The following are the web notes for the sixth edition of *Law and Economics* by Robert D. Cooter and Thomas S. Ulen. Our intent in these notes is to extend the material in the text by describing some additional issues, articles, cases, and books. Because the fields of law, economics, and law and economics are not standing still – because, that is, scholars are adding interesting new material all the time, we may supplement, alter, and add to these notes from time to time.

Each note begins with a copy of the material from the text about the content of the web note and the page on which that web note can be found. We will from time to time insert new material, update some of the entries, and add some additional material. You should be able to download pdf versions of each chapter’s web notes and of the entire set of web notes for all 13 chapters.

We have found that the very best students and their instructors from all over the world pay close attention to these web notes. They often have good ideas about how to add to the entries already here and suggestions about articles, cases, books, and topics that would be instructive to add. We would be grateful for any comments or suggestions about any of the notes.

Chapter 4

*Web Note 4.1 (p. 88)*

There is more on the Coase Theorem at our website, where we pose additional questions and describe some experimental studies designed to test the Coase Theorem.

There have been literally thousands of articles written about the Coase Theorem. And Coase’s original paper, “The Problem of Social Cost,” is one of the most frequently cited law-review articles of the last 50 years. In what follows here we summarize and critique four important articles about the theorem.


Professors Kahneman, Knetsch, and Thaler designed a series of experiments which add a new twist to the debate over the Coase Theorem. Their research suggests that the endowment effect, where one party to a transaction acquired his wealth fortuitously, strongly affects the outcome of the resulting transactions. We discuss the premise of their study, their baseline experiment, and a few of its variations below.

In each of these experiments, an endowment occurred: at least some subjects in the group were given an item of value, such as a coffee mug or pen. These subjects were then given the opportunity to sell the item in a controlled market, either to the experiment presenters or to another student. Each party stated its “reserve” price, and a “market price” was given, either at random or as a function of student reserves. If the market price met the student’s reserve, she would be required to transact at that price. Conditions were controlled carefully to ensure that transaction costs were as low as possible.
Of course, the Coase Theorem predicts that the results would be the same in each case, regardless of who received the endowment. Further, these results should approximate those transactions where neither party received an endowment. Because one party received the item for free, and the items were of some value to the average consumer, some cooperative surplus would exist in each case. Economic theory suggests that the participants would find this surplus, and transact upon it, with consistency.

The results were entirely different than those predicted by the Coase Theorem. Far fewer transactions took place than would be expected, a result replicated in each individual experiment. “Sellers” tended to value their items far more highly than potential buyers, so few deals were consummated.

The researchers found that the final number of transactions depended almost exclusively on the endowment effect. People that received an item of value for free were far more likely to overvalue it. Buyers, whose preferences were not influenced by the endowment, valued the items in the expected range.

Coffee mugs, which retailed at $6 each, offered an interesting example. In one experiment, buyers (who presumably didn’t go to class looking to buy a coffee mug) offered an average of $2.25 per mug in the spot market. Sellers, to whom the entire purchase price would be profit, demanded an average of $5.25 per mug. Very few sellers were willing to part with their mugs at a price where the transaction would take place. Kahneman hypothesized that this discrepancy was created because, for some reason, sellers valued their gifted mugs extraordinarily high.

They varied their experiment in several ways, using several different items, to control for other factors. Kahneman found that even when the process was repeated several times, sellers continued to value their endowments too highly. In those experiments where sellers had the potential to manipulate market price (i.e. to become a market-maker), the results were similar to those where sellers simply had to take the market price as given.

Perhaps the most interesting variation came in a scenario where all of the subjects in a group were given the same endowment. In the first group, they were given coffee mugs with an option to trade for a chocolate bar. In the second, they were given chocolate bars with an opportunity to trade for a coffee mug. In the third, they were given the choice, up front, between a coffee mug and a chocolate bar.

Among the first group, only 11 percent opted to trade their mugs for chocolate. In the second, only 10 percent of the subjects traded their chocolate bars for coffee mugs. Yet, in the third group, 56 percent of the subjects chose a coffee mug and 44 percent chose a chocolate bar. This result suggests that the endowment effect has a strong influence on whether or not people ultimately decide to transact.

This is only a brief synopsis of this brilliant work. We recommend it highly to the reader. It is an example of not only interesting results, but also of very good research procedure. Throughout, the authors adopt controls and variations with great precision. Their methods block out most of the background noise and allow their results to come through loud and clear. This piece is empirical research at its best.


One of the seminal works on the Coase Theorem, Prof. Ellickson’s article looks at whether real-life cattlemen in rural California actually behave as they do in Coase’s famous example of the cattle rancher and the farmer. Ellickson found that this setting was not the “low transaction
costs” environment envisioned by Coase and others, thus making it an imperfect arena for studying the Coase Theorem. However, he was able to make many interesting observations about the Theorem.

Ellickson carried out his real-world experiment in Shasta County, a rural area of Northern California. At the time of his study, most of the county was designated as “open range”, while some of it was “closed range”. The essential (and simplified) difference between the two was this: while cattlemen were liable for property damages caused by their herd in closed range areas, they generally were not so liable in open rangeland. Further, unique laws caused the boundaries between open and closed rangeland to change with some frequency.

If Shasta County residents were to behave as Coase expected, they would endeavor to learn their legal rights in each situation. If trespass did occur, they would arrive at an agreement using the law as their general framework.

Ellickson’s first observation was that very few people in the area knew much about laws concerning cattle trespass. Most people did know whether their own land was open or closed range, and the general rules governing that type. However, nobody seemed to know just which surrounding land was open and closed range, and few people possessed maps of the designations. Nobody that Ellickson talked to knew all or even most of the legal nuances of each type of land. In short, people tended to not understand the law because the costs of acquiring this expertise in such a fluid, wide-open environment were very high.

Ellickson next observed that even if Shasta County residents knew the laws, they usually ignored them. Importantly, problems were resolved on a case-by-case basis rather than under the umbrella of broad legal rights.

Disputes were generally resolved according to social norms. For example, if one rancher’s livestock ate another rancher’s hay, he usually paid the neighbor back in kind regardless of whether this occurred in open or closed range areas. If a rancher found a neighbor’s cow with his herd, he usually fed and took care of the animal until the owner was reasonably able to come pick it up. Rather than seeking payment for any variety of trespasses, most of the ranchers followed a simple code of neighborly relations, knowing that the favor would likely be returned at a future date.

When neighborliness could not resolve a dispute, the parties usually resorted next to extra-legal methods. In small towns, negative gossip was used with frequency to bring wrongdoers into line. Local officials were often enlisted as mediators. Often, a simple phone call from the mayor was enough to resolve a dispute.

Surprisingly, Ellickson found that formal legal proceedings were initiated only twice in recent memory. Both cases involved relative newcomers to the county that did not follow the local norms or care much what their neighbors thought of them. In one of these cases, a letter from a local attorney, retained specifically for the case, prompted a settlement. In the other, a swift trial provided resolution.

Ellickson surmised that each of these factors suggested very high transaction costs. Cost-conscious ranchers were reluctant to hire expensive lawyers. Further, the social costs of being perceived as litigious altered each rancher’s decision-making process.

As such, Ellickson was unable to prove or disprove the Coase Theorem directly. Rather, he found a society of high transaction costs in which the Coase Theorem was largely inapplicable. He proved that even in the romanticized world of ranchers and farmers, reducing transaction costs is very difficult.

As part of his larger article, Dean Calabresi makes some interesting observations regarding transaction costs and overall economic efficiency. He likens economic efficiency to that of a combustion engine, and transaction costs to friction. In the same way that friction reduces an engine’s potential for efficiency, so too do transaction costs reduce the amount of efficiency that can be had in an economic system.

Calabresi points to various ways to reduce transaction costs (or friction) and create greater efficiency. Engineers, for example, can develop new synthetic oils to reduce engine friction. They might one day even be able to eliminate friction altogether through the use of superconductors. In a similar fashion, policymakers may be able to streamline or even change laws entirely to reduce transaction costs and allow a greater number of mutually-beneficial transactions to take place.

Either way, Dean Calabresi stresses the need to carefully weigh the costs and benefits of innovation. There are, of course, some improvements that will cost much less than others and some that will produce far greater efficiency gains than others. As a society, we must decide which of these innovations are worth pursuing at any given point in time, and which ones are better left to tackle in the future.


In his article, Nadal raises several interesting critiques of the Law & Economics movement, specifically as it relates to the Coase Theorem. We attempt to summarize and comment upon his major points in this note. However, we make no attempt at a comprehensive response. We recommend that the reader peruse Nadal’s entire article.

Like many critics of Law & Economics, Nadal seems to believe that a desire for efficiency necessarily creates an indifference towards justice. He attacks the Coase Theorem for its supposed disdain of fairness and equality. This argument is fatally flawed because it misunderstands the whole aim of the Theorem. The Theorem is not a normative theory but a positive one: it doesn’t say how a transaction SHOULD take place but rather explains whether it DOES take place. In the traditional Coasean example involving the rancher and the farmer, the Theorem merely shows that a fence will be built under certain circumstances regardless of the mechanics of justice present in that society. It leaves the establishment of these mechanics up to society.

Next, Nadal discusses the “contract curve”. In most real-world transactions, there are many points at which a cooperative surplus is created. The only difference between these points is how the surplus is allocated. This range of values represents the contract curve. Nadal observes that that certain factors, such as negotiation talent, influence at which point on the curve the parties ultimately agree to transact. He also states correctly that once two parties reach a point of cooperative surplus, they may choose to cease negotiations rather than try to arrive at a different point. However, Nadal incorrectly concludes that this multiplicity of values somehow discredits the Theorem.

Once again, Nadal seems to be confused as to the Coase Theorem’s purpose. It aims to predict whether two parties will transact, not to determine the exact point along the contract curve where the transaction will take place. Further, it does not attempt to categorize the various points according to a hierarchy of desirability, morality, or any other non-economic concern. To continue with the fence analogy, the Theorem can predict whether or not the fence will be built. It
makes no attempt to divine just how the rancher and farmer will allocate the costs of construction, nor even which allocation is “best”. If society believes one allocation of these costs to be “better” than another, it can dictate accordingly. But any such decision falls entirely outside the scope of the Coase Theorem.

Finally, Nadal suggests that the Coase Theorem is unable to predict real-world behavior in the wider economy. He tries to prove that the Coase Theorem fails when there are many actors, many commodities, and many variables involved in a transaction. Yet again, this argument is crippled by Nadal’s apparent misunderstanding of the Theorem. Transaction costs in corporate mergers tend to be much higher than they would be if the parties were trying only to build a fence. If transaction costs cannot be reduced to zero, or anywhere approaching it, the Theorem will not apply in the first place. Saying that the Coase Theorem is flawed because it cannot predict the outcome of complicated transactions is like saying that a car’s speedometer is flawed because it can’t tell the driver what time it is. It simply wasn’t meant for that sort of situation.

Web Note 4.2 (p. 102)

There has been a surprising amount of recent scholarship on the Calabresi-Melamed contention about the efficiency of remedies. We discuss much of that literature on our website, including looking at the empirical literature on whether the issuing of injunctions is typically followed by bargaining.

The account of the Calabresi-Melamed analysis of the efficiency of legal and equitable remedies that we give in the text might be termed the “classical account.” Our outline of their analysis stays very close to the original article’s conclusions.

Naturally, there has been a great deal of scrutiny of the Calabresi-Melamed contention since its publication in the early 1970s. The articles that we summarize below are a fair representation of how that scholarly literature has developed. We conclude this survey with an account of an extremely important article by Louis Kaplow and Steve Shavell that greatly refines – indeed, alters – the classical account of the Calabresi-Melamed article.


The author uses the interesting method of stock options to explain liability rules: “In the Calabresi and Melamed framework, liability rules are analogous to “call” options in that a potential taker is given the choice of taking and paying court determined damages.” The author suggests to extend the four rule framework of Calabresi and Melamed so it will include another two “put option” (or “forced purchase”) rules. The author explains the logic behind using a “put option” to demonstrate liability rules. “A “put option” rule gives the initial entitlement holder the choice of retaining the entitlement or the choice of being paid to cede the entitlement.”

The common law uses “put options” (the right to force a non-consensual purchase) as a mechanism for protecting entitlements. To demonstrate how the “put option” rule works, the author brings the following examples: “1) If Calabresi steals Melamed’s watch, Melamed has the option of suing to recover the watch (replevin) or suing to receive the watch’s value (trover). 2) If Calabresi is a holdover tenant in Melamed’s apartment, Melamed has the option of suing to enjoin Calabresi’s continuing trespass or (at least in some jurisdictions) suing to force Calabresi to rent for up to an entire additional year. 3) If Calabresi builds an encroaching wall on Melamed’s land, Melamed has the option of suing to force Calabresi to remove the wall or suing
to force Calabresi to permanently buy the encroached land. In each of these examples, after Calabresi takes Melamed’s entitlement, the common law gives Melamed a put option – the option to choose court-determined damages (for permanently ceding the entitlement to the defendant) or injunctive relief (to require the entitlement).”

The author suggests that surprisingly, the victims of nuisance are not routinely given a similar put option and therefore: “if Calabresi pollutes Melamed’s land, Melamed is not given an analogous put option.” The Article therefore suggests that put options at times should be used to protect property in the nuisance context as well.


The authors construct a model in which a first mover decides on its location before it knows the identity of the second mover. Contracts are inherently incomplete since the first mover’s initial location decision cannot be specified to an anonymous second mover. The authors describe their “coming to the nuisance” rule, which allocates property rights to the first mover, as a rule that protects the first mover’s investment from expropriation, but may lead it to invest excessively, and thus may be dominated by second-mover rights. The “coming to the nuisance” doctrine is the allocation of property rights over the externality to the first mover, on the premise that any harm from the externality was brought on by the second mover’s decision to locate next to the first. The authors suggest that inefficiencies still arise even if a monopoly landowner controls all the land on which the parties may locate. The authors derive optimal rights regimes, but the focus of their analysis is on property rights regimes used in practice, an analysis which leads them to challenge a number of established results in law and economics including the Calabresi-Melamed rule, the efficacy of rights contingent on land-improving investment, and Coase’s insight on the irrelevance of the identity of the polluter.

In this paper, the authors emphasize the “ex ante anonymity” situation which is a possible reason why bargaining may be inefficient in practice. “The investment decisions leading the parties to locate near enough to each other to generate a negative externality may be made sequentially; the first mover may make its location/investment decision far in advance of the second. Though it may be aware of the possibility of a second mover locating near it sometime in the future, it may not know which of the uncountable set of potential second movers will actually turn up. Once the identity of the second mover is known and it is available to bargain with the first mover, they may contract efficiently over a whole range of variables including the second mover’s investment/location decision and the externality level. Still, the first mover’s initial investment/location decision would not be contractible since the second mover is effectively anonymous at that time and thus not available to bargain with.”

This Article contributes to the recent debate revisiting Calabresi and Melamed’s comparison of injunctive rights and damage rights. Calabresi and Melamed argue that, when transactions costs are high, damage rights are preferable to injunctive rights. This Article shows that, “despite the presence of transactions costs in the form of ex ante anonymity, the Calabresi-Melamed rule is equally likely to be reversed. In the construction of an efficient property rights allocation, the distinction between damage and injunctive rights matters less than distinctions based on the timing of ownership (first- vs. second-party rights).”

Under the Calabresi-Melamed theory, transaction costs dictate whether society will protect an entitlement by either a property rule, a liability rule, or, inalienability (“the traditional rules”). Thus far, the literature sparked by the Calabresi-Melamed’s theory has considered the question almost exclusively in terms of individuals whose course of dealing with each other is limited, for the most part, to the particular economic transaction at hand (“atomized individuals”). These individuals have no particular relationship or course of dealing, either before or after the transaction.

The nature of the relationship between the parties is a critical factor in determining when and how the traditional rules should apply. This Article demonstrates that just as a pattern of repeat bargaining can alter bargaining strategies, a pattern of mutual antagonism can also alter the way in which parties view their interests. Market competition may encourage a firm to refuse to bargain with rivals in order to raise their costs.

The Article uses examples taken from the law of trade secrets to show that circumstances surrounding the parties’ relationship to each other can dramatically alter the common understanding of how to structure entitlements in order to achieve Pareto efficiency. Direct or even indirect market competition may create instances in which parties may refuse to engage in profit-maximizing bargaining or even operate at a loss simply to harm their competitors (e.g. raising their rivals’ costs of production), and as a result, an entitlement may not flow to the individual who values it most. In a highly competitive environment with many firms, the decision whether to bargain likely rests on a number of conditions that vary between markets. Predicting whether a firm will bargain is not necessarily an easier endeavor as the number of firms decreases. Under the Calabresi-Melamed, property rules are generally said to be the most efficient remedy because they encourage bargaining. However, co-existing incentives not to bargain create a difficulty for the application of the traditional rules. As a result, the common assumption that property rules should be used to protect entitlements held by competitors may not hold true once the nature of the relationship and the nature of the entitlement are considered.

The conclusion, the Article finds that the nature of the relationship between parties is a critical aspect in determining the proper form of protecting an entitlement. As illustrated in the Article, competition creates incentives not to bargain with competitors. Therefore, a competitor may choose not to engage in normal profit-maximizing behavior in order to raise rivals’ costs. Thus far, applications of the Calabresi-Melamed rules often have ignored the relationship of the parties and the nature of the entitlement. However, as can be seen, the effect of these factors can often alter intuitive judgments about the application of Calabresi-Melamed theory. Only by considering problems in bargaining among parties typical to specific entitlements can the Calabresi-Melamed rules serve as useful models for the efficient resolution of particular cases.


The past twenty-five years have witnessed an entirely new approach to nuisance law in which land use conflicts are analyzed in economic terms, with an emphasis on the goal of efficiency in resource allocation. The modern approach to nuisance law rejects the traditional emphasis on injunctive relief, asserting that this remedy often impedes the efficient resolution of land use con-
flicts. Monetary damage compensation, not injunctive relief, is the preferred remedy of most recent commentators.

One unusual feature of the modern approach to nuisance law is a proposal that plaintiffs should be able to purchase injunctions through the judicial process in cases in which they would otherwise be denied injunctive relief. This concept of a “compensated injunction” originated in an article by Calabresi and Melamed. Although only one court has ever issued a compensated injunction, other courts and commentators have noted the possibility of employing this remedy.

Surprisingly, none of the commentators has discussed in any detail the practicality of incorporating the compensated injunction remedy within the traditional framework of existing nuisance law. Moreover, even within the modern efficiency-oriented approach to nuisance law, there is no general agreement concerning the proper role of the compensated injunction.

The goals of this Article are to ascertain the appropriate role, if any, of the compensated injunction within either a traditional or a modern approach to nuisance law, and then to evaluate whether the traditional approach ought to be rejected in favor of the modern approach.

The Article argues that a compensated injunction remedy should be added to both the traditional and modern approaches to nuisance law, but that this remedy should be made available only to “deserving plaintiffs” – those who would be entitled to some form of relief even in the absence of this remedy. Making compensated injunctions available to deserving plaintiffs would promote efficiency and fairness by providing some protection for the “subjective” nuisance damages experienced by plaintiffs, which are not compensated when a court awards damages on an “objective” basis such as diminution of market value. Extending this remedy to “undeserving” plaintiffs is not justified, however, because it would be neither efficient nor fair. This recommended approach is thus radically different from Calabresi and Melamed’s original conception of the compensated injunction as a remedy solely for plaintiffs who would not otherwise have been entitled to relief.

The conclusion of this Article is that adding a limited compensated injunction remedy to both the traditional and modern systems of nuisance law would render them virtually indistinguishable from each other. Thus, adopting a modified modern approach to nuisance law, with compensated injunctions available to prevailing plaintiffs, would promote both fairness and efficiency without disrupting established rights and relationships.

The action for private nuisance originated in the assize of nuisance, which provided redress when acts on the defendant’s land interfered with the use of the plaintiff’s land. The absolute right of landowners to protection from interference with the use and enjoyment of their property gave way to neighbors’ rights to make “reasonable use” of their property. Except for those few activities denominated “nuisances per se,” the reasonableness of an activity depended on all attendant circumstances, including the nature and location of the offending activity, the character of the neighborhood, the frequency and extent of the intrusion, and the effect on life, health, and the enjoyment of property. The reasonableness test thus reduced the scope of the nuisance doctrine, enabling courts to find that certain interferences with the use and enjoyment of land were not actionable. Nevertheless, if an activity were denominated a nuisance, a single neighboring landowner could obtain an injunction for its abatement without regard to the disproportionate impact of an injunction on the offending actor or the community generally.

Calabresi and Melamed pointed out that resolving a nuisance dispute ultimately involves two distinct and separable determinations: who should have the “entitlement” and what “remedy” should be given to the party with the entitlement. For example, in a conflict between a polluting factory and its neighbors, the law must either grant the factory an entitlement to pollute or grant
the neighbors an entitlement to clean air. Once the law has assigned an entitlement to one of the parties, it must then determine the remedy with which to protect that entitlement. One of the chief conceptual contributions of Calabresi and Melamed was their distinction between two forms of remedies, which they denominated “property rules” and “liability rules.” In their terminology, a plaintiff whose entitlement to clean air is protected by a property rule can obtain an injunction against operation of an adjacent factory; a plaintiff whose entitlement to clean air is protected by a liability rule cannot stop the factory from polluting the air but will have a right to compensation in damages. A liability rule permits a defendant factory to take or destroy the plaintiff’s entitlement to clean air provided it is willing to pay the “objectively determined value” that the court will award in damages. When a property rule protects the entitlement, however, the plaintiff can obtain an injunction, and the factory can operate only if it pays the plaintiff a price sufficient to induce a voluntary waiver of the right to injunctive relief, in effect “buying” the entitlement to clean air.

At the time Calabresi and Melamed submitted their article for publication, there was no precedent for the compensated injunction in private-law adjudication. No court had ever granted an injunction against an activity conditioned on the plaintiff’s paying damages to the defendant. As Calabresi and Melamed themselves recognized, the compensated injunction remedy is not well suited to imposition by judicial proceedings. If the benefited plaintiffs were to pay the defendant’s cost of abatement, the court would have the difficult tasks of assessing the abatement cost and of apportioning this cost among the various benefited parties.

This Article has argued for adopting a modern approach to nuisance law that would include a compensated injunction remedy for prevailing plaintiffs. Fourth, modifying traditional nuisance law to include a compensated injunction remedy for prevailing plaintiffs, subject to an appropriate public interest test, would eliminate all substantial differences between the outcome in litigation under this modified traditional system and a modern damages-only system that included an equivalent compensated injunction remedy. Thus, in the interests of fairness, efficiency, and simplicity of rules, this Article suggests that the courts adopt a modified modern approach to nuisance law in which the questions of entitlement and remedy would be considered separately in a two-stage process. The assignment of entitlements should be based primarily on considerations of fairness, and the choice of remedies, which would include compensated injunctions, should reflect an efficient balancing of the costs to the litigants and to the public and third parties. The final irony is that although advocates of the compensated injunction remedy have argued that it would promote efficiency, the primary justification for the remedy seems to be its fairness to those plaintiffs who would purchase a compensated injunction to secure dearly held subjective values that the legal system does not now protect.


This Article focuses on the use of economic analysis in crafting the optimal set of damages rules for use in intellectual property litigation. Surprisingly, this issue has remained largely unexplored in the law and economics literature to date—notwithstanding both the growing importance of intellectual property law in a technologically complex world and the steady increase in the number of law and economics scholars who have begun to devote attention to this body of law. To be sure, there is a substantial body of work devoted to the issue of whether intellectual property rights should be protected by what Calabresi and Melamed referred to in their famous article as “property rules” or “liability rules,” with most, though not all, economic analysts of law
concluding that protection under a property-rule regime is preferable to liability-rule protection. To the extent that this analysis is correct, it suggests that injunctive relief should be the principal remedy available against those who infringe intellectual property rights. The question nevertheless remains what sort of damages should be available to an intellectual property owner for acts of infringement occurring prior to the issuance of an appropriate injunction. Devising the correct answer to this question is of great importance if, as is likely, a significant number of infringements go undetected for more than a nominal period of time.

Our principal thesis is that the optimal set of damages rules should preserve both the incentive structure of intellectual property law and the property-like character of intellectual property rights. As demonstrated in the Article, in the absence of enforcement, information, and other transaction costs, these goals require at a minimum an award that renders the infringer no better off as a result of the infringement. As a first approximation, then, the optimal rule is to award the plaintiff the royalty to which the parties would have agreed prior to the infringement, in cases in which the infringer is a more efficient user of the subject property than is the plaintiff, or the defendant’s profit attributable to the infringement in cases in which he is not. After eliminating the assumption of zero costs from the model, however, this rule must be modified in two crucial respects. First, to preserve the owner’s incentive to create and to publish, in cases in which for whatever reason the rule fails to deter, the owner always should be able to recover her own lost profit resulting from the infringement. Second, in order to avoid having courts determine the value of intellectual property and to encourage the parties to engage in voluntary bargaining ex ante, the defendant always should be required to disgorge all of his profit attributable to the infringement, unless this would result in a double recovery. As a second approximation, then, the optimal rule is to award the plaintiff the greater of either her lost profits or the defendant’s profit resulting from the infringement. On its face, this rule appears to provide the correct incentives for optimal use, inasmuch as lost profits will exceed the defendant’s profit only when the plaintiff is a more efficient user than is the infringer, and vice versa.

As also demonstrated in the Article, however, this second approximation may be subject to further modification in light of two additional factors that inject considerable uncertainty into the analysis. The first is that an award that merely renders the infringer no better off as a result of the infringement may be an ineffective deterrent, because only a portion of all possible infringements are susceptible of detection. This insight suggests that a substantial damages multiplier often may be necessary to achieve adequate deterrence. The second is that the standard of liability in intellectual property cases often is uncertain and that in some instances, the infringer will have incurred substantial sunk costs by the time his infringement is detected. These facts suggest that, on occasion, the optimal award should be lower than the initial model would advise, in order to avoid the over-deterrence of marginally lawful conduct. As a third approximation, then, the optimal rule is to award the prevailing plaintiff the greater of either a compensatory or restitutionary recovery, suitably enhanced or diminished in light of the competing interests in deterring infringements that otherwise may go undetected, and in discouraging would-be users from overcomplying with their legal obligations. The author recognizes that this formulation does not inform the policymaker precisely how to calculate the optimal award in any given case—if anything, the analysis shows that any precise calculation of optimal damages is likely to be next to impossible in the real world—and that it does not offer any easy solution to the problem of determining how much of a benefit the user derived from the infringement. The author nevertheless concludes that this formulation provides a rational overall framework for considering damages
issues, and that, notwithstanding some lack of precision, this framework greatly illuminates some vexing issues in patent, copyright, and trademark damages law.

The Article demonstrates that in order to preserve the intellectual property owner’s incentives to create, distribute, or lower consumer search costs, and to encourage voluntary bargaining between intellectual property owners and those with an interest in using their property, the general baseline recovery in intellectual property cases should be the greater of the plaintiff’s actual damages or the defendant’s profits attributable to the infringement. Moreover, due to the presence of enforcement costs, it may be optimal in some cases to enhance the plaintiff’s damages by a multiplier in order to reduce the defendant’s ex ante expected profits to zero; at the same time, however, a court or other policymaker must be wary of the danger of encouraging would-be users of intellectual property to over-comply with their legal obligations in such a fashion as to expand the intellectual property owner’s rights beyond their optimal scope.

The Article also has demonstrated that, the actual rules followed in intellectual property litigation adhere to this model. Of the four major bodies of intellectual property law, trade secret law appears to adhere most closely. Patent law diverges from the model by not permitting the plaintiff to recover restitutionary damages, and there appears to be no compelling economic justification for this departure. Copyright law departs from the model by permitting the prevailing plaintiff under some circumstances to recover “statutory” damages. Despite some surface similarity between this rule and the much-maligned doctrine of presumed damages in the law of defamation, however, statutory damages arguably constitute a rational response to some peculiarly vexing problems of detection and deterrence that arise in connection with the use of copyrighted works. Finally, trademark law departs from the model by restricting the right to recover restitution to cases involving “willful” or “bad-faith” infringement. The analysis of the problem of search costs leads the author to suggest that courts should reject a prevailing trademark plaintiff’s request for restitutionary damages (and accordingly, should characterize the infringement as “nonwillful” or in “good faith”) when the deterrent value of the restitutionary remedy is sufficiently low—specifically, in cases in which the probability of incurring restitutionary liability is unlikely to induce the additional search activity that would lead to the timely discovery of another’s superior right to a mark.


This Article sets forth an economic rationale for “reverse doctrine of equivalents.” The reverse doctrine is a rule of excused infringement; when it applies, it declares that even though a patentee has proven infringement, the infringer is free from liability. The reverse doctrine can be understood as a judicial response to the likelihood of a breakdown in bargaining between inventors who pioneer a new technology and those who later develop key improvements. Under this interpretation, the reverse doctrine serves as a judicial “safety valve,” releasing pressure that builds up when pioneers and improvers fail to agree to a license.

To explain the basic rule in patent cases the author uses the classic theoretical framework of Calabresi and Melamed. The Article begins by considering why the normal remedy in contract cases is an award of money damages to the aggrieved party, an example of what Calabresi and Melamed call a “liability rule.” Because it is relatively easy in most cases to determine the value of the contracted-for exchange by reference to an objective market price, it is possible for a court to accurately calculate the appropriate compensation for the injured party. This calculation of compensation has the added benefit that is often touted as the primary rationale for money dam-
ages in contract cases. It encourages breach where the breaching party can both fully compensate the injured party and enter into a substitute transaction with someone else who values the breaching party’s performance more highly. This is an efficient breach: a compensatory remedy predicated on the ease of valuing the costs of breach and the desirability (that is, Pareto optimality) of having the breaching party’s performance go to the party who values it most highly.

The normal remedy for patent infringement also fits the Calabresi and Melamed framework. Since by definition each asset covered by a patent is in some sense unique a characteristic guaranteed by various requirements for protectability in the patent statute it is difficult for a court settling an infringement dispute properly to value the rightholder’s loss from the infringement. The basic rule is that the rightholder has an almost absolute right to obtain an injunctive remedy against the infringer.

The purpose of injunctive remedies goes beyond allowing the rightholder to prevent activities of the infringer. To the extent that a rightholder will consider negotiating a license with the infringer, the threat of an injunction will heavily influence the terms of the license. Specifically, it allows the rightholder to set her own price for the injury. In patent cases, it allows the rightholder, not the court, to set the terms of a license agreement settling the infringement litigation. Calabresi and Melamed call this a “property rule.”

It is easy to see from the overview in the Article why the default remedy for infringement of patents is the opposite of the contract law default. In most cases, this rule works. The large and thriving market for patent licenses is proof enough that parties can and do engage in private patent transactions, presumably in the interests of both parties. This market thrives in the shadow of patent law’s strong property rule for a pro-injunction baseline.

In fact, this transactional standpoint provides a clear rationale for the existence of blocking patents. Because there are significant social welfare gains from pioneer-improver transactions, property rights must be structured to encourage improvers to approach pioneers with licensing proposals. An independent patent on an improvement serves this goal nicely. Since it grants exclusivity over its discrete subject matter, while preserving the exclusionary force of the broad pioneer patent, it facilitates improver-pioneer bargaining. Blocking patents thus represent an interesting property rights institution that balances incentives for pioneers with incentives for independent inventors to push pioneering technology forward.

In this Article the author intended to resolve the difficult tension between the baseline property rule in patent cases and the need to encourage more transactions in some segments of the market for patents. Viewed in this way, the problem is how to maintain the institution of voluntary transactions while making them more frequent.

Just as the basic rationale for patents is the need to give incentives in the face of the externality or spillover created by costly inventions and original works of authorship, the author is interested in a parallel rationale for encouraging exchanges of patents. In some cases, carrying out this rationale is simply a matter of creating a framework that lowers transaction costs to the point where consensual exchange becomes cost-effective. In other cases, such as the ones dealt with above, encouraging transactions requires some fine-tuning in the detailed rules of infringement liability. In still other cases, the largely neglected doctrines on remedies influence decisions about the optimal amount and duration of borrowing that can be done; adjustments to these doctrines, and in some cases wholesale changes, are called for as a way to encourage more transactions.

This following is an excerpt of the introduction to the Article as was written by the California Law Review. As intellectual property rights became more important, both businesspersons and scholars have complained of the increasing burden of obtaining intellectual property licenses and litigating intellectual property disputes. Intellectual property experts have responded to those complaints with a series of initiatives to expedite deal making by means of statutory compulsory licensing. These licenses are classic examples of “liability rules” in the foundational legal entitlements framework of Calabresi and Melamed. In this Article, the author argues that proposals to create more compulsory licenses are the result of a faulty theoretical framework. The author contends that “repeat players” (individuals and firms that frequently need to exchange rights) can and often do take steps to overcome transactional bottlenecks. Those with a recurring need to transact in intellectual property rights invest in administrative structures that lower the costs of exchanging rights.

Among other functions, these collective rights organizations promulgate rules and procedures for placing a monetary value on members’ property rights. They thus conserve on transaction costs either by making it easier to identify and locate rightholders, or by creating the occasion for repeat-play, reciprocal bargaining, versus more costly one-shot exchanges. The author explains and analyzes the origins and operation of these organizations. He also argues that entitlement theory must be adjusted to recognize the possibility that such institutions will evolve out of a background of strong property rights. More generally, he points out that entitlement theory ought to incorporate a more dynamic understanding of the importance of contracting after entitlements are granted. The author applies his observations and theoretical insights to an important contemporary controversy: whether Congress ought to legislate a compulsory license for digital content needed by the multimedia industry and argues that the Congress should not. Given the underlying economics, and consistent with experience in other industries, existing intellectual property rights will force industry participants to invest in institutions to conduct transactions. Indeed, consistent with the analysis in this Article, evidence indicates this is already occurring.


With the increasing importance of economics in the analysis of legal rules, the Calabresi and Melamed article has emerged as perhaps the most influential piece of scholarship relating the macroscopic to the microscopic. The Calabresi and Melamed article identified a particular typology of legal rules – distinguishing among property, liability, and inalienability rules – and analyzed those rule types with respect to efficiency goals, distributional goals, and “other justice considerations.”

However, a careful reexamination of the original work of Calabresi and Melamed reveals that it is flawed in an important and fundamental way. The flaw can be attributed to the Calabresi and Melamed’s failure to appreciate a distinction long recognized in the work of the “macro” legal theorists – the distinction between guidance rules and enforcement rules. In this Article, the author identifies this mistake, trace some of its unfortunate consequences, and suggest its cause.

The following is a modified excerpt from the introductory part by the University of Chicago Law Review and from the Article itself: Economic analysts of remedies often use nuisance cases as examples to illustrate their models. Ronald Coase used nuisance cases to illustrate his argument in The Problem of Social Cost, and Calabresi and Melamed’s famous article on property rights and liability rules likewise used nuisance cases to illustrate the nature of those remedies and when each of them might be appropriate. The illustrations commonly suppose that parties to such cases will be interested in bargaining after judgment if the court fails to award the rights to the party willing to pay the most for them. The author examines twenty nuisance cases and finds no bargaining after judgment in any of them; nor did the parties’ lawyers believe that bargaining would have occurred if judgment had been given to the loser. The parties’ lawyers said that the possibility of such bargaining was foreclosed not by the sorts of transaction costs that usually are the subject of economic models, but by animosity between the parties and by their distaste for cash bargaining over the rights at issue. The author suggests that these results raise a number of questions, such as how the obstacles to bargaining in these cases might be related to the absence of markets for the rights at stake, whether animosity or a distaste for bargaining should be considered transaction costs, and whether greater particularity might be needed before economic models can generate advice about remedies reliable enough to be useful to courts.


The following is a modified excerpt of the article. Over the last thirty-five years, law and economics has produced two fundamental insights about the relationship between legal entitlements and consensual trade – Coase and Calabresi and Melamed – each stemming from diametric assumptions about the world.

This Article has ventured further into the economic purgatory between the findings of Coase and of Calabresi and Melamed. In this intermediate region, where transaction costs are positive but not prohibitive, law-and-economics scholars have firmly favored the use of undivided entitlements – to “force” parties to negotiate. But the near-universal acceptance of this proposition by academics is a little puzzling. If liability rules can promote efficient contracting in a world without transaction costs, why was it clear that property rules should dominate when transaction costs increase slightly? This Article shows that the preference for undivided property rules in low-transaction-cost settings should no longer rest on the naive notion that property rules are superior at channeling people toward efficient Coasean trade. The authors have shown that a host of Solomonic entitlement divisions – including liability rules and fractional property entitlements – can induce pre-taking negotiations superior to those of undivided property rules.

Two distinct families of entitlement division can engender more truthful bargaining. Fractional ownership structures might induce honest bargaining by obscuring the titular boundary between buyer and seller during a negotiation. Additionally, liability rules have an information-forcing quality that has heretofore gone unnoticed: They can induce entitlement holders to signal credible information about their valuation. Under a liability rule, high-valuing owners never offer to sell their entitlement, and low-valuing owners never offer to bribe potential appropriators not to take. Consequently, the type of transaction that the owner willingly offers credibly signals her relative valuation. Liability rules thus can cause entitlement holders to partition themselves into two valuation groups, thereby reducing the aggregate amount of private information and increasing Coasean efficiency.
Numerous scholars have argued that liability rules should be tailored to replicate the transaction the individual litigants might have made had they bargained. The authors have demonstrated that when private information is the dominant transaction cost, tailored rules can actually impede efficient bargaining by making bargainers more reluctant to reveal information. Tailored damages give the plaintiff added information about the default “price” for a taking, while tailored liability gives the defendant added information about whether such damages will ever be assessed. This additional dimension of private information actually forecloses the possibility that both species of Coasean bargains will occur under liability rules. Thus, while tailored liability rules may be appropriate when transaction costs make bargaining impracticable, lawmakers choosing liability rules to facilitate trade should be careful not to make the legal rule contingent on the parties’ private information.


In this Article the authors “showed that in the absence of bargaining between victims and injurers, a liability rule with damages equal to estimated harm is unambiguously superior to property rules even though actual harm in a given case may be difficult to determine. This result is significant in light of the important contexts, like those of automobile accidents and industrial pollution, in which parties are practically unable to bargain because potential victims are strangers to injurers or are too numerous.” When the authors considered additional factors, such as the possibility of bargaining and administrative costs, they found that some of those factors did not systematically favor either type of rule, whereas others, such as the judgment-proof problem and victim behavior, lent appeal to forms of property rule protection or modifications of a conventional liability rule. Thus, the authors conclude that they can point to circumstances in which property rule protection might be desirable, even though the liability rule enjoys an underlying advantage.

The authors emphasize that, “contrary to traditional thinking, property rule protection of possessory interests is not unique in inducing prospective takers to bargain for transfers; that could happen under a liability rule as well.” However, the authors “did develop a number of arguments disfavoring the liability rule.” In particular, they discussed “the tendency toward excessive takings when bargaining is not possible, the reluctance of owners to bargain due to the multiplicity of potential takers, the problem of reciprocal takings, and the creation of wasteful incentives to protect and take property.” Together, the author found that these arguments furnish a powerful theoretical case against the liability rule and, as they believe, justify one of the most basic incidents of ownership: the right of the owner of a thing to prevent others from taking it. Most observers have probably felt that this property right is best explained on account of its superiority to the alternative of anarchy, but this misses the significant possibility of permitting takings upon the payment of damages. Rationalizing this basic incident of ownership against the alternative of liability rules is an essential part of the justification of a private property regime.