Michigan Law Review

Volume 101 | Issue 1

2002

Pliability Rules

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This Article greatly benefited from comments and criticisms by Ian Ayres, Hanina Ben Menahem, Yemima Ben Menahem, Hanoch Dagan, Brad Daniels, Kirsten Edwards, Bob Ellickson, Assaf Hamdani, Israel Gilead, Alon Harel, Fred Schauer, Steve Shavell, Peter Siegelman, Benjamin Zipursky, and participants in the Law and Economics and Faculty Seminars of the Fordham Law School, Hebrew University of Jerusalem's Faculty of Law and the University of San Diego Law School, as well as from Michael Pereira's excellent research assistance. We are grateful for the financial support of the John M. Olin Center for Law, Economics, and Business at Harvard Law School. Finally, we acknowledge our intellectual debt to the teachings of Guido Calabresi and Douglas Melamed, whose work has so enriched our scholarship.

INTRODUCTION

In 1543, the Polish astronomer, Nicolas Copernicus, determined the heliocentric design of the solar system.[1] Copernicus was motivated in large part by the conviction that Claudius Ptolemy's geocentric astronomical model, which dominated scientific thought at that time, was too incoherent, complex, and convoluted to be true.[2] Hence, Copernicus made a point of making his model coherent, simple, and elegant. Nearly three and a half centuries later, at the height of the impressionist movement, the French painter Claude Monet set out to depict the Ruen Cathedral in a series of twenty paintings,[3] each presenting the cathedral in a different light. Monet's goal was to demonstrate how his object of study may be perceived by observers differently depending on the circumstances of the observation. In the spirit of these two projects, in 1972, Guido Calabresi and Douglas Melamed resolved to craft a comprehensive, yet elegant,[4] model for

1. *See* JACOB BRONOWSKI & BRUCE MAZLISH, THE WESTERN INTELLECTUAL TRADITION 113 (1960). For the purpose of historic accuracy, it is important to note that 1543 was the year in which Copernicus published his REVOLUTIONS OF THE HEAVENLY BODIES. It is highly likely that Copernicus completed his account well before 1543, but was afraid that his views would offend the religious establishment of his time. Thus, Copernicus delayed the publication of his book until 1543, the year of his death, and rumor has it that he died holding the first printed copy of the book in his hands. *Id.*

2. *Id.* at 112-15.

3. *See* KARIN SAGNER-DÜCHTING, CLAUDE MONET, 1840-1926, at 172-73 (1998).

4. *See* Guido Calabresi, *Remarks: The Simple Virtues of the Cathedral*, 106 YALE L.J. 2201, 2202 (1997) [hereinafter Calabresi, *Remarks*] (stating that the Calabresi-Melamedian framework was intended to be simple and elegant); Saul Levmore, *Unifying Remedies: Property Rules, Liability Rules, and Startling Rules*, 106 YALE L.J. 2149, 2155 (1997) (commending Calabresi and Melamed for the elegance of their model).

organizing the universe of legal entitlements.[5] The article's impact has been profound and enduring.[6]

In their path-breaking article, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*,[7] Calabresi and Melamed established a new way of conceptualizing legal rights and duties. Departing from traditional jurisprudential notions, Calabresi and Melamed introduced the concepts of "property rules" and "liability rules" as the ordering principles of the legal system, and then analyzed their virtues and vices as means of protecting legal entitlements. Property rule protection forces potential takers to secure the consent of the entitlement owner, and thus allows the owner to determine the price of her entitlement. Liability rule protection, by contrast, allows potential takers to avail themselves of other people's entitlements as long as they are willing to pay a collectively determined price that is usually set by a court, a legislator, or an administrative agency.[8]

Having introduced the distinction between property rules and liability rules, Calabresi and Melamed ventured to explain how these rules should be employed to promote economic efficiency. Their normative insight was that property rules should be favored over liability

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5. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972). Following convention, we will call the article *The Cathedral.*

6. Virtually all citation studies list Calabresi and Melamed's article as one of the top thirty most-cited articles. *See, e.g.*, Fred R. Shapiro, *The Most-Cited Law Review Articles*, 73 CAL. L. REV. 1540 (1985); Fred R. Shapiro, *The Most-Cited Law Review Articles Revisited*, 71 CHI.-KENT L. REV. 751 (1996). According to Shapiro's citation studies, *The Cathedral* ranked twenty-second in 1985, and climbed up to number eleven in 1996. A different study by Krier and Schwab ranks *The Cathedral* as the fourteenth most cited article. *See* James E. Krier & Stewart J. Schwab, *The Cathedral at Twenty Five: Citations and Impressions*, 106 YALE L.J. 2121, 2140 (1997) [hereinafter Krier & Schwab, *Citations and Impressions*].

It bears emphasis, however, that no citation study can capture the full impact of *The Cathedral.* In our experience, very few scholarly works have affected legal thought as did *The Cathedral.* Our impression is consistent with the findings of Krier and Schwab, who report that "Calabresi and Melamed's contribution to the literature has had a significant and ongoing, even increasing, influence." *Id.* at 2130. They, too, note that "evidence of the importance of their work is found in the many anthologies, casebooks, and textbooks that reproduce [the work] in whole or in part or otherwise discuss or refer to it." *Id.* Furthermore, the framework devised by Calabresi and Melamed is taught and discussed in property and tort law classes, and is often extended to other legal fields. *See* Levmore, *supra* note 4, at 2151 (noting that "some of the value of the Calabresi-Melamed framework lies in its ability to illuminate fields outside of traditional property and tort law"); *accord* Krier & Schwab, *Citations and Impressions*, *supra* at 2130 (noting that "Calabresi and Melamed's article figures regularly in books on subjects like Property, Torts, and Contracts").

7. 85 HARV. L. REV. 1089 (1972).

8. In principle, the price of the use may be determined by any third party. For example, two parties may contractually agree to accept any price X would set for the entitlement. The determination may occur either ex ante, before the taking occurs, or ex post, following the taking.

As the title of their article suggests, Calabresi and Melamed also discussed a third type of protection: inalienability rules. An entitlement protected by an inalienability rule cannot be transferred at any price.

rules when transaction costs are low, and parties can cost-effectively bargain with one another. When, on the other hand, transaction costs are high, and voluntary bargaining cannot be expected, liability rules should be employed.

In the vast literature that followed,[9] commentators have attempted to refine, revamp, and, at times, challenge the Calabresi-Melamedian analysis. In particular, attempts have been made to distinguish between various types of transaction costs, and then examine which type of rules is better suited to combat each particular cost. Yet, the analytical structure devised by Calabresi and Melamed, and in particular, the foundational distinction between property and liability rules, has been accepted by virtually all the commentators — supporters and critics alike. The Calabresi-Melamedian typology has been widely understood to exhaust all possible ways of protecting legal entitlements, and the binary system they devised has dominated legal thought and scholarship. Almost thirty years after its publication, *The Cathedral* is experiencing a renaissance as increasing numbers of preeminent scholars flock to reevaluate and improve upon Calabresi and Melamed's classic.[10] This Article shares the same ambition.

We contend that, while the Calabresi-Melamedian framework presents a solid basis for understanding legal entitlements,[11] a more com-

9. *See, e.g.*, Ian Ayres & Paul M. Goldbart, *Optimal Delegation and Decoupling in the Design of Liability Rules*, 100 MICH. L. REV. 1 (2001); Richard Craswell, *Property Rules and Liability Rules in Unconscionability and Related Doctrines*, 60 U. CHI. L. REV. 1 (1993); Robert C. Ellickson, *Alternatives to Zoning: Covenants, Nuisance Rules, and Fines as Land Use Controls*, 40 U. CHI. L. REV. 681 (1973); Ward Farnsworth, *Do Parties to Nuisance Cases Bargain After Judgment? A Glimpse Inside the Cathedral*, 66 U. CHI. L. REV. 373 (1999); Zohar Goshen, *Controlling Strategic Voting: Property Rule or Liability Rule?*, 70 S. CAL. L. REV. 741 (1997); Louis Kaplow & Steven Shavell, *Property Rules Versus Liability Rules: An Economic Analysis*, 109 HARV. L. REV. 713 (1996); Daphna Lewinsohn-Zamir, *The Choice Between Property Rules and Liability Rules Revisited: Critical Observations from Behavioral Studies*, 80 TEXAS L. REV. 219 (2001); Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293 (1996); Thomas W. Merrill & Henry E. Smith, *What Happened to Property in Law and Economics?*, 111 YALE L.J. 357 (2001); Dale A. Nance, *Guidance Rules and Enforcement Rules: A Better View of the Cathedral*, 83 VA. L. REV. 837 (1997); A. Mitchell Polinsky, *Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies*, 32 STAN. L. REV. 1075 (1980); Susan Rose-Ackerman, *Inalienability and the Theory of Property Rights*, 85 COLUM. L. REV. 931 (1985); Symposium, *Property Rules, Liability Rules and Inalienability: A Twenty-Five Year Retrospective*, 106 YALE L.J. 2081 (1997). This list is intended to be illustrative; it is far from being exhaustive. We discuss many other articles in the text and in subsequent footnotes.

10. See sources cited *supra* note 9.

11. A brief caveat is in order here. It is very possible that Calabresi and Melamed noticed other ways to protect legal entitlements, but decided, for the sake of simplicity and elegance, to discuss only property, liability, and inalienability rules in their celebrated article. As Calabresi illuminated in a recent symposium that marked the twenty-fifth anniversary of *The Cathedral*, crucial distinctions and nuances "were left out because I *had* to make [the article] simple so that people would understand it." Calabresi, *Remarks*, *supra* note 4, at 2202. It is safe to assert, however, that *The Cathedral* does not discuss, or even mention, pliability rules and the important functions they serve in the legal system.

plete analysis must probe beyond the ostensible dichotomy between property and liability rules. We seek to add another level to Calabresi and Melamed's analysis, to capture fully the protection of entitlements in our legal system.

By looking at their cathedral frozen in a moment in time — as in a single one of Monet's paintings — Calabresi and Melamed have overlooked the importance of examining the cathedral over the course of time, as did Monet's series. More concretely, by focusing their attention on *static* property and liability rules, Calabresi and Melamed have obscured the possibility of protecting legal entitlements by means of *dynamic* rules that we call "pliability rules."[12]

Pliability, or pliable, rules are contingent rules that provide an entitlement owner with property rule or liability rule protection as long as some specified condition obtains; however, once the relevant condition changes, a different rule protects the entitlement — either liability or property, as the circumstances dictate. Pliability rules, in other words, are dynamic rules, while property and liability rules are static. This can be seen by revisiting the famous case of *Boomer v. Atlantic Cement Co.*[13] In *Boomer*, homeowners near a manufacturing plant of Atlantic Cement complained that the plant's pollution gave rise to an actionable nuisance, and they sought an injunction that would close down the plant. The court, however, decided to permit the plant to continue operations, subject to its payment of permanent damages to the homeowners. Calabresi and Melamed viewed the case as presenting a choice between enforcing property rule protection, as the homeowners demanded, or liability rule protection, as the court eventually ruled. Calabresi and Melamed believed these to be the two basic options[14] because they — like the theorists that followed them — focused on discrete moments of legal protection in isolation. In reality, though, the court could have chosen a pliability rule. For example, the court might have allowed Atlantic Cement to pay damages and continue operating for five years to avoid immediate and massive layoffs at the plant, but also decree that at the end of the five years, the injunction would become absolute to enable homeowners' quiet and clean use of their realty.[15] This pliable rule — a five-year liability rule, followed by

12. The term "pliability rule" owes its origin to Peter Siegelman, who suggested it in a conversation with one of the authors.

13. 257 N.E.2d 870 (N.Y. 1970).

14. Calabresi and Melamed allowed for four options: property rule protection in the hands of either the homeowner or plant, and liability rule protection for either the homeowner or plant.

15. As we discuss later, pliability rules can come in many forms, and may involve any number of different combinations of property and liability rules. *See infra* Part II.

indefinite property rule protection — would permit the court to combine the features of liability and property rules over the course of time.

While the term "pliability rule" is original, this mode of legal entitlement has long existed in our legal system. The legal protection of share ownership in mergers is a classic example of a positive pliability rule. Consider the case of a corporate takeover succeeded by a freeze-out. The minority shareholders can either accept the price offered by the acquirer or exercise their appraisal right, in which case a court will determine the appropriate compensation. In either case, the minority shareholders lose the ability to refuse to part with their shares. In other words, their initial property rule protection changes into a liability rule. As in other liability rules, the price they will receive is not determined by them; it is set by a third party.

Likewise, a real property owner may lose her property right if she allows adverse possessors to take hold of her land and use it openly for a statutorily specified period. The property rule protection of the landowner is conditional since it depends on her vigilance in safeguarding her land against potential takers. Failure to perform this duty erases the original protection of the land and transfers it to the adverse possessor. Adverse possession thus creates a "title shifting pliability rule," that is, a combination of property rules in which the triggering of a condition transfers property rule protection from the original entitlement holder to another.

Another pervasive kind of pliability rule in the law is "the zero order pliability rule." In fact, zero order pliability rules are the organizing principle of much of our intellectual property law. In zero order pliability rules, property rule protection is succeeded by a no liability rule. Specifically, upon a triggering event, the initial entitlement holder loses the ability to exercise property rule protection, such as the right to exclude, over her property. Instead the entitlement holder must allow all comers to use the property free of charge — that is, with zero order liability. Importantly, the subject item has not been abandoned. Notwithstanding the zero order liability, no third party may gain a superior right to that of the original entitlement holder. Rather, zero order pliability rules create anti-exclusion, or open access regimes. Consider, for example, a patent. A patent confers upon the patentee property rule protection for twenty years, but, upon the expiration of that term, the nature of protection changes from a property rule to a zero order liability rule since she can no longer refuse others the right to use her patent.[16] Copyright law provides a similar example.

16. To be sure, it is possible to think of other ways of characterizing patent protection. For instance, it is possible to view it as a property rule limited in time. Alternatively, it is possible to classify patent protection as a property rule protection to the patentee followed by a property rule protection to the user. We do not dispute that both of these alternative characterizations are plausible. Both, however, obfuscate the possibility of viewing patent

These examples, and others, show the attractiveness of pliability rules. Pliability rules combine two separate rules; with the passage between the two stages of rule protection triggered by a preset condition. Owing to their amalgamated nature, pliability rules are capable of combining the respective strengths of property and liability rules while avoiding their respective weaknesses. Pliability rules allow decisionmakers to avoid the all-or-nothing decision of creating property rule or liability rule protection. Instead, decisionmakers may build flexibility into the rule, setting conditions that switch from a stronger to a weaker protection of entitlements (or vice versa) when economic efficiency or fairness considerations so require. As a result, pliability rules present decision makers with a wide array of options that are unavailable to them in the Calabresi-Melamedian bipolar world of property and liability rules.

This Article has three goals: the first conceptual, the second descriptive, and the last normative. Conceptually, we demonstrate that pliability rules fall in a distinct category of rule protection, and that they must be recognized alongside their more familiar counterparts — property and liability rules. Descriptively, we show that, although this fact may have eluded Calabresi and Melamed,[17] pliability rules are widely used in our legal system. Furthermore, we devise a typology of pliability rules to illuminate the myriad options the use of such rules presents to policy makers. Normatively, we argue that in many cases pliability rules can promote economic efficiency, and fairness, better than either property rules or liability rules. The two main legal fields we use to substantiate these claims are property and intellectual property, but we also show that pliability rules are present in other legal areas, such as antitrust and corporate law.

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protection as a continuum starting with property rule protection, which endures for twenty years, and then shifts into a zero order liability rule. Thinking of patent protection as a "zero order pliability rule" is helpful as it sensitizes one to the possibility of "positive pliability rules," i.e., pliability rules which set the liability amount above zero. Furthermore, it is important to recall that patent and copyright differ from traditional property rights because they are limited in time; standard property rights, on the other hand, may exist in perpetuity. Thus, it is useful to distinguish the theoretical characterization of the protection accorded by the Patent and Copyright Acts from that accorded to regular property entitlements. For these reasons, we propose that patent and copyright protection should be thought of as zero order pliability rules.

The idea of equating no-liability with zero-liability protection draws on a famous insight of Ian Ayres and Robert Gertner, who, in characterizing U.C.C. § 2-201, provided that a contract failing to specify quantity is enforceable as a "zero-quantity default." They justify the "zero-quantity default" by noting "it is cheaper for the parties to establish the quantity term beforehand than for the courts to determine after the fact what the parties would have wanted." Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87, 96 (1989).

17. *See* Levmore, *supra* note 4, at 2157 (noting that because Calabresi and Melamed sought elegance as opposed to comprehensiveness, it would be wrong to describe them as having "missed" remedies not explicitly discussed in their article).

Structurally, the Article consists of three parts. In Part I, we review Calabresi and Melamed's seminal article, as well as its predecessors and progeny. In Part II, we present the concept of pliability rules. We identify the many areas of law in which pliability rules are already in use, and discuss how the use of pliability rules serves to promote efficiency and fairness. Among the instances of pliability rule protection we discuss are those used in eminent domain, copyright, antitrust, and corporate law, as well as the doctrine of adverse possession. Finally, in Part III, we draw on the analysis in Part II to suggest how policymakers may use pliability rules in the future to enhance social utility. Here, we show how a pliability analysis can reshape key doctrines of property and intellectual property law. We then venture even further and demonstrate how the use of pliability rules can be used to overcome anticommons problems that plague the integrity of such vulnerable social units as Native American tribes and rural African-American communities. We conclude by discussing the potential of a pliability analysis to revolutionize the doctrine of eminent domain.

I. THE EVOLUTION OF ENTITLEMENT THEORY

A. *Coase and the Problem of Social Cost*

To fully appreciate the contribution of Calabresi and Melamed, it is necessary to begin with Ronald Coase's seminal article *The Problem of Social Cost.*[18] Importantly, Coase was not interested in the assignment of legal entitlements per se, but rather in the problem of externalities — the costs and benefits of one's activity on third parties that are not captured by the price system. The paradigmatic manifestation of the externalities problem that concerned Coase and his contemporaries was industrial pollution.[19] Coase's primary aim was to challenge the Pigouvian theory that government intervention in the form of taxation was necessary to remedy the problem of social cost. Specifically, Pigou had proposed that the government levy a tax on polluters in the amount of the social harm they cause in order to force them to consider this cost in their production decisions.[20] By contrast to Pigou, and the other theorists of his time, who focused exclusively on the

18. Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

19. *See* Henry E. Smith, *Ambiguous Quality Changes from Taxes and Legal Rules*, 67 U. CHI. L. REV. 647, 684 n.87 (2000) (noting that "[i]n his critique of Pigouvian taxes, Coase proposed that property rights could internalize pollution externalities"); *cf.* Carol M. Rose, *The Shadow of the Cathedral*, 106 YALE L.J. 2175, 2189 (1997) [hereinafter Rose, *Shadow of the Cathedral*] (noting that Calabresi and Melamed cited "air pollution and noise (including the ubiquitous *Boomer*) as examples of negative 'externalities' "). For a more recent treatment of industrial pollution using the Calabresi-Melamedian framework, see Kaplow & Shavell, *supra* note 9, at 748-52.

20. *See* ARTHUR C. PIGOU, THE ECONOMICS OF WELFARE 159 (2d ed. 1925); ARTHUR C. PIGOU, WEALTH AND WELFARE (1912).

polluter, Coase observed that pollution — as well as all other externalities — are reciprocal in nature. Coase was the first to notice that, in principle, not only the wrongdoer but also the victim can eliminate the harm. If pollution from a nearby factory prevents residents from hanging their laundry outdoors, the harm can be eliminated in one of two ways: the factory can install smokescreens on its chimneys or the residents can purchase electric dryers.[21]

Realizing the reciprocal nature of the externalities problem enabled Coase to notice an important connection between contracts and torts. More specifically, it enabled Coase to see that private bargaining may substitute for regulatory intervention as a means of controlling social harms. From there, the Coase theorem was very much in sight, but it took another ingenious step to get there.

To demonstrate the flaw in Pigou's analysis, Coase conjured up a frictionless world in which transacting is costless.[22] He then showed that, in such a world, private bargaining would always yield the economically efficient outcome regardless of the initial allocation of legal entitlements or liabilities.[23] Coase recognized the need for clear delineation and assignment of legal entitlements as a prerequisite for bargaining even in his zero transaction cost world.[24] But once this task is accomplished, no other legal rules are necessary since private bargaining would override any legal norm and result in efficient resource

21. *See* A. MITCHELL POLINSKY, AN INTRODUCTION TO LAW AND ECONOMICS 11-14 (2d ed. 1989).

22. *Cf.* R.H. COASE, THE FIRM, THE MARKET, AND THE LAW 174 (1988) ("The world of zero transaction costs has often been described as a Coasian world. Nothing could be further from the truth. It is the world of modern economic theory, one which I was hoping to persuade economists to leave.").

23. This formulation has come to be known as the "strong version," or the "invariance version" of the Coase Theorem. *See* Thomas S. Ulen, *Flogging a Dead Pig: Professor Posin on the Coase Theorem*, 38 WAYNE L. REV. 91 (1991). A "weaker" version of the Coase Theorem maintains that in a world without transaction costs the allocation of entitlements would not influence the total value of output, but it might affect the use of resources and the pattern of output. *See* Robert D. Cooter, *The Coase Theorem*, *in* THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS (1987). It is debatable whether either version of the Coase theorem actually holds. Famously, Robert Cooter has pointed out that even in a world with zero transaction costs, strategic bargaining may thwart efficient allocation of resources. *See* Robert Cooter, *The Cost of Coase*, 11 J. LEGAL STUD. 1, 23 (1982). A different concern has been raised by Clifford Holderness, who proposes that the strong version only holds true when entitlements are granted to closed groups, but not when they are given to open groups that allow entry. *See* Clifford G. Holderness, *The Assignment of Rights, Entry Effects, and the Allocation of Resources*, 18 J. LEGAL STUD. 181 (1989). *But see* Henry E. Smith, Two Dimensions of Property Rights (Mar. 31, 2001) (unpublished manuscript, *cited in* Merrill & Smith, *supra* note 9, at 368 n.45) (suggesting that "[i]f transaction costs were truly zero . . . bargaining could costlessly close all classes"). It should be emphasized that the Coase theorem does not guarantee efficiency in positive transaction cost settings. *See* Dierdre McCloskey, *Other Things Equal: The So-Called Coase Theorem*, 24 E. ECON. J. 367 (1998).

24. Coase, *supra* note 18, at 8. *But see* Steven N.S. Cheung, *The Transaction Costs Paradigm*, 37 ECON. INQ. 514, 518-20 (1998) (questioning the need for a well-defined system of entitlement in a world with zero transaction costs).

allocation. If clean air were more valuable than the activity causing the pollution, residents would pay plants to shut down; if the opposite were true, industrial companies would pay residents to relocate.[25] Private ordering would rule; law could be shunted aside.

The transition to the real world, in the second part of the article, thrust law back to the fore. The introduction of positive transaction costs forced Coase to address the significance of legal rules, as well as of the courts administering them. Once the assumption of zero transaction costs is abandoned, Coase's analysis, although still illuminating, loses some of its analytical rigor. Coase's general prescription is that in a world with positive transaction costs, courts should assign property rights in a manner that maximizes the value of production.[26] In assessing the ability of the courts to reach efficient outcomes in particular cases, Coase reviewed a host of nuisance decisions. Although he failed to trace any economic theorizing in the decisions, and worse, he found the reasoning employed by the courts odd and irrelevant,[27] Coase concluded, somewhat surprisingly, that courts are conscious of the economic consequences of their decisions. Thus, at the end of the day, Coase was willing to entrust the courts with the challenging task of allocating legal entitlements efficiently.

Coase, however, did not provide the courts with any meaningful guidance as to how to perform this task. All he had to say was that, insofar as this is at all possible, courts should consult economic considerations in making their decisions without creating too much uncertainty about the legal position itself . . . ."[28] This proposal exposes an

25. An obvious problem with this conclusion, as well as with the Coase theorem in general, is that it ignores wealth effects. *See* Richard Craswell, *Passing on the Costs of Legal Rules: Efficiency and Distribution in Buyer-Seller Relationships*, 43 STAN. L. REV. 361, 385-91 (1991) (noting that Coase's model overlooks cognitive biases, such as wealth and framing effects); *see also* Ian Ayres & Jack Balkin, *Legal Entitlements as Auctions: Property Rules, Liability Rules, and Beyond*, 106 YALE L.J. 703, 718 n.52 (1998) (explaining that "wealth effects are produced by budget constraints on our ability to pay"). Although residents affected by the pollution may value the right to live pollution-free more highly than the activity generating the pollution, they may not have sufficient resources to pay the plants, causing the problem to shut down. If transactors do not possess sufficient funds, assuming away transaction costs would not help bring about efficient allocation of resources. *See* Herbert Hovenkamp, *Marginal Utility and the Coase Theorem*, 75 CORNELL L. REV. 783, 797-808 (1990) (noting that wealth effects are more common than is sometimes thought); William M. Landes, *Copyright, Borrowed Images, and Appropriation Art: An Economic Approach*, 9 GEO. MASON L. REV. 1, 21 (2000) (listing the absence of transaction costs and wealth effects as two preconditions for effective operation of the Coase theorem). *But see* Russell Korobkin, Note, *Policymaking and the Offer/Asking Price Gap: Toward a Theory of Efficient Entitlement Allocation*, 46 STAN. L. REV. 663, 679-82 (1994) (disputing Hovenkamp's wealth effect claims); *cf.* Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1483 (1998) (observing that "even when transaction costs and wealth effects are known to be zero, initial entitlements alter the final allocation of resources").

26. *See* Coase, *supra* note 18, at 15-16.

27. *See id.* at 15.

28. *Id.* at 19.

inherent tension in Coase's analysis. On the one hand, Coase's article calls for a clear delimitation of legal rights in order to encourage private bargaining. On the other hand, its reliance on the courts injects a considerable degree of uncertainty into the legal system as it necessitates extensive use of judicial discretion to promote efficiency in particular cases. More importantly, perhaps, the two perspectives developed in Coase's article — the contractarian and the judicial — are in potential conflict when transaction costs are positive. The more courts exercise judicial restraint by deferring to private bargaining, the stronger the incentive to bargain privately. Conversely, when courts take an interventionist approach to private ordering, the incentive to bargain privately over efficient allocation of resources is significantly undermined. Yet, Coase did not suggest how this tension can be resolved, or which perspective, the contractarian or the judicial, should take precedence in cases of conflict. Ultimately, Coase advanced neither a theory, nor a list of factors, to help the courts in performing their charge; he trusted them, based on past performance, albeit a very mediocre one, to succeed in the future.

Despite these drawbacks, Coase's analysis is illuminating and it has been extremely influential. It would not be an exaggeration to state that Coase's discussion of transaction costs blazed the trail for all subsequent law and economics scholars. In particular, Coase's focus on contractual arrangements has elevated private bargaining to unprecedented heights, turning it into the primary focus of law and economics scholarship. Yet, Coase's analysis by itself did not aptly explain the role of legal norms in promoting efficiency; nor did it provide a positive account of how exactly, if at all, the law protects entitlements in the real world. Moreover, Coase did not discuss how entitlements should be protected after the initial allocation. These tasks were reserved for Calabresi and Melamed.

B. *The Calabresian-Melamedian Framework*

Unlike Coase, whose primary goal was to determine the role of government intervention in the regulation of harmful activities, Calabresi and Melamed's goal was to analyze the role of law in the assignment and protection of entitlements. Specifically, Calabresi and Melamed sought to shed light on the ways in which the legal system does, and ought to, protect rights. Yet, Coase's insights had a palpable influence on Calabresi and Melamed. His contractarian perspective and the careful attention to transaction costs informed much of Calabresi and Melamed's normative analysis. Due to their different focus and superior mastery of law, however, Calabresi and Melamed ventured far beyond Coase's legal insights and developed a new conceptualization of the law.

In *The Cathedral*, Calabresi and Melamed made three important contributions to legal theory. The first was conceptual. Calabresi and Melamed were the first to realize that a theory of entitlement allocation must address two questions, not one. One question is how to assign the entitlement initially between the contending parties. The other is how to protect the initial assignment.[29] In addressing the former question, Calabresi and Melamed did not advance a simple answer, or even a single principle according to which entitlements should be assigned. Instead, they proposed that in assigning entitlements, society should consider three broad types of considerations: economic efficiency, distributional preferences, and other justice reasons.[30] Calabresi and Melamed discussed and explored all three concerns, and, in contrast to Coase, they did not single out one value the courts should maximize. Rather, they advocated a careful weighing of the various criteria they listed as a basis for entitlement allocation in particular cases.[31]

Calabresi and Melamed's second important contribution was descriptive. In analyzing how the law protects entitlements, Calabresi and Melamed divided the universe of legal remedies into three modalities of protection: property rules, liability rules, and inalienability rules.[32] They defined the three modalities as follows. Property rule protection confers upon the entitlement holder the exclusive power to determine the price nonholders would have to pay for using the protected asset or right.[33] Thus, all transfers of entitlements protected by a property rule must be consensual; all attempts to transfer the entitlement nonconsensually would be met with an injunction. Liability rule protection, by contrast, gives the nonholder the power to take the entitlement without the consent of the entitlement holder and pay a price to be determined by a third party, typically a court or the legislature. The entitlement holder would not be able to enjoin third parties from taking her entitlement; instead, she would have to settle for damages.[34]

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29. Calabresi & Melamed, *supra* note 5, at 1089-93.

30. *Id.* at 1093-95. Calabresi and Melamed recognized that it is hard to pour content into the term "justice reasons." *Id.* at 1102. Furthermore, they admitted that, broadly defined, distributional considerations can subsume all other justice reasons. *Id.* at 1104. Yet, they suggested that it is preferable to think of considerations such as equality, caste preferences, and other idiosyncratic preferences, separately from traditional distributional considerations. *Id.* at 1098.

31. *Id.* at 1093-1105. *See generally* GUIDO CALABRESI, THE COSTS OF ACCIDENTS 24-33 (1970) (discussing economic efficiency, distributional preferences, and other justice considerations as bases for entitlement allocation).

32. Calabresi & Melamed, *supra* note 5, at 1092, 1105-06.

33. *Id.* at 1092, 1105.

34. *Id.* at 1092, 1106-10. Coleman and Kraus have criticized the idea of liability rule protection for being at odds with the classic view of rights as domains of freedom and personal autonomy. *See* Jules Coleman & Jody Kraus, *Rethinking the Theory of Legal Rights*,

Finally, inalienability rules bar all transfers of the entitlement, whether consensual or nonconsensual.[35]

Moreover, Calabresi and Melamed noticed the existence of what Carol Rose later called "bilateral symmetry;"[36] namely, that property and liability rule protection may be accorded to either of the parties to the conflict.[37] This insight enabled Calabresi and Melamed to craft their famous four-rule menu, which captures the remedial choices available to courts. To illustrate the operation of the four different rules, it would be helpful to return to the pollution dispute example. Assume, first, that society decides to favor the residents' interest in clean air. In this case, a court can vindicate the residents' right to live pollution-free either by enjoining the polluting activity (rule 1), or by conditioning the continuance of the pollution on the payment of damages to the victims (rule 2). Conversely, if society assigns the initial entitlement to the factory owner, the court can vindicate her right to pollute by permitting her to pollute with impunity (rule 3), or by conditioning the abatement of the pollution on the payment of damages to the factory owner (rule 4). The four-rule framework and the taxonomy developed by Calabresi and Melamed to describe the different rules have become staples in legal scholarship and teaching.[38]

Calabresi and Melamed's third important contribution was normative. In analyzing how the legal system should protect entitlements, Calabresi and Melamed successfully synthesized the contractarian and

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95 YALE L.J. 1335, 1339 (1995). Furthermore, Coleman and Kraus have noted that the protection accorded changes the nature of the entitlement. *Id.* at 1346.

35. Calabresi & Melamed, *supra* note 5, at 1092. Later in the article, Calabresi and Melamed broadened the definition of inalienability rules to include not only outright prohibition on transfers, but also weaker forms of regulatory oversight. *Id.* at 1111. According to Calabresi and Melamed, inalienability rule protection may be appropriate when changes in the initial assignment have untoward effects on third parties, or for paternalistic or distributional reasons. *Id.* at 1111-15.

36. Rose, *Shadow of the Cathedral*, *supra* note 19, at 2177.

37. Calabresi & Melamed, *supra* note 5, at 1115-17; *see also* James E. Krier & Stewart J. Schwab, *Property Rules and Liability Rules: The Cathedral in Another Light*, 70 N.Y.U. L. REV. 440, 444 (1995) [hereinafter Krier & Schwab, *The Cathedral in Another Light*] (mapping the symmetrical relation in a two-by-two matrix).

38. It is noteworthy that at the time *The Cathedral* was authored, rules 1 through 3 were well known, but rule 4 was not. Indeed, at the time, there were no cases in which rule 4 was employed. Fortunately for Calabresi and Melamed, the year *The Cathedral* was published, the Arizona Supreme Court, in *Spur Industries Inc. v. Del E. Webb Development Co.*, 494 P.2d 700, 708 (Ariz. 1972), enjoined the operator of a feedlot from continuing its operation, but ordered that a developer representing residents indemnify the tortfeasor for the cost of moving or shutting down. Although it was believed that Calabresi and Melamed were the first to unveil rule 4, it was, in fact, suggested several years earlier by James Atwood in a student note in the *Stanford Law Review*. *See* James R. Atwood, Note, *An Economic Analysis of Land Use Conflicts*, 21 STAN. L. REV. 293, 315 (1969); *see also* Calabresi, *Remarks*, *supra* note 4, at 2204 (attributing the "discovery" of rule 4 to Atwood). Yet, it is indisputable that rule 4 has become famous thanks to its inclusion in the Calabresian-Melamedian framework.

judicial perspective raised by Coase.[39] They proposed that property rules be employed when transaction costs are low, when there are only a few parties to the dispute, and when the parties to the dispute are readily identifiable.[40] When these conditions obtain, there is no need for legal intervention since the private transacting would lead to an efficient allocation of resources. Liability rules, on the other hand, should be used in the presence of high transaction costs, which prevent the parties from easily identifying and bargaining with one another.[41]

Calabresi and Melamed's normative analysis has solidified the dominance of private ordering over public ordering. Private ordering, through transacting, should take precedence over legal intervention. It is only when we suspect that private bargaining might be ineffective that we should resort to legal intervention. Otherwise, the law should merely provide the backdrop against which private bargaining takes place. The centrality of private bargaining to Calabresi and Melamed is most evident in their discussion of the criminal law. The role Calabresi and Melamed assign to the criminal law is not to protect individual rights and personal security, but rather, to deter "attempts to convert property rules into liability rules."[42]

However, the strong emphasis on bargaining, the potential weakness of Calabresian-Melamedian framework, was also the source of its appeal and success. This focus enabled Calabresi and Melamed to propose a revolutionary way of thinking about the law. Moreover, it enabled them to keep their analysis coherent and elegant. Yet, Calabresi and Melamed's analysis was not at all one-dimensional; nor did it only seek to maximize economic efficiency. Another laudable aspect of Calabresi and Melamed's analysis was the call for the incorporation of fairness-based considerations into entitlement theory. Unfortunately, this aspect of the article has not attracted nearly as much attention as the efficiency analysis. In fact, it was largely ignored by subsequent commentators.[43]

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39. Calabresi & Melamed, *supra* note 5, at 1108-10.

40. *Id.* at 1125-27.

41. *See id.*; *see also* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 56-57, 70 (4th ed. 1992) (discussing the "conventional wisdom" favoring property rules where transaction costs are low, and liability rules where transaction costs are high); Krier & Schwab, *The Cathedral in Another Light*, *supra* note 37, at 447-53 (presenting the "conventional wisdom" for later critique); *cf.* Kaplow & Shavell, *supra* note 9, at 718 (noting that their findings contradict the "conventional wisdom").

42. Calabresi & Melamed, *supra* note 5, at 1126. *Cf.* HANOCH DAGAN, UNJUST ENRICHMENT 15 (1997). Dagan argues that the choice between property rules and liability rules embodies a choice between well-being and control, with liability rules protecting the former and property rules protecting the latter. Thus, "the choice between the two rules requires a choice of the substantive content of the entitlement itself." *Id.* (footnote omitted).

43. We seek to redress this omission in Part III, *infra*.

C. *Subsequent Contributions*

As one could expect, *The Cathedral* has not met with universal acceptance. Subsequent scholars have challenged both the descriptive and the normative claims of the article.[44] The normative challenges have targeted Calabresi and Melamed's prescriptions as to how property and liability rules should be applied to enhance economic efficiency. The descriptive challenges have focused on the accuracy and comprehensiveness of Calabresi and Melamed's portrayal of the legal system.[45] We commence by reviewing the normative challenges and then turn to the descriptive ones.

1. *Normative Challenges*

a. Ayres and Talley's Solomonic Entitlements. Following Calabresi and Melamed, the accepted lore was that property rules outperform liability rules when disputes involve a small number of parties and the costs of identifying the relevant parties are low. In such settings, the employment of property rules was presumed to induce successful private bargaining and consequently efficient allocation of resources.[46] Ayres and Talley called this view into question. They contended that liability rules might be superior to property rules in settings in which property rules were believed to work best: thin markets.[47] To reach this somewhat counterintuitive claim, Ayres and Talley recharacterized two important components in the Calabresi-Melamedian framework: liability rules and transaction costs.

Ayres and Talley began their account by pointing out that the use of liability rules divides entitlements into an option to buy the subject

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44. A comprehensive review of all the challenges is beyond the scope of this Article. Naturally, we focus on the challenges that are most relevant to our discussion. We do not suggest that the challenges we discuss are necessarily the most important or powerful ones.

45. Admittedly, this distinction involves a degree of imprecision. Some of the challenges we label normative also contain descriptive insights, and vice versa. Yet, this distinction helps organize the subsequent literature in a sensible fashion.

46. *See supra* text accompanying note 41.

47. *See* Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing a Legal Entitlement to Facilitate Coasean Trade*, 104 YALE L.J. 1027, 1030-33 (1995). In parallel with Ayres and Talley, Johnston reached a similar finding. *See* Jason S. Johnston, *Bargaining Under Rules Versus Standards*, 11 J.L. ECON. & ORG. 256 (1995). Johnston demonstrated that when certain conditions obtain, contingent ex post entitlements may produce more efficient bargaining than clear ex ante entitlements. An important implication of this observation is that blurry balancing tests and even judicial error are more socially desirable than previously thought. In a subsequent article, Johnston and Croson adduced experimental results that offer support of the theoretic predictions of Johnston's model. *See* Rachel Croson & Jason S. Johnston, *Experimental Results on Bargaining Under Alternative Property Rights Regimes*, 16 J.L. ECON. & ORG. 50 (2000). In the text, we focus on Ayres and Talley simply because they framed their analysis in property versus liability rule terms, whereas Johnston's main prism is that of rules versus standards.

of the entitlement[48] and a right subject to the option.[49] Moreover, they insightfully observed that this division creates a unique opportunity for "Solomonic bargaining" between the holders of the divided entitlement. Because the partition of the entitlement permits two-way trading, rather than one, liability rules could generate more private bargaining than property rules. If the option-holder values the subject of the entitlement more highly than the right holder, she would exercise her option and buy the right. Conversely, if the right holder values the underlying asset more highly, she would "bribe" the option holder not to exercise the option.[50] Each party to a liability rule dispute is simultaneously a potential buyer and a potential seller. By contrast, property rules create only one seller and one buyer; no alternating is possible.

But what about transaction costs? Even if liability rules have the potential to generate more trades, this advantage may be lost in the presence of transaction costs. To overcome this challenge, Ayres and Talley modified traditional transaction cost analysis. They noted that in thin markets the main obstacle to private bargaining is not the cost of locating and assembling the affected parties, which preoccupied Calabresi and Melamed, but rather, strategic bargaining.[51] In such an environment, where price is not readily determinable, each negotiator has an incentive to posture in order to secure a larger share of the bargaining surplus. Consequently, the challenge for legal rules is to facilitate exchange by countering the predisposition to bargain strategically. Liability rules accomplish just that. By dividing entitlements, liability rules put the bargainers in an "identity crisis," with neither of them knowing whether she would wind up buying or selling. Asking too much, or offering too little, runs the risk of the other party selecting to sell for the quoted price instead of buying, or buy for the quoted price instead of selling.[52] Moreover, dividing the entitlement lowers the stakes for each bargainer, thus further reducing the incentive to bargain dishonestly.[53]

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48. That is, a "call option."

49. *See* Ayres & Talley, *supra* note 47, at 1031.

50. *See id.* at 1038.

51. *See id.* at 1030; *see also* Robert Cooter, *The Cost of Coase*, 11 J. LEGAL STUD. 1, 23 (1982) (pointing out that disagreements as to how to divide the contractual surplus may prevent successful Coasean bargaining); John Kennan & Robert Wilson, *Bargaining with Private Information*, 31 J. ECON. LITERATURE 45, 46 (1993) (hypothesizing that differences in private information are a primary cause of bargaining delays).

52. *See* Ayres & Talley, *supra* note 47, at 1030. This "identity crisis" is strongest when entitlements are divided evenly. *See, e.g.*, Peter Cramton et al., *Dissolving a Partnership Efficiently*, 55 ECONOMETRICA 615 (1987).

53. *See* Rose, *Shadow of the Cathedral*, *supra* note 19, at 2184.

Finally, Ayres and Talley have illuminated the information-revealing aspect of liability rules. They proposed that the values the parties place on the whole entitlement may be discerned from their bargaining tactics. Assume, for example, that the option holder seeks to exercise her option. A high-value right holder would offer to pay the option holder not to exercise. Conversely, a low-value right holder would not attempt to stave off the exercise of the option, and may even approach the option-holder with an offer to sell. Thus, the Solomonic bargaining generated by liability rules partitions the holders of the divided entitlement into higher- and lower-value bidders, thereby divulging private information and facilitating trade.[54]

b. Kaplow and Shavell. A different refinement to the Calabresi-Melamedian framework has been proposed by Kaplow and Shavell.[55] Like Ayres and Talley, Kaplow and Shavell have called for a more expansive use of liability rules, albeit for different reasons. Furthermore, unlike Ayres and Talley who disregarded property rules, Kaplow and Shavell redefined the proper role of property rules in protecting entitlements.

At the core of Kaplow and Shavell's analysis lie two analytical distinctions which enabled them to compartmentalize the universe of entitlement disputes into a two-by-two matrix. The first distinction is between "externalities disputes" and "possessory disputes." A paradigmatic example of the former is industrial pollution, or noise. A typical example of the latter is a dispute over an item of personal property, such as a laptop computer. The second, and more familiar, distinction is between high transaction cost and low transaction cost settings.

Kaplow and Shavell proposed that property rules are superior to liability rules in the context of possessory disputes irrespective of whether transaction costs are high or low. This is because liability rule protection of possessory interests raises two problems: reciprocal takings and sequential taking.[56] If A's possession of her laptop computer is protected by a liability rule, and the damage amount is set too low,[57] B would take A's laptop and pay the damage award. This, in turn, would prompt A to take back the laptop and pay B, and so a vicious

54. *See id.* at 2184-85; *see also* Ayres & Talley, *supra* note 47, at 1039-47. Ayres and Talley acknowledged that negotiators would continue to misrepresent their true valuations in the hope of extracting a larger share of the bargaining surplus. They pointed out, however, that the liability amount restricts the ability of the parties to exaggerate. Or, as they put it, the expected damage award "serves as both a *ceiling* to overstatements and a *floor* to understatements." *Id.* at 1046.

55. *See* Kaplow & Shavell, *supra* note 9.

56. *Id.* at 722, 765-67.

57. If the damage award is too high, the distinction between liability rule protection and property rule protection loses its significance. *See id.* at 724 (observing that "a liability rule with very high damages is equivalent to a property rule protection of victims").

cycle of reciprocal takings would ensue. Even worse, other parties, such as, C and D, may choose to take the laptop and pay, spearheading an infinite series of sequential takings. Instead of negotiating in the shadow of liability rules, as Ayres and Talley would have them, the contending parties would repeatedly take from one another.[58]

In externalities cases, the choice of legal rules depends on the magnitude of transaction costs. Reiterating Coase's main insight, Kaplow and Shavell conclude that when transaction costs are low, the choice of legal rule does not matter. In this instance, property rules and liability rules would perform equally well since parties can bargain to achieve the optimal allocation of resources. When transaction costs are high, liability rules have the edge. When private bargaining is impossible, the court must allocate the right to the higher value user. If the court chooses to employ property rule protection, it must know both the damage to the victim and the prevention cost to the polluter. By contrast, the use of liability rules requires the court to know only one variable: the damage to the victim. Once the court sets the liability amount correctly, the polluter, who knows the cost of prevention, has a choice to make. If the cost of prevention exceeds the damage amount, she would continue with the polluting activity and pay damages. If the cost of prevention is lower than the expected liability, she would invest in preventive measures and abate the pollution. Thus, liability rules minimize information costs. According to Kaplow and Shavell, it is for this reason that liability rules should be favored over property rules when transaction costs are high, and not because of the impossibility of bargaining, as Calabresi and Melamed suggested.[59]

c. Krier and Schwab. The final challenge to the Calabresi-Melamedian framework differs dramatically from the two previously discussed. In a marked departure from the conventional view among law and economics scholars, Krier and Schwab questioned the presumed superiority of liability rules in high transaction costs settings. They noted that the conventional view that liability rules outperform property rules when transacting is prohibitively costly rests on a tacit assumption that courts can assess damages with reasonable accuracy in such situations. Yet, following Polinsky,[60] Krier and Schwab pointed out that this key assumption has never been substantiated.[61] Krier and

58. Ian Ayres and Jack Balkin, however, have pointed out that this problem could be avoided if each taking were accompanied by an incremental price increase. More generally, they note that liability rules are essentially truncated auctions. Thus, they propose that entitlements be auctioned off between the contending parties with the highest bidder ultimately receiving the entitlement. *See* Ayres & Balkin, *supra* note 25, at 707-716.

59. *See* Kaplow & Shavell, *supra* note 9, at 719, 726-27; *see also* Rose, *Shadow of the Cathedral*, *supra* note 19, at 2191.

60. *See* Polinsky, *supra* note 9, at 1111.

61. *See* Krier & Schwab, *The Cathedral in Another Light*, *supra* note 37, at 453-54.

Schwab attributed this omission to the failure of scholars to recognize the existence of assessment costs — the transaction costs of the judicial process — and, more generally, to engage in comparative institutional analysis.[62]

In addressing these omissions, Krier and Schwab found that the presumed superiority of liability rules in high transaction costs settings is illusory. Krier and Schwab contended that although private bargaining over damages is costly when transaction costs are high, the cost of judicial assessment of damages may be higher still. Hence, it is impossible to determine in the abstract which mode is superior.[63] Moreover, they suggested that there is a positive correlation between factors that give rise to high transaction costs and those creating high assessment costs.[64] For example, bargaining is likely to be ineffective in disputes involving multiple parties and in bilateral monopoly cases. But so is judicial assessment of damages. Consider, for example, the case of *Boomer v. Atlantic Cement Co.*[65] In *Boomer*, the presence of multiple victims, which gave rise to high transaction costs and potential holdout problems, thwarted the possibility of a voluntary agreement between the cement plant and the residents. The same fact, however, made judicial determination of damages extremely difficult.[66] This example may be generalized: the involvement of multiple parties and the lack of readily ascertainable market prices make accurate assessment of damage virtually impossible.[67] Thus, the very factors that undermine efficient bargaining also frustrate the ability of courts to determine damages with reasonable precision.

Furthermore, because courts routinely grant objective damages and ignore subjective, or idiosyncratic, harms, damage awards tend to be undercompensatory; victims' losses are rarely fully redressed in litigation.[68] At the end of the day, therefore, Krier and Schwab posit that there is no inherent reason to assume that liability rules would better enhance economic efficiency when transaction costs are high.[69]

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62. *See id.* at 454, 475-77.

63. *See id.* at 454-55.

64. *See id.* at 459-61.

65. 257 N.E.2d 870 (N.Y. 1970).

66. For discussion, see NEIL K. KOMESAR, IMPERFECT ALTERNATIVES: CHOOSING INSTITUTIONS IN LAW, ECONOMICS, AND PUBLIC POLICY 14-28 (1994) (discussing the assessment problem in the *Boomer* case); Daniel A. Farber, *Reassessing* Boomer: *Justice, Efficiency, and Nuisance Law*, *in* PROPERTY LAW AND LEGAL EDUCATION: ESSAYS IN HONOR OF JOHN E. CRIBBET 7, 11-12 (Peter Hay & Michael H. Hoeflich eds., 1989) (pointing out that Atlantic's total liability "ultimately came to $710,000, some four times the amount mentioned in the Court of Appeals decision denying injunctive relief").

67. *See* Krier & Schwab, *The Cathedral in Another Light*, *supra* note 37, at 460-62.

68. *See id.* at 457-59.

69. It bears emphasis, however, that Krier and Schwab have not positively shown that property rules would outperform liability rules in high-transaction-costs settings. Their

2. *Descriptive Challenges*

a. Put Protection. Combining the Calabresi-Melamedian framework with option theory, several scholars have noticed an interesting extension to Calabresi and Melamed's analysis of liability rules. Specifically, they observed that while Calabresi and Melamed treated liability rules strictly as call options, i.e., options to "buy" entitlements from their holders, entitlements may also be protected with put options.[70] The mirror image of calls, put options bestow upon the entitlement holder the power to sell the entitlement to the other party to the dispute, for example the polluter, for a certain exercise price. Hence, it can be said that put option protection grants to "the initial entitlement holder everything that she would have under a property rule plus a put option."[71]

The choice between "calls" and "puts" has important distributional consequences. Puts increase the expected payoff of the entitlement holder relative to calls and standard property rule protection.[72] Moreover, put option protection reduces the risk to which entitlement

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analysis only suggests that Calabresi and Melamed's conclusion that liability rules better enhance efficiency in the face of high transaction costs may be incorrect due to Calabresi and Melamed's omission of comparative institutional analysis.

70. *See, e.g.*, Ian Ayres, *Protecting Property with Puts*, 32 VAL. U. L. REV. 793, 798 (1998) (noting that a put option, or "forced purchase" rule, gives the entitlement holder the option to force the nonentitlement holder to purchase); Madeline Morris, *The Structure of Entitlements*, 78 CORNELL L. REV. 822, 854-56 (1993) (describing put options as examples of reverse liability rules in which the entitlement holder has the right to a forced compensated transfer); *cf.* Ayres & Balkin, *supra* note 25 (describing various mechanisms for auctioning put options). *But see* Richard A. Epstein, *Protecting Property Rights with Legal Remedies: A Common Sense Reply to Professor Ayres*, 32 VAL. U. L. REV. 833 (1998) (challenging the efforts of Ian Ayres and others to apply financial economics to elaborate on Calabresi and Melamed's original two-by-two matrix).

71. *See* Ayres, *supra* note 70, at 799. Correspondingly, the nonentitlement holder against whom the put option may be exercised has less than nothing, since she may be forced to buy an entitlement against her will. *Id.*

72. *See id.* at 804-13. Ayres points out that in addition to changing the division of the bargaining surplus between the parties, put protection also affects the bid/ask difference. He notes that "[f]or both cognitive and wealth effects reasons, it is often the case that a particular person will demand a higher price when selling an entitlement than she would be willing to pay if forced to buy." *Id.* at 809-10; *see also* Levmore, *supra* note 4, at 2166 (describing the offer-asking differential, or "endowment effect").

On the "endowment effect," see generally Daniel Kahneman et al., *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325 (1990) (concluding that endowment effects are not easily altered by experience); Daniel Kahneman et al., *The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSP. 193, 194 (1991) (defining the "endowment effect" as a behavior in which "people often demand much more to give up an object than they would be willing to pay to acquire it"); Richard Thaler, *Toward a Positive Theory of Consumer Choice*, J. ECON. BEHAV. & ORG. 1 (1980) (examining ways in which consumers deviate from rational economic models). On the impact of the endowment effect on legal policymaking, see Elizabeth Hoffman & Matthew L. Spitzer, *Willingness to Pay vs. Willingness to Accept: Legal and Economic Implications*, 71 WASH. U. L.Q. 59 (1993); Russell Korobkin, Note, *Policymaking and the Offer/Asking Price Gap: Toward a Theory of Efficient Entitlement Allocation*, 46 STAN. L. REV. 663 (1994).

holders are exposed. Call options vest the power to exercise in the nonentitlement holder. Put options, by contrast, grant the decision-making power to the entitlement holder. Consequently, put option protection provides the greatest incentive to property owners to invest in their assets, and the strongest deterrent to potential takers.[73]

Although put option protection is an important theoretical possibility, it is rarely used in reality.[74] Richard Epstein, for example, suggested that puts "are never imposed as a matter of law on strangers, but are the outgrowth of consensual transactions over organized markets."[75] In response to this claim, Ian Ayres showed that the reach of put option protection extends to certain nonconsensual settings, such as conversion, and trespass disputes. Even Ayres, however, conceded Epstein's basic point: that the common law does not employ puts *in rem*, but rather, as limited *in personam* rights in certain bilateral monopoly situations.[76]

b. "Startle" or "Startling" Rules.[77] Aside from the possibility of put option protection, several scholars have observed various other extensions to the Calabresi-Melamedian four rule framework. The scholarly interest in the possibility of additional rules has been rekindled by Krier and Schwab's "discovery" of a new rule, which they entitled "rule 5."[78] Krier and Schwab proposed that in certain instances the transgressor should be permitted to choose to abate the tortious activity and collect the victim's gains occasioned by this decision. Under this rule, A, who causes a nuisance to B, gets the discretion to stop at

73. *See* Ayres, *supra* note 70, at 807.

74. *See, e.g.*, Richard A. Epstein, *A Clear View of the Cathedral: The Dominance of Property Rules*, 106 YALE L.J. 2091, 2093 (1997) (noting that certain financial arrangements, such as puts, are "common enough in financial markets, but are rarely encountered in the world of legally created remedies"). Even Morris, who was the first to observe the possibility of put option protection, found only two real world examples of this type of protection: "[g]un buy-out offers by police department, and soft drink container deposit redemption laws." *See* Morris, *supra* note 70, at 855.

75. Epstein, *supra* note 74, at 2093.

76. *See* Ayres, *supra* note 70, at 814 n.63. It should be noted that some of the put protection examples identified by Ayres do not clearly fall under his own definition of the term. For instance, Ayres characterizes the famous case of *Pile v. Pedrick*, 31 A. 646 (Pa. 1895), as granting the plaintiffs, the victims of the encroachment, put option protection. In fact, the court merely permitted the plaintiff to choose between injunction and damages, and the plaintiff ultimately preferred the former, i.e., property rule protection. Since true put option protection would give the plaintiffs more than a simple property rule, the plaintiffs' choice seems quite odd. It is possible, then, that the court was not offering the plaintiff put option protection, but rather, a choice between property rule protection and a call option protection to the defendant-transgressor. This is not to say that Ayres' construction of the case is necessarily incorrect. However, without knowing what exactly the damage award was in this case, it is impossible to say with certainty that the court employed put option protection.

77. The term "startling rule" owes its origin to Levmore.

78. *See* Krier & Schwab, *The Cathedral in Another Light*, *supra* note 37, at 470-71. It is widely agreed that the original startling rule was Calabresi and Melamed's rule 4. *See* Levmore, *supra* note 4, at 2150.

her choice, and collect damages from B in the amount of the benefit B receives as a consequence or to continue the nuisance and receive nothing.[79] Krier and Schwab's proposal reportedly "infuriated [certain scholars] who found it too unusual to be of note."[80] But it captivated the minds of most others,[81] despite the fact that Krier and Schwab were unable to find any judicial authority employing or foreshadowing their insight, and the obvious risk of strategic abuse of this remedy by tortfeasors.[82] Importantly, Krier and Schwab's insight, debatable as it might be, demonstrated that other rules may be hiding in the wings of Calabresi and Melamed's four basic rules.

Indeed, three years later, Saul Levmore, in an analytical *tour de force*, derived as many as sixteen variants from Calabresi and Melamed's original four.[83] To accomplish this feat, Levmore divided the four basic rules according to various familiar legal distinctions. For example, in the context of liability rules, Levmore proposed that a court might order compensation only if the injurer was negligent, but not otherwise.[84] Furthermore, drawing on the distinction between torts and unjust enrichment, Levmore noted that in determining the proper compensation award, a court could choose between the victim's loss and the injurer's gain.[85] Levmore also observed that instead of awarding compensation for *both* past and future injuries, a court may compensate the victim for *either* past *or* future injuries.[86] In the same vein, in the context of property rules, a court may award the victim an injunction, but deny her damages for past injuries. Or, if the court wishes to increase the victim's compensation, it may enjoin the harmful activity and award the victim the injurer's past gain.

Inspired by the unveiling of rule 5, Levmore also sought to uncover several "startling rules" of his own. Ultimately, Levmore found one such rule, which he dubbed "Rule 5CE."[87] Drawing on rule 5, Levmore proposed a rule that would permit the injurer to continue

79. Ian Ayres correctly noted that rule 5 is essentially an example of put option protection. *See* Ayres, *supra* note 70, at 801.

80. Levmore, *supra* note 4, at 2150.

81. *See id.*

82. *See* Levmore, *supra* note 4, at 2161 (noting that "[i]f A knew that a judge would respond to any complaint by B with this rule 5, then A would have a perverse incentive to create nuisances in order to collect from B").

83. A full review of all of Levmore's variants is beyond the scope of this Article. For a table summarizing the sixteen different rules, see Levmore, *supra* note 4, at 2173.

84. *Id.* at 2156. In a different variant, Levmore proposed that if the injurer was not negligent she would share in the victim's loss if they both belong to the same community. *Id.* at 2159.

85. *Id.* at 2157.

86. *Id.* at 2159.

87. *Id.* at 2162.

with the harmful activity, but would force her to pay all her gains from choosing to do so to the victim.[88] However, Levmore himself admitted that "it may be hard to see why Rule 5 or 5CE would ever be selected [by a court]."[89]

c. Summary and Evaluation. The Cathedral and its progeny have had a profound impact on entitlement theory as well as our understanding of the legal system as a whole. The focus on transaction costs, the defining characteristic of this body of literature, has transformed traditional understandings of property, contract, and tort. Several changes are worth noting.

First, the focus on transacting has reduced the status of property rights from near-absolute rights that denote individual autonomy and security to fungible bargaining chips. From a right that granted to its holder the power to exclude others,[90] property has become no more than a contractual lever. And, from a right that could only in rare cases be taken for a public use,[91] property has become an up-for-grabs right, open to all potential takers. The familiar "no-trespassing" sign was replaced with an "all welcome" one.

Second, the entitlement literature has largely changed the internal hierarchy between property and contract. Traditionally, property was deemed a keynote right,[92] and contract as a subservient right, designed to enable property owners to transfer their property. The right to transfer, represented by contract, was just one stick in the bundle of rights property confers upon its holder.[93] The entitlement literature has turned this relationship around, placing contract at the core of our legal system, and property at the fringes. Under the new conceptualization, property merely facilitates contracting by defining the initial bargaining positions of the parties.

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88. *Id.*

89. *Id.* at 2168.

90. *See, e.g.*, Kaiser Aetna v. United States, 444 U.S. 164, 176 (1979) (" '[T]he right to exclude others' is 'one of the most essential sticks in the bundle of rights that are commonly characterized as property.' "); Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730, 730 (2000) (positing that "the right to exclude others is more than just 'one of the most essential' constituents of property — it is the sine qua non").

91. *See* U.S. CONST. amend. V ("[N]or shall private property be taken for public use, without just compensation.").

92. *See* Carol M. Rose, *Property as the Keystone Right?*, 71 NOTRE DAME L. REV. 329 (1999) [hereinafter Rose, *Keystone Right*] (reviewing and critically examining the various sources of the view of property as a keynote right).

93. *See* STEPHEN R. MUNZER, A THEORY OF PROPERTY 40-50 (1990) (suggesting that the right to transfer the "stick" distinguishes property rights from personal rights); J.E. Penner, *The "Bundle of Rights" Picture of Property*, 43 UCLA L. REV. 711, 747 (arguing that "the right to transfer property is an inherent feature of property rights"); *cf.* Merrill & Smith, *supra* note 9, at 365 (observing that for some writers influenced by the legal realism of the 1920s and 1930s, "the bundle-of-rights concept simply meant that property could be reduced to recognizable collections of functional attributes, such as the right . . . to transfer").

Third, the economic analysis of entitlements has stripped property of one of its defining characteristics, its *in rem* nature.[94] By contrast to *in personam* contractual rights that are binding only on the parties to the contract, property rights are binding upon the rest of the world.[95] Yet, owing to the tendency to model disputes as two party conflicts, the economic literature on entitlements has obliterated this important difference. As Thomas Merrill and Henry Smith have observed, "most modern economic accounts endow property with no distinctive character at all." Property rights are "simply . . . little empty boxes filled with a miscellany of use rights that operate in the background of a world consisting of nothing but in personam obligations."[96]

Fourth, the virtually exclusive focus on facilitating transactions has pushed to the corner the traditional utilitarian justifications of property, most notably the need to incentivize owners to invest in resources.[97] For this reason, property regimes overwhelmingly employ property rules as the default regime.[98] As Carol Rose explained, this property rule favoritism is not accidental. Strong, undivided, and sharply defined property rights not only facilitate contracting but also "encourage individual investment, planning and effort" by giving actors "a clearer sense of what they are getting."[99] Moreover, the transactional focus has marginalized another key role of property law —

94. Merrill & Smith, *supra* note 9, at 360 (noting that "[p]roperty rights historically have been regarded as *in rem*"); Thomas W. Merrill & Henry E. Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 777 (2001) (noting that "[p]roperty rights are in rem — they bind the 'rest of the world' ").

95. *See* Wesley Newcomb Hohfeld, *Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 26 YALE L.J. 710 (1917) (discussing the difference between *in personam* rights, which avail against one or a few persons, and *in rem* rights, which avail against a large and indefinite class of people).

96. Merrill & Smith, *supra* note 9, at 385.

97. *See* JEREMY BENTHAM, THEORY OF LEGISLATION 111-13 (4th ed. 1882) (positing that property is the basis of an expectation of advantages). Examples of modern law and economics scholars of this view include: RICHARD POSNER, ECONOMIC ANALYSIS OF LAW (4th ed. 1998), JESSE DUKEMINIER & JAMES E. KRIER, PROPERTY 53 (4th ed. 1998) (noting that "[u]tilitarian theory is, without doubt, the dominant view of property today . . . especially among those working in law and economics"); Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347 (1967) (providing a utilitarian account of the emergence of property rights); Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315 (1993) (comparing private and group land ownership, and noting that a change in land regimes is efficient when it reduces the sum of transaction costs and deadweight losses); and Rose, *Shadow of the Cathedral*, *supra* note 19, at 2182, 2187.

98. *See* Rose, *Shadow of the Cathedral*, *supra* note 19, at 2187; Epstein, *supra* note 74, at 2096-2105 (discussing the dominance of property rules in property law).

99. Rose, *Shadow of the Cathedral*, *supra* note 19, at 2187.

striking the balance between exclusivity and access,[100] and in some cases, between monopoly and competition.[101]

Finally, Calabresi and Melamed's call to consider distributive and other justice considerations in determining the allocation of entitlements has been all but ignored by subsequent law and economics scholars. Although Calabresi and Melamed put the various considerations on equal footing, economic efficiency somehow eclipsed the two other values.

II. ENTER PLIABILITY RULES

In this Part, we introduce the concept of pliability rules.[102] Metaphorically speaking, Calabresi and Melamed viewed the law as a three-level structure, with inalienability rules at the ground level, property rules at the first floor, and liability rules at the second. While we adopt Calabresi and Melamed's three basic categories, we show that their metaphor is incomplete. It fails to capture the dynamism of the legal system, which allows for the changing of entitlements over time. In other words, it neglects to account for connections within the structure and the ability to move around in it. We propose that pliability rules should be viewed as the stairways between the floors, and the corridors and doorways connecting rooms on those floors. In other words, we contend that the set of entitlements described by the metaphor should include not only the rule in isolation, but also their

100. *See, e.g.*, Laura Underkuffler, *On Property: An Essay*, 100 YALE L.J. 127, 129, 144-45 (1991) (positing that property embodies an inherent tension between the individual and the collective.); *cf.* Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283, 364 (1996) (suggesting, in the context of copyright, that the challenge facing decisionmakers is to structure the law so that it strikes a "careful balance between exclusivity and access").

101. *See* RICHARD A. EPSTEIN, TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN (1989); *cf.* J.H. Reichman, *Intellectual Property in International Trade: Opportunities and Risks of a GATT Connection*, 22 VAND. J. TRANSNAT'L L. 747, 867 (1989) (suggesting that progress in international intellectual property relations has been based "on a process of consensus that enabled all participants to determine the desired balance between monopoly and competition"); Deborah Tussey, *From Fan Sites to Filesharing: Personal Use in Cyberspace*, 35 GA. L. REV. 1129, 1171 n.141 (2001) (noting, in the intellectual property context, that "utilitarianism seeks to balance creators' incentives against the public right of access, providing monopoly incentives only to the extent necessary to induce creation").

102. As Ian Ayres cautioned, originality is tricky to claim. Indeed, it is possible that Calabresi and Melamed saw the possibility of mixing property and liability rule protection. It is likely that Levmore saw this option, but never developed it, when he mentioned the possibility of less than perfect property rule protection. And clearly, Merrill noticed, and even discussed, the possibility of incorporating a similar mode of protection into the doctrines of adverse possession and prescriptive easements. *See* Thomas W. Merrill, *Property Rules, Liability Rules, and Adverse Possession*, 79 NW. U. L. REV. 1122 (1984). However, Merrill's discussion was limited to that context, and was primarily normative. Merrill never went beyond adverse possession. He did not explore the descriptive prevalence of pliability rules in other legal areas, nor did he propose the use of pliability rules in other settings.

interconnections. Calabresi and Melamed's model is static; ours is dynamic.

Our three-fold project in this Part is to demonstrate the conceptual distinctiveness of pliability rules, show the descriptive pervasiveness of such rules, and to expound the various goals pliability rule protection serves. Our conceptual discussion focuses on demonstrating the distinctiveness of the category of pliability rules, and the importance of pliability rules for extending Calabresi and Melamed's analysis.

As should be clear by the large number of examples presented in this Part, we contend that lawmakers have preceded the academy to pliability rules; pliability rules are already widely used. Our descriptive exposition covers various legal areas, with a major focus on property and intellectual property law, as well as antitrust law and corporate law. We show that in certain instances pliability rules enhance economic efficiency, while in others they promote fairness and distributive concerns.

Our normative aim here is to show that, due to their amalgamated nature, pliability rules provide a unique policy tool for a variety of circumstances, such as the need to accommodate competing societal interests such as efficiency and equity, and monopoly power and competition. By combining property and liability rule protection, pliability rules merge the respective strengths of the two modalities. We generalize our normative discussion in the next Part; here, our aim is to show the gains achieved by each of the examples of pliability rule we cite.

A. *Property + Liability = Pliability*

1. *Pliability and Grue*

Pliability rules are amalgamated rules. They combine their familiar cousins — property rules and liability rules — in numerous combinations. Among the many legal fields employing pliability rules are corporate law, intellectual property, eminent domain, and antitrust, as well as several areas of law not discussed in this Part, such as bankruptcy. However, pliability rules are much more than a rearrangement of familiar materials.

To illustrate the importance of pliability rules, we turn to an analogy provided by the philosopher Nelson Goodman. In his *Fact, Fiction and Forecast*, Goodman sought to illustrate a problem with inductive reasoning by hypothesizing an imaginary color called "grue."[103] An item that is colored "grue" looks green to anyone who observes it prior to a given time — for example, the year 2003. Thereafter, the grue item appears blue. Goodman notes that before the year 2003,

103. NELSON GOODMAN, FACT, FICTION AND FORECAST 74 *et seq.* (2d ed. 1965).

anyone examining the grue-colored item would be unable to tell whether she was looking at something that was green or something that was grue. Anyone hearing an item described as "green" before 2003, or as "blue" afterwards, would not know whether the described item were actually green or blue, on the one hand, or grue, on the other. This, says Goodman, demonstrates a characteristic failure of induction. While green, blue and grue are all ontologically distinct — each has its own distinct color characteristic — the observer can never induce whether she has seen grue or either green or blue. Induction, notes Goodman, fails to distinguish between items that appear the same, but are ontologically different.

Pliability rules are distinct from property and liability rules, as grue is from green and blue. While a pliability rule may appear as a property or liability rule at any given point in time, it is nevertheless ontologically distinct. Unlike a property or liability rule, a pliability rule contains within itself its own conditions for change. A person who observes property rule or liability rule protection at a given point in time, and assumes that the property rule or liability rule protection encapsulates the true legal protection of an object, may be making a critical error. If the entitlement holder actually enjoys pliability rule protection over the object, describing the protection as property rule or liability rule protection would constitute an ontological error. In this sense, a pliability analysis is thus the opposite of what Louis Kaplow labeled a "transitional" analysis — the analysis of how entitlements should be treated in the face of "the existence of uncertainty concerning [a] future government policy [transition] prior to the government action."[104] Pliability rules provide entitlement holders with certainty concerning future changes in the rules protecting their entitlements, and, therefore, a truer appreciation of the nature of protection they enjoy at present.

Importantly, given that pliability rules have distinct properties and a unique identity and course, they create a different set of incentives. Property rules are generally thought to encourage greater investment than liability rules, since the entitlement holder may prevent involuntary loss of the object. Pliability rules fall somewhere in the middle, depending on the particular combination of property rules and liability rules. Also, certain pliability rules offer the additional advantage of self-regulation as they allow the entitlement holder to affect the nature of the protection she enjoys. We illustrate these important features of pliability rules in the discussion and examples later in this Part.

Nelson Goodman's discussion of grue provides a metaphor for another key feature of our analysis of pliability rules. Goodman does not

104. Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509, 512 (1986).

suffice with grue's ontological distinctiveness; ultimately, Goodman rejects the importance of grue on pragmatic grounds, noting that grue is not a significant category in the real world. Thus, for the existence of pliability rules to be noteworthy, such rules must have some practical significance, as well as ontological identity. Our discussion in this Part shows the pervasiveness of pliability rules in the legal world, rendering pliability rules a more valuable category of analysis than grue.

Indeed, as our discussion shows, pliability rules are so ubiquitous in our legal regime that every entitlement can be viewed, in one sense or another, as falling under the protection of pliability rules, rather than property or liability rules. This, too, requires a practical approach. Property rules, liability rules, and pliability rules are not divorced from the legal context in which they arise. In some cases, the legal contingency that gives rise to a change in legal protection may be so remote that it may be safely ignored for most purposes. Pure property or liability rules are the more useful framework for examining the entitlement in such instances.

2. *Pliability and Calabresi and Melamed*

The role of pliability rules can also be illustrated in reference to Calabresi and Melamed's famous table of the four basic types of property and liability rules. Their table omitted inalienability rules. The table is meant to illustrate four possible responses to claims of nuisance. The typical case underlying each cell in the table involves a homeowner suing a nearby polluter. In cell one, the plaintiff homeowner enjoys property rule protection and is entitled to a court order enjoining the polluting activity. In cell two, the plaintiff homeowner receives liability rule protection. The polluter may continue her activities but must pay the homeowner for damages. In cell three, the defendant polluter enjoys property rule protection. The polluter may continue the activities, and the homeowner receives no relief. Cell four involves liability rule protection for the defendant. The polluter must cease her polluting activities, but the plaintiff homeowner must pay the defendant polluter for the resulting damages.

The table below illustrates these possibilities, with cases in which courts may be deemed to have employed the relevant type of protection.

TABLE 1: PROPERTY RULES AND LIABILITY RULES

1. Property Rule (Plaintiff) *Department of Health & Mental Hygiene v. Galaxy Chemical Co.*[105]; *Ensign v. Walls*[106]	2. Liability Rule (Plaintiff) *Boomer v. Atlantic Cement*[107]
3. Property Rule (Defendant) *Francisco v. Department of Institutions & Agencies*[108]; *Rose v. Socony Vacuum Corp.*[109]	4. Liability Rule (Defendant) *Spur Industries Inc. v. Dell E. Webb Development Co.*[110]

As we noted in the last Part, the Calebresi-Melamedian four-cell table has been the launching pad for many analyses of property and liability rules. In that vein, we illustrate the place of pliability rules within the traditional four-cell table. As their name implies, pliability rules are amalgamated rules that combine property and liability rule protection. Under pliability rule protection, the entitlement holder initially receives one type of rule protection — property or liability — and then upon the occurrence of a certain contingency, the nature of the protection changes to another kind of rule protection. Sometimes, pliability rules involve transfer of the entitlement itself.

The next table adds the possibility of pliability rules, illustrated by the arrows. As the table demonstrates, pliability rules involve either a simultaneous rule, in which more than one of the rules applies at the same time, or, more commonly, a changing rule, in which protection begins with one of the four types of ordinary Calabresi-Melamedian property and liability rules, and then, upon a specified event, changes to another of the four types of rules. Although there is no limit on the number of possible pliability rules, we illustrate in the chart, only the six prototypical pliability rules that we describe in this Part.

105. 1 ENVIR. REP. 1660 (Md. Cir. Ct. 1970) (enjoining chemical smells).

106. 34 N.W.2d 549 (Mich. 1948) (enjoining raising a dog in residential neighborhood).

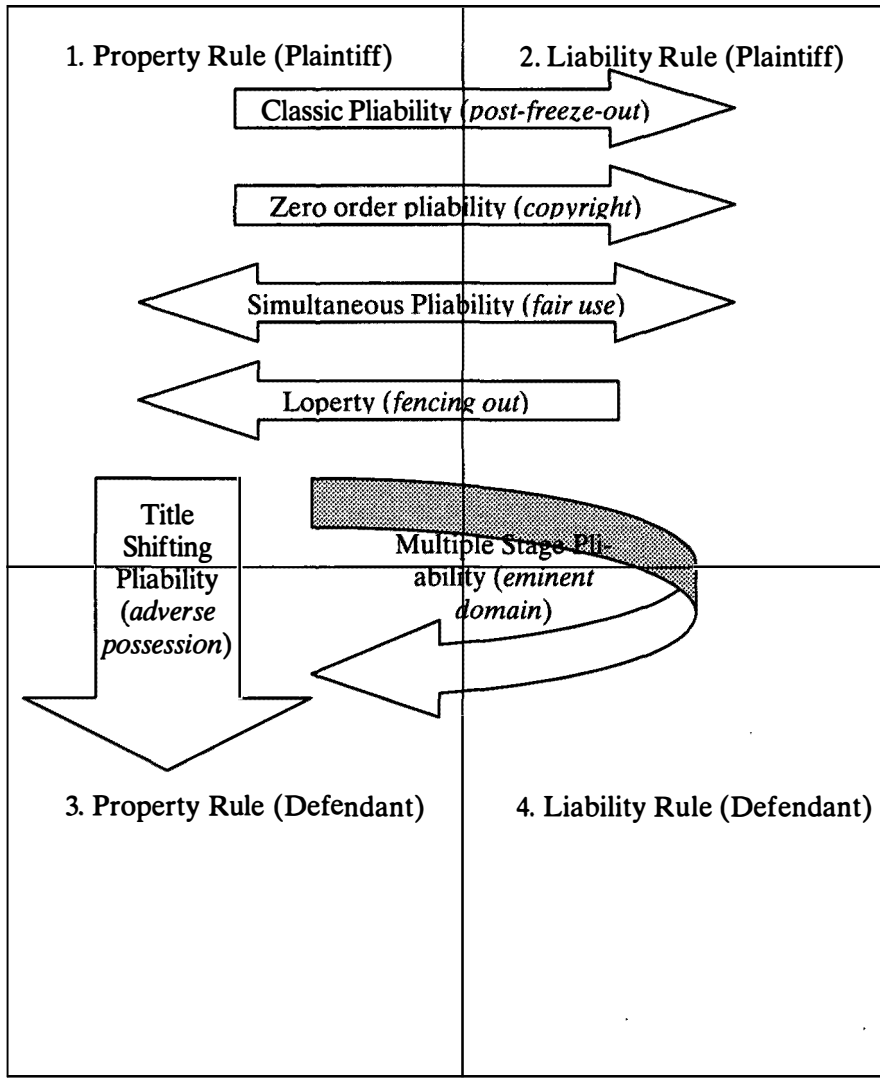
107. 257 N.E.2d 870 (N.Y. 1970) (ruling that avoidance of injunction was conditioned on payment of permanent damages to plaintiffs).

108. 180 A. 843 (N.J. Ch. 1935) (holding that plaintiffs were not entitled to enjoin noise and odors of adjacent sanitarium).

109. 173 A. 627 (R.I. 1934) (finding that absent negligence, pollution of percolating waters was not enjoinable).

110. 494 P.2d 700 (Ariz. 1972) (enjoining the operator of a feedlot from continuing its operation, but ordering that a developer representing residents indemnify the tortfeasor for the cost of moving or shutting down).

TABLE 2: PROPERTY RULES, LIABILITY RULES, AND PLIABILITY RULES



As the table demonstrates, we focus our discussion on six prototypes of pliability rules that are common in existing law.

The first set of pliability rules involves property rules that are transformed into liability rules — "classic pliability rules" under our terminology. The legal protection of post-freeze-out minority shareholders provides an example of such classic pliability rule protection.

The second set comprises the particular variety of pliability rules that we call "zero order pliability rules" — property rules that become liability rules where the compensation for breach of the rule is zero.

An example of a zero order pliability rule is copyright protection, under which the author receives a property right for her life plus seventy years, and thereafter anybody can use the copyrighted expression free of charge.

As a third set of prototypical pliability rules, we turn to the case of "simultaneous pliability rules," in which the same entitlement holder holds one type of rule protection with respect to some potential users, but a different type of rule protection with respect to other users. For example, the fair use doctrine in copyright law reduces the usual property rule protection to zero order liability protection where the use of the copyright entitlement constitutes a "fair use."[111]

The fourth set includes "loperty rules," in which initial liability rule protection is transformed into property rule protection. The transformation of cattle-feeding rights resulting from fencing pasture in a "fencing-out" legal regime provides an example of a loperty rule.

The fifth set of pliability rules we examine consists of "title shifting pliability rules," i.e., rules that transform property rule protection in the hands of one entitlement holder into property rule protection in the hands of another entitlement holder. Adverse possession provides the classic example of this type of pliability rule.

Finally, we examine the case of "multiple stage pliability rules," in which rule protection is changed more than once. For example, we observe that eminent domain can be viewed as property rule protection followed by liability rule protection in the hands of the original owner, and then property rule protection in the hands of the subsequent entitlement holder.

B. *Classic Pliability Rules*

Classic pliability rules, as we noted, involve the transformation of an entitlement from property rule to liability rule protection. In cases involving classic pliability rules, property rules provide the baseline protection in order to advance efficient allocation of resources. By creating *in rem* rights in resources, property rules reduce the cost of defending the item against potential takers, allowing owners to invest optimally in the item's use. Where exogenous transaction costs are low, the *in rem* protection comes at low cost, since the object will still gravitate to the highest value user. Moreover, property rights themselves lower transaction costs and facilitate exchange by reducing the cost of defining ownership and usage rights in objects.

However, classic pliability rules also take into account the many instances in which the default property rule protection becomes inefficient or unfair. Classic pliability rules, by defining the triggering event

111. Admittedly, in framing the issue in this way, we treat users as intrinsically wedded to certain types of uses, which blurs the important distinction between uses and users.

that alters protection from property to liability rule, retains the advantages of baseline property rule protection, while creating the flexibility to adapt to changing circumstances.

We introduce the category with an examination of the most straightforward example: the rights of minority shareholders in the aftermath of mergers and acquisitions.

1. *Mergers and Acquisitions*

Ordinarily, shareholders in a corporation enjoy property rule protection over their shares. Subject to reporting and alienability restrictions established by law, shareholders may freely sell or transfer their shares, and shares may not be appropriated by nonowners without the owner's consent.[112] However, most types of corporate decisions do not require unanimous assent. This category includes key decisions such as mergers or freeze-out takeovers that force minority shareholders to surrender their shares in exchange for compensation determined by the corporation.[113] Generally, in such cases, state law entitles minority shareholders to petition for court review of the adequacy of the compensation. This right to demand review is termed an appraisal right.[114]

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112. *See* WILLIAM L. CARY & MELVIN ARON EISENBERG, CORPORATIONS: CASES AND MATERIALS 92 (6th ed. 1992) (noting that "shares of corporate stock are freely transferable"). Cary and Eisenberg also observe that under the U.C.C., a stock certificate is a negotiable instrument. *See id.* at 92 n.4 (citing U.C.C. §§ 8-102, 8-105(1)). Therefore, "a transfer to a holder in due course cuts off most claims against the transferee." *Id.*

113. *Compare* Weinberger v. UOP, Inc., 457 A.2d 701, 713 (Del. 1983) (holding that appraisal is the only available remedy for minority shareholders in a cash-out merger, and noting that "[f]air price obviously requires consideration of all relevant factors involving the value of a company"), *with* Rabkin v. Philip A. Hunt Chem. Corp., 498 A.2d 1099, 1106, 1107-08 (Del. 1985) (holding that appraisal is not an exclusive remedy when the defendant engaged in faithless acts that were reasonably related to and have a substantial impact upon the price offered in a freeze-out merger).

114. *See* JESSE H. CHOPER ET AL., CASES AND MATERIALS ON CORPORATIONS 1167 (3d ed. 1989) (defining "dissenters' appraisal right" as the right of "[s]hareholders who dissent from a corporate merger and, in most states, shareholders who dissent from the sale of all or substantially all of their corporation's assets . . . to require the corporation to purchase their shares at a judicially determined price").

For a sample of statutes that provide for dissenters' appraisal rights, see CAL. CORP. CODE §§ 17600-17613 (West 1999) (providing for dissenters' rights with regard to certain reorganizations or mergers of limited liability corporations); FLA. STAT. ANN. § 608.4381(4)(d) (West 1999) (referring to offers required in connection with dissenters' rights); N.Y. BUS. CORP. LAW § 1005 (McKinney 1994) (providing for payments to dissenting members in the case of certain mergers or consolidations); OHIO REV. CODE ANN. § 1705.40 (Anderson 1998) (outlining members' entitlement to relief as dissenting members).

Many corporations statutes lack similar protections, notwithstanding the widespread provision of appraisal rights for minority owners in corporations. *See* Joel Seligman, *Reappraising the Appraisal Remedy*, 52 GEO. WASH. L. REV. 829, 831-32 & n.11 (1984) (reporting that all fifty states and the District of Columbia provide appraisal rights in case of a corporate merger or consolidation); *see also* Sandra K. Miller, *What Buy-Out Rights, Fiduciary Duties, and Dissolution Remedies Should Apply in the Case of the Minority Owner of a Liability Company?*, 38 HARV. J. ON LEGIS. 413, 416-17 (2001). For example, some limited liability corporations statutes do not provide for dissenters' rights in the case of certain

Consider the case of the classic tender offer accompanied by a freeze-out. The target corporation is a publicly held corporation with, let us say, 100,000 outstanding shares. An acquiring corporation desires to purchase and incorporate the business of the target corporation into its own. To this end, the acquirer issues a tender offer for the purchase of 50,001 of the target's shares. Following the success of the tender offer, the acquirer intends to use the 50,001 shares to cause the target to vote to merge itself into the acquirer. Under the terms of the merger deal, the target will sell all its assets to the acquirer for cash, and then cease to exist as an independent corporation. Since minority shareholders in the target will be forced to receive cash in exchange for their shares in the dissolving corporation, the nature of their entitlement will be transformed from property rule protection into liability rule protection. If displeased with the amount of compensation set by the majority (the acquirer's 50,001 shares), the minority shareholders may seek judicial appraisal of the value of their shares in the target. Either way, the minority shareholders lack the ability to veto the transfer of their assets and must make do with a third party determination of the amount they will receive.

Minority share ownership in the face of majoritarian corporate decisionmaking is therefore a pliability entitlement: in most cases, a share is a property interest entitled to property rule protection, but the adoption of certain corporate decisions alters the nature of the shareholder's interest in his or her shares. The provision in state law requiring majority decisions to engage in a merger, freeze-out takeover or the like, should therefore be viewed as creating a classic pliability rule.

The use of a pliability rule in this case is justifiable on grounds of both fairness and efficiency. The property rule baseline, by empowering shareholders to dispose of their shares as they please, induces investment in the stock market, and allows individuals to plan ahead. Since ordinary share trading on the market is relatively cheap, markets are liquid, and there is no inherent reason to assume that non-holding investors value shares more highly than existing shareholders, property rule protection is the optimal means for ensuring that shares are efficiently allocated.

However, in scenarios involving transfer of corporate control, property rule protection is unduly cumbersome. Obtaining unanimous consent is likely to be prohibitively costly. Additionally, strategic holdouts may bar such transactions altogether. Under a unanimous consent rule, each shareholder will find it in her interest to holdout in order to increase her expected payoff.[115] Finally, in the absence of stra-

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mergers or acquisitions, and few corporations statutes provide an equitable dissolution or buy-out remedy in the case of illegality or fraud. *Id.* at 417.

115. *See* Zohar Goshen, *Voting (Insincerely) in Corporate Law*, 2 THEORETICAL

tegic behavior, majority decisions are the best mechanism for maximizing the wealth of the shareholders as a group. Thus, to ensure the efficient operation of the market for corporate control, corporate law replaces the property rule baseline with a liability rule triggered by majority decisions.

While a pliability rule in this context is superior to both unchanging property and liability rule protection, it still leaves open the possibility of majority abuse in the liability phase. In cases of freeze-out takeovers, for example, majority shareholders may use their power to divest minority shareholders of their assets to transfer value from the minority to the majority. Majority decisions make minorities vulnerable to unfair asset substitution, in which the majority uses a merger or takeover to substitute one set of assets underlying the share for another, less valuable set.[116] The law thus ensures the shareholders' right to adequate compensation in the liability stage of the pliability rule by means of an appraisal right.[117]

INQUIRIES L. 815, 820 (2001) (explaining the holdout problem with the example of a corporation that asks for its bondholders' consent to an interest rate decrease to ease the corporation's debt burden — a decision requiring the unanimous consent of all the bondholders: "Despite the fact that this decrease in the interest rate may be in the best interests of all the bondholders, an individual bondholder may vote strategically against the change, withholding her consent until she is paid a higher price for her support.").

116. Modern explanations of the importance of appraisal rights tend to focus on reducing the distortive effects of two-tier tender offers. *See, e.g.*, Daniel Fischel, *The Appraisal Remedy in Corporate Law*, 1983 AM. B. FOUND. RES. J. 875, 879 (1983) (arguing that appraisal rights alleviate the prisoner's dilemma in the case of a two-tier tender offer); Hideki Kanda & Saul Levmore, *The Appraisal Remedy and the Goals of Corporate Law*, 32 UCLA L. REV. 429, 463-469 (1985) (contemplating the theoretical potential of appraisal rights as a general monitoring tool against management which reduces the ex ante costs of the agency relationship). These explanations of the importance of appraisal rights also tend to focus on ensuring minority shareholders a "fair share" of value created in the corporate change. *See* Victor Brudney & Marvin A. Chirelstein, *Fair Shares in Corporate Mergers and Takeovers*, 88 HARV. L. REV. 297, 336 (1974) (arguing that in the case of a two-tier tender offer, "the function of a fairness standard should primarily be one of preventing deception"); Council of the Corporation Law Section of the Delaware State Bar Association, The Proposed Delaware Takeover Statute: A Report to the Delaware General Assembly 3 (1988) (noting that a potential bidder is able to "take over the company without the approval of the board, sell the assets, and dividend out the proceeds and have each stockholder receive his fair share of its assets"), rather than "asset substitution." For further explanation, see also Peter V. Letsou, *The Role of Appraisal in Corporate Law*, 39 B.C. L. REV. 1121 (1998); Paul Mahoney & Mark Weinstein, *The Appraisal Remedy and Merger Premiums*, 1 AM. L. & ECON. REV. 239 (1999); Barry M. Wertheimer, *The Shareholders' Appraisal Remedy and How Courts Determine Fair Value*, 47 DUKE L.J. 613 (1998).

117. Under the stock market exception, many appraisal statutes do not apply to widely held public corporations. *See, e.g.*, DEL CODE ANN. tit. 8, § 262(b)(1) (1991).

Other legal mechanisms exist to protect minority shareholders, especially in the close corporation context. For example, Delaware permits the shareholders of a close corporation to include in the certificate of incorporation a provision allowing dissolution at the request of any shareholder. *See* DEL. CODE. ANN. tit. 8, § 355 (1991). Similarly, the Model Business Corporation Act empowers courts to order the involuntary dissolution of a corporation if a shareholder establishes that (i) the directors are in a deadlock that cannot be broken by the shareholders; (ii) the directors or those in control of the corporation have acted, are acting, or will act in a manner that is "illegal, oppressive or fraudulent;" (iii) the shareholders are

2. *Essential Facilities and Antitrust Damages*

The essential facilities doctrine in antitrust law provides another example of a classic pliability rule. Originating in *United States v. Terminal Railroad Association*,[118] the doctrine renders it illegal for owners of "essential facilities" to deny others access as the result of anticompetitive motives or under conditions that reduce competition. Essential facilities are facilities that cannot practically be duplicated and are necessary for competitors' survival.[119] The case of *Terminal Railroad* is illuminating. There, financier Jay Gould established a group that acquired control over all the facilities necessary to load or unload freight or passengers, or cross the Mississippi River in the area of St. Louis. Gould's group used its monopoly power to impose premium pricing on users of the facilities owned by his group. The *Terminal Railroad* Court found in this arrangement a violation of sections 1 and 2 of the Sherman Act. However, rather than strip Gould of his property by ordering divestiture, the Court established that Gould could maintain his monopoly over the St. Louis nexus — a facility essential to trans-Mississippi traffic in the Midwest — so long as pricing (and other terms of usage) were regulated.[120]

The essential facilities doctrine has been extended to a wide array of assets, including electricity distribution networks,[121] telephone transmission and switching systems,[122] gas pipelines,[123] and the New

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deadlocked and have been unable to elect directors for at least two consecutive annual meetings; or (iv) the corporate assets are being misapplied or wasted. *See* MODEL BUS. CORP. ACT § 14.30(2) (1969) (amended 1984); Michael P. Dooley & Michael D. Goldman, *Some Comparisons Between the Model Business Corporation Act and the Delaware General Corporation Law*, 56 BUS. LAW. 737, 747 (2001). The "oppression" ground is most often cited in petitions for dissolution, and some courts have recognized a cause of action for oppression outside of the dissolution context. *See* Robert B. Thompson, *The Shareholders Cause of Action for Oppression*, 48 BUS. LAW. 699 (1993). However, dissolution proceedings rarely result in the actual dissolution of the corporation but often result in a buyout of the petitioner's shares, or, more rarely, the petitioner's buyout of the majority's shares. *See, e.g.*, Park McGinty, *Replacing Hostile Takeovers*, 144 U. PA. L. REV. 983, 999-1002 (1996) (concluding that involuntary dissolution "either levels the terrain on which oppressed minority shareholders negotiate or (quite rarely) forces liquidation").

118. 224 U.S. 383 (1912).

119. *See, e.g.*, Hecht v. Pro-Football, Inc., 570 F.2d 982 (D.C. Cir. 1977).

120. *See generally* Abbott B. Lipsky, Jr. & J. Gregory Sidak, *Essential Facilities*, 51 STAN. L. REV. 1187 (1999).

121. *See* Otter Tail Power Co. v. United States, 410 U.S. 366 (1973); City of Anaheim v. S. Cal. Edison Co., 955 F.2d 1373 (9th Cir. 1992); City of Vernon v. S. Cal. Edison Co., 955 F.2d 1361 (9th Cir. 1992).

122. *See* MCI Communications Corp. v. Am. Tel. & Tel. Co., 708 F.2d 1081 (7th Cir. 1983); Bell Atl. Corp. v. MFS Communications Co., 901 F. Supp. 835 (D. Del. 1995).

123. *See* City of Chanute v. Williams Natural Gas Co., 955 F.2d 641 (10th Cir. 1992); Illinois *ex rel.* Burris v. Panhandle E. Pipeline Co., 935 F.2d 1469 (7th Cir. 1991); Garshman v. Universal Res. Holding, Inc., 824 F.2d 223 (3d Cir. 1987).

York Stock Exchange.[124] The aim, in all cases, has been to preserve the advantages of unified control of the essential facility, on the one hand, and to avoid the inefficiencies of monopoly pricing, on the other.[125]

The doctrine requires courts to mandate access to privately owned property once it becomes essential for competition. Thus, the essential facilities doctrine provides an example of a judicially triggered classic pliability rule. Upon a judicial finding of an essential facility, the owner's property rule protection over her essential facility changes into liability rule protection. She retains ownership of the facility but must grant access to competitors at a price determined or reviewed by a third party — the court or a regulator.

The use of a pliability rule in the instance of essential facilities enables courts to preserve the baseline advantages of property rules discussed earlier — such as encouraging optimal investment and reducing transaction costs — while introducing liability rules in those cases where circumstances make such rules more advantageous. Specifically, the liability rule stage diminishes the social deadweight loss associated with monopoly pricing by granting competitors access to necessary facilities at an approximation of competitive pricing.

In mandating a liability rule as the second stage of the pliability rule, rather than dividing the property among different firms, the essential facilities doctrine produces another benefit. Keeping the property together under one roof preserves the economies of scale produced by natural monopolies, while the liability rule avoids the cost of monopolistic pricing. In a natural monopoly, the cost of providing a service declines with output, making a single provider the optimum from a cost perspective.[126]

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124. *See* Silver v. New York Stock Exch., 373 U.S. 341 (1963).

125. To effectuate the balance, the essential facilities doctrine imposes liability on a Sherman Act section 2 defendant when the plaintiff proves the following elements: (1) control of an essential facility by a monopolist; (2) a competitor's inability reasonably or practically to duplicate the essential facility; (3) denial of the use of the facility to the competitor; and (4) providing the competitor access to the facility is feasible. *See MCI*, 708 F.2d at 1132-33 (laying out four factors); JULIAN O. VON KALINOWSKI ET AL., ANTITRUST LAWS AND TRADE REGULATION § 25.04[3] n.114 (2d ed. 2001) (listing cases adopting or citing with approval the *MCI* formulation of the elements of an essential facilities case). However, the essential facilities doctrine has not met with universal approval. *See, e.g.*, Philip E. Areeda, *Essential Facilities: An Epithet In Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1990) (arguing that no Supreme Court case has provided a consistent rationale for the doctrine or has explored either the social costs and benefits or the administrative costs of requiring the creator of an asset to share it with a rival).

126. *See* ERNEST GELLHORN & WILLIAM E. KOVACIC, ANTITRUST LAW AND ECONOMICS IN A NUTSHELL 70 (4th ed. 1994) ("In what is known as a 'natural monopoly,' a single firm's average costs decline with output, meaning that it is always less costly for the one firm to produce any level of output rather than subdivide production among two or more firms."); Christopher Wyeth Kirkham, *Busting the Administrative Trust: An Experimentalist Approach to Universal Service Administration in Telecommunications Policy*, 98 COLUM. L. REV. 620, 621 n.4 (1998) (describing natural monopolies as "situations in which the marginal cost of production or service provision declines with increasing economies of

So far, our discussion has focused on the ex post effect of the essential facility doctrine — i.e., the outcome that results from the application of the doctrine. It is also important to note the ex ante effect of the doctrine, particularly the incentive it creates for self regulation. Because owners of facilities that may eventually be found essential know that they enjoy only pliability rule, not property rule protection, they will self-regulate in order to remain in the property rule stage of the pliability rule. They can do so either by ensuring that they do not accumulate assets in a way that stymies competition, or by voluntarily granting access to competitors.

This last point demonstrates a broader implication of pliability analysis of antitrust law. The essential facilities doctrine is not the sole antitrust remedy to employ pliability rules; indeed, pliability rules may be seen as the animating principle behind antitrust law. In a pliability

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scale across the size of the entire market," and noting that "[i]n such a case, optimal social utility is arguably gained by concentrating production in a single enterprise"); Joseph Montiero & Gerald Robertson, *Shipping Conference Legislation in Canada, the European Economic Community and the United States: Background, Emerging Developments, Trends and a Few Major Issues*, 26 TRANSP. L.J. 141, 203 (1999) (explaining that the cost function of a natural monopolist is subadditive at output because it is more expensive for two or more firms to produce than it is for the natural monopolist to produce alone).

Natural monopolies may arise in various contexts. For telecommunications, see Daniel F. Spulber, *Deregulating Telecommunications*, 12 YALE J. ON REG. 25 (1995) (discussing natural monopoly in the context of telecommunications). *But see* Robert W. Crandall & J. Gregory Sidak, *Competition and Regulatory Policies for Interactive Broadband Networks*, 68 S. CAL. L. REV. 1203, 1214 (1995) (warning that "[w]hen formulating policies for interactive broadband networks . . . regulators should be cautious about assuming that natural monopoly will necessarily characterize such networks" because "[w]hat was once a naturally monopolistic method for delivering a particular kind of telecommunications service may be supplanted over time by a lower-cost method that does not necessarily have large sunk costs and low incremental costs"). For public utilities, see Jim Rossi, *The Common Law "Duty to Serve" and Protection of Consumers in an Age of Competitive Retail Public Utility Restructuring*, 51 VAND. L. REV. 1233, 1237 (1998) (defining a "public utility" as "a large vertically-integrated firm that provides service to all customers within its geographically-defined service area"), especially the transmission segments of public utilities, *see* Christopher G. Bond, *Shedding New Light on the Economics of Electric Restructuring: Are Retail Markets for Electricity the Answer to Rising Energy Costs?*, 33 CONN. L. REV. 1311, 1323 (2001) (noting that "[t]he transmission segments of the traditional public utilities (electricity, phone, and gas) are often cited as the best examples of natural monopolies"). For water works and cable television, see Lancaster Cmty. Hosp. v. Antelope Valley Hosp. Dist., 940 F.2d 397, 401 n.8 (9th Cir. 1991) (explaining that "electric utilities, water works, and cable television are generally highly regulated" because "these industries are paradigmatic examples of natural monopolies"). For newspaper delivery, see Roger D. Blair & John E. Lopatka, *The* Albrecht *Rule after* Kahn*: Death Becomes Her*, 74 NOTRE DAME L. REV. 123, 152 (1998) (noting that "newspaper delivery has natural monopoly characteristics in very small areas").

On the economics of natural monopoly, see generally WILLIAM J. BAUMOL ET AL., CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE 8 (rev. ed. 1988); SANFORD V. BERG & JOHN TSCHIRHART, NATURAL MONOPOLY REGULATION: PRINCIPLES AND PRACTICE 22 (1988); DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION 295-96 (2d ed. 1994); ROGER SHERMAN, THE REGULATION OF MONOPOLY 80-81 (1989); DANIEL F. SPULBER, REGULATION AND MARKETS 3 (1989); JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 19-20 (1988); KENNETH E. TRAIN, OPTIMAL REGULATION: THE ECONOMIC THEORY OF NATURAL MONOPOLY 6-8 (1991).

analysis, antitrust law aims at defining the anticompetitive conditions that should trigger a change of legal protection from one type of property rule protection to a different type of property or liability rule. In contrast to the essential facilities doctrine, not all antitrust remedies create classic pliability rules. For example, remedies requiring the break up of the anticompetitive corporation can be seen as enforcing a title shifting pliability rule in which, upon the occurrence of a given triggering condition, property rule protection passes from the hands of one entitlement holder (the anticompetitive corporation) to one or more other entitlement holders.

3. *Post*-Boomer *Nuisance*

Finally, we turn to the nuisance rule created by *Boomer v. Atlantic Cement Co.*[127] as yet another example of a classic pliability rule. In *Boomer*, a group of homeowners brought a lawsuit seeking to enjoin the nuisance caused by pollution from the Atlantic Cement plant. Deviating from the established rule of awarding injunctions in such cases, the New York Court of Appeals permitted the plant to continue operations, provided that Atlantic Cement pay permanent damages to the homeowners. The court reasoned that the Atlantic Cement plant was too valuable relative to the homeowners' pollution losses to follow the traditional rule. For Calabresi and Melamed, the *Boomer* decision represents an instance of liability rule protection. Effectively, the court prevented the homeowners from exercising their property rule right to exclude Atlantic Cement's pollution. Instead, the court forced them to suffer the pollution in exchange for the liability rule compensation decreed by the court.

While Calabresi and Melamed's static perspective is valid in describing the immediate effect of the *Boomer* decision, its impact from the dynamic perspective we offer is even more far reaching. In jurisdictions adopting *Boomer*'s reasoning as a rule of law, *Boomer* created a pliability rule. Under the *Boomer* pliability rule, homeowners enjoy property rule protection against all nuisances in stage one. However, once a nuisance-creating activity becomes sufficiently valuable, the *Boomer* rule downgrades the homeowners' entitlement into liability rule protection. The *Boomer* pliability rule thus aims to preserve property rules in most cases, while adopting liability rule protection where enjoining a nuisance diminishes economic efficiency. Importantly, the retention of the property rule baseline in this case would create a hold-out problem, as it would force Atlantic Cement to buy out the injunction from each of plaintiffs-homeowners. Conversely,

127. 257 N.E.2d 870 (N.Y. 1970).

eliminating property rule protection altogether would excessively reduce incentives for investment in the property.

C. *Zero Order Pliability Rules*

Like classic pliability rules, zero order pliability rules begin with property rule protection for the entitlement holder. However, by contrast with classic pliability rules, in the second, liability, stage of the pliability rule, the expected liability damages for use of the asset are zero. Thus, in zero order pliability rules, property rule protection is succeeded by a no-liability rule. Upon the triggering event, the initial entitlement holder loses the ability to exercise property rule protection, such as the right to exclude, over her property. Instead, all comers may use the property free of charge — that is, with zero order liability. Notwithstanding the zero order liability, no third party may gain a superior right to that of the original entitlement holder. The zero order pliability rules may therefore be seen as creating anti-exclusion, open access, or common property regimes.

As the examples we bring from copyright and patent make clear, zero order pliability rule protection is ubiquitous in the context of intellectual property. There, zero order pliability rules serve both economic efficiency and the interests of fairness. Zero order pliability preserves property rule protection necessary to encourage investment in useful inventions, while also using zero order liability to curb the deadweight loss created by monopoly power over the creation. Likewise, zero order pliability balances the claims of justice by the creator who wants exclusive control over her creation, on the one hand, and the public that claims a need to use the creation, on the other.

1. *Copyright and Patent Protection*

Nowhere is the role of property protection in inducing investment in resources more evident than in the context of copyright and patent law. Copyright law creates and protects exclusive rights in expressive works of authorship. Patent law provides protection for innovative products, processes, and designs. Both bodies of law are rooted in utilitarian philosophy, and the principal justification for their existence in the United States is widely known as the "incentive theory."[128] In-

128. *See, e.g.*, Kenneth Arrow, *Economic Welfare and the Allocation of Resources for Invention*, *in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITY 609 (1962); Stanley M. Besen & Leo J. Raskind, *An Introduction to the Law and Economics of Intellectual Property*, 5 J. ECON. PERS. 3, 5 (1991); Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyrights in Books, Photocopies and Computer Programs*, 84 HARV. L. REV. 281, 291-93 (1970); Wendy J. Gordon, *Fair Use as Market Failure*, 82 COLUM. L. REV. 1600, 1602-12 (1982); Robert M. Hurt & Robert M. Schuchman, *The Economic Rationale of Copyright*, 56 AM. ECON. REV. 421, 425 (1966) (papers and proceedings); William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326 (1989)

deed, the utilitarian grounding of American copyright and patent law is even manifested in the Constitutional intellectual property clause, which empowers Congress to create exclusive rights in intellectual works in order "to promote the Progress of Science and useful Arts."[129]

The need for an economic incentive in the field of intellectual property stems from the "public good" characteristics of intellectual goods.[130] Unlike tangible goods, public goods share two distinctive characteristics: nonrivalry of consumption and nonexcludability of benefits.[131] A good is nonrival in consumption when a unit of that good can be consumed by one person without diminishing in the slightest the consumption opportunities available to others from that same unit.[132] A good displays nonexcludable benefits when individuals who have not paid for the production of that good cannot be prevented at a reasonable cost from availing themselves of its benefits.[133] The nonexcludability property of public goods gives rise to two related problems. First, public goods are likely to be under-produced if left to the private market. Second, markets for public goods will not form.

Since inventions and expressive works are essentially information goods, they too are susceptible to the twin problems of underproduction and lack of market exchange.[134] In the absence of legal pro-

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[hereinafter Landes & Posner, *Copyright Law*]; Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 MICH. L. REV. 1197, 1197 (1996); Barry W. Tyerman, *The Economic Rationale for Copyright Protection for Published Books: A Reply to Professor Breyer*, 18 UCLA L. REV. 1100, 1100-01 (1971).

129. U.S. CONST. art. 1, § 8. Edward Walterscheid points out that the intellectual property clause "is unique in being the only instance wherein the delegates prescribed a specific mode of accomplishing the particular authority granted." *See* Edward C. Walterscheid, *To Promote the Progress of Science and Useful Arts: The Background and Origin of the Intellectual Property Clause of the United States Constitution*, 2 J. INTELL. PROP. L. 1, 33 (1994).

130. *See, e.g.*, Gordon, *supra* note 128, at 1610; Landes & Posner, *Copyright Law*, *supra* note 128, at 326; *see also* Richard P. Adelstein & Steven I. Perez, *The Competition of Technologies in Markets for Ideas: Copyright and Fair Use in Evolutionary Perspective*, 5 INT'L REV. L. & ECON. 209, 218 (1985). For a view that intellectual works do not share the distinguishing attributes of public goods, see Tom G. Palmer, *Intellectual Property: A Non-Posnerian Law and Economics Approach*, 12 HAMLINE L. REV. 261, 273-87 (1989).

131. *See, e.g.*, ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 46-48 (1st ed. 1988); RICHARD CORNES & TODD SANDLER, THE THEORY OF EXTERNALITIES, PUBLIC GOODS, AND CLUB GOODS 6-7 (1986); EDWIN MANSFIELD, PRINCIPLES OF MARCROECONOMICS 400-04 (6th ed. 1989).

132. *See* CORNES & SANDLER, *supra* note 131, at 160.

133. *See id.* It should be noted that the impossibility of exclusion is hardly ever absolute. As a matter of fact, when exclusion by contract is considered, very few goods, if any, display nonexcludable benefits in the strict sense of the term. Thus, it is more accurate to describe goods as displaying nonexcludable benefits when it is prohibitively costly to bar nonpayers from enjoying the good. *See* Patrick Croskery, *Institutional Utilitarianism and Intellectual Property*, 68 CHI.-KENT L. REV. 631, 632 (1993).

134. *See, e.g.*, FRITZ MACHLUP, AN ECONOMIC REVIEW OF THE PATENT SYSTEM, Study No. 15, 85th Cong., 2d Sess. (1958); Kenneth W. Dam, *The Economic Underpinnings of Patent Law*, 23 J. LEGAL STUD. 247 (1994); John S. McGee, *Patent Exploitation: Some*

tection, competitors of the original inventors and authors would be able to copy their inventions or expressive works without incurring the initial costs of authorship and research and development. The unauthorized reproduction of successful expressive works and inventions would drive the market price down to the point where original authors and inventors would not be able to recover their initial expenditures. Thus, without intellectual property protection, the private returns to authors and inventors would fall short of the social value of their works and inventions, and too few inventions and expressive works would be created.

Worse yet, many of the inventions that would not materialize absent intellectual property protection are likely to be of great social value. Socially important inventions are often dependent not only upon large expenditures but also upon a high level of risk. Inventors often do not know, ex ante, whether their research and development will yield the anticipated result. They do not know how the invention will fare commercially. Subsequent copiers, however, face no such uncertainty. Copiers may reproduce — risk-free — only inventions with proven commercial success.[135] The same holds true of expressive works. For expressive works to make it to market, authors must generally find a publisher who believes the work is commercially viable. But publishing is a risky enterprise. Publishing involves a hit-and-miss process in which a small number of successful works subsidize the cost of publishing all other works. For publishers, commercially successful works are used as a risk spreading mechanism, enabling the publisher to bring to market various works that may not cover the publication and distribution costs. However, copiers may zero in on the successful works. By reproducing only successful works, and selling them at a lower price, copiers would deprive publishers of the ability to spread risk, and thereby force them out of business.

Patent and copyright protection solve these problems. By creating and enforcing exclusive rights in expressive works and inventions, copyright and patent law prevent unauthorized copying and thereby guarantee adequate rewards to authors and inventors. The right to exclude permits authors and inventors to engage in voluntary transactions with users and set the price of these transactions. Yet, copyright and patent are unique property regimes since they restrict the duration of the property rights they confer. Copyright protection endures for the life of the author plus seventy years;[136] patent protection lasts

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Economic and Legal Problems, 9 J. L. & ECON. 135 (1966); Richard R. Nelson, *The Economics of Invention: A Survey of the Literature*, 32 J. BUS. 101 (1959); Dan Usher, *The Welfare Economics of Invention*, 31 ECONOMICA 279 (1964).

135. *See* Arrow, *supra* note 128, at 609, 614-15 (suggesting that the uncertainty as to the outcome of the inventive enterprise and the lack of market mechanism for risk shifting, will result in underinvestment in inventive activity).

136. 17 U.S.C. § 302(a) (1998). In the case of an anonymous work, a pseudonymous

twenty years from the date of filing an application.[137] Once the protection lapses, the formerly protected expressive works and inventions fall into the public domain, and anyone can use, reproduce, and market them freely. Both patent and copyright are, therefore, examples of mandatory zero order pliability rules. In both cases, the initial property rule protection changes into a zero order liability rule protection at the end of the statutorily prescribed term.

The use of zero order pliability rules in this context serves several important purposes. Patent and copyright law embody a fundamental tradeoff between ex ante and ex post efficiency, or, put differently, a tradeoff between production and access. Ex ante, patent and copyright law seek to spur adequate production of information goods; ex post, after the information goods have been produced, they seek to ensure the widest possible access to these goods. As the intellectual property clause clearly indicates, the purpose of establishing exclusive rights in intellectual goods is not to reward authors and inventors per se, but rather, to promote the production and dissemination of new information to the public.[138] The exclusivity conferred upon authors and inventors promotes the creation of new works and innovation, but it does so at the cost of curtailing the dissemination of the new information products to the public. Copyright and patent protection essentially grant monopoly power to authors and inventors, and thus, like all monopolies, generates a social "dead-weight" loss. The same exclusivity that induces creativity and investment also brings about supra-competitive prices, and leads to the exclusion of certain consumers who would have been willing to pay the competitive price.[139] Robert Cooter and Thomas Ulen have stated the basic dilemma presented by intellectual property is that "without a legal monopoly not enough information will be produced, but with legal monopoly too little of the information will be used."[140]

The zero order pliability rule mitigates the tension between the two social goals that intellectual property law seeks to promote. The initial property rule protection — represented by the limited monopoly — underwrites the production of information goods. The subsequent zero order pliability rule — represented by the eventual fall of expressive works and inventions into the public domain — guarantees

work, or a work made for hire, the copyright endures for the shorter of 95 years from the year of its first publication, or 120 years from the year of its creation. *Id.* § 302(c).

137. 35 U.S.C. § 154(a)(2) (1999).

138. *See* CRAIG JOYCE ET AL., COPYRIGHT LAW 1-70 (5th ed. 2000).

139. *See, e.g.*, Christian Koboldt, *Intellectual Property and Optimal Copyright Protection*, 19 J. CULT. ECON. 131 (1995) (arguing that even optimal copyright protection cannot lead to a first-best allocative efficiency solution).

140. COOTER & ULEN, *supra* note 131, at 135 (in latest edition, 3d ed. 2000, similar proposition, but not same sentence, appears on page 128).

the public unrestricted access to information goods once the limited monopoly expires. The limited duration is supposed to guarantee that the goal of copyright and patent protection is positive because in the final analysis the goal of copyright and patent is to make more and better intellectual products available to every one.[141]

The employment of a zero order pliability rule serves another policy goal: it reduces the cost of subsequent authorship and innovation. It is important to realize that the public domain is not merely the sphere of works whose protection has expired; it is also a source of the raw materials for future authorship and invention.[142] Works whose protection has expired ensure the continuity of authorship and innovation as they perpetually replenish the supply of expression and knowledge for future authors and inventors to draw on. Furthermore, public domain works reduce the cost of creation and research for future authors and inventors, and consequently, the total cost of producing intellectual works.

The zero order pliability rule protection is also attractive on distributional grounds. Those most likely to be harmed by the monopolies wrought by copyright and especially patent protection are the least well-off. Low-income consumers can ill-afford to pay the supra-competitive prices charged for patented products and copyrighted works during the property rule protection period. The shift to a zero order liability rule opens up the market to competition and enables low-income consumers to enjoy previously over-priced goods. Consider, for example, pharmaceutical drugs. The need to recoup their initial investment in R&D prompts brand name pharmaceutical companies to charge supra-competitive prices for patented drugs. The principal victims of the monopoly pricing are the indigent [143] and the

141. It bears emphasis that we do *not* suggest that the current protection term is optimal. Nor do we endorse it. Our analysis has nothing to say about the issue. We merely seek to explain the use of zero order pliability rules in intellectual property law.

142. *See, e.g.*, Jessica Litman, *The Public Domain*, 39 EMORY L.J. 965, 968 (1990).

143. For analysis of the effect of monopoly pricing on poor countries see, for example, Bernard Pecoul, *Fighting for Survival*, HARV. INT'L REV., Fall 2001, at 60 (noting that international trade agreements and patenting of medicines in other parts of the world influence the global marketing and pricing policies of research-based pharmaceutical companies, which in turn impacts the availability and affordability of medicines, including AIDS medicines, in the least-developed countries); Jonathan Mann et al., *South Africa's AIDS Agreement*, CNN INT'L: INSIGHT (Apr. 19, 2001), *available at* 2001 WL 14386528 (reporting that "[t]he commercial price of the triple therapy treatment to control HIV costs up to $10,000 [per] year per patient. That dwarfs the per capita income of every African country"; also reporting that in response to a "well-organized, high-profile campaign by pressure groups, the major drug companies have slashed their prices to the poorest countries. In Zambia, about 20 percent of the population is infected with HIV. [Recently], Glaxo Smith, Bristol Myers Squibb and Merck offered the Zambian government a deal so that anti-retroviral treatment would cost two dollars a day"); Anthony Birritteri, *Intellectual Property Protection a Must for Drug Firm Success*, N.J. BUS., June 2001, at 56 (reporting the April 2001 settlement between South Africa and thirty-nine drug manufacturers, allowing the country to broaden access to medicines for the estimated 4.7 million South Africans with AIDS in exchange for

elderly,[144] who most critically need the new drugs, but lack sufficient funds to afford them. Furthermore, even those who can purchase the drugs overpay for them since the drug companies, owing to their monopoly power appropriate most, if not all, of the consumer surplus. The price of new drugs falls dramatically, however, once the patent protection expires and generic drugs enter the market. Indeed, according to some reports, two years after their introduction to the market, the price of generic substitutes is on average 35-38% of the price of the relevant brand name drug, and the market share of the generics averages 45-59%.[145] It bears emphasis, though, that without the initial inducement provided by the patent protection, neither the original drugs nor the generic substitutes would be produced. Thus, the use of pliability rule protection in this context induces scientific progress, encourages competition among various drug manufacturers in the long term, and offers significant distributive advantages relative to standard property rule protection.

2. *Genericism in Trademark Law*

The genericism doctrine in trademark law is yet another example of a zero order pliability rule. Trademark law protects symbolic information signifying the source of goods and services.[146] Unlike patent and copyright protection that seek to spur creation of inventions and

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adherence to WTO patent laws).

144. John M.R. Bull, *Subsidized Drugs for Seniors Facing Deficit*, PITTSBURGH POST-GAZETTE, Nov. 28, 2001, at B8 (discussing the financial difficulties of Pennsylvania's program to subsidize prescription drugs for senior citizens, called Pharmaceutical Assistance Contract for the Elderly, or "PACE"); Howard Dean, *Deft Scalpel*, NAT'L J., Nov. 17, 2001, at 3617 (reviewing GEORGE D. LUNDBERG, SEVERED TRUST: WHY AMERICAN MEDICINE HASN'T BEEN FIXED (2000)) (describing the Congressional debate over prescription drug benefits for the elderly, and noting that "Democrats argue for a straight government-financed Medicare prescription drug benefit carrying a price tag of about $300 billion," while "Republicans press for a program in which the government provides vouchers so that patients can buy private insurance."); *Inside the Industry: Pfizer Announces New Pharmacy Discount Card for Seniors*, AM. HEALTH LINE, Jan. 16, 2002, *available at* Westlaw, 1/16/2002 APN-HE6 (noting the strength of "political pressure on the affordability of medicine for the elderly"); Morton Mintz, *Still Hard to Swallow*, WASH. POST, Feb. 11, 2001, at B1 (reporting that "[w]hat's new about prescription drug pricing is the attention that it's been getting in Congress, thanks partly to bus loads of elderly Americans going to Canada and Mexico to buy their medicines at sharply lower costs").

145. *See* Henry Grabowski & John Vernon, *Longer Patents for Increased Generic Competition in the U.S.: The Waxman-Hatch Act After One Decade*, 10 PHARMACOECONOMICS 110 (Supp. 2, 1996); William Haddad, *Testing Times for the U.S. Generic Industry*, SCRIP MAG., May 1992, at 26, 27; U.S. INT'L TRADE COMM'N NO. 332-302, GLOBAL COMPETITIVENESS OF U.S. ADVANCED TECHNOLOGY MFG. INDUS.: PHARMACEUTICALS 13-16 (Sept. 1991).

146. 15 U.S.C. § 1127 (1988 & Supp. IV 1992); *see also* Ralph S. Brown Jr., *Advertising and the Public Interest: Legal Protection of Trade Symbols*, 57 YALE L.J. 1165, 1185 (1948) ("The informative job of trade symbols is conventionally considered to be identification of source; and it is this capacity which courts traditionally have protected.").

expressive works, trademark protection purports to enhance competition among providers of goods and services.[147] Trademarks promote competition in two related ways. Trademarks — by themselves and in combination with other forms of advertising — convey information about the quality of products and services, reducing consumers' search costs.[148] This informational function of trademarks is especially valuable in the context of experience goods, where consumers cannot discern the attributes of products before purchasing them,[149] and must rely on prior experience in deciding among competing brands. Trademarks allow consumers to associate product and service attributes with certain firms and base their consumption decisions on this association.[150] For this reason, on the supply side, trademark protection spurs firms to maintain and improve the quality of their products and services.[151] The availability of trademark protection protects firms from free-riding by competitors, enabling them to reap the fruits of their investment in superior products and services. Furthermore, trademark protection provides firms with an incentive to establish brand recognition and loyalty, by "educating" consumers about the virtues of their products. Thus, trademarks constitute an important channel of communication between firms and consumers, with the attendant twin effects of motivating the former to improve the quality of their products and enabling the latter to differentiate among various products on the market.

147. *See* S. REP. NO. 79-1331, at 3 (1946); H.R. REP. NO. 79-219, at 2 (1945) ("Trademarks defeat monopoly by stimulating competition.").

148. *See, e.g.*, Nicholas Economides, *Trademarks*, *in* THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 601, 602-03 (Peter Newman ed., 1998) (noting that trademarks "facilitate and enhance consumer decisions"); William P. Kratzke, *Normative Economic Analysis of Trademark Law*, 21 MEMPHIS ST. U. L. REV. 199, 214-17 (1991).

149. The term "experience goods" was coined by Philip Nelson, *Information and Consumer Behavior*, 78 J. POLITICAL ECON. 311 (1970); Philip Nelson, *Advertising as Information*, 82 J. POLITICAL ECON. 729 (1974). A search good is one whose important attributes may be ascertained before purchase or use. Besides search and experience goods, a third category, usually applied to services, is "credence." A credence quality cannot be evaluated by direct observation or use. For example, a consumer may purchase automobile repair services and never discover, before or after the purchase, whether the repair was necessary. *See* Michael Darby & Edi Karni, *Free Competition and the Optimal Amount of Fraud*, 16 J.L. & ECON. 67, 68-69 (1973).

150. *See* Mark A. Lemley, *The Modern Lanham Act and the Death of Common Sense*, 108 YALE L.J. 1687, 1690 (1999) (noting that advertising communicates the "experience" characteristics of goods directly to consumers, while "trademarks ensure that consumers associate the characteristics with the right product" when making purchasing decisions).

151. William M. Landes & Richard Posner, *Trademark Law: An Economic Perspective*, 30 J. L. & ECON. 265, 269 (1987) [hereinafter Landes & Posner, *Trademark Law*]. Landes and Posner note that trademarks have a self-enforcing quality since they denote "consistent quality, and a firm has an incentive to develop a trademark only if it is able to maintain consistent quality." *Id.* at 270.

As a general rule, any expressive term or symbol may be used as a trademark as long as it is distinctive and nondeceptive.[152] However, generic terms may not be used as trademarks.[153] The doctrine of genericism has two temporal dimensions: a prospective dimension and a retrospective dimension. Prospectively, the genericism doctrine bars the appropriation of generic terms such as "WINE" or "COMPUTER" as trademarks. Courts have applied the doctrine prospectively to deny trademark protection to terms such as, "INJURY,"[154] "386,"[155] "HONEY BROWN,"[156] "YOU HAVE MAIL," and "BUDDY LIST."[157] The genericism doctrine may also be

152. 15 U.S.C. § 1052(e)(1) (1988); *see also* Two Pesos, Inc. v. Taco Cabana, Inc., 505 U.S. 763, 769 (1992) ("The general rule regarding distinctiveness is clear: an identifying mark is distinctive and capable of being protected if it *either* (1) is inherently distinctive *or* (2) has acquired distinctiveness through secondary meaning."); Robert C. Denicola, *Freedom to Copy*, 108 YALE L.J. 1661, 1673 (1999) ("For word marks, the use of broad categories determinative of inherent distinctiveness avoids the administrative costs of a case-by-case balancing of the informational advantages and competitive disadvantages of protection. It also affords a degree of predictability, valued both in decisions to adopt and decisions to imitate a putative trademark.").

Traditionally, trademark protection sprang into existence upon the use of a mark in trade. In 1988, the Lanham Act was amended to create a federal registry of trademarks, *see* Trademark Law Revision Act of 1988, Pub. L. No. 100-667, 102 Stat. 3935, and now businesses can register marks even before using them in trade upon a showing of a bona fide intent to use them in the future. *See* Lanham Act § 1(b), (codified at 15 U.S.C. § 1051(b) (1994)); J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARK AND UNFAIR COMPETITION § 5 (4th ed. 2001) (noting that "[b]y far the most sweeping change [effected by the 1988 amendments] was the inclusion of an 'intent-to-use' basis for applications," which granted "United States firm[s] . . . the option to apply for federal registration of a mark based on a bona fide intent to use the mark in commerce"). Descriptive marks, such as "Burger," *see In re* Nat'l Presto Indus., Inc., 197 U.S.P.Q. 188 (T.T.A.B. 1977) (holding "Burger" for cooking utensils descriptive of purpose of goods), "PM," *see* Bristol-Myers Squibb Co. v. McNeil-P.P.C., Inc., 973 F.2d 1033 (2d. Cir. 1992) (holding term "PM" descriptive of an analgesic/sleep aid designed for night-time use), and "KING SIZE," *see* King-Size, Inc. v. Frank's King Size Clothes, Inc., 547 F. Supp. 1138 (S.D. Tex. 1982) (holding the term "KING SIZE" descriptive of men's clothes), may only be registered if they have acquired a secondary meaning. *See Two Pesos*, 505 U.S. at 769 (explaining that "descriptive marks may acquire the distinctiveness which will allow them to be protected under the [Lanham] Act . . . . This acquired distinctiveness is generally called 'secondary meaning' ").

153. Originally, genericism was a court-made doctrine. *See, e.g.*, Canal Co. v. Clark, 80 U.S. (13 Wall.) 311, 323 (1871); RESTATEMENT OF TORTS § 735 (1938). Today, the doctrine is codified in the Lanham Act. *See* 15 U.S.C. § 1064(3) (1994). A generic term is one that denotes "the name of a kind of goods . . . [u]nlike a trademark, which identifies the source of a product, a generic term merely identifies the genus of which the particular product is a species." Liquid Controls Corp. v. Liquid Control Corp., 802 F.2d 934, 936 (7th Cir. 1986).

154. Dranoff-Perlstein Assocs. v. Sklar, 967 F.2d 852 (3d Cir. 1992) (stating that the "injury" portion of the mark "INJURY-1," a telephone number mnemonic, is generic and therefore unprotected as a trademark).

155. Intel Corp. v. Advanced Micro Devices, Inc., 756 F. Supp. 1292 (N.D. Cal. 1991) (ruling that Intel's mark "386" is generic and thus not protected).

156. Genesee Brewing Co. Inc. v. Stroh Brewing Co., 124 F. 3d 137 (2d Cir. 1997) (concluding that the term "HONEY BROWN" is generic when applied to ale beer).

157. America Online, Inc. v. AT&T Corp., 64 F. Supp. 2d 549 (E.D. Va. 1999) (holding that service marks "YOU HAVE MAIL" and "BUDDY LIST" are generic rather than suggestive).

applied retrospectively to invalidate trademarks that were initially distinctive, but through overuse became generic. Examples of marks that initially received protection but were later nullified on genericism grounds include, among others, "aspirin,"[158] "cola,"[159] "thermos,"[160] "corn-flakes,"[161] yo-yo,"[162] "trampoline,"[163] "escalator,"[164] and "linoleum."[165] The retrospective application of the genericism doctrine effectively transforms the initial property rule protection accorded to the trademark owner into a zero order liability rule protection. Yet, the lapse of property rule protection is not automatic after the passage of time, as in the case of property and patent. Rather, the property rule stage of the zero order pliability rule is brought to a close by an event whose timing — and even existence — is uncertain: the transformation of the meaning of a term to a generic one.

The application of a zero order pliability rule in this context has several desirable efficiency effects. Although trademark protection generally promotes efficiency by fostering competition, trademarks also have a potential dark side. Excessively strong trademarks may harm competition since they constitute barriers to entry.[166] In such cases, the social cost of protecting trademarks may outweigh the social benefit. Consider, for instance, the term "cola." If the term were a protected trademark of the Coca-Cola company, competitors who produced similarly tasting beverages could not use the term "cola" to describe their products. Under this regime, competitors' marketing efforts would be stifled, and consumers would have to pay supra-competitive prices for the trademarked product.[167] The genericism

158. Bayer Co. v. United Drug Co., 272 F. 505 (S.D.N.Y. 1921).

159. Coca-Cola Co. v. Standard Bottling Co., 138 F.2d 788 (10th Cir. 1943); Dixi-Cola Labs., Inc. v. Coca-Cola Co., 117 F.2d 352 (4th Cir. 1941).

160. King-Seeley Thermos Co. v. Aladdin Indus., 321 F.2d 577 (2d Cir. 1963).

161. *See* PAUL GOLDSTEIN, COPYRIGHT, PATENT, TRADEMARK AND RELATED STATE DOCTRINES 243 (4th ed. 1997) (reproducing an ad by Xerox entitled, "Once a Trademark not always a trademark," that lists examples of trademarks that have become generic.).

162. *Id.*

163. *Id.*

164. *Id.*

165. *Id.*

166. In the 1930s economists believed that all forms of trademark protection were anticompetitive. The most notable champion of this view was Edward Chamberlin, who argued that the combination of trademark protection and persuasive advertising form barriers to entry. *See* EDWARD H. CHAMBERLIN, THE THEORY OF MONOPOLISTIC COMPETITION (1st ed. 1933). For an excellent review of the debate as to the effect of trademark protection on competition, see Daniel M. McClure, *The Lanham Act After Fifty Years: Trademarks and Competition: The Recent History*, LAW & CONTEMP. PROBS., Spring 1996, at 13.

167. *See* John F. Coverdale, Comment, *Trademarks and Generic Words: An Effect on Competition Test*, 51 U. CHI. L. REV. 868, 870-71 (1984) (noting that when there is only one word to describe a product, trademark protection would equate to monopoly power).

doctrine avoids this undesirable result. It empowers courts to terminate, in extreme cases, the property rule protection of marks whose value to third parties — i.e., competitors and consumers — exceeds their value to their original appropriators. Essentially, the genericism doctrine is an ex post mechanism for reallocating generic terms to a higher value user: the public, consumers, and competitors alike.[168] Hence, the genericism doctrine provides a nonmarket mechanism for improving allocative efficiency.

The ex ante effects of the genericism doctrine are even more interesting. Ex ante, the genericism doctrine gives rise to two procompetitive effects: self-regulation and informative advertising. The key to both effects lies in the use of a conditional zero order pliability rule to protect trademarks. Trademarks do not become generic by mishap; the decisions of trademark owners determine the marks' fates. Trademark owners determine the exposure of their marks as well as which information and image to convey to consumers. Marks become generic either because there is insufficient competition in the relevant product or service market, or because trademark owners promote their brand names too aggressively. The genericism doctrine curbs the incentive of firms to engage in these types of anticompetitive behavior. To avoid the risk of losing protection, firms must ensure that the public does not associate the mark with a particular product, rather than a particular producer. The safest way to accomplish this is to ensure some degree of competition in the product, or service markets, in which dominant mark owners operate. The risk of genericism causes firms to self-regulate by introducing a winner's curse to trademarked markets. Over-aggressiveness toward existing competitors may result in the firm's mark — an asset it has labored hard to promote — becoming available to all competitors, both existing and future. Exercising restraint toward smaller competitors, on the other hand, goes a long way towards securing the longevity of the mark. Thus, the use of conditional pliability rule protection in this context encourages competition in product and service markets.

The doctrine of genericism also produces desirable information effects. In a classic article, Ralph Brown noted the symbiotic relationship between trademarks and advertising.[169] Brown argued that the scope of protection afforded to trademarks must be calibrated to the degree to which advertising promotes the public interest. Brown main-

168. As for the prospective dimension of genericism, Landes and Posner have suggested that by barring existing generic terms from becoming trademarks, trademark law provides an incentive to "enrich the language, by creating words or phrases that people value for their intrinsic pleasingness as well as their information value." They explicitly recognize, however, that this benefit is very "small." *See* Landes & Posner, *Trademark Law*, *supra* note 151, at 271.

169. *See* Brown, *supra* note 146; *see also* Symposium, *Ralph Sharp Brown, Intellectual Property and the Public Interest*, 108 YALE L.J. 1611 (1999).

tained that trademarks' chief virtue lies in their ability to promote competition through advertising. By prompting merchants to advertise, trademark protection enhances the information available to potential consumers, thus improving consumption decisions.[170] Influenced by the economists of his time, Brown distinguished between "informative advertising" and "persuasive advertising," postulating that the former was beneficial and the latter harmful.[171] Subsequent economic work called into question Brown's characterization of persuasive advertising, noting that even "persuasive" advertising may also produce various efficiency enhancing effects. Philip Nelson, for instance, pointed out that much of what Brown considered persuasive advertising serves an important signaling function, which improves the information available to consumers. Since businesses receive greater returns on advertising that produces repeat sales, the level of advertising for a product provides a useful indication of consumer satisfaction.[172] Irrespective of the ultimate desirability of persuasive advertising, Brown's basic insight about the direct effect of trademark protection on the market for commercial information remains valid.

D. *Simultaneous Pliability Rules*

Intellectual property also provides an example of a different kind of pliability rule: the simultaneous pliability rule. As usual, simultaneous pliability rules involve at least two different stages of property or liability rule protection, and the fulfillment of a predetermined condition triggers a shift from one type of protection to the other. However, unlike the other pliability rules we have discussed so far, the triggering condition does not take place at a discrete moment in time and the types of protection are not sequential chronologically. Rather, a single asset is simultaneously protected by different kinds of rules, depending on the kind of use. Vis-à-vis some uses, the entitlement holder enjoys the baseline property rule protection. However, certain kinds of uses trigger another kind of protection, such as liability rule protection.

Simultaneous pliability rules were clearly recognized by Calabresi and Melamed, albeit without being labeled as such. In fact, Calabresi

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170. Brown, *supra* note 146, at 1186.

171. *Id.* at 1183 ("With qualifications that need not be repeated, persuasive advertising is, for the community as a whole, just a luxurious exercise in talking ourselves into spending our incomes."). Brown's view of persuasive advertising was heavily influenced by the work of the economist Edward Chamberlin, who argued that the combination of trademark protection and persuasive advertising form barriers to entry. *See* CHAMBERLIN, *supra* note 166.

172. *See* Philip J. Nelson, *The Economic Value of Advertising*, *in* ADVERTISING AND SOCIETY 43 (Yale Brozen ed., 1974). Other economists went even further doubting the ability of advertising to generate demand. *See, e.g.*, JULIAN L. SIMON, ISSUES IN THE ECONOMICS OF ADVERTISING 205-06 (1970).

and Melamed noted that "most entitlements to most goods are mixed," thereby admitting that protection of entitlements can hardly ever be described as falling under one of the pure rule types.[173] Our modest contribution here is to integrate Calabresi and Melamed's insight into our broader framework of pliability rules. For this reason, we limit our discussion of simultaneous pliability rules to two examples.

We emphasize that simultaneous pliability rules differ from other pliability rules we discuss in that they lack a dynamic element over time. As our examples illustrate, in simultaneous pliability rules, the type of protection depends on the type of use or the type of user, and does not change over time.

1. *Fair Use*

We illustrate simultaneous pliability rules with the example of the fair use doctrine. Ordinarily, as we noted previously, copyrighted works enjoy property rule protection for the life of the author plus seventy years, followed by a zero order liability regime.[174] However, even during the period of property rule protection, copyright law recognizes a fair use privilege.[175] An affirmative defense against copyright liability, the fair use privilege empowers courts to excuse unauthorized appropriation of a copyrighted work when doing so advances the pub-

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173. Calabresi & Melamed, *supra* note 5, at 1093.

174. *See supra* Section II.C.1. The doctrine of experimental use is yet another example of a simultaneous pliability rule. Courts have long exempted, in principle, purely " 'experimental use[s]' of a patented invention, with no commercial purpose," from infringement liability. *See* Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1019 (1989). This implies that patent holders do not always operate under property rule protection; as against experimental users, patent owners entitlement is protected by a zero order pliability rule. Based on the experimental use doctrine, § 271(e) of the Patent Act, which was added in 1984 as part of the Waxman-Hatch Act, now permits generic drug manufacturers to make, use, or sell "a patented invention . . . solely for uses reasonably related to the development and submission of information under a Federal law which regulates the manufacture, use, or sale of drugs." 35 U.S.C. § 271(3) (2001). The impact of the section was to dramatically expedite the introduction of generic drugs to the market upon the expiration of the patent, and thereby cabin the discretionary effects of patent grants. *Cf.* Gideon Parchomovsky & Peter Siegelman, *Towards an Integrated Theory of Intellectual Property*, 88 VA. L. REV. (forthcoming 2002) (discussing alternative measures for reducing the distortionary effects of patents).

175. 17 U.S.C. § 107 (1994). Section 107 begins with a nonexhaustive list of illustrative uses — such as comment, criticism, scholarship, research, news reporting, and teaching — that may qualify as fair, and then enumerates four factors a court should weigh in deciding whether a particular use is fair. The factors listed are: (1) the purpose of the use, including its commercial or noncommercial nature; (2) the nature of the protected work of the plaintiff; (3) the amount and importance of the parts that were reproduced; (4) the impact of the use on the potential market for the copyrighted work. *Id.*

Currently, patent law does not recognize a fair use defense. For a proposal to change this existing state of affairs by introducing a fair use defense into patent law, see Maureen A. O'Rourke, *Toward a Doctrine of Fair Use in Patent Law*, 100 COLUM. L. REV. 1177 (2000).

lic benefit without substantially impairing the economic value of the original work.[176] Thus, with respect to certain uses, the copyrighted work is placed under a zero order liability regime, rather than the ordinary property rule regime.

The "fair use" privilege serves several goals. First, it provides a safety valve that may be used to deny copyright protection when the perils of monopoly power loom large and the need for additional incentive to create is slight.[177] In this capacity, the "fair use" doctrine constitutes an effective vehicle for mitigating any anticompetitive effects copyright protection may cause. Second, the doctrine furnishes an effective means for overcoming market failures associated with high transaction costs or strategic behavior of creators.[178] In many transactional settings that involve intellectual goods, the cost of voluntary exchange is high and the benefits to both parties inconsequential. In these situations, a finding of fair use is likely to generate a net benefit to one of the parties without significantly harming the other.[179] Furthermore, the fair use privilege reduces the cost of creating subsequent works. In many cases, the party standing to benefit from a fair use finding is herself an author who borrows preexisting material to create her own work.

The incorporation of a fair use defense turns copyright law into a unique example of pliability rule protection. Essentially, the fair use privilege entitles third parties to take the intellectual property of others without paying any compensation to the property owners.[180] Due

176. *See* Gordon, *supra* note 128, at 1601.

177. *See, e.g.*, Sterk, *supra* note 128, at 1211. The so-called "Zapruder Film" of the assassination of John F. Kennedy is a case in point.

178. *See, e.g.*, Gordon, *supra* note 128, at 1613; Landes & Posner, *Copyright Law*, *supra* note 128, at 357-58; Sterk, *supra* note 128, at 1211.

179. For instance, a student who wishes to quote a phrase from a copyrighted book is likely to incur a significant cost should she choose to secure permission from the copyright owner. At the same time, quoting without permission would inflict a negligible harm on the copyright owner.

180. The incomplete privilege of private necessity available in cases of intentional tort offers an analogy to fair use. Private necessity permits a defendant to commit an intentional tort to another's rights in property to protect a higher-value interest, either in property, bodily security, or life. *See* RESTATEMENT (SECOND) OF TORTS §§ 262, 263 & cmt. d (1965). Where the higher-value interest belongs to a large class — for example, where the city must be saved from a fire — the privilege is one of public necessity and the defendant is relieved of any duty to compensate the plaintiff. *See id.* at § 262 & cmt. d. Where the higher value interest belongs to a small group or an individual, however, the privilege is one of private necessity and the defendant must compensate the plaintiff. *See id.* at § 263(2) & cmt. e. Because compensation is owing in the latter case, the privilege is said to be "incomplete."

In the well-known case of *Vincent v. Lake Erie Transportation Co.*, 124 N.W. 221 (Minn. 1910), a shipowner's ship damaged a dock when the owner attempted to moor the ship during a storm. The court invoked the incomplete privilege of private necessity to hold the shipowner liable. In pliability terms, the doctrine of private necessity transformed the dockowner's traditional property rule protection into a simultaneous pliability rule. For most uses, the dockowner retained property rule protection; but under extraordinary circumstances, the shipowner was permitted to take the dockowner's property for a sum equal to

to this unique doctrine, copyright protection is at once a zero order pliability rule — since the property right it bestows is limited in time — and a simultaneous pliability rule — since the protection copyright accords admits of nonconsensual takings.

2. *Privileged Takers*

Another instance of simultaneous pliability protection can be found in the case of privileged takers, in which property rule protection is suspended with respect to some nonconsensual users. These privileged users need only pay for their use under liability rules while property rule protection remains in force against the rest of the world.

Such a regime is illustrated by the case of *Head v. Amoskeag Manufacturing Co.*[181] There, the Supreme Court upheld a statute that permitted mill owners to dam waters, depriving riparian owners of their property, if two conditions were satisfied: first, the taking must be for a public benefit; and, second, the mill owners had to pay compensation at 150% of market value.

In pliability terms, the Supreme Court ruling established a simultaneous pliability rule regime. While the riparian owners enjoyed full property rule protection vis-à-vis all other trespassers, their right to exclude mill operators was protected by a liability rule. It is noteworthy, though, that mill owners had to show that the use effecting the taking benefited the public. The employment of a simultaneous pliability rule enabled the court to balance the right to private property against the interest of the mill owners, and the broader public in putting the land to its highest value use.

The simultaneous pliability rule described in *Head* differs from that seen in fair use in an important respect. Whereas fair use employs a zero order liability rule, the simultaneous pliability rule described in *Head* required 150% compensation for riparian owners not covered by property rule protection. The reason for this gap in compensation schemes can be discerned in the difference between the two types of uses permitted by the pliability rules. Users of copyrighted materials under the fair use provisions do not take exclusive possession of the entitlement. Although fair users utilize the copyrighted materials, the entitlement holder may continue to engage in commercial transactions regarding the copyrighted materials with other users. Fair use is not exclusive of the entitlement holder. Furthermore, fair users are only

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the judicially-determined damages. Importantly, private necessity is distinguishable from fair use in that necessity requires compensation while a fair user need not compensate the copyright holder. Therefore, building on the typology we have developed, fair use may be termed a "zero simultaneous pliability rule" while private necessity may be called a "positive simultaneous pliability rule."

181. 113 U.S. 9 (1885).

allowed to take a small part of the entitlement. On the other hand, in the *Head* case, the use permitted by the pliability rule is exclusive. Once a mill owner dams water, the flooded or water-deprived riparian land is altered indefinitely — for as long as the dam is in operation. The riparian owner cannot continue to transact with other potential users of the land as she did prior to the damming. The condition of the land has been altered, and the pliability rule takes this into account in its compensation scheme.

E. *Loperty Rules*

Another type of pliability rule is the loperty rule. By contrast with the pliability rules we have discussed so far, loperty rules begin with liability rule protection, which, upon the occurrence of a triggering event, is transformed into property rule protection. The goal of loperty protection is generally to incentivize the entitlement holder to take some action in order to earn property rule protection. Consider the famous "fencing out" rule that governed ranging property in the American West in the nineteenth century. The fencing out regime reversed the common law rule that prevented cattle from grazing on a neighbor's land. Instead, the fencing out rule allowed cattle to roam freely on others' property until the property was fenced. Thus, landowners who wished to enjoy traditional property rule protection over their ranches bore the burden of fencing out neighbors' cattle.[182]

Analyzed in pliability terms, the fencing out regime sets a zero order liability rule as the baseline for using the land of others. Absent a fence, land was presumably part of an open access regime, and cattle grazers could use the land without paying compensation. However, any landholder could alter the baseline protection by erecting a fence. By erecting the fence, the landholder would trigger a change in protection from zero order liability to property. Under the new property regime, the landowner could exclude cattle grazers by means of injunction, and could collect damages in the event of a trespass.

By imposing the burden of exclusion on the landholder, the fencing out rule achieved two important goals. First, given the presumed mutual interest of all cattle ranchers in allowing cattle to roam freely, the fencing out rule eliminated the burden of costly negotiations among ranchers. Second, the rule created a mechanism for separating those owners for whom property rule protection was efficient from those whose land was better served by an open access regime. Specifi-

182. ROBERT C. ELLICKSON, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES 76 (1991). Fencing out is still the law in Colorado. COLO. REV. STAT. ANN. § 35-46-102(1) (Bradford 2001). *See generally* Terence J. Centner, *Reforming Outdated Fence Law Provisions: Good Fences Make Good Neighbors Only if They are Fair*, 12 J. ENVTL. L. & LITIG. 267 (1997).

cally, it induced cattle ranchers to assess and communicate to others the value of exclusive use of their land.

Additionally, a loperty rule may also be used to incentivize potential takers of the entitlement. Consider again the case of *Boomer*.[183] The Court of Appeals of New York decided to protect homeowners affected by a nuisance by means of a liability rule. Atlantic Cement was permitted to continue infringing upon homeowners' enjoyment of their property and, in exchange, pay the damage amount assessed by the court. The court was motivated in part by the concern that requiring Atlantic Cement to develop superior abatement technologies on such short notice would be inequitable. Thus, the court determined that the homeowners should permanently lose their full property rule protection. A judicially crafted loperty rule could have better balanced the equities. Under such a loperty rule, Atlantic Cement would have enjoyed the right to pollute for payment only for a limited time, say five years. Thereafter, property rule protection over the homes would be reinstated. This result achieves a better distribution of the burden of industrial uses. On the one hand, homeowners would not need to forfeit permanently their property rights. On the other hand, large industrial employers, such as Atlantic Cement, would be given several years to develop the pollution control measures necessary for their businesses to continue without unduly harming neighboring homeowners.

F. *Title Shifting Pliability Rules*

Having discussed pliability rules that involve transitions from property rules to liability rules and vice versa, we now turn to title shifting pliability rules, under which a preset condition triggers the transfer of property rule protection from one entitlement holder to another.[184] The initial holder receives no compensation. The recipient of the entitlement in the second stage, however, enjoys full property rule protection. Thus, as we discuss in our examples below, the importance of title shifting pliability rules lies in their being a nonconsensual mechanism of transferring property interests.[185]

183. 257 N.E.2d 870 (1970).

184. As we note in our examples in this Section, in stage 2, there may be more than one entitlement holder.

185. As we explain later in this Section, in some cases, title shifting pliability rules display several advantages over the other major nonconsensual transfer mechanism — liability rule protection. These advantages stem from the fact that the subsequent entitlement holder enjoys property rule protection under title shifting pliability rules.

1. *Adverse Possession*

Adverse possession provides a stark example of title shifting pliability protection. As Dwyer and Menell noted, adverse possession is "[p]erhaps the most startling means of acquiring property [rights]."[186] Under this doctrine, a stranger can gain title to another's land by occupying it — "but only if the occupation is indeed wrongful."[187] To succeed on an adverse possession claim, the occupier must show that her occupation is hostile to the owner's interest, actual, open and notorious, exclusive, and continuous for the statutorily mandated period of time.[188] The successful adverse possessor is not only immune against a suit for ejection; she acquires the full panoply of rights associated with ownership.[189] Effectively, therefore, adverse possession is a legal mechanism that sanctions private takings of property. Under our proposed typology, adverse possession is an example of a title shifting pliability rule. Adverse possession eliminates the legal protection accorded to the original owner from a property rule, and instead invests someone else with full property rule protection over the entitlement. As in the case of essential facilities, the reduction in

186. JOHN P. DWYER & PETER S. MENELL, PROPERTY LAW AND POLICY: A COMPARATIVE INSTITUTIONAL PERSPECTIVE 76 (1998). In a similar vein, Stoebuck and Whitman call adverse possession "a strange and wonderful system." WILLIAM B. STOEBUCK & DALE A. WHITMAN, THE LAW OF PROPERTY 853 (3d ed. 2000); *see also* Henry W. Ballantine, *Title by Adverse Possession*, 32 HARV. L. REV. 135, 135 (1918) ("[T]he doctrine [of adverse possession] apparently affords an anomalous instance of maturing a wrong into a right contrary to one of the most fundamental axioms of the law. 'For true it is, that neither fraud nor might/Can make a title where there wanteth right.' " (quoting Altham's case, 8 Coke Rep. 153, 77 Engl. reprint, 707)).

187. STOEBUCK & WHITMAN, *supra* note 186, at 853.

188. *See, e.g.*, DWYER & MENELL, *supra* note 186, at 77-82; *see also* Van Valkenburgh v. Lutz, 106 N.E.2d 28, 29 (N.Y. 1952) (noting that "[t]o acquire title to real property by adverse possession not founded upon a written instrument, it must be shown by clear and convincing proof that for at least fifteen years (formerly twenty years) there was an 'actual' occupation under a claim of title . . . ."); Howard v. Kunto, 477 P.2d 210, 213 (Wash. Ct. App. 1970) (restating "the oft-quoted rule that: '[T]o constitute adverse possession, there must be actual possession which is uninterrupted, open and notorious, hostile and exclusive, and under a claim of right made in good faith for the statutory period' "). *But see* O'Keefe v. Snyder, 416 A.2d 862, 870 (N.J. 1980) (noting that "[t]o establish title by adverse possession to chattels, the rule of law has been that the possession must be hostile, actual, visible, exclusive, and continuous"); Chaplin v. Sanders, 676 P.2d 431, 436 (Wash. 1984) (overruling *Howard v. Kunto* to the extent that the case suggested a good-faith requirement for adverse possession, and specifically noting that an adverse possessor's "subjective belief regarding his true interest in the land and his intent to dispossess or not dispossess another is irrelevant"). However, the *O'Keefe* court also noted that in the case of works of art, the "introduction of equitable considerations through the discovery rule," *id.* at 872, which "provides that, in an appropriate case, a cause of action will not accrue until the injured party discovers, or by exercise of reasonable diligence should have discovered, facts which form the basis of a cause of action," *id.* at 869, "provides a more satisfactory response than the doctrine of adverse possession." *Id.* at 872.

189. *See, e.g.*, STOEBUCK & WHITMAN, *supra* note 186, at 853 ("Title gained [through adverse possession] is usually in fee simple absolute.").

protection depends on the behavior of the property owner. The shift of property rule protection is not mandatory, but rather, it is triggered by the failure of the owner to assert possession over the property.[190]

In the context of adverse possession, pliability rule protection is intended to deter certain types of inaction on the part of property owners. Under the analysis of advocates of adverse possession, the use of a title shifting pliability rule in the case of adverse possession promotes both efficiency and fairness.[191] Traditionally, proponents of adverse possession have asserted that the risk of losing the property rule protection enhances efficient use of resources.[192] Adverse possession, on this theory, generates two complementary incentive effects: a negative and a positive. The negative effect targets property owners; the positive applies to potential occupiers. By penalizing negligent and dormant owners who "sleep on their rights,"[193] adverse possession induces property owners to handle their property in a socially responsible manner. By rewarding productive occupation of land, the doctrine is thought to encourage search and use of neglected property. The combination of penalty and reward effectively ensures that property is put

190. *See, e.g.*, Jeffery Evans Stake, *The Uneasy Case for Adverse Possession*, 89 GEO. L.J. 2419, 2443 (2001) (suggesting that "adverse possession helps deal with the problem of missing owners");*see also* Monica Kivel Kalo & Joseph J. Kalo, *The Battle to Preserve North Carolina's Estuarine Marshes: The 1985 Legislation, Private Claims to Estuarine Marshes, Denial of Permits to Fill, and the Public Trust*, 64 N.C. L. REV. 565, 606 (1986) (noting that "landowners need not receive actual notice that their rights are in jeopardy to trigger the running of the statute of limitations . . . [where] possession . . . [is] actual, exclusive, open and notorious, and continuous and uninterrupted").

191. *See* Thomas J. Miceli & C.F. Sirmans, *An Economic Theory of Adverse Possession*, 15 INT'L REV. L. & ECON. 161, 161 (1995) (enumerating justifications for the "curious doctrine," including (1) preserving evidence, which decays over time thereby increasing the difficulty of trying cases; (2) penalizing owners for sitting on their rights or using their land inefficiently; (3) reducing transaction costs and thereby facilitating market exchange through the elimination of old claims to property; (4) supporting the reliance interest that develops among occupiers).

192. *See* Richard A. Posner, *Savigny, Holmes, and the Law and Economics of Possession*, 86 VA. L. REV. 535, 559 (2000) ("The economic rationale of adverse possession, conceived as a method of shifting ownership without benefit of negotiation or a paper transfer, can be made perspicuous by asking when property should be deemed abandoned, that is, returned to the common pool of unowned resources and so made available for appropriation through seizure by someone else. The economist's answer is that this should happen when it's likely to promote the efficient use of valuable resources."). Sprankling, however, contends that the doctrine may spur overexploitation of wild lands, and thus proposes that wild land should be exempt from the doctrine. *See* John G. Sprankling, *An Environmental Critique of Adverse Possession*, 79 CORNELL L. REV. 816, 840 (1994) (noting that "[u]nder the development model, adverse possession functions to facilitate the economic exploitation of land").

193. *See* Stake, *supra* note 190, at 2434-35 ("According to [the] 'sleeping' theory, adverse possession acts as a civil penalty for wrongdoers. The wrongdoers are those who sleep on their rights, and their penalty is to lose those rights."); *see also* Ballantine, *supra* note 186, at 135 (" 'English lawyers regard not the merit of the possessor, but the demerit of the one out of possession.' " (quoting JAMES BARR AMES, LECTURES ON LEGAL HISTORY 197 (1913))).

to socially desirable uses either by the title-holder or by the adverse possessor.[194] Adverse possession thus constitutes an informal, non-market mechanism for improving allocation of resources.

Second, the use of a title shifting pliability rule in this context has desirable information forcing effects. Carol Rose likened property to "a kind of speech, with the audience composed of all others who might be interested in claiming the object in question."[195] The group of potential claimants is not limited to adverse possessors. It also includes buyers, lessees, and creditors, who all need to know the identity of the rightful owner in order to transact. Thus, clear titles have two desirable effects: they facilitate trade and reduce conflicts. From an informational perspective, therefore, adverse possession serves the dual functions of "quieting titles" and facilitating transactions.[196] On this view, adverse possession is not intended to reward industriousness and deter slacking, but rather, to prompt property owners to communicate clearly with the rest of the world.[197] The use of a title shifting pliability rule is responsible for this result. By rewarding clear communication, and penalizing vagueness, the title shifting pliability rule preserves the informational integrity of the property system, thus leading to more transacting and less conflict. Obviously, the importance of this function varies depending on the effectiveness of the jurisdiction's recording system.

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194. *See, e.g,* ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 156 (1st ed. 1988) (noting that adverse possession "tends to prevent valuable resources from being left idle for long periods of time by specifying procedures for a productive user to take title from an unproductive user"; the rule thereby "tends to move property to higher-value uses, as required for efficiency, by redistributing it to aggressive owners"). Following Holmes's suggestion that a person becomes gradually more attached to land he occupies, *see* Oliver Wendell Holmes, *The Path of the Law*, 10 HARV. L. REV. 457, 477 (1897), Richard A. Posner has argued that adverse possession is in large part about diminishing marginal utility of income. "The adverse possessor would experience the deprivation of property as a diminution in his wealth; the original owner would experience the restoration of the property as an increase in his wealth. If they have the same wealth, then probably their combined utility will be greater if the adverse possessor is allowed to keep the property." RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 79 (4th ed. 1992). *But see* Omri Ben Shahar, *The Erosion of Rights by Past Breach*, 1 AM. L. & ECON. REV. 190, 225 (1999). Ben Shahar contends, contrary to the common wisdom, that the risk of loss of title, which he calls "erosion," is likely to prompt owners who neglect their property to "seek to evict possessors, whereas absent an erosion risk [such property owners] would potentially have allowed the efficient possessor to quietly maintain use." According to Ben Shahar the main effect of adverse possession is to "facilitate the movement of assets away from absentee owners because it makes enforcement of absentee ownership more costly." *Id.* at 225.

195. Carol M. Rose, *Possession as the Origin of Property*, 52 U. CHI. L. REV. 73, 79 (1985) [hereinafter Rose, *Origin of Property*]. For an information-based theory of property, see Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The* Numerus Clausus *Principle*, 110 YALE L.J. 1 (2000).

196. *See* Merrill, *supra* note 102, at 1129 (noting that a "concern which has frequently been advanced in the literature on adverse possession is the interest in 'quieting titles' to property"); *id.* at 1139 (noting that the use of a mechanical entitlement determination rule in the context of adverse possession facilitates the development of a market in property rights).

197. Rose, *Origin of Property*, *supra* note 195, at 79-80.

Finally, the risk of losing the property rule protection deters titleholders from attempting to extort quasi-rents from adverse possessors.[198] Under standard property rule protection, and absent an effective system for conveying clear information, property owners could elicit third parties to improve their property by intentionally misrepresenting that the property has been abandoned. Such strategic behavior is a trap to innocent occupants. Believing that they will be entitled to the full value of their investment, innocent adverse possessors will expend considerable effort and resources on others' property and ultimately will lose their investment altogether when the true owner reasserts her rights.[199] The strategic misrepresentation of the true owner distorts the decision making process of the adverse possessor by creating an appearance of an economic opportunity that in reality does not exist. Adverse possession mitigates, to some extent, the ex ante incentive of property owners to engage in such strategic misrepresentation, and thus, permits "members of the public [to] rely upon their own reasonable perceptions."[200] Here, too, the importance of this function depends on the quality of the recording system and other information about the status of the property.

The use of a title shifting pliability rule to transfer the title of the property from the original owner to the adverse possessor is also justified, at times, on fairness grounds. The fairness rationale maintains that after a long period of possession, the reliance interest of the adverse possessor should outweigh the formal title of the original owner. In doing fairness to the parties, the law must consider the fact that the adverse possessor has developed an expectation to retain possession of the property, and that the original owner, intentionally or negligently, fostered this expectation. Thus, some degree of moral fault attaches to the true owner for encouraging a relationship of dependence, which she later intended to cut off.[201] As Justice Holmes famously stated, property "takes root in your being and cannot be torn away without

198. *See* Merrill, *supra* note 102, at 1131-1132; Miceli & Sirmans, *supra* note 191, at 161-62.

199. This problem is particularly acute in cases of boundary disputes. In such cases, a property owner permits an adjacent neighbor, who mistakenly believes she is actually building on her own land, to encroach on the property owner's land. After the encroachment occurred, the encroached upon owner can exploit her neighbor's investment to extract a much higher payment from her to settle the dispute than she otherwise would. As Merrill noted, in extreme cases, the strategically encroached upon owner "may be able to extract not only the value of the land but the full value of the addition as well." *See* Merrill, *supra* note 101, at 1131; Miceli & Sirmans, *supra* note 191, at 161-62 (noting that "when a boundary error occurs . . . allowing title to pass to the possessor after a certain period prevents the true owner from taking advantage of the possessor's initial error to extort quasi rents created by his reliance expenditures").

200. Rose, *Origin of Property*, *supra* note 195, at 80.

201. *See* Joseph W. Singer, *The Reliance Interest in Property*, 40 STAN. L. REV. 611, 667 (1988).

your resenting the act and trying to defend yourself, however you came by it."[202] Subsequent empirical studies have affirmed Holmes's conjecture.[203] These studies indicate that people develop an especially strong attachment to assets in their possession. This cognitive phenomenon, widely known as an "endowment effect,"[204] further tips the scale in favor of the adverse possessor. The increasing attachment of the adverse possessor to the property raises the subjective value she assigns to the property, and as time goes by her claim to the property grows stronger relative to the claim of the original owner. The title shifting pliability rule undergirding adverse possession provides the legal system with a mechanism to move the property to the adverse possessor when fairness so requires. It must be noted, however, that the requirement that the adverse possessor possess the property "hostilely" significantly undermines the adverse possessor's claim to fairness.

G. *Multiple Stage Pliability Rules*

As we noted earlier, pliability rules need not be restricted to one stage. In theory, pliability rules are unlimited in the number of property and liability rules they can aggregate into a single pliability rule. Multiple stage pliability rules serve the same functions as their two-stage cousins, and are necessary to accommodate anticipated multiple changes in circumstances or a particularly complicated balance of interests.

1. *Eminent Domain*

Arguably the most famous instance of pliability rule protection is provided by the law of eminent domain. The power of eminent domain authorizes governments to seize private property upon making a decision by a process specified in law. By exercising its power of emi-

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202. Holmes, *supra* note 194, at 476-77.

203. *See* Robert C. Ellickson, *Bringing Culture and Human Frailty to Rational Actors: A Critique of Classical Law and Economics*, 65 CHI. KENT L. REV. 23, 39 (1986) (opining that Holmes "is more faithfully interpreted as anticipating (in a primitive way)" later developments in cognitive psychology).

204. On the endowment effect, see generally Daniel Kahneman et al., *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325 (1990); Daniel Kahneman et al., *The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSP. 193 (1991); Richard Thaler, *Toward a Positive Theory of Consumer Choice*, 1 J. ECON. BEHAV. & ORG. 39 (1980); *see also* Owen D. Jones, *Time Shifted Rationality and the Law of Law's Leverage: Behavioral Economics Meets Behavioral Biology*, 95 NW. U. L. REV. 1141, 1154 (2001) (reporting that "people tend to value an object more highly as soon as they possess it — often twice as highly — compared to how they value the same object if they had to purchase it," or, more formally, "their indifference curves shift in a systematic manner as soon as they acquire a good, increasing the ascribed value of the endowed good relative to all other goods").

nent domain, the government may transform the property rule protection into liability rule protection, so long as it pays "just compensation," as mandated by the Constitution[205] — under current doctrine, the market value of the property taken.[206] So long as exercised for a public purpose and accompanied by "just compensation," this power is almost limitless. This makes eminent domain one of the most important pliability rules. Indeed, it can justly be said that, in light of the ubiquity of takings, all property entitlements should be viewed as protected by pliable protection, at least vis-à-vis the government.

Here, we characterize takings as resulting from a three-stage pliability rule protecting assets: property rule protection, followed by liability rule protection, and then property rule protection again.[207] In this characterization, a government decision to exercise the power of eminent domain — to "take" — effects a transition from property rule protection in the hands of the original holder to liability rule protection. Before the government's decision to take the asset, the private property holder enjoys property rule protection, even vis-à-vis the government. For example, the private property owner has the right to exclude government agents seeking to perform warrantless searches, as well as to sue the government to abate nuisances to the extent such suits are not barred by sovereign immunity. However, once the government decides to exercise its power of eminent domain, the entitlement holder enjoys only ordinary liability protection — the right to "just compensation" in exchange for the asset. After the government takes the property, however, the asset is once again protected by property rule protection, albeit this time the entitlement holder is the government.

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205. U.S. CONST. amend. V ("[N]or shall private property be taken for public use, without just compensation.").

206. *See* Lewinsohn-Zamir, *supra* note 9, at 242 (noting that "when land is taken by the state for public use, compensation is based on the (objective) market value of the property, regardless of the unique public use intended by the government"). In the context of regulatory takings, courts have employed a "modified market value test," which measures the extent to which the regulation at issue diminished the property's market value. *See, e.g.*, A.A. Profiles, Inc. v. City of Fort Lauderdale, 253 F.3d 576, 583 n.7, 584 (11th Cir. 2001) (holding that the modified market value test was the appropriate measure of damages for a permanent regulatory taking, regardless of whether the taking had a valid public purpose). Calibrating compensation has proven contentious. *See, e.g.*, William A. Fischel, *The Offer/Ask Disparity and Just Compensation for Takings: A Constitutional Choice Perspective*, 15 INT'L REV. L. & ECON. 187, 193 (1995) (arguing that "latter-day critics who call for enhanced compensation under eminent domain would upset a solution to the offer/ask problem that had already been struck in scores of constitutional conventions"); Aaron N. Gruen, *Takings, Just Compensation, and the Efficient Use of Land, Urban, and Environmental Resources*, 33 URB. LAW. 517, 536 (2001) (suggesting that "if the government pays more than market value for a property, it may result in under-investment in beneficial public goods that the private market cannot efficiently provide").

207. Admittedly, this is not the only way of characterizing takings in a pliability analysis. *See infra* note 214 and accompanying text.

The evident enormity of the power of eminent domain has led to discomfort about its use, reflected in the constitutional requirements of "just compensation" and "public use,"[208] as well as a voluminous literature about the proper scope of the constitutional Takings Clause.[209] Yet, the power of eminent domain has also been seen as indispensable in order to allow government to fulfill its important function of providing public goods.[210] Thus, eminent domain serves a different set of goals than, for example, adverse possession. Where adverse possession aims to curb neglect of property by the original entitlement holder, eminent domain is not concerned with any "wrongdoing" of the origi-

208. At least as a matter of grammar, the phrasing of the Fifth Amendment's Takings Clause actually suggests that "public use" is a condition precedent to the payment of "just compensation" rather than to the exercise of the taking power. *Cf.* MORTON J. HORWITZ, THE TRANSFORMATION OF AMERICAN LAW 1780-1860, at 65 (1977) (citing arguments of nineteenth century lawyers that similar provisions in state constitutions did not limit power to take for private use). Nevertheless, the Clause has not been read to eliminate the need for just compensation where property is taken for nonpublic use. Rather, it has been seen as embodying the Anglo-American tradition of limiting the power of eminent domain to cases where the taking is for a public use. *See* BRUCE A. ACKERMAN, PRIVATE PROPERTY AND THE CONSTITUTION 190 n.5 (1977) ("[T]he modern understanding of 'public use' holds that any state purpose otherwise constitutional should qualify as sufficiently 'public' to justify a taking.") (citation omitted). In recent years, the "public use" requirement has fallen into disuse, *see, e.g.*, Richard A. Epstein, *Notice and Freedom of Contract in the Law of Servitudes*, 55 S. CAL. L. REV. 1353, 1367 n.29 (1982) (observing that "the public use limitation has little, if any, constitutional bite today, except in cases involving the condemnation of excess land"), prompting protest from some scholars. *See, e.g.*, EPSTEIN, *supra* note 101, at 161-81; Gideon Kanner, *Condemnation Blight: Just How Just Is Just Compensation?*, 48 NOTRE DAME LAWYER 765 (1973); Thomas W. Merrill, *The Economics of Public Use*, 72 CORNELL L. REV. 61 (1986).

209. *See, e.g.*, EPSTEIN, *supra* note 101; WILLIAM A. FISCHEL, REGULATORY TAKINGS (1995); Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARV. L. REV. 1165 (1967); Joseph L. Sax, *Takings and the Police Power*, 74 YALE L.J. 36 (1964). For a historical overview of takings, see William Michael Treanor, *The Original Understanding of the Takings Clause and the Political Process*, 95 COLUM. L. REV. 782 (1995). Most of the modern literature focuses on the question of what acts of government should be considered constitutional "takings" such that just compensation must be paid. Thus, the bulk of takings scholarship does not directly concern itself with the scope of the power of eminent domain; rather, it addresses the subsidiary question of when constitutional limitations apply.

210. *See* EPSTEIN, *supra* note 101, at 4-5 (arguing that the state can only validly exercise coercive power to prevent private aggression or to provide public goods); *see also* Thomas W. Merrill, *Rent Seeking and the Compensation Principle*, 80 NW. U. L. REV. 1561, 1569 (1986) (reviewing RICHARD A. EPSTEIN, TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN (1985)). Merrill's review notes Epstein's argument that "when the power of eminent domain is used to supply public goods, the surplus will tend to be divided, at least approximately, in proportion to preexisting shares of wealth. Those with large preexisting shares will obtain large benefits from public goods; those with small preexisting shares will obtain small benefits." *Id.*; *cf.* Ugo Mattei, *Efficiency as Equity: Insights from Comparative Law and Economics*, 14 INT'L REV. L. & ECON. 3, 7 (1994) ("As far as the public use requirement is concerned, the economic theory of public goods provides both a justification and a limit. The justification is that the government needs to be able to acquire the inputs that are necessary to provide public goods which the market cannot easily provide. The limit is set by the consideration that any private use of the power of eminent domain will be inefficient since it produces a result that private parties would not be able to reach by bargaining.") (internal citations omitted).

nal holder. Rather, eminent domain is used as a tool for transferring title in property to a presumed higher-value user. Eminent domain takes an asset from private hands and places it in the hands of a government that needs the asset to provide for a public good. The coercive mechanism is necessary in order to overcome strategic difficulties that impede bargaining and prevent voluntary reassignment of the asset to the government in market transactions.

The central barriers to successful negotiations overcome by eminent domain come under the heading of strategic behavior and include the closely related problems of bilateral monopoly and asymmetric information.[211]

In a situation of bilateral monopoly, there is but one potential buyer and one potential seller. Each knows that the transaction cannot take place without her cooperation, and each, therefore, attempts to extract all the profit from the transaction. The problem of bilateral monopoly can be illustrated with the example of a government decision to build a railway through an isolated valley. There is only one railway, and therefore only one potential buyer of valley land. On the other hand, the railroad must purchase all the valley parcels along the lay of the track; even one hold-out can ruin the project. Each parcel owner is thus a monopolist who may attempt to hold out for a higher price that will divert the railroad profits to her own pockets. In such a

211. For a comprehensive review of the literature on strategic barriers to bilateral negotiation, see Robert Cooter, *The Cost of Coase*, 11 J. LEGAL STUD. 1, 23 (1982) (pointing out that disagreements as to how to divide the contractual surplus may prevent successful Coasean bargaining); John Kennan & Robert Wilson, *Bargaining with Private Information*, 31 J. ECON. LITERATURE 45, 46 (1993) (hypothesizing that differences in private information are a primary cause of bargaining delays); Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2659 (1994) (observing that in the field of intellectual property the valuation problem heightens the possibility of stragetic bargaining); Eric L. Talley, Note, *Contract Renegotiation, Mechanism Design, and the Liquidated Damages Rule*, 46 STAN. L. REV. 1195, 1198, 1219 (1994) (discussing the problem of bilateral monopoly in contract renegotiation).

On asymmetric information specifically, see Louis Kaplow & Steven Shavell, *Do Liability Rules Facilitate Bargaining? A Reply to Ayres and Talley*, 105 YALE L.J. 221, 223-29 (1995) ("When each party's own valuation is not known by the other, each party will have incentives to misrepresent its valuation in bargaining, hoping to extract more of the bargaining surplus from the other party. Parties may therefore demand too much or offer too little, with the result that efficient bargains may not be reached. In this case, one cannot say unambiguously whether property rules or liability rules will be superior."); *see also* Karen Eggleston et al., *The Design and Interpretation of Contracts: Why Complexity Matters*, 95 NW. U. L. REV. 91, 109 (2000) (defining "asymmetric information" as a situation in which "[o]ne party to a contract . . . has more information about future states of the world than does the other party"); *cf.* William Samuelson, *A Comment on the Coase Theorem*, *in* GAME-THEORETIC MODELS OF BARGAINING 321, 331-35 (Alvin E. Roth ed., 1985) (arguing that if an entitlement is auctioned in a particular way between the parties rather than allocated through bargaining, the problems associated with asymmetric information and bargaining can be overcome, but acknowledging that his proposed auctions may be impracticable because they would require the initial entitlement holder to share the proceeds). *See generally* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 56 (4th ed. 1992) ("A good economic argument for eminent domain . . . is that it is necessary to prevent monopoly.").

situation, the ex ante price is unknowable, transaction costs may become prohibitive, and the attempt to out-strategize the opponent may foil the project altogether. Eminent domain provides the solution by permitting the government to take the parcels of land in the valley and then open them for use by the railroad.

The problem of asymmetric information is particularly important in this regard. Private entities may often overcome the bilateral monopoly difficulty by using straw agents or the like to hide their plans. It is far more difficult, however, for the government to hide its plans. Parcel owners possess knowledge of the government plans, while the government can only guess at the owners' "true" selling price. This leads the parcel owners to engage in strategic behavior and rent-seeking, and burdens the opportunity to successfully negotiate a transaction.

The power of eminent domain provides a solution to these strategic barriers to efficient transactions. On the one hand, eminent domain does not disturb the property rule protection granted in ordinary circumstances. However, where there is a public need that is likely to be foiled by strategic problems, the government may exercise its power of eminent domain, triggering a change to liability rule protection, and allowing the orderly transfer of the asset. The constitutional Takings Clause prevents overutilization of this power by limiting the power of eminent domain to those cases where reasonable market transactions are unlikely. Indeed, the requirement of just compensation makes the exercise of eminent domain sufficiently costly that, in many cases, the government prefers to negotiate a transfer of the asset under ordinary property rule protection, rather than force a change to the liability stage of the pliability rule.[212]

While we classify takings as part of a three-stage pliability rule, the rule could also be classified as a title shifting pliability rule with a compensation requirement, or as a classic pliability rule as well.[213] For instance, due to the just compensation requirement, to the original asset holder, the pliability rule protection afforded vis-à-vis takings appears to consist of property rule protection followed by liability rule protection.[214] In the initial stage, the asset holder enjoys ordinary

212. *See* William A. Fischel, *The Political Economy of Just Compensation: Lessons from the Military Draft for the Takings Issue*, 20 HARV. J.L. & PUB. POL'Y 23, 40 (1996) (observing that "[w]hen it becomes known that compensation will be made . . . the government endures" the transaction costs of making settlement (or settlement costs), including the cost of negotiating with condemnees, participating in an eminent domain trial (if negotiations fail), "the deadweight loss of additional taxes to finance the compensation and the negotiations, and the losses from moral hazard on the part of property owners who anticipate that compensation will be made") (internal citation omitted).

213. Calabresi and Melamed consider eminent domain an example of "mixed protection," or, under our terminology, a simultaneous pliability rule. Calabresi & Melamed, *supra* note 5, at 1093. For the reasons discussed in the text, we prefer a different characterization.

214. *See* Merrill, *supra* note 208, at 64 ("[I]n the eminent domain area, which so often

property rule protection. When the government makes a decision to exercise its power of eminent domain, the asset-holder's protection essentially becomes one of liability rule protection in which the asset-holder cannot prevent others from impinging upon her exclusive enjoyment of the asset, but she does have the right to reasonable compensation for such impairments of her rights in the asset. In this sense, the takings regime can be seen as a classic pliability rule, though the act that triggers the shift between the two stages of the pliability rule protection — an exercise of eminent domain — endows the new asset holder with property rule protection rather than merely liability rule protection. Alternatively, in light of the fact that the subsequent entitlement holder enjoys property rule protection like the original entitlement holder, the law of takings can be said to create a title shifting pliability rule.

We prefer the characterization of a three-stage rule in order to highlight how the pliability rule embodied in eminent domain overcomes the "reciprocal takings" difficulty engendered by liability rule protection of objects subject to possessory disputes. As we noted earlier,[215] Shavell and Kaplow favored property rules to resolve possessory disputes, lest each taking of an object protected by a liability rule engender a reciprocal taking, leading to an endless cycle of takings and retakings of the object. The pliability rule employed in eminent domain resolves this difficulty by limiting use of the liability rule protection to a single taking. Once the object is taken (in the second stage of the pliability rule), property protection is restored, albeit in the hands of a presumed higher-value user.[216]

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parallels private law doctrine, courts have effectively declared that liability rules alone shall protect all private property rights.") (internal citation omitted).

215. *See supra* notes 56-58 and accompanying text.

216. A pliability analysis thus has an important implication for the debate between Kaplow/Shavell and Ayres/Balkin, described *supra* in note 58. Ayres and Balkin resolved the reciprocal taking difficulty by noting the possibility of an auction regime. This can be described in one of two ways in a pliability analysis. One description would see the Ayres and Balkin solution as preserving a single type of rule protection — liability rule protection — but requiring that the price paid for the taking be altered in each round in order to reflect a new value. On this view, Ayres and Balkin did not suggest a pliability rule and did not recognize that reciprocal takings could be arrested by limiting application of a liability rule.

A second description — and probably the one that would be favored by Ayres and Balkin — would view the suggested auction as a kind of protection distinct from ordinary property and liability rules. Under this description, Ayres and Balkin were suggesting a pliability rule in which the taking of an object in a possessory dispute would trigger a change in rule protection from liability to auction. Viewed in this light, Ayres and Balkin's suggestion is merely one of several ways to resolve the reciprocal takings problem by means of a pliability rule. Indeed, any rule that limited the liability rule stage of the pliability rule would foil infinite reciprocal takings.

H. *Elements of Pliability Rules*

So far, we have demonstrated the pervasiveness of pliability rules in our legal system. Before turning to the normative case for pliability rules, we summarize some salient features of pliability rules presented thus far.

Pliability rules involve at least three elements: a first stage rule (either property or liability), a triggering event causing a shift between stages, and a second stage rule. For simplicity's sake, we have focused on two-stage pliability rules, although, as we demonstrated with the case of eminent domain, there is no theoretical limitation to the number of stages in a pliability rule. Additionally, as we have noted, the stages of the pliability rule need not necessarily be chronologically sequential. Sometimes, as in the case of fair use, for example, the stages may coincide chronologically. Nevertheless, in all cases, a triggering event or fact is necessary to shift protection from one stage to another. For example, in the case of fair use, copyright is best seen as protected in the first stage by a property rule, and in the next stage by a zero order liability rule, where the trigger is a type of use that qualifies as a "fair use."

One of the important innovations of a pliability analysis therefore lies in a study of triggering mechanisms. On either side of the trigger, the protection is either by means of a liability rule or a property rule, both of which have been the subject of a rich and illuminating scholarly colloquy. However, as pliability rules have not been previously identified, there has been no previous discussion of triggering events. As we have seen, triggering mechanisms can be based in the passage of time, changed circumstances, magnitude or nature of use, or a combination of any of the three.

Time-centered triggers specify a preset period of protection in stage one at the end of which a different type of protection begins. The zero order pliability protection used in patent and copyright law employs a time-centered trigger.

Triggers based on changed circumstances are, naturally, less easily encapsulated. Thus far, among the changed circumstances that we have seen used as triggers are market power, carelessness, and the emergence of a higher value use. Excessive market power serves as a trigger both in the genericism doctrine in trademark law and in the essential facilities doctrine in the law of antitrust. Careless behavior on the part of the property owner is the triggering mechanism in the case of adverse possession. Emergence of a higher value use is the trigger in the case of eminent domain. Changed circumstances may also be combined with the time element as demonstrated by the case of adverse possession.

Triggers based in the magnitude of the use specify that the ordinary protection offered by the baseline rule are set aside with regards

to certain low magnitude uses. Thus far, we have seen such a trigger employed in copyright with regard to fair use.

It is noteworthy that in some instances of pliability protection the initial entitlement holder controls the triggering mechanism, while in others she does not. Pure time-centered triggers, for example, are not subject to the control of the entitlement holder. Patent holders, for instance, lack the ability to alter the twenty year period that signals the shift from property to zero order liability protection. Other triggers, however, correlate the shift to the behavior of the initial entitlement holder. In such cases, the use of pliability rules gives the entitlement holder an incentive to self-regulate or act in accordance with socially desirable standards. For example, the doctrines of essential facilities and genericism incentivize entitlement holders not to accumulate excessive market power lest the initial property rule protection be replaced with a liability rule. The doctrine of adverse possession, on the other hand, deters careless behavior on the part of property owners by subjecting careless owners to the risk of title loss.

III. THE NORMATIVE CASE FOR PLIABILITY

Having explained and illustrated the elements of pliability rules, we now turn to the normative case for using pliability rules. First, we show that pliability rules achieve different aims than property and liability rules, and we show when pliability rules should be used. We then turn to some practical lessons to be drawn from a pliability analysis. Here, we show both how explicit recognition of the category of pliability rules suggests possible modifications of existing pliability rules and how pliability rules can be used in new areas of the law.

A. *When Pliability Rules Should Be Used*

In this Section, we take up the task of identifying those situations in which pliable rules possess a relative advantage over their static cousins.

From a normative perspective, the importance of pliability rules lies in that they significantly broaden the range of legal rules available to policy makers. We posit that pliability rules are most advantageous under the following conditions: (1) when policymakers anticipate substantially changed circumstances; (2) when competing interests must be accommodated in a single rule; and (3) when necessary to transcend the inherent limitations of property and liability rules. In all these cases, the use of a pliability rule facilitates planning by the entitlement holder, as well as bargaining between the holder and potential acquirers.

1. *Changed Circumstances*

The utility of pliability rules is most obvious in the case of changed circumstances. Naturally, changed circumstances may necessitate a change in the initial mode of protection in order to adjust the legal rule to the changed reality. Pliability rules, due to their flexibility, are the ideal policy tool for this task. Pliability rules allow policymakers to anticipate changed circumstances and incorporate them into a legal rule by identifying the change as the trigger that shifts protection modes. Many of the examples of pliability rules that we have cited so far have been motivated primarily by changed circumstances. For example, the essential facilities doctrine, as its name suggests, aims to identify those circumstances in which a property has become "essential" to competitors, and to use that change as the trigger of a pliability rule. Neither a uniform property rule protection nor liability rule protection is capable of accommodating the challenge of changed circumstances. Uniform property rule protection preserves in perpetuity the facility owner's right to exclude. As such, uniform property rule protection is incapable of dealing with the emergence of circumstances that render such exclusion anticompetitive. Uniform liability rule protection, on the other hand, allows for nonconsensual uses, but does so at the cost of undermining the owner's incentive to develop her property. When circumstances change, therefore, either uniform rule implies some efficiency loss. Pliability rules, by contrast, preserve the efficiency advantages of both rules, despite the change in the circumstances.

Where the changed circumstances are affected by the behavior of the original entitlement holder, pliability rules have an added advantage over the pure protection modes. In such cases, pliability rules may be used to incentivize entitlement owners to avoid certain undesirable circumstances. For example, in the case of antitrust law, pliability rule protection encourages owners to avoid the anticompetitive behavior that may lead to the dilution of their property rights. Similarly, the pliability rule of genericism in trademark law incentivizes owners of strong marks to preserve competition in their field of trade, and to distinguish their products from competing ones, lest they lose their property rule protection altogether. The promotion of self-regulation also produces the added benefit of economizing on regulatory and judicial costs.

2. *Conflicting Interests*

It is less easily seen how pliability rules are beneficial in accommodating competing interests in a single rule since pliability rules often involve sequential, rather than simultaneous, modes of protection. Yet, on more careful examination, pliability rules can prove a useful

mechanism for balancing incompatible interests. For instance, pliability rules may be used to incorporate competing concerns of efficiency and justice. Consider patent protection. The time limitation on the property rule protection stage in patent law finds grounding, at least in part, in concerns of distributive justice. The legal monopoly granted by patent protection, while incentivizing inventors ex ante, also subjects the public to supra-competitive pricing of new products, such as medicines. Distributively, then, the first stage of property rule protection has the undesirable effect of denying the least well-off access to valuable, or even life saving, commodities.[217] Yet, the same legal monopoly that leads to exclusion of the poor is also responsible for the production of the invention in the first place. Additionally, many view an inventor's claim over her invention as a moral one. The use of a time-centered zero order pliability rule balances these competing interests.

3. *Inherent Limitations*

Pliability protection in patent law also provides an example of the use of pliability rules to overcome the inherent limitations in uniform property rule or liability rule protection. In addition to being subject to the tensions between concerns of efficiency, justice and fairness, patent law also must cope with the inherent tensions of efficiency within uniform property rule protection. By granting the absolute power of exclusion, property rules allow owners to invest optimally in their property. Property protection also provides the background against which voluntary exchange takes place. However, property rules may also create inefficiencies. Property rule protection of monopolies encourages underproduction, supra-competitive pricing and a deadweight loss. Patent protection illustrates both these virtues and vices. The ex ante anticipation of enjoying a property right is necessary to spur investment in research and development of new products. However, it comes at the ex post cost of supra-competitive prices. Patent law's pliability rule protection mitigates the inefficient elements of property rule protection without entirely sacrificing its beneficial as-

217. Distributive justice concerns are paramount in the work of philosopher John Rawls. *See* JOHN RAWLS, A THEORY OF JUSTICE 14-15 (1971) (arguing that "social and economic inequalities . . . are just only if they result in compensating benefits for everyone, and in particular for the least advantaged members of society"); Steve P. Calandrillo, *Responsible Regulation: A Sensible Cost-Benefit, Risk Versus Risk Approach to Federal Health and Safety Regulation*, 81 B.U. L. REV. 957, 983 (2001) (describing the Rawlsian "veil of ignorance" by asking "If one did not know what her position in society would be — i.e., one might be among the best off, or the absolutely worst off member — what kind of a society would she choose to construct and live in?"). Calandrillo also suggests that "[t]he implicit presumption [in Rawlsianism] is that because people justifiably care about fairness and equity, and are also risk averse, they would choose a society that maximizes the position of the worst-off member," and therefore "in the regulatory arena, Rawlsianism would ask how a proposed policy affected the most disadvantaged person or group, and not whether overall social welfare increased in the aggregate." *Id.*

pects. The initial property rule protection preserves the incentive to invest in research; and the subsequent zero order liability rule stage cabins the distorting effects of monopolistic pricing.

Having identified the three primary cases in which normative considerations point toward the adoption of pliability rules, we can now suggest two sets of practical results of a pliability analysis. First, we examine the extent to which existing pliability rules can be modified to better achieve their goals. Second, we uncover situations in which pliability rules ought to be employed, but have not been.

B. *Revising Existing Pliability Rules*

In this Section, we return to some of our earlier examples of existing pliability rules to determine how their goals can be more efficiently and fairly advanced. Specifically, we discuss adverse possession, patent protection and genericism.

1. *Adverse Possession*

To review briefly, the pliability rule of adverse possession institutes property rule protection in both of the two stages of the rule, with the shift triggered by time and evidence of owner carelessness (such as exclusive, open, notorious and hostile possession by a trespasser). The pliability rule is designed to discourage underutilization of the property as well as reward adverse possessors for bringing the property back into active use.

Recognizing that adverse possession embodies a pliability rule enables one to design alternative pliability rules that might better achieve the doctrine's aims. As currently structured, the doctrine of adverse possession is stark. If the adverse possessor satisfies all the statutory elements, she may take title, free of charge, and with full property rule protection. However, if even one of the statutory elements is missing, even in part, the adverse possessor receives nothing. For example, where the statutory period is twenty years, an exclusive, open, notorious and hostile possession for nineteen years and eleven months entitles the adverse possessor to nothing.[218] At its extreme, then, the doctrine of adverse possession merely incentivizes the owner to visit the property, and possibly take corrective action, every nineteen years or so. This result may strike some of us as neither fair nor efficient.

The rigidity of current adverse possession doctrine stems from the fact that it employs a two-stage, time-limited, title shifting pliability

218. It is possible that the adverse possessor might have a claim for damages in unjust enrichment, or that the owner might have a claim in trespass. For the sake of the discussion, we disregard these possibilities.

rule. To introduce more flexibility into the doctrine, we note the possibility of adding several new stages to the pliability rule. This can be done is various ways. Assume that, optimally, where state law does not provide for an adequate recording system, property owners should inspect their property at least once every five years. Under this assumption, the legislature can revise the doctrine of adverse possession to give no rights to adverse possessors in the first five years of their stay, and thereafter to reduce the owner's rights vis-à-vis the adverse possessor's a certain percentage of the title. For example, the revised adverse possession rule may state that the successful adverse possessor gains twenty-five percent of the title every five years. The rule might further provide that if the adverse possession is interrupted after a certain percentage of the title was acquired by the adverse possessor, she will be entitled to purchase the remainder from the original owner. In other words, after the first five years of possession, the adverse possessor would receive a call option on the land she possessed, with the exercise price depending on how much longer the adverse possession continues. At the extreme, if the adverse possession continues successfully for twenty years, the exercise price would be zero.

Naturally, the legislature may also create a put option in the successful adverse possessor in the liability stage of the proposed pliability rule. This would mean that after five years, the adverse possessor would not only acquire twenty-five percent of the title to the land but also the right to sell this share back to the original owner. Under this regime, at the conclusion of twenty years of adverse possession, the adverse possessor would have the right to sell back the land to the original owner at market price.

States unsympathetic to adverse possession, such as New York,[219] may also employ a classic pliability rule in this context, but design it in a way that would make adverse possession less attractive. For example, New York can stipulate that the successful adverse possession gains at the end of twenty years, not the title to the land possessed, but rather a call option to buy the land at market value.[220]

Finally, it is also possible to adopt a still different classic pliability rule that introduces an auction mechanism at the liability stage. Under this variant, the adverse possessor receives no property interest whatsoever in the land possessed, but merely a right to receive a monetary award for identifying the continuous underutilization by the original owner. At the end of the statutory period, the title to the underutilized land would be auctioned off to the highest bidder, with the proceeds

219. *See, e.g.*, Joseph v. Whitcombe, 279 A.2d 122, 126 (2001) ("New York law has long disfavored the acquisition of title by adverse possession.") (citations omitted).

220. Alternatively, the states more sympathetic to adverse possession could give the adverse possessor a put option, thereby requiring the owner to buy the land back at market value.

divided between the original owner and the adverse possessor. The advantage of this system is that it transfers the land to the highest value user as determined by the auction.

2. *Patents*

As we explained, patent protection represents an example of a zero order pliability rule. Critics of the patent system have long argued that a superior way to encourage innovation would be to substitute a system of compulsory licensing for the limited property rule protection accorded to patentees. Under a system of compulsory licensing, a regulator would set the price for use of new inventions, and the patentee would have no power to deviate from that price. To compensate the patentee for the loss in revenues, the protection term could be longer than that currently provided for by law.[221] If set correctly, the compulsory license would adequately reward patentees for investing in research and development without creating a social deadweight loss. This proposed system of compulsory licenses represents a patent system that is based on liability rule protection. Thus, to date, this central debate in patent law has proceeded in terms of pure property rule versus pure liability rule arguments.

Our discussion of pliability rules introduces a third option that may be superior to the competing ones. Specifically, we propose a classic pliability rule that combines initial property rule protection and positive liability protection. Under the new rule, patentees would be accorded property rule protection for a certain period of time, and then the invention would become subject to a compulsory license for another period. For example, Congress can enact a rule under which patentees will enjoy property rule protection for ten years, and then liability rule protection for another twenty years. During the latter period, the invention would be available for a price determined by the PTO, or some arbitration tribunal.

Relative to the current patent system, the proposed pliability rule would reduce the deadweight loss associated with patent protection by cutting the exclusivity period in half; at the same time, the prolonged liability rule period would preserve the incentive to engage in innovation. Relative to a pure system of compulsory licensing, the proposed pliability rule diminishes the risk to which inventors are exposed. A fundamental problem with compulsory licenses is that it is extremely difficult to set the license rates accurately. The license rate, in order not to undermine the incentive to innovate, must reflect not only the

221. *See* Pankaj Tandon, *Optimal Patents with Compulsory Licensing*, 90 J. POL. ECON. 470 (1982) (contending that the optimal patent would have an indefinite life, for both process and product innovations, but even if the patent term is left at seventeen years, compulsory licensing may lead to substantial welfare improvements).

expected profits of the patentee on the current innovation, but also the expenditures incurred by the patentees in research projects that failed to yield a patentable result. Given that there is no market price for new inventions, it is very difficult to set compulsory license rates accurately. Granted, the pliability rule we propose incorporates compulsory licensing in the liability rule stage. However, it exposes patentees to a smaller risk of undercompensation by granting them ten years of property rule protection.

The proposed classic pliability rule has an additional advantage over its pure liability cousin. Assume that the liability rule equivalent of our proposed pliability rule is forty years of liability rule protection. In theory, the longer protection period can make up for the fact that patentees receive no property rule protection. In practice, however, the additional ten years may prove worthless. This is so because newer and superior inventions may render existing ones valueless. In addition, discounting of future values imposes an inherent limitation on how much patent protection may be extended. In other words, the incentive effect of the early years of protection is much stronger than that of late years.

3. *Genericism*

As we discussed, the genericism doctrine in trademark law is predicated on a zero order pliability rule. If consumers identify a dominant mark not with a particular company, but rather with the underlying product, the property rule protection of the mark holder lapses and the mark falls into the public domain. That is, once a mark is pronounced generic, competitors of the mark holder can use it free of charge.

We suggest that a classic pliability rule can improve upon existing genericism doctrine. Specifically, Congress could replace the current rule with one that grants competitors the right to use dominant marks in exchange for payment.[222] The PTO could then devise a menu of prices for the use of dominant marks, with the amount to be paid depending on the dominance of the mark: the more dominant the mark, the smaller the payment. Alternatively, once a mark becomes dominant, Congress could require the mark's owner to pay its competitors to retain the right to deny them access to the mark. Either way, the use of a classic pliability rule with a menu of prices would result in a more refined regime than that currently in place. Such a refined system would better enhance competition, and is potentially fairer to all the parties involved.

222. The dominance of the mark may be measured by the mark owner's market share in the relevant product or service market. Alternatively, the dominance of the mark may be a function of the strength of consumers' association of the mark with its associated product (as opposed to their association of the mark with the product's manufacturer).

C. *Introducing New Pliability Rules*

Pliability rules need not be limited to the circumstances in which they are already currently employed. In this Section, we discuss two instances of fields of law that could benefit from the introduction of pliability rules. Our first example grapples with the problem of the anti-commons — the problem of the division of property into too-small units. Our other example generalizes the anti-commons analysis and examines the possibility of exporting some of the principles of eminent domain into the private sector — in other words, the creation of a private takings power.

1. *Anti-Commons*

The familiar commons problem deals with too many owners in common of a single resource. In his "Tragedy of the Commons,"[223] Garrett Hardin posited that overexploitation of the resource would result. Hardin illustrated the phenomenon with the example of a rural pasture commonly owned by a community of shepherds. He posited that the shepherds would allow their herds to overgraze the pasture since each shepherd only bears a small fraction of the marginal cost of each use while enjoying the full marginal benefit. The result is the tragedy of the commons: property held in common will be overexploited.[224] Hardin's oft-cited conclusion was that freedom in a commons "bring[s] on universal ruin."[225] The traditional solution to commons problems is privatization, leading one owner to internalize the full marginal cost of each use.

Michael Heller noted that a converse problem — which he labeled the anti-commons problem — could result if the resource were divided into too-small pieces of property, each owned by different owners.[226] In an anti-commons, property interests in a certain asset are dispersed among multiple holders, each of whom has an effective veto over any given use of the property. Because each property owner has veto power over all competing uses, individual owners can behave strategi-

223. Garret Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

224. *But see* Carol M. Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 723 (1986) [hereinafter Rose, *Comedy of the Commons*] ("[C]ustomary doctrines suggest that commerce might be thought a 'comedy of the commons' not only because it may infinitely expand our wealth, but also, at least in part, because it has been thought to enhance the sociability of the members of an otherwise atomized society.").

225. Hardin, *supra* note 223, at 1248. Having said that "[f]reedom to breed will bring ruin to all," Hardin goes on to propose that "[t]he only way we can preserve and nurture other and more precious freedoms is by relinquishing the freedom to breed." *Id.*

226. Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998).

cally with respect to their property or may fail to cooperate with other users due to high transaction costs. Heller has observed that, due to this characteristic of property rule protection, assets in an anti-commons commons regime will fall prey to underutilization.[227] The solution to an anti-commons difficulty is thus aggregation of property rights into fewer hands.

One of the most prominent examples of an anti-commons is provided by the land regime in Native American reservations. In a well-intentioned but misguided attempt to protect communal Native American lands in the late nineteenth century, Congress provided for the allocation of reservation lands among Native American households, with provisos severely limiting alienating of the parcels.[228] Over the years, as the lands became ever more divided among heirs, the parcels became increasingly fractionated, to the point where some land interests produced a lease income of as little as one cent per month, and much of the land lay fallow. In 1983, Congress passed the Indian Land Consolidation Act, which escheated small portions of highly fractionated parcels to the tribe upon death of the owner. However, in *Hodel v. Irving*,[229] the Supreme Court ruled that the escheat worked an unconstitutional uncompensated taking. As a result many Native American lands remain in an anti-commons.

A similar problem arises with respect to many other properties typically passed on to heirs as owners in common. After several cycles of intestate succession, the property is likely to have numerous owners who have little communication with one another and divergent interests. Indeed, citing Robert Brown's analysis, Heller and Hanoch Dagan recently suggested that such an anti-commons regime was responsible for the underutilization of African American-owned rural land, and, ultimately, the dissipation of African-American participation in the agricultural economy.[230]

A pliability analysis introduces additional tools to resolve anti-commons difficulties. A properly tailored pliability rule could avoid anti-commons problems by altering protection from property rules to liability rules when the value of the property interest becomes suffi-

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227. *Id.* at 624, 626 (noting that "[w]hen there are too many owners holding rights of exclusion, the resource is prone to underuse — a *tragedy of the anticommons*" and proposing that "[p]rivatizing a commons and bundling an anticommons can solve the tragedies of misuse by better aligning individual incentives with social welfare"). Heller does note that an anti-commons regime is ideal where nonuse is the most highly valued "use" of the property.

228. *See* General Allotment Act of 1887, ch. 119, 24 Stat. 388; *see also* Act of Mar. 2, 1889, ch. 405, 25 Stat. 888 (authorizing the division of the Great Reservation of the Sioux Nation into separate reservations and the allotment of specific tracts of reservation land to individual Indians, conditioned on the consent of three-fourths of the adult male Sioux).

229. 481 U.S. 704 (1987); *see also* Youpee v. Babbitt, 519 U.S. 234 (1997).

230. *See* Hanoch Dagan & Michael A. Heller, *The Liberal Commons*, 110 YALE L.J. 549, 551 & n.3 (2001).

ciently small. For example, in the Indian Land Consolidation Act, instead of providing for an uncompensated escheat, Congress could have changed the nature of the interests in Native American Lands into a pliability rule in which owners enjoyed property rule protection only as long as the value of the interest was sufficiently large, or the number of owners in an undivided whole sufficiently small. If the value or number of owners crossed a specified threshold, however, the owner would enjoy only liability rule protection in her land vis-à-vis other tribal members or vis-à-vis the tribe. If, in the hands of the new owner, the aggregate of land interests were to become sufficiently valuable or were again concentrated in a sufficiently small number of hands, the interest could once more enjoy property rule protection.

More generally, the use of a pliability rule could help resolve the difficulties produced by successive intestate successions and the resulting multiplicity of uncoordinated heirs. In such cases, policymakers could adopt a mechanism of inter-group pliability protection, allowing, for example, heirs of intestate succession holding a too-small percentage to be subject to liability protection for their small holdings. Such liability protection, however, would only apply vis-à-vis other heirs. With regards to non-heirs, the owners would enjoy full property rule protection. To the extent that anti-commons problems were responsible for the decline of African-American farming communities, a pliability regime could have been a valuable tool in helping to preserve minority rural land ownership.

Inter-group pliability regimes would enjoy two significant advantages over the Congressional schemes of the last two decades. First, since the transition to pliability rules would still entail full compensation for takings, it would not fall afoul of the Takings Clause. Second, because different potential owners could compete for the land until it arrived in hands with sufficient other land holdings, without the necessity for potentially costly negotiation, the pliability regime would provide a more efficient market mechanism for aggregating the property holdings.[231]

2. *Eminent Domain and Private Takings*

Pliability rule protection as a solution for anti-commons underutilization can be seen as part of a broader category of pliability rule applications in the realm of private takings. A taking, in a pliability analysis, transforms property rule into liability rule protection, and

231. Given the immovability of the land holdings, the legislation would have to provide a mechanism by which persons could seize the land subject to the liability protection phase of the pliability rule. One possibility would be by serving notice upon a court and the person from whom the land is being seized. In cases of multiple minor holders trying to seize the same property, or cyclical takings and retakings of the same property, the court could initiate a closed auction.

then back into property rule protection in new hands — those of the government. However, a public taking is not inevitable. Condemnation could pave the way for the interest ending up in private hands in the third, property rule phase of the pliability rule. This would be a private, rather than public taking.

Notwithstanding the constitutional requirement that the government exercise its power of eminent domain for a "public use,"[232] often, the taking results in the transfer an object from one set of private hands to another. For example, in the famous case of *Poletown Neighborhood Council v. City of Detroit*,[233] the city of Detroit seized a number of private lots in order to transfer them to General Motors for building a new factory. Vis-à-vis the government, every original owner of a private lot in Poletown enjoyed the pliability rule protection shaped by the law of eminent domain. This pliability rule protection was not altered by the fact that the ultimate destination of the property was a different set of private hands. Indeed, imagine that General Motors could itself trigger the process for a taking by eminent domain by petitioning for city council approval for a private taking. In such a case, the original owner would enjoy the same pliability rule protection as in the case of a public taking, so long as the pliability rule's trigger for altering rule protection remained the same.

While private takings might produce the same incentive effects on the original owners as public takings, private takings offer two potentially significant advantages. First, by eliminating an unnecessary actor, private takings reduce surplus bureaucracy and decrease the cost of coordination. If the Poletown case had involved a private taking, General Motors could proceed on its own once it had received approval to exercise a private taking. Instead of coordinating with a government agency to undertake the project, General Motors could negotiate and interact directly with the land owners in Poletown. Importantly, as in the case of the public taking, owners dissatisfied with their compensation could seek judicial review. Thus, the lack of direct involvement of a government agency would not alter the rights available to the land owners.

Second, private takings lead the parties to a more accurate accounting of the costs of their actions, leading to fewer inefficient takings. Were Poletown a private takings case, General Motors would pay the required just compensation directly to the land owners, requiring it to internalize the full cost of the taking. By contrast, in the context of a public taking, the Poletown case permits General Motors to underestimate the cost of the takings while possibly requiring the

232. *But see supra* note 208.

233. 304 N.W.2d 455 (Mich. 1981).

government to overestimate the cost.[234] Indeed, the takings compensation costs for the Poletown project greatly exceeded original estimates, leading to a depletion of public funds of in excess of $200 million.[235]

Private takings could be widely permitted, given the ubiquity of the strategic problems justifying public takings.[236] The strategic problems afflicting government acquisitions can be seen in such private contexts as railroad and utility land purchases. Indeed, it is for precisely this reason that private takings were a widely used tool in the nineteenth century for railroads.[237]

An important caveat must be added here. So long as the trigger employed by the pliability rule remains the same, the nature of the pliability rule protection depends not at all on the actor who ends up with the final entitlement. Thus, a pliability analysis demonstrates that, in one sense, private takings are no less defensible than public takings. However, when the pliability rule's trigger depends on the discretion of a particular party, the identity of the party exercising that discretion naturally affects the incentive effects of the pliability rule. In our example of a private taking in the Poletown case, we vested discretion in the same actor as the real Poletown case did — the city council. Thus, we did not have to take account of the altered incentive effects.[238]

CONCLUSION

In this Article, we have developed the concept of pliability rules and demonstrated its centrality to a full understanding of the entitlement theory sparked by Calebresi and Melamed's classic article. We have also shown the pervasiveness of pliability rules in existing legal structures, and demonstrated how pliability analysis can transform property and intellectual property law.

Any study of a subject requires an understanding of its animating principles. The law is no exception. In light of the widespread use of

234. *See* Abraham Bell & Gideon Parchomovsky, *Givings*, 111 YALE L.J. 547 (2001); Merrill, *supra* note 208.

235. Editorial, *Protect the Taxpayers*, DETROIT NEWS, Oct. 19, 1999 at A10; Tina Lam, *Dispute Could Cause Price of Land for Stadiums to Rise*, DETROIT FREE PRESS, May 17, 1999, at 1B.

236. *See, e.g.*, EPSTEIN, *supra* note 101, at 169-181 (arguing in favor of private takings for public use); Lawrence Berger, *The Public Use Requirement in Eminent Domain*, 57 OR. L. REV. 203, 236-37, 243 (1978) (proposing that the public use requirement in private takings — for example, where landowners need to acquire access to their real property — should be allowed only if fifty percent excess compensation is paid).

237. *See* Fischel, *supra* note 209, at 80-89 (1995) (discussing historical evidence of private takings by railroads in the nineteenth century).

238. A fuller analysis of the incentive effects created by discretionary triggering events in pliability rules lies beyond the scope of this Article.

pliability rules in our legal system, it behooves the academy to update its theories to fit a complex legal reality. Given the ability of pliability rules to accommodate divergent social concerns, it is not surprising that they are already widely used, forcing the academy to play catch-up. Attention to pliability rules is thus necessary to align theory and reality. Moreover, such academic analysis of pliability rules can generate superior possibilities for decisionmakers, as we illustrated in the final Part of this Article.

Our exposition has provided a taste of the possibilities created by pliability analysis, rather than exhausted them. The prism of pliability highlights trends and features of the law that are not easily seen otherwise. Listing all the examples lies beyond the ken of this Article. But, to illustrate some possible directions for future discussions, we close by briefly touching upon a field of law that we have not yet mentioned — bankruptcy.

To be sure, the place of bankruptcy rights in Calebresi and Melamed's traditional framework is not easily determined, rendering it somewhat difficult to define precisely the various stages of the pliability rules created by bankruptcy.[239] But there is little doubt that the bankruptcy framework follows the broad outlines of pliability rules: one type of protection is altered by a trigger (the filing of the petition) and replaced by another type of protection. Bankruptcy law establishes that a certain event — the proper filing of a bankruptcy petition — alters the rights of all persons with regard to the property of the debtor. A new set of rules applies to all the debtor's and creditors' entitlements while the petition is in bankruptcy court, and after the proceeding is completed, the debtor is considered a new person, entitled to a "fresh start."

However, the importance of bankruptcy for pliability analysis lies not in its providing yet another instance of the use of pliability rules in legal practice; rather, the example of bankruptcy points to the impact of pliability rules on commercial practice, and the importance of understanding pliability rules as a category distinct from property or liability rules. Aware that a potential bankruptcy will trigger a change in protections, parties to commercial transactions shape their ex ante expectations. The possibility that a bankruptcy petition will alter the rights of owners and creditors has led to business practices such as credit ratings, risk-based interest premiums and guarantees. It has also spawned such legal fields as secured transactions, which seek to shape the rights of parties in the post-petition state of the debtor. All these

239. *See* Shubha Ghosh, *The Morphing of Property Rules and Liability Rules: An Intellectual Property Optimist Examines Article 9 and Bankruptcy*, 8 FORDHAM INTELL. PROP. MEDIA & ENT. L. J. 99 (1997); *see also* David Frisch, *The Implicit "Takings" Jurisprudence of Article 9 of the Uniform Commercial Code*, 64 FORDHAM L. REV. 11 (1995) (examining property rights in the context of secured transactions); *cf.* Merrill & Smith, *supra* note 94 (arguing against property analysis of *in personam* rights).

institutions are based upon the parties' awareness that the legal rights they enjoy will not necessarily extend infinitely into the future. Yet, the parties also know that if a bankruptcy petition triggers a rearrangement of their rights, they will not find themselves in unknown territory. The post-petition rules of bankruptcy are relatively clear and can be planned for.

Thus, bankruptcy provides an important guide on how the legal academy should use pliability analysis. In examining any given legal entitlement, we must reject the temptation to engage in a static analysis that freezes the entitlement at the present time. Instead, we must adopt a dynamic perspective that incorporates the change that the entitlement is due to undergo. Like the commercial actors aware of bankruptcy, we too can project change and create structures — like securities and pledges in the context of bankruptcy — that take into account the ability to change built into the rights created by law.[240]

The three decades that have elapsed since Calabresi and Melamed's landmark article have demonstrated its durability and usefulness. To retain its vitality, however, Calabresi and Melamed's model must be adapted to the dynamism of legal rules. Static property and liability rules have become basic staples of legal research. It is time for their dynamic cousins — pliability rules — to join them.

240. Before concluding, we note that our Article — like many based on *The Cathedral* — has focused on property and liability as the two basic building blocks identified by Calabresi and Melamed. Other combinations are, of course, possible. Consider child labor. Until a certain age, a child's labor is inalienable; after that age, a person may sell her labor at any agreed upon price, within the bounds set by labor laws. Thus, child labor laws create a type of "pliability rule" that involves a transition from inalienability to property rule protection.