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A Numerus Clausus Principle for Intellectual Property

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A NUMERUS CLAUSUS PRINCIPLE FOR INTELLECTUAL PROPERTY

CHRISTINA MULLIGAN*

Real property can only be held and conveyed in a small number of forms, such as fee simple, life estate, and lease. This principle is known as *numerus clausus*, meaning “the number is closed.” For centuries, the principle has been central to the common-law system of property rights. Scholars have justified it as a mechanism for facilitating effective property alienation, maintaining low transaction costs in the buying and selling of property, and keeping the scope of property owners’ rights clear.

In contrast, the *numerus clausus* principle is essentially nonexistent in intellectual property law. In the context of patents and copyrights, “the number is open.” There is nearly no limit to the ways in which intellectual objects can be licensed and sold.

This Article will argue that the *numerus clausus* principle should extend to intellectual property. The justifications for the *numerus clausus* principle in real property law are even more persuasive in the intellectual property context because the scope of intellectual property rights is more difficult to delineate than the scope of real property rights. The metaphysical nature of intellectual property prevents protected objects from being clearly identifiable, particularly in a patent context, where inventions can be independently created by multiple parties.

As a result, investigating the sale and licensing history of a work or invention—and whether a work or invention is protected at all—is difficult, costly, and sometimes impossible. This difficulty is compounded by the absence of *numerus clausus*, which permits inscrutable licensing and sale agreements and allows single works to be carved into several parts and burdened by complicated usage rules.

By considering examples of digital content licensing and fragmentation of particular copyrights, this Article will identify how a *numerus clausus* principle for intellectual property would facilitate the use and conveyance of intellectual property. This principle would benefit intellectual property

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owners, licensees, and the general public by lowering transaction costs and preventing accidental overuse and underuse of intellectual works.

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I. INTRODUCTION

The numerus clausus principle, holding that property can only be conveyed in certain standardized forms, is a lynchpin of American property jurisprudence. Translated, numerus clausus means “the number is closed.”¹ For most of its history in the common law countries, the principle lacked a name, but nonetheless functioned as a “deeply entrenched assumption of the common law system of property rights.”² Thomas W. Merrill and Henry E. Smith were the first to discuss the principle in depth, borrowing the term

1. Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 4 (2000).

2. *Id.* at 20.

“numerus clausus” from civil law countries, in which forms of ownership were expressly limited to what the civil code allowed.³ Their article and others that followed defended and discussed the numerus clausus principle in American and English law, focusing primarily on how the principle applies to transfers of real and personal property.⁴

The numerus clausus principle’s central role in real and personal property law stands in stark contrast to its nearly nonexistent role in intellectual property law. Although Merrill, Smith, and others generally assumed that the numerus clausus principle applied to intellectual property,⁵ in the context of patents and copyrights, the rule is numerus infinitis—“the number is open.” Nearly no limit exists to the forms in which protected intellectual property can be licensed and sold. Yet, intellectual property may be the area of law where the justifications for numerus clausus are at their strongest.

This Article will explore the purported justifications for the numerus clausus principle and why those justifications are so relevant to intellectual property sales and licensing. Part II will summarize how the numerus clausus principle has applied to physical property. Part III will describe the effects of the numerus clausus principle on a property rights system. Part IV will argue that the numerus clausus principle is absent in intellectual property, and Part V will explain the effects of this absence. Part VI will suggest areas of intellectual property law that would benefit from the imposition of forms and the numerus clausus principle. Finally, Part VII will address potential concerns with adopting a numerus clausus principle for intellectual property.

II. THE NUMERUS CLAUSUS PRINCIPLE IN PROPERTY LAW

A. *In Rem* Rights Are Subject to the Numerus Clausus Principle

One way to understand the numerus clausus principle is to compare how the law treats agreements in contract and property law. A “pervasive difference” between the two is the ability of parties to customize the form

3. *Id.* at 4.

4. See, e.g., Nestor M. Davidson, *Standardization and Pluralism in Property Law*, 61 VAND. L. REV. 1597, 1598 (2008); Henry Hansmann & Reinier Kraakman, *Property, Contract, and Verification: The Numerus Clausus Problem and the Divisibility of Rights*, 31 J. LEGAL STUD. 373 (2002); Francisco Parisi, *Entropy in Property*, 50 AM. J. COMP. L. 595, 625 (2002).

5. See, e.g., Davidson, *supra* note 4, at 1608 (“Intellectual property is another area that yields a limited universe of clearly recognizable forms.”); Merrill & Smith, *supra* note 1, at 12, 19 (describing the number of forms in property as “fixed for most purposes” but acknowledging that “[t]he numerus clausus is probably at its weakest in the area of intellectual property”).

of their agreements.⁶ Contracts are generally governed by default rules that can be freely altered by the contracting parties.⁷ In contrast, a transfer of real or tangible property is forbidden unless the transfer is permitted by law and within one of “a limited number of standardized forms.”⁸ Generally, common law courts have not explicitly recognized the *numerus clausus*, although in practice, courts “treat previously-recognized forms of property as a closed list that can be modified only by the legislature,” despite the absence of any such instruction to that effect from legislatures themselves.⁹

When parties try to enforce property rights that lie outside of the recognized forms, courts shoe-horn those rights into one of the existing forms. An example that appears frequently in case law is a lease “until the end of the war.”¹⁰ Courts have traditionally avoided enforcing leases lasting until an event occurs—e.g., “until the end of the war”—even when the intentions of and understanding between the landlord and tenant were clear. Rather, courts effectively rewrite the lease to fit within one of the four

6. Thomas W. Merrill & Henry E. Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 776 (2001).

7. *Id.*; see also Randy E. Barnett, *The Sound of Silence: Default Rules and Contractual Consent*, 78 VA. L. REV. 821, 825 (1992) (cited in Merrill & Smith, *supra* note 6, at 776 n.10) (explaining that default rules subject to contractual modification are prevalent throughout Article 2 of the Uniform Commercial Code and the common law of contracts); Alan Schwartz, *The Default Rule Paradigm and the Limits of Contract Law*, 3 S. CAL. INTERDISC. L.J. 389, 390-92 (1992) (cited in Merrill & Smith, *supra* note 6, at 776 n.10) (describing types and functions of default rules in contract law). Merrill and Smith explain that few rules of contract law were mandatory, but that these included rules “found in the areas of fraud, duress, and unconscionability, . . . in areas of particular regulatory concern such as insurance, . . . and in higher-order rules for what counts as contracting around a default.” Merrill & Smith, *supra* note 6, at 776 n.10 (citing Barnett, *supra*, at 825-26; E. ALLAN FARNSWORTH, *CONTRACTS* § 1.7, at 21 (3d. ed. 1999); Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87, 119-20 (1989); Stephen J. Ware, *Default Rules from Mandatory Rules: Privatizing Law Through Arbitration*, 83 MINN. L. REV. 703, 750 n.198-99 (1999)).

8. Merrill & Smith, *supra* note 6, at 776. Additionally, treatises and reference materials describe the list of permissible property interests being “closed.” See Merrill & Smith, *supra* note 1, at 3 n.2 (citing 1 RICHARD R. POWELL, *POWELL ON REAL PROPERTY* § 11.01, at 11-1 (Michael Allan Wolf ed., 2012) (“This Treatise explores and discusses the general principles of law that apply to ‘permissible interests in land,’ which courts and legislatures have recognized.”); CHARLES DONAHUE, JR. ET AL., *CASES AND MATERIALS ON PROPERTY: AN INTRODUCTION TO THE CONCEPT AND THE INSTITUTION* 457 (3d ed. 1993) (“[T]he common law regarded the system of estates as closed.”); JESSE DUKEMINIER & JAMES E. KRIER, *PROPERTY* 204 (4th ed. 1998) (discussing the “standardization of estates”); LEWIS M. SIMES & ALLAN F. SMITH, *THE LAW OF FUTURE INTERESTS* § 61, at 45-46 (2d ed. 1956) (including a section titled “A Doctrine of Fixed Types of Estates”)).

9. Merrill & Smith, *supra* note 1, at 9-11.

10. See, e.g., 1 AMERICAN LAW OF PROPERTY § 3.14, at 209-10 (A. James Casner ed., 1952); 2 POWELL, *supra* note 8, § 16.03[4][b], at 16-53.

recognized forms for leasehold agreements: term of years, periodic tenancy, tenancy at will, and tenancy at sufferance.¹¹ Most courts have interpreted leases that last until an event occurs as tenancies at will or periodic tenancies;¹² although, some decisions have redefined the “term of years” lease to include the lease at issue.¹³

Similarly, testators have sometimes tried to grant an inheritor a sort of “hybrid life estate”—a life estate in a piece of land, with the power to convey or devise the property in fee simple.¹⁴ In other words, the inheritor with this “hybrid life estate” has the power to give away or sell the land, but if he dies without devising the property, the remainder interest in the land is supposed to go to the party named by the original testator. Some courts have re-construed this interest to be a traditional life estate,¹⁵ and others have declared that it creates a fee simple interest.¹⁶ In no cases have courts upheld this type of hybrid estate. Merrill and Smith characterized the courts’ decisions by observing, “[A]ll courts recognize that the task is to squeeze the [property] interest into one of the established categories, the only question being which standardized box is most consistent with the testator’s intentions or is otherwise ‘best’ in terms of policy concerns such as promoting the free alienability of property.”¹⁷

11. See 2 POWELL, *supra* note 8, §§ 16.03-.06, at 16-43 to 16-81; ROBERT S. SCHOSHINSKI, AMERICAN LAW OF LANDLORD AND TENANT §§ 2:1-.26, at 30-83 (1980); 4 THOMPSON ON REAL PROPERTY § 39.02(c), at 492 (David A. Thomas ed., 1994).

12. See Merrill & Smith, *supra* note 1, at 11; see also Nat’l Bellas Hess v. Kalis, 191 F.2d 739 (8th Cir. 1951); Stanmeyer v. Davis, 53 N.E.2d 22 (Ill. App. Ct. 1944); Lace v. Chandler, 1 All. Eng. Rep. 305 (K.B. 1944).

13. See, e.g., Smith’s Transfer & Storage Co. v. Hawkins, 50 A.2d 267, 268 (D.C. Cir. 1946) (concluding that a “term of years” requires only that the lease be certain to end, and that a tenancy until the end of “the present war” was a term of years); see also Merrill & Smith, *supra* note 1, at 11 n.28 (explaining that “the minority of courts” which have upheld leases for the length of a war have “generally done so by changing the definition of a term of years, . . . not by declaring that the parties are free to modify the available forms of leases by contract”).

14. See Merrill & Smith, *supra* note 1, at 13 (citing RESTATEMENT (SECOND) OF PROPERTY: DONATIVE TRANSFERS § 12.1 cmt. b (1984); 1 AMERICAN LAW OF PROPERTY, *supra* note 10, § 2.15 at 126-27).

15. See, e.g., Smith v. Bell, 31 U.S. 68 (1832); St. Louis Union Trust Co. v. Morton, 468 S.W.2d 193, 198 (Mo. 1971).

16. See, e.g., Sumner v. Borders, 98 S.W.2d 918, 919-20 (Ky. 1936); Fox v. Snow, 76 A.2d 877, 877-78 (N.J. 1950) (per curiam). Merrill and Smith note that the hybrid estate could also be characterized as “a springing executory interest subject to the power of appointment by the original grantee.” Merrill & Smith, *supra* note 1, at 14 n.44 (citing HENRY M. HART & ALBERT M. SACKS, THE LEGAL PROCESS: BASIC PROBLEMS IN THE MAKING AND APPLICATION OF LAW 590-91 (William N. Eskridge, Jr. & Philip P. Frickey eds., 1994)).

17. Merrill & Smith, *supra* note 1, at 14.

B. The Forms of Real and Tangible Property under the Numerus Clausus Principle

Common law courts have followed the numerus clausus principle in every area of real and tangible property law. There are five types of present-possessory interests in land: the fee simple absolute, the defeasible fee simple, the (nearly-defunct) fee tail,¹⁸ the life estate, and the lease.¹⁹ The defeasible fees and leases have different sub-types.²⁰ Each present-possessory interest, aside from the fee simple, corresponds to a similarly limited list of future interests: reversions, remainders, powers of termination, and executory interests.²¹ Remainders have numerous sub-types as well,²² and executory interests may be either springing or shifting.²³ As a practical matter, estates other than the fee simple and lease for a term of years are rarely encountered in the present day.²⁴

At any given time, multiple parties can hold interests in a piece of property as well. Merrill and Smith note that the “basic categories” of concurrent property interests are tenancies in common, joint tenancies,

18. The fee tail was an estate that could not be sold, devised, or alienated by the owner, but which passed by law to the owner's heirs after his death. See BLACK'S LAW DICTIONARY (9th ed. 2009). England generally eliminated the fee tail through its Law of Property Act 1925, available at <http://www.legislation.gov.uk/ukpga/Geo5/15-16/20/contents>. In the United States, only Delaware, Maine, Massachusetts, and Rhode Island recognize the fee tail, although “disentailing” can be accomplished by deed. See C. DONAHUE, T. KAUPER, & P. MARTIN, CASES AND MATERIALS ON PROPERTY: AN INTRODUCTION TO THE CONCEPT AND THE INSTITUTION 391, § 196 (3d ed., West Publishing Co., 1993); R.I. GEN. LAWS § 33-6-10. No state's law recognizes the fee tail in its original form.

19. Merrill & Smith, *supra* note 1, at 13 (citing 1 POWELL, *supra* note 8, § 12.01[2], at 12-5).

20. In the case of defeasible fees, there is the fee simple determinable, fee simple subject to condition subsequent, and fee simple subject to an executory limitation. See Merrill & Smith, *supra* note 1, at 13 n.34 (citing ROGER A. CUNNINGHAM ET AL., THE LAW OF PROPERTY 35-36 (2d ed. 1993)). In the case of the lease, as discussed, there is the tenancy for a term of years, periodic tenancy, tenancy at will, and tenancy at sufferance. See *supra* note 11 and accompanying text.

21. See CUNNINGHAM ET AL., *supra* note 20, at 86 (cited in Merrill & Smith, *supra* note 1, at 13 n.36).

22. Remainders can be indefeasibly vested, contingent, vested subject to open, and vested subject to complete defeasance. CUNNINGHAM ET AL., *supra* note 20, at 97 (cited in Merrill & Smith, *supra* note 1, at 13 n.36).

23. CUNNINGHAM ET AL., *supra* note 20, at 107-12 (cited in Merrill & Smith, *supra* note 1, at 13 n.36).

24. Merrill & Smith, *supra* note 1, at 13; see also *id.* at 13 n.40 (explaining that life estates are still encountered, but mostly as equitable interests conveyed in trusts); CUNNINGHAM ET AL., *supra* note 20, at 28 (describing the fee simple absolute and lease for a term of years as the only estates that are “commercially” saleable).

marital property, trusts, and finally condominiums, cooperatives, and timeshares.²⁵ Concurrent property interests have changed significantly in the past several decades and century, but Merrill and Smith are quick to note that “these changes have almost always been the product of legislative reforms, not judicial rulings.”²⁶ For example, condominiums were all but unheard of until the 1960s, when most states adopted statutes expressly authorizing their creation.²⁷

The numerus clausus principle also applies to nonpossessory property interests, or interests that confer rights of use rather than possession.²⁸ The four general forms of nonpossessory property interests are easements, real covenants, equitable servitudes, and profits.²⁹ Equitable servitudes are a rare, recent example of a judge-made form of property right, created in 1848.³⁰

Tangible personal property is, in practice, subject to substantially fewer and simpler forms than real property. It is generally accepted that one cannot hold a nonpossessory interest in personal property.³¹ Although references suggest that personal property might be subject to the same possessory forms that apply to estates in land,³² there are “few if any cases

25. Merrill & Smith, *supra* note 1, at 15.

26. *Id.*

27. *Id.* at 16 (citing Curtis J. Berger, *Condominium: Shelter on a Statutory Foundation*, 63 COLUM. L. REV. 987, 1001-03 (1963); Henry Hansmann, *Condominium and Cooperative Housing: Transactional Efficiency, Tax Subsidies, and Tenure Choice*, 20 J. LEGAL STUD. 25, 61-63 (1991)).

28. Merrill & Smith, *supra* note 1, at 16.

29. As with possessory property interests, there are several subtypes of nonpossessory property interests, although sources characterize them in different ways. *Id.* at 16 n.57.

30. See *Tulk v. Moxhay*, 41 Eng. Rep. 1143 (Ch. 1848); Merrill & Smith, *supra* note 1, at 16-17 (describing the circumstances under which *Tulk v. Moxhay* was decided).

31. Merrill & Smith, *supra* note 1, at 18-19; Molly Shaffer Van Houweling, *The New Servitudes*, 96 GEO. L.J. 885, 906-10 (2008); see also Zechariah Chafee, Jr., *Equitable Servitudes on Chattels*, 41 HARV. L. REV. 945, 977-80 (1928) (describing how the English Court of Chancery held that equitable servitudes cannot be placed on chattels). Although one New Hampshire court upheld what amounted to an equitable servitude in a jukebox, the court’s anomalous decision amounts to the “exception that proves the rule.” See *Pratte v. Balatsos*, 113 A.2d 492 (N.H. 1955); Zechariah Chafee, Jr., *The Music Goes Round and Round: Equitable Servitudes and Chattels*, 69 HARV. L. REV. 1250 (1956) (discussing *Pratte v. Balatsos*). Arguably, bailments, bills of lading, and warehouse receipts create nonpossessory interests and obligations in chattels, although Merrill and Smith characterize bailments as interests that fall in a gray area between contract and property. See Merrill & Smith, *supra* note 6, at 811-20.

32. See, e.g., CUNNINGHAM ET AL., *supra* note 20, at 25; RESTATEMENT (FIRST) OF PROPERTY § 9 cmt. a (1936) (explaining that “[i]nterests that are quite analogous” to interests in land exist in chattels). Life estates and remainders can be created in personal property, although nowadays “virtually anyone who wants to create complicated future interests in personal property . . . does so through a trust.” See Merrill & Smith, *supra* note 1, at 18

that address . . . whether . . . exotic interests such as defeasible fees and executory interests can be created in personal property."³³

The aversion to the creation of complex forms of personal property interests is understandable. As Blackstone observed, when criticizing the creation of life estates in chattels,

[Personal property] being things transitory, and by many accidents subject to be lost, destroyed, or otherwise impaired, and the exigencies of trade requiring also a frequent circulation thereof, it would occasion perpetual suits and quarrels, and put a stop to the freedom of commerce, if [future interests] were generally tolerated and allowed.³⁴

III. EFFECTS OF THE NUMERUS CLAUSUS PRINCIPLE

At first blush, the numerus clausus principle seems suspect because it can thwart the intentions and expectations of transacting parties, as well as the plain language of documents conveying property. In order to justify the numerus clausus principle, this drawback must be outweighed by other benefits.

A. Justifications for the Numerus Clausus Principle in Property Law

There are three primary benefits that have been advanced as justifications for the numerus clausus principle: maintaining the alienability of property,³⁵ minimizing information costs to third parties (as opposed to the transferor and transferee) encountering property,³⁶ and facilitating verification of ownership rights.³⁷ In other words, if the numerus clausus principle were eliminated, property rights would be substantially more difficult to discover, comprehend, and convey.

(citing *Gruen v. Gruen*, 496 N.E.2d 869 (N.Y. 1986); RESTATEMENT (FIRST) OF PROPERTY § 153(1) (1936); 3 WILLIAM J. BOWE & DOUGLAS H. PARKER, PAGE ON THE LAW OF WILLS § 37.66 (1961); SIMES & SMITH, *supra* note 8, § 359, at 385-86); *see also* 2 WILLIAM BLACKSTONE, COMMENTARIES *398 (explaining that while the common law originally forbade future interests in personal property, English courts eventually permitted bequests of life estates and remainders).

33. Merrill & Smith, *supra* note 1, at 18.

34. 2 BLACKSTONE, *supra* note 32, at *398.

35. *See* Carol M. Rose, *What Government Can Do For Property (and Vice Versa)*, in THE FUNDAMENTAL INTERRELATIONSHIPS BETWEEN GOVERNMENT AND PROPERTY 209, 214-15 (Nicholas Mercuro & Warren J. Samuels eds., 1999); Michael A. Heller, *The Boundaries of Private Property*, 108 YALE L.J. 1163, 1176-78 (1999); *see also* *Johnson v. Whiton*, 34 N.E. 542, 542 (Mass. 1893). *See generally* JOHN CHIPMAN GRAY, RESTRAINTS ON THE ALIENATION OF PROPERTY (2d ed. 1895).

36. *See* Merrill & Smith, *supra* note 1, at 25-34.

37. Hansmann & Kraakman, *supra* note 4, at 373.

While these justifications have competed for being the best explanation for the *numerus clausus* principle's existence, all three are affected, to some degree, by the standardization of property rights. As a result, this Article will consider them to be complementary, rather than competing, justifications for the *numerus clausus* principle.

1. Facilitating the Alienation of Property

Numerous scholars maintain that "alienability is necessary for property to achieve its highest-value use and thus further social welfare."³⁸ The notion of using the *numerus clausus* principle to prevent undue restraints on alienation most famously appears in Oliver Wendell Holmes' opinion, *Johnson v. Whiton*.³⁹ In *Johnson v. Whiton*, a testator, Royall Whiton, granted land "to Sarah A. Whiton and her heirs on her father's side."⁴⁰ In refusing to effectuate the devise, Justice Holmes commented that he could not construe the will as written because to do so would "put it out of the power of the owners to give clear title for generations."⁴¹ Holmes evoked the *numerus clausus* principle to avoid such undue restraints on property alienation—a value also present in other property law doctrines, such as the rules against perpetuities.⁴²

2. Lowering Measurement Costs

Unconvinced by the alienability justification, Merrill and Smith argue that the *numerus clausus* principle works to limit the information costs to third parties wanting to interact with particular pieces of property (for example, those who want to buy or use property). This concern was evoked in the 1834 Court of Chancery decision *Keppell v. Bailey*, in which the court refused to enforce an unrecognized type of servitude.⁴³ In its decision, Lord Chancellor Brougham wrote,

[G]reat detriment would arise and much confusion of rights if parties were allowed to invent new modes of holding and enjoying real property, and to impress upon their lands and tenements a peculiar character, which should

38. Note, *Fragmentation in Copyright*, 124 HARV. L. REV. 1751, 1758 (2011) (citing John Henry Merryman, Comment, *Policy, Autonomy, and the Numerus Clausus in Italian and American Property Law*, 12 AM. J. COMP. L. 224, 226 (1963); Richard Epstein, *Why Restrain Alienation?*, 85 COLUM. L. REV. 970, 971-72 (1985)). See generally GRAY, *supra* note 35.

39. *Johnson v. Whiton*, 34 N.E. 542 (Mass. 1893).

40. *Id.* at 542 (cited in Merrill & Smith, *supra* note 1, at 24).

41. *Id.* at 542.

42. See Heller, *supra* note 35, at 1179-80.

43. *Keppell v. Bailey*, 39 Eng. Rep. 1042 (Ch. 1834).

follow them into all hands, however remote. . . . [I]t would hardly be possible to know what rights the acquisition of any parcel conferred, or what obligation it imposed.⁴⁴

Merrill and Smith explain the information-cost justification of *numerus clausus* by observing,

When individuals encounter property rights, they face a measurement problem. In order to avoid violating another's property rights, they must ascertain what those rights are The need for standardization in property law stems from an externality involving measurement costs: Parties who create new property rights will not take into account the full magnitude of the measurement costs they impose on strangers to the title.⁴⁵

Merrill and Smith use the example of a Monday property right in a watch to illustrate their point.⁴⁶ Once one person has created a Monday-only right in a watch, "anyone else buying a watch must now also investigate whether any particular watch does not include Monday rights."⁴⁷ This observation highlights the distinction between potential successors of a particular property right and other market participants. If one unit of property has a peculiar character, potential successors must suffer the costs of discovering and understanding that character. Moreover, other market participants must now investigate whether any *other* property they encounter also shares this peculiar character. "Limiting the number of basic property forms allows a market participant or a potential violator to limit his or her inquiry to whether the interest does or does not have the features of the forms on the menu."⁴⁸ Merrill and Smith acknowledge the costs imposed by standardization as well, particularly frustration of interest.⁴⁹ However, they submit that some standardization can strike the right balance between measurement-cost externalities and the frustration costs created by limiting forms.⁵⁰

3. Aiding Verification of Ownership Rights

Finally, Henry Hansmann and Reinier Kraakman argue that the goal of *numerus clausus* is to "aid verification of the ownership rights offered for

44. *Id.* at 1049 (quoted in Merrill & Smith, *supra* note 1, at 25-26).

45. Merrill & Smith, *supra* note 1, at 26-27.

46. *Id.* at 27.

47. *Id.*

48. *Id.* at 33.

49. *Id.* at 30.

50. *Id.* at 34.

conveyance.”⁵¹ Their concern is less with third parties, and more with the parties that already have a stake or interest in an asset. They observe,

If two parties are both to have rights in a single asset, they need some means of assuring they share a common understanding of those rights. Absent such understanding, the parties may mistakenly make inconsistent uses of the asset or underuse the asset. This is the problem with “coordination.” Moreover, . . . each needs assurance that the other will not opportunistically assert rights that properly belong to the other. This is the problem of “enforcement.” The less effectively the parties solve the coordination and enforcement problems, the greater the scope for mistakes or opportunism and hence the less valuable will be the rights involved, for reasons that are apparent: the parties may take costly private actions to protect their rights; investments in improving and using assets may be discouraged; privately borne risk may increase; and transactions that would otherwise take place may not occur.⁵²

Hansmann and Kraakman argue that each party with rights to an asset, as well as a third-party enforcer such as a judge, needs a method to “verify[]” each party’s “understanding of the parties’ respective rights” in order to solve the “coordination” and “enforcement” problems they identify.⁵³ The numerus clausus principle facilitates this understanding by limiting the types of property interests available.

B. The Numerus Clausus Principle Does Not Benefit Contracts

One might reasonably ask why the purported benefits of a numerus clausus system in property law would not justify similar limitations in the formation of contracts. The answer arises from the key difference between contract and property—contract law generally involves the creation and treatment of in personam rights, and property law generally involves in rem rights. In personam rights avow against particular, known people or entities. When Ann makes a contract with Ben to mow Ann’s lawn, only Ben has an obligation to mow Ann’s lawn, and only Ann has an obligation to pay Ben for his services. In contrast, in rem rights avow against numerous, unknown people and are resultingly often characterized as “rights against the world.”⁵⁴

51. Hansmann & Kraakman, *supra* note 4, at 373.

52. *Id.* at 382-83.

53. *Id.* at 383.

54. Drawing from Wesley Newcomb Hohfeld’s 1917 article *Fundamental Legal Conceptions as Applied in Juridical Reasoning*, Thomas W. Merrill and Henry E. Smith described the nature of an in rem right, specifying four qualities. See Merrill & Smith, *supra* note 6, at 780, 783 (discussing Wesley Newcomb Hohfeld, *Fundamental Legal Conceptions as Applied in Juridical Reasoning*, 26 YALE L.J. 710 (1917)). They wrote,

Wesley Newcomb Hohfeld thought in rem rights were a composite of in personam rights—many pairs of people in which one person had a right, and the other had a corresponding duty to respect that right.⁵⁵ Merrill and Smith, citing J.E. Penner, take a different and more metaphysically appealing view: that “in personam rights attach directly to specific persons, whereas in rem rights attach to a person only because of their relationship to a particular ‘thing.’”⁵⁶ If an owner sells land to another, the public’s duty remains unchanged because, in effect, its duty is to not bother with the property.⁵⁷ Similarly, if the “thing” to which one has rights or duties is destroyed, the existence of the associated rights and duties disappears as well.⁵⁸

Discussing in rem rights raises the question of whether property rights are really a unified “right to a thing” or are merely a “bundle of sticks.” Conceiving of all property as “a bundle of sticks”—as comprising a set of rights—rather than as “a distinctive type of right to a thing, good against the world”⁵⁹ has come to dominate legal discourse. Although property traditionally includes the rights to exclude others, to use, and to alienate, the “bundle of sticks” philosophy holds that “[l]abeling something as property does not predetermine what rights an owner does or does not have in it.”⁶⁰

- (1) [I]n rem rights are characterized by both an indefinite class of dutyholders and by a large number of dutyholders;
- (2) in rem rights are not simply aggregations of in personam rights, but are qualitatively different in that they attach to persons through their relationships to particular things rather than as persons;
- (3) in rem rights are numerous and indefinite in two directions — not only does each in rem right give rise to a large and indefinite number of dutyholders, but also each dutyholder holds such duties to a large and indefinite number of rightholders; and
- (4) in rem rights are always claims to abstentions by others as opposed to claims to performances on the part of others.

Merrill & Smith, *supra* note 6, at 783. Merrill and Smith note that, in 1920, Albert Kocourek hypothesized that a rightholder could, for example, grant an easement to everyone in the world but one, thus creating a definite and singular dutyholder regarding an in rem right. *See id.* at 783-84 (discussing Albert Kocourek, *Rights in Rem*, 68 U. PA. L. REV. 322 (1920)). But, as Merrill and Smith observe, this situation does not apply in virtually every real-world case.

55. *See generally* Hohfeld, *supra* note 54.

56. Merrill & Smith, *supra* note 6, at 786-87.

57. *Id.* at 787.

58. *Id.* at 787.

59. Thomas W. Merrill & Henry E. Smith, *What Happened to Property in Law and Economics?*, 111 YALE L.J. 357, 358 (2001).

60. Joan Williams, *The Rhetoric of Property*, 83 IOWA L. REV. 277, 297 (1998).

"[P]roperty is simply a label for whatever 'bundle of sticks' the individual has been granted."⁶¹

Merrill and Smith, adding their voices to the chorus of natural rights theorists from antiquity to the present day, take issue with the "bundle of rights" view, holding instead that property is indeed a "distinctive type" of right "to a thing."⁶² Their view has an intuitive appeal. People generally believe that, when someone else owns a thing, they must abstain from trespassing upon it. This is a holistic intuition; the mind does not necessarily break down its belief in a duty to abstain into all the possible actions one must abstain from.

But Merrill and Smith conflate the ideas that (1) property is a distinctive, unified right, rather than a bundle of sticks, and that (2) property is an *in rem* right, rather than an *in personam* right.⁶³ Hohfield thought that *in rem* rights were really just bundles of *in personam* rights, but that is not the only way of conceiving of bundles of rights.⁶⁴ We can also think of certain rights as bundles of *in rem* rights—bundles of discrete relations between a person and a thing, which numerous, unidentified others have a duty to respect.⁶⁵

61. Edward L. Rubin, *Due Process and the Administrative State*, 72 CAL. L. REV. 1044, 1086 (1984).

62. Merrill & Smith, *supra* note 59, at 360.

63. *Id.* at 358.

64. *Id.* at 364; Merrill & Smith, *supra* note 6, at 782.

65. This conception is quite useful in the intellectual property context, where many of the reasons for treating *in rem* rights differently from *in personam* rights may apply, but where many different rights are unquestionably "bundled" together. For example, what we call a "copyright" is a bundle of at least six *in rem* rights:

- (1) to reproduce the copyrighted work in copies or phonorecords;
- (2) to prepare derivative works based upon the copyrighted work;
- (3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;
- (4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly;
- (5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly; and
- (6) in the case of sound recordings, to perform the copyrighted work publicly by means of a digital audio transmission.

17 U.S.C. § 106 (2006). The six rights that make up the core of a copyright already fail to resemble a holistic "right to a (metaphysical) thing." Merrill & Smith, *supra* note 59, at 357. The right to perform copyrighted works publicly is protected—but private performance is not. *See* 17 U.S.C. § 106(3) (2006). There is no copyright protection in performing (i.e.,

Therefore, regardless of whether one holds to Blackstone's theory that physical property is the "sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual,"⁶⁶ or to the more realist notion that property is an "infinitely variable collection of rights, powers and duties,"⁶⁷ the question of whether a right is in rem is a separate issue.

The in rem nature of property is the primary reason that property law merits a *numerus clausus* principle and contract law does not. In rem rights require "[l]arge numbers of people . . . [to] process information about resources."⁶⁸ The *numerus clausus* principle lowers "the unit costs of processing the information . . . so that the total cost of allocating use rights in . . . society . . . is much lower than it would be if all use rights had to be established individually[.]"⁶⁹ as is the case in contract law, where in personam rights are concerned. Every in rem right imposes information costs on a large and indefinite class of people.⁷⁰ Each variation in the nature of an in rem right can impose information costs on many dutyholders. Thus, "[t]o prevent the creation of [excessive] information costs, in rem rights are everywhere limited to a small number of standardized types."⁷¹

Standardization aimed at facilitating the alienability of rights is also important in an in rem system. Alienability allows a res to move to higher-valued uses over time—an important effect when a res stays in existence over a long period. Because parties to particular contracts rarely change and because the life of a contract is frequently substantially shorter than the life of a piece of property, the interest in rights moving to those who value them more highly is of less consequence in contract law.

playing) a sound recording non-digitally—in other words, over the radio waves. See 17 U.S.C. § 106(6) (2006). The author of a musical work cannot exclude others from copying and performing the work, so long as they pay a fee. See 17 U.S.C. § 115 (2006). Perhaps most importantly, there is no exclusive right to use a copyrighted work, although *MAI Systems Corp. v. Peak Computer, Inc.* effectually allows for digital usage rights to be controlled by copyright holders. 991 F.2d 511, 518-19 (9th Cir. 1993).

66. 2 BLACKSTONE, *supra* note 32, at *2.

67. Merrill & Smith, *supra* note 59, at 365.

68. Merrill & Smith, *supra* note 6, at 794.

69. *Id.*

70. These costs are lowest for those who merely want to avoid trespassing on another's right and highest for those who want to interact with or acquire the right. See Clarisa Long, *Information Costs in Patent and Copyright*, 90 VA. L. REV. 465, 489-95 (2004).

71. Merrill & Smith, *supra* note 6, at 796.

IV. THE NUMERUS CLAUSUS PRINCIPLE IS ABSENT IN INTELLECTUAL PROPERTY LAW

Like physical property, intellectual property is held in rem; both physical and intellectual property rights avow against a “numerous and indefinite class” of dutyholders. Thus, given the pervasive presence of the numerus clausus principle in real and tangible property law and the particular benefits the principle bestows on systems of in rem rights, one would expect intellectual property to be subject to a numerus clausus principle as well.

Curiously, the numerus clausus principle is almost entirely absent from intellectual property law.⁷² Intellectual property can be held and conveyed without the limitation of forms, although the literature on numerus clausus explains this issue in a somewhat confusing manner. Merrill and Smith claim that there *are* forms of intellectual property interests, stating, “The main [such] forms . . . are patents, copyrights, trademarks, and trade secrets.”⁷³ Nestor M. Davidson echoes, “Intellectual property is yet another area that yields a limited universe of clearly recognized forms. Patents and copyrights are the primary forms, with trademarks and trade secrets having a somewhat uncomfortable place in the menagerie.”⁷⁴

But saying that the “forms” of intellectual property include patents and copyrights is like saying that the “forms” of physical property include estates in land, chattels, water rights, and carbon emissions. This conception looks past the role that the numerus clausus principle plays in controlling how rights are fragmented. Inventions and works of authorship are examples of *what* a person can have a property right in, just as one can have property interests in houses, pieces of jewelry, and ground water. We use specialized words for property rights in intellectual objects—patents, copyrights, trademarks, and trade secrets—just as we use specialized language to describe property rights in water, such as riparian rights or rights by prior appropriation. These terms indicate the extent of the whole property interest or asset, such as what is protected and for how long. But they are not the forms in which one can hold those rights.

Forms (e.g., fee simple, life estate) and assets (e.g., estates, patents) are easy to conflate because the numerus clausus principle limits both. Numerus clausus prevents the creation of completely new assets beyond those created by courts and legislatures—one cannot hold a property right in a law of nature or the information in a phone book. But it also places limits on how recognized property rights or assets may be carved up. One

72. The primary exceptions, discussed *infra*, are the first sale doctrine in copyright law and the doctrine of exhaustion in patent law. For purposes of standing, patent ownership is also only divisible in a few ways.

73. Merrill & Smith, *supra* note 1, at 19.

74. Davidson, *supra* note 4, at 1608.

may hold a fee simple interest in a piece of land or all rights granted by the copyright statute in a creative work; in these cases, one holds the form of the entire property right. One can also hold a property interest in part of a whole asset, such as a life estate in a piece of land. But one cannot own land only on days when it is raining, or create a lease until the end of a war.

To further illustrate the *numerus clausus* principle's absence from intellectual property assets, consider again a piece of land and a copyright. The entire property interest in a piece of land can be subdivided horizontally, across several persons, or vertically, across time. But rights must be divided in a recognized form. For example, we know from the previous part that Ann can leave a life interest in her home to Ben and the remainder to Carl, but she cannot give Ben a life interest and the option to devise the property, with the rest of the property interest going to Carl.⁷⁵ A person can have a property interest in a piece of land, but how that property interest may be divided is subject to the *numerus clausus* principle. Conversely, a person can have a copyright in a written story, but how that person's copyright interest may be divided is not subject to the limitation of particular forms.

The unlimited forms of patents and copyrights do not manifest as variations on the defeasible fees or as altered life estates. Rather, patentees and copyright holders typically carve up their patents and copyrights into the enumerated exclusive rights granted by the patent and copyright acts and share them horizontally among numerous owners through license or assignment.⁷⁶ For example, one party could hold a copyright in a novel but

75. See *supra* notes 14-16 and accompanying text.

76. There are hints of *numerus clausus* in intellectual property law from the earlier part of the twentieth century, most of which have been abandoned now. For example, the indivisibility doctrine in the Copyright Act of 1909 required all of the exclusive rights of copyright to be held by one party or group, and Mark Lemley argues that this rule aimed to avoid fragmentation that would complicate the task of defending against lawsuits and avoiding lawsuits by negotiating for permission to use copyrighted works upfront. Mark A. Lemley, *Dealing with Overlapping Copyrights on the Internet*, 22 U. DAYTON L. REV. 547, 569-72 (1997) (cited in Molly Shaffer Van Houweling, *Author Autonomy and Atomism in Copyright Law*, 96 VA. L. REV. 549, 601 (2010) (noting the difficulties associated with obtaining permission to use divided copyrights when one activity implicates several owners' rights)). Nimmer notes that "[t]he purpose of such indivisibility was to protect alleged infringers from the harassment of successive lawsuits." 3 MELVILLE B. NIMMER & DAVID NIMMER, *NIMMER ON COPYRIGHT* § 10.01[A] (Matthew Bender rev. ed. 2012). Former copyright registrar Abraham Kaminstein wrote in his 1957 study of the issue, "From the viewpoint of ease of tracing title and purposes of suit, it is much simpler to require that only the author or his assignee can control the copyright." Abraham L. Kaminstein, Senate Judiciary Committee, 86th Cong., Study No. 11 Divisibility of Copyrights, in *Copyright Law Revision Studies* Nos. 11-13, at 1 (1960) (cited in Van Houweling, *supra*, at 602). Early twentieth-century courts also worked to locate all rights in collected works in a single entity. Molly Shaffer Van Houweling notes that early twentieth-century cases "strain[ed] to find, in

at the same time have sold the right to make a derivative film of the work to a movie studio.⁷⁷ Even more common, however, is the use of licenses that convey a combination of limited, nonexclusive copying rights and idiosyncratic nonpossessory property interests, or usage rights, in a work or invention.⁷⁸ These licenses have been routinely upheld by courts as contracts and are only invalidated when they are found to be unconscionable.⁷⁹

V. EFFECTS OF THE ABSENCE OF NUMERUS CLAUSUS ON INTELLECTUAL PROPERTY

The *numerus clausus* principle facilitates the alienation of property, lowers the costs of investigating property rights, and helps those with an actual or potential interest in a particular piece of property to understand the scope of their rights. Therefore, one would expect that a property rights system that lacked a *numerus clausus* principle would result in the presence of significant restraints on the alienation of property, increased transaction costs of property conveyance, and confusion over the scope of property rights. These effects are visibly present in intellectual property law.

A. Restraints on the Alienation of Property

A property rights system that permitted substantial customization would likely develop articles that could not be conveyed, due to either the

the absence of express language between the parties to the contrary, that a magazine publisher acquired all the rights in a contribution to the author." See Van Houweling, *supra*, at 596 (citing 3 NIMMER & NIMMER, *supra*, at § 10.01). Although fragmentation of a copyright among several owners is explicitly permitted by the copyright statute today, the Ninth Circuit expressed discomfort with this result in *Gardner v. Nike*, 279 F.3d 774, 781 (9th Cir. 2002). In *Gardner*, the Ninth Circuit held that the exclusive licensee of only some of the rights included in a copyright could not transfer that license without the express permission of the original licensor. *Gardner*, 279 F.3d at 781. Its holding is similar to disallowing a Monday property right in a watch or other non-standard form. The decision has been criticized as not giving effect to the clear terms of the Copyright Act. See Van Houweling, *supra*, at 625-26.

77. See, e.g., *Fields v. Comm'r*, 14 T.C. 1202 (1950); *Herwig v. United States*, 105 F. Supp. 384 (Ct. Cl. 1952).

78. See generally Van Houweling, *supra* note 31; Lydia Pallas Loren, *Slaying the Leather-Winged Demons in the Night: Reforming Copyright Owner Contracting with Clickwrap Misuse*, 30 OHIO N.U. REV. 495 (2004).

79. See Joshua A.T. Fairfield, *The God Paradox*, 89 B.U. L. REV. 1017, 1047 (2009) ("EULAs are enforceable unless unconscionable."); see also Loren, *supra* note 78, at 508-10 (discussing how the doctrine of unconscionability would function in the context of shrinkwrap and clickwrap licenses).

creation of an anticommons or a contractual agreement that prevented a party from reconveying an article.

1. Prohibitions on Reconveyance

Intellectual property has developed limited aspects of the *numerus clausus* principle as applied to particular copies of patented inventions or copyrighted works. Known in intellectual property jurisprudence as the “first sale doctrine” or the “doctrine of exhaustion,” particular copies, once sold, cannot be subject to further control by the copyright or patent holder that owns the work or invention. The particular article may be used or alienated freely, so long as the owner of the article does not copy it or otherwise infringe on any other rights of the copyright or patent holder.⁸⁰

The first sale doctrine is a form of the *numerus clausus* principle because it effectively acts as a prohibition on nonpossessory property interests in particular copies of copyrighted works and patented inventions. Like other personal property, the first sale doctrine prevents sold, patented, or copyrighted goods from being burdened with servitudes; their ownership is limited to the possessory interests available in tangible, personal property. In patent law, the doctrine of exhaustion is judge-made.⁸¹ For copyrights, the first sale doctrine originated at common law,⁸² but was then adopted in the Copyright Act of 1909.⁸³ The doctrine’s purpose is

80. Examples include using a sold script to perform a copyrighted work.

81. See Herbert Hovenkamp, *Post-Sale Restraints and Competitive Harm: The First Sale Doctrine in Perspective*, 66 N.Y.U. ANN. SURV. AM. L. 487, 511 (2011); see also *Adams v. Burke*, 84 U.S. (17 Wall.) 453 (1873); *Adams v. Burks*, 1 F. Cas. 100 (C.C.D. Mass. 1871). According to the Supreme Court, the first sale doctrine is essential because patentees:

are entitled to but one royalty for a patented machine, and consequently when a patentee has himself constructed the machine and sold it, or authorized another to construct and sell it, or to construct and use and operate it, and the consideration has been paid to him for the right, he has then to that extent parted with his monopoly, and ceased to have any interest whatever in the machine so sold or so authorized to be constructed and operated.

Bloomer v. Millinger, 68 U.S. 340, 350 (1863) (cited in Hovenkamp, *supra*, at 513 n.109); see also *United States v. Masonite Corp.*, 316 U.S. 265, 278 (1942) (holding that determination of exhaustion rests on “whether or not there has been such a disposition of the article that it may fairly be said that the patentee has received his reward for the use of the article”) (cited in Hovenkamp, *supra*, at 513 n.109).

82. See Aaron Perzanowski & Jason Schultz, *Digital Exhaustion*, 58 UCLA L. REV. 889, 908-12 (2011); see also *Bobbs-Merrill v. Straus*, 210 U.S. 339 (1908).

83. Section 41 of the Copyright Act of 1909 provided, “[N]othing in this Act shall be deemed to forbid, prevent, or restrict the transfer of any copy of a copyrighted work the

frequently cited as being crucial to preventing undue restraints on the alienation of property.⁸⁴

However, the first sale doctrine, or doctrine of exhaustion, disappears when works are instantiated in a digital, rather than in an analog or physical, context. There is no first sale doctrine for digital works. The ideas of “copy” and “use” in copyright law have been merged in a digital context, due to the Ninth Circuit decision *MAI Systems Corp. v. Peak Computer Inc.*, which held that a copy of a software program in RAM qualified as a copy for copyright infringement purposes.⁸⁵

As a result, many pieces of software and digital content simply cannot be legally transferred from one party to another. For example, users of Amazon’s eBook reader, the Kindle, are granted

“a non-exclusive right to view, use, and display such Kindle Content . . . solely for [the reader’s] personal, non-commercial use.”⁸⁶ Unless specifically instructed otherwise, readers may “not sell, rent, lease,

possession of which has been lawfully obtained.”

84. See, e.g., Hovenkamp, *supra* note 81, at 493 (“The first sale doctrine grew out of the common law’s strong policy against restraints on alienation . . .”); Brian W. Carver, *Why License Agreements Do Not Control Copy Ownership: First Sales and Essential Copies*, 25 BERKELEY TECH. L.J. 1887, 1890 (2010) (“[E]xhaustion has reconciled copyright law with property law policies that disfavor restraints on alienation.”); 2 NIMMER & NIMMER, *supra* note 76, at §8.12[A] (After the first sale, “the policy favoring a copyright monopoly for authors gives way to the policy opposing restraints of trade and restraints on alienation.”) (cited in Vivian F. Wang, *Sale or License?* UMG v. Augusto, Verner v. Autodesk, *and the First Sale Doctrine*, 19 TEX. INTELL. PROP. L.J. 1, 2 (2010)); H.R. REP. NO. 98-987, at 2 (1984), *reprinted in* 1984 U.S.C.C.A.N. 2898, 2899 (“The first sale doctrine has its roots in the English common law rule against restraints on alienation of property. American courts have affirmed the doctrine and distinguished between the owner’s exclusive rights in the copyright and the rights of the owner of an object embodying a work that is under copyright.”) (cited in Wang, *supra*, at 2 n.5).

85. *MAI Sys. Corp. v. Peak Computer, Inc.*, 991 F.2d 511, 518 (9th Cir. 1993); see also JESSICA LITMAN, *DIGITAL COPYRIGHT* 92 (2001) (“For all works encoded in digital form, any act of reading or viewing the work would require the use of a computer . . . , and would, under this interpretation, involve an actionable reproduction.”). Even absent the holding in *MAI Systems*, the proliferation of hard drives would have contributed to the merging of “usage” and “copying,” as programs are now rarely run from CDs or disks. Although 17 U.S.C. § 117(a)(1) permits an “owner of a copy of a computer program to make . . . another copy . . . of that computer program provided . . . that such a new copy . . . is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner,” this “essential step” exception does not apply to copying software that has been licensed but not sold. 17 U.S.C. § 117(a)(1) (2006).

86. *Amazon Kindle License Agreement and Terms of Service*, 1. Kindle Content, AMAZON.COM, http://www.amazon.com/gp/help/customer/display.html/ref=hp_200699130_storeTOU1?nodeId=201014950 (last updated Sept. 6, 2012).

distribute, broadcast, sublicense or otherwise assign any rights to the Kindle Content or any portion of it to any third party”⁸⁷

The Microsoft Office 2010 license also specifies that its software “is licensed, not sold.”⁸⁸ Specifically, Microsoft forbids “rent[ing], lease[ing] or lend[ing] the software.”⁸⁹ Furthermore, Microsoft software marked “Not for Resale” cannot be resold.⁹⁰

Even software-embedded devices, such as digital cameras, have been sold with use restrictions. For example, a Canon EOS-1D digital camera’s license agreement states that the consumer shall not “assign, sublicense, sell, rent, lease, loan, convey or otherwise transfer to any third party, or copy, duplicate, translate or convert to another programming language the Software [that runs in the camera], except as expressly provided herein.”⁹¹

Licenses and terms of use are not completely limited to disembodied software, which can be placed on any number of machines. For example, patented goods can be licensed without triggering the doctrine of exhaustion. Monsanto licenses seeds to farmers that include the following terms:

This seed carries a limited license under U.S. patent 5,352,605 solely to produce a single commercial crop in one and only one season. This license does not extend to the seed from such crop or the progeny thereof by propagation or seed multiplication. The use of such seed or the progeny thereof for propagation or seed multiplication is strictly prohibited.⁹²

87. *Id.*

88. *Microsoft Software License Terms for Microsoft Office 2010* § 7, OFFICE.COM, <http://office.microsoft.com/en-us/microsoft-software-license-terms-for-microsoft-office-2010-HA101817777.aspx> (last visited Feb. 11, 2013).

89. *Id.*

90. *See id.* at §§ 1(10), 2(10), 3(10).

91. *Canon EOS-1D Mark II N Firmware License Agreement*, available at http://web.canon.jp/Imaging/eos1dm2n/eos1dmk2n_firmware-e.html (last visited Feb. 11, 2013) (cited in Elizabeth I. Winston, *Why Sell What You Can License? Contracting Around Statutory Protection of Intellectual Property*, 14 GEO. MASON L. REV. 93, 97 n.13 (2006)). Winston observes that “[a]s the licensor cannot loan, convey, or otherwise transfer the software to another, the licensor cannot lend the camera to anyone else—even to take a family picture.” Winston, *supra*, at n.13.

92. *Monsanto Co. v. Good*, No. Civ.A.01-5678 FLW, 2004 WL 1664013, at *2 (D.N.J. Jul. 23, 2004) (citing Mem. in Supp. of Monsanto Co.’s Mot. for Partial Summ. J.) (cited in Winston, *supra* note 91, at 95-97). As of 2005, Monsanto had defended its seed licenses in almost 100 lawsuits and won over \$15 million in court judgments. *See* Winston, *supra* note 91, at 103 (citing Press Release, Ctr. for Food Safety, Monsanto Assault on U.S. Farmers Detailed in New Report (Jan. 13, 2005), available at <http://www.centerforfoodsafety.org/2005/01/13/Monsanto-assault-on-u-s-farmers-detailed-in-new-report/>).

Thus, the ability of patent and copyright holders to license specific uses of inventions and authored works often results in an explicit prohibition of the alienation of intellectual property.

2. Excessive Fragmentation/Anticommons

Closely related to the idea of undue restraints on alienation is the concern that excessive fragmentation of property rights could give rise to an anticommons problem. In a situation where someone wants to use a piece of property, having too many fragments controlled by separate parties can make the transaction costs of paying for that use too high. Blocking patents is one example—for instance, when one party owns a patent to a machine and another owns a process patent to use the machine in a certain way. Someone wanting to manufacture the patented machines in order to undertake the patented process must gain permission from both parties to use the one kind of device. The cost of negotiating use rights is increased because two parties have to be negotiated with instead of one. Depending on how beneficial the patented machines will likely be to the new manufacturer, the increased negotiating cost could be enough to render the project not worth undertaking.

Another example of a tragedy of the anticommons occurs after multiple works are incorporated into a new, derivative work. Often, the original works are licensed for very limited purposes, such as to be used on broadcast television, and must be relicensed for the work to appear in other media. For example, in 2010, MTV released the DVD set for the cartoon series *Daria*, which was broadcast on MTV from 1997 to 2002.⁹³ The original television series used clips from contemporary popular songs in its episodes, but the high cost of licensing the songs for the DVDs prevented them from appearing on the DVD release of the entire series. Series creator Glenn Eichler explained, “99 percent of the music has been changed, because the cost of licensing the many music bites we used would have made it impossible to release the collection (and for many years did) [T]hese aren’t the shows as aired”⁹⁴ Because so many parties held rights over parts of the *Daria* series, creators were unable to release it on DVD as it originally was aired, electing instead to remove almost the entirety of the original soundtrack.⁹⁵ The television series *WKRP in Cincinnati* was also released with a changed soundtrack for similar reasons.⁹⁶ As animated filmmaker Nina Paley explains, the cost of licensing

93. Letter from Glenn Eichler (2010) (on file with author). Glenn Eichler’s note appeared inside the DVD box of *Daria: Complete Animated Series*, released in 2010.

94. *Id.*

95. *Id.*

96. Alex Tabarrok, *WKRP and the Tragedy of the Anti-Commons*, MARGINAL REVOLUTION (Apr. 1, 2011, 7:10 AM), <http://marginalrevolution.com/marginalrevolution>

can be prohibitively high due to the cost of negotiating licenses.⁹⁷ Discussing her own attempts to license songs sung by Annette Hanshaw for her independent animated film, *Sita Sings the Blues*, Paley explained that she could not negotiate a lower licensing fee:

There was no way to negotiate their contract, because it would have cost [the corporation that owned the copyrights] more to negotiate than they would have gotten from me. The [default] contract is \$3,500 per song, and it would have cost them more than \$3,500 for their lawyers to revisit the contract and modify it.

I must emphasize this is a system problem. This is not an individual's problem. Everyone involved in this is truly just doing their job. It's the system itself that is broken. If you can't negotiate the contracts because it costs more money to negotiate a reasonable deal than they could earn, it is crazy.⁹⁸

For *Daria* to be released on DVD, the creators of the show would have needed to renegotiate a license for every song originally included in the show—literally dozens. Although the episodes, as they aired, constituted completed, new works, those pieces of culture are now effectively lost. Because the rights could not be renegotiated, the program cannot be re-released as it originally aired.

The fact that so many parties had a veto over the re-release of *Daria* and *WKRP in Cincinnati* is exemplary of a tragedy of the anticommons—a situation where too many parties with veto power over the use of a piece of property prevent it from being used effectively. This type of anticommons, appearing in works that incorporate other copyrighted works or are derived from them, is possible because the *numerus infinitus* principle in copyright law allows works to be licensed for very limited purposes.

B. High Measurement-Cost Externalities

A property right system without a *numerus clausus* principle would likely impose significant costs on parties trying to purchase or use property as they sought to determine the owner of the property and the rights in the property available for purchase. One also would see costs in the form of mistakes made from misunderstanding what a party was buying.

/2011/04/gridlock-at-wkrp-in-cincinnati.html.

97. *Id.*

98. *Frequently Asked Questions*, SITA SINGS THE BLUES, <http://sitasingstheblues.com/faq.html> (last visited Feb. 11, 2013); see also Dan Schreiber, *Copyrighting away culture: An interview with Nina Paley*, SMILE-POLITELY MAG. (Apr. 9, 2009, 7:00 AM), http://www.smilepolitely.com/arts/copyrighting_away_culture_an_interview_with_nina_paley/.

Measurement costs can be quite high in a copyright context. An individual copyright is severable in many ways, and multiple copyrights can be created in the same work. For example, the so-called “movie rights” to a book can be conveyed as either a license or as a sale.⁹⁹ When the movie rights are sold, the buyer acquires something akin to a fee simple property interest in the right to make a movie from the book; the buyer is merely limited by the termination of transfer options and the remaining term of the copyright. Notably, the buyer can also convey the right again. “Movie rights” encompass the “big three” aspects of a property right—the right to exclude, to use, and—crucially—to alienate the right to yet another party.

Movie rights are analogous to the “Monday watch right” that Merrill and Smith worried about and illustrate their concerns.¹⁰⁰ The term “movie rights” is roughly shorthand for the right to copy and make a derivative work of the original, so long as the new work is a movie. (Video game rights, novelizations, children’s books, comic books, stage rights, and rights to any other form of storytelling can also be severed from a copyright.) But, even though “movie rights” are *roughly* shorthand for the right to make a derivative film, the term “movie rights” is hardly a single “form” of right. The sale of movie rights might include the right to make sequels, to make themed merchandise based on the film, or to make further derivative works based on the movie, such as novelizations. Depending on the form of the original work, it might include making copies of the original for everyone who is working on the derivative work. Just like the iTunes and Microsoft licenses, a document conveying “movie rights” will have many clauses.

The separation of movie rights—and their ability to be reconveyed—raises the measurement costs of acquiring intellectual property. Suppose Ann owns a copyright, and Ben wants to purchase it. Ben must not only establish that Ann owns the copyright; Ben must also establish that no pieces of the copyright, such as movie rights, have been severed from Ann’s ownership interests. This might be especially difficult because Ann will often be able to show all indicia of ownership in the copyright, leaving Ben with the responsibility to inquire carefully about whether any aspects of the right have been spun off.

This process gets even more complicated as a copyright, or part thereof, moves through many owners over a period of decades. The Ninth Circuit decision, *Fleischer Studios, Inc. v. A.V.E.L.A., Inc.*,¹⁰¹ illustrates how

99. See, e.g., *Fields v. Comm’r*, 14 T.C. 1202 (1950) (finding that a sale of motion picture rights had been effected); *Goldsmith v. Comm’r*, 143 F.2d 466 (2d Cir. 1944); *Sabatini v. Comm.*, 98 F.2d 753 (2d Cir. 1938) (finding that a motion picture had been licensed and reversing a lower court’s holding that the motion picture rights had been sold); *Herwig v. United States*, 105 F. Supp. 384 (Ct. Cl. 1952) (finding motion picture rights to be sold).

100. See Merrill & Smith, *supra* note 1.

101. 654 F.3d 958 (9th Cir. 2011).

conveying copyrights over time via contract increases measurement costs. *Fleischer* concerned the copyrights in Betty Boop cartoons, which were popular in the 1930s.¹⁰² Boop's creator, Max Fleischer, sold the rights to the Betty Boop cartoons and character before dissolving his company, Fleischer Studios, Inc. (Original Fleischer), in 1946.¹⁰³ In the 1970s, Max Fleischer's family got back into the cartoon business, starting a new company named Fleischer Studios and attempting to buy back the intellectual property rights in Betty Boop.¹⁰⁴

Fleischer Studios began licensing the Betty Boop character for use in toys, dolls, and other merchandise, and sued A.V.E.L.A., Inc. and other parties that were licensing Betty Boop merchandise as well.¹⁰⁵

Although Fleischer initially suggested many possible chains of title for copyright in the Betty Boop character, it abandoned all but one possibility on appeal.¹⁰⁶ On appeal to the Ninth Circuit, Fleischer argued that Original Fleischer had transferred its rights to Paramount Pictures, Inc. (Paramount) in 1941, that Paramount transferred those rights to UM & M TV Corp. (UM & M) in 1955, that UM & M transferred the rights to National Telefilm Associates, Inc. (NTA) in 1958, that NTA became Republic Pictures in 1986, and finally, that Republic Pictures transferred the copyright to Fleischer in 1997.¹⁰⁷

The court found A.V.E.L.A. not liable for copyright infringement of the Betty Boop character because of a term in the agreement that transferred the copyright in the Betty Boop cartoons from Paramount to UM & M.¹⁰⁸ The purchase agreement stated,

Paramount hereby grants and assigns to [UM & M] all of Paramount's right, title and interest in and to said Photoplays [of Betty Boop] which are deliverable by Paramount to [UM & M] hereunder and do not revert to Paramount under Paragraph 11 hereof, hereinafter for convenience referred to as "Sold Photoplays", any copyrights subsisting therein, the literary material upon which they are based and the instruments whereby Paramount acquired its right, title and interest in and to such literary material

Anything to the contrary notwithstanding, no grant or assignment is made hereunder to [UM & M] of the characters and characterizations contained in said Sold Photoplays or said literary material, or of the copyrights in said characters or characterizations, or of any production or other rights in said characters and characterizations, or to use said

102. *See id.* at 960-62.

103. *Id.* at 961.

104. *Id.*

105. *Id.*

106. *Id.*

107. *Id.*

108. *Id.* at 964.

characters and characterizations or the names of said characters or trade names, trademark and names of the series of Sold Photoplays or of said literary material in any manner except . . . only as part of the particular Sold Photoplay in which they or any of them are contained¹⁰⁹

The purchase agreement between Paramount and UM & M conveyed the copyrights to the Betty Boop cartoons, but not to her character.¹¹⁰ Although Fleischer argued strenuously that this could not have been Paramount's intention, the court found otherwise, noting that "the record suggests that three years after entering into the UM & M agreement, Paramount transferred its Betty Boop character copyright to Harvey Films."¹¹¹ Because UM & M never held the copyright to Betty Boop, it could not convey it to NTA/Republic Pictures, who in turn could not convey it to Fleischer.¹¹² Fleischer argued that it had acquired the Betty Boop copyright from Harvey Films in another fashion, but the majority held that Fleischer had waived that argument when it did not raise the possibility in its opening brief.¹¹³ The dissenting judge criticized the majority's decision to stop its analysis of who owned the Betty Boop character at the point when Paramount sold the copyright to Harvey.¹¹⁴ She wrote,

[A]s a matter of discretion, I would reach the Harvey Films chain of title. The basic question raised by this appeal is the ownership of the copyright. I see nothing to be gained, and no unfair advantage to be conferred, by resolving this issue to the present day, rather than arbitrarily stopping our analysis as of the 1950s.¹¹⁵

The court did not decide who owned the Betty Boop character, however, and following the resolution of *Fleischer*, her character became an unlikely orphan work.¹¹⁶

Fleischer illustrates the confusion that can arise from fairly typical transfers of copyright between parties. Because a character can acquire a separate copyright from the work the character appears in,¹¹⁷ it was possible to separate the title to the character Betty Boop from the title to the cartoon. This is unlike the "movie rights" situation, where a copyright can be severed into parts, because there is actually a separate copyright in a

109. *Id.* at 963.

110. *Id.* at 964.

111. *Id.* at 964-65.

112. *Id.* at 964.

113. *Id.* at 966.

114. *Id.* at 970 (Graber, J., dissenting).

115. *Id.*

116. *Id.*

117. See 2 PATRY ON COPYRIGHT § 3:164.

character and in a work including the character. However, the *Fleischer* situation illustrates the same problem that exists with movie rights. The transfer between Original Fleischer and Paramount included both the title to the Betty Boop cartoons and to the Betty Boop character. But when Paramount got around to selling Betty Boop, it sold only the cartoons. Decades and several titleholders later, Fleischer believed it was buying back what Original Fleischer had sold—not realizing that the rights in the Betty Boop character had been separated.

Because intellectual property rights can be severed and repackaged in any variety of ways, parties in Fleischer's position have to expend significant effort to research the ownership history of intellectual property. The only way for Fleischer to be certain of exactly what it was purchasing from Republic Pictures would be to trace the sale documents all the way back through UM & M and Paramount. Because corporations change form and dissolve and people die and lose records, tracing title over decades will often be a very difficult endeavor. Fleischer would have had to expend even more effort to determine the scope of its ownership if one of the transfer contracts had been imprecise—for example, if one company had transferred “all its rights” relating to Betty Boop to another company. Fleischer would then have had to investigate if that company had ever severed part of the rights in Betty Boop in another document, such as if it had sold movie rights or video game rights. As a work travels through several owners over decades, the costs of determining what rights the current owner has to convey can become prohibitively high. Buyers of valuable works have to spend significant resources determining what they are purchasing, else they could end up unable to protect the rights they thought they purchased, as happened with Fleischer. Even worse, they could end up defending their use of a copyrighted work that they mistakenly believed they had purchased.

A recent Note in the Harvard Law Review argued, “Copyrights that are valuable enough to buy and enforce will likely be owned by sophisticated commercial entities, which will, under competition, set ownership structures that converge around the structures that are optimal given works’ underlying features.”¹¹⁸ Merrill and Smith acknowledge that some balance must be struck between the ease in understanding property rights afforded by few forms and the frustration of interest that results from there being *too* few forms.¹¹⁹ The Note author claims, based on Merrill and Smith’s observation, that there is no problem with a *numerus infinitus* principle because large media companies will carve up copyrights into socially optimal forms, without the need for courts or legislatures to define them.¹²⁰

118. Note, *supra* note 38, at 1767.

119. Merrill & Smith, *supra* note 1, at 40.

120. Note, *supra* note 38, at 1767.

This suggestion ignores several critiques of abandoning the *numerus clausus* principle articulated by Merrill and Smith, namely that contracting parties will not internalize the costs of their decisions on third parties, such as potential future purchasers or those who interact with other property and who must expend greater effort to determine how that property's interests are divided.¹²¹ The Fleischer case illustrates this problem—contracting parties will not internalize the costs of downstream purchasers. Paramount's decision to convey only part of its rights to Betty Boop caused confusion and massive litigation costs for Fleischer. Even if that contract was best for Paramount and UM & M, their decision to split up the rights in the Betty Boop cartoons had unintended consequences for Fleischer that certainly appear to have wasted significant legal resources for the parties in the *Fleischer* case. In short, even large corporations face large measurement costs when trying to purchase copyrights.

C. Difficulty Verifying Ownership Rights

Hansmann and Kraakman's concerns about coordination, enforcement, and verification of property rights also describe a problem in intellectual property law. They warned,

The less effectively the parties solve coordination and enforcement problems, the greater the scope for mistake or opportunism, and hence the less valuable will be the rights . . . : the parties may take costly private actions to protect their rights . . . and using assets may be discouraged¹²²

The authors could well have been describing the use of digital rights management technology, which is as well known for frustrating the good intentions of paying users as it is for preventing unauthorized uses and copies. In 2010, the gaming company Ubisoft, for example, decided to set up its games so that the program would have to check in with Ubisoft over the internet before a user could play the game.¹²³ Throughout play, the game would also periodically check in with Ubisoft; if the player had a poor internet connection or had been kicked offline, the game would abort after failing to reach Ubisoft.¹²⁴ Ubisoft's method of "digital rights

121. Merrill & Smith, *supra* note 1, at 45–49.

122. Hansmann & Kraakman, *supra* note 4, at 382–83.

123. Ben Kuchera, *Ubisoft's New DRM Solution: You Have Be Online to Play*, ARS TECHNICA (Jan. 27, 2010, 4:11 PM), <http://arstechnica.com/gaming/news/2010/01/ubisofts-new-drm-solution-you-have-be-online-to-play.ars>.

124. See Kuchera, *supra* note 123; Mike Masnick, *Ubisoft DRM Gets Worse And Worse: Kicks You Out of Game If You Have A Flakey WiFi Connection*, TECHDIRT (Feb. 18, 2010, 5:46 PM), <http://www.techdirt.com/articles/20100218/1514238229.shtml>; Chris

management” would prevent anyone without an internet connection from playing games (including if, for example, the player was on an airplane), and even more frustratingly, would ruin the game of anyone who had briefly lost his or her internet connection during play.¹²⁵

Ubisoft’s DRM was positioned to make gaming a much less valuable experience for gamers who traveled or had flaky internet connections. Notably, Ubisoft’s system was “cracked” almost as soon as it was made available, making the sale of games much less valuable for Ubisoft as well.¹²⁶ As noted by the blog *Techdirt*, “Many people . . . [said] that while they would have bought the game otherwise, now they would just wait for a DRM-free cracked version to show up.”¹²⁷ At one point, Ubisoft’s servers crashed, preventing anyone from playing its *Assassin’s Creed 2* game.¹²⁸

Some potential buyers chose not to buy Ubisoft games because of the annoying digital right management system¹²⁹—as Hansmaan and Kraakman predicted, use of the property was discouraged by one party’s costly protection methods. As a result, Ubisoft was harmed by its protection methods as it lost customers it would have otherwise had. Nonetheless, some other game companies have followed suit; the company Electronic Arts announced that its game *Command and Conquer 4* would require a constant internet connection to be played as well.¹³⁰ (In contrast, Blizzard Entertainment has taken the opposite approach with its *World of Warcraft*

Pereira, *Assassin’s Creed 2 on PC Requires a Constant Internet Connection*, 1UP.COM (Feb. 17, 2010), <http://www.1up.com/news/assassin-creed-2-requires-constant>.

125. See Kuchera, *supra* note 123.

126. Karl Bode, *Ubisoft’s Despised DRM Continues to Annoy, Fail*, TECHDIRT (Apr. 22, 2010, 4:19 PM), <http://www.techdirt.com/articles/20100421/1103339130.shtml>; Mike Masnick, *Ubisoft’s Annoying New DRM Cracked Within Hours of Release*, TECHDIRT (Mar. 4, 2010, 7:59 PM), <http://www.techdirt.com/articles/20100304/1302148421.shtml>.

127. Masnick, *supra* note 126.

128. Mike Masnick, *Ubisoft’s ‘You Must Be Connected To This Server’ Annoying DRM Servers Go Down*, TECHDIRT (Mar. 8, 2010, 6:12 AM), <http://www.techdirt.com/articles/20100308/0138388459.shtml>; Griffin McElroy, *Ubisoft DRM Authentication Server is Down, Assassin’s Creed 2 Unplayable*, JOYSTIQ (Mar. 7, 2010, 4:00 PM), <http://www.joystiq.com/2010/03/07/ubisoft-drm-authentication-server-is-down-assassins-creed-2..>

129. Masnick, *supra* note 126.

130. Mike Masnick, *EA To Require Internet Connection for Command & Conquer*, TECHDIRT (July 17, 2009, 3:38 AM), <http://www.techdirt.com/articles/20090716/0141125564.shtml>; Mike Masnick, *Despite Plenty of Warning EA Still Decides to Follow Ubisoft Down The Wrong Path With DRM*, TECHDIRT (Mar. 19, 2010, 1:08 PM), <http://www.techdirt.com/articles/20100318/1240028622.shtml>; Jim Sterling, *Command & Conquer 4 Requires Constant Online Connection*, DESTRUCTOID (Mar. 18, 2010, 8:00 AM), <http://www.destructoid.com/command-conquer-4-requires-constant-online-connection-168117.phtml>.

game.)¹³¹ These issues are not limited to games. Problems with the digital rights management technology on Blu-Ray copies of *Avatar* prevented many who purchased authentic copies of the film from watching it on their Blu-Ray players,¹³² and a Blu-Ray firmware update temporarily rendered Warner Brothers and Universal films unwatchable.¹³³

Hansmann and Kraakman noted,

Of all verification rules, possession is the most primitive and commonplace. In theory, verification could be based only on possession. . . . The advantages of this system are obvious. It is easy to understand, cheap to administer, and generally unambiguous. It is, in fact, reasonably close to the approach taken to most chattels.¹³⁴

Unfortunately, possession is all but useless for indicating ownership rights in intellectual property, since copies of an invention or work are so commonly acquired without any corresponding rights to make a copy. Moreover, the scope of individuals' intellectual property rights is not connected to their possession of particular objects. As Christopher Newman observes,

To avoid infringing a patent, it is not sufficient to avoid appropriating or coming into contact with any particular physical objects, whether possessed by the patent owner or anyone else. This means that regardless of how "concrete" the conception "boundaries" of the patent are, those boundaries do not (as they do for tangible property) serve as crude proxies that obviate the need to identify and evaluate potential uses of physical resources in order to comply with the property rights of others. To the contrary, it is only through extremely detailed evaluation of uses that anyone is able to determine whether or not actions transgress the "boundaries" of the patent. This is as true of the patented machine as it is of the business-method patent.¹³⁵

131. Mike Masnick, *Blizzard Says DRM Is A Losing Battle, Better to Focus on Positive Value*, TECHDIRT (May 28, 2010, 1:25 PM), <http://www.techdirt.com/articles/20100528/0157539612.shtml>.

132. Karl Bode, *Avatar Blu-Ray Customers Not Enjoying Their DRM-Crippled Discs*, TECHDIRT (Apr. 27, 2010, 12:32 AM), <http://www.techdirt.com/articles/20100423/1012179155.shtml>.

133. Mike Masnick, *DRM Strikes Again: Samsung Blu-ray Firmware Update Means No Warner Or Universal Movies*, TECHDIRT (Aug. 23, 2010, 1:48 PM), <http://www.techdirt.com/articles/20100823/05113410739.shtml>; Richard Lawler, *Samsung Blu-ray Players Won't Play Warner, Universal Movies after Firmware Update, Require A Rollback*, ENGADGET (Aug. 22, 2010, 3:34 PM), <http://www.engadget.com/2010/08/22/samsung-blu-ray-players-wont-play-warner-universal-movies-after/>.

134. Hansmann & Kraakman, *supra* note 4, at 384-85.

135. Christopher M. Newman, *Patent Infringement as Nuisance*, 59 CATH. UNIV. L.

Hansmann and Kraakman correctly anticipate some of the worst effects of the *numerus infinitus* problem on copyright and patent law: people do not know what rights they have, and they do not know when they are infringing on another's rights.¹³⁶ People are confused not only because the law is confusing, but also because their rights are so costly to comprehend. Digital content licenses are too long for users to reasonably read and absorb. For example, the terms and conditions for using the iTunes store are eighteen single-spaced pages when printed.¹³⁷ One would not be surprised to be told that a vanishingly small number of iTunes users read them. The usage rules lay out a scheme of finely-honed permissions, specifying what those who agree to the terms can do with iTunes Plus products, which include most songs and music videos,¹³⁸ and with other iTunes products, such as television episodes and films. Products designated "iTunes Plus" may only be put to "personal, noncommercial use."¹³⁹ Regular iTunes products are subject to a more specific set of rules. So-called "purchased" iTunes products may be placed on five devices at any time. Audio playlists may be burned seven times, but videos and ringtones may not be burned at all.¹⁴⁰ The average user neither knows nor has even read this information.

REV. 61, 105-06 (2009) (citing JAMES BESSEN & MICHAEL J. MEURER, *PATENT FAILURE* 47-72 (2008) (discussing the difficulty of discerning patent boundaries)).

136. Hansmann & Kraakman, *supra* note 4, at S375, S396.

137. See *iTunes Store Terms and Conditions*, APPLE.COM, <http://www.apple.com/legal/itunes/us/terms.html> (last visited Feb. 11, 2013). The iTunes Terms and Conditions are so lengthy and convoluted that they have become a cultural phenomenon of their own accord. Recently, actor Richard Dreyfuss recorded a dramatic reading of the iTunes End User License Agreement for CNET. See Rafe Needleman, *Richard Dreyfuss Reads the iTunes EULA*, CNET (June 8, 2011, 4:00 AM), http://www.cnet.com/8301-30976_1-20068778-10348864.html.

138. See *iTunes Plus Frequently Asked Questions*, APPLE.COM, <http://support.apple.com/kb/HT1711> (last visited Feb. 11, 2013) ("iTunes Plus downloads are songs and music videos available in our highest quality 256 kbps AAC audio encoding (twice the audio quality of protected music purchases), and without digital rights management (DRM)."); see also Erica Sadun, *Apple, labels both win with DRM-free iTunes, tiered pricing*, ARS TECHNICA (Jan. 6, 2009), <http://arstechnica.com/apple/news/2009/01/apple-labels-both-win-with-drm-free-itunes-tiered-pricing.ars> (describing the launch of iTunes Plus).

139. See *iTunes Store Terms and Conditions*, *supra* note 137, Section B ("USAGE RULES (i) You shall be authorized to use Products only for personal, noncommercial use. . . . (vi) iTunes Plus Products do not contain security technology that limits your usage of such Products, and Usage Rules (ii) – (v) do not apply to iTunes Plus Products. You may copy, store, and burn iTunes Plus Products as reasonably necessary for personal, noncommercial use.").

140. *Id.* ("USAGE RULES . . . (ii) You shall be authorized to use Products on five Apple-authorized devices at any time, except for Content Rentals (iv) You shall be authorized to burn an audio playlist up to seven times. (v) You shall not be entitled to burn video Products or ringtone Products.").

The software licenses for Microsoft Office 2010 are even more particular. A “Home and Student” edition of Microsoft Office software under a retail license can be installed “on up to three licensed devices in [a] household for use by people for whom that is their primary residence” but “may not be used for commercial, nonprofit, or revenue-generating activities.”¹⁴¹ Apparently, under the Microsoft 2010 retail license, the Home and Student edition of Microsoft Word is not licensed for use by one’s houseguests.

That each license is different contributes to the confusion, causing intellectual property owners to erect expensive fences to maintain the property “boundaries” they desire. In sum, both buyer and seller experience loss, from underuse of property and overinvestment in fences, respectively.

VI. POSSIBILITIES FOR NUMERUS CLAUSUS IN INTELLECTUAL PROPERTY: POCKETS OF STANDARDIZATION

The above examples lead to the difficult question of what forms make sense in intellectual property. Merrill and Smith postulate that there is some optimal number of forms, enough to allow property owners the flexibility to effect their desired ends, but not so many as to make transaction costs intolerably high.¹⁴² “From a social point of view, the objective would be to minimize the sum of measurement (and error) costs, frustration costs, and administrative costs. In other words, what we want is not maximal standardization—or no standardization—but optimal standardization.”¹⁴³ Merrill and Smith observe that neither “total freedom of customization” nor “complete regimentation . . . is likely to minimize social costs.”¹⁴⁴ But unfortunately they give us no guidance as to how many forms are likely to be appropriate or what the characteristics of a beneficial form would be.

Imposing forms could also create difficulties for those used to transacting in their absence. Because intellectual property has been freely customizable, intellectual property owners have grown accustomed to being able to license their works in highly idiosyncratic ways. Transitioning to a different system could be difficult, depending on how limited the permitted forms were.

Frustration costs must be balanced against the many benefits of standardization. In industries or practices where frustration costs would be very high, or where the benefits of standardization would be low, creating intellectual property forms might have a net deleterious effect. But in areas that seem particularly problematic, where there is great confusion about

141. Microsoft Software License Terms for Microsoft Office 2010, *supra* note 88, at § 1(12).

142. Merrill & Smith, *supra* note 1, at 38.

143. *Id.*

144. *Id.*

ownership rights and prohibitions on conveyance, we might want to fold aspects of the *numerus clausus* principle into intellectual property jurisprudence.

In effect, the *numerus clausus* principle could be active in particular “pockets” of the intellectual property legal landscape—local areas where the social costs of infinitely customizable property rights are higher than the costs of standardized property rights.

This part includes several suggestions of areas where standardization could be beneficial, and discussion of several areas where caution in changing the law is likely to be more appropriate. It is divided into two sections: one section concerning the exclusive rights conferred by the patent and copyright statutes—in particular, the right to *make* copies—and the other section concerning rights to use and convey *particular* copies of a protected work or invention.

A. Local Numerus Clausus Principles for Copying Rights

1. Exhaustion of Derivative Work Rights

One particularly knotty area of copyright law is the licensing or sale of a work for use in a new work. The new work can incorporate the original in large or small part. For example, one can sell or license movie rights to a book, in which case the resulting movie will often replicate the plot and characters of the book very closely. Or, one can license a music clip to be in the background of a film or television show, in which case the clip will only constitute a small element of the new work.

These situations can result in a tragedy of the anticommons and confusion about the scope of the derivative or new work owner’s rights. For example, suppose Ann licenses the movie rights to her bestselling novel to Ben. Ben releases the film to domestic theaters. Later, Ben wants to sell his rights to the film to Carl. Carl wants to release the film on DVD and allow airlines to show it on long flights.

Depending on what Ann and Ben agreed to, Carl may or may not be able to release the film on DVD without Ann’s permission. If there are many Anns—in other words, if multiple original works were incorporated into Ben’s movie—Carl could be in for some difficult negotiations as he tries to acquire everyone’s permission to re-release the film in a new format. Carl could also find himself defending a lawsuit if he misunderstood the scope of Ben’s interests and did something with the film that Ann had the right to veto.

This situation would be ameliorated if Ann’s interests in Ben’s movie were exhausted at the time Ben distributed the film. This exhaustion rule would hold that, once the deal was signed and the film released to the public, Ben would have title free and clear to distribute and display the film in any way he saw fit. If Ben realized that everyone was using a new technology to watch films, he would always be able to distribute the film in

that medium. By deeming Ann's interests to be exhausted after the derivative work is created, Ann (or multiple Anns) could not hold Ben over a barrel if it became beneficial to use the derivative work in an unanticipated way. Ben would have title to the movie free and clear and the freedom to put it to its highest valued uses.

The derivative work exhaustion principle is limited in scope. The rule would only require that an original author's interest in a derivative work be exhausted at the time the derivative work is first published, displayed, or performed. Once the work becomes public, the original author would not be able to veto its use. However, if an original author had contracted for a "final cut" of the derivative work, the initial distribution of the derivative work without her approval would constitute copyright infringement.

Original authors would still be able to write contracts with derivative work authors concerning the derivative work. For example, Ann could have contracted with Ben for a certain percentage of all DVD and ticket sales for some number of years, in exchange for the derivative work sale of her book. If Ben failed to pay Ann, he would be in breach of contract. But Ben would not be infringing Ann's copyright interest in the derivative work because that interest would have already been exhausted.

Original authors would also maintain control over *other* derivative works that copy from their original works. Consider Ann, Ben, and Carl again. Carl wants to make a comic book of Ben's movie. Because the comic book would be copying both the plot of Ben's film and Ann's book, Carl would need the agreement of both Ben and Ann to write the comic book.

This distinction between Ann's interests in Ben's derivative work and in future works derived from Ben's work is already instantiated in the termination of transfer rules—the aspect of copyright law that allows an original copyright owner to terminate others' interests in the copyrighted work and have those interests revert to the original owner.¹⁴⁵ To illustrate, suppose Ann had sold the copyright in her book to Ben outright, and he made a movie based on the book. Because of the termination of transfer option, several decades later Ann could reclaim her entire copyright interest in the book. However, although Ann could reclaim her entire copyright interest in the book, the copyright statute prevents her from blocking the distribution of Ben's derivative film. The statute provides,

A derivative work prepared under the authority of the grant before its termination may continue to be utilized under the terms of the grant after its termination, but this privilege does not extend to the preparation after the termination of other derivative works based upon the copyrighted work covered by the terminated grant.¹⁴⁶

145. See 17 U.S.C. § 203(a) (2006).

146. 17 U.S.C. § 203(b)(1) (2006).

After termination of transfer, Ben would still be able to distribute his film, but if Carl wanted to make a new comic book that copied from both the movie and book, he would need to negotiate a license with both Ann and Ben. This would also be the model for the proposed exhaustion principle.

In summary, untangling the complex legal relationship a derivative work can have with original works would return the law to a simpler state that existed historically. In 1790, derivative works were not covered by the copyright statute, and the reproduction right was not read so broadly as to include derivative works in the idea of copying.¹⁴⁷ The author of an adaptation had rights to a derivative work that were not "intertwined" with the original.¹⁴⁸ Now, authors of derivative works own the aspects they contribute, but can exploit the derivative work "only to the extent authorized by the copyright holder."¹⁴⁹ Thus "derivative works [are] potentially subject to the control of multiple owners"¹⁵⁰ and are particularly vulnerable to anticommons problems. The exhaustion of an original author's interest in a derivative work would simplify ownership interests in derivative, copyrighted works and promote the values advanced by the *numerus clausus* principle.

2. Indivisibility of Copyrights

The most blatant incorporation of the *numerus clausus* principle into intellectual property law would be to restore the copyright indivisibility doctrine for all exclusive rights in a copyright. The Copyright Act of 1909 was interpreted to disallow the fragmentation of a copyright into its component sticks—to copy, to perform, to distribute, etc.¹⁵¹ Grants of less than a full transfer of the undivided copyright were treated as licenses rather than assignments.¹⁵² The Copyright Act of 1976 abandoned this policy and expressly provided that:

[a]ny of the exclusive rights comprised in a copyright, including any subdivision of any of the rights specified in [17 U.S.C. § 106], may be transferred . . . and owned separately. The owner of any particular

147. Van Houweling, *supra* note 76, at 609-10.

148. *Id.* at 610.

149. *Id.*

150. *Id.*

151. Lemley, *supra* note 76, at 569.

152. *Id.* at 569 (citing *Hirshon v. United Artists Corp.*, 243 F.2d 640 (D.C. Cir. 1957); *Goldwyn Pictures Corp. v. Howells Sales Co. Inc.*, 282 F. 9, 10 (2d Cir. 1922); 3 NIMMER & NIMMER, *supra* note 76, at § 10.01[A] n.10).

exclusive right is entitled, to the extent of that right, to all of the protection and remedies accorded to the copyright owner by this title.¹⁵³

Under this provision, an exclusive license “operates to transfer that portion of the copyright to the exclusive licensee.”¹⁵⁴ Exclusive rights are not limited to the six rights listed in 17 U.S.C. § 106; even “a subset of one of the exclusive rights, such as the exclusive right to publish copies of a book in hardcover form” can be transferred.¹⁵⁵ Exclusive rights can be “subdivided indefinitely and . . . each subdivision of an exclusive right may be owned and enforced separately.”¹⁵⁶

The benefit of indivisibility is that one entity or group would hold all the exclusive rights over a work—for example, the rights to reproduce and perform. Molly Shaffer Van Houweling explains, “The indivisibility rule aimed to avoid fragmentation that would complicate the task of defending against lawsuits and avoiding lawsuits by negotiating for permission to use copyrighted works upfront.”¹⁵⁷ Nimmer similarly explains, “The purpose of . . . indivisibility was to protect alleged infringers from the harassment of successive law suits.”¹⁵⁸ Former register of copyrights Abraham Kaminstein also observes along this line, “From the viewpoint of ease of tracing title and purposes of suit, it is much simpler to require that only the author or his assignee can control the copyright.”¹⁵⁹

Mark Lemley worried about divided copyrights and the internet in his 1997 article *Dealing with Overlapping Copyrights on the Internet*.¹⁶⁰ He concluded that posting a work on the internet had the potential to infringe on several of copyright’s exclusive rights, including the reproduction right, the distribution right, and the display right. If these rights were divided among several parties, the posting individual could be

liable for infringement to several different entities, each of which will claim the exclusive right to authorize the same conduct. . . . [E]ven obtaining a license from the owner of the public display right will not

153. 17 U.S.C. § 201(d)(2) (2006).

154. Lemley, *supra* note 76, at 570.

155. *Id.*

156. H.R. REP NO. 94-1476, at 53, 61 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5674 (cited in Lemley, *supra* note 76, at 570); 3 NIMMER & NIMMER, *supra* note 76, at § 10.02[A] (cited in Lemley, *supra* note 76, at 570).

157. Van Houweling, *supra* note 76, at 601 (citing Lemley, *supra* note 76, at 569-72 (noting the difficulties associated with obtaining permission to use divided copyrights when one activity implicates several owners’ rights)).

158. 3 NIMMER & NIMMER, *supra* note 76, at § 10.01[A] (cited in Van Houweling, *supra* note 76, at 601).

159. STAFF OF S. COMM. ON THE JUDICIARY, 86TH CONG., STUDY ON COPYRIGHT LAW REVISION 11 (Comm. Print 1960).

160. *See* Lemley, *supra* note 76.

permit the licensee to display the work on the Net, since such a display *also* makes copies and involves distribution of the work, and those rights may be owned by different parties.¹⁶¹

Indivisibility would simplify licensing issues and make it easier to identify copyright holders and to determine what rights with respect to a given copyright they own. But not everyone views indivisibility as a net benefit. Nimmer criticized the indivisibility doctrine as an unjustifiable restraint on commerce that “produced technical pitfalls for both buyers and sellers.”¹⁶² More recently, a Harvard Law Review Note on fragmentation of copyrights asserted that copyright owners are “better incentivized to maximize their works’ value by crafting efficient structures Owners not only have superior expertise in their works and incentive to maximize the works’ value, but also are better able to respond expeditiously to informational and technological changes affecting their works’ use.”¹⁶³ Nonetheless, the note author agrees that “the balance between anticommons costs and frustration costs would be an empirical question.”¹⁶⁴ Although the note author believes that owners are better suited to fragmenting copyrights than legislatures or courts, the evidence for this is scant. Moreover, owners are unlikely to be well-suited, by definition, to considering the negative externalities of fragmentation. The author asserts, “Copyrights that are valuable enough to buy and enforce will likely be owned by sophisticated commercial entities, which will, under competition, set ownership structures that converge around the structures that are optimal given works’ underlying features.”¹⁶⁵ But the *Fleischer* case shows that even “sophisticated commercial entities” can err. *Fleischer* illustrates how divided property rights in a work can create confusion among later rights-holders, even when all the rights-holders are precisely the “sophisticated commercial entities” that the note author anticipates would be apt at handling rights fragmentation.¹⁶⁶

But the *Fleischer* case is only one data point of fragmentation. While confusing and transfer-limiting terms of use are now omnipresent, the evidence that divisibility of exclusive rights creates net harms is less apparent. This may be in part because *Fleischer*-like situations are less visible. Although terms of use are frequently encountered, contracts

161. *Id.* at 571.

162. 3 NIMMER & NIMMER, *supra* note 76, at § 10.01[A] (cited in Van Houweling, *supra* note 76, at 609).

163. Note, *supra* note 38, at 1759-60.

164. *Id.* at 1770.

165. *Id.* at 1767.

166. See generally *Fleischer Studios, Inc. v. A.V.E.L.A., Inc.*, 654 F.3d 958 (9th Cir. 2011).

between private parties that fragment copyrights are only visible when they end up in court.

More research is needed to establish whether copyright fragmentation tends to have a net positive or negative effect. Nonetheless, the picture Lemley paints is one with tremendous potential for negative consequences, and most benefits from fragmentation could be achieved through contract. For example, suppose an author today would have sold the rights to publish her book to a publisher, while retaining the rest of the copyright. Without fragmentation, the author could write a contract granting a license for someone to publish her book and agreeing not to license the right to publish the book to anyone else. If the author then breached the contract by allowing a third party to publish the book, the original publisher could sue the author for breach of contract. However, no copyright violation would have occurred because the author still retained her indivisible copyright, and thus any copies of the book printed by the third-party publisher would not be infringing.¹⁶⁷

3. Public Licenses

A final subject which touches on both the issues relevant to terms of use and copyright divisibility is public licensing. With a public license, a copyright owner creates or chooses a blanket license for a work, allowing anyone to use the work according to the terms. Public software licenses typically allow anyone to use and build on a licensed work, so long as new versions include access to the source code for the program.¹⁶⁸ Public licenses designed for works such as prose or art, like the Creative

167. In contrast to copyrights, patents still retain some aspects of indivisibility, although whether one has title to a patent or a license to practice a patent is mainly relevant for determining standing in patent lawsuits. The Federal Circuit's decision in *Rite-Hite Corp. v. Kelley Co.* summarized the principle:

A conveyance of legal title by the patentee can be made only of the entire patent, an undivided part or share of the entire patent, or all rights under the patent in a specified geographical region of the United States. A transfer of any of these is an assignment and vests the assignee with title in the patent, and a right to sue infringers. A transfer of less than one of these three interests is a license, not an assignment of legal title, and it gives the licensee no right to sue for infringement at law in the licensee's own name.

Rite-Hite Corp. v. Kelley Co., Inc., 56 F.3d 1538, 1551-52 (Fed. Cir. 1995). The right to sue patent infringers notwithstanding, patent indivisibility does not restrict the ways in which one can hold and exercise patent rights.

168. See, e.g., *General Public License v. 3 § 6*, GNU, <http://www.gnu.org/licenses/gpl.html> (last visited Feb. 11, 2013); *Artistic License 2.0 § 5*, OPEN SOURCE INITIATIVE, <http://www.opensource.org/licenses/artistic-license-2.0> (last visited Feb. 11, 2013).

Commons license,¹⁶⁹ can permit others to copy the work so long as they comply with certain terms as well, such as giving attribution to the author, not using the work for commercial purposes without additional permission, or not creating derivative works.¹⁷⁰ Software licensed under public licenses includes the GNU/Linux operating system, the Perl programming language, the Apache web server programs, and the Firefox web browser.¹⁷¹ Creative Commons estimates that there are close to 100,000,000 works licensed under various Creative Commons licenses.¹⁷² As the Federal Circuit has noted,

There are substantial benefits, including economic benefits, to the creation and distribution of copyrighted works under public licenses For example, program creators may generate market share for their programs by providing certain components free of charge. Similarly, a programmer or company may increase its national or international reputation by incubating open source projects. Improvement to a product can come rapidly and free of charge from an expert not even known to the copyright holder.¹⁷³

Additionally, many contributors to open source projects do so because they are philosophically committed to releasing software that can be tinkered with and built upon by others, for the public's benefit.

Public licenses represent a bit of a puzzle. On one hand, public licenses resemble terms of use. On the other hand, unlike most terms of use, they are not terms concerning *particular* copies of a work, but *all* copies of a work. Moreover, public licenses are typically written to make alienability and sharing of particular copies easier, albeit subject to particular conditions.¹⁷⁴ While licensing conditions typically limit the alienability and identifiability of property, public licenses are designed with the very purpose of increasing a work's ability to be shared.

Despite this purpose, public licenses can be problematic when they are incompatible with one another. For example, under the terms of the Free Software Foundation's General Public License (GPL) and the Apache Software Foundation's Apache License, software licensed under GPL v.3 cannot be included in projects that would otherwise be licensed under the

169. See generally CREATIVE COMMONS, <http://creativecommons.org/> (last visited Feb. 11, 2013).

170. See *About The Licenses*, CREATIVE COMMONS, <http://creativecommons.org/licenses/> (last visited Feb. 11, 2013).

171. See *Jacobsen v. Katzer*, 535 F.3d 1373, 1378 (Fed. Cir. 2008).

172. *Id.*

173. *Id.* at 1379.

174. *Id.* at 1381-83.

Apache License 2.0, and software licensed under the Apache License and the GPL v.2 cannot be combined under either license agreement.¹⁷⁵

At first blush, license incompatibility makes public licenses appear offensive to the values at the heart of the *numerus clausus* principle because the licenses can make property difficult to use. But incompatibility is not necessarily an insurmountable problem. Most public software licenses are “non-exclusive,” in the sense that authors of the software code can “grant particular users greater rights than are contained in the standard form license.”¹⁷⁶ Of course, many publicly licensed software projects have very large numbers of contributors, and as a result, seeking copyright permission from every contributor is effectively impossible. However, when a company or other organized group spearheads a specific project, it could be in a position to license its version of the work to others under different terms.

As to the publicly licensed works with many contributors, the license is a double-edged sword. Although making legal, off-license use of publicly licensed works is nearly impossible because of its many contributors, software with many contributors would also be substantially less likely to exist without public licenses like the GPL. The GPL and similar licenses give contributors the means and protection to tinker with software whose source code might otherwise be concealed or whose copyright status would otherwise be unclear.

As a matter of policy, public licenses should be permitted because, on balance, they tend to promote the same values as the *numerus clausus* principle. Despite the fact that public licenses impose obligations on users who wish to copy works, these obligations exist primarily to provide notice of the work’s status, to facilitate alienability, and to allow future users to tinker with the licensed work—indeed to provide *more* latitude to users than copyright law generally allows. Providing notice of the rights associated with a work helps mitigate the concerns of Merrill and Smith (although they maintained that notice was not a sufficient substitute for the *numerus clausus* principle).¹⁷⁷ And concerns about incompatible licenses

175. *Apache License v.2.0 and GPL Compatibility*, THE APACHE SOFTWARE FOUNDATION, <http://www.apache.org/licenses/GPL-compatibility.html> (last visited Feb. 11, 2013).

176. David McGowan, *Legal Aspects of Free and Open Source Software*, in PERSPECTIVES ON FREE AND OPEN SOURCE SOFTWARE 361, 367 (Feller et al. eds., 2005); see e.g., General Public License v. 3, *supra* note 168, § 7; *Apache License v. 2.0* § 4, THE APACHE SOFTWARE FOUNDATION, <http://www.apache.org/licenses/LICENSE-2.0> (last visited Feb. 11, 2013).

177. See Merrill & Smith, *supra* note 1, at 43-45 (discussing how notice can be beneficial but is not sufficient to eliminate the costs of property fragmentation to third-parties); Merrill & Smith, *supra* note 6, at 850 (discussing notice systems in quasi in rem cases).

and the difficulty of locating copyright holders can be mitigated by other means, such as fair use, or a *sui generis* solution.

Three limits should apply to public licenses, however, in order to make rights clear and facilitate the conveyance of copies. First, users should have, at least, unlimited personal use rights to their copy of the licensed work and the right to reconvey the work under the same terms. Second, conveyed copies covered by a public license must be coupled with notice of the license, unless the license dedicates the entire work to the public domain (i.e., reserving no rights to the creator and imposing no obligations on users).¹⁷⁸ Third, public licenses should be nonexclusive to allow for some future flexibility in how works are used.

Allowing public licenses, subject to the above limitations, will likely provide a public benefit despite the absence of a *numerus clausus* principle. Because a notice of rights must appear on the licenses, the main social costs imposed by public licensing are the efforts expended to understand the scope of the license and those that stem from incompatibility. But because these licenses tend to grant significantly more freedom than copyright law alone does, users who simply want to use a work for their own personal use will rarely have to expend much effort to determine the exact contours of the license. Only when contemplating distributing the work again, or the creation of a derivative work, would the license need to be scrutinized.

Moreover, separate aims of intellectual property law are advanced by the use of public licenses. The Constitution permits intellectual property laws to be erected for the benefit of the public. If intellectual property owners choose to grant more rights to the public than they need to, the public's benefit from a work is increased because it has greater access or has to pay less for access. Because the work is already created, we know that the intellectual property owner was already sufficiently incentivized to create the work, and we know that the intellectual property owner would prefer to release the work with greater freedoms for those who might come in contact with it. Accordingly, for both the public and the intellectual property owner, the world in which public licenses are permitted is beneficial, especially because measurement costs will be lower when a notice of property rights is present and when all users are granted personal use rights.

178. If the notice would be cumbersome to include due to the medium, a link to a website or similar shorthand notice would be acceptable.

B. Local Numerus Clausus Principles for Rights Involving Copies

1. A Digital First Sale Doctrine

Much confusion about the scope of one's ownership rights and concern about restraints on the alienation of property arise from the legal treatment of digital works and software. Because of the nature of digital works and the *MAI Systems* holding,¹⁷⁹ traditional notions of a single copy are tremendously unhelpful in a digital context. To illustrate, compare a book and an eBook. When Ann takes her book from home to work or to the beach, she carries a single copy of the book with her. However, Ann cannot do the same with a single copy of an eBook. When she turns on the desktop computer in her home and opens a pdf copy of the eBook, a copy of the book is made in her computer's RAM memory. If she wants to take the book to the beach, she must load it onto a portable e-reader, making another copy. If she wants to read the book on her work computer, she might copy the eBook onto a USB key and then copy it again from the USB key to her office computer. Many commentators argue that platform-shifting and personal uses such as these are fair uses of copyrighted works,¹⁸⁰ although the extent to which these are fair uses is untested.

Content providers have responded to the necessity of making multiple copies of a digital work by drafting increasingly complex licensing agreements for use of digital content, such as the licenses for iTunes, Microsoft Office, and the Amazon Kindle. Sometimes these licenses grant users "personal use" rights to a work, whereas others specify a particular number of computers or devices the work may be copied onto.

These license agreements bump up against Hansmann and Kraakman's concern.¹⁸¹ Verification of one's rights to copyrighted content is very costly when licenses are long and detailed. Users not only do not read terms of use agreements, but realistically cannot read them. Economists have estimated that individuals who read every privacy policy they agree to online would each spend about 244 hours per year, or forty-two minutes a day, reading policies.¹⁸² Lengthy licenses for software or use of digital content would

179. See *MAI Sys. Corp. v. Peak Computer, Inc.*, 991 F.2d 511, 518.

180. See, e.g., Pamela Samuelson, *Unbundling Fair Uses*, 77 *FORDHAM L. REV.* 2537, 2592 (2009); Pamela Samuelson & Jason Schultz, *Should Copyright Owners Have to Give Notice of Their Use of Technical Protection Measures?*, 6 *J. TELECOMM. & HIGH TECH. L.* 41, 44 (2007); see also *In re Aimster*, 334 F.3d 643, 652-53 (7th Cir. 2003) (noting space-shifting as a possible fair use); *Recording Indus. Ass'n of Am. v. Diamond Multimedia Sys., Inc.*, 180 F.3d 1072, 1079 (9th Cir. 1999) ([S]pace-shift copying "is [a] paradigmatic noncommercial personal use.").

181. See *supra* notes 51-53 and accompanying text.

182. Aleecia M. McDonald & Lorrie Faith Cranor, *The Cost of Reading Privacy Policies*, *I/S: A JOURNAL OF LAW & POL'Y FOR THE INFO. SOC'Y*, 2008 Privacy Year in

similarly take an inordinate and unrealistic amount of time to read. Even Chief Justice John Roberts admits he does not read End User License Agreements (EULAs).¹⁸³ Rather than read a license, a purchaser is more likely to simply make a rough guess about what uses are allowed and forbidden. Because digital content and software are relatively inexpensive, and few infringements are caught, purchasers do not have the incentives to learn precisely what they are agreeing to. A user of iTunes would reasonably guess that she should not put a purchased music track on a file-sharing website, but probably does not know whether she can burn six, seven, or eight copies of a particular playlist.

Lengthy, idiosyncratic licenses to use digital content do not work. The numerus clausus principle could significantly benefit this area of intellectual property law by eliminating the licensing of copies of digital works and software and replacing them with “digital sales.”

Digital sales would work similarly to sales of chattels. A primary benefit of the “digital sale” form is that it would align rights in digital goods with existing consumer expectations in the physical objects all around them. Currently, physical copies of books and CDs are sold, not licensed, to readers and listeners. Since the *Bobbs-Merrill* case in 1908,¹⁸⁴ copyright owners have not been able to tie use restrictions to particular copies of copyrighted works. Similarly, owners of digital content would not have the option to grant indefinite licenses to merely use a work. Copies could be reconveyed to others so long as the prior owner deleted his copy.

The scope of a digital copy owner’s rights will deviate somewhat from the rights of a chattel owner because multiple copies are necessarily made when digital copies are used. A digital sale would ideally grant the copy’s owner the right to make as many copies as necessary for the owner’s personal uses, so long as only one computer or device was used to display or perform the work at any given time. This right would allow a copy’s

Review issue, at 17, available at <http://www.aleecia.com/authors-drafts/readingPolicyCost-AV.pdf>; see also Dan L. Burk, *DNA Rules: Legal and Conceptual Implications of Biological “Lock-Out” Systems*, 92 CAL. L. REV. 1553, 1584 (2004) (“The inability of the general public to track all the myriad permutations of mass market licenses is well illustrated by the frequent appearance of outrageous terms in such contracts[,] . . . including provisions that forbid criticism of the product or . . . conferring . . . upon the publisher of web page design software a right in the web pages designed using the software purchased.”).

183. See Debra Cassens Weiss, *Chief Justice Roberts Admits He Doesn’t Read the Computer Fine Print*, ABA JOURNAL, Oct. 20, 2010, available at http://www.abajournal.com/news/article/chief_justice_roberts_admits_he_doesnt_read_the_computer_fine_print/; Mike Masnick, *Supreme Court Chief Justice Admits He Doesn’t Read Online EULAs Or Other ‘Fine Print’*, TECHDIRT (Oct. 22, 2010, 9:48 AM), <http://www.techdirt.com/articles/20101021/02145811519/supreme-court-chief-justice-admits-he-doesnt-read-online-eulas-or-other-fine-print.shtml>.

184. *Bobbs-Merrill v. Straus*, 210 U.S. 339 (1908).

owner to do everything she could do with a physical copy of a work, and still permit someone's houseguest to briefly use Microsoft Word or look at the first chapter of a highly recommended eBook without violating a copyright.

Lending could be preserved in one of two ways. First, an owner could forward a copy of a work to another and delete the copies on his own computer or devices until it was sent back. Second, a copyright owner could sell copies that are burdened with digital rights management technology and that effectively "self-destruct" after a period of time. Movies can currently be rented in iTunes in this fashion. However, a copyright owner should not be able to circumvent the requirements of a digital sale by lending works for very long periods of time or repeatedly relending a work.

a. History and Objections

Variations on the idea of a digital first sale doctrine have been under consideration in Congress several times, albeit in slightly different forms. Bills in the House of Representatives proposed digital first sale doctrines in 1997 and 2003.¹⁸⁵ These bills adopted the idea that "forwarding and deleting" digital content was sufficient to avoid copyright liability and to legally transfer a copy from one individual to another.¹⁸⁶ The proposed 2003 Balance Act provided, "The privileges prescribed by [the first sale doctrine] apply in a case in which the owner of a particular copy . . . of a work in a digital or other nonanalog format . . . sells or otherwise disposes of the work by means of a transmission to a single recipient, if the owner does not retain the copy . . ."¹⁸⁷ Reports from the National Telecommunications and Information Administration and the Copyright Office also wrestled with the idea of whether to allow a digital first sale doctrine when coupled with digital rights management technology that ensured the deletion of a forwarded work.¹⁸⁸

185. See Balance Act, H.R. 1066, 108th Cong. (2003), discussed in Henry Sprott Long III, Note, *Reconsidering the 'Balance' of the 'Digital First Sale' Debate: Re-examining the Case for a Statutory Digital First Sale Doctrine to Facilitate Second-Hand Digital Media Markets*, 59 ALA. L. REV. 1183, 1195-98 (2008); Digital Era Copyright Enhancement Act, H.R. 3048, 105th Cong. (1997).

186. Long, *supra* note 185, at 1196.

187. H.R. 1066, *supra* note 185.

188. See NAT'L TELECOMM. AND INFO. ADMIN., REPORT TO CONGRESS: STUDY EXAMINING 17 U.S.C. SECTIONS 109 AND 117 PURSUANT TO SECTION 104 OF THE DIGITAL MILLENNIUM COPYRIGHT ACT (Mar. 2001), available at <http://www.ntia.doc.gov/report/2001/report-congress-study-examining-17-usc-sections-109-and-117-pursuant-section-104-digital>; U.S. COPYRIGHT OFFICE, A REPORT OF THE REGISTER OF COPYRIGHTS PURSUANT TO § 104 OF THE DIGITAL MILLENNIUM COPYRIGHT ACT 130-48 (2001), available at <http://www.copyright.gov/reports/studies/dmca/sec-104-report-vol-1.pdf> (hereinafter

Historically, when “forward and delete” proposals have been suggested, copyright holders have “expressed concern that the power to alienate digitally distributed copies will lead to consumers gaming the system by keeping a copy after purporting to alienate their interest in it.”¹⁸⁹ Concerns with forward-and-delete must be viewed in light of the reality that, although there is no digital first sale doctrine now, individuals frequently share digital content among small groups of friends without deleting it from their own computers. Indeed, according to a leaked presentation from the Recording Industry Association of America, seventy percent of music “piracy” in 2011 occurred offline, rather than using peer-to-peer file-sharing programs or digital lockers.¹⁹⁰ Accordingly, allowing individuals who wish to act within the confines of the law to forward-and-delete will not encourage illegal copying because those who want to share works among small groups of friends already do so.

The more important question is whether a digital first sale doctrine would give legal cover to large-scale file-sharing. Under the Supreme Court’s *Grokster* decision,¹⁹¹ content-owners need not fear that a digital first sale doctrine will provide cover for piracy.

A secondary music market would be most open to the kind of infringement charge that brought down *Grokster*—where the transfer facilitator clearly encouraged infringement, despite the transfer platform having a substantial non-infringing use.¹⁹² A secondary music market that wanted to actually sell and gift music, instead of facilitating the making of multiple copies, could actively take precautions to prevent the sharing of multiple copies of a song in order to avoid accusations of inducing infringement.¹⁹³

REPORT OF THE REGISTER).

189. Perzanowski & Schultz, *supra* note 82, at 938 (citing REPORT OF THE REGISTER, *supra* note 188, at 47-48). “Note that this worry is nothing new, as consumers have always been able to copy their LPs, cassettes, or CDs before reselling them on the secondary market.” Perzanowski & Schultz, *supra* note 82, at 938 n.273.

190. *RIAA: Online Music Piracy Pales in Comparison to Offline Swapping*, TORRENTFREAK (July 26, 2012), <http://torrentfreak.com/riaa-online-music-piracy-pales-in-comparison-to-offline-swapping-120726>. According to the presentation, in 2011, approximately 70% of unpaid music came from offline swapping, compared with 30% acquired from peer-to-peer file sharing and digital lockers. In terms of all music, in 2011, 16% of music was acquired by paying for physical CDs, 19% through paid downloads, 15% through peer-to-peer file sharing, 4% through digital lockers, 19% through hard-drive trading, and 27% through burning or ripping music from others. *Id.*

191. *Metro-Goldwyn-Mayer Studios v. Grokster, Ltd.*, 545 U.S. 913 (2005).

192. *See id.* at 922, 934-37.

193. For example, a centralized secondary seller could limit an account to selling one copy of a work and compare the content of previously sold works to newly uploaded ones to make sure a filename was not simply changed. Each account might be tied to a unique credit or debit card, to prevent a person from having unlimited numbers of accounts. The central

Finally, variations on a “digital first sale doctrine” already exist in particular proprietary software programs, and no harm has resulted. Apple’s iTunes software allows a party to make a one-time transfer of the software license rights to a third party.¹⁹⁴ Microsoft licenses also allow a one-time transfer of rights in its software as long as the original software owner deletes her copy.¹⁹⁵ Although Microsoft employs other mechanisms to ensure that its copies are authorized, this provision of its license reveals that Microsoft is somewhat comfortable with the existence of a secondary market in software.

b. Additional Benefits of a Digital First Sale Doctrine

The ability to legally transfer copies provides many public benefits in addition to those typically associated with property alienation. As R. Anthony Reese concisely observes,

If every used bookstore, video rental store, and library in the United States had to locate and negotiate with the copyright owner of every title they

market could use technology to look for accounts that have sold substantially similar music files and compare identifying information of the accounts to evaluate whether or not the account holders are the same person. Finally, the uploading software could include a forward-and-delete style software that deletes a file when it is uploaded to the file-selling clearing house.

194. See *iTunes License*, at § 3 (Revised Sept. 23, 2011), <http://images.apple.com/legal/sla/docs/iTunes.pdf> (“You may not rent, lease, lend, redistribute or sublicense the Apple Software. You may, however, make a one-time permanent transfer of all of your license rights to the Apple Software to another party, provided that: (a) the transfer must include all of the Apple Software, including all its component parts, original media (if any), printed materials and this License; (b) you do not retain any copies of the Apple Software, full or partial, including copies stored on a computer or other storage device; and (c) the party receiving the Apple Software reads and agrees to accept the terms and conditions of this License.”) (cited in Long, *supra* note 185, at 1195).

195. See Microsoft Software License Terms for Microsoft Office 2010, *supra* note 88, at § 20. The license provides,

TRANSFER TO A THIRD PARTY. The first user of the software may make a one-time transfer of the software and this agreement, by transferring the genuine proof of license directly to a third party. The first user must remove the software before transferring it separately from the licensed device. The first user may not retain any copies of the software. Before any permitted transfer, the other party must agree that this agreement applies to the transfer and use of the software. If the software is an upgrade, any transfer must also include all prior versions of the software.

Id. (similar license version cited and discussed in Juliet M. Moringiello, *What Virtual Worlds Can Do For Property Law*, 62 FLA. L. REV. 159, 198 (2010)).

wished to resell, rent, or lend, and had to remit compensation to the copyright owner for each resale, rental, or loan, many fewer such transactions would likely take place, and the prices charged in those transactions that did occur would be higher than under the first sale doctrine to offset transaction costs.¹⁹⁶

The first sale doctrine benefits society when works go out of print or are no longer sold, when copyright owners withdraw or suppress the work, or when a work is withdrawn from the market to create false scarcity.¹⁹⁷ The first sale doctrine also creates the positive externality of increasing the likelihood that copyrighted works will be preserved and accessible for future generations.¹⁹⁸ Digital works have greater hurdles to preservation than analog or physical copies of works; in addition to preserving a copy and translating the language, “digital translation” presents an additional problem.¹⁹⁹ Most digital works interact with other programs on a computer, and maintaining compatibility and usability over time can be particularly challenging.

First sale allows for repeated migration of a work across platforms and increases the likelihood that it will persist over a period of time.²⁰⁰ Illegal “abandonware” projects illustrate how hobbyists and computer game enthusiasts work to prevent classic computer games that are no longer for sale from becoming lost or unusable.²⁰¹ The efforts to preserve old

196. R. Anthony Reese, *The First Sale Doctrine in the Era of Digital Networks*, 44 B.C. L. REV. 577, 592 (2003).

197. *See id.* at 633.

198. *Id.* at 604.

199. “[W]ithout some sort of digital resuscitation, every application [program] . . . eventually stops working, and every data file eventually becomes unreadable. Every application and every file.” Claire Tristram, *Data Extinction*, TECH. REV., Oct. 2002, at 39, available at <http://www.technologyreview.com/communications/12975/> (quoted in Reese, *supra* note 196, at 639).

200. If there are many copies of a work in a variety of locations, there is a statistically greater chance the work will survive over time. As Reese explained, if there is one copy of a work with a 1/100 chance of being destroyed in a given year, there is only a 13% chance it will still exist in two hundred years. Whereas, if there are 100 copies, the chance that at least one copy will survive in a hundred years is 99.9999944%. Reese, *supra* note 196, at 605-06.

201. *See, e.g.*, ABANDONIA, <http://www.abandonia.com/en/game/all/Abandonware> (last visited Feb. 11, 2013); HOME OF THE UNDERDOGS, <http://www.hotud.org/> (last visited Feb. 11, 2013). An abandonware webring defines abandonware as:

any PC or console game that is . . . [a]t least four years old [and] [n]ot being sold or supported by the company that produced it or by any other company. When a certain piece of [a]bandonware is later found to be sold or supported by a company, then it ceases to be [a]bandonware.

computer games evoke the fate of many films from the 1920s. For many years, film companies did not believe it was economically worthwhile to preserve old films, and because they owned all the copies, many films were lost.²⁰² Yet, today, we consider the films that remain a treasure.²⁰³

The Copyright Act acknowledges the value of archival, but allows only very limited copying towards that end. Section 108(c) of the 1976 Copyright Act permits libraries to reproduce up to three copies of a published work “solely for the purpose of replacement of a copy or phonorecord that is damaged, deteriorating, lost, or stolen, or if the existing format in which the work is stored has become obsolete”²⁰⁴ This provision is not enough to preserve the usability of obsolete digital works. Not only must more parties be permitted to archive, but more copies must be legally archivable. Many libraries do not keep copies of software, video games, and computer games. And yet, these games are as important to the culture of the past few decades as written fairy tales were generations earlier.²⁰⁵ “Preserving old computer games isn’t about sentimentality or

(last visited Feb. 11, 2013). Although purveyors of abandonware are committing copyright infringement, they consider their work noble because without their work, the games would likely become permanently lost to everyone. “Preserving old computer games isn’t about sentimentality or retro trendiness or collectibility,” said Richard Carlson, a game developer at Rogue Entertainment, in an e-mail message. “It’s about the history of art, storytelling, music, animation, programming, level design and all of the other disciplines involved in making classic game entertainment.” Greg Costikyan, *New Front in the Copyright Wars: Out of Print Computer Games*, N.Y. TIMES, May 18, 2000, available at <http://www.nytimes.com/library/tech/00/05/circuits/articles/18aban.html>; see also Anthony Zurcher, ‘Abandoned’ Games Kept Alive, WASH. POST, Mar. 16, 2001, at E01, available at <http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&node=&contentId=A12717-2001Mar15>; Brad King, *Abandonware: Dead Games Live On*, WIRED MAG. (Jan. 19, 2002), <http://www.wired.com/gaming/gamingreviews/news/2002/01/49723>.

202. See Reese, *supra* note 196, at 636.

203. For example, the recent discovery of dozens of American silent films that were once thought lost in Russia received widespread media attention. See Peter Finn, *Silent Films Recovered: These New Releases Are Oldest in A Long Time*, WASH. POST, Feb. 8, 2011, available at http://www.washingtonpost.com/world/silent-films-recovered-these-new-releases-are-oldest-in-a-long-time/2011/02/08/ABHyVuQ_story.html; Kelly Marshall Smoot, ‘Lost’ Silent Movies Found in Russia, Returned to US, CNN.COM (Oct. 21, 2010), http://articles.cnn.com/2010-10-21/entertainment/us.russia.found.films_1_silent-films-film-preservation-digital-preservation?s=PM:SHOWBIZ.

204. 17 U.S.C. § 108(c) (2006). “For purposes of this subsection, a format shall be considered obsolete if the machine or device necessary to render perceptible a work stored in that format is no longer manufactured or is no longer reasonably available in the commercial marketplace.” *Id.* Before making archival copies, the library must use “reasonable effort” to determine “that an unused replacement copy can’t be obtained at a fair price.” *Id.* After the copy is made, the library must ensure than any copy “reproduced in digital format is not made available to the public in that format outside the premises of the library” *Id.*

205. Examples include King’s Quest, original or older versions of Paperboy, Pac-Man,

retro trendiness or collectability It's about the history of art, storytelling, music, animation, programming, level design and all of the other disciplines involved in making classic game entertainment."²⁰⁶

A digital first sale doctrine would not only facilitate the alienation of property and lower transaction costs of conveying digital works. It would also give copy owners the flexibility to maintain and reconvey older works that might otherwise become lost or unusable, creating an additional benefit to the public.

2. Conditional Sales of Patented Goods

In patent law, courts have allowed restrictions on the rights of the purchaser of a chattel that "embodies patented ideas even when the chattel is sold if notice is given of the restrictions, such restrictions are within the scope of the patent grant, and the patent rights have not yet been exhausted."²⁰⁷

As Blackstone worried, complex ownership rules for chattels "would occasion perpetual suits and quarrels . . . [if] tolerated and allowed."²⁰⁸ Parties seeking to purchase and interact with conditionally sold goods

SimCity, Where in the World is Carmen San Diego?, and Oregon Trail. A note on the Abandonia website captures the challenges of archiving. In reference to a game called the Lost City of Atlantis, a poster writes,

This is a really obscure game that took me 11 years to get my hands on! As a kid I played the demo which came with an issue of "PC Format" in 1996. Ever since then I tried to find it. There was no trace of it on the internet, and I was really starting to fear the game was lost forever. After countless searches and postings on different forums over the years I learned that the game's title was "The Lost City of Atlantis" . . . and also that it was made by American developer "Noch [S]oftware, [I]nc[.]" back in [19]95. That didn't help much since Noch was dead, but later still I finally got a hold of a demo through a German Abandonia member (demo was in English), and a month later he had also managed to obtain a German full version! Later still I came in contact with the actual producer of the game, Thomas Dumstorf, through an old fax number, and he told me that even he had no idea where to find the English version!

The Lost City of Atlantis, ABANDONIA, <http://www.abandonia.com/en/games/1066/Lost+City+of+Atlantis%2C+The.html> (last visited Feb. 11, 2013).

206. Costikyan, *supra* note 201.

207. Winston, *supra* note 91, at 108; *see also* B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419, 1426-27 (Fed. Cir. 1997) (holding that patent exhaustion "does not apply to an expressly conditional sale or license"); *Mallinckrodt, Inc. v. MediPart, Inc.*, 976 F.2d 700, 709 (Fed. Cir. 1992) (holding that a patentee could prevent reuse of a patented device if the device was labeled for a single use).

208. 2 BLACKSTONE, *supra* note 32, at *398.

would have to expend effort to learn the scope of their rights in the goods. Moreover, the existence of conditional sales of patented goods increases the measurement costs associated with other personal property, as the purchaser of many goods would be wise to inquire about whether a particular item was patented and had been subject to a conditional sale. The social costs imposed by conditional sales suggest that the practice of selling patented goods might also benefit from the standardization of the numerus clausus principle and that a system permitting only unconditional sales may be preferable to the status quo.

At the moment, it is unclear whether the Supreme Court's decision in *Quanta Computer, Inc. v. LG Electronics, Inc.*²⁰⁹ eliminated or restricted conditional sales. Prior to *Quanta*, conditional sales were seen by the Federal Circuit as only a partial conveyance of the rights in sold patented goods.²¹⁰ As a result, since a seller can only convey as good of title as he possesses, downstream purchasers were also subject to the conditions of the original sale.²¹¹ Acting outside of the limited grant to use or convey the patented good constituted patent infringement, and patentees could sue for both patent infringement and breach of contract.²¹²

But in *Quanta*, the Supreme Court may have reconceived conditional sales to be a matter of contract rather than property.²¹³ In *Quanta*, computer manufacturers purchased products from Intel that were designed to practice patents owned by LGE.²¹⁴ The defendant manufacturers, including Quanta, were informed that they could not combine the Intel products with non-Intel products, pursuant to an agreement between LGE and Intel.²¹⁵ However, the agreement between LGE and Intel provided that "[n]otwithstanding anything to the contrary contained in this Agreement, the parties agree that nothing herein shall in any way limit or alter the effect of patent exhaustion that would otherwise apply when a party hereto sells any of its Licensed Products."²¹⁶ The Court held that Intel's sales to manufacturers had exhausted LGE's interest in the products.²¹⁷ Although the Court did not explicitly consider whether the products had been sold subject to conditions, it did note, "the authorized nature of the sale to Quanta does not necessarily limit LGE's other contract rights. LGE's complaint does not include a breach-of-contract claim, and we express no opinion on whether

209. 553 U.S. 617 (2008).

210. Hovenkamp, *supra* note 81, at 502.

211. *Id.*

212. *See B. Braun Med., Inc.*, 124 F.3d at 1426 ("[V]iolation of valid conditions entitles the patentee to a remedy for either patent infringement or breach of contract.").

213. *See generally* *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617 (2007).

214. *Id.* at 621-24.

215. *Id.* at 623-24.

216. *Id.* at 623 (internal citations and quotation marks omitted).

217. *Id.* at 637.

contract damages might be available even though exhaustion operates to eliminate patent damages.”²¹⁸

Commentators have interpreted *Quanta* in a variety of ways. Many believe that it leaves the conditional sale doctrine largely intact, given that the Supreme Court did not directly address the matter.²¹⁹ Shubha Ghosh suggests that the conditional sale doctrine could now apply only to “use restrictions placed on the direct purchaser of a patented invention.”²²⁰ Christopher Holman interprets *Quanta* as implicitly overruling the conditional sale doctrine.²²¹ And Herbert Hovenkamp similarly concludes that *Quanta* “restored the first sale rule to its original broad scope This means that the conditions can be enforced only by breach of contracts suits, not by infringement suits, and only against persons who are in privity with respect to the contract that is being enforced.”²²²

Disputes about the meaning of *Quanta* may be resolved by the Supreme Court in the upcoming case *Bowman v. Monsanto Co.*, which concerns the validity of the conditional sale doctrine, among other issues.²²³ A ruling that eliminates the conditional sale doctrine entirely would lower the measurement costs associated with purchasing potentially patented goods and significantly benefit the public.

218. *Id.* at 637 n.7.

219. Erin Julia Daida Austin, *Reconciling the Patent Exhaustion and Conditional Sale Doctrines in Light of Quanta Computer v. LG Electronics*, 30 CARDOZO L. REV. 2947, 2973-74 (2009); William LaFuze, Justin Chen, & Lavonne Burke, *The Conditional Sale Doctrine in a Post-Quanta World and Its Implications on Modern Licensing Agreements*, 11 J. MARSHALL REV. INTELL. PROP. L. 295, 315-16 (2011); David McGowan, *Reading Quanta Narrowly*, PATENTLY-O (July 27, 2008, 3:17 PM), <http://www.patentlyo.com/patent/2008/07/reading-quanta.html>.

220. Shubha Ghosh, *The Quandary of Quanta: Thoughts on the Supreme Court Decision One Week Later*, ANTITRUST & COMPETITION POLICY BLOG (June 17, 2008), http://lawprofessors.typepad.com/antitrustprof_blog/2008/06/the-quandry-of.html.

221. Christopher Holman, *Quanta and Its Impact on Biotechnology*, HOLMAN'S BIOTECH IP BLOG (June 11, 2008, 2:57 PM), <http://holmansbiotechipblog.blogspot.com/2008/06/quanta-and-its-impact-on-biotechnology.html>.

222. Hovenkamp, *supra* note 81, at 502-03.

223. See *Bowman v. Monsanto Co.*, 133 S. Ct. 420 (Mem.) (2012); Dennis Crouch, *Self-Replicating (And Alive) Inventions: Supreme Court Grants Certiorari in Monsanto v. Bowman*, PATENTLY-O (Oct. 5, 2012), <http://www.patentlyo.com/patent/2012/10/self-replicating-and-alive-inventions-supreme-court-grants-certiorari-in-monsanto-v-bowman.html>.

VII. POTENTIAL CONCERNS

A. Frustrating the Intent of Parties

A 1984 New York case, *Garner v. Gerrish*, dealt with a “lease-for-life.”²²⁴ Because tenancies may only be for a term of years, at will, periodic, or at sufferance,²²⁵ the court was left with a dilemma—either regard the lease as a tenancy at will or a life estate, neither of which it was, or create a new form of tenancy.²²⁶ The opinion criticized the “harsh application”²²⁷ and “antiquated notion[s]”²²⁸ of the *numerus clausus* principle. Treating the lease as a tenancy at will would “violate[] the terms of the agreement and frustrate[] the intent of the parties.”²²⁹ The court equivocated in its conclusion, characterizing the lease as a “life tenancy terminable at the will of the tenant”²³⁰—effectively a life estate—while continually characterizing the interest as a lease.²³¹

Garner v. Gerrish illustrates a real problem with *numerus clausus*—that its application can frustrate the manifest intent of agreeing parties. Merrill and Smith acknowledge that

any attempt to venture beyond the simple sales of goods and short-term leases into the arcane worlds of future interests, easements and covenants, or intellectual property requires the advice of a lawyer In this sense, the *numerus clausus* discriminates in favor of those who are well-endowed with legal resources and against those who are poorly endowed.²³²

In the context of intellectual property, the notion that “unsophisticated or poorly advised actors”²³³ may be at a disadvantage is as applicable to the current *numerus infinitus* system of shrink-wrap and click-wrap licensing. Even the “simple sale[] of goods”²³⁴—or rather licensing of software, music, and eBooks—requires agreeing to a contract that few have the time to read or capability to understand. If some fear that the *numerus clausus* is

224. *Garner v. Gerrish*, 473 N.E.2d 223, 223 (N.Y. 1984).

225. See 2 POWELL, *supra* note 8, §§ 16.03-.06, at 16-43 to 16-81; ROBERT S. SCHOSHINSKI, *AMERICAN LAW OF LANDLORD AND TENANT* §§ 2:1-26, at 30-83 (1980); 4 THOMPSON ON REAL PROPERTY § 39.02(c), at 492 (David A. Thomas ed., 1994).

226. See *Garner*, 473 N.E.2d at 224.

227. Merrill & Smith, *supra* note 1, at 22.

228. *Garner*, 473 N.E.2d at 224.

229. *Id.*

230. *Id.* at 225.

231. *Id.*

232. Merrill & Smith, *supra* note 1, at 7.

233. *Id.*

234. *Id.*

a “trap for the unwary,”²³⁵ surely the current reign of “terms of use” is equally entrapping.

Because one party—the customer—does not negotiate the content of terms of use or even know what they say, it is often inaccurate to characterize the customer’s intent as being instantiated in the terms of service or to claim that the *numerus clausus* principle would frustrate the intent of the customer. At best, we only know that the customer preferred to accede to the terms of service rather than reject the intellectual property license completely. But that does not tell us whether the customer would rather pay more for more usage rights, or pay less for fewer, nor does it reveal whether the seller would be willing to sell other packages of rights for any particular price. Simply put, we do not know whether a customer’s intent is frustrated when the only signal of his intent is acquiescence to a contract of adhesion that is too long to read and comprehend.

Beyond the case of click-wrap and shrink-wrap licenses and other contracts of adhesion, however, it is true that the imposition of a *numerus clausus* principle onto intellectual property law would create frustration costs. The important question is whether those costs are outweighed by the benefits. Depending on many factors, the answer to this question can and will change. As a result, aspects of the *numerus clausus* principle should be incorporated into the law gradually, and courts and legislatures should be sensitive to the repercussions of any changes.

B. Loss of Third-Degree Price Discrimination

One consequence of requiring copies to be alienable is that third-degree price discrimination²³⁶ among buyers of copies or patented goods becomes more difficult. For example, a digital first sale doctrine might prevent companies like Microsoft from charging different amounts to commercial and non-commercial users of its software. Purchasers of less-expensive “Home and Student Editions” of Microsoft Office would be able to sell

235. *Id.*

236. Economists differentiate among three types of price discrimination. First degree price discrimination requires a firm to “gather[] information about individual buyers and attempt[] to charge each one the most that he or she is able and willing to pay for the good or service in question.” William W. Fisher III, *When Should We Permit Differential Pricing of Information?*, 55 UCLA L. REV. 1, 4 (2007). “In second-degree price discrimination, the seller does not know how much buyers are able and willing to pay, but induces them to reveal their resources or preferences through their purchasing decisions. Among the techniques of this sort are volume discounts . . .” *Id.* Third-degree price discrimination describes a situation where “the seller does not know the purchasing power of individual buyers, but is able to separate them into groups that correspond roughly to their wealth or eagerness. Classic examples are student and senior discounts.” *Id.*

their copies to commercial entities for more than they paid, but less than commercial entities are asked to pay for business editions of office software. Some might worry that the inability to price discriminate in this manner would cause intellectual property owners to only sell copies to higher-valued users.

Depending on many factors, such as “the character of the criteria used to divide . . . groups, its transparency, and public attitudes,” a company’s ability to price discriminate is sometimes socially beneficial, and sometimes not.²³⁷ Notably, disallowing price discrimination can prevent low-value buyers from accessing works. For example, suppose there were 100 non-commercial users who would buy Microsoft Office for up to \$100, and one commercial user who would buy Microsoft Office for up to \$1,000. If non-commercial users were permitted to resell their copies to commercial users, Microsoft would profit most by selling Office for \$100 because it would earn \$100 from all 100 non-commercial users and from the one commercial user. On the other hand, if there were 20 non-commercial users and 10 commercial users, Microsoft would profit most from selling Office at \$1,000, earning a total of \$10,000 from each of the commercial buyers, even though they would be charging more than non-commercial buyers would pay.²³⁸ This second scenario would have the unfortunate effect of leaving non-commercial users unable to acquire copies of Office.

Although the second scenario will occasionally occur, those harms must be balanced against the other benefits of a first sale doctrine and the frequency that users find themselves in the first scenario instead. More importantly, however, is the observation that existing price discrimination models rest on some faulty assumptions about how resale affects the intellectual property market. Changing these assumptions suggests that a world with a first sale doctrine may improve the welfare of both intellectual property buyers and sellers.

First, it is important to note that while intellectual property holders have a monopoly on their particular works, intellectual works can and do compete with each other. Particularly in the case of software, substitute software may be available if a person cannot afford a particularly high-priced program. For example, Word, Word Perfect, and Open Office are all word processing programs. If Microsoft were to choose to market its products toward higher-paying commercial customers, another purveyor of word processing software could choose to sell to the unmet market of non-

237. *Id.* at 37. “[E]conomists since at least Arthur Cecil Pigou have concluded that third-degree price discrimination reduces welfare unless it increases total market output.” Hovenkamp, *supra* note 81, at 532 (citing ARTHUR CECIL PIGOU, *THE ECONOMICS OF WELFARE* II.14.13 (4th ed. 1932); Marius Schwartz, *Third-Degree Price Discrimination and Output: Generalizing a Welfare Result*, 80 AM. ECON. REV. 1259 (1990)).

238. In comparison, charging \$100 for copies of Microsoft Office would only yield \$6,000 from all thirty commercial and non-commercial purchasers.

commercial customers and charge them less. The choice among multiple word processing programs would also drive prices down for all customers, and a company seeking to profit by charging more to higher-value commercial customers would need to compete on additional factors, such as providing better customer service or IT support, or simply by making a better product. These phenomena indicate that even a world where one seller aimed sales at a higher-value market, lower-value customers would still have access to useful software. The allowance of public licenses particularly contributes to this, as open-source projects licensed under various public licenses have created many useable, free alternatives to proprietary word processors, photo editing programs, and media players.²³⁹

Second, although some models indicate that sellers do not benefit from first sale doctrines (and the corresponding hindrance of price discrimination due to triage), these models have a false premise. Many models describing how a market would function with and without price discrimination assume that there is a single set of potential buyers with fixed valuations for the product at issue. But in the real world, and especially with media, potential buyers are limited to those who know about a particular new book, video game, or song. As a work becomes more well-known, the potential buyers who would pay for the item become more numerous, and the seller can profit more because there are more potential buyers of the product.

There are several examples where sharing of copyrighted works drove sales of the work up. Bestselling author Neil Gaiman reported that sales of his books increased significantly in Russia after pirated versions of his novels appeared there.²⁴⁰ “People were discovering me through [my] being pirated, and then they were going out and buying the real books. And when a new book would come out in Russia, it would sell more and more copies.”²⁴¹ As an experiment, Gaiman made his novel *American Gods* available as a free download for a month, and “sales of [Gaiman’s] books through independent bookstores . . . went up the following month [by] 300%.”²⁴² Nonfiction author David Pogue similarly reported that piracy seemed to increase sales of his books.²⁴³ An iPhone application developer,

239. See, e.g., OPEN OFFICE: THE FREE AND OPEN PRODUCTIVITY SUITE, openoffice.org (last visited Feb. 11, 2013) (offering word processing, spreadsheet, database, and presentation software); GIMP: THE GNU IMAGE MANIPULATION PROGRAM, <http://www.gimp.org/> (last visited Feb. 11, 2013) (offering image editing software); VIDEOLAN: OFFICIAL PAGE FOR VLC MEDIA PLAYER, <http://www.videolan.org/vlc/> (last visited Feb. 11, 2013) (offering a media player).

240. Open Rights Group, *Gaiman on Copyright Piracy and the Web*, YOUTUBE (Feb. 3, 2010), <http://www.youtube.com/watch?v=0Qkyt1wXNII>.

241. *Id.* at 0:57.

242. *Id.* at 1:38.

243. David Pogue, *The Perils of Copy Protection*, SCI. AM., July 26, 2011, available at <http://www.scientificamerican.com/article.cfm?id=the-perils-of-copy-protection>.

Daniel Amitay, reported that massive piracy of his app also resulted in the doubling of his sales.²⁴⁴ Greater piracy can increase sales because it also increases the number of potential buyers—the number of people who know that the product exists at all.²⁴⁵

Similarly, one could expect that a vibrant, *legal* resale market for copyrighted works would also increase the number of potential buyers who might purchase a work by decreasing the work's obscurity. A greater number of potential buyers could increase a seller's revenue, even if the lack of ability to price discriminate decreases the amount a seller could earn from each buyer individually.

But perhaps the best argument against cultivating price discrimination among digital works, at the expense of implementing the *numerus clausus* principle, is demonstrated by digital works' analog or physical ancestors. The historic prohibition on servitudes in chattels—including books and record albums—demonstrates that a copyright owner need not be granted complete control of a work's use for vibrant, quality artwork to flourish. A certain amount of sharing and reselling has always been accepted—even celebrated, as we cheer on libraries and second-hand bookstores for making materials available to those without significant disposable income.

Whether the benefits of a *numerus clausus* principle outweigh the benefits of allowing sellers to price discriminate cannot be solely an empirical question. Rather, a value-judgment must be made about the importance of the different qualitative benefits of each regime. On balance, the diminished ability of sellers to price discriminate should not create hesitation to embrace aspects of the *numerus clausus* principle as applied to intellectual property.

VIII. CONCLUSION: LESSONS FOR PHYSICAL PROPERTY

Over the past few decades, intellectual property licensing agreements have become more complex. Digital works have allowed the idea of copying to merge with usage and paved the way for licenses that finely

244. Timothy Geigner, *Taking the Long View: App Developer Happy that Piracy Doubled his Sales*, TECHDIRT (Jan. 24, 2011, 12:04 PM), <http://www.techdirt.com/blog/wireless/articles/20110120/06393612743/taking-long-view-app-developer-happy-that-piracy-doubled-his-sales.shtml>.

245. Cory Doctorow, *Swiss Gov't Study: Downloading Leads to Sales, So We're Keeping It Legal*, BOINGBOING (Dec. 3, 2011, 9:39 AM), <http://boingboing.net/2011/12/03/swiss-govt-study-downloadin.html> (discussing <http://www.ejpd.admin.ch/content/ejpd/de/home/dokumentation/mi/2011/2011-11-30.html>); see also Mike Masnick, *D.C. Libraries Offering Free, DRM-Free MP3 Downloads from Sony Music*, TECHDIRT (Dec. 5, 2011, 5:38 AM) <http://www.techdirt.com/articles/20111203/01341516964/dc-libraries-offering-free-drm-free-mp3-downloads-sony-music.shtml>.

parse what buyers of intellectual property are allowed to do with their copies. The copyright term has grown to be so long that any work will likely have several owners over the copyright's life.

The length of copyright terms means we need to consider long term and future uses of works. People conveying intellectual property in the present will discount the problems they create for future users, especially because future transactions may be so far off in the future. The complexity of licensing agreements for patented and copyrighted material and the length of the copyright term suggest the measurement costs created by intellectual property licenses may outweigh frustration costs and other harms that potentially result from the introduction of a *numerus clausus* principle. As a result, courts and Congress should consider the potential value of incorporating the *numerus clausus* principle into some aspects of intellectual property law.

But even if no changes are made to intellectual property law, the effects of the absence of the *numerus clausus* principle in intellectual property teach us lessons about property law in general. Recently, a financial firm in Texas started encumbering property it developed for ninety-nine years such that each time the property changed hands, one percent of the sale price would have to be paid to the developer.²⁴⁶ The firm described this attempt to partially buck the first sale doctrine as being inspired by intellectual property law.²⁴⁷ Its brochure argues, "[O]ver time sophisticated property owners began to realize that 'unbundling' [property] rights increased economic efficiency."²⁴⁸

But the lesson from intellectual property law is quite the opposite. Too much unbundling can dramatically decrease economic efficiency by raising transaction costs and frustrating an owner's ability to alienate property. It is not property law that should take lessons from intellectual property law, but the reverse.

246. Jennifer Hiller, *99 years of fees may mean windfall for home developers: Developers aim to attach transfer fees to homes*, HOUSTON CHRONICLE, Mar. 31, 2010, available at <http://www.chron.com/homes/article/99-years-of-fees-may-mean-windfall-for-home-1704441.php?243254>.

247. "Just like authors who write books and musicians who write songs that will be enjoyed for generations to come, those who improve property are also engaged in the creative process, and the economics of the transaction should reflect that reality[.]" *Id.* (internal quotations omitted); see also Mike Masnick, *Developers Trying to Treat Houses Like Copyright, Want a Cut of Every Future Resale*, TECHDIRT (Apr. 1, 2010, 9:33 AM), <http://www.techdirt.com/articles/20100331/1630468818.shtml>.

248. *Freehold Brochure* 7, FREEHOLD CAPITAL PARTNERS, http://freeholdcapitalpartners.com/forms/freehold_brochure.pdf.