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PROPERTY RULES VS. LIABILITY RULES

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Abstract

All of private law can be seen as rules for the ownership and exchange (forcible or voluntary) of entitlements. Property Rules and Liability Rules can be seen as shorthand terms describing two different means of protecting entitlements. Analysis of the choice between these types of rules provides a useful purchase on the jurisprudential foundations of a legal system.

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1. Introduction

To enjoy a legal right means, *inter alia*, that one will be able to rely on the protection of governmental agencies in case these rights are encroached upon. But different types of rights enjoy different degrees of legal protection. The systematic analysis and resultant taxonomy of protection of rights has been one of the most important contributions of the law and economics movement to the understanding of tort and contract law. The elaboration of property rules and liability rules has been especially useful in enhancing our awareness of what it means to have a right. In this survey, both the original contribution to this field and more recent treatments will be discussed, and their jurisprudential implications occasionally examined.

2. The Basic Taxonomy

Property Rules

The civilian concept of patrimony is a useful way to approach this subject. A person's patrimony is essentially composed of his rights and obligations. If we focus on the rights side of the equation, we notice that these rights receive differential degrees of protection.

Some rights are fully protected against unwanted takings. Thus, if Jill hears that Jack plans to take her car, he can typically obtain a court order forbidding this taking. If Jill has not obtained such an order or if, in violation of the order, Jack takes her car, Jill can obtain (in addition to appropriate criminal law punishment of Jack) an order for its restitution. Only if the restitution is impossible (because, say, Jack has intentionally destroyed the car) will Jill have to be content with its replacement by money damages. The amount of these damages will of course be determined by the court: typically, though, damages will include a punitive element reflecting societal condemnation of Jack's action.

In an article critical to the evolution of law and economics (Calabresi and Melamed, 1972), this type of protection of an entitlement was termed a property rule. The name is intuitively attractive, because property rule protection is what the man on the street thinks he deserves if he has a property right. Thus, Jill believes she is immune to claims that Jack may take her car because he values it more than she does. Presumably Jack can demonstrate the higher value he attaches to the car by acquiring rights to it from Jill in a Pareto-superior transaction (that is, a contract). This contract will, by definition, compensate Jill for any subjective value (over and above the market price of the vehicle) which she attaches to her car, for the simple reason that any offer inferior to this value will be declined by Jill.

To have a property right (that is, an entitlement protected by a property rule), then, is to have a right that is in some important way shielded from felicific or wealth-maximizing social functions. Ronald Dworkin captured the vital importance of property rule protection when he coined the phrase, 'rights trump utility' (Dworkin, 1975).

Liability Rules

Property rules are, however, not the only legal methods used to protect entitlements. To see this, realize that Jack and Jill engage in risk-creating behavior every time they leave their premises. When Jack hunts, or drives, or wheels his cart down an aisle while shopping for groceries, he creates risks for Jill and others. Yet Jack may NOT be enjoined *ex ante* from these activities, even though they probabilistically endanger Jill's property. Rather, only if and when Jill's property is damaged will Jack's activity be examined *ex post* to determine if compensation is required. When such compensation is ordered, it will typically NOT reflect the subjective value Jill attaches to her damaged property. Rather, it will reflect the property's market price, which by definition underestimates its value to Jill (since she had not chosen to sell the property at its market-clearing price) (Polinsky, 1980a, p. 1103).

3. An Illustration: Intentional but Non-Negligent Externalities in Property Disputes

The externality of environmental pollution, discussed in Coase's seminal piece (Coase, 1960), illustrates the ways in which both the owner of an entitlement and the means of protecting that entitlement might be determined. Suppose P (plaintiff) claims that D (defendant) is polluting P's holdings. D admits to this pollution but insists that it is non-wrongful. If P and D bring their dispute before the courts, then even if D's pollution was not negligent it must be declared who, as between them, has the favor of the law: may D pollute, or may P legally object to the pollution? After having answered this question, the court must then determine how to protect the entitlement it has found.

- Thus, suppose the court finds in favor of P. If it enjoined the pollution, this would be the equivalent of declaring that P possessed an entitlement which was protected by a property rule. D would be able to continue emitting pollutants if and only if D and P could come to some agreement whereby P would waive the judgment (that is, transfer the entitlement to D). The consideration for this injunction would by definition compensate P for damages suffered.
- On the other hand, the court could find that the D's pollution was not legal, but that D could continue to pollute upon payment of court-ordered damages to P. The court here is in essence imposing the terms of the post-injunction contract negotiated by the parties in the immediately preceding example. This is the equivalent of declaring that P's entitlement is protected by a liability rule: in effect, the court is condemning P's land to suffer a servitude of pollution, and is fixing the price of this servitude itself. There is no guarantee, of course, that this price fully reflects P's subjective damages. Rather, the award typically reflects the market-clearing loss of value of P's land.
- The court might also determine that D was not illegally polluting: that is, that D possessed the entitlement to pollute. Typically, this entitlement would be protected by a property rule: P's suit would be dismissed, and that P would have to meet D's price in a post-judgment transaction if P wished to oblige D to cease polluting.
- Finally, if the procedural rules of the jurisdiction permit holding a *plaintiff* liable for damages, the court could also protect D's claim with a liability rule. It could recognize D's right to pollute, then proceed to take it away from D after awarding D damages payable by P. A court accomplishing this would essentially be setting the terms of the post-judgment transaction between P and D imagined in the immediately preceding paragraph. The payment by P to D would be accompanied by an injunction against further

pollution by D. This would protect D's entitlement, but only with a liability rule (*Spur Industries v. Del E. Webb Development Co* (1972)).

A 2×2 grid illustrates the alternatives available to the court:

Table 1

		Method of Protection of Entitlement:	
		Property Rule	Liability Rule
Holder of entitlement:	P	[Box 1] injunction against pollution	[Box 2] Pollution allowed, damages awarded to P
	D	[Box 3] Pollution allowed, no damages awarded	[Box 4] Injunction against pollution, damages awarded to D

4. Another Illustration: Negligent and Unintentional Externality

Most tort suits do not result from a pattern of continuous harms, like the pollution example above. Even in one-time harm cases, however, the Calabresi-Melamed taxonomy is useful in understanding the different ways in which rights might be protected.

For example, in a dispute that resulted in a celebrated Supreme Court decision (*LeRoy Fibre Co. v. Chicago, Milwaukee & St. Paul R.R.* (1914)), it was conceded that the defendant railroad had negligently allowed sparks to land on the plaintiff's land. The railroad claimed, however, that the plaintiff was negligent in stacking his crops; they were placed on the plaintiff's own land but, alleged the railroad, they were located too near the tracks, such that the damages were therefore much greater than would have otherwise been the case. This, the railroad claimed, was contributory negligence by the plaintiff (which under tort rules then in effect would bar plaintiff's suit).

The United States Supreme Court divided in its judgment. The majority observed that the defendant had not purchased a servitude from the plaintiff, and concluded that as a matter of law the latter could therefore not be negligent for planting his own crops on his own land. This is the equivalent of protecting the plaintiff's entitlement to plant crops with a property rule. Dissenting Justice Oliver Wendell Holmes, Jr. agreed that, in the absence of a servitude, the railroad could not *enjoin* the stacking of crops near its track. But Holmes insisted that if the farmer's decision did not maximize joint (farmer-railroad)

output, then the farmer was negligent and could not recover the value of his destroyed crops. In essence Holmes was protecting the farmer's entitlement to plant crops with a liability rule, which under the particular circumstances of the case might result in no damages being awarded.

The *LeRoy Fibre* case illustrates the close link between liability rule protection of entitlements and the counter-intuitive bilateral causation concept which was the *raison d'être* of Coase's insights (Coase, 1960). In everyday language, it would be said that the railroad caused the crop loss by the emission of sparks. But Holmes (and Coase) would assert that, if the farmer was the cheaper cost avoider of the accident, it was he (and not the railroad) that caused the loss. Some cases have recognized bilateral causation quite explicitly (*Kansas Pacific Ry v. Brady* (1877), p. 386). Entitlement holders who believe their rights are protected by a property rule typically insist that they are the victims, not the cause, of damage: otherwise, their rights would be trumped by utility- or wealth-maximizing constraints, which is contrary to the very notion of property-rule protection. The Calabresi-Melamed typology highlights the link between rights language and causal language. To the extent entitlements are protected by liability rules, rights (and therefore causation) are inherently contingent; the cause of an injury is the efficient avoider of the injury. The cheaper-cost avoider of a loss will always be said to have caused the loss if entitlements are protected by liability rules.

5. A Further Complication: Inalienability Rules

The choice between these two mechanisms of protection of entitlements (property and liability rules) will be explored further below. Realize, though, that in reality the choice is not binary at all. As Calabresi and Melamed pointed out, and as others have developed (Radin, 1987, p. 8; Rose-Ackerman, 1985, p. 9), there exists a third protective mechanism: inalienability rules.

An entitlement protected by a property rule may be alienated only by its holder, while a right subject to a liability rule may be forcibly exchanged when a third party deems it to be in the interest of a social utility (or wealth) function. But an inalienability rule provides iron-clad protection against alienation, including voluntary alienation by the rights-holder himself. Some, but not all, constitutional rights (for example, in the United States, the right to vote and the right not to be free from cruel and unusual punishment, *but not* the constitutional right to a jury trial), and many corporal entitlements (entitlements to one's heart, to one's legs, *but not* to one's hair) are protected by inalienability rules. Sometimes (for example, in some jurisdictions as regards blood and kidneys) the inalienability rule is partial only: *donation* of the entitlement is allowed while *sale* is prohibited (Calabresi and Melamed,

1972, pp. 1111-1115). As is the case for property rules, but *a fortiori*, rights protected by inalienability rules may not be sacrificed in the name of a social maximand. The explanation of inalienability rules goes beyond the subject matter of this encyclopedia entry: suffice it to note that profound jurisprudential beliefs about the human condition, and about the limits of rationality, underlie inalienability rule protection.

6. Non-Tort Applications

Insights gleaned from the Calabresi-Melamed taxonomy have been implemented with profit in fields other than tort. In contract law, a creditor (promisee) has an entitlement to the performance of the promise by the debtor (promisor). If this entitlement is to be enforced with a property rule, specific performance would be available at the creditor's option. If, on the other hand, the entitlement is to be protected only by a liability rule, then specific performance would not be a creditor's option - rather (as Justice Holmes once observed in a famous *dictum*), the promise to perform would in reality only be a promise to pay damages adjudicated by a third party, the court, at the debtor's option (Kronman, 1978; Schwartz, 1979). And some contractual risks are apparently protected by inalienability rules, such that their voluntary alienation will be deemed unconscionable and therefore unenforceable by the courts (Craswell, 1993).

7. Who Should Get an Entitlement, and How Should this Entitlement be Protected

As shown, the property rule/liability rule taxonomy has proven extremely useful in positive analysis. But beyond understanding what exactly courts *are* doing, does the typology provide insights as to how rights *ought* to be allocated and protected? In the move from positive to normative analysis, here as in law and economics generally, explanations are much more controversial.

Note initially, as Coase famously pointed out (Coase, 1960, pp. 2-8), that if there are no impediments to bargaining, the initial assignment of an entitlement will not thwart or even (abstracting from wealth effects) influence its ultimate allocation, which will be efficient.

To many, the Coase theorem detachment of initial distribution from final efficient allocation implies that *non-economic* motives should determine initial allocation of entitlements (Frank, 1987; Schwab, 1989). If transaction costs are high, of course, the initial distribution of the legal entitlement may also be the final one, and Kaldor-Hicks efficiency would then only be attained if the initial

allocation was to the social-cost-minimizing party. However, the two states of the world (one in which the initial allocation was to the social-cost-minimizing party, one in which it was to another party, with high transactions costs preventing easy assignment) are not Pareto-comparable, and it is therefore difficult to establish the moral, or even economic (Buchanan, 1987) superiority of that assignment.

More interesting for the purposes of this encyclopedia entry is the question, assuming it has been decided for some reason to allocate an entitlement to someone, whether that entitlement should be protected by a property rule or by a liability rule. The rest of this abstracts from the additional possibility that an inalienability rule might be appropriate.

The conventional law and economics answer to this question is that a property rule should be chosen if transaction costs are low (in which case the parties can arguably best establish the relevant values by bargaining after the assignment of the entitlement), while a liability rule should be chosen if transaction costs are high (as might be the case if large numbers of parties are involved either as plaintiffs or defendants, creating risks of free-riding or of holdouts, if the entitlement is incorrectly assigned from an efficiency standpoint). Thus, Posner wrote that, where transaction costs are high, the allocation of resources to their highest-valued uses is facilitated by denying property right holders an injunctive remedy against invasions of their rights and instead limiting them to a remedy in damages (Posner, 1972, p. 29).

But it has been pointed out (Polinsky, 1980a) that this answer assumes that while transaction costs between parties are high, information costs *for the judge* who determines damages payable (or for the jury, if the jury sets the damages) are low. If, on the contrary, both transaction costs and judicial assessment costs are high, there is little reason to believe that protection of an entitlement with a liability rule will be particularly conducive to efficiency (Polinsky, 1980a, p. 1111; Krier and Schwab, 1995, p. 455). Thus, in the pollution example applied earlier, if Defendant's pollution abatement costs were \$100,000 and Plaintiff's actual damages were \$120,000 but were set by the judge (who ignored idiosyncratic value) erroneously at \$90,000, then if transaction costs were high the defendant would pollute and pay damages rather than abate, even though abatement is the true social-cost-minimizing result.

As implied on several occasions above, there are indeed reasons to believe that assessment of damages will be incorrect. Judicially determined damages typically and systematically neglect a plaintiff's idiosyncratic value or consumer surplus (the assessment cost of which is prohibitively high in most cases - there is a strong likelihood that plaintiff would exaggerate such surplus at trial in order to obtain a windfall). Thus in one famous case in which Defendant had polluted Plaintiff's summer home, Judge Learned Hand stated that 'A country residence, on which so much is spent to suit the owner's fancy,

cannot be said to have a [social] value equal to its cost' (*Smith v. Staso Milling Co.*, 1927, p. 739). If damages are systematically mis-assessed, then the economic basis for choosing between property and liability rule protection of entitlements in high transaction cost situations would disappear.

These problems might lead one to believe that, from an efficiency perspective, property rules (injunctive relief) are no worse than liability rules. In fact, property rules (which do not require any calculation of the amount of harm on the part of the court) might possibly be cheaper than liability rules. Recently it has been argued that arbitrary, Solomonic liability awards might encourage Coasean trades as well as and more cheaply than detailed efforts to calculate damage (Ayres, 1995).

This argument has been criticized by Kaplow and Shavell (1995), who have recently offered an additional plea for liability rules (1996). They essentially reason that liability rules promote at least some comparison of costs and benefits, forcing one party or the other to compare its opportunity costs to an amount of damages representing the judge's best estimate of them. But this best estimate itself is simply and unpersuasively assumed to be relatively accurate. These two authors have summed up the choice between property and liability rules, in the face of transaction and-or assessment costs, as follows:

Table 2
Property vs. Liability Rules

	High Assessment Costs	Low Assessment Costs
High Transaction Costs	Neither rule likely to be efficient	Liability rules preferable
Low Transaction Costs	Both rules likely to be efficient	Both rules likely to be efficient

Again, there is no particular reason to assume that assessment costs will be lower than transaction costs. An Austrian approach (questioning the assumption that state agents can discover information more efficiently than market processes) argues particularly strongly against such an assumption (Krauss, 1994). Economic variables may simply be too indeterminate to advocate on efficiency grounds some fine-tuned academic recommendations based on simplifying assumptions (G. Schwartz, 1994, p. 444).

If these reflections are cogent, then the choice between property and liability rules as enforcement mechanisms for entitlements may turn on non-economic

variables. Demanders of corrective justice (Coleman, 1992; Krauss, 1992) and natural attachment of entitlement holders to their rights (Michelman, 1967) might argue for the priority of property rules in situations where neither rule has a clear efficiency advantage. Analogously, the case can and has been made that inalienability rules might be the best way to expand personal liberty (Arneson, (1992).

8. Conclusion

The literature describing property rules and liability rules has provided fascinating insights into the different ways in which tort, contract and property law protect our entitlements. But the taxonomy, like economic analysis generally, should not be used on a normative level without caution. There is nothing in Calabresi's formulation, or in the Coase theorem which inspired it, which authorizes using the courts (or indeed the market) to invade the realm of ethics. Such an invasion, like the domination of liability rules, would give us a quantitative rendering of value that would fail to do justice to the richness and variety of our ethical experience, all the while serving to inspire unneeded hostility for economic analysis in general (Anderson, 1993).

Bibliography on Property Rules v. Liability Rules (3800)

- Anderson, Elizabeth (1993), *Value in Ethics and Economics*, Cambridge, MA, Harvard University Press.
- Arneson, Richard (1992), 'Commodification and Commercial Surrogacy', **21** *Philosophy And Public Affairs*, 132-164.
- Atias, Christian (1986), 'La Distinction du Patrimonial et de l'Extra-Patrimonial et l'Analyse Economique du Droit: un Utile Face à Face (The Distinction Between Patrimonial and Extra-Patrimonial Rights and the Economic Analysis of Law)', **1** *Revue de la Recherche Juridique*.
- Ayres, Ian and Talley, Eric (1995), 'Solomonic Bargaining: Dividing a Legal Entitlement to Facilitate Coasean Trade', **104** *Yale Law Journal*, 1027-1117.
- Bouckaert, Boudewijn and De Geest, Gerrit (1995), 'Private Takings, Private Taxes, Private Compulsory Services: The Economic Doctrine of Quasi Contracts', **15** *International Review of Law and Economics*, 463-487.
- Bromley, Daniel W. (1978), 'Property Rules, Liability Rules, and Environmental Economics', **12** *Journal of Economic Issues*, 43-60.
- Buchanan, James M. (1987), 'Rights, Efficiency, and Exchange: The Irrelevancy of Transactions Cost', in *Economics: Between Predictive Science and Moral Philosophy*.
- Buchanan, James M. and Faith, Roger L. (1981), 'Entrepreneurship and the Internalization of Externalities', **24** *Journal of Law and Economics*, 95-111.
- Calabresi, Guido and Melamed, A. Douglas (1972), 'Property Rules, Liability Rules and Inalienability:

- One View of the Cathedral', **85** *Harvard Law Review*, 1089-1128. Reprinted in Ackerman, Bruce A. (1975), *Economic Foundations of Property Law*, Boston, Little Brown, 31-48.
- Coase, Ronald H. (1960), 'The Problem of Social Cost', **3** *Journal of Law and Economics*, 1-44. Reprinted in Ackermann, Bruce A. (1975), *Economic Foundations of Property Law*, Boston, Little Brown, 17-22. Reprinted in Medema, Steven G. (1995), *The Legacy of Ronald Coase in Economic Analysis*, Vol.2, Aldershot, Edward Elgar Publishing, 5-48. Reprinted in Coase, Ronald H. (1988), *The Firm, the Market and the Law*, Chicago, University of Chicago Press.
- Coleman, Jules L. (1987), 'Property, Wrongfulness and the Duty to Compensate', **63** *Chicago-Kent Law Review*, 451-470.
- Coleman, Jules L. (1992), 'Tort Law and the Demands of Corrective Justice', **67** *Indiana Law Journal*, 349 ff.
- Coleman, Jules L. and Kraus, Jody S. (1986), 'Rethinking the Theory of Legal Rights', **95** *Yale Law Journal*, 1335-1371.
- Cooter, Robert D. (1991), 'Economic Theories of Legal Liability (Italian Translation: "Le Teorie Economiche della Risponsibilit... Efficenza Produttiva: Alcuni Contributi su noti Argomenti" 379-409)', **5** *Journal of Economic Perspectives*, 11-30. Reprinted in Medema, Steven G. (ed.), *The Legacy of Ronald Coase in Economic Analysis*, Edward Elgar Publishing, Gloucestershire, forthcoming. Italian translation: 'Le Teorie Economiche Della Risponsabilit Legale', published in Gianandrea Goisis.
- Craswell, Richard (1993), 'Property Rules and Liability Rules in Unconscionability and Related Doctrines', **60** *University of Chicago Law Review*, 1-65.
- Dworkin, Ronald M. (1975), *Taking Rights Seriously*, Cambridge, MA, Harvard University Press.
- Epstein, Richard A. (1985), 'Why Restrain Alienation?', **85** *Columbia Law Review*, 970-990.
- Frank, Robert H. (1987), 'If Homo Economicus could Choose his Own Utility Function, Would He Want One with a Conscience?', **77** *American Economic Review*, 393-394.
- Frech, H. Edward III (1973), 'Pricing of Pollution: The Coase Theorem in the Long Run', **4** *Bell Journal of Economics*, 316-319.
- Frech, H. Edward III (1979), 'The Extended Coase Theorem and Long Run Equilibrium: The Non-Equivalence of Liability Rules and Property Rights', **27** *Economic Inquiry*, 254-268.
- Friedman, David D. (1984), 'Efficient Institutions for the Private Enforcement of Law', **13** *Journal of Legal Studies*, 379-397.
- Gallo, Paolo (1992), 'Errore sul Valore, Giustizia Contrattuale e Trasferimenti Ingiustificati di Ricchezza alla Luce dell'Analisi Economica del Diritto (Mistake on Value, Contractual Justice and Unjust Enrichment)', *Quadrimestre*, 656-703.
- Gambaro, Antonio (1996), 'L'Analisi Economica e la Ricerca della Logica Proprietaria (Economic Analysis and the Search for the Rationality of Ownership)', **14** *Rivista Critica del Diritto Privato*, 235-244.
- Gordon, Wendy J. (1982), 'Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and its Predecessors', **82** *Columbia Law Review*, 1600-1657.
- Gordon, Wendy J. (1992a), 'On Owning Information: Intellectual Property and the Restitutionary Impulse', **78** *Virginia Law Review*, 149-281.
- Gordon, Wendy J. (1992b), 'Of Harms and Benefits: Torts, Restitution, and Intellectual Property', **21**

- Journal of Legal Studies*, 449-482.
- Gordon, Wendy J. (1993), 'A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property', **102** *Yale Law Journal*, 1533-1609.
- Gordon, Wendy J. (1994), 'Systemische und Fallbezogene Lösungsansätze für Marktversagen bei Immaterialgütern (Systemic and Case-by-Case Responses to Failures in Markets for Intangible Goods)', in Ott, Claus and Schäfer, Hans-Bernd (eds), *Ökonomische Analyse der rechtlichen Organisation von Innovationen*, Tübingen, Mohr, 328-367.
- Gordon, Wendy J. and Gowen, Anne, 'Mandated Access: Commensurability and the Right to Say 'No'', **17** *Hastings Communications and Entertainment Law Journal*, 46 ff.
- Haddock, David D., McChesney, Fred S. and Spiegel, Menahem (1990), 'An Ordinary Economic Rationale for Extraordinary Legal Sanctions', **78** *California Law Review*, 1-51.
- Hasen, Richard L. (1995), 'The Efficient Duty to Rescue', **15** *International Review of Law and Economics*, 141 ff.
- Kaplow, Louis and Shavell, Steven (1995), 'Do Liability Rules Facilitate Bargaining? A Reply to Ayres and Talley', **105** *Yale Law Journal*, 221 ff.
- Kaplow, Louis and Shavell, Steven (1996), 'Property Rules versus Liability Rules: An Economic Analysis', **109** *Harvard Law Review*, 713-790.
- Knetsch, Jack L. (1983), *Property Rights and Compensation. Compulsory Acquisitions and Other Losses*, Toronto, Butterworths.
- Krauss, Michael I. (1986), 'L'Affaire Lapierre: vers une théorie Economique de l'Obligation Quasi-Contractuelle (The Lapierre Case: Toward an Economic Theory of the Quasi-Contractual Obligation)', **31** *McGill Law Journal*, 683-721.
- Krauss, Michael I. (1992), 'Tort Law and Private Ordering', **53** *St. Louis University Law Journal*, 423 ff.
- Krauss, Michael I. (1994), 'Regulation vs. Markets in the Development of Standards', **3** *Southern California Interdisciplinary Law Journal*, 781-808.
- Krier, James E. and Schwab, Stewart J. (1995), 'Property Rules and Liability Rules: The Cathedral in Another Light', **70** *New York University Law Review*, 440-483.
- Kronman, Anthony T. (1978), 'Specific Performance', **45** *University of Chicago Law Review*, 351-382. Reprinted in Kronman, Anthony T. and Posner, Richard A. (eds) (1979), *The Economics of Contract Law*, Boston, Little Brown, 181-194.
- Landes, William M. and Posner, Richard A. (1975), 'The Private Enforcement of Law', **4** *Journal of Legal Studies*, 1-46.
- Levmore, Saul (1985), 'Explaining Restitution', **71** *Virginia Law Review*, 65-124.
- Levmore, Saul (1994), 'Obligation or Restitution for Best Efforts', **67** *University of Southern California Law Review*, 1411-1449.
- McChesney, Fred S. (1990), 'Government as Definer of Property Rights: Indian Land Ownership, Ethnic Externalities, and Bureaucratic Budgets', **19** *Journal of Legal Studies*, 297-335.
- Michelman, Frank I. (1967), 'Property, Utility and Fairness: Comments on the Ethical Foundations of 'Just Compensation' Law', **80** *Harvard Law Review*, 1165-1258. Reprinted in Ackerman, Bruce A. (ed.) (1975) *Foundations of Property Law*, Boston, Little Brown, 100 ff.
- Pardolesi, Roberto (1977), 'Azione Reale e Azione di Danni nell'Art. 844 C.C. Logica Economica e Logica Giuridica nella Composizione Del Conflitto Tra Usi Incompatibili delle Proprietà... Vicine (Property Rule and Liability Rule in Article 844 Codice Civile: Economic Arguments, Legal

- Arguments and Litigation for Inconsistent Uses of Neighbours Lands)', **1** *Foro Italiano*, 1144-1154.
- Polinsky, Mitchell A. (1979), 'Controlling Externalities and Protecting Entitlements: Property Right, Liability Rule, and Tax-Subsidy Approaches', **8** *Journal of Legal Studies*, 1-48.
- Polinsky, Mitchell A. (1980a), 'Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies', **32** *Stanford Law Review*, 1075-1112.
- Polinsky, Mitchell A. (1980b), 'On the Choice Between Property Rules and Liability Rules', **18** *Economic Inquiry*, 233-246.
- Polinsky, Mitchell A. and Shavell, Steven (1994), 'Should Liability be Based on the Harm to the Victim or the Gain to the Injurer?', **10** *Journal of Law, Economics, and Organization*, 427-437.
- Posner, Richard A. (1971), 'Killing or Wounding to Protect a Property Interest', **14** *Journal of Law and Economics*, 201-232.
- Posner, Richard A. (1972), *Economic Analysis of Law*, 1st edn, Boston, Little Brown.
- Radin, Margaret Jane (1987), 'Market-Inalienability', **100** *Harvard Law Review*, 1849-1937.
- Rose-Ackerman, Susan (1985), 'Inalienability and the Theory of Property Rights', **85** *Columbia Law Review*, 931-969. Reprinted in Coleman, J. and Lange, J (eds) (1992), *Law and Economics*, Vol. I, New York University Press, 421-459.
- Rose-Ackerman, Susan (1986), 'Efficiency, Equity and Inalienability', in Graf Von Der Schulenburg, J.-Matthias and Skogh, Göran (eds), *Law and Economics and The Economics of Legal Regulation*, Dordrecht, Kluwer, 11-37.
- Samuels, Warren J. and Mercurio, Nicholas (1981), 'The Role of the Compensation Principle in Society', in Samuels, Warren J. and Schmid, A. Allan (eds), *Law and Economics: An Institutional Perspective*, Boston, Nijhoff, 210-247.
- Schap, David (1986), 'The Nonequivalence of Property Rules and Liability Rules', **6** *International Review of Law and Economics*, 125-132.
- Schwab, Stewart J. (1989), 'Coase Defends Coase: Why Lawyers Listen and Economists Do Not', **87** *Michigan Law Review*, 1171-1198.
- Schwartz, Alan (1979), 'The Case for Specific Performance', **89** *Yale Law Journal*, 271-306.
- Schwartz, Gary T. (1994), 'Reality in the Economic Analysis of Tort Law: Does Tort Law Really Deter?', **42** *UCLA Law Review*, 377-444.
- Staaf, Robert J. (1983), 'Liability Rules, Property Rights, and Taxes', **5** *Research in Law and Economics*, 225-231.
- Stephen, Frank H. (1987), 'Property Rules and Liability Rules in the Regulation of Land Development: An Analysis of Development Control in Great Britain and Ontario', **7** *International Review of Law and Economics*, 33-49.
- Stout, Lynn A. and Barnes, David D. (1992), *Economics of Contract Law*, St Paul, West Publishing.
- Thompson, Barton H. (1975), 'Injunction Negotiations: An Economic, Moral and Legal Analysis', **27** *Stanford Law Review*, 1563-1595.
- Villa, Gianroberto (1992), 'Contratto Illecito ed Irripetibilità della Prestazione - Una Analisi Economica (Unlawful Contract and Non Repayable Performance - An economic analysis)', *Quadrimestre*, 19-64.
- Wils, Wouter P.J. (1993), 'Who Should Bear the Costs of Failed Negotiations? A Functional Inquiry into Precontractual Liability', **4** *Journal des Economistes et des Etudes Humaines*, 93-134.

Cases

Kansas Pacific Ry v. Brady (1877), (17 Kan. 380: Kansas Supreme Ct.)

LeRoy Fibre Co. v. Chicago, Milwaukee & St. Paul R.R. (1914), (232 U.S. 340: U.S. Supreme Court)

Smith v. Staso Milling Co. (1927), (18 F. 2d 736: 2d Cir.)

Spur Industries v. Del E. Webb Development Co. (1972), (494 P.2d 700: Arizona Supreme Court)