# PROPERTY RIGHTS AND INVOLUNTARY CONTRACTING

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## INTRODUCTION

About fifty years ago, Guido Calabresi and Douglas Melamed, in their article *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral,* proposed a framework by which to analyze which kind of legal rule should be employed to protect "entitlements," which refers generally to property rights or to other interests vested in a particular party or owners by the government.[1] The article has

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1. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1089–92 (1972).

been cited widely[2] and was regarded as "one of the most influential essays of twentieth-century legal scholarship."[3] In academia, legal scholars have applied the Calabresi and Melamed framework to examine legal rules for protecting entitlements in various legal fields, including property,[4] contracts,[5] torts,[6] intellectual property,[7] environmental law,[8] and tax law.[9] Recently, they have extended its application to emerging legal fields, including the laws that govern the uses of data[10] and robots.[11] In practice, government entities, such as courts and agencies, also employ the framework to address cases and analyze policies.[12]

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2. Fred R. Shapiro & Michelle Pearse, *The Most-Cited Law Review Articles of All Time*, 110 MICH. L. REV. 1483, 1489 (2012) (regarding this article as the sixth most-cited law review article of all time).

3. DAVID KENNEDY & W. FISHER, THE CANON OF AMERICAN LEGAL THOUGHT 403 (2006); *see also* Carol M. Rose, *The Shadow of the Cathedral*, 106 YALE L.J. 2175, 2175 (1997) (regarding this article as "a part of the legal canon").

4. *See, e.g.*, Louis Kaplow & Steven Shavell, *Property Rules Versus Liability Rules: An Economic Analysis*, 109 HARV. L. REV. 713, 721 (1996); Thomas W. Merrill, *Property Rules, Liability Rules, and Adverse Possession*, 79 NW. U. L. REV. 1122, 1125–26 (1985); Henry E. Smith, *Property and Property Rules*, 79 N.Y.U. L. REV. 1719, 1741–42 (2004).

5. *See, e.g.*, Anthony T. Kronman, *Specific Performance*, 45 U. CHI. L. REV. 351, 354–55 (1978).

6. *See, e.g.*, Gideon Parchomovsky & Alex Stein, *Reconceptualizing Trespass*, 103 NW. U. L. REV. 1823, 1837–38 (2009).

7. *See, e.g.*, Mark A. Lemley, *Contracting Around Liability Rules*, 100 CALIF. L. REV. 463, 464 (2012); Mark A. Lemley & Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 TEX. L. REV. 783, 783–84 (2007); Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CALIF. L. REV. 1293, 1296 (1996); Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2655 (1994); Dotan Oliar, *The Copyright-Innovation Tradeoff: Property Rules, Liability Rules, and Intentional Infliction of Harm*, 64 STAN. L. REV. 951, 954–55 (2012); Henry E. Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, 116 YALE L.J. 1742, 1757 (2007).

8. *See, e.g.*, Ian Ayres & J. M. Balkin, *Legal Entitlements as Auctions: Property Rules, Liability Rules, and Beyond*, YALE L.J. 703, 704 (1996); Kaplow & Shavell, *supra* note 4, at 721; Rose, *supra* note 3, at 2179; Henry E. Smith, *Exclusion and Property Rules in the Law of Nuisance*, 90 VA. L. REV. 965, 980 (2004).

9. *See, e.g.*, Andrew Blair-Stanek, *Tax in the Cathedral: Property Rules, Liability Rules, and Tax*, 99 VA. L. REV. 1169, 1171 (2013).

10. *See, e.g.*, Jeffrey Ritter & Anna Mayer, *Regulating Data as Property: A New Construct for Moving Forward*, 16 DUKE L. & TECH. REV. 220, 248–49 (2018).

11. *See, e.g.*, Sjur Dyrkolbotn, *A Typology of Liability Rules for Robot Harms*, *in* A WORLD WITH ROBOTS: INTERNATIONAL CONFERENCE ON ROBOT ETHICS: ICRE 2015, at 119 (Maria Isabel Aldinhas Ferreira et al. eds., 2017).

12. *See, e.g.*, Mut. Pharm. Co., Inc. v. Bartlett, 570 U.S. 472, 491 (2013); Proctor

Under the Calabresi and Melamed framework, property rights and other entitlements can be protected by "property rules" or "liability rules."[13] Where the owner's interests are protected by a "property rule," the legal system deploys various civil, equitable, and criminal remedies to provide relatively strong protection of the owner's property right[14] and thereby only allows the transfer of property right to occur "through a voluntary negotiation" by a "voluntary contract[]" under which the owner sells the property right at "the price at which he subjectively values the property."[15] At times, however, the government might provide a form of protection that permits other parties to obtain property rights involuntarily. Calabresi and Melamed describe that form of protection as "liability rules," under which a person may take the property right without the owner's consent if she pays the owner "a value determined by some organ of the state,"[16] "an objectively determined value,"[17] or an "objectively determined price."[18]

Describing the rules permitting involuntary transfers of rights as "liability rules" is, however, too restrictive if the concept of a "liability rule" is viewed—as Calabresi and Melamed explicitly do—as

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v. Huntington, 238 P.3d 1117, 1119 (Wash. 2010); U.S. ENVTL. PROT. AGENCY, EPA GRANT NO. R829609, AN EXPERIMENTAL STUDY OF TRANSACTIONS COSTS, LIABILITY RULES AND POINT-NONPOINT SOURCE TRADING IN ENVIRONMENTAL MARKETS (2003); Edward Golding, *Economic Efficiency of Liability Rules for Joint Torts with Uncertainty* (Fed. Trade Comm'n, Working Paper No. 67, 1982).

13. Calabresi & Melamed, *supra* note 1, at 1092. The Calabresi & Melamed article also discusses a third category of rules for protecting entitlements: "inalienability rules," which do not allow for voluntary or involuntary transfers of the entitlement. *Id.* at 1093. Much of the subsequent literature on the Calabresi & Melamed framework has not focused on inalienability rules. This is likely because inalienability rules are used less often. *See* Rose, *supra* note 3, at 2175 n.3 (noting that inalienability rules are "somewhat less-discussed"). This article focuses on property rules and liability rules. For discussions of inalienability rules, see Margaret Jane Radin, *Market-Inalienability*, 100 HARV. L. REV. 1849 (1987); Susan Rose-Ackerman, *Inalienability and the Theory of Property Rights*, 85 COLUM. L. REV. 931 (1985).

14. Smith, *supra* note 4, at 1742 ("The term 'property rule' then comes to be associated with very high levels of liability and injunctions that prevent all or nearly all involuntary takings.").

15. Calabresi & Melamed, *supra* note 1, at 1105–06; *see also id.* at 1092 (stating that under property rules, "each of the parties say how much the entitlement is worth to him, and gives the seller a veto if the buyer does not offer enough").

16. *Id.* at 1092.

17. *Id.*

18. *Id.* at 1125 n.69; *see also* Guido Calabresi, *Remarks: The Simple Virtues of the Cathedral*, 106 YALE L.J. 2201, 2205 (1997) ("But we must equally take into account what it costs people to define the price at which they would sell, if we were to use property rules instead."); *id.* at 2206 (referring to "a collectively set price").

permitting an involuntary transfer on the basis of "an objectively determined value"[19] or "an objectively determined price."[20] Where a legal system permits an involuntary transfer of rights and entitlements from one party to another, the transfer can be more generally described as occurring under a governmentally imposed involuntary contract, which may take the form of a liability rule (permitting the transfer in exchange for an objectively determined value or price), but may take many other forms as well.

Although in many involuntary transactions, such as standard tort actions for harms, the government does determine a simple monetary price to compensate the owners. That is the classic meaning of a "liability rule" and, under the Calabresi and Melamed framework, it is properly viewed as a governmental authorization for an involuntary transfer of rights in exchange for a sum of money.[21] In other circumstances, however, involuntary transfers of rights are made in exchange for a much more complex set of terms imposed on recipient of the rights.[22] Involuntary transfers of rights for a monetary price are only a subset of the broader category of governmentally imposed involuntary transfers.

Take for example an involuntary contract or "compulsory license" that the Federal Trade Commission (the FTC) imposed on certain patents as a condition to approve a merger between two corporations.[23] The FTC required Novartis AG (the new company being formed by the merger) to grant to "each person who so requests" a non-exclusive license to Novartis's Cytokine technology.[24] The license does set a limit—"no greater than three percent (3%) of the net sales price" of the products bearing the technology[25]—that Novartis is entitled to receive for its patent rights. But it also contains other complex terms, including restrictions on how the licensees may use

19. Calabresi & Melamed, *supra* note 1, at 1092.
20. *Id.* at 1125 n.69.
21. *See id.* at 1092.
22. For examples regarding compulsory patent licenses, see *In re* Baxter Int'l Inc., 123 F.T.C. 904 (1997); *In re* Ciba-Geigy Ltd., 123 F.T.C. 842 (1997). For examples regarding statutory and compulsory copyright licenses, see 17 U.S.C. §§ 111–112, 114–115, 119, 122, and 1000–1010 (2018). For cases regarding real property, see Brown v. United States, 263 U.S. 78, 81 (1923) (using barter arrangement in eminent domain); Smouse v. Kan. City S. Ry. Co., 282 P. 183, 190 (Kan. 1929); Christopher v. Rosse, 91 A.D.2d 768, 769 (N.Y. App. Div. 1982); Malnar v. Whitfield, 774 P.2d 1075, 1077 (Okla. Ct. App. 1989) (granting the defendant the right to un-encroached land for maintenance purpose); Phila. Scoop & Scale Mfg. Co. v. Silberman, 40 A.2d 395, 396 (Pa. 1945).
23. *In re Ciba-Geigy Ltd.*, 123 F.T.C at 842.
24. *Id.* at 875.
25. *Id.*

the Cytokine technology;[26] an authorization for Novartis to request certain non-exclusive rights to obtain and use the licensees' data concerning the safety and efficacy of the products using the licensed technology;[27] and the right of Novartis to require that the licensees grant "equivalent cross licenses" on the licensees' patent rights to certain Cytokine technology.[28]

It is not difficult to understand the importance of these terms to this involuntary transfer of patent rights. The restriction on the use of Cytokine technology reserves certain fields of use that Novartis can keep for itself or license to other parties.[29] The arrangements of cross-licensing and grant-back rights to data allow Novartis to benefit from the licensees' technology and their exploitation of Novartis's technology. The end result of the government's compulsory licensing of Novartis's property is to establish a complex, long-term relationship between Novartis and its licensees—a relationship more accurately modeled as a contractual arrangement (albeit an involuntary one) rather than a simple liability rule.

A similarly complex involuntary transfer of real property can be found in the 1929 case of *Smouse v. Kansas City Southern Railway Co.*[30] The railroad company in the case possessed the power of eminent domain (thereby effectively exercising the government's power to force involuntary transfers) and needed to use that power to add new spur tracks parallel to its existing rails.[31] The property rights to be taken, however, included a roadway and easement for underground pipes that allowed a chemical manufacturer to access its plant (via the road) and to transfer certain chemicals (via the underground pipes) to its clients, which were soap factories located about a quarter mile away.[32] If the chemical manufacturer's property rights were taken in a simple transfer for money, the involuntary

26. *Id.* at 862 ("[F]or use in any Cytokine Licensed Product as follows: . . . with respect to IL-3 and IL-6, the right to manufacture and use IL-3 and/or IL-6 in a Cytokine Licensed Product."). The compulsory license also contains a clause specifying the purpose of the license. This clause might constrain the licensee's use of the technology within the purpose that the license serves. *See id.* at 874 ("For the purpose of ensuring continuation of *ex vivo* gene therapy research and development, and to ensure the availability of cytokines for Gene Therapy, and to remedy the lessening of competition and research and development of Gene Therapy resulting from the Merger . . . .").

27. *Id.* at 875.

28. *Id.* at 876.

29. 2 ROGER M. MILGRIM & ERIC E. BENSEN, MILGRIM ON LICENSING § 15.36 (2019), LexisNexis.

30. Smouse v. Kan. City S. Ry. Co., 282 P. 183, 183 (Kan. 1929).

31. *Id.* at 185.

32. *Id.* at 186.

transfer would have left the manufacturer in a classic "hold-up" situation because it would have had to negotiate to buy rights-of-way from a neighboring property owner who could strategically demand a huge premium for the new rights-of-way (because the neighbor's property is the only economically feasible route for the chemical manufacturer to install new pipes to reach its client soap factories).[33]

To avoid that hold-up problem, the railroad company used the eminent domain power to compel a more complex transaction by taking a wider strip of land from a neighboring landowner—enough to give the chemical manufacturer a new road and easement.[34] The chemical manufacturer was compensated for the loss of its old right-of-way with a package of rights, including a new right-of-way and the railroad company's agreement to cover various costs of relocation.[35] The case has a number of other interesting complexities further illustrating this Article's thesis, but the key point here is that this involuntary transfer looks less like a classic "liability rule" and much more like a complex involuntary contract among three parties (the railroad company, the chemical manufacturer, and the neighboring landowner).

Viewing the rules permitting involuntary transfers of property rights as rules that permit involuntary contracts is of theoretical importance because it helps lawyers, judges, and scholars to avoid making the economic analysis of rules for protecting property rights overly simplistic. One of the major contributions of the Calabresi and Melamed framework is the insight that the government can promote economic efficiency by switching from property rules to liability rules as means for protecting rights where transaction costs are high.[36] Liability rules can promote efficiency because they allow transfers of property rights that would otherwise be impeded by high transaction

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33. For a detailed discussion on this involuntary transfer, see *infra* Section II(C)(2).

34. *Smouse*, 282 P. at 187.

35. *Id.* at 186.

36. Calabresi & Melamed, *supra* note 1, at 1110; *see also id.* at 1107 ("Whenever this is the case an argument can readily be made for moving from a property rule to a liability rule. If society can remove from the market the valuation of each tract of land, decide the value collectively, and impose it, then the holdout problem is gone."); Richard A. Epstein, *The Clear View of the Cathedral: The Dominance of Property Rules*, 106 YALE L.J. 2091, 2092 (1997) (noting that we are in the world where transaction costs are "positive and large" so that "transactional imperfections" can happen in "securing the transfer of assets from one person to another."); Madeline Morris, *Structure of Entitlements*, 78 CORNELL L. REV. 822, 852–53 (1993) (noting that transaction costs that are so great can preclude voluntary efficient transactions).

costs.[37] Nevertheless, high transaction costs often arise in circumstances where the optimal terms of a transfer of rights *are complex*. In such circumstances, simplistic rights-for-money exchanges under liability rules might very well be economically suboptimal—indeed, they might be inferior to simply continuing to protect the rights with property rules.

Viewing government entities as imposing involuntary contracts on parties in involuntary transfers of rights also raises important practical issues, for doing so clarifies the range of options available to government entities when they implement rules that permit involuntary transfer of property rights. If government entities are going to authorize involuntary transfers because of high transaction costs, they should consider the full range of potential transfer terms (not merely a sum of money) that can advance economic efficiency. They might consider mimicking the terms in voluntary contracts in situations where they find that those terms that can facilitate the efficient allocation of resources. Alternatively, they might be more hesitant to allow involuntary transfers of property rights if it is difficult for them to design a set of terms that will lead to efficient outcomes. Lawyers might also find this way of conceiving involuntary transfers of property rights helpful because it provides them with the theoretical ground to claim for compensatory remedies broader than money damages as means of restoring their wronged clients to their rightful position.

Section I summarizes the Calabresi and Melamed framework briefly and presents the claim that it is more accurate to describe legal rules that permit involuntary property rights transfers as legal rules that allow involuntary contracting for property rights. The concept of "involuntary contract" refers to the set of terms that the government might impose on parties in involuntary transactions. This stands in contrast to the market-generated voluntary contract, which consists of a set of terms by which the parties define their legal relationships in voluntary transactions. This approach encourages lawyers, judges, and scholars to examine the whole set of terms that the government could impose and the effects that these terms have on resource allocation.

Section II studies involuntary transfers of property rights that legislatures and administrative agencies authorize, and that

37. *See* Calabresi & Melamed, *supra* note 1, at 1106 ("If a collective determination of the value were available instead, the beneficial transfer would quickly come about."); *see also id.* at 1092 (noting that under liability rules, "transfer or destruction [of legal entitlements] is allowed on the basis of a value determined by some organ of the state rather than by the parties themselves.").

infringements lead to, in the fields of patent, copyright, and real property. It also draws on certain relevant voluntary contracts for comparison. Voluntary contractual transfers of property rights often involve a complex set of terms, which can include, but are not limited to requirements to pay certain sums of money. Involuntary contracts sometimes do not include certain sophisticated terms that voluntary contracts use to optimize resource allocation. Under certain circumstances, their absence can lead to efficiency losses. This is especially the case for the involuntary contracts that result from infringements.

Section III suggests that when government entities permit involuntary transfers of property rights, they should consider the full range of terms that could be associated with the transfer of the rights. In that way, involuntary contracts permitting such transfers can mimic the terms of voluntary agreements that optimize resource allocation and thus serve economic efficiency. From an *ex post* perspective, when courts impose involuntary contracts on parties for prior infringement, they should consider allowing infringed owners to claim for non-monetary compensation, such as a right to the infringer's real property, rather than invariably defaulting to monetary compensation. From an *ex ante* perspective, when legislatures, agencies, and courts allow users to take owners' property rights before the exploitation of property, they should also consider incorporating into involuntary contracts the terms that govern the exploitation of property.

Although, in theory, involuntary contracts can have the same degree of complexity as voluntary contracts, this Article does not suggest that the government should complicate the legal relationship for every involuntary transfer of property right. The government would have to account for various factors in order to determine the terms of the involuntary contracts, just as parties do when they design contracts for voluntary transactions. Certain factors, such as the costs of designing and administering sophisticated contractual terms, might constrain it from complicating involuntary contracts. However, the existence of constraints should not excuse a complete exclusion of the possibility of imposing a set of terms associated with the transfer of the rights that are larger than the requirement to pay a monetary price.

## I. PROPERTY RULES, LIABILITY RULES, AND LEGAL RELATIONSHIPS

### *A. Property Rules, Liability Rules, and the Switch Between Two Mechanisms of Valuation*

About fifty years ago, Guido Calabresi and Douglas Melamed, in their article *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, proposed a framework by which to analyze the legal rules that apply to the protection of entitlements or rights. The fulcrum of the framework is the distinction between property rules and liability rules.[38] Property rules only allow property rights to be transferred through voluntary transactions[39] in which users enter into "voluntary negotiation[s]" with the owners.[40] Parties reach "voluntary contracts"[41] through which the owners exchange the right to their property for "the price at which [they] subjectively value[] the property."[42] Property rules give owners a "veto" to use when users do not agree to pay a satisfactory amount.[43] In contrast, liability rules allow users to obtain owners' property rights through involuntary transactions where they take or destroy the owners' property rights without their consent, upon a payment to the owners of "a value determined by some organ of the state,"[44] "an objectively determined value,"[45] or an "objectively determined price."[46]

38. *Id.* at 1092–93; *see also* Rose, *supra* note 3, at 2175 (regarding the distinction between property rules and liability rules as "the article's most famous legacy").

39. Calabresi & Melamed, *supra* note 1, at 1092; *see also* Ayres & Balkin, *supra* note 8, at 704 ("Property rules discouraged nonconsensual takings."); Emily Sherwin, *Introduction: Property Rules as Remedies*, 106 YALE L.J. 2083, 2083 (1997) (noting that a property rule "promises state intervention to prevent involuntary transfers from the holder of the entitlement to others."); Smith, *supra* note 4, at 1742 ("The term 'property rule' then comes to be associated with very high levels of liability and injunctions that prevent all or nearly all involuntary takings.").

40. Calabresi & Melamed, *supra* note 1, at 1106.

41. *Id.*

42. *Id.* at 1105; *see also id.* at 1092 (noting that in a voluntary transaction, "each of the parties say how much the entitlement is worth to him," and the seller would "veto if the buyer does not offer enough.").

43. Calabresi & Melamed, *supra* note 1, at 1092.

44. *Id.*

45. *Id.*

46. *Id.* at 1125 n.69; *see also* Calabresi, *supra* note 18, at 2205 ("But we must equally take into account what it costs people to define the price at which they would sell, if we were to use property rules instead."); *id.* at 2206 ("It will influence when we will let people get entitlements by paying a collectively set price and when, instead, we will require them to pay a negotiated price.").

The article sets forth the idea that the government can replace "market valuation" with "collective valuation"—the government's valuation—to determine the price of property rights in order to facilitate their transfers when market valuation is "either unavailable or too expensive."[47] Economic literature shows that if transaction costs—the costs to use the market—are zero, the initial assignment of property rights will not the affect efficient allocation of resources.[48] Even if the initial assignment is inefficient, it "can (will) always be corrected by subsequent transactions between the parties."[49] In the real world, however, transaction costs are not zero—they are positive or even large.[50] There are situations in which the costs of determining the value of a property right are "so great" that they impede users from getting the property right through a voluntary transaction.[51] In Calabresi and Melamed's view, "[i]f a collective determination of the value were available instead, the beneficial transfer would quickly come about."[52]

The government can enable the switch from market valuation to collective valuation by adjusting the legal rules for protecting property rights.[53] By employing liability rules rather than property rules, the government allows users to take the rights to an owner's property without that owner's consent upon the payment of a value or a price that the government determines.[54] Shifting the mechanism that sets the price of property rights from the market to the government can enhance efficiency because it gives property users

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47. Calabresi & Melamed, *supra* note 1, at 1110; *see also id.* at 1109 ("It is not our object here to outline all the theoretical, let alone the practical, situations where markets may be too expensive or fail and where collective valuations seem more desirable.").

48. *See generally* R. H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

49. James E. Krier & Stewart J. Schwab, *Property Rules and Liability Rules: The Cathedral in Another Light*, 70 N.Y.U. L. REV. 440, 448 (1995); *see also* Epstein, *supra* note 36, at 2092 ("In a world in which transaction costs were zero . . . the choice between liability rules and property rules would be of little or no importance . . . .").

50. Epstein, *supra* note 36, at 2092 ("[O]ur world is not one in which transaction costs are zero. Rather, they are positive and large . . . .").

51. Calabresi & Melamed, *supra* note 1, at 1106; *see also* Lemley, *supra* note 7, at 466 (noting that high transaction costs might arise in a situation where "there are many parties who must agree" or where "it is difficult for the parties to find and deal with each other ex ante . . . ."); Rose, *supra* note 3, at 2184 (stating that bargaining impediments stem from two sources—the difficulty "to find and assemble numerous or indistinctly defined interested parties" and "the impediments that come *after* bargaining begins, from parties who are close-mouthed, poker-faced, strategically bargaining misanthropes.").

52. Calabresi & Melamed, *supra* note 1, at 1106.

53. *Id.* at 1110.

54. *Id.* at 1106.

access to the property rights they could have gotten through voluntary transfer had high transaction costs not been a barrier.[55]

The idea of using the government as an alternative mechanism to the market to set prices for transfers of entitlements or rights is deeply imbedded in current legal studies.[56] Many scholars regard both the market and the government as mechanisms that set prices for transfers of property rights. In their view, voluntary transfers of property rights in the market are based on a "consensual price,"[57] a "mutually agreeable price,"[58] or an "asking price."[59] In contrast, involuntary transfers proceeding through the government under liability rules are on the basis of an "officially determined non-market 'price[],'"[60] an "exercise price,"[61] or an "appropriate price."[62] The major difference between voluntary and involuntary transactions is who determines the price—the parties in the market or the government.[63]

Some scholars have noted, however, that using liability rules to facilitate transfers of property rights can raise certain problems.[64] It might be costly for the government to collect and process the

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55. *Id.*

56. *See* Christopher Buccafusco & Christopher Sprigman, *Valuing Intellectual Property: An Experiment*, 96 CORNELL L. REV. 1, 5 (2010) (noting that in voluntary transactions "private negotiations set the price of access," but in involuntary transactions "some public rulemaker—most likely a legislature, agency, or court—will have to determine the price of access."); David D. Haddock, Fred S. McChesney & Menahem Spiegel, *An Ordinary Economic Rationale for Extraordinary Legal Sanctions*, 78 CALIF. L. REV. 1, 21 (1990) ("The standard liability model mimics missing market transactions.").

57. Smith, *supra* note 4, at 1720.

58. Richard Craswell, *Property Rules and Liability Rules in Unconscionability and Related Doctrines*, 60 U. CHI. L. REV. 1, 3–4 (1993).

59. Merges, *supra* note 7, at 2664; *see also* Parchomovsky & Stein, *supra* note 6, at 1826 (describing the "owner's preferred asking price").

60. Smith, *supra* note 4, at 1720; *see also* Smith, *supra* note 8, at 982 ("A judicial governance regime would allow another to take part or all of the entitlement by paying a non-market price determined by a court.").

61. Ayres & Balkin, *supra* note 8, at 704.

62. Craswell, *supra* note 58, at 3.

63. *See* Calabresi & Melamed, *supra* note 1, at 1092 (noting that under liability rules, "transfer or destruction [of entitlements] is allowed on the basis of a value determined by some organ of the state rather than by the parties themselves."); *see also* Calabresi, *supra* note 18, at 2206 ("It will influence when we will let people get entitlements by paying a collectively set price and when, instead, we will require them to pay a negotiated price.").

64. *See* Krier & Schwab, *supra* note 49, at 459 (noting that the choice between property rules and liability rules should be made to "minimize the sum of valuation and error costs").

information necessary to calculate the price under liability rules.[65] The government does not always have good information on which to base its calculations, which might lead it to set the prices for involuntary transfers inaccurately.[66] This inaccuracy would create inefficient incentives for potential takers of property rights: "an unduly low price could permit an inefficient taking while an unduly high price could block an efficient one."[67] The lack of the inclusion of certain value components, such as subjective value, in the price setting can lead to an inappropriately low price, and thus, undercompensation.[68]

### *B. A Relational View of Property Right Transfers*

Describing the rules permitting involuntary transfers of rights as "liability rules" is, however, too restrictive if the concept of a "liability rule" is viewed as permitting an involuntary transfer on the basis of "an objectively determined value"[69] or an "objectively determined price."[70] This approach treats the government as merely a

65. *Id.* at 453 ("[P]roblems in obtaining and processing information (assessment costs) might impede efficient damage calculations by the judge in liability rule cases."); Smith, *supra* note 4, at 1723 (noting that it is costly to produce information to measure the value of assets); Smith, *supra* note 8, at 1007 (noting "nuisance situations where determining damages based on use is costly"); Calabresi, *supra* note 18, at 2206 (noting that both property rules and liability rules will incur costs, and their relative costs are important criteria to consider in choosing which type of rules to use in a given circumstance).

66. Thomas F. Cotter, *Patent Damages Heuristics*, 25 TEX. INTELL. PROP. L.J. 159, 164 (2018) ("[W]e often lack good empirical evidence that would assist in more accurate fact-finding—for example, on questions such as the compensation the parties would have agreed to, had the defendant not infringed . . . ."); Lemley, *supra* note 7, at 466–67 (noting that courts are expected to calculate damages in IP cases incorrectly with some frequency); Merges, *supra* note 7, at 2664 (noting that it is hard to value right holders' losses properly in intellectual property cases); Smith, *supra* note 4, at 1724 (noting that the value of the property might be uncertain at the time of assessment); Stewart E. Sterk, *Property Rules, Liability Rules, and Uncertainty About Property Rights*, 106 MICH. L. REV. 1285, 1291 (2008) ("Courts, however, do not always have reliable information on which to base their assessments of actual harm.").

67. Craswell, *supra* note 58, at 8–9.

68. Epstein, *supra* note 36, at 2093; *see also* Cotter, *supra* note 66, at 176 (listing several losses that might not be compensable, including "net opportunity costs; future losses due to unrecoverable market share; and loss of chance"); Epstein, *supra* note 36, at 2093 (noting that the compensation for eminent domain often ignores "subjective loss and consequential damages"); Krier & Schwab, *supra* note 49, at 457 ("[O]bjective damages can . . . neglect *R*'s consumer surplus or sentimental value . . . .").

69. Calabresi & Melamed, *supra* note 1, at 1092.

70. *Id.* at 1125 n.69.

mechanism that sets prices in involuntary transactions, assuming that involuntary transfers of property rights would be made for a sum of money. However, involuntary transfers of rights as such are only a subset of the broader category of governmentally imposed involuntary transfers.

It is true that under many circumstances the government merely determines monetary prices for involuntary transfers. A typical example is standard tort actions for harms. In these cases, courts almost invariably award money damages to wronged owners to compensate them for their loss of property rights.[71] Yet there are also circumstances under which the government imposes a set of terms or obligations that is larger than the requirement to pay money. For example, when the government authorizes a compulsory patent license, it might also limit the licensee's use of the patented technology, impose due diligence requirements, or require the licensee to grant the patent license back to the patent owner.[72] The existence of complex sets of terms in involuntary transactions suggests that it might be more accurate to view the government as a mechanism that can establish both simple and complex legal relationships between parties for involuntary transfers of property rights, rather than just as a mechanism for setting monetary prices for involuntary transfers.

One could legitimately ask whether one can interpret the term "price" in the Calabresi and Melamed framework broadly, to cover a wide range of terms or obligations that property users undertake for obtaining rights or entitlements from owners, rather than defining it merely as a sum of money.[73] Yet, in their article, Calabresi and Melamed do not suggest this broad interpretation; rather, they consistently associate it with a certain amount of money.[74]

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71. Epstein, *supra* note 36, at 2099.

72. *See infra* Section II(A)(2).

73. *Price*, MERRIAM-WEBSTER, https://www.merriam-webster.com/dictionary/price (last visited Sept. 3, 2021). "Price" has more than one meaning. One might construe "price" narrowly as "the amount of money given or set as consideration for the sale of a specified thing" or broadly as "the terms for the sake of which something is done or undertaken". *Id.*

74. *See* Calabresi & Melamed, *supra* note 1, at 1106, 1107, 1108–09 n.36, 1108 n.37, 1109 n.38 (using "price" to refer to certain amount of cash, such as "$10,000,000"); *id.* at 1101 n.29 ("One of the many reasons why the right to vote is given in kind instead of giving individuals that amount of money which would assure them, in a voteless society, of all the benefits which having the vote gives them, is that at any given time the price of those benefits in the future is totally uncertain and, therefore, virtually no amount of money would assure individuals of having those future benefits."); *id.* at 1125 n.69 ("One might also point out that very often a thief will not have the money to meet the objectively determined price of the stolen object . . . .").

More importantly, where the determination of price is concerned, Calabresi and Melamed mainly focus on the effects that it has on the financial conditions of both parties (i.e. the distribution of wealth).[75] If they had conceived the term "price" broadly, to cover a wide range of the government imposed terms or obligations, their analysis of legal rules for protecting entitlements or rights would have had to account for the effects that the determination of "price" might have on economic efficiency. Their explicit discussion of the effects that the determination of "price" might have on distribution of wealth and the omission of the discussion of the effects that "price" (in the sense of terms or obligations) might have on economic efficiency suggests that Calabresi and Melamed construct their framework on the basis of the assumption that involuntary transfers of property rights are made for a certain amount of money, rather than for a larger set of terms or obligations.

Indeed, per the caveat that Calabresi and Melamed set forth in their article, their analytical framework "can be mistaken for the total view of phenomena, like legal relationships, which are too complex to be painted in any one picture."[76] Or, as in Richard Epstein's critique, the framework's high level of theoretical abstraction might lead to the absence of "a more systematic view of the relative spheres of influence of these rules over the full range of social arrangements."[77] On the twenty-fifth anniversary of the publication of the *One View of the Cathedral*, Calabresi stated the "lack of complexity has been one of the reasons why [the framework] has had so much influence" and that the simplicity of the framework "leaves room for others . . . [to] complicate [its] structure."[78]

However, while many scholars have applied the Calabresi and Melamed framework to analyze legal rules under various circumstances and have sought to identify ways to make the

75. *See* Calabresi & Melamed, *supra* note 1, at 1109 n.38, 1110, 1114 n.48.

76. *Id.* at 1128.

77. Epstein, *supra* note 36, at 2095; *see also* Krier & Schwab, *supra* note 49, at 458 ("As we saw, the courts use an objective outlook on judicial assessment in order to make the liability-rule system nice; judges pretend that something like fair market value captures the actuality when actually it doesn't.").

78. Calabresi, *supra* note 18, at 2202–03 ("Ironically, the model's lack of complexity has been one of the reasons why *The Cathedral* has had so much influence. The simplicity of the article made it little more than an outline–a way of looking at things. As such, it leaves room for others. They can complicate the structure. They can use the model in areas different from those that spawned it. They can criticize it for its omissions and want of subtlety, while at the same time relying on it."); *see also id.* at 2204 ("It was intended to provide a framework, a little simple-minded model, that would give rise to boxes and thereby encourage scholars to see whether there might be situations in the world that filled those boxes.").

framework more elaborate,[79] they have not explored the possibility of making involuntary transfers of property rights on the basis of a complex set of terms or obligations. In their studies, scholars follow Calabresi and Melamed in considering rules that permit involuntary transfers to be "liability rules" under which involuntary transfers of rights occur in exchange for a monetary price. They either explicitly state that involuntary transfers of rights are made in exchange for "a sum of money"[80] or certain amount of "cash,"[81] or take the view that involuntary transfers of rights are made in exchange for "a price set by a court"[82] or "damages . . . that the government sets,"[83] which in the current legal system invariably implies certain amount of money. They assume away the terms or obligations other than the requirement to pay money in involuntary transfers of property rights and therefore neglect the effects that these terms or obligations might have on economic efficiency.

This Article posits that it might be more accurate to view the rules that permit the involuntary transfers of rights as rules that permit potential recipients to obtain rights from owners through an "involuntary contract." The concept of involuntary contract represents the set of terms that the government imposes on parties in involuntary transfers of rights. This concept stands in contrast to the market-generated voluntary contract, which might have a structure as simple as an exchange of a property right for money[84] or might

79. KENNEDY & FISHER, *supra* note 3, at 407.

80. *Id.* at 404 (noting that under a property right property users "persuade[]" the property owner to "surrender [the entitlement] voluntarily [typically, by paying him a sufficient amount of money]" while under a liability rule they "could force [the owner] to surrender the entitlement by paying him a sum of money determined by the judge or by some other government official").

81. Epstein, *supra* note 36, at 2093–94 (noting that "liability rules . . . always take the form of calls: The person who has the cash can dictate that some asset be moved in his direction . . . .").

82. Morris, *supra* note 36, at 841; *see also* Merges, *supra* note 7, at 2664 ("Under a liability rule, however, a court sets the price in a proceeding that typically takes place after the right has been infringed."); Smith, *supra* note 8, at 982 ("A judicial governance regime would allow another to take part or all of the entitlement by paying a non-market price determined by a court.").

83. Ayres & Balkin, *supra* note 8, at 719 ("The damages for nonconsensual taking (i.e., the exercise prices) that the government sets are therefore a function only of the probability distribution and not of the firms' actual valuations."); Kaplow & Shavell, *supra* note 4, at 720 ("Our conclusion about the superiority of the liability rule might not follow, though, if courts were systematically to underestimate harm in setting damages, rather than to use estimates of harm that are correct on average."); Krier & Schwab, *supra* note 49, at 461.

84. Ian R. Macneil, *Contracts: Adjustment of Long-Term Economic Relations*

consist of a larger set of terms.[85] This approach encourages lawyers, judges, and scholars to think of both the government and the market as mechanisms that establish legal relationships for transfers of property rights rather than as mechanisms that merely set monetary prices in transactions.

It is of theoretical importance to view rules permitting the involuntary transfer of property rights as rules that permit involuntary contracting. This approach helps lawyers, judges, and scholars to avoid the default presumption that transfers of property rights happen on the basis of a sum of money. It draws their attention to each of the terms in and the overall structure of the legal relationships between parties in involuntary transactions. When they recognize that the government and the market can establish legal relationships between parties that consist of a set of terms for transfers of rights, it is natural for them to incorporate the effects that each of the terms or their combinations have on resource allocation into the economic analysis of legal rules.

Under the Calabresi and Melamed framework, the government should consider switching from property rules to liability rules in order to allow involuntary transfers of property rights where transaction costs are high.[86] But high transaction costs often arise in circumstances where the optimal terms of transfers of rights *are complex*. In such circumstances, simplistic rights-for-money exchanges under liability rules might be economically suboptimal—

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*Under Classical, Neoclassical, and Relational Contract Law*, 72 NW. U. L. REV. 854, 856 (1978); *see also* Karen Eggleston et al., *Simplicity and Complexity in Contracts* 1 (John M. Olin Program in L. & Econ. Working Paper No. 93, 2000) https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1452&context=law_and_economics ("A more complete contract takes account of many future contingencies that would change the value of performance—increases in the cost of inputs, decline in demand for the product, and so on. A less complete contract might simply state the price and performance . . . .").

85. *See* Shannon W. Anderson & Henri C. Dekker, *Management Control for Market Transactions: The Relation Between Transaction Characteristics, Incomplete Contract Design, and Subsequent Performance*, 51 MGMT. SCI. 1734, 1749 (2005) (noting that parties use terms relating to management control to deal with transaction hazards); Macneil, *supra* note 84, at 876–83 (noting that parties incorporate terms into long-term contracts to handle potential disputes and relationship termination); *id.* at 900 (noting that contracts might be "more complex . . . than discrete transactions"). For examples of complex voluntary contracts, see Brown & Brown of Fla., Inc., Lease Agreement (Form 10-K) (Ex. 10.1(b)) (Mar. 1, 2013) (including the terms relating to landlord services, covenants, and the tenant's right of first offer); Momentive Performance Materials Inc., Intellectual Property Cross License Agreement (Form S-4/A) (Ex. 10.5) (Oct. 11, 2007) (including terms relating to field of use restrictions, grant-back patent license, the obligation to follow certain commercialization plans).

86. Calabresi & Melamed, *supra* note 1, at 1106.

indeed, they might be inferior to simply continuing to protect these rights with property rules. Economic analyses of the rules for protecting property rights that do not account for the full range of terms in voluntary and involuntary contracts might be incomplete and might therefore lead to inaccurate conclusions. When scholars who have applied the framework consider the effects that the terms other than the requirement to pay money have on resource allocation, they might find it necessary to reexamine their analyses and conclusions.

This approach also raises practical issues, for it clarifies the range of options that judges and other legal decision-makers can choose when they employ rules that permit involuntary transfers of rights from one party to another. It encourages them to consider the possibility of establishing sophisticated legal relationships between parties as potentially optimal resolutions to involuntary transfers of property rights. They might consider designing involuntary contracts that mimic voluntary contracts, if they find that the terms in voluntary contracts serve economic efficiency or other policy goals that they intend to promote. Alternatively, if they find that it is too difficult for them to design a set of terms that can lead to desirable outcomes, they might be more hesitant to permit involuntary transfers of rights—instead, they might employ property rules to encourage voluntary contracting. Lawyers might also find this approach helpful as it provides them with a theoretical basis by which to claim compensatory remedies broader than money damages to cover their clients' losses.

## II. Involuntary Contracts in the Fields of Patent, Copyright, and Real Property

This section examines involuntary transfers of rights in the fields of patent, copyright, and real property, and treats set of terms that the government imposes on parties as "involuntary contracts." It also draws on certain relevant voluntary contracts for comparison. In general, we can classify the involuntary contracts in each field into one of two categories according to the ways by which they were formed. An involuntary contract might result from an infringing taking, which means that the users took the owners' property right without authorization from the owners or the government. In this kind of taking, users subject themselves to potential infringement lawsuits and the liabilities that the legal system imposes on infringers.

An involuntary contract can also result from an authorized taking, meaning that the users took the owners' property right without their consent but with the government's authorization. Here, the users are not subject to legal liabilities due to infringement, but they must follow the terms that the government sets. These terms govern the users' exploitation of the property and might require them to pay considerations to the owners. Compulsory patent licensing, statutory and compulsory copyright licensing, and eminent domain in real property all lead to this type of involuntary contract.

## *A. Patent*

### 1. Infringing Takings

Involuntary transfers of patent rights might take the form of infringement, under which technology users implement a patented technology without the patent owners' consent and pay the infringed patent owners an amount of compensation that the court determines. If we view the court as imposing an "involuntary contract" on the parties by its decision, this contract consists of two simple terms. The first term acknowledges the infringing use of the patented technology. The court cannot set terms to regulate or restrict the prior infringing use of the patented technology. What it can do is acknowledge what has already happened.

This is in contrast to voluntary licensing, where patent owners can incorporate terms to limit the use of the technology within a specified field *ex ante* the licensee's implementation of the technology.[87] These terms impose duties on the licensee not to occupy certain fields, perhaps because it is not the best candidate to implement the technology in these fields.[88] Such terms allow the patent owner to allocate the use of its technology efficiently among multiple users.[89] In infringement cases, efficiency losses can happen because, without the guidance of these terms, infringers might occupy fields in which other users could be more productive.

87. *See, e.g.*, Cortex Pharm., Inc., Patent License Agreement (Form 10-K) (Ex. 10.105) § 1.2 (Mar. 17, 2008), (setting the field of use as "therapeutic and/or prophylactic use in humans and animals").

88. MILGRIM & BENSEN, *supra* note 29, § 15.36 (stating that patent owners can "locat[e] the prime licensee in each such field").

89. *See* Florian Schuett, *Field-of-Use Restrictions in Licensing Agreements*, 30 INT'L J. INDUS. ORG. 403, 403 (2012) (noting that field of use restriction terms "enable the licensor to do precisely that: by precluding licensees from using the technology in fields other than those specified in the contract, they potentially allow the licensor to allocate production more efficiently among licensees.").

The second term in an involuntary contract involves the consideration for the prior infringing use of the patented technology. Courts determine this according to the prior infringing use and the law of remedies that the Patent Act and judicial doctrines have set. The law of remedies limits the courts' flexibility to set this term. Section 284 of the Patent Act requires courts to "award the claimant damages adequate to compensate for the infringement."[90] This clause restricts the form of consideration for the pre-verdict infringing use of the patented technology to a money damages award.[91] Non-monetary considerations are not available, as the law presupposes that a money damages award will be "adequate."[92]

Yet in voluntary patent licensing, patent owners frequently obtain non-monetary considerations, such as stocks and grant-back technology, from the licensee. Take the patent license between Quantum Corporation (the patent owner) and Data Domain (the licensee), for example.[93] The patent owner granted the licensee a license to use its patented technology. Rather than paying money in exchange for this, the licensee issued 390,000 shares of its common stock to the patent owner as a consideration.[94] The shares gave the patent owner some power to control the licensee because they allowed the patent owner to vote on members of the licensee's board of directors and on the licensee's company issues.[95] At the time they signed the agreement, the licensee had not yet registered as a publicly listed company, so its stocks could not be bought on the market.[96] The

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90. 35 U.S.C. § 284 (2018).

91. Currently, courts might require the infringer to pay an amount that equals the patent owner's loss of profits or a reasonable royalty that a willing licensee would have paid a willing patent owner in the case of a voluntary license. 35 U.S.C. § 284 (2012); Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1157–58 (6th Cir. 1978); William F. Lee & A. Douglas Melamed, *Breaking the Vicious Cycle of Patent Damages*, 101 CORNELL L. REV. 385, 393–98 (2016); Mark A. Lemley, *Distinguishing Lost Profits from Reasonable Royalties*, 51 WM. & MARY L. REV. 655, 655 (2009).

92. 35 U.S.C. § 284 (2018); *see also* Thomas F. Cotter, *Four Principles for Calculating Reasonable Royalties in Patent Infringement Litigation*, 27 SANTA CLARA COMPUT. & HIGH TECH. L. J. 725, 736 (2011) (stating that "patent damages should attempt simply to restore the status quo ante—that is, to make the patentee neither worse nor better off than it would have been, but for the infringement."). Courts also have the discretion to grant treble damages in order to punish willful infringement. 35 U.S.C. § 284 (2018); *In re* Seagate Tech., 497 F.3d 1360, 1381 (Fed. Cir. 2007) (en banc).

93. *See* Data Domain, Inc., Patent Cross-License Agreement (Form S-1) (Ex. 10.30) (Mar. 3, 2007).

94. *Id.* § 5.1.

95. M. S. HOLMES, PATENT LICENSING AND SELLING: STRATEGY, NEGOTIATION, FORMS § 4:2.1 (2014).

96. Data Domain, Inc., *supra* note 93, § 5.2.

licensee also granted the patent owner a license to its technology in the same field.[97] The grant-back license was important to the patent owner because the parties were competitors in the relevant market.[98] The grant-back license substantially reduced patent owner's risk that the licensee would sue it for infringement in the future.[99]

If the licensee does not enter a voluntary contract with the patent owner but infringes on its patents instead, then, according to the Patent Act, the court will determine a money damages award for the patent owner.[100] The damages award might not be sufficient to allow the patent owner to acquire voting power or the right to implement the infringer-licensee' technology that it would have gotten through voluntary licensing but for the infringement. Furthermore, even if the amount of damages award were sufficient, there is no guarantee that transactional obstacles would not impede the subsequent contract for these non-monetary assets.[101]

From a standpoint of economic efficiency, the use of non-monetary considerations in patent licensing might help to achieve efficient resource allocation. By obtaining the licensee's research data and improvements as considerations,[102] the patent owner can save the resources required to replicate the licensee's research and

97. *Id.* § 2.1.

98. Data Domain, Inc., Registration Statement (Form S-1) 15 (Mar. 3, 2007).

99. *See id.*; *see also* Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, 1 INNOVATION POL'Y & ECON., 2000, at 119, 127 (noting that cross licenses can help firms to avoid blocking each other and going to court).

100. 35 U.S.C. § 284 (2018).

101. *Cf.* Ward Farnsworth, *Do Parties to Nuisance Cases Bargain After Judgment? A Glimpse Inside the Cathedral*, 66 U. CHI. L. REV. 373, 421 (1999) (noting that the animosity between the parties and the attitudes that the parties hold toward their rights at issue can impede bargaining after judgement).

102. *See* Moleculin Biotech, Inc., Patent and Technology Development and License Agreement (Form S-1) § VI (Mar. 22, 2016) (sharing research data with the patent owner); Landmark Infrastructure Partners LP, Patent License Agreement (Form 8-K) § 3.2 (Nov. 26, 2014) (assigning to the patent owner the licensee's right regarding the technological improvements that it makes to the patent owner's invention); Quick-Med Technologies Inc, Patent and Technology License Agreement (Form 8-K) § 12.2(c) (July 18, 2012) (granting "a first option to negotiate an exclusive, royalty-bearing license" to the licensee's right on its improvement); Volitionrx Ltd., Patent License Agreement (Form 8-K) §§ 1.7–1.8 (Jan. 11, 2012) (granting an exclusive royalty-free license of the improvements to the patent owner); Data Domain, Inc., *supra* note 93, § 1.6; Callisto Pharms. Inc, Patent and Technology License Agreement (Form 10-K) § 13.4(e) (Mar. 31, 2006) (granting a non-exclusive royalty-bearing license of the improvements to the patent owner).

development efforts.[103] This is especially true when licensee's technological competencies in the relevant area are better than the patent owner's.[104] The patent owner can invest the saved resources elsewhere. Furthermore, grant-back patent licenses reduce the patent owner's risk of being sued for damages in the future,[105] allowing it to use, produce, and develop products in related technology fields.[106]

Stocks provide incentives for the parties to cooperate with each other. By obtaining the licensee's stocks, the patent owner becomes the owner of the licensee and gets a share the licensee's commercial success, which gives the patent owner dividends and allows it to benefit from increases in the stock price.[107] The patent owner will be more disposed to provide technical assistance to enhance the licensee's exploitation of the licensed technology.[108] In the context of patent infringement, the parties do not establish a cooperative relationship before the implementation of the technology by including the licensee's stocks as considerations. Rather, courts impose a legal relationship between them after the infringer has reduced the patented technology to products or services. Without the benefits of *ex ante* cooperation, the infringer's implementation of the technology might generate less revenue.

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103. B. G. BRUNSVOLD, D. P. O'REILLEY & D. B. KACEDON, DRAFTING PATENT LICENSE AGREEMENTS 416 (2008); HOLMES, *supra* note 95, § 12:8.

104. MILGRIM & BENSEN, *supra* note 29, § 17.21; *see also* Jonathan M. Barnett, *Intellectual Property as a Law of Organization*, 84 S. CALIF. L. REV. 785, 826 (2010) (noting that exchanging intellectual assets can relieve search and evaluation costs for producers and intermediate technology users).

105. 1 ERIC E. BENSEN, PATENT LICENSING TRANSACTIONS § 2.13 (2021), LexisNexis (noting that the frequent reason for cross licenses is "to unblock the technology of each party so that each can produce without the threat of litigation."); BRUNSVOLD ET AL., *supra* note 103, at 46–47 ("In some industries, competitors have entered into cross licenses of their respective patent portfolios to eliminate the possibility of patent infringement litigation between them."); DAVID J. TEECE, MANAGING INTELLECTUAL CAPITAL: ORGANIZATIONAL, STRATEGIC, AND POLICY DIMENSIONS 147 (2000) ("Cross-licensing of patent rights within a field of use can be conducted to avoid infringement problems, and achieve the reciprocal exchange of complementary technologies."); Mokter Hossain, Open Innovation and Intellectual Property—The Double-Edged Sword (Nov. 4, 2012) (unpublished manuscript), https://ssrn.com/abstract=2170988 (last visited Feb. 11, 2021) (noting that cross licenses between entities that hold complementary technologies can avoid mutual litigation).

106. Shapiro, *supra* note 99, at 124.

107. HOLMES, *supra* note 95, § 4:2.1.

108. Knox Bell, *Win/Win Licensing: University to Biotechnology Company*, 22 BIOTECHNOLOGY L. REP. 9, 14 (2003) (noting that patent licensees believe that giving equity interests to university-licensors can make them become more cooperative).

When a court finds patent infringement, the infringed patent owner can seek injunctive relief to stop the infringer from continuing to use its technology. Under Section 283 of the Patent Act, courts have the discretion to decide whether to grant this relief.[109] In the past, courts generally granted injunctive relief once they had determined that the user's implementation of a technology constitutes patent infringement.[110] This changed, however, with the Supreme Court's decision in *eBay Inc. v. MercExchange, L.L.C.* in 2006.[111] The case set forth a four-factor test for the determination of whether to grant injunctive relief. [112] This test has become the basis for courts' subsequent determinations of injunctive relief not only in the field of patents,[113] but also in the copyright field.[114]

According to *eBay*, for injunctive relief, an infringed patent owner must demonstrate:

> (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.[115]

If the infringed patent owner fails to satisfy the test, the court will decline its request for injunctive relief. The number of cases in which

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109. 35 U.S.C. § 283 (2018).

110. Richardson v. Suzuki Motor Co., Ltd., 868 F.2d 1226, 1247 (Fed. Cir. 1989) ("It is the general rule that an injunction will issue when infringement has been adjudged, absent a sound reason for denying it.") (citing W.L. Gore & Assocs., Inc. v. Garlock, Inc., 842 F.2d 1275, 1281 (Fed. Cir. 1988)).

111. eBay, Inc. v. MercExchange, L.L.C., 547 U.S. 388, 391 (2006); *see also* Andrew W. Torrance & Bill Tomlinson, *Property Rules, Liability Rules, and Patents: One Experimental View of the Cathedral*, 14 YALE J.L. & TECH. 138, 148 (2011) (noting that the federal courts' patent jurisprudence has shifted from property rules toward liability rules since the *eBay* decision).

112. *eBay*, 547 U.S. at 391.

113. *See* Sterk, *supra* note 66, at 1333.

114. *See* Jiarui Liu, *Copyright Injunctions after eBay: An Empirical Study*, 16 LEWIS & CLARK L. REV. 215, 218, 232 (2012) (noting that while many copyright-injunction decisions have ignored the *eBay* framework, courts seem to be gradually adopting the four-factor test); *see, e.g.* Salinger v. Colting, 607 F.3d 68, 79 (2d Cir. 2010) (holding that *eBay* applies to preliminary injunctions that are issued for copyright infringement).

115. *eBay*, 547 U.S. at 391.

the court declined injunctive relief has increased over years.[116] If we consider the court's refusal to grant injunctive relief as the imposition of an involuntary contract between the parties, [117] this court-generated contract contains two simple terms. The first grants the infringer the right to continue to use the patented technology. The second term again involves monetary considerations. Currently, courts determine an ongoing royalty to compensate a patent owner for an infringer's post-verdict use of patented technology. [118] The structure of these involuntary contracts is a simple one: the exchange of a right to use patented technology for a sum of money.

Considering that the post-verdict legal relationship between parties might last for a long time, the structure of these involuntary contracts seems to be overly simplistic. Unlike the situation of forming an involuntary contract for prior infringement, courts at this stage have the opportunity to incorporate terms to regulate the post-verdict use of the technology to prevent inefficient use of the technology at issue. For example, courts could introduce use restriction terms as parties often do in voluntary contracts to define the field of use

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116. *See* Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 9–10 (2012) (examining data from patent cases from July 26, 2006 to August 5, 2011, and reporting a drop in the success rate of injunctions, from an estimated 95% in the pre-*eBay* period to about 75% post-*eBay*); Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After eBay: An Empirical Study*, 101 IOWA L. REV. 1949, 1984 (2016) (finding that the overall rate of permanent injunction granted dropped to about 67% between 2010 and 2013).

117. Courts sometimes treat the decline of injunctive relief as an imposition of compulsory license on parties. *See* Paice, LLC v. Toyota Motor Corp., 504 F.3d 1293, 1316 (Fed. Cir. 2007) (Rader, J., concurring) ("[C]alling a compulsory license an 'ongoing royalty' does not make it any less a compulsory license."); Foster v. Am. Mach. & Foundry Co., 492 F.2d 1317, 1324 (2d Cir. 1974) ("Here the compulsory license is a benefit to the patentee who has been unable to prevail in his quest for injunctive relief."); Hynix Semiconductor Inc. v. Rambus Inc., 609 F. Supp. 2d 951, 986 (N.D. Cal. 2009) ("'[O]ngoing royalty' is merely a nice way of saying 'compulsory license.'") (citation omitted). *But see* Christopher B. Seaman, *Ongoing Royalties in Patent Cases after eBay: An Empirical Assessment and Proposed Framework*, 23 TEX. INTELL. PROP. L. J. 203, 216 (2015) (claiming that an ongoing royalty and a compulsory license are different in three regards).

118. Prism Tech., LLC v. Sprint Spectrum, LP, 849 F.3d 1360, 1377 (Fed. Cir. 2017) (interpreting 35 U.S.C. § 283 to permit courts to grant "an ongoing royalty for patent infringement" upon a decline of injunctive relief); *Paice*, 504 F.3d at 1314 ("[A]warding an ongoing royalty for patent infringement in lieu of an injunction may be appropriate."); Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 616 (Fed. Cir. 1985) (denying an injunction and upholding a five percent royalty for continuing infringement); Lee & Melamed, *supra* note 91, at 399 ("Following *eBay*, courts have increasingly awarded ongoing royalties in lieu of a permanent injunction.").

precisely.[119] This can help the patent owner to keep the infringer from occupying the field that should be assigned to other users.[120] Nevertheless, the design of the terms other than the requirement to pay an ongoing royalty is currently absent from the discussion about this type of involuntary contract. Instead, courts and scholars focus almost exclusively on the calculation of the ongoing royalty.[121]

### 2. Authorized Takings

The U.S. government can authorize certain users to implement the patent owners' technology without their consent. We might call this "compulsory patent licensing."[122] The government can grant such licenses on its own according to 28 U.S.C. § 1498 and pay "reasonable and entire compensation" to the patent owner for the use or manufacture of its invention.[123] It has done this for public health purposes.[124] The government has also authorized these licenses in order to curb anti-competitive behaviors.[125] For the purpose of

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119. *E.g.*, Appliance Recycling Ctrs. Am., Inc., Patent License Agreement (Form10-Q) (Ex. 10.8) § 1.3 (Aug. 21, 2017) (limiting the use of the licensed technology within the "facility located at 4301 North Delaware Avenue, Philadelphia, PA").

120. MILGRIM & BENSEN, *supra* note 29, § 15.36 (stating that the patent owner can "locat[e] the prime licensee in each such field"); Richard A. Epstein & F. Scott Kieff, *Questioning the Frequency and Wisdom of Compulsory Licensing for Pharmaceutical Patents*, 78 U. CHI. L. REV. 71, 88 (2011) (noting that "any systematic decline of injunctions would make it difficult for IP holders to enter into exclusive contracts with preferred trading partners.").

121. Innogenetics, N.V. v. Abbott Laby's, 512 F.3d 1363, 1380 (Fed. Cir. 2008) (noting that the post-judgment rate should be different from the pre-judgment rate); *see also* Lee & Melamed, *supra* note 91, at 400 (noting that "postverdict royalties may be based on facts different from those used by juries when determining royalties for preverdict infringement."); J. Gregory Sidak, *Ongoing Royalties for Patent Infringement*, 24 TEX. INTELL. PROP. L.J. 161, 212 (2016) (suggesting that courts should account for the "changes in the economic circumstances between the time of first infringement and the time of the final judgment" when determining an ongoing royalty).

122. *See generally* F.M. SCHERER, THE ECONOMIC EFFECTS OF COMPULSORY PATENT LICENSING (1977); Cole M. Fauver, *Compulsory Patent Licensing in the United States: An Idea Whose Time Has Come*, 8 NW. J. INT'L L. & BUS. 666 (1988); Joseph A. Yosick, *Compulsory Patent Licensing for Efficient Use of Inventions*, 2001 U. ILL. L. REV. 1275 (2001).

123. 28 U.S.C. § 1498(a) (2018).

124. Colleen Chien, *Cheap Drugs at What Price to Innovation: Does the Compulsory Licensing of Pharmaceuticals Hurt Innovation?*, 18 BERKELEY TECH. L.J. 853, 868 (2003) (discussing the history of the United States government's granting of compulsory patent licenses to address public health problems in the 1960s and 1970s).

125. *Id.* at 862, 868.

examining the terms of involuntary licenses, this Article analyzes the terms in two compulsory licenses of pharmaceutical patents that the FTC created as a way to remedy the decreased competition due to the merger between firms that previously competed in one technological field.

The first is the license of Baxter International Inc.'s (Baxter's) patents covering Factor VIII Inhibitor Treatments—"the activated prothrombin complex concentrates used to treat Factor VIII antibodies in hemophiliacs"[126] (the Baxter License). The second is the license of Novartis AG's (Novartis's) patents concerning certain gene therapy products (the Novartis License).[127] Broadly, these two licenses are not as simple as an exchange of a property right for a monetary price; rather they contain the complex terms that parties often use in voluntary contracts to coordinate resource allocation and govern the interactions between them. This section focuses on four arrangements.

The first has to do with bundled property rights transfers. Bundling arrangements are ubiquitous in the technology licensing market.[128] Patent owners often transfer the rights to complementary assets along with the right to a technology in order to facilitate the commercialization of the technology.[129] The FTC also adopted this arrangement. Specifically, it required the patent owner to provide know-how, data, assistance, and advice to the licensee.[130] These complementary assets can help the licensee of the compulsory license to exploit the licensed technology.[131] The bundling arrangement

126. *In re* Baxter Int'l Inc., 123 F.T.C. 904, 908 (1997).

127. *In re* Ciba-Geigy Ltd., 123 F.T.C. 842, 773–77 (1997).

128. *See* U.S. DEP'T OF JUST. & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 114 (2007).

129. *See* MILGRIM & BENSEN, *supra* note 29, § 19.00 ("If industrial or intellectual property is viewed as the bricks of successful licensing, then surely technical information and assistance are the mortar."); TEECE, *supra* note 105, at 8 (noting that commercializing knowledge assets "frequently involves identifying and combining the relevant complementary assets); Mark A. Lemley & Robin Feldman, *Patent Licensing, Technology Transfer, and Innovation*, 106 AM. ECON. REV. 188, 188 (2016) (stating that "in order to transfer ideas in a way that leads to commercialization, reading a patent alone is not enough. In general, one must also transfer things like know-how, complementary assets, and other peripheral disclosures.").

130. *See In re Baxter*, 123 F.T.C. at 910–13; *In re Ciba-Geigy Ltd.*, 123 F.T.C. at 874.

131. *See* Mycalex Corp. of Am. v. Pemco Corp., 64 F. Supp. 420, 425 (D. Md. 1946), *aff'd*, 159 F.2d 907 (4th Cir. 1947) (defining "know-how" as factual knowledge, which "being acquired as the result of trial and error, gives to the one acquiring it an ability

enhances efficiency by generating complementary effects between assets. It is also a way to achieve the compulsory license's goal of bolstering competition. To compete with the patent owners—the leading firms in the relevant technology fields—the licensees must be able to exploit the technology effectively.

The second arrangement has to do with the duty of due diligence in exploiting the licensed technology. In the Baxter License, the FTC required the licensees to submit their plan concerning their preparation to obtain the Food and Drug Administration's (FDA's) approval for manufacturing and marketing the relevant product in the U.S.[132] It also required the licensees to report their efforts to obtain the approval and to commercialize the products.[133] If they failed to obtain the FDA's approval within a given period of time, the FTC had the right to terminate the license.[134] If the licensees gave up their attempts to obtain the approval or to sell the products, the FTC required them to notify it.[135] It could then terminate the license.[136] Upon the termination, the rights would revert to Baxter, and an FTC-designated trustee would license them to new licensees.[137]

Similarly, in voluntary licensing, the patent owner might also impose the duty of due diligence on its licensees in order to ensure that they exploit the licensed technology efficiently.[138] For example, in one license, the patent owner required the licensee to commit to developing an "optimal commercialization plan" for establishing a market presence for its products.[139] If the licensee failed to reach the goals, the patent owner could reclaim the right by terminating the license.[140] This duty can "preempt a licensee's excuse that it was under no obligation to exploit the patented technology, and that its only obligation was to pay royalties if it opted to exploit the licensed

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to produce something which he otherwise would not have known how to produce with the same accuracy or precision found necessary for commercial success."); HOLMES, *supra* note 95, § 1:3.8 (noting that "the complexity of the licensed technology may require further information from the licensor in order to optimally exploit the licensed rights.").

132. *In re Baxter*, 123 F.T.C. at 913.

133. *Id.*

134. *Id.* at 914.

135. *Id.* at 913–14.

136. *Id.* at 914.

137. *Id.*

138. HOLMES, *supra* note 95, § 12:1.

139. *See, e.g.*, Kinemed Inc., Patent License Agreement–Exclusive (Form S-1) (Ex. 10.40) 28 (Jan. 8, 2014); Novacea, Inc., Patent and Know-How License Agreement (Form S-1) (Ex. 10.7) 17 (May 2, 2006).

140. *See* HOLMES, *supra* note 95, § 12:1.

technology."[141] The duty of due diligence pushes "the licensee to bring the patent to market without delay."[142]

The third arrangement relates to field-of-use restrictions: the FTC restricted the licensee's use of the licensed technology to a specified field or in particular ways. For example, although it granted the licensee the right to use Novartis's HSV-tk technology to the licensee, the FTC confined that use to "mak[ing], us[ing], or sell[ing]" the products that implement the HSV-tk gene "for the treatment of human disease."[143] The compulsory license also allowed the licensee to implement Novartis's Cytokine technology, but confined that implementation to the "manufacture and use" of two kinds of proteins in a specific product.[144] Similarly, patent owners in voluntary licensing often limit the use of licensed technology to specific fields because doing so can "enhance earnings" and ensure that the technology is "not [being] used inappropriately."[145] It is not difficult to see the economic rationale behind this. Restricting the licensee's use to a limited field serves to prevent the losses that could result from the licensee's entry into the fields that the patent owner wants to reserve for itself[146] or for more productive third-party-users.[147] A compulsory license also can enhance efficiency by restricting the licensees from entering the fields in which they are not the best candidates.

The fourth arrangement is the collection of non-monetary assets as considerations. In the Novartis License, in addition to a royalty "of no greater than three percent (3%) of the net sales price" of the

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141. *Id.*

142. *Id.*

143. *In re* Ciba-Geigy Ltd., 123 F.T.C. 842, 863 (1997). In the Baxter License, the FTC also limited the scope of the license to the extent that it is "necessary to enable the [licensee] to manufacture and sell a Factor VIII Inhibitor Treatment." *In re* Baxter Int'l Inc., 123 F.T.C. 904, 911 (1997).

144. *In re Ciba-Geigy Ltd.*, 123 F.T.C. at 862.

145. TEECE, *supra* note 105, at 135 ("Licensing terms typically include limitations as to the markets in which the intellectual property (IP) may be used, or products sold. These may be designed to enhance earnings, and to ensure that the IP is not used inappropriately, or allowed to leak out.").

146. *Cf. id.* at 138 ("The seller will not transfer the know-how to a buyer for the otherwise foreclosed uses if, in doing so, he or she is likely to lose more in the uses that are available to him or her with no transfer than he or she gains through the expanded uses made possible by transfers."); *id.* ("The availability of limitations on the buyer's use of the know-how provides possible means to prevent such losses.").

147. MILGRIM & BENSEN, *supra* note 29, § 15.36 (noting that by the arrangements of field of use restrictions, patent owner can "locat[e] the prime licensee in each such field").

products bearing Novartis's Cytokine technology,[148] the FTC allowed Novartis to require "equivalent cross licenses" from the licensee as part of the consideration for the compulsory license the Cytokine technology if the licensee had patent rights that covered other types of cytokines "for use in ex vivo cell expansion." [149] As for the compulsory license of Novartis's HSV-tk technology, the FTC permitted Novartis to request from the licensee "compensation in the form of royalties and/or an equivalent cross-license." [150] These arrangements indicate that under the rules that permit involuntary transfers of rights, users might not only pay an "objectively determined value"[151] or an "objectively determined price"[152] for the owners' property rights, but might also give them their non-monetary assets as considerations. Similar to the situation in voluntary licensing, the grant-back license from the licensee helped Novartis to prevent the licensee from using its patents to block Novartis's exploitation of its own technology.[153]

The structure of these two licenses appears to be far more sophisticated than the structure of involuntary contracts that arise from patent infringements. We might partially attribute this to the timing of the formation of these two involuntary contracts. The government formed these compulsory licenses before the users had reduced the technology to practice. This timing gave the government more opportunities to make meaningful arrangements. The fact that sophisticated arrangements can exist in compulsory licenses conveys two messages to us. First, the government has recognized that making involuntary transfers of rights into simple exchanges of rights for money might not fit certain transactional contexts in the field of patents. Second, the government is capable of forming relatively sophisticated legal relationships for involuntary transfers of rights.

148. *In re Ciba-Geigy Ltd.*, 123 F.T.C. at 875.
149. *Id.* at 876.
150. *Id.* at 874.
151. Calabresi & Melamed, *supra* note 1, at 1092.
152. *Id.* at 1125 n.69.
153. *See* BRUNSVOLD, *supra* note 103, at 46 (noting that cross licenses are useful for resolving the situations in which "each party holds a patent or technology that effectively prevents the other party from exploiting its own technology").

## *B. Copyright*

### 1. Infringing Takings

Copyright infringement leads to involuntary transfers of copyrights from copyright holders to the users of copyrighted works. Section 504 of the Copyright Act allows infringed copyright holders to seek "actual damages suffered by him or her as a result of the infringement, and any profits of the infringer."[154] Or they can seek statutory damages in amounts ranging from $750 to $30,000.[155] The court can increase this to $150,000 if the infringement is willful[156] and can reduce it to $200 if the infringement is inadvertent.[157] If we view the verdicts that courts impose on parties as a kind of involuntary contract, it includes two terms. In the first term, courts acknowledge the prior infringement. The second term is the monetary consideration for the infringing use. The structure of these involuntary contracts is an exchange of a copyright for certain amount of money.

In contrast with the simple structure of involuntary contracts for prior copyright infringement, the structure of voluntary copyright-licensing contracts can be far more sophisticated. Copyright holders can impose restrictions on licensees regarding their use of the copyrighted work. They can limit the use of the work to a specific territory or for a particular purpose.[158] They can also specify the actions that they want to prevent licensees from taking. For example, a copyright holder can require a licensee not to transfer to a specific third party the materials, documents, and images that it is giving the licensee.[159] In addition to monetary considerations, the copyright holder might take considerations not in the form of money, such as stocks.[160]

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154. 17 U.S.C. § 504 (2018).

155. *Id.*; Cohen v. United States, 105 Fed. Cl. 733, 741 (Fed. Cl. 2012); Harris v. Emus Records Corp., 734 F.2d 1329, 1335 (9th Cir. 1984) (stating that a plaintiff may recover actual or statutory damages).

156. 17 U.S.C. § 504 (2018).

157. *Id.*

158. *See, e.g.*, Watch Data Sys. Co., Ltd., Copyright License Agreement (Form F-1) (Ex. 10.6) § 1.2 (Dec. 22, 2004) (using the copyrighted work for the purpose of "developing data security products"); Linktone Ltd., Copyright License Contract (Form 20-F) (Ex. 4.16) art. 1 § 4, art. 1 § 2 (June 30, 2006) (limiting the use of copyrighted work within "People's Republic of China" to "provide wireless sale service").

159. Linktone Ltd., *supra* note 158, art. 1, § 4.

160. Celebiddy, Inc., Current Report (Form 8-K) § 2 (Aug. 25, 2017) (paying 10%

Without following *ex ante* restrictions, infringers' use of copyrighted work might lead to undesirable outcomes. Take *Christopher Phelps & Associates, LLC v. Galloway*[161] for example. The plaintiff in that case was an architectural firm that "design[ed] upscale custom houses."[162] The defendant bought copies of architectural plans that the plaintiff had drawn for a third party's exclusive use.[163] Without adhering to the exclusive use terms between the plaintiff and the third party, the defendant used the plans to build his own house.[164] By the time the plaintiff learned of the infringing act and sent a letter ordering the defendant to cease the construction, the house was already over half completed.[165]

The district court found that the plaintiff would have likely charged the defendant $20,000 to design a new set of architectural plans.[166] But the plaintiff would never have designed architectural plans that were the same as the infringing copies because it "prided itself on designing 'custom homes.'"[167] If the plaintiff and the defendant had reached a settlement at this point, the plaintiff might have incorporated the use restriction terms into their agreement in order to prevent the defendant from taking further steps to damage its reputation as an architectural firm designing custom houses. For example, the plaintiff could have allowed the defendant to use part of the plans but required him to make modifications to his house in order to make it distinguishable from the third party's house.

The settlement as such, however, did not exist in this case. The district court declined the plaintiff's request to enjoin the completion of the house,[168] allowed the defendant to continue the construction,

of net profits, a cash advance against net profits in the amount of $1,500, and 10,000 shares of its common stock to the licensor as consideration for a copyright license).

161. Christopher Phelps & Assocs., LLC v. Galloway, 492 F.3d 532 (4th Cir. 2007).

162. *Id.* at 536.

163. *Id.*

164. *Id.*

165. *Id.*

166. *Id.* at 535.

167. *Id.* at 537.

168. The Copyright Act does not compel injunctive relief. *See* Silverstein v. Penguin Putnam, Inc., 368 F.3d 77, 84 (2d Cir. 2004) (holding that "injunctive relief to enforce a copyright is not compelled.") (citing Dun v. Lumbermen's Credit Ass'n, 209 U.S. 20, 23–24 (1908) (finding an injunction is "unconscionable" where the degree of infringement is slight compared to the injury that would result from the injunction)); Abend v. MCA, Inc., 863 F.2d 1465, 1479 (9th Cir. 1988) (awarding monetary rather than injunctive relief, despite copyright infringement, where plaintiff "has not shown irreparable injury which would justify imposing the severe remedy of an injunction on defendants."); Liu, *supra* note 114, at 218 (concluding that "most courts are reluctant

and awarded the plaintiff $20,000 in damages, based on the reasoning that this damages award was enough to make the plaintiff "whole."[169] This simple involuntary contract[170] could have caused two problems. First, it did not include terms to prevent the defendant from taking further steps to damage the plaintiff's reputation. Efficiency losses might occur if this damage outweighs the costs of making modifications to the house. This could happen because the reputation damage might affect the plaintiff's subsequent transactions. Second, the damages award of $20,000 led to undercompensation because it did not cover the damage to plaintiff's reputation.

There are several approaches that the court could have taken to improve this verdict. First, it could have maintained the simple structure of this involuntary contract but increased the damages award to cover the plaintiff's reputation losses. This involuntary contract might not have eliminated the risk of the aforementioned efficiency losses but would have cured the defect of undercompensation. But this approach raises an information problem: the quantification of the plaintiff's reputation losses might require information that was not available at the time of adjudication. The quantification might have involved high assessment costs and would have been subject to high risk of error.

The second approach is to determine a damages award for the prior infringement, enjoin the completion of the house, and let the parties contract into settlement. This approach avoids the risk of efficiency losses stemming from the harm to the plaintiff's reputation. It also avoids the problems of undercompensation and lack of

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to withhold injunctive relief upon a finding of copyright infringement or a likelihood of success on the merits.").

169. *Phelps*, 492 F.3d at 535. Usually, when courts refuse to enjoin post-verdict infringement, they determine an ongoing royalty and require the infringer to pay this to the copyright holder as a way to cover the future damages that the post-verdict infringement will create. *See* 4 MELVILLE NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 14.06[B][1][B][II] (Matthew Bender, ed.) (noting that "when great public injury would be worked by an injunction . . . the courts sometimes . . . award[] damages or a continuing royalty instead of an injunction"). In this case, the court viewed the regard one-time lump sum payment of $20,000 as making the plaintiff whole, as the sum included the ongoing royalty. *Phelps*, 492 F.3d at 535.

170. Some courts regard the denial of injunctive relief as the imposition of a compulsory copyright licensing contract between parties. *See, e.g.*, *Silverstein*, 368 F.3d at 84 (noting that the denial of an injunction against copyright infringement may amount to "a forced license to use the creative work of another"); NFL v. Primetime 24 Joint Venture, No. 98 Civ. 3778 (LMM), 1999 U.S. Dist. LEXIS 15261, at *12 (S.D.N.Y. Sept. 27, 1999) (noting that "the failure to issue a final injunction" would "be tantamount to the creation of a compulsory license, future damages then becoming a sort of royalty.").

information. However, a hold-up problem might follow this arrangement[171]: the defendant had finished over half of the house,[172] and if the court had enjoined the construction, the plaintiff might have used the defendant's prior investment as leverage to ask for an unreasonably high settlement fee.

The third approach is to establish a more sophisticated involuntary contract between the parties. The court could allow both parties to litigate the terms that they think appropriate for resolving this case. These might include a term that requires the defendant to modify the house as a way to make it distinguishable from the plaintiff's prior work. This approach could avoid the efficiency loss problem of damage to the plaintiff's reputation, the problem of undercompensation, the information problem of quantifying reputation losses, and the hold-up problem. Yet, the adjudication of a more sophisticated involuntary contract could lead to high assessment costs that might outweigh the benefits that this involuntary contract would bring about.

This Article does not claim that the third approach—forming a more sophisticated involuntary contract—would necessarily be the optimal resolution to this case. A court should choose its approach based on its balance analysis of the costs and benefits of possible solutions. The purpose here is to present the possibility that forming a more sophisticated involuntary contract could be a potential way to resolve infringement cases, a possibility that courts often neglect. The statutory language of the Copyright Act provides sufficient room for the court to use this third approach. Section 502(a) of the Copyright Act allows courts to grant injunction to "prevent or restrain" copyright infringements.[173] The court could have required the defendant to make modifications to his house as a way to restrain his continuing infringement of the plaintiff's copyright to its architectural plans.

When courts decline to grant injunctions and allow infringers to use copyrighted work post-verdict, they should recognize that the

171. Courts have been reluctant to enjoin the completion of infringing buildings under construction on the basis that doing so will place the defendant in economic hardship. *See, e.g.*, Edgar H. Wood Assocs., Inc. v. Skene, 197 N.E.2d 886, 896 (Mass. 1964). But courts are more willing to grant an injunction if the construction is just beginning. *See, e.g.*, Nucor Corp. v. Tenn. Forging Steel Serv., Inc., 476 F.2d 386, 393 (8th Cir. 1973) (noting that courts might issue injunction against the completion of infringing structure in the situation where "only minimum construction had begun"); Value Group, Inc. v. Mendham Lake Estates, L.P., 800 F. Supp. 1228, 1235 (D.N.J. 1992) (declining to grant an injunction on the basis that the infringing house is only in the "preliminary construction stage").

172. *Phelps*, 492 F.3d at 536.

173. 17 U.S.C. § 502(a) (2018).

legal relationship that they establish between parties can last for a long time. Parties of such involuntary contracts might need a mechanism for handling future contingencies, just as they do in the context of voluntary contracting. For example, in one copyright license, the copyright holder required the licensee to obtain its written consent before putting certain derivative works into use for commercial purposes outside the scope defined by their contract.[174] This informed-consent mechanism allowed the copyright holder to incorporate new information into its decision-making, helping it to allocate resources efficiently over the long term. Yet the involuntary contracts that courts determine for post-verdict use of copyrighted work lack mechanisms to handle future contingencies. This absence might lead to efficiency losses.

Take *TD Bank N.A. v. Hill*, for example.[175] In that case, a bank sued its former employee, Hill, claiming that his book infringed its copyright for a given manuscript.[176] During his employment, Hill had written the manuscript and then assigned his copyright to the bank.[177] The Third Circuit found infringement,[178] but declined the bank's request to enjoin the publication and sale of the book, largely because the bank failed to prove that it had suffered any harm that was irreparable or could not be compensated adequately with a damages award.[179] The court allowed Hill to publish and sell the book, and required him to pay a running royalty as compensation.[180]

Yet, if a court had recognized that this legal relationship might last for a long period of time, it might have found that the terms that it imposed on the parties were overly simplistic. Although at the time of litigation the bank could not produce sufficient information to convince the court that it would suffer irreparable harm, it might have

174. Linktone Ltd., *supra* note 158, art. 5, § 1; *see also, e.g.*, GPAQ Acquisition Holdings, Inc., Media License Agreement (Form S-4) (Ex. 10.6) § 2.5 (Jan. 23, 2020) (requiring the licensee not to use its own derivative works without the licensor's consent).

175. TD Bank N.A. v. Hill, 928 F.3d 259 (3d Cir. 2019).

176. *Id.* at 265.

177. *Id.* at 274–76.

178. *Id.* at 278.

179. *Id.* at 280–82. The court applied the four-factor test that the Supreme Courts established in *eBay*. Irreparable harm and inadequate legal remedy are two factors. The other two are the balance of hardship and public interest. *See* eBay, Inc. v. MercExchange, L.L.C., 547 U.S. 388, 391 (2006). In *TD Bank N.A. v. Hill*, the court found that the balance of hardship factor "favors neither party," and that the public interest factor weighed against an injunction because the public has the "right to access expressive works." *TD Bank N.A.*, 928 F.3d at 284.

180. *TD Bank N.A.*, 928 F.3d at 282 ("[A] district court may impose a running royalty to remedy possible future infringement . . . .").

been too early to determine that such harm would not happen in the future.[181] To avoid the potential irreparable harm, it might have been appropriate for the court to impose a term that shifted some of the power to control the copyrighted work back to the bank at some point after the judgement. For example, the court could have required that, a year after the judgement, Hill would have to allow the bank to scrutinize and approve his marketing plan for the book before selling additional copies.[182]

### 2. Authorized Takings

The U.S. government allows users to take holders' copyrights without their consent by obtaining statutory and compulsory licenses.[183] These involuntary contracts allow entities that use a huge volume of copyrighted works in their ordinary course of business to save the transaction costs of negotiating licenses with multiple copyright holders.[184] By taking these licenses, the users subject themselves to terms that the government pre-determines. There are at least three ways in which the structure of these statutory and compulsory licenses is more sophisticated than that of the involuntary contracts that courts create in the context of copyright infringement.

The first has to do with the definition of eligible users. In infringement cases, the government does not limit the scope of potential users. In contrast, it incorporates into certain statutory licenses the requirement that users meet specific conditions in order to become licensees. For example, Section 111 of the Copyright Act allows only cable systems to obtain a license for secondary transmissions of broadcast programing.[185] Section 119 allows only satellite carriers to obtain a license for a performance or display of a work for secondary transmissions to distant television programming viewers.[186]

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181. Smith, *supra* note 4, at 1724 (noting that a property's value might be uncertain when "the possible states, their probabilities, and their pay-off values" are unknown).

182. *Cf.* GPAQ Acquisition Holdings, Inc., *supra* note 174, § 2.2 (imposing a duty on the licensee to have the copyright holder's approval, which cannot be "unreasonably withheld," before executing its proposed plan to exploit the copyrighted works).

183. 17 U.S.C. §§ 111–112, 114–115, 119, 122, 1000–1010 (2018).

184. Epstein & Kieff, *supra* note 120, at 85; *see also* Robert J. Morrison, *Derivers' Licenses: An Argument for Establishing a Statutory License for Derivative Works*, 6 CHI.-KENT J. INTELL. PROP. 87, 94 (2006) ("The idea behind a statutory license, or a compulsory license, is to reduce the transaction costs needed to license out the work.").

185. 17 U.S.C. § 111 (2018).

186. 17 U.S.C. § 119 (2018).

Second, these involuntary licenses impose use restrictions on users before they use the copyrighted works. For example, the compulsory license under Section 115 of the Copyright Act prohibits licensees from "mak[ing] and distribut[ing] phonorecords of a nondramatic musical work[.]"[187] The license limits the distribution of phonorecords to private use only and does not allow it for commercial use.[188] Though it allows licensees to make adaptations to the work that "conform it to the style or manner of interpretation of the performance involved,"[189] the right to make adaptations also has restrictions. Without the copyright holder's consent, licensees may not make adaptations that "change the basic melody or fundamental character of the work," which could then be protected as derivative works.[190]

The limitations on the scope of eligible licensees and on the field of use define the boundaries between the users of the copyrighted work and the copyright holders. The holders can assign their residual rights to other users whom they consider appropriate or reserve them for their own use. Without these limitations, undesirable users might exploit the copyrighted work in a way that could lead to inefficient outcomes. But comparing these terms with their equivalents in voluntary contracts, it is not difficult to recognize that the terms in standard involuntary contracts tend to be less adaptive to particular licensing contexts. In involuntary copyright licensing, copyright holders cannot refuse to deal with users who meet the conditions to be eligible licensees. They cannot adjust the scope of the field of use, even if they find it too broad, too narrow, or too imprecise. For example, they are not allowed to incorporate terms into the involuntary contracts that would acknowledge their prior agreements with third parties and require the licensee to follow the specific restrictions that these agreements defined.[191]

Third, statutory and compulsory licenses contain terms that impose on the licensee a set of duties to communicate with the

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187. 17 U.S.C. § 115 (2018).

188. *Id.*; *see also* 2 MELVILLE NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 8.25 (Matthew Bender, ed.).

189. 17 U.S.C. § 115 (2018).

190. *Id.*

191. Copyright holders can incorporate use restriction terms into voluntary contracts in order to avoid the licensee's exploitation adversely affecting the established legal relationships between the copyright holder and third parties. *See e.g.*, GPAQ Acquisition Holdings, Inc., *supra* note 174, § 2.6 (requiring the licensee to use the works within the use restrictions defined by a contract between the copyright holder and a third party); Zoetis Inc., Trademark and Copyright License Agreement (Form S-1) (Ex. 10.10) § 2.2 (Nov. 9, 2012) (similar).

copyright holder. For example, Section 115 of the Copyright Act requires the licensee to provide monthly and annual statements of account to the copyright holder.[192] This requirement creates information channels between the copyright holder and the licensee, lowering the costs of monitoring the use of the copyrighted work during the execution of a given license. In contrast, the involuntary contracts that derive from copyright infringement do not include these terms. Voluntary copyright licenses also contain terms that create similar information channels.[193] But copyright holders who contract voluntarily can require the licensee to provide the information that they need but that is not covered by the terms of standard compulsory copyright-licensing contracts. In an actual license, for example, the copyright holder required the licensee to provide its commercial plans.[194]

Similar to the involuntary copyright licenses that result from infringing takings, compulsory and statutory licenses collect money as consideration.[195] Non-monetary considerations that appear in voluntary licenses[196] are not available here. Furthermore, certain complex payment schemes used in voluntary contracts do not exist in these licenses. For example, in voluntary licensing, the copyright holders can require the licensee to pay a minimum annual royalty that increases each year.[197] They can obtain not only the share of the revenues that derives directly from the use of the copyrighted work but also the share of the revenues that the licensee's complementary assets generate.[198]

In sum, the fact that the government sets relatively sophisticated structures for compulsory and statutory copyright licenses suggests that it recognizes that establishing simple legal relationships between parties might not fit complex transactional contexts. Yet, the fact that certain arrangements exist in voluntary contracts but are absent in these involuntary contracts indicates that the government-generated

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192. 17 U.S.C. § 115 (c)(2)(I)–(J) (2018).

193. Linktone Ltd., *supra* note 158, art. 9, § 1 (requiring the licensee to record the expense and income in server or accounting books for the licensor to inspect).

194. *Id.* art. 5, § 2.

195. Epstein & Kieff, *supra* note 120, at 85 (noting that the prices of compulsory copyright licenses are "subject to elaborate industry-wide negotiation systems that are intended, in part, to secure a fair return for the holder of the IP").

196. *See* Celebiddy, Inc., *supra* note 160, §1.01 (listing a nonmonetary consideration as a term to the agreement).

197. *See, e.g.*, GPAQ Acquisition Holdings, Inc., *supra* note 174, § 5.1.

198. *See, e.g.*, Digicorp, Inc., Content License Agreement (Form 8-K) § 2 (June 4, 2008) (allowing the copyright holder to collect the revenue of the banner advertising that appears on the website pages displaying its copyrighted contents).

standard contracts might not be fully adaptive to the contexts of individual cases. If the transaction cost is low, it might be more desirable for parties to contract voluntarily because they can design more effective terms to address the specific issues in their transaction.

### *C. Real Property*

#### 1. Infringing Takings

Infringements in the field of real property also can lead to involuntary transfers of rights. Here, infringers take owners' rights to real property without their consent by occupying, using, or even destroying that property. Upon a finding of infringement, the court will require the infringer to compensate the owner. In this situation, the court establishes a legal relationship regarding the involuntary transfer of property right from one party to another. We can regard this as the court imposing an involuntary contract on the parties and can view the compensation that the court determines as the consideration in this involuntary contract. This section examines involuntary contracts in encroachment cases.

In encroachment cases, the infringer not only enters the owner's land without his or her consent but also attaches an item to it.[199] By this entry and attachment, the infringer takes the owner's right to use the land without the owner's consent. Courts often establish a hypothetical rental contract between the parties, treating the infringer as a tenant who should pay "a reasonable rental value" to the owner for the use of the land.[200] This is consistent with the practice of contracting a rental agreement, where the landlord generally requires the tenant to pay a rental fee.[201] Courts can also require infringers to pay a certain amount of money that equals the diminution in value of the land if the encroachment causes permanent damage.[202] This is consistent with the practice of voluntary contracting, as rental contracts often include terms that require

199. 9 MICHAEL ALLAN WOLF, POWELL ON REAL PROPERTY § 68.09 (2020), LexisNexis.

200. Goodover v. Lindey's Inc., 843 P.2d 765, 770 (Mont. 1992); Lone Star Dev. Corp. v. Reilly, 656 S.W.2d 521, 522–23 (Tex. Ct. App. 1983); WOLF, *supra* note 199, § 68.09; Parchomovsky & Stein, *supra* note 6, at 1824 ("Courts ordinarily set the compensation amount equal to the rent that owners of similar properties can obtain on the market.").

201. PATRICK J. ROHAN, CURRENT LEASING LAW AND TECHNIQUES – FORMS, Ch. 4A, §§ 01, 02 (2020).

202. WOLF, *supra* note 199, § 68.09.

tenants to pay a fee to cover the damages that they cause to the property.[203]

Absent from these involuntary rental contracts are the use restriction terms that appear in voluntary rental contracts.[204] In voluntary rental contracts, landlords can specify the permitted uses of their property,[205] the prohibited uses[206] of their property, or both. The use restriction terms involve a limitation on tenants' ability to make alterations to or installations on the property.[207] For example, in one rental contract, the landlord required the tenant not to "make any installations, alterations, additions, or improvements in or to the [rented property], except for non-structural interior alterations, additions or improvements which cost less than $25,000.00," without obtaining the landlord's prior written consent.[208] Here, the terms precisely defined what the tenant was and was not allowed to do and what circumstances required informed consent.

From a standpoint of economic efficiency, such use restriction terms can keep tenants from investing in alterations that the landlord does not desire and would remove at the termination of the rental contract.[209] In encroachment cases, courts are unable to impose similar terms to restrict the infringers' pre-verdict use of the land because by the time of litigation, the encroachment has already

203. *See, e.g.*, RMG Acquisition Corp., Lease (Form S-4) (Ex. 10.21) § 8.3 (Oct. 15, 2020) (making the tenant liable for any damage, repair, or replacement that results from the tenant's act or negligence).

204. *See, e.g.*, *id.* § 2.2 ("The Premises is leased to Tenant subject to all covenants, conditions, agreements, easements and restrictions of record affecting the Premises (collectively, the 'Restrictions').").

205. *See, e.g.*, Zynex Inc., Lease Agreement (Form 8-K) (Ex. 10.1) 1 (Oct. 6, 2020) (defining "Permitted Use"); LENSAR, Inc., Industrial Real Estate Lease (Form 10) (Ex. 10.12) § 1.12 (Sept. 14, 2020) ("Permitted Uses: General office use and research and development in optics and visual science and marketing of ophthalmic therapeutic medical devices including the assembly of finished products from components.").

206. RMG Acquisition Corp., *supra* note 203, §§ 7.2, 12.4 (requiring the tenant to ask for the landlord's consent before placing signs on any portion of the leased property).

207. MARCIA STEWART ET AL., LEASES & RENTAL AGREEMENTS, 24–25 (6th ed. 2005); ROHAN, *supra* note 201, at 7A § 6.13 (noting that it is a general rule that a tenant may not alter or materially change the rented property).

208. LENSAR, Inc., *supra* note 205, § 10.05.

209. RMG Acquisition Corp., *supra* note 203, § 12.3 ("When Tenant requests Landlord 's consent to perform any Alterations, such request may contain a specific request of Landlord as to whether or not the Alterations will be required to be removed upon the end of the Term."); Gaia, Inc., Master Lease Agreement (Form 8-K) (Ex. 10.2) § 9 (Sept. 10, 2020) (similar); C4 Therapeutics, Inc., Lease (Form S-1) (Ex. 10.14) § 10.05(f) (Sept. 10, 2020) (similar); Grail, Inc., Lease Agreement (Form S-1) (Ex. 10.24) § 7.03 (Sept. 9, 2020) (similar).

happened. Without terms in the involuntary contract that restrict the infringers' use of the land, the infringer might overly invest in attachments that owners do not desire.

It is a general rule that courts will order infringers to remove an encroachment, [210] but there are times when they allow the encroachment to remain.[211] If the infringers' innocence and the costs for them to remove the item outweigh the damages to the owner that the continuous existence of the encroachment causes, courts tend not to order the removal.[212] The economic rationale behind this is not hard to see. For one thing, it allows policymakers to manage the infringers' costs of avoiding encroachment at a reasonable level. For another thing, from the standpoint of social welfare, it is more desirable to take smaller economic losses than larger ones.

A court's refusal to order the removal of an encroachment makes the owner's right to the property subject to another involuntary contract. Most courts grant the infringer an easement for the life of the encroachment.[213] They also require the infringer to pay a certain amount of damages as compensation or consideration.[214] In other words, the structure of most involuntary contracts for the continuation of encroachment is as simple as that of the involuntary contracts for pre-verdict encroachment. It is an involuntary transfer of the right to the encroached land for certain amount of money.

In rare cases, courts have adjusted the conventional structure of involuntary contracts by incorporating more terms into them. Perhaps in these cases the courts recognized that such adjustments can lead to better outcomes. This Article finds two types of such arrangements. The first involves the expansion of the subject of the

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210. WOLF, *supra* note 199, § 68.09[2][a]; *see id.* § 68.09[5] ("The great number of such cases further encourages the courts to think of unconditional specific relief (orders for possession and injunctions) as the usual remedy and damages the exception."); Goulding v. Cook, 661 N.E.2d 1322, 1325 (Mass. 1996).

211. *See, e.g.*, Smith v. Rogers, 677 S.W.2d 1, 4 (Tenn. Ct. App. 1984) (reversing injunction requiring removal of encroaching dirt when landowner's motivation for seeking such "extraordinary relief" was "questionable.").

212. WOLF, *supra* note 199, § 68.09[5].

213. *See, e.g.*, Zerr v. Heceta Lodge No. 111, 523 P.2d 1018, 1024–25 (Or. 1974) (giving the intruder an easement "so that [the owner] can recover full use and possession" of the encroached land when the intruder's building is removed); Cross v. McCurry, 859 S.W.2d 349, 354 (Tenn. Ct. App. 1993) (the intruder would have an easement). But in some cases, the court that refused to remove the encroachment did not specify what kind of right it granted to the infringer after so declining. *See, e.g.*, Stuttgart Elec. Co. v. Riceland Seed Co., 802 S.W.2d 484, 488 (Ark. Ct. App. 1991) ("It seems to us that the proper decision in this case is to simply deny the appellant's petition for a mandatory injunction and award it any proper damages sustained.").

214. *See generally* WOLF, *supra* note 199.

involuntary contract to cover the right to the peripheral land. For example, in *Malnar v. Whitfield*,[215] the infringers built an office building that partly encroached on the owner's land.[216] After finding that the infringement was inadvertent and that the costs of removal were substantially higher than the diminution in the market value to the owner's land, the court refused to order the removal of the relevant portion of the encroaching building.[217] Upon payment of damages, the court gave the infringer not only an easement for the portion of the owner's land on which the encroaching structure was situated, but also "approximately six feet of maintenance easement on its periphery."[218] Here the infringers had not taken the right to the peripheral land by their action; instead, the court bundled it with the right that they have taken as a package and granted the package of rights to them.[219]

The arrangement of a bundled transfer of rights is not uncommon in voluntary lease or sale contracts in the field of real property. For example, when a landlord leases its building to a tenant, it might also allow the tenant's employees and customers to use the parking spaces on the land adjacent the building.[220] In a purchase and sale contract, the owner might also transfer to the buyer the rights to use roads and means for accessing the real estate,[221] making the use of the property more convenient. The bundled transfer of rights promotes economic efficiency because the assets are by their nature complementary to each other.

The second kind of arrangement has to do with non-monetary compensation or consideration. In *Philadelphia Scoop & Scale Manufacturing Co. v. Silberman*,[222] the infringer constructed a building with a foundation that encroached on the owner's land.[223] The landowner then built a wall partly on the infringer's encroaching foundation.[224] Instead of requiring the infringer to pay damages, the court granted the landowner the right to build its wall on the

215. Malnar v. Whitfield, 774 P.2d 1075, 1077 (Okla. Civ. App. 1989).

216. *Id.*

217. *Id.* at 1077–78.

218. *Id.* at 1079.

219. *See also, e.g.*, Christopher v. Rosse, 458 N.Y.S.2d 8, 10 (N.Y. App. Div. 1982) (giving the plaintiff's entitlement to a strip of land to the defendant for maintenance and repair of the encroaching building).

220. Zynex Inc., *supra* note 205, at 6.

221. Bard Holding, Inc., Agreement for The Sale and Purchase of Real Estate (Form S-1) (Ex. 10.1) §§ 1, 1.01 (Mar. 26, 2010) (transferring to the buyer the rights to use rail access, road access, and the carrier on the rail).

222. Phila. Scoop & Scale Mfg. Co. v. Silberman, 40 A.2d 395, 396 (Pa. 1945).

223. *Id.*

224. *Id.*

encroaching foundation.[225] This made the involuntary transaction a barter arrangement—an exchange of the right to land for the right to the encroaching foundation. In this case, barter led to an efficient allocation of resources because the encroachment by its nature was beneficial to the landowner, allowing it to save the resources that it would have used to build part of the foundation. The removal of the encroachment would have wasted both the resources needed to destroy the existing useful foundation and the resources necessary for rebuilding on the site. Barter also allowed the court to save the costs of quantifying the damages that each side had caused the other.

### 2. Authorized Takings

The government can exercise its power of eminent domain to take real property for public use without its owner's consent.[226] This kind of taking makes the right to real property subject to involuntary transfer. The Fifth Amendment of the U.S. Constitution prohibits the government from taking private property without providing "just compensation" to the owner.[227] The Supreme Court has stated that it is a "common standard" that this compensation will be certain amount of money.[228] This amount will put the property owner in "as good a position pecuniarily as he would have been if his property had not been taken."[229] To determine this amount, courts often refer to "the market value of the property"[230] meaning the amount of cash that

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225. *Id.*

226. U.S. CONST. amend. V; Kohl v. United States, 91 U.S. 367, 371 (1875) (stating that state governments have the power of eminent domain); *see also* Robert Kratovil & Frank J. Harrison Jr., *Eminent Domain—Policy and Concept*, 42 CALIF. L. REV. 596, 596 (1954) (regarding that "the provision of the Fifth Amendment . . . is a tacit recognition of a pre-existing power to take private property for public use . . . .") (citing United States v. Carmack, 329 U.S. 230, 241–42 (1946)).

227. U.S. CONST. amend. V.

228. Vanhorne's Lessee v. Dorrance, 2 U.S. 304, 315 (1795) ("No just compensation can be made except in money. Money is a common standard, by comparison with which the value of any thing may be ascertained."); *see also* 3 JULIUS L. SACKMAN, NICHOLS ON EMINENT DOMAIN § 8.06 (2020), LexisNexis (noting that the compensation for eminent domain usually implies monetary compensation).

229. United States v. 564.54 Acres of Land, 441 U.S. 506, 510 (1979) (quoting Olson v. United States, 292 U.S. 246, 255 (1934)); *see* Seaboard Air Line Ry. Co. v. United States, 261 U.S. 299, 304 (1923).

230. *Olson*, 292 U.S. at 255; *see also* Redevelopment Agency v. First Christian Church, 189 Cal. Rptr. 749, 758 (Cal. Ct. App. 1983) ("the fair market value of the condemned property"); Robinson v. Westport, 610 A.2d 611, 613 (Conn. 1992) ("The amount that constitutes just compensation is the market value of the condemned

that a willing purchaser would pay a willing seller for the property.[231] If we view involuntary transactions of real property through eminent domain as involuntary contracting, the structure of these contracts is relatively simple—the exchange of a property right for a sum of money.

Nevertheless, concerns about this kind of involuntary contracts arise frequently, as the monetary compensation that the government determines often does not fully cover the harm that eminent domain causes.[232] Displaced homeowners often find that the money that they get is not sufficient to allow them to buy a comparable replacement house in the market.[233] Furthermore, an information problem often exists in the quantification of the subsequent losses that eminent domain causes. For example, displaced owners might suffer unemployment due to the destruction of their working place or due to commuting difficulties because of the increased distance between their place of work and their new home.[234] If the displaced owners have to relocate far away from where they originally lived, there might also be disruption to their relationships with family, friends, and business partners.[235] The government's quantification of these harms requires a lot of information that is hard to collect and verify. These quantification difficulties increase the risk of undercompensation.

To deal with the problem of undercompensation, the government has made at least two adjustments to the conventional structure of these involuntary contracts. First, it has introduced into these involuntary contracts services designed to prevent subsequent losses that might be hard to quantify in terms of money. In 1970, Congress passed the Uniform Relocation Assistance and Real Property Acquisition Act (URA),[236] which imposes a duty on the federal government to provide relocation assistance to people who are displaced as a "direct result" of a federal taking.[237] Most states have

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property . . . ."); City of Chicago v. Cunnea, 160 N.E. 559, 562 (Ill. 1928) ("the fair cash market value"); Devils Lake v. Davis, 480 N.W.2d 720, 725 (N.D. 1992) ("the fair market value of property actually taken").

231. United States v. Miller, 317 U.S. 369, 374 (1943) ("It is usually said that market value is what a willing buyer would pay in cash to a willing seller."); *Olson*, 292 U.S. at 257 (defining market value as "the amount that in all probability would have been arrived at by fair negotiations between an owner willing to sell and a purchaser desiring to buy").

232. 2A JULIUS L. SACKMAN, NICHOLS ON EMINENT DOMAIN § 7.03, (2020), LexisNexis; *see, e.g.*, United States v. 158.00 Acres, 562 F.2d 11, 12 (8th Cir. 1977).

233. SACKMAN, *supra* note 228, § 8.22.

234. *Id.*

235. *Id.*

236. 42 U.S.C. §§ 4601–4655 (2018).

237. 42 U.S.C. § 4621(b) (2018).

enacted similar statutes imposing the relevant duties on state governments.[238] According to the URA, the government must provide services, including relocation planning, assistance coordination, and advisory services, to the people it is displacing.[239] The Act also requires the government to insure that comparable replacement houses will be available within a reasonable period of time before the displacement.[240] From a standpoint of economic efficiency, if the government is in a better position to deal with the subsequent losses that the eminent domain causes, it is efficient for it to address the losses directly rather than letting the displaced owners overcome them and then paying to make them whole.

The second adjustment that the government has made is to provide a substitute property for displaced owners to use, making the involuntary transaction a barter arrangement.[241] For example, in *Brown v. United States*,[242] the federal government took three-fourths of the land of a town that would be flooded when it built a dam on the river in order to create a reservoir to irrigate arid public land.[243] Instead of merely paying the residents a given price, the government acquired and improved land near the town as "a new town site to replace the portion of the town" to be flooded and "for the removal of buildings to such new site."[244]

One reason for structuring this involuntary transaction as a barter arrangement is the difficulty of determining the compensation of property rights that the government took in order to compensate the displaced owners fully. In the Supreme Court's view,

> It would be hard to fix a proper value of homes in a town thus to be destroyed without prospect of their owners' finding homes similarly situated on streets in another part of the same town or in another town near at hand. It would be difficult to place a proper estimate

238. For a listing of the state statutory provisions, see 10 JULIUS L. SACKMAN, NICHOLS ON EMINENT DOMAIN app. D (2020), LexisNexis.

239. 42 U.S.C. § 4625 (2018).

240. *Id.* § 4630.

241. Barter arrangements also exist in voluntary transactions. *See e.g.*, MDC Holdings Inc., Exchange Contract (Form 10-Q) (Ex. 10.3) 1 (Aug. 03, 2007) (exchanging aircrafts); Universal Health Realty Income Tr., Asset Exchange and Substitution Agreement (Form 8-K) (Ex. 10.1) 2 (Apr. 25, 2006) (lessor substituted a leased property with another property that had similar functionality to the lessee); Maguire Props., L.P., Exchange Agreement (Real Property) (Form 8-K) (Apr. 12, 2005) (exchanging real properties).

242. Brown v. United States, 263 U.S. 78, 80 (1923).

243. *Id.*

244. *Id.*

> of the value of the streets and alleys to be destroyed and not to be restored in kind.[245]

The court held that the method of providing substitute land as compensation for the taking "would seem to be the best means of making the parties whole."[246]

Another reason for providing the displaced owners with substitute land seems to be economic efficiency—the avoidance of substantial economic waste. In the Supreme Court's view, the town was "a large settlement for [a] sparsely settled country and it was many miles from a town of any size in any direction."[247] The substitute land was "the only practical and available place" to which the flooded part of the town could be moved and united with the part of the town that would be left.[248] The reunification of the town would preserve its function as "a business center,"[249] thus avoiding the potential damages to the ousted or remaining residents and to the state.[250]

A similarly complex involuntary transfer of real property can be found in the 1929 case of *Smouse v. Kansas City Southern Railway Co.*[251] The railroad company (the defendant) in the case possessed the power of eminent domain (thereby effectively exercising the government's power to force involuntary transfers) and needed to use that power to take a parcel of land from Smouse (the plaintiff) in order to add new spur tracks parallel to its existing rails.[252] On the land, there was a roadway that a chemical manufacturer (the Philadelphia Quartz Company) used as means of ingress and egress to its plant from Kansas Avenue, one of the principal streets in Kansas City.[253] The chemical manufacturer had an easement to the roadway, which had been granted by Smouse's predecessor in title to his land.[254] The easement also included the right to place and maintain overhead wires and poles and underground pipes and conduits.[255] These pipes were crucial to the chemical manufacturer because they delivered water, gas, and electricity to the plant;[256] and, more importantly, they

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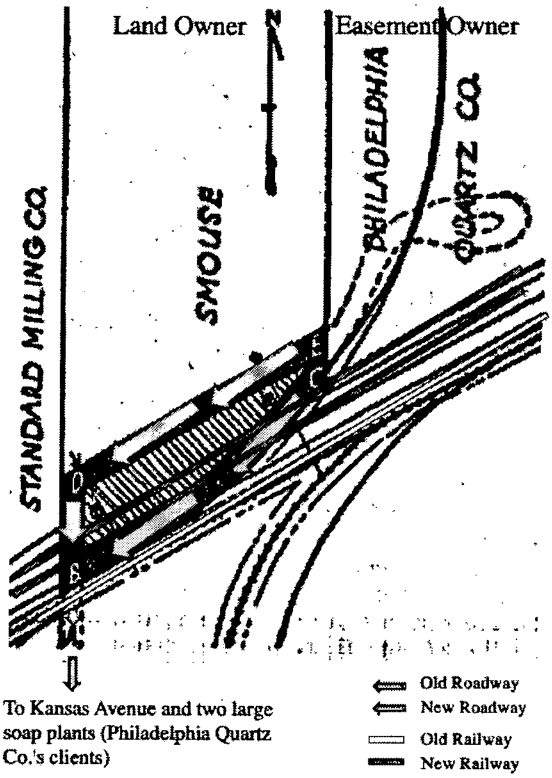
245. *Id.* at 82.
246. *Id.* at 83.
247. *Id.* at 81.
248. *Id.*
249. *Id.* at 82.
250. *Id.* at 82–83.
251. Smouse v. Kan. City S. Ry. Co., 282 P. 183, 184 (Kan. 1929).
252. *Id.* at 184–85.
253. *Id.* at 185.
254. *Id.*
255. *Id.*
256. *Id.*

conveyed its product—silicate of soda for the manufacture of soap—from the plant to Kansas Avenue and thence to its clients, "two large soap manufacturing plants, which have between 2,000 and 3,000 employees, about a quarter of a mile west."[257]

**Figure 1. The Plat of *Smouse v. Kansas City Southern Railway Company*[258]**




If the railroad company had arranged the involuntary transfer of the chemical manufacturer's easement as a simple exchange of a property right for a sum of money, without giving it back a comparable easement for ingress and egress and for placing the underground pipes and overhead wires across Smouse's land, the arrangement

257. *Id.* at 186.
258. *Id.* at 185 fig. (annotated by the author).

could have "put [the manufacturer] out of business,"[259] leading to a substantive economic loss. In the court's view, the eminent domain arrangement as such would "in effect destroy[] the usefulness of [the chemical manufacturer's] plant" and the railroad company would have to "pay[] the heavy damages which would necessarily result from such a taking[.]"[260] In this situation, it is likely that the chemical manufacturer would have sought to negotiate with Smouse for a new easement onto which to shift the road, wires, and pipes in order to preserve the value of its plant. However, it might have encountered a classic "hold-up" situation because without an alternative, economically feasible route, Smouse could have strategically demanded a huge premium for the new easement.

To avoid destroying the usefulness of the chemical manufacturer's plant and the hold-up situation, the railroad company used the eminent domain power to compel a more complex transaction. It took from Smouse a strip of land wide enough for both its own needs and those of the chemical manufacturer (the strip of land taken by the railroad company is shown by the wide black lines on the plat and the wedge-sharped parcel surrounded by them).[261] Notwithstanding Smouse's objection to this arrangement on the grounds that the taking of a wider strip of land exceeded the railroad company's right of eminent domain,[262] the court upheld the complex arrangement.[263] Ultimately, the chemical manufacturer was compensated for the loss of its old easement with a package of rights, including an easement for a new road and the railroad company's agreement that it would "at its own expense, [remove] the poles and wires above the ground and the conduits underground" from the present roadway to the new one.[264]

The eminent domain arrangement in this case made the legal relationship for involuntary transfer of property rights more complex than that which the Calabresi and Melamed framework would anticipate under a liability rule, because it introduced a barter arrangement into the transaction. In addition, if we look at the eminent domain arrangement as a whole, we will recognize that it could be better described as an involuntary contract among three parties—the railroad company, the chemical manufacturer, and the neighboring landowner. The landowner's right to the land was

259. *Id.* at 188.
260. *Id.*
261. *Id.* at 185, 187.
262. *Id.* at 184.
263. *Id.* at 190.
264. *Id.* at 186.

transferred involuntarily to the railroad company, which used the right as part of the consideration for another involuntary transfer. In contrast, the legal relationships that are formed under a liability rule are between two parties.[265] The complex arrangement in this case is more desirable than the simple involuntary transfer of a property right for money because it not only prevented the substantial economic losses to which a simple arrangement would have led to, but also because it protected the chemical manufacturer from a hold-up situation.

One could argue that there might be extra costs for government in determining the compensation for taking a wider strip of land from the landowner. However, these costs are inevitable in light of the greater efficiency of avoiding substantial economic losses and the hold-up situation. Furthermore, without the condemnation of a wider strip of land, it might be more costly for the government to approximate the costs that the chemical manufacturer might incur for purchasing a new easement from the landowner or the economic losses that it might suffer if the purchase turns out to be unsuccessful (given the hold-up situation). The determination of the costs or losses is necessary because the railroad company would have to cover them in order to make the chemical manufacturer whole.

## III. TOWARD OPTIMAL INVOLUNTARY CONTRACTS

By viewing the market and the government as mechanisms that set monetary prices for transfers of rights, the Calabresi and Melamed framework anticipates that parties in transactions will establish legal relationships as simple as exchanges of a property right for a sum of money. The findings in Section II show that the categorical assumption of a simple legal relationship is inconsistent with reality. Sophisticated legal relationships exist in both voluntary and involuntary transactions. The fact that in some instances the government has established sophisticated legal relationships between parties suggests its recognition that in certain contexts these are more desirable than simple ones. Yet the findings also show that government-generated involuntary contracts sometimes lack some of the important terms that voluntary contracts include in order to facilitate efficient resource allocation. This absence can lead to efficiency losses. This Article suggests that government entities, including legislatures, agencies, and courts, should consider

265. Epstein, *supra* note 36, at 2095 (noting that the models that Calabresi and Melamed set forth "chiefly analyze some one-period, two-party situation").

generating more sophisticated involuntary contracts as the potentially optimal resolution in cases of involuntary transfers of rights. This section demonstrates this point from both *ex post* and *ex ante* perspectives.

### *A.* Ex Post *Perspective*

Sometimes the government imposes an involuntary contract on parties *ex post* the exploitation of property. Section II shows that courts do this in infringement cases. Once the matter has reached this point, a court cannot impose terms to govern prior infringing use of the property in order to prevent inefficient use, because that has already happened. What the court can do is determine the infringed owner's compensation according to the prior infringement. If the absence of terms that govern the use of property is likely to lead to inefficient exploitation, it might be desirable to use a strict rule to provide strong protection for the right to the resource in order to prevent infringements.[266] Doing so can encourage potential users to obtain the entitlement by voluntary contracting or through the government's *ex ante* authorization. Either way, the terms that govern the use of property can be incorporated into the legal relationship of the transfer of property rights in an *ex ante* manner to prevent inefficient exploitation.

*Ex post* the infringement, courts currently almost invariably require infringing property users to pay certain amount of money to compensate infringed owners. This makes the structure of the involuntary contract for prior infringement a simple exchange of a property right for money. However, this approach seems too rigid compared to voluntary transactions in which owners can obtain non-monetary assets from property users as considerations. The fact that they obtain not only money as consideration, but also non-monetary assets, suggests that collecting money as the sole consideration might not be the optimal arrangement in every voluntary transactional context. The parties in involuntary transactions might find

266. The "strict rule" here refers to a legal rule that applies high-level sanctions to infringement. But it does not prevent involuntary takings through the government's *ex ante* authorization. In this sense, a strict rule does not equal a "property rule," which prevents all involuntary takings. *See* Calabresi & Melamed, *supra* note 1, at 1092 ("An entitlement is protected by a property rule to the extent that someone who wishes to remove the entitlement from its holder must buy it from him in a voluntary transaction . . . ."); Smith, *supra* note 4, at 1742 ("The term 'property rule' then comes to be associated with very high levels of liability and injunctions that prevent all or nearly all involuntary takings.").

themselves in the same situation. This Article suggests that courts should consider allowing infringed owners to claim non-monetary compensation more frequently in infringement cases.

One reason for granting an infringed owner non-monetary compensation is that transferring infringers' non-monetary assets to the infringed owner in certain transactional contexts can enhance efficiency. There are at least two contexts for this. The first is when the infringer has non-monetary assets that are useful to the owner. For example, we saw an encroachment case in which the landowner built a wall on the infringer's encroaching foundation.[267] Allowing the landowner to use the infringer's foundation saved both the resources that would have been required to remove the wall and the foundation, and the resources necessary for reconstructing a comparable foundation and wall on the encroached site.

Second, the infringer's non-monetary assets facilitate the owner's ability to make efficient investments in the future. We saw this in voluntary transactions, where patent owners often obtain a licensee's grant-back license concerning its patents in the same technological area as part of the consideration.[268] The reason for this is that without a grant-back patent license, the patent owner might be wary of developing new products in the technological area because of the risk that the licensee will sue it. The impeded investment might otherwise have produced an efficient outcome. In litigation, it might be a good idea for the court to allow an infringed patent owner to claim for the infringer's grant-back patent license as compensation in order to avoid the inefficiency of letting the infringer inhibit the patent owner's future investment.

Another reason why courts should allow an infringed owner to claim for non-monetary compensation is that non-monetary assets might better restore the infringed owner to the position in which it would have been but for the infringement.[269] But for the infringement, the owner might have been willing to transfer its property right to the infringer on the condition that it would transfer back certain non-

267. Phila. Scoop & Scale Mfg. Co. v. Silberman, 40 A.2d 395, 396 (Pa. 1945).

268. *See* discussion *supra* Section II(A).

269. *See* United States v. Hatahley, 257 F.2d 920, 923 (10th Cir. 1958) ("The fundamental principle of damages is to restore the injured party, as nearly as possible, to the position he would have been in had it not been for the wrong of the other party."); *see also* D. LAYCOCK & R. L. HASEN, MODERN AMERICAN REMEDIES: CASES AND MATERIALS 14 (5th ed. 2018) (noting that the basic principle of compensatory damages is to restore the plaintiff to "the position he rightfully would have come to but for defendant's wrong."); Cotter, *supra* note 92, at 736 ("[P]atent damages should attempt simply to restore the status quo ante–that is, to make the patentee neither worse nor better off than it would have been, but for the infringement.").

monetary assets as considerations.[270] If the courts allow the infringed owner to get the non-monetary assets that it would have acquired as compensation, the verdict would restore it more closely to the position in which it would have been but for the infringement. In contrast, when courts allow only monetary compensation, infringed owners have to buy back the relevant non-monetary assets from the infringer with the money damages award. But there is no guarantee that they will succeed.[271] In our example, but for the infringement, the patent owner would have included the infringer's research data as part of the consideration.[272] The patent owner might not be able to purchase the infringer's data in a subsequent transaction after the litigation because the infringer might not be willing to disclose the data for setting a purchase price.[273]

Scholars and practitioners might worry that the approach of allowing an infringed owner to claim an infringer's non-monetary assets might lead to assessment error.[274] It is possible that in some cases courts make mistakes when they adjudicate the non-monetary considerations in the involuntary contracts. However, allowing the infringed owners to make such claims is better than assuming that

270. *See, e.g.*, Moleculin Biotech, Inc., Patent and Technology Development and License Agreement (Form S-1) (Ex. 10.8) § VI (Mar. 22, 2016) (requiring the licensee to share all research results regarding the licensed subject matter with the patent owner).

271. Farnsworth, *supra* note 101, at 421 (noting that the animosity between the parties and the attitudes that the parties held toward their rights at issue can impede bargaining after judgment).

272. Moleculin Biotech, Inc., *supra* note 270; *see also* Data Domain, Inc., *supra* note 93, § 1.6.

273. Economic literature shows that it is difficult to trade information when an exclusive right that protects it is absent. Once the owner discloses a piece of information to the potential user, the user will no longer be willing to buy it. But if the owner does not disclose the technology, it is hard for potential users to estimate its value and they will be hesitant to make the purchase. *See* Kenneth Arrow, *Economic Welfare and the Allocation of Resources for Invention*, *in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS 615 (1962); *see also* Robert P. Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75, 81 (1994) ("To sell, one must disclose the information, but once the information is disclosed, the recipient has the it and need not buy it. On the other hand, if one does not disclose anything the buyer has no idea what is for sale.").

274. *See* Smith, *supra* note 4, at 1772 (stating that in voluntary transactions, parties will accurately determine the price because voluntary transactions "do not require an inquiry by courts into the uses that owners have in mind for their assets."); *cf.* Krier and & Schwab, *supra* note 49, at 450 (noting that the "conventional argument for using property rules rather than liability rules" is that parties in a voluntary transaction can value property "more accurately than can the judge by weighing the evidence.").

they can never obtain the infringer's non-monetary assets. The losses of non-monetary considerations are part of the actual harm that the owner suffers. If courts assume that these losses do not exist, they risk committing the systematic error of undercompensation.[275] If courts are convinced that the owner would have gotten certain non-monetary assets from the infringer, but still decide to give the owner only a damages award, they might face an extra risk of assessment error because the translation of non-monetary assets into monetary terms requires an additional step.[276]

Another issue that might bother scholars and practitioners is the assessment cost that this approach requires. It is true that if the assessment cost of non-monetary compensation goes too high, that cost might completely offset the gain that this approach brings to the improvements in resource allocations and the restoration of the infringed owners' rightful position. However, this approach might not necessarily incur the extra costs that the current approach involves; there might be some savings if the cost of determining the non-monetary compensation is lower than the cost of quantifying the money damages of infringement. In our encroachment example, if the court had not given the landowner the right to preserve the wall that it had built on the infringer's encroaching foundation, it would have had to determine a damages award that covered the direct and subsequent harms of the encroachment.[277] The cost of determining a damages award might be higher than the assessment cost of allowing the landowner to preserve the wall continuously.

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275. *See* Krier & Schwab, *supra* note 49, at 458 ("As we saw, the courts use an objective outlook on judicial assessment in order to make the liability-rule system nice; judges pretend that something like fair market value captures the actuality when actually it doesn't."); *cf.* Epstein, *supra* note 36, at 2093 ("The risk of undercompensation in such situations is pervasive given the inability to determine with accuracy the losses, both economic and subjective. . . .").

276. Kronman, *supra* note 5, at 360.

> The amount necessary to fully compensate [the holder of the property right] is equal to the amount he requires to obtain an appropriate substitute. So in fixing the amount . . . the court must first determine what things [the holder of the property right] would regard as substitutes and then how much of any particular substitute would be required to compensate him for his loss.

*Id.*; *see also id.* (noting that "it would be very difficult and expensive for a court to acquire the information necessary" to determine the value of the contractual right to specific performance).

277. See *supra* note 266 and accompanying text.

For the adjudication of claims for non-monetary compensation, courts might generate evidentiary rules that allocate the burden of proof between the owner and the infringer.[278] They can adopt rules similar to the evidentiary rules that Gideon Parchomovsky and Alex Stein proposed for determining "propertized compensation."[279] Here, the court assigns the infringed owner the burden of producing evidence about what non-monetary interests it should have for the involuntary of property rights in the relevant specific context. The evidence creates a rebuttable presumption that the involuntary contract would include these interests as considerations. To rebut this presumption, the infringer must establish, by a preponderance of the evidence, that these interests should not be used in exchange for the property right and thus should not become part of considerations in the transaction. If it fails to prove this, the court can require the infringer to give the non-monetary interests to the infringed owner for the involuntary transfers of the property right. If the court finds the infringer's proof more convincing, it might conceive of the legal relationship for the involuntary transaction as merely an exchange of a property right for money.

### *B.* Ex Ante *Perspective*

Sometimes, the government imposes an involuntary contract on parties *ex ante* the property users' exploitation of property. The government at this stage can not only determine the terms that relate to the consideration for the exploitation of property,[280] but can also

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278. Parchomovsky & Stein, *supra* note 6, at 1825 ("The problem of private information is present in all areas of litigation, and evidence law deals with it reasonably well. Evidentiary mechanisms that include burdens of proof and presumptions deliver workable solutions to this problem.").

279. *Id.* at 1826. Parchomovsky and Stein recommend that courts should give the right holder "propertized compensation," which "seeks to reinstate, to the extent feasible, the owner's right to exclude others and to set any price for occupation and use of her property." *Id.* They also note that "[a]lthough propertized compensation cannot always accurately replicate the owner's preferred asking price, it goes a long way towards adequately restoring the integrity of ownership and protecting owners against trespass." *Id.*

280. This section mainly focuses on the incorporation of governance structures into involuntary contracts in order to regulate the use of the property. It is worth noting that, from an *ex ante* perspective, it is also important for government entities to consider requiring the recipients of property rights to give non-monetary interests to property owners as consideration. Doing so might help to achieve efficient allocation of resources and provide property owners with more desirable consideration. The rationale here is largely the same as the rationale for providing non-monetary

incorporate terms to govern the exploitation. When legislatures and administrative agencies authorize certain users to take property rights from owners, they have the chance to design involuntary contracts that can reduce the risks of inefficient exploitation of property. When courts decide to decline a request for injunctive relief, they should be aware that the continuation of infringement might lead to inefficient use of the property in the future. Incorporating certain sophisticated terms into the verdicts might diminish the risks of inefficient use.

Section II shows that *ex ante* the exploitation of the property, parties might face certain risks that derive from complex transactional contexts. If they do not address them properly, efficiency losses might occur. In voluntary transactions, they incorporate terms into contracts to prevent their realization. This section summarizes three risks and the arrangements by which parties in voluntary contracts resolve them. To be clear, the purpose of this Article is to point out that these risks exist and might need to be addressed *ex ante* the exploitation of property by using sophisticated arrangements. Parties in complex transactional contexts might face many risks that this Article does not cover.

The first risk is of inefficient allocation of property among multiple users. In voluntary transactions, owners incorporate use restriction terms to prevent one user from occupying a field of use where another user can generate more profits. The second is the risk of users' incompetency to exploit the transferred property. To deal with this, the owners can use a bundled transfer arrangement that provides complementary resources that will improve the users' competence.[281] They can also set targets for the user and reserve the right to reclaim the property if the user fails to achieve these pre-determined goals.[282] The third is the risk of failure to find substitute property. The owners might demand a substitute property with comparable function when they transfer their property to the users. If they fail to secure a substitute due to unavailability or the hold-up problem, they might suffer substantive economic harm. In voluntary transactions, parties use barter arrangements to make the transaction an exchange of two comparable assets, fulfilling the owner's demand for a replacement.[283] Sometimes, certain issues are uncertain at the time of contracting.

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interests as the consideration for prior infringement from an *ex post* perspective. Indeed, in compulsory patent licensing, the FTC has allowed patent owners to include the licensees' grant-back patent license as part of the consideration. *See In re* Ciba-Geigy Ltd., 123 F.T.C. 842, 874–75 (1997).

281. *See supra* note 129.

282. *See supra* notes 138–139.

283. *See supra* note 241.

The owner can build an informed-consent arrangement into the contract to reserve the power to resolve relevant issues as they occur.[284]

Parties in involuntary transactions can also encounter these risks and uncertainties. If the government chooses to impose simple involuntary contracts that allow the property users to exploit property in the way that they want, without incorporating terms that generate resolutions to these risks, the absence of the relevant resolutions might lead to inefficient use of property. From an *ex ante* perspective, this Article suggests that the government should consider incorporating terms into involuntary contracts that prevent this potential inefficiency.

In the fields of patent, copyright, and real property, legislatures and administrative agencies have already done this. The compulsory patent licenses that the FTC created are a typical example. These licenses include terms that set goals for the users to achieve, restrict their use of the technology to specific fields, and transfer complementary assets to improve the users' ability to exploit the licensed technology.[285] Ideally, the inclusion of these terms will enhance efficiency because they ensure that the licensee will exploit the technology diligently, with the support of complementary assets within the field where it is likely to be the most suitable user. The arrangements regarding eminent domain in the field of real property are another example. To address an owner's demand for substitute property, administrative agencies can take another piece of property in exchange for the property of the owner, helping him to avoid the subsequent damages and potential hold-up risks that the appropriation imposes. Legislatures also require administrative agencies to provide assistant services to displaced owners in order to diminish the harm that eminent domain causes.[286]

Compulsory and statutory copyright licenses provide another approach that legislatures and administrative agencies can adopt in order to establish sophisticated legal relationships prior to the taking of property rights in different legal fields—the standard contract approach. Here, Congress and the Copyright Office jointly designed a set of standard involuntary contracts for repeated use in transactions in similar contexts. To ensure that the terms in these standard involuntary contracts fit the evolving transactional contexts, the Copyright Office has an institution that specializes in updating

284. *See supra* notes 174, 206.
285. *See supra* note 239 and accompanying text.
286. *See supra* Section II(A)(2).

them.[287] Compared with the case-by-case approach in the fields of patent and real property, this can save considerable costs, because the government does not have to assess the transactional context in each case to establish legal relationship.

Yet the shortcomings of this approach are also apparent. Standard involuntary contracts might not fit a given individual case.[288] For example, in voluntary contracting, copyright holders can acknowledge their prior agreements with third parties and impose restrictions on the licensee's exploitation of the copyrighted work according to these agreements.[289] In contrast, in the situation of standardized compulsory licensing, the government does not impose on licensees terms specifically tailored to fit individual cases. Evidence shows that users enter voluntary contracts with copyright holders when they can use a compulsory license.[290] This suggests that the terms in standard involuntary contracts are not fully adaptive to the context of certain individual cases. The government might consider allowing potential licensees to obtain involuntary licenses for individual cases when they find that the standard licensing terms do not fit their transactional context.

The involuntary contracts that courts establish after they decline the request for injunctive relief seem overly simplistic. Unlike legislatures and administrative agencies, courts almost invariably create involuntary contracts that are as simple as an exchange of a property right for a monetary price.[291] From the standpoint of economic efficiency, this Article suggests that when courts adjudicate cases they should consider including a wider range of options in the involuntary contracts that they impose on parties, such as incorporating into the involuntary contracts terms concerning field-

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287. COPYRIGHT ROYALTY BOARD, https://www.crb.gov/index.html (last visited Oct. 1, 2021). When the Board adjudicates the terms, it accounts for various aspects of the industry, including economic efficiency, market competition, and the effects on market participants' business models. *E.g.*, *In re* Determination of Royalty Rates and Terms for Ephemeral Recording and Webcasting Digital Performance of Sound Recordings (Web IV), No. 14-CRB-0001-WR, 19–22 (U.S. Copyright Royalty Judges March 4, 2016), http://www.loc.gov/crb/web-iv/web-iv-determination-final.pdf.

288. Jiarui Liu, *Copyright Reform and Copyright Market: A Cross-Pacific Perspective*, 31 BERKELEY TECH. L.J. 1461, 1466–67 (2016) (noting that the terms in compulsory copyright licenses might not fit different business models for authors).

289. *See, e.g.*, GPAQ Acquisition Holdings, Inc., *supra* note 174, § 3.5; GPAQ Acquisition Holdings, Inc., Registration Statement (Form S-4) 149 (Nov. 12, 2019).

290. *See* Lemley, *supra* note 7, at 478–80 (presenting evidence that users contract through voluntary licenses when they can take the copyright by compulsory licensing).

291. Kaplow & Shavell, *supra* note 4, at 725 ("Under the liability rule, the state sets damages equal to the harm . . . ."); *see* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW § 3.9 (2014) (noting that "liability rules [are] enforced by damages awards").

of-use restrictions, because this could prevent potential efficiency losses in post-verdict use of the property.

To be clear, the government's establishment of more sophisticated legal relationships for involuntary transfers of property rights can serve not only to promote economic efficiency, but also to facilitate the achievement of other policy goals such as making compensation more adequate and invigorating market competition.[292] Although the incorporation of sophisticated terms into involuntary contracts might generate benefits by advancing these goals, the design and administration of these terms can occasionally incur extra institutional costs. Parties in the market must balance a tradeoff between the efficiency gain of making their contracts more complete and the costs of doing so.[293] The government faces the similar tradeoff between the gains of incorporating sophisticated terms into involuntary contracts and the institutional costs that this requires.[294] Theoretically, there will be an optimal degree of sophistication in the involuntary contract for a given transactional context. In practice, this might be difficult to achieve because the gains and the costs of incorporating terms might be uncertain.

## CONCLUSION

The Calabresi and Melamed framework conceives of the legal rules that allow involuntary transfers of entitlements or rights as liability rules. This Article argues that this conceptualization leads people (even sophisticated scholars) to focus narrowly on the

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292. Chien, *supra* note 124, at 868 (noting that the compulsory patent licenses that the FTC issued sought to address antitrust concerns but that the specific objective of each license varies). In the market, there are non-competition arrangements in patent licenses. These arrangements run counter to the purposes of the FTC's compulsory licenses, so they are unlikely to appear in compulsory licenses. *See, e.g.*, Moleculin Biotech, Inc., *supra* note 102, § VI (requiring the licensee not to compete with the patent owner in a particular field); Novacea Inc., Patent and Know-How License Agreement (Form S-1) § 8 (May 2, 2008) (requiring the licensee not to compete with or assist any third party to compete with the patent owner in a particular field).

293. Keith J. Crocker & Kenneth J. Reynolds, *The Efficiency of Incomplete Contracts: An Empirical Analysis of Air Force Engine Procurement*, 24 RAND J. ECON. 126, 128 (1993) ("The degree of specificity actually chosen by the parties in a particular contractual setting should reflect an efficient tradeoff between the expected costs and benefits of contractual incompleteness.").

294. R. H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386, 391 (1937) ("Now, owing to the difficulty of forecasting, the longer the period of the contract is for the supply of the commodity or service, the less possible, and indeed, the less desirable it is for the person purchasing to specify what the other contracting party is expected to do.").

requirement to pay a certain amount of money in involuntary transactions, neglecting other terms that the government might impose on parties and effects of those terms on resource allocation. This Article suggests that lawyers, judges, and scholars should conceive of the governmental power to force an involuntary transfer of rights not merely as a governmental power to impose a liability rule, but as the broader governmental power to impose an involuntary contract authorizing a transfer of the property rights. This approach accounts for the legal reality that the governmental power can impose a complex set of terms as part of an involuntary transfer of property rights.

By comparing involuntary contracts with voluntary contracts in the fields of patent, copyright, and real property, this Article finds that involuntary contracts sometimes lack certain important terms that could optimize resource allocation. The absence of these terms can lead to inefficiency. It suggests that when government entities permit the involuntary transfer of property rights, they should consider the full range of terms that could be associated with the transfer of the rights. From a standpoint of economic efficiency, involuntary contracts can mimic the terms of voluntary contracts that optimize resource allocation. From an *ex post* perspective, courts should consider granting infringed owners non-monetary compensation for prior infringements (for example, by granting patent owners cross-licenses to technologies developed by the infringer). From an *ex ante* perspective, legislatures, agencies, and courts should also consider incorporating terms into involuntary contracts that will prevent inefficient exploitation of property.

This Article will have fulfilled its purpose if it establishes the importance of imposing well-designed legal relationships on parties as the optimal resolution to involuntary transactions. If it provokes discussions on the relevant issues, so much the better. More comprehensive investigations will be necessary to explore the realm of existing involuntary contracts, the government's ability to form sophisticated involuntary contracts, the necessary differences between voluntary and involuntary contracts, and the effects that the terms in these contracts have on efficient allocation of resources and the outcomes associated with other policy goals.