be added to the three-part taxonomy that preceded it, there is a fourth possibility suggested by the three categories that Marks identified. The flip side of his "permissible only if accompanied by compensation" category would be activities that are *prohibited* only if accompanied by compensation, as shown in Cell D of Figure 1.

31. This cell resembles C&M's Rule 2, in which the homeowner holds the entitlement, but it is protected only by a liability rule.
32. This cell resembles C&M's Rule 3, in which the factory holds the entitlement, protected by a property rule.
33. This cell resembles C&M's Rule 1, in which the homeowner holds the entitlement, protected by a property rule.
34. This cell resembles C&M's Rule 4, in which the factory holds the entitlement, but it is protected only by a liability rule. Arguably, Figure 1's formulation lines up more cleanly with the real-world case that is usually taken to be an example of C&M's Rule 4 than does Rule 4 itself. See *Spur Indus. v. Del E. Webb Dev. Co.*, 494 P.2d 700 (Ariz. 1972). In *Spur*, the court resolved a land use conflict between a feedlot and a residential developer by shutting down the feedlot and making the developer pay relocation costs. However, the feedlot in *Spur* did not actually hold an entitlement to continue its nuisance, and the developer did not actually hold an option to stop the nuisance upon payment of damages. Rather, the court ordered the shutdown as an absolute matter on public health and safety grounds, and it required the developer to pay costs. Nobody was given a choice. See James E. Krier & Stewart J. Schwab, *Property Rules and Liability Rules: The Cathedral in Another Light*, 70 N.Y.U. L. REV. 440, 445 n.23 (1995) ("[T]he court's judgment implies that Del Webb *must* pay and that Spur Industries *must* move."). It is a matter of speculation whether the court would have approved a voluntary agreement between the parties to undo the effects of the lawsuit and restore matters to the status quo ante (hence making the acceptance of the court's judgment somewhat more like the exercise of an option). See *id.* at 470 (suggesting that such a bargain would have been permissible); see also JESSE DUKEMINIER ET AL., PROPERTY 664 (6th ed. 2006) (discussing this question); *infra* note 83 and accompanying text.
35. Note that the divide highlighted in the text does not track C&M's distinction between property rules and liability rules. See *infra* note 57.

risky conduct and not to harmful consequences. Third, Figure 1 makes explicit a fact obscured by C&M's reference to a generic "entitlement": in addressing conflicts, society necessarily selects particular risky inputs (here, emissions) for scrutiny, while neglecting other inputs (such as living in a house near a factory) that, on a Coasean analysis, would be equally causal. Fourth, Figure 1 focuses exclusively on specifying the content of the underlying entitlement and consciously defers two further questions that were conflated in the C&M framework: how transfers among entitlement regimes can occur; and what remedies are available for violating an entitlement regime's terms. I take up these four features of Figure 1's reformulation in turn.

B. Harm, Luck, and Self-Help

Figure 1 combines two kinds of harms—those (such as the homeowner's dirty linens or wheezing lungs) that result from risk-producing activities, and those (such as the costs of shutting down or moving the factory) that result from the *suppression* of risk production. These two kinds of harms are treated in fundamentally different ways by the law. While the harms that come from risk production are never directly imposed on parties through the affirmative use of the state's coercive apparatus, the harms that come from the suppression of risk production may be imposed on parties by the state in just this way.

To understand this difference, it is helpful to consider Wesley Hohfeld's distinction between rights and privileges.³⁶ A privilege is something that a party is legally free to engage in if she can; the law will not interfere.³⁷ Yet, her plans may be thwarted by other private parties who undertake countermeasures, and the law will not come to her aid—she is on her own.³⁸ A right, however, is made of sterner stuff. Unlike a privilege, a right is backed up by the coercive force of the state.³⁹ Suppose Andrew has a right, rather

36. See HOHFELD, *supra* note 22. Other property scholars have used Hohfeld's taxonomy to illuminate shortfalls in the C&M framework. See, e.g., Michelman, *supra* note 10, at 143-44, 151-53, 156-58; Schroeder, *supra* note 10, at 444-45; Smith, *Self-Help*, *supra* note 10, at 75-79. Madeline Morris's extensive taxonomy of entitlements built on C&M's framework by drawing on, but diverging from, the Hohfeldian system. See Madeline Morris, *The Structure of Entitlements*, 78 CORNELL L. REV. 822, 828-38 (1993).

37. See HOHFELD, *supra* note 22, at 38-39.

38. See *id.* at 41.

39. See *id.* at 39-42 (distinguishing rights from privileges); Arthur L. Corbin, *Jural Relations and Their Classification*, 30 YALE L.J. 226, 229 (1920) (explaining that the holder of a Hohfeldian right can obtain assistance from the "giant" of the law).

than merely a privilege, to plant turnips in a community garden.⁴⁰ That means (among other things) that when Betty tries to block his turnip-planting endeavors, Andrew can call the police to make her stop interfering. In Hohfeld's terms, Andrew's possession of a right to plant turnips means that Betty—like everyone else in the world—has a duty not to interfere with his planting activity.⁴¹

To see how the risk/harm distinction that I have been emphasizing maps onto Hohfeld's right/privilege distinction, consider the following variation, in which Andrew wishes not to plant turnips but rather to spray herbicides in the community garden. Assume this spraying activity creates a risk of killing some of the vegetables planted by Betty. Andrew may be granted a privilege to engage in risk-producing activities (that is, to spray herbicides), but the law will not grant him a right to generate harmful results (that is, to kill Betty's vegetables).⁴² Andrew's lack of a right to kill vegetables means that

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40. This example is intentionally set in a community garden to examine how rights and privileges play out when no party exclusively owns the underlying property and all are privileged to be present on it. While the exclusion rights associated with private property play an important role in the analysis developed *infra* Part II, it is helpful initially to examine the distinction between rights and privileges in a setting free of such exclusion rights.
41. See HOHFELD, *supra* note 22, at 38-39; see also J.E. PENNER, *THE IDEA OF PROPERTY IN LAW* 25-27 (1997) (discussing duties in rem). To be sure, it would be unusual for a right giving rise to correlative duties in rem to be specified as narrowly as in the example in the text (that is, with the right limited to the planting of turnips, and the correlative duty placed on everyone else limited to noninterference only with that sort of planting activity). More typically, a range of privileges is nested within a broader right such as the right to exclude from property, the right to one's bodily integrity, or a broader right of access to a communally held asset; these broad rights in turn give rise to very broad-based duties in rem, such as to keep off or to refrain from blocking access. Nonetheless, positing a narrowly gauged right (and its mirror-image duties) highlights the essential difference between a privilege and a right. Hohfeld himself illustrated the differences between rights and privileges by discussing such narrowly drawn entitlements as those governing the eating of a shrimp salad. See HOHFELD, *supra* note 22, at 41-42.
42. Significantly, societal judgments determine what counts as a "harm" that no risk producer has a right to cause and no potential victim has a duty to suffer. Here, we can distinguish harmful outcomes that are socially unwanted byproducts from socially desired outcomes that can be sought for their own sake (even though they may harm some members of society). See Nash, *supra* note 22 (emphasizing the importance of recognizing pollution as a byproduct of socially valuable activities). Andrew might conceivably hold a right, rather than merely a privilege, to exterminate varmints or pull weeds in the community garden, if this was deemed to be a socially valuable activity on net. Such a right would place a duty on everyone else not to interfere with Andrew's efforts, and the state would employ its coercive force to remove a meddling Betty who had a sentimental attachment to rats or dandelions. Cf. HOHFELD, *supra* note 22, at 41-42 n.39 (concluding that an ordinance empowering a constable to kill dogs that were not wearing collars would create a privilege, the opposite of the duty not to kill that would otherwise run to the dogs' owners, but also alluding to "the

Betty has no correlative Hohfeldian duty to suffer that harm. Betty can respond to Andrew's spraying privilege by covering her vegetables with a protective tarp, using special plant food to build up her vegetables' resistance, and the like.⁴³ She can also benefit from lucky breaks, such as rains that rinse away the chemicals and spare her vegetables. Andrew cannot call the police to demand that the law enforce his right to bring about the demise of Betty's vegetables, because he has no such right—even if the same end result is likely to obtain in the course of the risk-producing activity that the law privileges.

Consider now the other sort of harm presented in Figure 1—that which results from stopping activities that generate risk. Assume for the moment that the prohibition on the activity can be perfectly enforced and that bargaining is unavailable (as either a legal or a practical matter) to undo the prohibition.⁴⁴ Unlike a risk production rule allowing an activity, a prohibition of this sort necessarily entails the realization of the specific harm associated with stopping that activity. This harm will be coercively imposed by state action if necessary, and, absent a bargain to undo the prohibition, no party will have any power to deflect or reduce that harm.⁴⁵ A decision remains

constable's accompanying rights against all others that they shouldn't interfere with his actual killing of the dog"). As the example from Hohfeld illustrates, it is easiest to imagine rights to carry out activities that are harmful to some parties but beneficial on net as being vested in public officials rather than in private parties. While certain limits exist, public bodies have significant latitude to pursue (and to coercively protect the pursuit of) outcomes that they deem to be beneficial on net, even when some members of society are detrimentally affected. See, e.g., *Miller v. Schoene*, 276 U.S. 272 (1928) (upholding the uncompensated cutting of cedar trees where necessary to protect nearby apple trees from falling victim to "cedar rust").

43. The law would prevent Betty from engaging in direct sabotage of the spraying operation itself, however. This is not because Andrew has a "right to spray" as such, but rather because he almost certainly has property interests in the implements that he uses to carry out the spraying, as well as inalienable rights to bodily integrity. Hence, most of the imaginable private means by which Betty could directly counter Andrew's spraying privilege—such as stopping up his hoses, puncturing his chemical tanks, or tripping him as he approaches the garden area—would violate rights of Andrew. Andrew could summon the law to prevent or punish such violations. For further discussion of the relationship between property rights and privileges of use, see *infra* text accompanying notes 129-130.
44. There is some evidence that bargaining does not routinely occur following the judicial resolution of nuisance cases. See Ward Farnsworth, *Do Parties to Nuisance Cases Bargain After Judgment? A Glimpse Inside the Cathedral*, 66 U. CHI. L. REV. 373, 381-84 (1999) (analyzing twenty nuisance cases, none of which involved post-judgment bargaining, and none of which, based on the self-reports of lawyers involved, would have had a prospect of such bargaining had the outcome been different).
45. To be sure, *ex ante* investment decisions would be relevant to the potential impact of a later shutdown. See generally Lucian Arye Bebchuk, *Property Rights and Liability Rules: The Ex Ante View of the Cathedral*, 100 MICH. L. REV. 601 (2001). However, viewed at the point at

as to who shall bear the costs of the realized harm, although it is very rare for courts to allocate liability for stopping costs to any party other than the one forced to stop the activity.⁴⁶

Here we see an asymmetry.⁴⁷ The possibility of self-help drives a wedge, at least potentially, between the production of risk and the realization of any particular harm—even apart from any stochastic element intrinsic to the risky activity. No such wedge exists between the law’s coercive mandate to cease a particular activity and the costs associated with that stoppage, at least if we assume full enforcement.⁴⁸ To that extent, a risk production rule disallowing an activity is more coercive in producing harm than is a risk production rule allowing an activity. This observation does not imply that allowing a risky activity to proceed is always a good idea. The coercively imposed costs associated with a ban on an activity may be unambiguously smaller in some cases than the costs that will result if the activity goes forward. Nonetheless, it is important to note that private parties can legally reduce costs when an activity is allowed but cannot do so (*ex post*) when the activity is forbidden.⁴⁹

Two points made above can be generalized to other tort settings. First, no party permitted to undertake a risky activity ever holds a right *to bring about a harmful result* (recognizing that “harmful result” is a socially defined term). Rather, parties hold entitlements to engage in otherwise beneficial activities that produce various *risks of harm*. If Eleanor is driving carefully and Foster leaps into her car’s path too late for her to stop, Eleanor does not thereby

which a shutdown is ordered, a harm will be imposed equal to the difference between continuing the activity and engaging in the next best substitute (a similar activity, or perhaps the same activity pursued in a different location) that the parties will be powerless to reduce further.

46. Indeed, *Spur* seems to be the only known example of this remedy. See *Spur Indus. v. Del E. Webb Dev. Co.*, 494 P.2d 700 (Ariz. 1972); DOUGLAS LAYCOCK, *MODERN AMERICAN REMEDIES: CASES AND MATERIALS* 409-10 (3d ed. 2002); Daniel A. Farber, *Reassessing Boomer: Justice, Efficiency, and Nuisance Law*, in *PROPERTY LAW AND LEGAL EDUCATION: ESSAYS IN HONOR OF JOHN E. CRIBBET* 7, 13 & n.45 (Peter Hay & Michael H. Hoeflich eds., 1988) (characterizing *Spur* as a “freak case”).
47. I am not the first to spot the asymmetry in this story, although my explanation of it is somewhat different. See *supra* note 10.
48. In reality, parties can and do attempt to buffer themselves from the harms associated with prohibitions through noncompliance, but the law has an arsenal of supercompensatory remedies available to deter and punish such moves. Public actors might also influence the harms associated with a given prohibition through enforcement choices that determine the degree of coercion brought to bear against those nominally subject to the law.
49. This difference in kind between allowing an activity and forbidding it tracks the distinction that Calabresi drew between general and specific deterrence in *The Costs of Accidents*, see CALABRESI, *supra* note 6, as I discuss *infra* Section III.A.

gain a right to crush Foster with her car. What Eleanor has after Foster leaps is the same thing she had before—an entitlement to engage in the risk-producing activity (careful driving).⁵⁰ It is true that this activity may result in harm to Foster in a given instance. But the darting Foster remains free to leap back out of Eleanor’s way or to benefit from some intervening event that fortuitously sweeps him out of Eleanor’s path. Eleanor has no entitlement to make Foster hold still so she can run him over.

Second, because nobody has a right to bring about a harmful result (that is, everyone has “no-right” in Hohfeldian terms to produce such an outcome⁵¹), every potential victim has the privilege of engaging in self-help to minimize or avoid harm—at least within the bounds of other legal duties. No analogous privilege to reduce harm is available when an activity has been banned. A ban on a risky input imposes a duty to cease the activity and bestows a correlative right on the would-be victim, who can invoke state coercion to enforce the other party’s duty. Thus the asymmetry: Foster can leap out of the way to avoid harm from Eleanor’s driving, but if Eleanor’s driving were prohibited, she could not “leap out of the way” of the costs that the ban would impose on her.⁵² This asymmetry has nothing to do with the existence or location of property lines; instead, it stems from the structure of the entitlements themselves.⁵³

50. To say that Eleanor has an entitlement to drive “carefully” suggests that she owes a duty of care to those she encounters on the road, including Foster. Under a strict liability regime, her entitlement would also be coupled with a duty of compensation capable of being triggered by harmful outcomes, regardless of the level of care she takes. The textual discussion skips over the details of Eleanor’s duties in order to emphasize one simple point: Eleanor’s entitlement to create risk by driving, however formulated, does not amount to a right to cause harm.

51. See HOHFELD, *supra* note 22; see also *infra* note 74.

52. I say “the costs that the ban would impose on her” because parties subject to a legal prohibition are typically required to bear the costs of that prohibition. The costs of the ban might instead be allocated to the would-be victims, as in Cell D.

53. Although Smith’s approach focuses on property boundaries as integral to the asymmetry, see Smith, *Exclusion*, *supra* note 10, at 1019–20, it can be harmonized with the analysis here. If crossing a property boundary is always socially categorized as a completed harm in itself, then no party has a right to carry it out and any party is privileged to engage in self-help to keep it from occurring. Making the boundary line the focal point of analysis, however, yields an understanding of the asymmetry that is at once too narrow (parties lack not only the right to engage in prohibited boundary crossings but also to bring about *any* harmful outcome) and too broad (boundary crossings are not *always* viewed as intrinsically harmful).

One must be careful, however, not to overstate the practical import of this asymmetry.⁵⁴ The alternatives that parties have to reduce costs arising from permitted risk production are always constrained—both by empirical facts about the situation and by the surrounding legal framework. These constraints force the responsible party to bear either unmitigated harm or the expense associated with the cheapest legal alternative for mitigating that harm.⁵⁵ Therefore, the greater freedom that parties have to reduce costs when an activity is allowed, as opposed to when it is prohibited, is only relative. In either case, the law’s overall framework places some cost-reducing alternatives off-limits, leaving parties to choose among the remaining legal alternatives.⁵⁶

The conceptual difference between banning an activity and assigning liability for its harms bears practical fruit most clearly when risk producers have better information about alternatives than do lawmakers. Permitting an activity to proceed may indeed be functionally equivalent to imposing a cost on the liable party in the amount of the cheapest legal harm-reducing alternative available to that party, but the content of that cheapest legal alternative may well be unknown to legislators. The choice between the top row and the bottom row of Figure 1, then, may depend at least in part on the comprehensiveness of the information possessed by the government and by private parties, respectively, about alternative courses of action.⁵⁷

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54. I am grateful to Eric Larson, a University of Texas law student, for a response paper that first led me to rethink the nature of this asymmetry; his comments, and those of others at workshops, have greatly influenced the development of the argument presented here.
55. Cf. A. MITCHELL POLINSKY, *AN INTRODUCTION TO LAW AND ECONOMICS* 14 (3d ed. 2003) (explaining that in the absence of transaction costs, “the choice of the legal rule redistributes income by the amount of the least-cost solution to the conflict”).
56. One important source of limits on cost reduction will be developed further below: the law marks protective boundaries around property and persons that typically cannot be crossed without violating a right and thereby triggering the coercive apparatus of the state. Significantly, boundary limits constrain legal alternatives for reducing costs regardless of whether those costs are shifted to the risk producer or left on the victim. Just as the homeowner cannot plug up the factory’s smokestack with rags, neither can the factory owner cross onto the homeowner’s property to shut the homeowner’s windows or install air filters.
57. See, e.g., Shavell, *Liability*, *supra* note 6, at 359 (explaining how differences in information might bear on the choice between regulation and liability); Shavell, *Optimal Structure*, *supra* note 6, at 263-65 (explaining how the information that the government and the parties respectively possess about the dangers posed by particular acts will influence the choice of whether to intervene based on acts or based on harms). This point echoes the “information-harnessing” advantages usually attributed to liability rules. See, e.g., Louis Kaplow & Steven Shavell, *Property Rules Versus Liability Rules: An Economic Analysis*, 109 HARV. L. REV. 713, 725 (1996) (explaining that liability rules allow the state to “harness injurers’ knowledge about their prevention costs”). Note, however, that the two rows in Figure 1 do not

C. *High Probabilities and Forbidden Ends*

The distinction emphasized in the previous Section can be intuitively captured by the idea that there is some “daylight” between risk and harm, whereas no such gap exists between a prohibition and its costs.⁵⁸ I have suggested that both human agency and luck can operate within the risk/harm gap. As long as the gap is appreciable, the switch from a morally grating locution like “an entitlement to pollute” to the less inflammatory “an entitlement to emit” adds useful precision. But how does Figure 1’s reformulation apply to scenarios in which it is hard or impossible to perceive any space between the risk and the harm? I consider two types of situations: first, activities directed at permissible ends that nonetheless generate harm with a probability of 1; and second, activities that are directed at impermissible ends or that are the subject of categorical prohibitions because they are deemed inherently harmful.

1. *When Harm Is Certain*

Suppose it is an absolute certainty that a factory’s emissions *will* cause harm. There are two senses in which this might be true. First, perhaps there is absolutely nothing that can be done to mitigate the emissions-related harm and no chance that the harm will be intercepted or buffered by luck. Second, and much more likely, perhaps various measures can be taken to avoid or reduce the most serious consequences of emissions, but those measures are themselves costly. In the latter case, *some* harm will inevitably result, but its nature and magnitude will depend on the choices made by the parties.

In these instances, is it useful to distinguish between the risk-producing activity and the harmful outcome? I maintain that it is—but only if the distinction is properly understood as a conceptual delineation of legal entitlements and not as a normative defense of any particular legal arrangement. In other words, the point of drawing the distinction is not to disingenuously dismiss the interests of the victims of a given activity—“let them self-help!”—but rather to highlight the places where human agency and

correspond to C&M’s division between property rules and liability rules. The top row, in which the activity can proceed, contains one square (Cell A) that aligns with a liability rule in C&M’s framework, and one square (Cell B) that aligns with a property rule in C&M’s framework. In both cases in which the activity can proceed, the party liable for the resulting costs is free to find ways to reduce those costs, and hence may be able to take advantage of information about cost reduction that is unknown to the government.

58. I thank Jon Cannon for this formulation.

the potential to aggregate dispersed information can operate to alter the total costs associated with a given conflict. Unless we are certain that a *particular* harmful result will occur with a probability approaching 1, the potential for differential access to information about, and incentives to undertake, cost reductions may play some role in deciding between approaches that address risk directly through a prohibition and those that operate indirectly through the allocation of liability for costs.⁵⁹

In the (presumably very rare) instances in which there is complete certainty that harm of a particular sort will result from a given activity and nothing at all can be done to influence the severity or probability of that harm, separating risk from harm would offer no analytic advantage in assessing incentives or information differentials. But even in such instances, it is useful to employ a formulation that does not present the entitlement at stake as one to gratuitously generate harm, but rather as an entitlement to engage in an activity directed at a permissible end that throws off costs as a side effect.⁶⁰

2. *Bad Acts and Categorical Prohibitions*

The examples used above to illustrate the risk/harm gap involved unintentional torts and the category of nuisance.⁶¹ But what about torts like battery or trespass? Some activities are intentionally directed at ends that society deems impermissible.⁶² Others are, for various reasons, viewed as

59. See *supra* note 57.

60. See Nash, *supra* note 22, at 370 & n.207, 371 & n.209.

61. As a doctrinal matter, nuisances of the polluting-factory variety are deemed to be “intentional” even though the operation producing the pollution was not carried out for the purpose of harming the plaintiff. See, e.g., DAVID W. ROBERTSON ET AL., CASES AND MATERIALS ON TORTS 619 (2d ed. 1998) (“[M]ost nuisances are intentional, at least in the sense that the defendant continued the activity, knowing with a substantial certainty that the interference was taking place.”); Jeff L. Lewin, *Comparative Nuisance*, 50 U. PITT. L. REV. 1009, 1027 (1989) (“[A] nuisance may be intentional even if the defendant did not specifically intend to harm the plaintiff and was carrying on a legitimate activity in the safest practical manner.”).

62. The term “intentional” is a very slippery one. See, e.g., LANDES & POSNER, *supra* note 24, at 149-50. The members of the doctrinal class “intentional torts” are heterogeneous and do not invariably require the intent to cause a harmful result. For a recent discussion, see Kenneth W. Simons, *A Restatement (Third) of Intentional Torts?*, 48 ARIZ. L. REV. 1061 (2006). Parsing the current system of categorization lies beyond the scope of this Article, but the examples in the text suggest that we might usefully distinguish intentional actions directed at producing harmful results (which society will always prohibit) from intentional engagement in activities that merely produce a risk of harmful results (which society may or may not

harmful in themselves and therefore subject to categorical prohibitions. Can such activities be accommodated within Figure 1's reformulation?

Certainly, we can observe that such intrinsically harmful or categorically prohibited acts (once they have been so classified by society) always occupy Cell C, where the activity is prohibited and the costs of the prohibition fall on the would-be actor. At another level, we might say that activities that society considers intrinsically harmful or categorically prohibited do not meaningfully engage Figure 1's grid because (by virtue of societal definition) they do not present a (mere) risk of harm, but rather a harm full stop.⁶³ Put another way, the force of societal judgments about certain activities seems to rebut an implicit premise of the grid-making exercise—that all of the regimes in the taxonomy are viable alternatives. This line of reasoning raises the question of why society has made such judgments. Some activities that are categorically prohibited (such as most kinds of boundary crossings by persons) pose special threats to the pairing of inputs and outcomes that is at the heart of the institution of property.

For present purposes, it does not matter whether we understand society to have lodged the great mass of "bad intentioned" or otherwise categorically prohibited acts in Cell C, or whether we instead understand those prohibitions as the superstructure against which more fine-grained analyses of risk/harm mismatches play out. Society's classification of acts as categorically prohibited may be subject to change over time, and including them in Figure 1 underscores that fact. But Figure 1's taxonomy is most interestingly engaged when we consider what are "hard cases" by society's own normative lights—instances in which a party pursuing an end that society deems to be legitimate nonetheless generates the risk of an outcome that society deems to be harmful.

choose to prohibit). See PETER CANE, *THE ANATOMY OF TORT LAW* 32-33 (1997) (distinguishing "deliberate" from "intentional" conduct, and defining the latter as conduct undertaken "with the intention (or 'aim') of causing a particular consequence").

63. See CANE, *supra* note 62, at 45-47 (presenting a taxonomy of strict liability that, among other things, distinguishes liability premised on acts that interfere with property interests from liability premised on acts that create risk). This is not to deny that categorically prohibited activities may present various risks of more severe harms. For example, an armed bandit who wildly fires shots in the course of holding up a liquor store may stochastically produce various risks of death, injury, and property damage—in addition to the harm that inheres in holding up the store. But because the precipitating conduct is viewed as harmful in itself, society does not ponder the alternatives to prohibition found in Figure 1.

D. Which Activities Produce Risk?

To this point, I have been speaking as if there is some self-evident category of “risk-producing activities” that law can choose to allow or (coercively) disallow. In the factory-homeowner example, I have posited a single such activity—the emission of fumes. Figure 1 is structured around the choices suggested by this risk-producing activity. But before we ever reach a grid like Figure 1, society has implicitly made some judgments that constrain the alternatives we encounter there. This was equally true of the approach introduced by C&M, but the way in which they structured and labeled their framework obscured the role of these background societal judgments. The law must decide which factors, of the many that combine to produce harm, will be singled out as risk-producing and which factors will instead be understood as benign background conditions against which risky activities play out.

It is intuitive that the activity of emitting effluents (a means, let us suppose, to the permissible end of widget-making) creates risk. Given that intuition, society must decide whether to allow or ban the activity, and it must further decide how to allocate the costs resulting from that decision. In other words, by defining “emitting” as the risk-producing activity in the story, we have placed it on the chopping block as a potential subject of government coercion. Significantly, the conflicting activity, residing in a home nearby, is not placed on the chopping block in a reciprocal manner—neither in Figure 1 nor in the original C&M framework.

That distinction might be defended on various normative grounds.⁶⁴ Nonetheless, a Coasean analysis would suggest that the residential use is just as much to blame for the land use conflict as is the industrial use.⁶⁵ Indeed, the residential use’s existence and location is exactly what causes us to pick

64. See, e.g., Thomas W. Merrill & Henry E. Smith, *The Morality of Property*, 45 WM. & MARY L. REV. 1849, 1861 (2007) (“[R]eciprocal causation does not accord with everyday intuitions about morality.”). One might point out that the factory’s emissions create a risk of harm for the homeowner, whereas the act of residential living presents no inherent risk of harm to the factory. See Smith, *Self-Help*, *supra* note 10, at 72 (observing that the party engaged in the “more robust” of two conflicting land uses can thrive in a legal regime that denies liability, absent “active self-help” by the party engaging in the “more vulnerable” use); see also Schroeder, *supra* note 10, at 434-35. But this observation is of no help in deciding which of the conflicting activities deserves society’s scrutiny. The important question is whether the activity generates a risk of harm *at all*, not whether that harm falls in the first instance on the actor herself or on another party. Which party will ultimately bear the cost of the harm is a separate question that depends on the content of the very legal rules that society is charged with formulating.

65. See Coase, *supra* note 1, at 2.

out the factory's activity as a risk-producing one.⁶⁶ To take account of this, we might construct an alternative version of Figure 1 in which the risky input is not "emitting" but rather "residing within 500 yards of an emitting factory."⁶⁷ That activity might be permitted, with the cost of any resulting harm either shifted to the factory or left to fall on the resident, or it might be prohibited. If it were prohibited, the government could enforce the prohibition by coercively moving the household somewhere else while placing liability for the moving costs on one party or the other.

Without such alternatives, C&M's framework subtly diverges from a Coasean notion of reciprocity.⁶⁸ We can come up with reasons—practical, cognitive, or even moral—to explain why the house-moving alternatives are not part of the standard panoply of societal choices.⁶⁹ But it is nonetheless the case that an implicit judgment has been made about which features of the situation are deemed responsible for the risk⁷⁰ and are thus viewed as

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66. This connects to a larger point—that risks are not created in the abstract, but rather only relative to some other interest. Cf. *Palsgraf v. Long Island R.R.*, 162 N.E. 99, 99 (N.Y. 1928) (Cardozo, C.J.) ("Negligence is not actionable unless it involves the invasion of a legally protected interest, the violation of a right. 'Proof of negligence in the air, so to speak, will not do.'" (quoting FREDERICK POLLOCK, *THE LAW OF TORTS: A TREATISE ON THE PRINCIPLES OF OBLIGATIONS ARISING FROM CIVIL WRONGS IN THE COMMON LAW* 455 (11th ed. 1920))).
67. In fact, nuisances are often classified as such not because of any inherent characteristics, but rather because of what is nearby. See *RESTATEMENT (SECOND) OF TORTS* § 821A cmt. b(3) (1979) (explaining that courts "may distinguish between a 'nuisance per se,' meaning harmful conduct of a kind that always results in liability and a 'nuisance per accidens,' meaning harmful conduct that results in liability only under particular circumstances").
68. Jeanne Schroeder has made a related point in observing that "Calabresi and Melamed's imaginary ideal of symmetrical rights with respect to a single object misconstrues Coase's concept of the reciprocity of rights." Schroeder, *supra* note 10, at 429.
69. It is not obvious that such alternatives would always be normatively less desirable than making the household bear the costs of moving the uses apart in the manner accomplished in *Spur* (that is, by making the factory move and placing the costs on the residential party). On the contrary, making the household move while placing the costs of the move on the factory would appear to be a better distributive outcome for the household, inasmuch as the household would not be required to bear the costs of separating the uses. Nonetheless, coercively shutting down a residential use seems problematic, even when the costs are placed elsewhere, for reasons that have been much discussed in the eminent domain context.
70. As elsewhere, the law necessarily identifies some features of a situation as "mere conditions" and other features as causally relevant. See H.L.A. HART & TONY HONORÉ, *CAUSATION IN THE LAW* 33 (2d ed. 1985) ("The line between cause and mere condition is in fact drawn by common sense on principles which vary in a subtle and complex way, both with the type of causal question at issue and the circumstances in which causal questions arise."). Many conditions that are "but for" causes in the physical sense are dismissed as irrelevant to legal causation. Hence, the (legal or proximate) cause of a fire might be a tossed match or a faulty wire rather than the presence of normal levels of oxygen in the surrounding environment.

appropriate potential targets of government coercion. Such a selection inheres in every matrix that sets out legal alternatives for resolving a conflict. C&M's framework implicitly accepted the societal assumption that emissions were the causal agent in the factory-homeowner conflict; Figure 1 makes that assumption explicit.

By explicitly identifying a risk-producing activity, Figure 1 makes two advances. First, and more modestly, it shows the extent to which entitlement theory is interstitial—a way of exploring the alternatives left open after law has undertaken the normative groundwork of identifying the activities it will treat as causal. Second, and more ambitiously, explicitly identifying a risky input as the subject of societal scrutiny encourages creative thinking about other factors that might be viewed as equally causal in a given scenario.

E. Reconciling New and Old

What would the reformulation that I have suggested mean for the original C&M framework and the large body of interesting and important work that has been constructed upon that edifice? The original framework was not wrong, only overstuffed. It attempted to pack into each cell of the four-rule schema answers to three inquiries. First, what is the content of the (underlying) entitlement?⁷¹ Second, how can the entitlement be (legally) transferred? And third, what remedies are available for violations of these approved transfer protocols? Of course, pieces of this same critique, variously stated, have appeared in the literature for decades.⁷² Yet the way in which

See id. at 34-35. Because conditions that are not “normal” in a given setting are the ones that will be picked out as “causes,” the analysis is contingent on what is viewed as “normal.” Hence, oxygen might be considered the cause of a fire if the fire broke out in a laboratory from which oxygen had been customarily excluded. *See id.* at 35; *see also* Coase, *supra* note 1, at 11-13 (explaining, in a case in which one party’s use of his fireplace generated smoke in his home because a neighbor had built a high wall adjacent to the chimney, that “[t]he judges’ contention that it was the man who lit the fires who alone caused the smoke nuisance is true only if we assume that the wall is the given factor”); James M. Anderson, *The Missing Theory of Variable Selection in the Economic Analysis of Tort Law* 3 (Aug. 1, 2006), <http://ssrn.com/abstract=921767> (assessing how economic theory might determine “which of the many inputs that lead to an accident should be included in a court’s liability analysis”).

71. As I explain *infra* text accompanying notes 77-78, the content of transfer protocols and of applicable remedies should also be understood as part of one’s entitlement set.
72. *See, e.g.*, Jules L. Coleman & Jody Kraus, *Rethinking the Theory of Legal Rights*, 95 *YALE L.J.* 1335, 1367-68 (1986) (suggesting that property rules and liability rules should be treated not “as ways of protecting rights” but rather as “normative rules specifying the content of rights within the transactional domain,” and explaining that “[t]ransaction rules themselves entail no institutions of enforcement” but “merely specify terms or conditions of transfer”);

Figure 1 reformulates the answer to the first question sheds new light on the remaining two inquiries.

1. Entitlement Content

Calabresi and Melamed and their successors have generally characterized “the entitlement” as something unitary, like a football—exclusively held at any given time by one party or the other, and capable of being passed back and forth upon fulfillment of specified conditions, such as the payment of money.⁷³ Refining what each party holds under different risk production and cost allocation rules changes the picture. As I show, Cells A, B, C, and D from Figure 1 can be thought of as different entitlement *packages* with which the law might endow pairs of parties.⁷⁴

Morris, *supra* note 36, at 843 (arguing that the C&M rules “do not protect and define the transferability of an already-allocated entitlement; rather, the rules themselves *constitute* the particular entitlement”); Dale A. Nance, *Guidance Rules and Enforcement Rules: A Better View of the Cathedral*, 83 VA. L. REV. 837, 852-53 (1997) (discussing the possibility that a given “rule” might be broken, and arguing that “property, liability, and inalienability rules should be considered prescriptions concerning what people should do, not descriptions of what they can or must do”); Smith, *supra* note 2, at 1749 & n.116 (observing that “[p]roperty rules and liability rules are properly thought of as different ways of defining the scope of entitlements in the domain of transfer, rather than simply as ‘remedies’ protecting entitlements,” and collecting citations relating to this point); *see also* Schroeder, *supra* note 10, at 410-11 (cataloguing critiques that focus on these and related issues). Of course, one might understand some of the conflation embodied in the original schema not as an oversight but rather as a central feature of the project. *See* Saul Levmore, *Unifying Remedies: Property Rules, Liability Rules, and Startling Rules*, 106 YALE L.J. 2149, 2149 (1997) (“By focusing on (and moving between) property rights, damage awards, and private bargains around these rights and awards, Calabresi and Melamed vaporized the inherited barriers between private law rights and remedies.”). But it is possible to accept the insight that entitlements depend in some sense on what courts will do without completely abandoning the distinction between entitlements and their enforcement. *See infra* Subsection I.E.3.

73. *See, e.g.*, Morris, *supra* note 36 (using the example of a football to work through her entitlement framework). Schroeder has challenged the vision of a unified entitlement that can be transferred back and forth between the parties. *See* Schroeder, *supra* note 10, at 443-52.
74. These four legal arrangements correspond to different sets of Hohfeldian entitlements. *See* HOHFELD, *supra* note 22, at 36 (presenting a taxonomy of “jural opposites” and “jural correlatives”); *infra* p. 1426 fig.2 (showing how Hohfeldian entitlements map onto the four cells presented in Figure 1). In Hohfeld’s taxonomy, a right held by one party is always accompanied by a correlative duty of another party, and vice versa. Likewise, a privilege held by one party means that the other party (or parties) to the interaction holds no-right (and vice versa). A duty is the opposite of privilege, so that a party who holds a privilege to do something is under no duty to refrain from doing it; likewise a party who has a duty to do something has no privilege to avoid doing it. Similarly (and transparently) the Hohfeldian

Cells B and C most closely resemble unitary, entitlement-as-football regimes, in that the same party enjoys *both* a beneficial risk input rule *and* a beneficial cost allocation rule. In Cell B, the factory holds the privilege to emit, and the homeowner has in Hohfeldian terms “no-right” to stop the emissions.⁷⁵ The costs of any resulting harm are left to fall on the homeowner, who may choose to buffer the effects through self-help. The homeowner has no right to recover damages from the factory, and, accordingly, the factory has no duty to pay (in other words, it has the privilege of not paying). In Cell C, the factory has a duty not to emit, and the homeowner has a right to engage the coercive force of the state to stop emissions. Again, the resulting costs (here, the costs of *not* emitting) are left to fall on the party who incurs them in the first instance (here, the factory). Hence, the homeowner has no duty to chip in to cover the costs of the factory’s shutdown (in other words, she has the privilege not to pay), and the factory has no right to seek such contributions.

Cells A and D are different, in that one party has a favorable risk input rule while the other party enjoys a favorable cost allocation rule. In Cell A, the factory’s privilege to emit is paired with a duty to pay for harm that eventuates.⁷⁶ The factory can emit at whatever level it chooses as long as it is prepared to pay the associated costs, or it can choose not to emit—all without ever leaving the Cell A regime. The homeowner in the Cell A regime has no-right to stop the emissions but does have the right to collect damages. In Cell D, the homeowner’s right to stop the factory’s emissions is paired with a duty to pay the associated stopping costs. The factory, in turn, has a duty not to emit that is paired with a right to collect from the homeowner the costs of not emitting.

no-right is the opposite of a right. For previous work applying Hohfeld’s schema to nuisance scenarios and to the C&M framework, see, for example, sources cited *supra* note 36.

75. See HOHFELD, *supra* note 22, at 36, 39-42. Calling the factory’s entitlement to emit a “privilege,” while technically accurate, understates matters a bit. The privilege that the factory has to emit is paired with a background right to exclude others from its property. See *infra* text accompanying notes 129-130. The crucial point is that the entitlement, whatever we choose to call it, extends only so far as the creation of risk; it does not extend to the realization of harm.
76. In ordinary speech, we would say that the factory is “liable” for the resulting harm—a formulation that is employed elsewhere in this Article. But we can more precisely understand that liability as arising out of the breach of a preexisting duty—in this case, the duty to pay for the harm caused. Although Hohfeld’s full exposition of legal entitlements includes the related ideas of liability, disability, power, and immunity, it is not necessary to engage those portions of his analysis here. I thank John Harrison for helpful discussions on this point.

Figure 2 summarizes the entitlement content of Figure 1's four cells, translated into Hohfeldian terms.

Figure 2.

ENTITLEMENT PACKAGES IN HOHFELDIAN TERMS

		CONTENT OF FACTORY'S ENTITLEMENT	CONTENT OF HOMEOWNER'S ENTITLEMENT
CELL IN FIGURE 1	A	Privilege to emit Duty to pay	No-right to stop emissions Right to collect
	B	Privilege to emit No duty to pay	No-right to stop emissions No right to collect
	C	Duty not to emit No right to collect	Right to stop emissions No duty to pay
	D	Duty not to emit Right to collect	Right to stop emissions Duty to pay

Defining the underlying entitlements is only one part of the analysis—we still must examine potential rules for transfer as well as the remedies that apply if the rules for transfer are violated.⁷⁷ In an important sense, of course, it is not possible to wall off entitlement content as something distinct from transfer protocols and remedies. What one “has” is importantly defined by when and how someone else can take it, how and whether it can be transferred, and what the law will do about those who violate the applicable transfer rules.⁷⁸ One’s entitlement in full includes what I have here termed the “underlying” entitlement package (risk production and cost allocation rules), as conditioned by the protocols for moving from that package to some other package, and as further conditioned by the realities of imperfect enforcement and available remedies for violations of transfer protocols. Nonetheless, it is helpful to break out the elements of transfer rules and remedies conceptually.

77. See *infra* Subsections I.E.2-3.

78. See, e.g., BARZEL, *supra* note 16, at 3 (explaining that under his definition of economic property rights, “an individual has fewer rights over a commodity that is prone to theft or restrictions on its exchange”).

2. *Transfer Protocols*

If we start with the four legal regimes represented by the four cells in Figures 1 and 2, we can identify two distinct kinds of changes for which legal rules exist. First, there are moves from one cell to another. Here, we would ask on what conditions, at what price, and on whose initiative the parties can shift from, say, a Cell A regime to a Cell B regime. Second, two of the cells, A and D, can be viewed as containing internal mechanisms that allow one party to unilaterally adjust the mix of risk and cost within the parameters of the cell's legal regime. While these internal mechanisms do not actually transfer any entitlements from one party to another, they facilitate shifts in conduct and cost-bearing in a manner that is arguably akin to the exercise of an option. I address these two kinds of moves in reverse order.

a. *Within-Cell Shifts*

In the C&M framework, Rules 2 and 4 are designated as liability rules that allow the party who is not initially assigned an entitlement to obtain it unilaterally from the other party at a price set by a third party. Cells A and D, which seem to align most closely with C&M's Rules 2 and 4, are presented here as granting sets of Hohfeldian entitlements to each of the two parties, rather than featuring a single entitlement that moves from one party to the other if money is paid. Nonetheless, depending on the relationship between the different parts of the parties' entitlement packages, cells A and D may be viewed as offering an option to one of the parties to unilaterally alter the mix of risk and cost involved in the interaction.

Consider Cell A, where the factory has a privilege to emit and a duty to pay for the resulting harm. The factory can choose any level of emissions it desires (including zero emissions), and its duty to pay will be automatically adjusted based on realized changes in the resulting harm. It is commonplace in legal scholarship to view a Cell A regime that allows a risk producer to engage in an activity while bearing the resulting costs as granting that actor a "call option."⁷⁹ Hence, we might say that by choosing a given level of emissions, the factory is exercising an option to emit that is embedded in the legal regime and that has

79. Liability rules have been equated with call options for some time. In a 1993 article, Morris explained that liability rules are structured like call options, and she went on to discuss a reverse arrangement equivalent to a put option. See Morris, *supra* note 36, at 852, 854. Other scholars soon adopted the option language. See, e.g., Ian Ayres, *Protecting Property with Puts*, 32 VAL. U. L. REV. 793, 795 & n.6, 796 (1998) (discussing this development, and collecting citations to articles using the options nomenclature).

an exercise price equal to the marginal damages suffered by the homeowner (as determined by a court or other third party).⁸⁰

Typically, however, the price that must be paid to exercise an option—its “exercise price” or “strike price”—is fixed for the option period.⁸¹ Thus, a party who holds an option (to purchase, say, a house) knows exactly how much must be paid to exercise that option and thus can easily determine at any point in time whether the option is “in the money” and therefore worth exercising. In contrast, the option to emit that is embedded in Cell A does not carry a readily discernible strike price, if a particular unit of emissions does not reliably produce a predictable amount of harm. It is true that by choosing its emissions level and by otherwise adjusting its operations, the factory can influence its liability. However, actions taken by the homeowner, as well as the intervention of luck, will affect whether and to what extent risk production is manifested in realized harm. Hence, the option analogy fits less well when an actor faces liability for the actual outcome of an activity than when she chooses to pay a known price to engage in a risky input.⁸² Nonetheless, the factory’s duty to pay is dependent on its exercise of the privilege to emit and relates in at least a rough way to the extent of that exercise.

The relationship between the two entitlements held by the homeowner in Cell D is less clear. There, the homeowner’s right to stop the factory’s pollution is paired with the homeowner’s duty to pay for factory relocation or shutdown costs. If we adopt the same logic as we just did for Cell A, then not only could the homeowner choose to allow emissions to continue (and thereby avoid paying the costs of a shutdown),⁸³ she could also select any intermediate point

80. Legal scholars have recently begun to observe the prevalence of options embedded in the structure of legal rules or contractual provisions. See, e.g., IAN AYRES, *OPTIONAL LAW: THE STRUCTURE OF LEGAL ENTITLEMENTS* 3-6 (2005); George S. Geis, *An Embedded Options Theory of Indefinite Contracts*, 90 MINN. L. REV. 1664 (2006); Robert E. Scott & George G. Triantis, *Embedded Options and the Case Against Compensation in Contract Law*, 104 COLUM. L. REV. 1428 (2004). Unlike explicit options, these embedded options are created implicitly; their terms are not expressly labeled, but rather must be inferred from an examination of the relevant provisions or arrangements. See Geis, *supra*, at 1687-89; Scott & Triantis, *supra*, at 1456-59.

81. See RICHARD A. BREALEY & STEWART C. MYERS, *PRINCIPLES OF CORPORATE FINANCE* 586 (6th ed. 2000) (“A call option gives its owner the right to buy stock at a specified *exercise* or *strike price* on or before a specified exercise date.”).

82. Cf. Rose, *supra* note 19, at 2181-82 (discussing the poor fit of the “option” idea with accidental damages or other unexpected intrusions into property rights).

83. It is not clear that a homeowner would always have this choice. See *supra* note 34 (discussing whether the developer in *Spur* could have chosen to allow the feedlot’s operations to continue in order to avoid paying relocation costs). While it seems intuitive that the duty to pay for shutdown costs would be dependent on the homeowner’s exercise of the right to

between full operation and complete shutdown, perhaps even going so far as to specify particular operational details.⁸⁴ But the idea of allowing one party to dictate the scope and manner of another party's operations seems oddly coercive, as well as difficult to administer.⁸⁵ At the same time, making a party liable for another party's shutdown costs without offering her any choice in the matter also seems oddly coercive, for different reasons.⁸⁶ These competing

shut down operations, it is easy to imagine situations in which the law would not connect the two pieces of the entitlement package in this way. For example, suppose that several homeowners each have the independent right to stop emissions, with the duty to pay shutdown costs apportioned among them. In this case, we would not expect the law to relieve an individual of the duty to pay for a share of the factory's shutdown costs upon her announcement that she does not plan to enforce *her* individual right to stop emissions. The potential for free-riding in such a situation is evident. See Calabresi & Melamed, *supra* note 2, at 1116. However, if all the parties holding the right to stop emissions decided in concert not to enforce their rights, their duties to pay would presumably disappear.

84. See Calabresi & Melamed, *supra* note 2, at 1121 (providing an example in which a Rule 4 regime would allow the homeowner to force the factory to use higher-grade coal by paying for the cost).
85. See *id.* at 1121-22 (“[T]he problems of coercion may as a practical matter be extremely severe under rule four.”).
86. When costs are a function of a mandated shutdown that cannot be bargained around, it is not possible for anyone to do anything *ex post* to control or reduce the costs. But the party that had previously been engaged in the activity at least had the opportunity to decide about *ex ante* investment levels and thereby to control the extent of her exposure. See generally Bebchuk, *supra* note 45 (noting the relevance of entitlement regimes for *ex ante* investment decisions). To hold a party that had no opportunity to choose investment levels liable for stopping costs seems potentially unfair as well as inefficient. Interestingly, the facts of *Spur* itself illustrate one aspect of this concern: *Spur* invested in massive expansions of the feedlot after the nearby Del E. Webb development was well underway. Del E. Webb started development in late 1959, began selling homes in January 1960, and had between 450 and 500 houses in various stages of completion by May 2, 1960. See *Spur Indus. v. Del. E. Webb Dev. Co.*, 494 P.2d 700, 704 (Ariz. 1972). Between 1960 and 1962, *Spur* more than tripled the size of its feedlot, expanding it from thirty-five acres to 114 acres. *Id.* In 1959, *Spur*'s predecessors grazed between 7500 and 8500 head of cattle on the original thirty-five acres; *Spur* ultimately accommodated between 20,000 and 30,000 head. *Id.* at 704-05.

That both *Spur* and Del E. Webb were busily expanding their incompatible uses at the same time complicates the question of fault. See Daniel A. Farber, *The Story of Boomer: Pollution and the Common Law*, 32 *ECOLOGY L.Q.* 113, 139 (2005). It also complicates the efficiency analysis; there are two parties engaged in activities that might be stopped, and we wish to induce both parties to make efficient investments. See Bebchuk, *supra* note 45, at 628-32. While the *Spur* remedy is potentially problematic in that it could induce inefficient investment on the part of the party in *Spur*'s position, the more commonplace remedy of making the party in *Spur*'s position bear its own stopping costs will fail to attend to the investment incentives of the other party to the case. See *id.* at 632 (concluding that none of the rules under analysis would be expected to induce optimal investments by both parties who wished to engage in conflicting land uses).

concerns may help to explain the rarity of Cell D regimes. For our purposes, it is sufficient to recognize that the law must make choices, whether explicitly or implicitly, about how the bundled privileges and duties found in cells A and D relate to each other. These choices determine the extent to which a party can adjust the mix of risk and cost within the parameters of a given legal regime.

b. Moves Between Cells

The embedded mechanisms just discussed are not the only ways in which parties can move from one combination of risk and cost to another. Absent any legal prohibition, all entitlements come implicitly bundled with the owner's prerogative to alienate them, and all parties are implicitly endowed with the power to seek to obtain entitlements that they do not yet possess. Usually any change from a given package of entitlements (that is, any shift from one cell in Figure 1 to another) would occur only with the consent of both (or all) parties, and at a mutually agreeable price.

This transfer protocol lines up well with the usual understanding of property rule protection. But the "mutual consent" transfer protocol can be used to alter *any* package of entitlements (again, barring a legal prohibition on such transfers). For example, we can imagine parties bargaining in the shadow of a Cell A regime (emit with liability) for a move to a Cell B regime (emit without liability).⁸⁷ Presumptively, such a bargain would require mutual consent, even though the starting point is an emit-and-pay regime that we would ordinarily tag as a liability rule regime. On this account, the conceptual categories of property rules and liability rules are better understood not as layers of protection attached to particular entitlements, but rather as different kinds of transfer protocols for moving from one entitlement package to another.

While a "mutual consent" transfer protocol is the typical default, it is also possible for the law, or for private parties, to devise other transfer protocols for moving among entitlement packages. For example, a government entity might charge a party a licensing fee to engage in a particular activity. This would amount to a grant of a government-created call option to move from Cell C to Cell B.⁸⁸ Parties could also write options for each other, either on their own

87. See Ayres & Talley, *supra* note 8 (discussing the potential for bargaining in the shadow of liability rules).

88. There would then be the question of whether a unilateral move *back* from Cell B to Cell C would also be possible (and if so, at which party's initiative and at what price). The possibility of successive rounds of liability rules (that is, liability rules that, once exercised, are vulnerable to a retaking) has received some attention in the entitlement literature. See,

initiative or as part of a mandatory government program. Likewise, judges could explicitly structure transfers among cells by specifying the moves that parties are permitted to make from a default resolution to a different resolution. Hence, many of the alternative ways that scholars have contemplated structuring entitlements can be understood as transfer protocols for moving among the basic, plain-vanilla entitlement regimes represented by the four cells featured in Figures 1 and 2.⁸⁹

3. Remedies

The fact that the law endows parties with specific entitlement packages and prescribes rules for their transfer does not mean that everyone will follow those rules.⁹⁰ Hence, the law must also decide what remedy should apply when a party oversteps the limits of an entitlement package without following an approved transfer protocol. For example, property boundaries usually cannot be traversed without the owner's consent. However, a trespasser may complete a violation before the coercive power of the state can be summoned. In that case, injunctive relief will no longer be useful, and supercompensatory damages may be awarded instead.⁹¹ Likewise, an entitlement that is protected by an inalienability rule might nonetheless be sold, and some remedy would have to be devised.⁹²

e.g., Ian Ayres & Paul M. Goldbart, *Optimal Delegation and Decoupling in the Design of Liability Rules*, 100 MICH. L. REV. 1, 51-54 (2001) (discussing “second (and higher) order [liability] rules” that would include a take-back feature).

89. For example, in addition to “call options,” which allow a party to gain an entitlement by paying a particular price, scholars have discussed the use of “put options,” which would allow a party to force the sale of an entitlement at a particular price. *See, e.g.*, Ayres, *supra* note 79, at 796; Morris, *supra* note 36, at 854-56. Although they did not use the “put” terminology, Calabresi and Melamed noted this possibility in a footnote of their 1972 article. *See* Calabresi & Melamed, *supra* note 2, at 1122 n.62 (discussing variations involving a “compelled buyer”). Many other ways of combining or subdividing entitlement forms have appeared in the literature, whether focusing on the structure of remedies, the design of transfer mechanisms, or both. *See, e.g.*, Ayres & Goldbart, *supra* note 88; Levmore, *supra* note 72; Michelman, *supra* note 10; *see also* Lee Anne Fennell, *Revealing Options*, 118 HARV. L. REV. 1399, 1405 nn.20-21 (2005) (collecting citations to sources offering different taxonomies and combinations of entitlements).
90. *See, e.g.*, Coleman & Kraus, *supra* note 72, at 1368 (“[I]n the absence of enforcement mechanisms of any sort, non-entitled parties may be encouraged to disregard entirely the legitimacy of the claims of entitled parties . . .”).
91. *See, e.g.*, *Jacque v. Steenberg Homes*, 563 N.W.2d 154 (Wis. 1997) (upholding a \$100,000 punitive damages award for an intentional trespass).
92. *See, e.g.*, Nance, *supra* note 72, at 852.

Calabresi and Melamed were aware of these possibilities and even discussed the need for a “kicker” in criminal law settings “to keep all property rules from being changed at will into liability rules.”⁹³ Indeed, that very formulation—suggesting that remedies be formulated in a way that will keep one kind of rule “from being changed at will” into another—demonstrates that the content of an entitlement is distinct from the rules for changing it, as well as from the remedies for breaking those rules.⁹⁴

The fact that underlying entitlement structures are often inferred from or illustrated by court-ordered remedies has contributed to confusion among entitlement content, transfer protocols, and remedies. Consider *Boomer v. Atlantic Cement Co.*, in which the court held that a factory would be enjoined unless it paid permanent damages to neighboring homeowners.⁹⁵ The pre-lawsuit parties arguably occupied a Cell C world in which emissions were not allowed. Because any change from that entitlement package would, as a default matter, require the consent of both parties, and because the factory went ahead and emitted without obtaining that consent, it can be understood as having violated an entitlement transfer protocol.

We might initially expect a court faced with this scenario to do two things: order damages for the past harm (or some other relief for violation of the transfer protocol) and coercively restore the world to Cell C through injunctive relief. The *Boomer* court did neither (although it stood ready to do the latter). Instead, the court’s judgment can be understood as announcing a new transfer protocol by which the factory could unilaterally move from Cell C (emissions not allowed, with shutdown costs borne by the factory) to Cell B (emissions allowed, with any future liability for harm falling on the homeowners). This transfer protocol was structured as an explicit option, with a strike price (permanent damages) set in advance. The factory could exercise the option and effect a shift to Cell B by paying permanent damages, or it could choose not to

93. Calabresi & Melamed, *supra* note 2, at 1126; see Alvin K. Klevorick, *On the Economic Theory of Crime*, in NOMOS XXVII: CRIMINAL JUSTICE 289, 301-03 (J. Roland Pennock & John W. Chapman eds., 1985) (explaining that violations of society’s “transaction structure” are classified as crimes); see also JULES L. COLEMAN, MARKETS, MORALS AND THE LAW 153-65 (1988) (discussing Klevorick’s approach and how it relates to and differs from that of C&M).

94. Jules Coleman and Jody Kraus would put the point slightly differently. See Coleman & Kraus, *supra* note 72, at 1368 (“Absent means of enforcement, non-entitled parties do not ‘turn’ or convert one sort of rule into another, so much as they may be disposed to ignore the lot of them.”).

95. 257 N.E.2d 870 (N.Y. 1970).

exercise the option and remain in Cell C, with its operations enjoined.⁹⁶ Looking at the *Boomer* case in this way suggests an interesting clarification. Court-ordered actions regarded as remedies can perform any of several distinct functions—clarifying the nature of the underlying entitlement, announcing new transfer protocols, enforcing the terms of existing transfer protocols, and providing relief for violations of transfer protocols.⁹⁷

More generally, viewing remedies as conceptually distinct from entitlement content offers an important gloss on how court-ordered relief relates to Figure 1's reformulation. When a court awards damages, it might *either* be remedying a move from Cell C (emissions prohibited) that was conducted outside of approved transfer protocols, or it might be enforcing the terms of Cell A, where emissions are permitted but liability for resulting harm has been shifted to the emitter.⁹⁸

An example will help to clarify. If Gilda punches Harold in the nose, and Harold collects damages in the ensuing lawsuit, the situation might be described conventionally as the application of a liability rule. On that view, Harold has a right not to be punched that Gilda can buy out by paying damages. But that description clashes with moral intuitions⁹⁹ and also is inconsistent with the supercompensatory relief that would likely be available to Harold. A more consonant way of understanding the situation is to say that society has prohibited the risk-producing activity of “punching another person

96. It might seem at first blush that the factory actually occupied a Cell A regime in which it held an embedded option to emit, at the price of paying for the harm that it actually caused—even if it did not find out that it occupied such a regime until the court ruled on the case. However, the court did not actually *require* the factory to pay for harm that it had already caused, because the factory could have elected an injunction instead. Moreover, going forward, the factory was not required to pay for actual harm. Rather, by paying a present-value estimate in the form of permanent damages, the factory could both avoid an injunction and purchase immunity from any further damages actions.

97. That the term “remedy” can carry any of a number of meanings is interestingly explored in Peter Birks, *Rights, Wrongs, and Remedies*, 20 OXFORD J. LEGAL STUD. 1 (2000).

98. See Marks, *supra* note 30, at 217 (explaining that tort law has a “dual nature” that “forms part of a strategy for dealing with prohibited acts” and “also forms part of a compensation mechanism for conditionally permissible acts”); Nance, *supra* note 72, at 873-74 (distinguishing a liability rule from what he terms a “remedial compensation rule,” and arguing that accident law generally combines the “substantive norm” of a property rule with a “remedial norm requiring payment of damages”).

99. Cf. PENNER, *supra* note 41, at 66 (“We are guided not to murder people at all, not weigh our desire to do so against the objective price that has been fixed, say twenty years without parole.”). J.E. Penner and others have likewise suggested that a negligence rule amounts to a societal prohibition on negligent conduct, not a pricing scheme for such conduct. See *id.*; see also Nance, *supra* note 72. I take up how a negligence standard fits into Figure 1's reformulation *infra* Subsection III.B.1.

in the nose” and that the costs of not punching are assigned to the party who would otherwise like to punch (here, Gilda). In other words, the legal regime aligns with Cell C. Society may indeed permit a number of physically similar activities that produce risks of similar harm (violent stretching exercises, shadow boxing, and the like) but again, these are entitlements to engage in the activity, not to bring about the harmful result.¹⁰⁰

When Gilda throws her intentional punch, she violates a prohibition on an activity. That is a very different matter than when Gilda practices boxing moves in the park (a permitted risk-producing activity, let us suppose), accidentally smacks a passerby, and has to pay damages. In the latter case we have a permitted activity with a cost allocation rule that shifts liability back to Gilda when harm results (Cell A). In the case of the punch, Gilda has violated the Cell C regime. While this regime did not physically prevent Gilda from throwing an intentional punch in this instance, the state stood ready (in theory) to physically protect Harold’s right not to be punched. Because physical coercion was not applied in time to prevent the violation of Cell C’s prohibition, however, some other remedy had to be applied. This would likely include damages, just as in the Cell A case, but it could also include supercompensatory relief and injunctive relief to constrain Gilda’s future activities.

This conceptual separation of entitlement content from remedies raises an important theoretical question: can the true content of the entitlement—for example, whether the law “really” specifies a Cell A or a Cell C regime—be inferred from the pattern of relief granted over time?¹⁰¹ Or, rather, should we understand the entitlement’s content as flowing directly from the commands issued by the law, independent of the actual pattern of remedies?¹⁰² Put in

100. As these examples suggest, risk production rules can cut fine distinctions between permitted activities and prohibited ones. See *supra* note 27.

101. An affirmative answer to this question suggests that we are concerned with identifying regimes that fit descriptively with the incentive structures courts actually enforce. To the extent that there is heterogeneity in the choice of remedies applied by courts, incentives (and, on this descriptive view, entitlements) will be less clearly framed. See, e.g., Emily Sherwin, *Property Rules as Remedies*, 106 YALE L.J. 2083, 2086 (1997) (“The absence of rules for judicial choice among remedies means that property rules and liability rules, as imposed by courts, have only a limited prospective role in law. Because the identity of the remedy is uncertain until a dispute has been adjudicated, property rules and liability rules cannot serve as incentives before that time.”).

102. See CANE, *supra* note 62, at 217 (“The rules and principles of tort law have an ethical status independent of and superior to the remedies of tort law. On this view, the remedies of tort law are (with only a few possible exceptions) not the price of interfering with the interests of another but a sanction for doing so.”); see also Coleman & Kraus, *supra* note 72, at 1370-71 (“[I]t can never be any part of the classical liberal account that by compensating someone

terms of the Harold and Gilda example, do we say that intentional punching resides in Cell C because the law forbids it outright, or do we only decide that it resides in Cell C if the ban on punching tends to be enforced (or is at least enforceable) with supercompensatory relief or direct police action designed to stop the punch?

The answer to this question must depend on what a given taxonomy is meant to show. Here, my central focus is on whether the law chooses to coercively withdraw particular risk-producing alternatives.¹⁰³ To do that (and hence to place an activity in the bottom row of Figure 1) the law must both announce a ban that makes unlawful a particular risky input and then do “enough” in terms of remedies to make that ban reasonably effective for a population that is generally inclined to be law-abiding.¹⁰⁴ Legal prohibitions on particular activities presumptively start off in the bottom row but could migrate to the top row if the remedies imposed are consistently so light that the majority of the population would understand them to be “prices” rather than “sanctions.”¹⁰⁵

for taking what is his without his consent, an injurer respects the victim’s rights”); Nance, *supra* note 72, at 858-61 (distinguishing “guidance rules,” which tell “law-abiding citizens” what is permitted and prohibited, from “enforcement rules,” which specify for the benefit of “recalcitrants” the legal consequences of violating a guidance rule). The idea that law gives content to entitlements independent of enforcement patterns would also be consistent with the Supreme Court’s recent observation that “the creation of a right is distinct from the provision of remedies for violations of that right.” *eBay Inc. v. MercExchange, L.L.C.*, 126 S. Ct. 1837, 1840 (2006).

103. It is somewhat artificial to suggest that the law either “does” or “does not” coercively withdraw alternatives. Under realistic enforcement conditions, the withdrawal of alternatives is always a matter of degree. However, if enforcement and remedies are sufficiently robust, the legal regime imposes an expected cost on violators that is at least as large as the cost of stopping the withdrawn activity.
104. The two tasks may be interrelated, if one way that society meaningfully “announces a ban” is by imposing penalties. See Marks, *supra* note 30, at 232 (observing that penalties not only alter incentives but also “signal to the world that the actor has committed a prohibited act rather than a conditionally permissible act”).
105. For one perspective on this distinction, see Robert Cooter, *Prices and Sanctions*, 84 COLUM. L. REV. 1523 (1984). Whether a given law is understood as setting a price or specifying a sanction may also depend on the degree to which it is supported by internalized norms. See Saul Levmore, *Norms as Supplements*, 86 VA. L. REV. 1989, 1997-2008 (2000). The internalization of norms associated with a given law may depend, in turn, on the form that the law takes. See Dale A. Nance, *Rules, Standards, and the Internal Point of View*, 75 FORDHAM L. REV. 1287, 1289 (2006). Negligence rules occupy a special position in Figure 1’s schema, which I take up *infra* Subsection III.B.1.

II. SCALING PROPERTY BOUNDARIES

While Part I suggested that a more coherent understanding of property entitlements can be gleaned by importing the half-torts refinement into the story, this Part shows how property's distinctive elements interact with, and can be better explained in light of, that refinement. The approach taken here shows property to be neither a bundle of sticks nor a near-absolute exclusionary right in a thing, but something rather different—a leaky, unsealed bucket of gambles. Exclusion mechanisms, though imperfect, are generally designed to keep one's own positive payoffs inside the bucket and the negative payoffs generated by others out of it. The leakiness of the bucket depends on the tightness of the fit between the scale of the gambles undertaken and the scale of property ownership. Shortcomings of scale in property entitlements cause risks and harms to fall on opposite sides of property lines.

A. Boundary Rules and the Risk/Harm Grid

As noted above, the act of boundary crossing by persons is, in general, one that society has prohibited outright, with the costs of the restraint falling on the would-be boundary crossers.¹⁰⁶ Harm to the trespassed-upon need not be shown—nor, indeed, must any specific risk of such harm be established. Rather, the boundary crossing is presumptively deemed to be harmful in itself, like any other activity directed at an impermissible end.¹⁰⁷ Thus, trespass presents no discrete split between risk and harm; the tort occurs all in one lump when a property interest is violated. Like other acts that are deemed to be categorically impermissible, boundary crossings generally reside in Cell C of Figure 1.

Bans on boundary crossings, however, manifest an interesting inversion of the usual rationale for selecting a prohibition over an assignment of liability.

106. See *supra* Subsection I.C.2. The law generally treats boundary crossings by human beings (or by significant objects or structures directly wielded, placed, or pushed by human beings)—that is, “trespass”—differently from “molecular-level” crossings by dust, smoke, sound waves, and the like, which are analyzed under nuisance doctrines. See, e.g., CANE, *supra* note 62, at 142-43; see also Thomas W. Merrill, *Trespass, Nuisance, and the Costs of Determining Property Rights*, 14 J. LEGAL STUD. 13 (1985) (offering a transaction cost explanation for the differential treatment).

107. Exceptions like private necessity show that the presumption can be rebutted in some circumstances. See, e.g., ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 160-61 (4th ed. 2004); Smith, *supra* note 2, at 1735; see also CANE, *supra* note 62, at 142 (noting the general assumption that an owner who fails to indicate otherwise is “willing to allow people, under normal circumstances, to enter the land to get to the front door of the dwelling”).

While a societal choice to prohibit a particular risk-producing activity (rather than merely to allocate liability to a risk producer) might be grounded in part on society's superior knowledge about the expected costs and benefits of the activity, blanket prohibitions on boundary crossings are premised, at least in part, on society's ignorance about what might be going on within a given boundary as well as how a given interference might impact those endeavors.¹⁰⁸

If property is understood functionally as a mechanism for pooling together risky inputs and resulting outcomes, then societal concern properly focuses on disruptions to that process. Boundary crossings are threatening when they effectively puncture the containers that society has created for collecting risks and their associated outcomes. An analogous point might be made with regard to acts directed at interfering with bodily integrity or the security of personal property holdings. But society cannot usefully organize its understanding of tort law around the simple command to "cross no boundary."¹⁰⁹ Nor is the concept of boundaries even sufficient to order our understanding of the subcategory of property-related torts.¹¹⁰

108. This is consistent with Smith's emphasis on property law's "delegation" of use choices to owners. See Smith, *Exclusion*, *supra* note 10, at 978-85. See generally Smith, *supra* note 2 (arguing that the delegation function of property offers a rationale for employing property rules). I do not mean to suggest that society literally has no idea about what kinds of activities are going on inside property boundaries. Rather, the broad range of activities that might be pursued consistent with the law gives rise to a fiction of unknowable use.

109. See Jules Coleman & Arthur Ripstein, *Mischief and Misfortune*, 41 MCGILL L.J. 91, 108-10 (1995) (arguing that boundaries cannot be used to establish fault because the boundaries themselves are normative rather than spatial and must be set by reference to fault); Stephen R. Perry, *Libertarianism, Entitlement, and Responsibility*, 26 PHIL. & PUB. AFF. 351, 377-78, 389 (1997) (critiquing the boundary-crossing image as a way of identifying what causes harm, and concluding that the metaphor "is a pernicious and misleading addition to moral and political philosophy, and we would do best to dispense with it").

110. Interestingly, Stephen Perry has argued that the boundary-crossing metaphor is misleading precisely because it "involves a generalization of the legal protection that is afforded to an actual type of entitlement, namely, property rights in land." Perry, *supra* note 109, at 378. But a close look at torts that relate to real property reveals the same basic difficulties that make the boundary concept indeterminate in other contexts. While it is possible to make near-categorical rules about people crossing other people's property lines, and the stationary nature of property does assist us in assessing when that has occurred, *see id.*, boundaries are also "crossed" by innumerable risk/harm pairings that are part and parcel of owning and beneficially using property. In these settings, resort to boundaries is insufficient.

The reason becomes clear when we understand boundaries functionally.¹¹¹ The point of exclusion from boundaries is to facilitate the effective matching of inputs with outcomes. Boundaries cannot accomplish that task if they operate so strongly as to preclude all *inputs* that might generate extra-boundary harm. This Article's taxonomy is most interestingly engaged by acts that represent one party's inputs to permissible activities but that also produce the risk of harmful effects for another party. Here, society's resort to boundaries fails, because restraining *A* from doing acts that may have impacts inside *B*'s boundaries requires society to reach inside *A*'s boundaries to coercively remove some subset of possible inputs—that is, to remove part of what makes *A*'s property valuable. Either choice will disrupt someone's ability to derive outcomes from inputs undertaken on property.

B. Property as a Bucket of Gambles

Property scholars have long struggled over the most useful characterization of property. The two primary contestants for dominance are the “bundle of sticks” (or “bundle of rights”) idea, introduced by the legal realists and adopted with varying levels of enthusiasm by scholars thereafter, and a neo-Blackstonian property-as-exclusion model, prominently endorsed in recent years by Merrill and Smith, among others.¹¹² The “bundle” proponents emphasize the capacity of property to be decomposed into separate, discrete entitlements.¹¹³ The “exclusion” scholars suggest that this decomposed view of

111. See, e.g., PENNER, *supra* note 41, at 71 (explaining that use provides the justification for the property right, although “exclusion is the practical means by which that interest is protected”); Shyamkrishna Balganesh, *Common Law Property Metaphors on the Internet: The Real Problem with the Doctrine of Cybertrespass*, 12 MICH. TELECOMM. & TECH. L. REV. 265, 317 (2006) (emphasizing that “all property is instrumental” and is therefore characterized by “excludability for some purpose”).

112. See, e.g., THOMAS W. MERRILL & HENRY E. SMITH, *PROPERTY: PRINCIPLES AND POLICIES*, at v (2007) (“The most basic principle is that property at its core entails the right to exclude others from some discrete thing.”); Thomas W. Merrill, *Property and the Right To Exclude*, 77 NEB. L. REV. 730, 754 (1998) (“[P]roperty means the right to exclude others from valued resources, no more and no less.”); Smith, *supra* note 2, at 1791-93 (criticizing the “atomized” view of property suggested by the bundle of sticks, and emphasizing the significance of exclusion); see also PENNER, *supra* note 41, at 71 (positing the “exclusion thesis,” which holds that “the right to property is a right to exclude others from things which is grounded by the interest we have in the use of things” (emphasis omitted)). Merrill and Smith’s recently published casebook broadly distinguishes “essentialist” views of property (of which their exclusion-centered approach represents one version) from the “bundle of sticks” view of property. See MERRILL & SMITH, *supra*, at 15-16.

113. For an extended discussion of the development and implications of the “bundle of rights” metaphor by one of its critics, see J.E. Penner, *The “Bundle of Rights” Picture of Property*, 43

property misses its signal characteristic—the fact that property lumps together countless unenumerated use privileges by granting the blunt, overarching right to keep all others off.¹¹⁴

Unsurprisingly, there is something to be said for each of these views. It is certainly true that the privileges that accompany ownership cannot be reduced to a list or logically deduced from the legal rules that expressly govern property, as J.W. Harris has observed:

Brown may have rights against all other citizens that they do not enter or intentionally or recklessly damage his house. He may be prohibited from using it for business purposes without planning permission. He may be liable to have it taken from him by compulsory purchase as part of a road-widening scheme. And so on. Nothing, however, follows from these rules, one way or the other, as to whether he is free to paint the bedrooms a luminous green, or to keep coals in the bath, or to inscribe graffiti on the walls, or to breed spiders in the kitchen. Similarly, nothing in these rules tells us whether Brown can share his house with others on condition that they sing him to sleep at night, or may sell his house at half its cost to the first person to guess his weight. If he may use, abuse, exploit, or transmit in these and countless other less eccentric ways, it is because he is owner.¹¹⁵

UCLA L. REV. 711 (1996). See also Thomas C. Grey, *The Disintegration of Property*, in PROPERTY: NOMOS XXII 69 (J. Roland Pennock & John W. Chapman eds., 1980). It is noteworthy that the property bundle might be broken up into constituent “sticks” in a variety of ways. See Penner, *supra*, at 712-13. For example, Tony Honoré sought to enumerate “the standard incidents of ownership”—distinct powers that owners have with respect to a thing. TONY HONORÉ, MAKING LAW BIND 165 (1987); see *id.* at 165-79. Hohfeld decomposed property in a different manner by understanding it as a set of jural relations between people. See HOHFELD, *supra* note 22. It is also possible to break down the different substantive uses that might be made of property, to enumerate all the persons against whom those various entitlements run, or to subdivide interests in space or time. See generally Penner, *supra* (discussing some of the dimensions along which property might be splintered). As Merrill and Smith have observed, Coase’s approach and that of Calabresi and Melamed followed in the realist tradition by focusing on specific substantive entitlements in working through conflicts. See, e.g., Merrill & Smith, *supra* note 1; Smith, *supra* note 2.

114. See, e.g., Merrill & Smith, *supra* note 1; Smith, *supra* note 2.

115. J.W. HARRIS, PROPERTY AND JUSTICE 65 (1996); see also PENNER, *supra* note 41, at 72 (explaining that his “exclusion thesis” casts “property primarily as a protected sphere of indefinite and undefined activity,” and that while “an owner’s use of property may be circumscribed in various ways,” the law does not “define[] the right to things in terms of a series of well-enumerated and well-understood uses of things to which individuals have a right”).

As essential as exclusion is in facilitating such a wide array of uses, however, the full meaning of ownership cannot be collapsed into a single right to exclude.¹¹⁶ To see why, imagine a super-fortified exclusion right that coercively protects owners from any and all intrusions—whether from trespassers, animals, tangible objects, sound waves, light waves, fumes, odors, vibrations, or even wayward air molecules. This exclusion right would seem to allow owners the privilege to engage in an infinite array of property uses without disturbance. Such a powerful exclusion right is a double-edged sword, however. It also would prohibit owners from engaging in any uses that *produced* any such extra-boundary effects. Virtually any activity on one's property will generate some extra-boundary effects. For example, simply walking across one's own front yard doubtless creates some stirring of air molecules and causes some of them to cross the boundary line. To say that these moving molecules are benign and harmless is no answer if exclusion is really designed to protect the full range of unknown and unknowable use privileges that may be occurring on property. For all we know, a neighbor is engaged in a sensitive weather experiment that will be grievously disrupted by even the slightest stirring of air across the boundaries.¹¹⁷

Each time the law decides to enjoin an activity with extra-boundary impacts, it drains away a property owner's privilege to engage in the activity in question. As more and more uses are drained away from a given parcel of property, the less use-content remains that would give ownership of that parcel value. To be sure, the loss of value may be more than outweighed by gains that accrue to the landowner as a result of the reciprocal application of identical restrictions to neighboring parcels.¹¹⁸ Nonetheless, there is a principle of

116. See HARRIS, *supra* note 115, at 24-26 (explaining that “trespassory rules . . . are a necessary but not sufficient condition for property,” and observing that “[t]he idea of a proprietary relationship entailing an open-ended set of use-privileges and control-powers, that is, some version of an ownership interest, is a separate and indispensable element of a property institution”).

117. Under existing tort doctrines, this would be an abnormally sensitive use that would not give rise to a cause of action. See, e.g., *Amphitheaters, Inc. v. Portland Meadows*, 198 P.2d 847 (Or. 1948) (affirming a directed verdict for the defendant, whose racetrack lights interfered with the plaintiff's drive-in movie operation). The court in *Amphitheaters* discussed and applied the rule that “a man cannot increase the liabilities of his neighbor by applying his own property to special and delicate uses.” *Id.* at 854.

118. See, e.g., Robert C. Ellickson, *Alternatives to Zoning: Covenants, Nuisance Law, and Fines as Land Use Controls*, 40 U. CHI. L. REV. 681, 713 (1973) (suggesting that systems of reciprocal covenants would only be attractive to homebuyers if they added more value by controlling neighbors' uses than they subtracted by limiting the homebuyers' own future uses and increasing their administrative costs); William A. Fischel, *Equity and Efficiency Aspects of*

conservation at work, in which each move to strengthen exclusion requires weakening the use-content that the exclusion is meant to protect.¹¹⁹ Because an unlimited exclusion right would make property worthless as a practical matter, the law must decide which activities with extra-boundary impacts are permissible and which are prohibited, and it must further decide how the costs of those decisions will be allocated. Both inquiries require identifying, individuating, and assessing the specific use entitlements that are at issue in cross-boundary interactions. Significantly, this act of conceptual disaggregation becomes necessary at precisely the point where property and torts run into each other—that is, where risk production and harm manifestation end up on opposite sides of a property line.

It is important to understand the role of the property line in this story. It does not designate a categorical, coercively guarded barrier against all intrusions great and small, nor does it establish a realm in which a limitless slate of activities can be pursued with impunity by the owner. Rather, it marks out a space (whether physical or conceptual) in which risks and outcomes are *designed* to be pooled together and in which owners have certain rights and privileges to help bring about such pooling. To the extent that risks and outcomes are successfully contained within the corners of the property, we need not inquire as to the specific uses undertaken. But when harms eventuate beyond the property line as a result of risky activities undertaken inside the property line, we can no longer be satisfied to view the property in question as an undifferentiated aggregation of potential uses; we must identify and evaluate the activities in question in order to make legal rules with regard to them.

As greater numbers of people live and work in close proximity, activities with extra-boundary impacts proliferate, as do the required societal judgments about those activities. At some point, the proportion of extra-boundary impacts becomes so great that an almost entirely disaggregated vision of property seems destined to take hold—but this need not be the case. The existence of large numbers of half-torts on either side of a property line are symptomatic of a problem of scale in property holdings, reflecting the inability of property to

Zoning Reform, 27 PUB. POL'Y 301, 303, 304 & fig.1, 305 (1979) (discussing and depicting community and landowner benefits associated with various levels of land use control).

119. Cf. Duncan Kennedy & Frank Michelman, *Are Property and Contract Efficient?*, 8 HOFSTRA L. REV. 711, 760 (1980) (presenting the “Law of Conservation of Exposures”). While it is true that exclusion rights and use privileges might be strengthened simultaneously for any given owner, it is not possible to grant every owner tougher exclusion rights *and* unchanged or enhanced use privileges.

serve as an all-purpose container for activities. An alternative to disaggregation, then, is rescaling of property itself.¹²⁰

A useful metaphor for property must connote both the undifferentiated corpus of activity/outcome pairings that occur within the property's boundaries and the articulation and evaluation of activity/outcome pairings that span property boundaries. Smith has recently revived a metaphor used by William Markby a century ago to suggest that property is more like "a bucket of water" than "a bundle of sticks."¹²¹ While sticks suggest separate, articulated interests, the bucket image conjures up a fluid whole that would be both impossible and pointless to disaggregate.¹²² A bucket is an apt metaphor for a second reason as well—as a container, it is notoriously slosh-prone and leaky. Once impacts make it out of the bucket—or convincingly threaten to do so—the activities that gave rise to them warrant individualized attention. In other words, we need not bother to name or distinguish the drops in an owner's bucket *until* we see that one of those drops is going to leave the bucket and land on someone else.¹²³

The idea that property ownership offers a way to make and collect on bets has also appeared in Smith's work.¹²⁴ When paired with the bucket image, we can think of property as a container within which risky bets of nearly limitless variety may be pursued and their effects collected. In general, we need not know what the uses are or even list them specifically, as long as their effects are

120. See *infra* Subsection III.B.4.

121. Smith, *supra* note 2, at 1760 (quoting WILLIAM MARKBY, ELEMENTS OF LAW 158 (6th ed. 1905) (asserting that ownership "is no more conceived as an aggregate of distinct rights than a bucket of water is conceived as an aggregate of separate drops")).

122. *Id.*

123. This characterization is consistent with Markby's own presentation of the bucket analogy. See *supra* note 121 and accompanying text. After asserting that property is "a single right" and drawing the analogy to a bucket of water, Markby went on to explain: "Yet, as we may take a drop or several drops from the bucket, so we may detach a right or several rights from ownership." MARKBY, *supra* note 121, at 158-59. While Markby seems to have had in mind the alienation of specific use privileges, such as to walk on land or to graze cattle on it, see *id.* at 159, his vision of property is just as consistent with the state's withdrawal of particular use privileges from an owner as it is with the owner's grant of specific use privileges to another private party.

124. See, e.g., Smith, *Exclusion*, *supra* note 10, at 984 (explaining that an owner's property should be protected in a way that allows her to "act on a hunch," such as the possibility that a given site will be a tourist attraction, and then to "bear the consequences of this bet on the future without needing to articulate it to others"); Smith, *supra* note 2, at 1729 (characterizing owners as making bets that may or may not generate favorable payoffs).

well contained.¹²⁵ As long as risk production and all of its effects—both positive and negative—are confined within the owned parcel, internalization is complete. Luck and other inputs will determine whether risk production manifests in harm in a given instance, but the risks that are built into the endeavors that owners undertake on their properties “come with the territory”—quite literally. When gambles pay off well, the owner reaps the rewards. When gambles pay off poorly, the owner suffers the harm. Or so we might hope.

In fact, the effects of the risks that people undertake are not neatly contained on their respective properties. If property holdings are appropriately scaled to fit the kinds of gambles undertaken on them, they may work as relatively good catchments. Even so, positive and negative effects can leak or slosh out of a given property bucket, just as they can slosh or seep in.¹²⁶ Beyond inadvertent sloshes and leaks, there is the potential for more purposeful interferences—pumps and siphons that systematically introduce risks of harm and extract realized benefits. Property boundaries backed with the right of exclusion are essential to managing many of these concerns, although they cannot do so completely.

C. *The Benefits of Boundaries*

An owner can use boundary exclusion to fence in, at least roughly, the positive payoffs of her own gambles (such as apples from trees she has planted)¹²⁷ and to fence out negative impacts of risks that outsiders have undertaken in support of their own projects (such as refuse from the neighbor’s party). This ability to keep the risk-reward ratio under reasonable

125. Containment in this context is not always satisfied by physical containment, although boundaries and exclusion technologies can be quite important, as we shall see. We can easily imagine activities that are physically contained on a piece of property that nonetheless have significant negative impacts to interests that are not contained within the envelope of ownership. For example, a houseguest may sprain her ankle while squarely situated within the boundaries of an owner’s parcel, but that does not mean that the owner has thereby internalized the costs of the guest’s injury.

126. This phenomenon is usually captured by the term “spillover.” However, the notion of a spillover suggests that most of the effects remain in the relevant bucket. When the divergence between the physical or conceptual scale of property and the activities that affect the property’s value becomes so large that what “spills out” exceeds what stays in, we might no longer view the external effects as mere spillovers but rather as an indication that the property interest itself needs to be rescaled.

127. As Yoram Barzel has explained, such fencing in will be imperfect. See BARZEL, *supra* note 16, at 141 (“[F]ences around orchards are not made to be totally insurmountable; the cost of making them insurmountable exceeds the gain.”).

control within a particular spatial or conceptual envelope is an essential element of what it means to have property.¹²⁸ Exclusion is instrumental to maintaining an acceptable ratio not only because it prevents the carrying away of positive outcomes and the introduction of spurious risks, but also because it fortifies onsite use privileges in a way that enables owners to make desired gambles on their property without private interference.

This last point requires elaboration. The Hohfeldian distinction between privileges and rights emphasizes that privileges are less robust than rights precisely because they are not backed by the law's coercive force and are vulnerable to private interference. But privileges to undertake particular activities on (or with) one's property come wrapped in an exclusion *right* that keeps others off the property itself. For this reason "privileges-on-property" look very much like rights to engage in particular uses, inasmuch as private parties can be coercively prevented from entering another's property to shut down a particular use or interfere with it directly. It may be technically accurate to say that a factory owner has merely a privilege to emit pollutants in the course of making widgets, but because she is undertaking the emissions using her own equipment on her own land, an unhappy neighbor cannot throw a monkey wrench into the widget works or stuff rags down the smokestack without being subject to law's coercive sanction.¹²⁹

Because of the strength of exclusion rights, private parties can only stop uses conducted on or with another's property by engaging the coercive power of the state. When a use privilege exists, however, the neighbors have "no-right" to engage the state's apparatus to stop it. For this reason, privileges exercised within property boundaries or using "bounded" means (such as personal property or one's own person) can begin to approach the status of rights in their practical effect.¹³⁰ Coercion will not be applied to protect these privileged acts themselves, but it can be applied to block most or all of the available means of stopping the privileged acts. This right-like character of privileges-on-property extends only as far as the relevant boundary line.

128. See, e.g., *id.* at 7 ("The ability to receive the income flow generated by an asset constitutes part of the property rights over it").

129. See Merrill & Smith, *supra* note 64, at 1864 ("The resident cannot come onto the polluter's land and smash the factory because that would violate the polluter's right to exclude."). Note that the same holds true for interferences with private property owned by third parties as well as for interferences with rights in bodily integrity. Hence, the neighbor cannot stop the widget-making operation by physically restraining factory employees (whether on or off factory property) or shooting out the tires of their cars as they drive to work (whether on public roadways or on private drives).

130. The rights that these privileges come to resemble only extend to the point of engagement in the risk-producing activity—not to the production of a harmful result.

Beyond that point, the privileged activity is no longer sheathed in an exclusion right; the law will not interfere with the activity, but private parties may do so.

It is important to clarify how property lines relate to the distinction drawn above between an entitlement to engage in an activity that produces risk (which actors often hold) and an entitlement to produce actual harm as a result of that activity (which actors never hold). The idea that self-help and luck can freely intervene between risk production and harm manifestation operates independently of property lines. Parties need not be inside their own boundaries to avail themselves of means at their disposal to avert the manifestation of harm from a risk-producing activity. Nonetheless, property boundaries affect self-help choices in two ways. First, as just discussed, boundaries rule out forms of self-help that would require violating the exclusion rights of others. Second, boundaries offer victims a protected space within which they are privileged to undertake certain kinds of intensive or permanent self-help measures without interference.

Consider two neighbors, Calvin and Delia, who live on adjacent parcels of land. Calvin owns a small, excitable Yorkshire Terrier that is prone to intense barking fits whenever it sees a larger animal. Delia owns a large, calm Great Dane that stands, lies, or walks in Delia's yard all day long. A chain link fence separates the two lots, allowing easy visual access between Calvin's house and Delia's yard. As a result, the Yorkshire Terrier yaps continually, preventing Calvin from enjoying most of the land uses in which he would like to engage, such as reading, working, conversing, entertaining, and so on. If Delia has an entitlement that allows her to keep the Great Dane in her own yard, she is permitted to generate the risk of these unhappy consequences in Calvin's eardrums. She does not, however, have an entitlement to bring about that manifestation of harm—she has no right to “make” her neighbor's dog bark.

Calvin may engage in several kinds of self-help within or along his property lines to keep the risk-generating activity beyond the fence from manifesting in harm. He might, for example, install an opaque fence of sufficient height to block visual access to Delia's yard. Alternatively, he might keep the terrier in the house and install blinds on the windows that face Delia's yard. He might even consider installing “trick windows” that make objects (such as Delia's dog) appear more distant, and hence smaller, than they actually are. None of these techniques depends on physical exclusion, yet they are all facilitated by the degree of dominion and control that Calvin has over his own property.

There are limits, however, to how far this self-help may go. While it may be true, as Smith has suggested, that a neighbor could permissibly undertake

rather aggressive countermeasures in some circumstances,¹³¹ the scope of permissible self-help turns on social judgments about the activities in question; it cannot be derived from the position of the property boundaries. For example, the fact that Delia's Great Dane produces impacts across Calvin's property line does not imply that Calvin can respond by installing loudspeakers to project the yaps of his own agitated terrier onto Delia's property, even if the loudspeakers and the terrier are entirely contained on Calvin's property. Such "self-help" would likely be characterized as an activity that itself produces a risk of harm across the boundary.

A converse benefit stemming from an owner's broad control over a spatial area is the opportunity this affords to prevent her own onsite activities from producing risks that extend beyond the property's borders. In other words, property boundaries are not only about fencing out, but also about fencing in. When a given activity is permitted on property, but liability for resulting harm is assigned to the property owner, the advantages of being free to design cost-effective precautions are evident. Interestingly, however, the discretion that owners have to engage in protective countermeasures on their property also has significance in limiting exposure to the harm that comes from a rule forbidding a given risk-producing activity. As emphasized above, the harm that comes from forbidding a particular activity cannot be diminished through self-help once the prohibition kicks in. However, precautions can influence whether or how broadly a prohibition will apply in the first place—at least within the paradigm of common law nuisance.¹³²

131. See Smith, *Exclusion*, *supra* note 10, at 1012 (giving an example in which a neighbor uses giant fans to block a factory's pollution, so that it clogs the factory's machinery). Even if the fans are inside the neighbor's borders and block rather than reintroduce pollution, their propulsion of air across the property line might seem to create a new violation of exclusion rights (this time, those of the emitter). However, the fans might be analogized to throwing a punch in self-defense so that the original intrusion justifies not only correction but countermeasures that would, on their own, violate rights. See Smith, *Self-Help*, *supra* note 10, at 80-81 (discussing the privilege of self-defense in criminal law, which removes the right that the aggressor previously had not to be hit); see also *Hannabalsen v. Sessions*, 90 N.W. 93, 95 (Iowa 1902) (deeming the fact that the plaintiff had extended her arm over a partition fence so that it entered her neighbor's airspace sufficient "to technically authorize the defendant to demand that she cease the intrusion, and to justify him in using reasonable and necessary force required for the expulsion of so much of her person as he found upon his side of the line, being careful to keep within the limits of the rule '*Molliter manus imposuit* [gently laying hands upon],' so far as was consistent with his own safety"). Nonetheless, the extent of self-help that is permissible depends on a societal judgment about the merits of taking such action.

132. Legislative land use controls like zoning and private controls implemented through systems of reciprocal covenants do not react on a case-by-case basis to spillovers from one property to another, but rather restrict proactively based on assumptions about the impacts of

Here it becomes important that property ownership does not confer a list of specific enumerated privileges, but rather works as a catch-all grant to engage in any use that the law does not specifically prohibit.¹³³ Moreover, many uses that would be classified as nuisances under particular circumstances are not nuisances per se that would be forbidden anywhere and everywhere.¹³⁴ Whether or not a given use will count as a nuisance may, therefore, depend on exactly where and how it is carried out. Not only does a property owner have discretion about where to acquire property, but she also can decide where on her property to conduct a given use and can take countermeasures on her property to help contain impacts. To control the risks generated by particular uses, an owner might build taller smokestacks, devise a containment reservoir for wastes, install sound-absorbing panels, add filters or scrubbers of various kinds, and so on. If, as a practical matter, uses will only be prohibited as nuisances when someone on the other side of the property boundary has reason to complain, owners have a wide spectrum of choices about the most profitable mix of activities and within-borders precautions.

Property boundaries, then, do at least three things that help to turn property holdings into meaningful basins for capturing the benefits and harms of risk-producing activities undertaken by the owner. First, boundaries provide a means for excluding those who would introduce spurious risks, carry away realized benefits, or interfere with the owner's gambles in other ways. Second, boundaries define a command post from which to address risks that are generated offsite that cannot be excluded directly. Third, boundaries demarcate a space within which owners can undertake precautions that will keep their own risk-generating activities from having extra-boundary effects.

A final point about property holdings relates not to physical boundaries but to temporal boundaries. When a party holds in fee simple, the entire arrow of time is included in her package. Thus, outcomes are captured in the owner's holding regardless of how long the lag time may be from the time of the initial inputs.¹³⁵ This is true regardless of whether the same owner continues to hold

different activities. If all owners who were engaged in a particular use took precautions that precluded spillovers, it is likely that no prohibition on that use would be adopted. But when there is heterogeneity among different instances of the same class of uses, many proactive land use regulations will sweep broadly enough to reach even the more innocuous examples. An interesting exception to this rule is found in performance zoning, which zones based on impacts rather than on uses. See, e.g., LANE KENDIG ET AL., *PERFORMANCE ZONING* (1980); Frederick W. Acker, Note, *Performance Zoning*, 67 NOTRE DAME L. REV. 363 (1991).

133. See *supra* notes 114-115, 121-122 and accompanying text.

134. See *supra* note 67.

135. See Demsetz, *supra* note 12, at 355 (explaining that property owners will seek to maximize the present value of their land, which means taking into account future conditions). When a fee

the property until a given result comes to pass; if the property is sold in the interim, the expected value of any event's occurrence can be capitalized into the property's value and translated into an appropriate premium or discount on the sale. Under conditions of complete capitalization, risks of harmful outcomes would be translated into property value changes before any harm came about.

In many cases, the level of expected harm, and hence the associated diminution in property value, can be influenced by the landowner's acts. The lengthy temporal scale is functional in producing efficient choices by the landowner to the extent that she bears, through capitalization, the impacts of her own decisions. Any residual risk, as well as any associated legal claims against the producer of the risk, would "run with the land" and be captured in the resale price. Capitalization does not alter the basic choice of how to address risky inputs. However, it does highlight the potential for sales during the lag time between a risky input and a harmful outcome to move property into the hands of a party who can bear risk more cheaply. If the original owner is risk averse, she might prefer to "cash out" the expected value of a harm that might befall the property by bearing a certain, realized loss in the form of a reduced sales price, rather than continue to bear the ongoing risk herself.¹³⁶

D. Half-Torts as Failures of Scale

Property boundaries, as useful as they are, cannot accomplish the full internalization of outcomes produced by activities. The problem can be restated as one of scale: some risk-producing activities operate at a scale that does not match the size or shape of individually owned pieces of property.¹³⁷ Boundaries are helpful, even essential, in delivering control over risk-producing activities to property owners, but they are not sufficient in many instances. If we understand property as a sphere of effective control over gambles, boundaries represent just one way of packaging that control. This point is well recognized; possible alternative means of control, collectively

simple estate is divided into smaller temporal slices, such as a life estate held by one person and a remainder interest held by another, the potential exists for spillovers into the holdings of successive owners. See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 71-73 (6th ed. 2003) (discussing problems that can result from temporally divided ownership in land). For a broader discussion of time lags between risk and harm in tort, see John C.P. Goldberg & Benjamin C. Zipursky, *Unrealized Torts*, 88 VA. L. REV. 1625 (2002).

136. In the presence of well-developed insurance markets, a property owner who is risk averse need not sell the whole property to achieve relief from risk. She could instead simply insure against the risk on an à la carte basis.

137. See Ellickson, *supra* note 14, at 1332-35 (discussing how scale relates to boundaries).

dubbed “governance,” have received careful attention.¹³⁸ Governance has been viewed as a potential substitute for exclusion—one that is particularly well suited to managing common property regimes from which the commoners themselves cannot be excluded.¹³⁹ In addition, Smith has explained that governance operates around the edges of ordinary private property, through devices like nuisance law, zoning, and covenants.¹⁴⁰

The half-torts perspective refines this account in two ways. First, precision can be added to our understanding of the governance category by recognizing that there are two margins on which legal pressure can be applied, whether separately or in combination: risk production and the allocation of cost for harm. Second, the problems that call out for governance responses can be helpfully identified as risks and harms that property has failed to charge to the same owner’s account—in short, half-torts. A systematic proliferation of these disconnected risks and harms, then, can serve a diagnostic function by suggesting a possible shortcoming in the scale of property holdings relative to property-based bets.

To say that unmoored risks and harms suggest shortcomings in property scale does not mean we should pursue a normative goal of constantly rescaling property to eliminate all these half-torts. Following Harold Demsetz, adjusting or reconfiguring property rights will make sense only when the costs of delineating and enforcing the recalibrated rights are outweighed by the gains

138. See Smith, *supra* note 13; see also Thráinn Eggertsson, *Open Access Versus Common Property*, in *PROPERTY RIGHTS: COOPERATION, CONFLICT, AND LAW* 73, 75-76, 81-85 (Terry L. Anderson & Fred S. McChesney eds., 2003) (discussing the “exclusion costs” and “internal governance costs” that property rights entail).

139. See Smith, *supra* note 13, at S455 (noting that governance rules have been “more identified with common property in the literature”). The phrase “common property” denotes ownership that is shared among some limited number of individuals; it is distinguished from an “open access” resource that is truly open to all. See, e.g., ELINOR OSTROM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* 48 (1990) (distinguishing limited access common pool resources from those that are open access); Eggertsson, *supra* note 138, at 76 (“When an asset is under a well-defined common property regime, an easily identifiable group of insiders controls the use and management of the resource and holds exclusive user rights, which outsiders do not enjoy.”). Those who hold a resource in common can and do exclude outsiders, but arrangements must be made on the inside for managing the resources among those holding it in common. See Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 *MINN. L. REV.* 129, 155 (1998) (discussing “limited common property” regimes that can be understood as constituting “commons on the inside, property on the outside”).

140. Smith, *supra* note 13, at S456 (explaining that “property proper includes a basic exclusionary regime with refinements of the governance type,” and noting that nuisance, zoning, and covenants represent such refinements).

that such a reconfiguration would make possible.¹⁴¹ Because eliminating all free-floating risks and harms would be prohibitively expensive and would also likely have other disadvantages (such as creating unwanted concentrations of ownership), a property-based strategy for addressing torts and their unpaired components has limits. Nonetheless, it is useful to recognize property as an effort to create tort-free enclaves by pairing important sets of risks and outcomes together. When those pairings cannot be accomplished with some degree of regularity, property loses its power and half-torts must be addressed.

Before turning to legal responses to failures of scale, however, it is useful to briefly consider a puzzle sometimes posed in the torts literature: why are *positive* externalities of activities rarely charged against the recipient and credited to the actor?¹⁴² Returning to the problem of scale offers a partial explanation. Other things equal, it is preferable for the scale of one's property holdings to roughly match the scale of one's gambles. Activities and outcomes are thereby grouped together without the need for any (further) transactions and, importantly, without any need to examine, individuate, evaluate, or produce legal rules about specific risk-producing activities that eventuate in harm offsite. The wide heterogeneity in the uses to which property may be put makes accurate scaling more important—one does not know what ongoing efforts of one's neighbors one might interfere with through badly scaled activities. Thus, we can understand “right-scaling” itself as a socially valuable precautionary activity undertaken by property owners.

The threat of tort liability provides a powerful incentive to scale efficiently, as discussed above.¹⁴³ But there is another built-in inducement to get the scale right—the possibility that *benefits* produced by one's activities will escape and thus fail to be properly credited to one's account. Allowing an actor to recoup the benefits bestowed on others as a result of bad scaling takes away this added incentive—and, indeed, may even create an incentive in the other direction. Because “wrong-scaling” expands the domain in which mutually consensual transactions are supplanted by unilaterally imposed ones, it should be viewed skeptically in a legal regime that prefers to rely on market transactions. While there are plenty of reasons not to charge people for unsought benefits,¹⁴⁴ an

141. See Demsetz, *supra* note 12; see also Eggertsson, *supra* note 138, at 82–83.

142. See generally Scott Hershovitz, *Two Models of Tort (and Takings)*, 92 VA. L. REV. 1147 (2006) (addressing the law's reluctance to require payment for positive externalities); Saul Levmore, *Explaining Restitution*, 71 VA. L. REV. 65 (1985) (discussing possible reasons for the disinclination of the law to require payment for “nonbargained benefits,” as well as exceptions to that general rule).

143. See *supra* Section II.B.

144. See, e.g., Levmore, *supra* note 142.

especially compelling one is the possibility that such arrangements could encourage actors to gratuitously expand the reach of a risky activity capable of producing harmful as well as beneficial effects.¹⁴⁵ Heterogeneity among neighboring landowners and among the uses to which they may put their property makes such mixed effects more likely.

An example will help to clarify. Suppose a chocolate factory emits an aroma that envelops the surrounding neighborhood, with varying effects. Some people who live in the neighborhood find the odor unpleasant, but others find it delightful. A nearby shopping center enjoys higher sales because of the psychological boost that the chocolate fumes give to its customers, but a nearby gourmet restaurant finds that the odor overwhelms the delicate and subtle flavors that had previously led diners to part with large amounts of cash. The pervasive chocolate aroma might forestall the development of an obesity-related disorder in one individual by turning her against the consumption of sweets, but it might also induce life-threatening asthma attacks in another. And so on.

Suppose the chocolate factory determined that the average per-neighbor impact was x for those positively affected and $-x$ for those negatively affected, and it further determined that just over half of all neighbors would experience positive impacts. On these facts, a rule that charged actors for the harms they caused while also crediting them for the benefits they bestowed would give the factory an incentive to broadcast its emissions far and wide across the neighboring populations. The larger the unnecessary scope of the emissions, the broader the swath of the population affected, and the larger the expected range of heterogeneous conditions and activities impacted by the fumes. The chocolate factory would move beyond its accustomed role of making a product with a value that is actually tested in the marketplace (a production process that only incidentally generates fumes) to becoming a fume-bully indiscriminately forcing nonmarket exchanges on everyone within the artificially expanded aroma range. Not only would this bullying interfere with the neighbors' autonomous choices, but it would also implicate a well-known set of valuation problems.¹⁴⁶

145. I use the word "gratuitously" here to signify an expansion that is not justified by any benefits that it generates for the actor, but rather is bottomed on the ability to charge people for positive spillovers.

146. See, e.g., Robert C. Ellickson, *Adverse Possession and Perpetuities Law: Two Dents in the Libertarian Model of Property Rights*, 64 WASH. U. L.Q. 723, 724-25 (1986) (discussing both autonomy-based and epistemic problems with involuntary transfers); Saul Levmore, *Self-Assessed Valuation Systems for Tort and Other Law*, 68 VA. L. REV. 771, 795-810 (1982) (discussing valuation problems in assessing tort damages). The usual problems with the inability to discern subjective valuations are presumably intensified when we cannot even be

Law's failure to allow collections for unsought benefits (except in limited circumstances) therefore encourages a general "keep to yourself" strategy that is compatible with the broad range of uses to which property may be put. An additional benefit of this strategy relates to the tort principle that only impacts on persons or uses of "normal sensitivity" will be actionable.¹⁴⁷ This principle fits uneasily with property theory's celebration of heterogeneity in property uses, yet there are sensible reasons for drawing some line below which impacts will not be legally cognizable. The acceptability of such a line is arguably enhanced by the incentives that property owners already have to avoid engaging in out-of-scale activities—including the inability to collect on positive externalities.

Under a legal rule that disallows recovery for positive externalities, the party engaging in the activity—the chocolate factory in our example—can engage in forms of self-help to "right-scale" the property if the opportunity costs of the escaping benefits are deemed too high. Of course, the factory owner's self-help might take the form not only of containing impacts better, but also of altering, reducing, or ceasing the activity that produces the externalities. These moves—or threats to undertake them—may seem spiteful and patently inefficient. They may, however, serve as precursors to contracts with other benefited parties that will realign the production of benefits with the receipt of proceeds through a customized adjustment in scale. Alternatively, such actions may trigger political activity and ensuing society-wide adjustments in the property interests themselves or regulatory solutions that, for example, grant subsidies to activities that tend to produce positive externalities.

E. Beyond Real Property

The discussion to this point has emphasized how real property operates to group risks with outcomes and charge them to the account of a single owner. How, if at all, would these ideas apply to risk production and harm manifestation that occur outside of the land use arena? While I cannot begin to do justice to this question here, I will offer a few brief remarks.

sure whether the value is negative or positive. We might also expect to see very wasteful forms of self-help in a legal regime in which payment for positive externalities was required. To return to the chocolate factory example, a neighbor who enjoyed the fumes, but valued them less than the amount she would be charged, might install defensive fans to keep the positive externalities from reaching her. The wastefulness of this conduct is apparent; unlike the mitigation of harm that is produced in the course of some other worthwhile activity, this kind of self-help (perhaps we should call it self-unhelp) is a pure deadweight loss.

147. See *supra* note 117 and accompanying text.

Arthur Ripstein has helpfully suggested that a tort is an interference “with your secure entitlement to your means”—whether the interference involves taking those means away without consent or redirecting the means to unauthorized use.¹⁴⁸ Ripstein explained that one’s person as well as one’s property count as means, and, using language that bears a striking similarity to that used by property scholars, he suggested that these means are available to be used in any of an uncountable number of ways to achieve any ends one may have.¹⁴⁹ This broad entitlement exists without regard to what one’s actual ends may be and without regard to whether one actually uses—or has any prospect of using—these means in any way that an onlooker would deem valuable.¹⁵⁰

Without taking a position on whether it is useful to conceptualize people as “owners” of their bodies in a property sense,¹⁵¹ it is evident that some parallels exist between property and persons with respect to the production of risk and the manifestation of harm. Persons, like real and personal property, have identifiable physical edges that make possible the enforcement of a broad right to exclude. And, like property, one’s person might also be thought of as (among other things) a vehicle through which various projects and risks are undertaken or not and outcomes are enjoyed or suffered over time. Preserving individual autonomy to pursue whatever identity-ends one chooses requires, at a minimum, the legal protection of physical boundaries—the right to bodily integrity. Like the protection of property boundaries, however, this protection of bodily integrity cannot be absolute. For people to pursue their various legitimate ends, they must move about in the world and in doing so inevitably produce some risk of physically harming others. Activities that risk such harm

148. Arthur Ripstein, *As if It Had Never Happened*, 48 WM. & MARY L. REV. 1957, 1970 (2007).

149. See *id.* at 1973-74. As Ripstein explained, part of what makes means valuable is the ability to use them to try to “generat[e] more useful things” that will become means of their own. *Id.* at 1974.

150. See *id.* at 1966-67, 1985-86 (explaining this idea, and giving examples in which various means—land left fallow, philosophy books in a basement, a toe that turns out to be unimportant to a particular person’s ends—are not used in any way that appears very valuable).

151. See, e.g., *Moore v. Regents of the Univ. of Cal.*, 793 P.2d 479 (Cal. 1990) (considering and rejecting a claim of property rights in excised cells); STEPHEN R. MUNZER, *A THEORY OF PROPERTY* 41-56 (1990) (exploring the notion of “limited property rights” in one’s body); LAURA S. UNDERKUFFLER, *THE IDEA OF PROPERTY: ITS MEANING AND POWER* 103-06 (2003) (discussing arguments surrounding “the body as property”); see also J.E. Penner, *Misled by ‘Property,’* 18 CANADIAN J.L. & JURISPRUDENCE 75, 76-77 (2005) (suggesting a “bankruptcy test”—i.e., whether the thing in question is one that should be available for seizure in bankruptcy proceedings—as a helpful way of deciding whether various items, such as kidneys, should count as property).

will not always be prohibited, although acts that gratuitously interfere with bodily integrity will be subject to categorical bans.

Ripstein's examples reveal that his notion of means encompasses not only real estate and persons, but also specific items of personal property (such as philosophy books) as well as specific body parts (such as a toe).¹⁵² Such items cannot be viewed as stand-alone repositories for pairing inputs with outcomes; rather, they are inputs into a wide variety of projects the outcomes of which will (in the typical case) redound to the overall account of the input's holder. Thus, people employ their toes and their philosophy books to pursue ends that produce benefits to them as individuals, and activities that threaten these inputs pose threats to the owner's holdings. Nonetheless, activities undertaken in pursuit of legitimate ends may have the side effect of interfering with these inputs. In the case of personal property, taking away an input (or possessing an input taken away by another) is actionable as conversion. Lesser interferences with personal property, which might occur incidentally in the pursuit of legitimate ends, are treated less categorically.¹⁵³

If we understand persons as means, then it is apparent that intangible elements of personhood can serve as repositories for collecting inputs and outcomes. Just as interests in property may be harmed without any physical crossing of boundaries, so too is interference with the means of personhood possible without any physical touching of a person or her personal property. It would be possible to characterize certain intellectual property rights, such as the right of publicity, in these terms. When an unauthorized party imitates a celebrity's voice to sell snack foods, for example,¹⁵⁴ the snack purveyor is arguably attempting to collect on successful gambles made by the celebrity in the cultivation of identity. While risks undertaken on real property often

152. See Ripstein, *supra* note 148, at 1985-86.

153. Interestingly, trespass to chattels (unlike trespass to land) does not give rise to liability in American common law in the absence of harm (although it does in English common law). See Shyamkrishna Balganesh, *Property Along the Tort Spectrum: Trespass to Chattels and the Anglo-American Doctrinal Divergence*, 35 COMMON L. WORLD REV. 135 (2006). One explanation for the different treatment of trespass to chattels and trespass to land is that the latter represents a boundary-defense rule that is deeply grounded in ignorance about the various uses to which a real property holding may be put, making protection of the gambling space cheaper than an assessment of the specific gambles that have been disrupted. See *supra* note 108 and accompanying text. When interferences with stand-alone inputs are at stake, society may have greater confidence in the ability of fact-finders to perceive the possible uses of the specific item and to tell whether it has been damaged. Obviously, the more idiosyncratic the possible uses of a chattel, the less convincing this rationale becomes.

154. See *Waits v. Frito-Lay, Inc.*, 978 F.2d 1093 (9th Cir. 1992) (concerning the unauthorized imitation of Tom Waits's singing voice in a radio commercial for Doritos).

implicate questions of physical scale, intellectual and identity gambles introduce difficult questions of conceptual and temporal scale—such as the appropriate length of time for which positive payoffs from an intellectual product must be credited back to the author.

An analog to the principle of conservation referenced earlier applies here as well: the stronger we make individuals' ability to keep others from interfering with their means, the fewer things individuals are left free to do with their own means.¹⁵⁵ For example, the broader the right of publicity becomes, the larger will be the ratio of rewards returned to people who cultivate a unique persona, but the smaller will be the opportunities to construct such a persona (given the potential that, in doing so, one will interfere with someone else's already established persona).¹⁵⁶

III. THINKING IN HALF-TORTS

The previous Parts have suggested that conscious attention to the components of risk and harm leads to a reformulation of the entitlements at the intersection of torts and property, as well as a functional reconceptualization of property itself. These are analytic advances in their own right, and I hope that they will serve as inputs into the further explorations of other scholars. Still, readers may fairly demand some more concrete payoff for all this conceptual trouble. In this Part, I suggest some of the ways in which our understanding of society's alternatives for addressing conflicts (in land use and beyond) is enriched by thinking explicitly in half-torts terms.

I hasten to add that the policy instruments I discuss are familiar ones, and that I discuss them from a purely analytic perspective. I invent no new devices, advocate no bold doctrinal shifts or prescriptive transformations, and do not even undertake to survey the voluminous literature that bears on the well-known questions undertaken here. The centerpiece of my approach—the conscious separation of risky inputs from harmful outcomes—is, as I have noted from the very outset, a familiar element of the torts literature. What I hope to add is simply this: an understanding of the importance of recognizing risk and harm as separate moving parts in entitlement design.

The half-torts approach thus illuminates an age-old problem: how can the law respond to risks and outcomes that are not bundled together within a given

155. See *supra* note 119 and accompanying text.

156. See *White v. Samsung Elecs. Am., Inc.*, 989 F.2d 1512, 1512-21 (9th Cir. 1993) (Kozinski, J., dissenting from denial of rehearing en banc) (expressing concerns about the costs of a too-broad right of publicity).

party's set of holdings? An initial question is whether a response is necessary at all. Many of the disjunctions between risks and outcomes are benign, either because the impacts are minimal or because they are sufficiently reciprocal to wash out over the long run.¹⁵⁷ Even when risk/harm disconnections generate appreciable net costs, it may be cheaper for society to bear those costs than to formulate a response. However, in a nontrivial subset of instances, these half-torts raise difficult, costly problems that law will inevitably respond to in one way or another.

A. Addressing Risk, Addressing Harm

The half-torts formulation underscores the distinction between legal approaches that address risk-producing activities and those that address the allocation of the costs of harm.¹⁵⁸ Of course, as emphasized in Figure 1, law is always doing both of these things simultaneously. A decision always must be made about whether to allow or disallow an activity, and another decision always must be made about how to allocate the costs that result. However, it is useful to start from a default position in which risk-creating activities directed at socially permissible ends are allowed unless otherwise specified by law, and in which losses resulting from those activities are allocated to those on whom they initially fall unless otherwise specified by law.¹⁵⁹ Considered relative to this default position, the law's actions with regard to risk-producing activities can be understood as moving in the direction of restrictions or bans. Likewise, considered relative to the default position, the law's cost allocations involve shifts of liability to a party other than the one on whom the costs initially fall.

Viewed in this way, the law's starting point is in Cell B of Figure 1, where the risky input is allowed and the costs fall on the hapless neighbors. The law

157. This possibility underlies analyses that anchor the appropriate threshold for liability to behavior that is below normal standards for the circumstances; impacts below that threshold are likely to wash out over time. See, e.g., Ellickson, *supra* note 118, at 729-31; Smith, *Exclusion*, *supra* note 10, at 1003-04; see also George P. Fletcher, *Fairness and Utility in Tort Theory*, 85 HARV. L. REV. 537, 542 (1972) (discussing a paradigm of tort liability that turns on whether "the defendant generates a disproportionate, excessive risk of harm, relative to the victim's risk-creating activity").

158. This basic choice between legal approaches that focus on regulating risk and those that assign liability for outcomes has received significant attention in the literature. See, e.g., PORAT & STEIN, *supra* note 6, at 103-10; Shavell, *Liability*, *supra* note 6.

159. This "otherwise specified by law" proviso includes private contractual solutions, as discussed *infra* Subsection III.B.3.

can make a move on the risk production front by banning the activity,¹⁶⁰ or it can make a move on the cost allocation front by assigning liability to the party engaging in the risk-producing activity. This basic choice of whether to place legal pressure on risk or on harm crosscuts doctrinal boundaries, as Figure 3 illustrates.¹⁶¹

Figure 3.
ADDRESSING HALF-TORTS

	TORT	CONTRACT	PROPERTY	REGULATION
RISK	Prohibit activity	Contract over risky inputs	Pair risk and harm under one owner	Prohibit, tax, or subsidize risk-producing activities
HARM	Assess damages	Contract over liability for outcomes	Pair risk and harm under one owner	Penalize or reward outcomes

The risk/harm dichotomy roughly tracks Calabresi’s distinction between general and specific deterrence,¹⁶² recast by Frank Michelman as a choice between centralized and decentralized approaches to accident costs.¹⁶³ When law merely allocates the costs of harm, actors retain more flexibility to find

160. Depending on how narrowly the activity is defined, the prohibition may amount only to restrictions on the ways in which a particular activity can be carried out (by forbidding particular methods, equipment, times, places, frequencies, intensities, and so on). See *supra* note 27. Usually, when the law bans an activity, it lets the resulting losses remain where they fall—on the party who is no longer able to engage in the activity. Hence, a ban on the activity would usually amount to a diagonal move to Cell C, in which the activity is prohibited and the party restrained must bear the costs. Rarely, the law might change the risk production rule to a ban simultaneously with shifting costs to a different party—i.e., the *Spur* situation.

161. The mechanisms that appear in Figure 3 have received significant attention in the law and economics literature, and previous taxonomies have compared features of them in varying ways. See, e.g., Shavell, *Optimal Structure*, *supra* note 6, at 260 tbl.1 (comparing tort law, safety regulation, injunction, criminal law, and corrective taxation based on the “stage of intervention,” the “form of sanction,” and the public or private nature of enforcement).

162. See CALABRESI, *supra* note 6, at 68-129.

163. See Frank I. Michelman, *Pollution as a Tort: A Non-Accidental Perspective on Calabresi’s Costs*, 80 YALE L.J. 647, 663-66 (1971) (reviewing CALABRESI, *supra* note 6). As Michelman has explained, the correspondence between his dichotomy and Calabresi’s is “general only”; moreover, actual techniques blend centralized and decentralized approaches. *Id.* at 664-65.

ways to avoid that harm but may make mistakes in doing so.¹⁶⁴ When risk is addressed directly, each input can be assessed and controlled, but obtaining this advantage heightens the informational burdens for law.¹⁶⁵ To put the distinction in the terms introduced in the previous Part, an outright prohibition on an activity addresses problems of scale by curtailing the owner's gambling space to eliminate the imperfectly scaled activity, while a shift in liability redefines the range of outcomes for which one will be responsible.

Significantly, there are intermediate positions between a ban on an activity (however narrowly defined) and a choice to assign liability for the costs it generates. Solutions that involve the reconfiguration of property neither ban activities nor shift liability, but rather move control over risk to the party who will experience the outcomes of that risk.¹⁶⁶ Another class of possibilities is revealed when we consider the many ways in which the law can structure permissible shifts from one entitlement regime to another.¹⁶⁷ By setting the terms on which a party can unilaterally move from a regime in which an activity is prohibited to one in which it is permitted, it becomes possible to price rather than prohibit risky activities.

For example, the law might allow an actor to purchase a license to engage in a particular activity for a certain period of time, or it might tax each instance of engaging in an activity. These approaches amount to explicit options written by the government, for which the exercise price is known in advance. Such options allow private parties to compare the benefits of engaging in an activity with the strike price set by the government.¹⁶⁸ Hence, the activity level is a function of both centralized and decentralized decision-making.¹⁶⁹

164. See, e.g., Innes, *supra* note 6, at 46 (observing that private information and heterogeneity among would-be injurers is generally thought to support a decentralized approach that assigns liability *ex post*).

165. See Shavell, *Liability*, *supra* note 6, at 359 (explaining how “the possibility of a difference in knowledge about risky activities as between private parties and a regulatory authority” bears on the choice between regulation of risk and liability for harm (emphasis omitted)).

166. By doing so, a property solution might appear to dodge the choice between addressing risk and addressing harm. But rescaling property is no panacea. The bigger property gets, the more it must rely on internal governance mechanisms that will *themselves* have to select among the various alternatives for dealing with risks and harms that are not meant to be collectivized. And here the same choice between addressing risk and addressing harm resurfaces. See *infra* Subsection III.B.4.

167. See *supra* Subsection I.E.2.

168. It would be possible to have parties other than the government determine the option's exercise price. One possibility would be to require one party to state a valuation at which another party could realize a shift to a different entitlement package. See, e.g., Fennell, *supra* note 89, at 1406-08 (discussing “entitlements subject to self-made options,” or “ESSMOs,”

B. Responses to Half-Torts

1. Tort Law Responses

When activities undertaken on property generate harm on the other side of the property line, the law can respond through the tort doctrine of nuisance. More precisely, it can elect any of the combinations of risk production and cost allocation rules identified in Figure 1. Tort law seeks to eliminate or realign risks and harms that the initial delineation of property rights has separated. This result might be achieved either by eliminating risk-creating activities through a legal prohibition (Cell C) or by charging extra-boundary impacts to the account of the risk creator (Cell A).¹⁷⁰

The first alternative drains away some of the permissible gambles in a property owner's bucket based on the tendency of negative payoffs to materialize offsite. This amounts to a coercive customization of property rights—a rescaling that is accomplished not by altering the physical dimensions of property holdings, but rather by eliminating a specific threat to the successful operation of property holdings at an existing physical scale.¹⁷¹ The second alternative, charging damages against the risk creator, can be understood in similar property-modification terms. Here, the bucket of gambles held by the victim is not protected from contamination by negative payoffs produced by actions across the boundary line, but compensation is paid that, in theory, neutralizes that negative payoff. Rather than take away the injuring property owner's ability to create risk, this approach addresses harm directly by making the risk creator responsible for it.

These two alternatives seem to line up well with legal prohibitions on activities and strict liability, respectively. But tort law, as it operates on the ground, often employs a negligence standard. Where in Figure 1's taxonomy does such a standard fit? As a preliminary matter, we can understand a negligence standard as partitioning a given activity into two subactivities that fall into different cells in Figure 1's grid: (1) doing the activity while exercising reasonable care (X_1); and (2) doing the activity without exercising reasonable

as well as scholarly antecedents of the idea); Levmore, *supra* note 146 (discussing legal applications of self-assessed valuation).

169. See Michelman, *supra* note 163, at 664-65.

170. Significantly, the process of selecting between these alternatives is not triggered unless and until a plaintiff establishes a link between a harm and a risk-producing activity.

171. A separate question is whether the property owner should be compensated for the resulting change.

care (X_2).¹⁷² It is easy enough to see that X_1 fits squarely into Cell B under a negligence standard—the activity is permitted, and the costs of any associated harm will be left to fall on the victim rather than shifted to the risk producer. But where should X_2 be slotted? On this point, intuitions pull in two directions.

First, building on a well-known critique of the C&M framework, a negligence standard might be understood as a legal prohibition of X_2 that would fall within Cell C (where the activity is prohibited and the costs of the prohibition fall on the risk producer). This account emphasizes that the law commands people not to be negligent; the fact that remedies are limited to damages does not transform a legal prohibition into a pricing mechanism.¹⁷³

A second perspective would observe that Figure 1's taxonomy is meant to distinguish between legal approaches that prohibit specific inputs and those that allocate costs arising from outcomes. A negligence standard does not withdraw any particular set of legal inputs from the doing of an activity, but rather leaves it to individual actors to choose the combination that will minimize the sum of costs from risk production and costs from halting risk production.¹⁷⁴ As such, X_2 can be located in Cell A, where the activity is permitted (in the sense that no specific aspect of it has been legally prohibited) but the costs are allocated to the risk producer.

This second approach seems appropriate if Figure 1's purpose is properly understood not as setting out the deontological content of the law, but rather as examining whether control over an activity takes place at the risk level or at the harm level.¹⁷⁵ Nor can it be said that putting X_2 in Cell A requires the

172. Cf. Levmore, *supra* note 72, at 2154 & n.14 (observing that C&M's Rule 2 can be partitioned into Rule 2N, in which damages must be paid only if negligent, and Rule 2S, in which damages must be paid in case of injury regardless of the level of care exercised).

173. See, e.g., PENNER, *supra* note 41, at 66 ("We are meant to comply with our duty not to act negligently, not weigh the benefit of acting negligently against the cost of the damages we will pay."); see also Cooter, *supra* note 105, at 1538 (arguing that negligent conduct is "sanctioned" rather than merely "priced," because of the discontinuity in remedies occurring at the legal standard of care, and maintaining that the negligence rule "partitions the world into permitted and forbidden zones"); Nance, *supra* note 72, at 858-60 (discussing two distinct ways of understanding negligence rules).

174. I am setting aside cases in which statutory violations are treated as negligence per se. See RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 14 (Proposed Final Draft No. 1, 2005). The statutes invoked in such cases might be understood as withdrawing certain alternatives, if they were formulated and enforced in a manner that amounted to meaningful prohibitions. See *supra* note 105 and accompanying text.

175. I do not mean to suggest that a deontological view of Figure 1 would inevitably reach a contrary conclusion about where to place negligent conduct. See Heidi M. Hurd, *The Deontology of Negligence*, 76 B.U. L. REV. 249, 266-70 (1996) (arguing that it cannot be

adoption of Holmesian “bad man” assumptions about people’s propensities to obey the law.¹⁷⁶ This becomes clear if we posit a third subactivity X_3 , which involves doing an act while fully conscious that one is taking less than the required degree of care. X_3 aligns with legal categories such as gross negligence, recklessness, wanton and willful conduct, and the like, which are properly the subject of legal prohibition, and to which supercompensatory remedies can attach. Just as activities directed at impermissible ends fall within Cell C, so also do activities that are consciously undertaken in ways known to be socially detrimental on net.

If we assume that the standard of care is set at the efficient level and that damages have been properly calculated, an actor who engages in X_2 is not running afoul of a particular societal judgment about how to carry out activity X , but rather has made a mistake in pursuing her own cost-minimization function. Society makes mistakes more costly and less likely by inserting a discontinuity in the incentive structure at the efficient point—the shift from liability to no liability once reasonable care is taken.¹⁷⁷ But mistakes will still occur,¹⁷⁸ and society’s approach under a negligence standard is to control the making of such mistakes not by withdrawing specific inputs that might produce them, but rather by allocating liability for the resulting harm. In this way, the negligence standard preserves the informational advantages of a “decentralized” approach. If an actor consciously drops her level of care into X_3 territory, however, she violates a societal ban and can be sanctioned accordingly.

deontologically wrong to act negligently, given the context-specific and consequentialist manner in which negligence is defined).

176. See generally Nance, *supra* note 72 (arguing that equating a legal prohibition followed by a damages remedy with a legal rule permitting conduct upon the payment of a specified price erroneously assumes a population made up of Holmesian “bad men”).
177. See Cooter, *supra* note 105, at 1525-30. Cooter has identified this discontinuity as evidence that the negligence regime imposes a “sanction” rather than a “price.” See *id.* But the discontinuity might also be understood as offering an especially enticing “price break” from a benchmark regime in which those engaging in an activity must bear the costs it produces.
178. For a discussion of such mistake-making, see Jeffrey J. Rachlinski, *Misunderstanding Ability, Misallocating Responsibility*, 68 BROOK. L. REV. 1055 (2003). See also Tony Honoré, *Responsibility and Luck*, 104 LAW Q. REV. 530, 549-50 (1988) (“[I]n no activity or walk of life can people consistently maintain the high standard of skill and care required by law without variation.”); Nance, *supra* note 72, at 914-15 (discussing “innocent mistakes” that amount to negligence).

2. Regulatory Responses

As an alternative to tort law, regulation can address either risk-producing activities or harmful (or beneficial) outcomes.¹⁷⁹ While “regulation” is often equated with a command-and-control approach that operates directly to ban or limit activities, regulatory mechanisms need not be cabined in this way. Regulatory bodies can create new property instruments, can tax or subsidize particular actions or outcomes, and can develop all manner of options for parties to write and exercise. To fit these possibilities into the framework developed above in Figures 1 and 2, the government can set the precise terms on which a transfer from one entitlement regime to another will be allowed.

Regulatory responses differ in important ways from a traditional tort law approach. Because payments in and out need not be based on specific, causally connected incidents, a broader spreading of risks and costs becomes possible. For example, instead of heaping costs on the unlucky reckless driver who is involved in an accident while giving the lucky reckless driver a free pass, it would be possible (at least in theory) to equilibrate the law’s response by charging each driver the same amount for the same level of risk creation.¹⁸⁰ Yet, because a harmed plaintiff is not a necessary precondition for legal action, regulation can reach more easily inside property boundaries to shut down activities, including those that have been carefully conducted in a manner designed to prevent spillovers. Hence, an actor who effectively uses the space within her boundaries to preclude extra-boundary impacts has no defense against regulation (save, perhaps, an argument that might be marshaled in a political arena).

In addition, a regulatory approach can include subsidies and rewards as viable alternatives to taxes and penalties.¹⁸¹ When the subsidy or reward payment is made by the government on behalf of society as a whole, the costs

179. That regulation and tort liability are alternative ways of addressing accident costs has been well recognized. See, e.g., Shavell, *Liability*, *supra* note 6. While it often makes sense to think of regulation as directly bearing on risk and tort liability as bearing on realized harm, see *id.* at 357-58, this breakdown is not inevitable. In property-based torts, injunctive relief can operate prospectively in a manner that directly addresses risk-creation. Likewise, it is possible to have a regulatory body base penalties and rewards on experienced outcomes rather than on activities that create risks of those outcomes.

180. See Waldron, *supra* note 6 (discussing an example involving two equally distracted drivers, only one of whom causes an accident).

181. See generally Saul Levmore, *Carrots and Torts*, in CHICAGO LECTURES IN LAW AND ECONOMICS 203 (Eric A. Posner ed., 2000) (explaining how a corresponding reward can be devised to match any penalty, and discussing considerations relevant to the choice between these alternatives).

associated with it are spread broadly. Rather than ask specific benefited parties to cough up contributions whenever an activity produces a positive externality—something that tort law, with good reason, has been reluctant to do—society as a whole can decide that the activity is valuable enough to reward or subsidize. As Figure 3 suggests, it is possible to distinguish subsidies for engaging in particular activities from rewards for favorable outcomes actually achieved. The former approach places the risk on society that the activity will not turn out to be as beneficial as expected in a given case, while the latter approach leaves that risk on the actor.

3. Contractual Responses

Misaligned risks and harms need not always be addressed through government coercion; private bargaining may also serve to accomplish the necessary realignments.¹⁸² If transaction costs can be overcome, contract offers the prospect of a custom reconfiguration of property rights. In other words, at least some forms of contracting can be understood as a private ordering response to scale imperfections in property holdings. These contractual responses are enormously varied—indeed, the potential for virtually unlimited customization is one of the most important distinctions between property and contract.¹⁸³

For example, suppose a landowner wishes to conduct a particular activity that generates risks extending a small distance beyond his boundaries. He likes to practice archery, say, but has a lawn that cannot fully accommodate his hobby. He might simply buy from his neighbor enough land to contain his propelled arrows (changing the physical scope of his property holding), or he might instead purchase an archery easement (extending the scope of his holdings for one particular use). Alternatively, he might negotiate a license to shoot arrows into the neighbor's yard, and this license might be coupled with a liability release or other arrangement for whatever harm is caused to the lawn or its occupants in the course of the archery. We can imagine a variety of more fanciful alternatives, including payments to the neighbor to outfit the pets and children in arrow-resistant suits, arrow-launching privileges that extend only

182. See Coase, *supra* note 1.

183. See Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1 (2000); Thomas W. Merrill & Henry E. Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 776-77 (2001).

to nights with full moons, and the like.¹⁸⁴ All of these arrangements would represent private ways of dealing with an activity that operates on a larger scale than the actor's property holding can accommodate.¹⁸⁵ Risk and harm are either brought within the umbrella of the same property owner or compensation is negotiated upfront for spillovers.

This example involves spillovers from a single activity, and therefore the expected contractual solutions would be drawn narrowly to provide a carve-out or add-on relating to that activity alone. This is the sort of one-off interaction that features in the typical Coasean examples. Yet more comprehensive private contractual approaches are not only imaginable but rapidly growing in popularity. Networks of reciprocal land use covenants operate on the boundary between property and contract by allowing landowners to enter into binding agreements to alter property arrangements in ways that will outlast the owners' tenure on the property. The next Subsection discusses these and other vehicles for rescaling property.

4. *Property Innovations*

One mechanism for overcoming imperfections in property scale, already suggested by some of the examples above, would be to reshape property itself so that it does a better job of grouping together risks and outcomes. Here it becomes important to specify what we mean by property. Resources can be held not only as private property but also in various kinds of limited access commons and semicommons arrangements. Setting aside the extreme case of a completely open access commons from which nobody is excluded, all of these forms of property feature a protected interior space with exclusive outer edges.¹⁸⁶ Risks and outcomes are collected within that interior space, whether it is held by a single individual, a household, a small group of co-owners, or some larger collective.

184. Bargains could theoretically run in the other direction as well: the neighbor could pay the archer not to shoot arrows or to do so only at certain times or with special damage-reducing caps on their tips.

185. Problems of scale need not involve a dramatic physical intrusion like the one featured in this example, of course. Consider a homeowner who throws a backyard pig-roasting party that generates noise, smoke, and odors that a neighbor finds problematic. Here, solutions might be tailored to absorbing sound and fumes, or to getting the complaining neighbor out of range during the proceedings (perhaps by buying her a night out on the town).

186. See *supra* note 139.

Of course, those inside a protected enclave will not want to hold all imaginable risks and outcomes in common.¹⁸⁷ For example, an individual may be part of a homeowners' association that holds property in common and also controls many aesthetic spillovers between properties, but she may not thereby mean to give up her right to recover if a neighbor accidentally drives a golf ball through her car window. Likewise, the fact that friends or family members own property together does not necessarily mean that any co-owner is free to remove cash from the wallet of any other co-owner at will. Instead, certain risks and outcomes are pooled while others remain privatized even within a given common property envelope. The result can best be thought of as a semicommons regime.¹⁸⁸

The classic example of the semicommons, discussed in Smith's work, is a grazing area held in common that overlays many individually owned and cultivated strips of farmland. The semicommons reflects the reality that different activities like grazing and farming may best be pursued at different scales.¹⁸⁹ Hence, a resource (land) is split into two different uses and held in different property arrangements for each of those uses.¹⁹⁰ As Smith discussed, concerns about the sharing of risks and outcomes are heightened by this arrangement because the common land usage (grazing) offers opportunities for selective benefiting or burdening of the private land usage (farming).¹⁹¹ Dividing farmland into many very narrow strips and having each owner hold strips dispersed throughout the grazing land offers a solution.¹⁹² An alternative would be to formulate rules for using the commonly held property that would avoid grossly unequal burdens and benefits on the private uses.¹⁹³

187. See, e.g., Robert C. Ellickson, *Unpacking the Household: Informal Property Rights Around the Hearth*, 116 *YALE L.J.* 226, 319-21 (2006) (discussing the selective privatization of spaces and arrangements governing individual inputs within households and other collectives). For an interesting illustration, consider the rules that govern members of Twin Oaks, an "intentional community" in which members pool labor and income but do not fully collectivize all of their individual resources. See Twin Oaks Cmty., *Explanation of Twin Oaks' Property Code*, <http://www.twinoaks.org/community/policies/property-code.html> (last visited Apr. 11, 2007).

188. See Henry E. Smith, *Semicommon Property Rights and Scattering in the Open Fields*, 29 *J. LEGAL STUD.* 131 (2000).

189. See *id.* at 135-36.

190. See *id.*

191. See *id.* at 138-44.

192. See *id.* at 146-54.

193. See *id.* at 168-69 (observing that the problem of strategic behavior in the semicommons can be addressed either by "[m]anipulating boundaries" or by "monitoring norm compliance").

The semicommons template illustrates both a potential response to problems of scale and some difficulties with that response. To return to the bucket metaphor, the semicommons responds to certain kinds of sloshing—such as the ambient aesthetic spillovers in a neighborhood—by creating a larger bucket into which the smaller (individual parcel) buckets can be nested.¹⁹⁴ Deciding to hold the larger area in common better fits the scale of many activities conducted within the neighborhood and thereby concentrates good and bad outcomes of those neighborhood-scale activities on the co-owners. The outer boundary to the commonly held area is not only easier to establish in a geometric sense than are the aggregate of individual boundaries on parcels,¹⁹⁵ it also requires fewer extra-boundary interactions to the extent that its dimensions exceed the scale of most onsite activities.¹⁹⁶

This nested bucket arrangement for collecting inputs and outcomes may work better than any set of single-sized buckets in responding to activities that produce effects at various scales. But expanding property outward in this manner is not without its own challenges. First, when viewed from the inside, the arrangement combines private property (individual parcels) with a limited access commons (the neighborhood). Individual parcel owners may attempt to strategically offload burdens onto or extract benefits from this limited access commons. Absent incentive-compatible configurations of private and common property akin to the scattered strips in the open field, some internal mechanism for addressing risk/harm mismatches must be devised. Second, viewed from the outside, the neighborhood-sized bucket may fail to contain all of the impacts generated within it or to exclude all of the impacts produced outside of it. Thus, activities taking place at a scale larger than the neighborhood can accommodate will produce sloshes and leaks into and out of the larger community of which the neighborhood is a part.

Consider a typical private neighborhood development. It contains parcels that are privately owned by individual households and other areas, such as greenbelts or golf courses, that are owned in common. The development is also typically designed to act as a basin for positive spillovers from activities, such as gardening and home maintenance, conducted on the individual parcels.

194. Cf. OSTROM, *supra* note 139, at 101-02 (discussing how “appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises” in complex common pool resource regimes).

195. See, e.g., Eggertsson, *supra* note 138, at 83 (citing Barry C. Field, *The Evolution of Individual Property Rights in Massachusetts Agriculture, 17th-19th Centuries*, 14 NORTHEASTERN J. AGRIC. & RESOURCE ECON. 97 (1985)); Ellickson, *supra* note 14, at 1332.

196. In other words, the more “buffer” is built into a property holding, the less internal stress is placed on the boundaries, because activities inside the boundaries will only infrequently reach or overrun the outer edges.

Exclusion from the entire development helps to accomplish containment of these positive externalities by turning them, and the other common elements in the community, into club goods.¹⁹⁷ Through exclusion, outsiders can be largely (although not perfectly) prevented from introducing various risks to the interests within the development. But some internal mechanism or set of mechanisms is necessary to keep individual parcel-holders from harming their neighbors or the common areas through risk-producing activities conducted either on their own parcels or on commonly owned property.

The control of risk creation by insiders is mediated partially through contract mechanisms—restrictive land use covenants—and partially through regulation undertaken by the (contractually established) internal governance mechanism, the homeowners' association. While both types of controls could be crafted in quite flexible and creative ways, practices have generally converged on blunt-force prohibitions of risk-creating activities.¹⁹⁸ For example, if displaying yard art, erecting fences of a given sort, parking boats in the driveway, or painting the home's exterior in bold colors are all deemed to provide some aesthetic risks for the neighbors, these activities are likely to be banned outright—whether by covenant or by a later-enacted governance rule. But many other regulatory responses would be possible as well, including the creation of new property-like instruments for engaging in specified forms of risk creation. Spillovers between the individual neighborhood and other neighborhoods in the larger community present an analogous set of problems and should give rise to a similarly refined menu of possible solutions.

C. *Choosing a Strategy*

This Article's primary goal has been to explore how conceptually separating risk and harm changes the way we think about property and tort. The many considerations that go into choosing among possible ways of addressing risky activities have been extensively studied by others, and even a summary discussion lies beyond the scope of this Article.¹⁹⁹ Instead, I briefly highlight

197. For analyses of club goods, see, for example, RICHARD CORNES & TODD SANDLER, *THE THEORY OF EXTERNALITIES, PUBLIC GOODS, AND CLUB GOODS* (1986); and James M. Buchanan, *An Economic Theory of Clubs*, 32 *ECONOMICA* 1 (1965).

198. See, e.g., ROBERT H. NELSON, *PRIVATE NEIGHBORHOODS AND THE TRANSFORMATION OF LOCAL GOVERNMENT* (2005); Lee Anne Fennell, *Contracting Communities*, 2004 *U. ILL. L. REV.* 829 (discussing possible reasons for this convergence).

199. For example, a policymaker would be concerned not only about the effects of incentives on the primary behavior of injurers and victims, but also (among other things) about administrative costs, error costs in imposing liability and in assessing damages, the problem

how law's choice of whether to apply legal pressure to risky inputs or harmful outcomes relates to entitlement design.

First, separating risk from harm reveals that there are two distinct approaches that have been lumped together under the heading of "liability rules."²⁰⁰ As Figure 1 shows, it is possible to arrive at something that looks like a liability rule by permitting an activity and shifting the cost for any resulting harm to the actor. A very different kind of liability rule is created when a risk-generating activity is allowed to proceed upon payment of a preset price (whether to a governmental authority or to the potential victim). The latter alternative amounts to an explicit option; it allows a unilateral transfer from a regime in which the activity is prohibited to one in which it is permitted.²⁰¹ The two kinds of liability rules have different implications for victim incentives (self-help) as well as for the allocation of luck-based risk.

Returning to the familiar emissions example, suppose that emitting fumes will eventuate in harm to the neighbor only if two conditions hold true: (1) the neighbor leaves her windows open; and (2) the wind blows from the east.²⁰² The Cell A rule, whereby emissions are permitted but liability for any resulting harm is allocated to the factory, dampens the neighbor's incentive to undertake window-closing precautions.²⁰³ At the same time, it allocates the risk associated with weather patterns to the factory. The other kind of liability rule discussed

of judgment-proof defendants, differences in ability to bear risk, and the availability of insurance. See, e.g., CALABRESI, *supra* note 6; Shavell, *Liability*, *supra* note 6.

200. The distinction that I draw is not the only basis on which liability rules might be subdivided. For example, Dale Nance has observed that C&M's definition of liability rules would encompass not only situations like eminent domain, in which taking for a price is legally permitted, but also situations in which the payment of damages is the sole consequence of breaking a legal rule, as with a negligence standard. See Nance, *supra* note 72, at 902. Nance's distinction focused on the different effects on law-abiding individuals of a legal prohibition (with damages) and a legally approved price. See *id.* at 902-08. My distinction, in contrast, focuses on how different categories of liability rules allocate risk.
201. The point I make here can be illustrated by comparing permanent damages (the lump-sum payment of which entitles the risk producer to carry on her activity in the future) with periodic damages for actual past harm. See, e.g., Michelman, *supra* note 10, at 154.
202. Wind patterns and directions can in fact greatly influence the amount of harm generated as a result of emissions. See, e.g., Jonathan Remy Nash & Richard L. Revesz, *Markets and Geography: Designing Marketable Permit Schemes To Control Local and Regional Pollutants*, 28 *ECOLOGICAL* L.Q. 569, 578, 580 (2001).
203. As described in the text, Cell A equates to a strict liability regime without the defense of contributory negligence. The idea that such a compensation rule can lead to inefficient behavior on the part of victims is well recognized. See, e.g., POLINSKY, *supra* note 55, at 48-49; Cooter, *supra* note 18, at 6. Imperfections in damage awards and the lack of commensurability between money and certain kinds of harms limit the degree to which victim incentives are reduced. See, e.g., POSNER, *supra* note 135, at 172-73.

above might take the form of an explicit option offered to the factory that would allow it unilaterally to initiate a move from Cell C (emissions prohibited and factory bears shutdown costs) to Cell B (emissions permitted and homeowner bears liability) upon payment of a predetermined exercise price. Because this payment is made to the neighbor (or, alternatively, to the government) for the privilege of engaging in a risk-generating activity, what the neighbor receives does not vary based on realized harm. The neighbor's payoff will therefore be maximized by taking efficient precautions (here, closing the window—assuming that the cost of doing so is less than the reduction it produces in the expected harm from the factory's fumes).²⁰⁴

The homeowner also bears the risk associated with the weather when risk-based payments are employed, raising the question of whether the factory or the homeowner is in a better position to bear the risk associated with weather luck.²⁰⁵ The two components could be broken apart through a refinement of the conditions on which a risk-based payment must be made: instead of making the factory pay a particular sum annually to operate based on expected weather patterns, periodic payments could be keyed to actual weather patterns.²⁰⁶ Such an arrangement would place risks associated with the victim's failure to take precautions on the victim, inducing efficient self-help, but would place weather-based risks on the factory.

It is also possible to forbid emissions altogether, perhaps leaving open the possibility of a private bargain that would accomplish the move from Cell C (emissions prohibited and the factory bears shutdown costs) to Cell B (emissions permitted and the homeowner bears liability) by mutual consent on terms agreeable to the homeowner. Homeowner incentives and luck do not come into play if the prohibition stays in place and is perfectly enforced—the risky activity simply never occurs. If the injunction on emissions is lifted in

204. To use Cooter's phrasing, such an approach would neatly accomplish "double responsibility at the margin." Cooter, *supra* note 18, *passim*. Cooter did not work through this specific example, but emphasized the capacity of invariant damage awards (such as liquidated damages in contract) to induce efficient behavior by both parties. *See id.* at 14. Cooter also discussed the potential of a negligence rule in tort to produce this same result. *See id.* at 7. Coase made a similar point in suggesting a "double tax system" that would combine a tax on a factory for the harm from pollution with a tax on the residents equal to the factory's costs in avoiding the harm. *See Coase, supra* note 1, at 41.

205. If insurance were equally available to the two parties and other factors like wealth differentials did not alter their ability to access the insurance on favorable terms, this question would not arise.

206. For example, the factory might be required to pay a particular sum for every operational day on which the wind blew from the east.

exchange for a lump-sum payment that does not vary based on the actual harm suffered, efficient self-help could be induced.²⁰⁷

If emissions were prohibited and no bargain were struck to alter that prohibition, it is still possible that emissions might occur. This is because, as the earlier discussion emphasized, legal prohibitions do not work perfectly to prevent all forbidden activities from occurring. Here, the nature of the remedies imposed when prohibitions are breached will play a role in determining victim incentives. If the remedies are keyed to actual harm incurred, then victim incentives are again eroded. If remedies instead involve a lump-sum payment for violating the prohibition, paid either to the government or to the neighbor, and if this payment is independent of whether or how much damage was caused, efficient victim incentives remain intact, and weather risk falls on the victim. An intermediate case discussed by Robert Cooter—stipulated damages made only if (some) harm results—would give victims efficient incentives to reduce the severity of harm but not the probability of harm.²⁰⁸ If the probability of harm is completely weather-driven (that is, there will always be some damage to the neighbor when the wind blows from the east on a day that the factory is operating, even if the neighbor takes all possible precautions), then this alternative would effectively allocate weather risk to the factory while inducing efficient precautions by the neighbor.

There are many other permutations that could be explored,²⁰⁹ but this brief sketch illustrates how considering whether risk or harm is the focus of policy allows for greater precision in entitlement design. Depending on the importance of victim incentives and luck in a given case, the implications of the risk/harm choice could become very significant.

CONCLUSION

Property theory has proceeded for decades without fully incorporating a concept central to tort theory—that risk and harm are distinct. The strains

207. See Cooter, *supra* note 18, at 25-28. A one-time payment to lift the injunction would shift the risk of weather luck onto the victim, but a more complex contractual arrangement could be constructed that would leave the weather risk on the factory, as discussed above.

208. See *id.* at 30 (explaining that “[i]f damages are stipulated in advance, then the victim has efficient incentives to reduce the *extent* of injury,” but “the victim’s incentive to reduce the *probability* of injury is reduced in part by the payment of damages”).

209. For example, victim behavior could be regulated directly, or indirectly through doctrines like contributory or comparative negligence. Jeff Lewin has suggested a system of “comparative nuisance” for land use conflicts. See Lewin, *supra* note 61.

created by this omission are beginning to show, but the fault lines have been misdiagnosed. The problem is not that property is so unique that it cannot fruitfully use an entitlement framework, but rather that property is so closely connected to torts that it cannot do without one of the core ideas of tort theory. Property does have some unique features, but those can only be fully appreciated by examining the places where property falls short—that is, where we observe risk and harm falling on opposite sides of a real or metaphorical property line.

Bringing the notion of the divided tort into the analysis of property entitlements clarifies how entitlements work and, by adding precision, offers an account that sits more comfortably with moral intuitions. The half-torts perspective shows how property operates as a response to torts and how torts represent shortcomings in the scaling of property interests. Finally, breaking apart risk and harm opens up a clearer and more complete menu of societal alternatives for addressing externalities. While others have examined pieces of this puzzle in far greater depth than I, this Article attempts to bring together several strands of thought to form a more realistic and resilient picture of property and torts as cognate doctrinal areas.

Finally, as a work of property theory, this Article aspires to leave some lingering image behind that might be of use to others, even if only by way of provocation. The account presented here offers no grand views of the Cathedral, nor stirring glimpses of the hyper-fortified walls of Blackstonian estates. Even the old realist metaphor for property, the bundle of sticks, has been edged out. Instead, property's true nature is captured by the inelegant image of a bucket—leaky, slosh-prone, but full of possibility.