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# The Several Lives of Mickey Mouse: The Expanding Boundaries of Intellectual Property Law

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Ben Depoorter Olin Research Fellow Center for Law, Economics and Public Policy Yale Law School Tel. 203–415-2039 Email: ben.depoorter@yale.edu

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<sup>¥</sup> Olin Research Fellow in Law, Economics, and Public Policy, Yale Law School, LL.M, 2003, Yale Law School; Ph.d., 2003, Ghent University; 2001, M.A., Hamburg University; 1999, J.D., Ghent University. For comments and discussion I express my gratitude to Joseph Bromley, Guido Calabresi, Tyler Cowen, Jef Demot, Fernando Gomez, Wendy Gordon, Henry Hansmann, Dennis Khong, Mark Lemley, Stan Liebowitz, Francesco Parisi, Susan Rose-Ackerman, Katie Sutton, Alec Stone Sweet, Sven Vanneste, and Richard Watts. In particular I would also like to thank Guiseppe Dari Mattiaci, Robert Schuwerk and Henry Smith. I benefited significantly from their comments on this work. I also thank my colleagues at the Department of Legal Theory and History of Law at Ghent University and at the Centre for Advanced Studies in Law and Economics. Several of the ideas in this paper have been presented at conferences including: the Annual Conference of the European Association of Law and Economics at Ghent University, the SERCIAC Conference on the Economics of Copyright Law in Madrid, and the Graduate Workshop at Yale Law School. I would like to extend my gratitude to the participants of those conferences. During my research on this topic I benefited from the hospitality of the Yale School Law and Boalt Hall at the University of California at Berkeley. I also acknowledge the financial support of the Belgian American Educational Foundation, the Special Research Fund of the Ghent University, School of Law and the Olin Center for Law, Economics, and Public Policy at Yale Law School.

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# I. INTRODUCTION

With the Supreme Court decision *Eldred v. Ashcroft* the issue of the expanding boundaries of intellectual property law emerges once again as a topic of wide debate. In *Eldred* a 7-2

majority of the Supreme Court upheld the constitutional validity of the Copyright Term Extension Act (CTEA), also known as the "Sonny Bono Act"<sup>1</sup> or "Mickey Mouse" Act.<sup>2</sup> Brushing aside free speech issues<sup>3</sup> the Court noted that demographic and technological reasons, as well as the importance of harmonization with European copyright laws, provide a rational basis for adding 20 years to the copyright life of authored works. *Eldred* illustrates the overarching trend that has occurred over the past few decades: an expansive assignment of rights in previously unregulated intellectual property material.

Economic analysis, with its concern for efficiency, has long provided the overarching rationale for monopoly rights as a foundation of intellectual property systems: the investments of authors and investors require legal protection because work of intellectual property is so easily reproduced.<sup>4</sup> Yet, economic analysis itself yields fundamental criticism on the expanding path of

<sup>&</sup>lt;sup>1</sup> The Act was dedicated to the memory of pop singer and Republican Congressman Sonny Bono who died in a skiiing accident at Lake Tahoe. The author of "I got you babe" was a firm supporter of perpetual copyright laws. Congress increased the term of copyright protection by twenty years, and honored Sonny Bono by naming this legislation after him. However, "they also rejected many of the amendments he had offered, establishing that there are limits on the type of sentimentality they are willing to engage in." Jane C. Ginsburg et al., Symposium: *The Constitutionality of Copyright Term Extension: How Long is too Long?*, 18 CARDOZO ARTS & ENT LJ 651, 651 (2000).

<sup>&</sup>lt;sup>2</sup> The Act is informally also referred to as the "Mickey Mouse Act" because of the involvement of the Walt Disney company. For Disney the CTEA extension was timely as it prevented its the first "Mickey Mouse" cartoons, such as "Steamboat Willy," from entering the public domain. The Disney Company and the Hollywood film industry lobbied hard to clear the CTEA through Congress. Disney handed contributions to eight of the Senate bill's 12 sponsors and to 10 of the of the House's bill 13 sponsors. The National Republican Senatorial Committee received \$20,000 in unrestricted "soft money" following a visit of Disney Chairman Michael Esner to Senate Majority Leader Trent Lott. See Daren Fonda, Copyright Crusader, THE BOSTON GLOBE, August 29, 1999. Available at <<http://www.boston.com/globe/magazine/8-29/featurestory1.shtml>>. Helped in part by Europe's recent harmonization to the term of life plus 70 years, and the commotion surrounding the Starr report, the Act passed relatively unnoticed through Congress. However, popular backlash would follow shortly. See, e.g. Ian McPherson, Copyright Becomes A Tool of The Cartels, NETNACS. Available at <<http://www.netnacs.com/ downunder/archive/du-0016.htm>>: John Naughton, Mickey Mouse Threatens to Block all Ideas in Future, THE OBSERVER, February 24, 2002. Available at << http://www.observer.co.uk/business/story/0,6903,655907,00.html>>. <sup>3</sup> The majority opinion of the Supreme Court held that when Congress has not altered the traditional contours of copyright protection, further First Amendment scrutiny is unnecessary. For a critical review of the first amendment issues in Eldred, see the weblog of Yale law school professor Jack Balkin: Mickey in Chains, Part II, or Why the It Wrong Eldred Ashcroft. Available Court Got in v. at <<htp://balkin.blogspot.com/2003\_01\_12\_balkin\_archive.html#87500874>>. According to Balkin, the expansion of intellectual property laws (horizontal: derivative rights, contraction of fair use,etc) has shrunk the built-in first amendment protections, creating the need for heightened scrutiny, also on a vertical level (duration). Balkin concludes that "[i]n the Courts eagerness to get rid of the first amendment claims in this case, it has created truly bad law that will cause problems for freedom of expression for many years to come. This is simply a disastrous opinion for free speech, and the Court should be ashamed of the should job its done in this case." See, also, Symposium, Eldred v. Ashcroft: Intellectual Property, Congressional Power, and the Constitution, 37 LOYOLA L.A. L. REV. 1 (2002). See, generally on copyright and First Amendment issues, e.g., Edwin C. Baker, First Amendment Limits on Copyright, 55 VAND. L. REV. 891 (2002); Yochai Benkler, Free as The Air To Common Use: First Amendment Constraints on Enclosure of The Public Domain, 74 N.Y.U. L. Rev. 354 (1999); Marci A. Hamilton, Copyright at the Supreme Court, 47 J. COP. SOC'Y. 317 (2000); Mark A. Lemley and Eugene Volokh, Freedom of Speech and Injunctions in Intellectual Property Cases, 48 DUKE L.J. 147 Neil W. Netanel, Locating Copyright in the First Amendment Skein, 54 STAN. L. Rev. 1 (2002); Jed Rubenfeld, The Freedom of Imagination: Copyright's Constitutionality, 112 YALE L.J. 1 (2002). On the future of constitutional law and copyright, see Pamela Samuelson, The Constitutional Law of Intellectual Property After Eldred v. Ashcroft, 50 J. COP. SOC'Y. (2003, forthcoming). <sup>4</sup> See William M. Landes and Richard A. Posner, An Economic Analysis of Copyright Law, 18 J. LEG STUD. 325

property rights protection that intellectual property law has taken of late.<sup>5</sup> In documenting the social, economic and political processes that underlie legal change in intellectual property, this Article illustrates the fundamental nexus between technological progress and intellectual property. In doing so, I set out three basic claims on the process of legal change in intellectual property.

First, rather than simply resulting from interest group pressure and rent-seeking, the emergence of intellectual property rights is best described as a response to increasing economic value and diminishing transaction costs, resulting from synergies between new technologies and intellectual content. Second, the uncertainty as to the usefulness of technology in protecting or copying content leads to increased efforts of legislative and judicial capture by both content providers and consumers. The resulting social mechanism predicts a cyclical back and forth of the legal allocation of use rights between producers and users. Third, as a matter of allocative efficiency, there exists considerable friction between the 'multi-component' or complementary nature of works and the continued extension of property right-protection to increasingly smaller units of intellectual and scientific creation. Economic theory reveals the problematic societal consequences that may develop in the wake of unbounded fragmentation of property rights.

This paper links the property rights-evolution in the realm of intellectual or information goods to the synergy between technological advancements and intellectual property. The expansion of intellectual property law is one of higher property activity, situated mainly in terms of more "precision" in the allocation of the various novel uses of intellectual goods. Rather than simply entailing a one-way distribution of rights to producers as an interest group, the evolution of intellectual property rights can be identified as a progression towards a more explicit assignment of rights in previously unregulated material. Overall, users and consumers have been granted more limited but also more explicitly specified rights of use and defense with regard to intellectual resources. Albeit determinstic, my rationalization of the process of intellectual property law formation is not optimistic in nature. As a matter of allocative efficiency, this Article provides a cautionary note with regard to the degree of fragmentation resulting from the ongoing creation of property rights specifications in intellectual property.

<sup>(1989).</sup> 

See, for example, Richard Posner's criticism on the expansion of intellectual property law: "These rights keep expanding without any solid information about why they're socially beneficial". See, Declan McCullagh, Left Gets Nod from Right on Copyright Law, CNET NEWS.COM, Nov. 20, 2002. The CTEA's extention of copyright duration to existing copyrighted work is one such focal point of the economists's skeptisism. Because one "cannot give extra incentives to a corpse", economic reasoning falls short in providing a rationale for this aspect of the CTEA. In the words of Lessig: "Gershwin isn't going to write more music". Steven Levy, Lawrence Lessig's Supreme Showdown, 10.10 Wired Magazine (2002) (online at <<htp://www.wired.com/wired/archive/10.10/lessig pr.html>>). Similarly, with regard to future works the extra incentive created by the CTEA are negligible. At an interest rate of rate 6% the present value of every dollar in extra royalties in those 20 years is \$0,0045. See Amicus Brief No. 01-618 in support of petitioners, at p6. The Brief is composed by seventeen prominent economists, of which five received the Nobel Memorial Prize in Economic Science. The Brief also refers to the concept of anticommons fragmentation (p. 13). This issue is addressed further in Section IV of this Article. For a list of the various amici in Eldred see Openlaw: Eldred v. Ashcroft at << http://cyber.law.harvard.edu/eldredvreno/legal.html>. Moreover, the CTEA has salient distributional and political economy effects. The life cycles of authored work are of such nature that of all works created 70 years ago 2% of those works account for all revenue of incoming royalties. If the CTEA duration of protection was in force at the time of the creation of the Santa Clause figure, every department store would today still pay royalties come Christmas time. A website has recently listed all renewals of classic 1923 books See that are now kept out of the public domain by the CTEA. <<http://www.kingkong.demon.co.uk/ccer/ccer.htm>>.

Part II discusses the gradual expansion of intellectual property over time. It is held that the increased role of property right allocation in society's conception of intellectual goods responds to changing underlying structural conditions. It is demonstrated how the impact of digital technology on intellectual property rights fits the textbook example of the emergence of "property rights" in the presence of increasing economic value and diminishing transaction costs. Part II concludes with a description of the social mechanism by which change in intellectual property law takes shape. Part III explores the possible societal ramifications of the proliferation of intellectual property rights in relation to the economic concept of property fragmentation. This part underscores the friction between the 'multi-component' or complementary nature of works and the continued extension of property right-protection to increasingly smaller units of intellectual and scientific creation. I explore fragmentation and complementarity (and the presence of institutional safeguards) with regard to the three main intellectual property rights: copyrights, patents and trademarks. The analysis is extended to a number of current issues in the field of intellectual property, where property right protection has been established into areas that were previously considered to be beyond the confines of intellectual property law. This Article demonstrates that, as a matter of allocative efficiency, the economic model of fragmentation is crucial to many of the contemporary issues of intellectual property law. These contemporary issues include the emergence of patents on genetic information, the validity of business patents, the scope of antitrust law for the regulation of the practices of copyright associations, the justification of copyright defense doctrines, the case for unrestricted automated rights management systems, and several other current issues in the intellectual property policy debate.

#### II. THE PROLIFERATION OF INTELLECTUAL PROPERTY RIGHTS

#### A. Introduction

If one was pressed to describe the history of intellectual property law<sup>6</sup> in one word, it would not be hard to do. The word that comes to mind is "expansion".<sup>7</sup> Statutory and adjudicatory law-

<sup>&</sup>lt;sup>6</sup> In this Chapter intellectual property is defined as "nonphysical property which stems from, is identified as, and whose value is based upon some idea or ideas. Furthermore, there must be some additional element of novelty." Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287, 294 (1988).

<sup>&</sup>lt;sup>7</sup> See Paris Convention for the Protection of Industrial Property, Mar. 20, 1883, revised at Stockholm on July 14, 1967, 21 U.S.T. 1583, 828 U.N.T.S. 305; Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, as last revised at Paris, July 24, 1971, 828 U.N.T.S. 221. The international intellectual property system was recently strengthened and broadened by the Uruguay Round of multilateral trade negotiations whose intellectual property component, the "TRIPS" agreement, builds on the Paris and Berne Conventions. See Final Act Embodying the Results of the Uruguay Round of the Multilateral Negotiations, Marrakesh Agreement Establishing the World Trade Organization, signed at Marrakesh, Morocco, Apr. 15, 1994, Annex 1C, Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPS Agreement"), in Results of the Uruguay Round 6-19, 365-403 (GATT Secretariat ed., 1994). See, generally, S. Ricketson, THE BERNE CONVENTION FOR THE PROTECTION OF LITERARY AND ARTISTIC WORKS: 1886 TO 1989 (1987); FICSOR MIHLY, THE LAW OF COPYRIGHT AND THE INTERNET: THE 1996 WIPO TREATIES, THEIR INTERPRETATION AND IMPLEMENTATION (2002). On an international level provisions of "national treatment" (identical rights to nationals of another Member State are as granted to one's own nationals) and "most-favored-nation treatment" (privileges granted by one Member State to another State must be granted to all other WTO Member States) have added to the expansion of intellectual property right. See, respectively, Articles 3 and 4 TRIPS Agreement. In the European Union the harmonization of national member state laws, as a matter of procedure, has added to the strengthening of intellectual property rights in Europe. As Justice

making initiatives have steadily resulted in the creation of new intellectual property rights and the extension of existing doctrines of intellectual property right to subject matter previously outside of the grab of intellectual property law.<sup>8</sup>

In the words of a leading commentator of intellectual property law: "There is currently a strong trend to "propertize" everything in the realm of information. Intellectual property law is expanding on an almost daily basis as new rights are created or existing rights are applied to give intellectual property right owners rights that they never would have had in an earlier time."<sup>9</sup>

This trend stretches across the entire domain of intellectual property rights, adjusting the boundaries of copyright law,<sup>10</sup> patent law,<sup>11</sup> trademark law<sup>12</sup>, the enactment of "sui generis" or special purpose intellectual property laws, including the protection of semiconductor chips,<sup>13</sup> of gathered information in the form of databases,<sup>14</sup> industrial designs,<sup>15</sup> and plant varieties. Such

<sup>8</sup> See EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY: INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY (Cooper Dreyfuss, Rochelle et al. eds., 2001). With regard to patents the expansion has opened entirely "new landscapes to the possibility of patents." The patentability of software and business methods has made the "impossible" possible, according to Merges. See Robert P. Merges, As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform, 14 BERKELEY TECH. L. J. 577, 578, 581 (1999).

<sup>10</sup> See, *infra*, following paragraph.

<sup>11</sup> See, further in this Section.

 $^{12}$  See, further in this Section.

<sup>14</sup> Although *Feist* limits copyright protection in factual compilations (Feist Pubs., Inc. V. Rural Tel. Serv. Co., 499 U.S. 340, 363-64 (1991), the developments thereafter have awarded stronger protection to database works. *See* J.H. Reichman& P. Samuelson, *Intellectual Property Rights in Data?*, 50 VAND. L. REV. 51 (1997); Merges, 1874-1875 and notes 52-54 (citing Bloomberg's attempts in fending off attempts of database owners to receive stronger intellectual property on stock and commodity pricing); Shawn Zeller, *From the K Street Corridor: Raw Data*, 30 NAT'L J. 3028 (1998). *See* Article 10 *TRIPS Agreement*. Databases are protected "by reason of the selection or arrangement of their contents." A similar trend emerges in countries of the European Union. *See European Directive on Database Protection*, Directive 96/9/EC of the European Parliament and of the Council of 11March 1996 on the legal protection of databases (*O.J.* No L 77 of 27.3.1996, p. 20.) The format, ordering and presentment of a database

Lenaerts explained, the European Commission's harmonizing "up" (extension of protection) rather than "down" is a natural result of the legislative process: "It is much easier to harmonize intellectual property rights up than down. No one minds being given more rights than they had before, whereas people are apt to complain very seriously- raising cries of destruction of property without compensation - if their rights are cut down." Justice R. Jacob, *Intellectual Property - Industry's Enemy*, 5 EUROPEAN INTELLECTUAL PROPERTY REVIEW 253 (1996) (cited in GUY TRITTON, INTELLECTUAL PROPERTY IN EUROPE, p. 325, at note 68 (2002)). More on theories of legal change in Sections \_\_\_\_\_. Generally, on the international political process of copyright treaty-making, *see* M.M. BOGUSLAVSKII, COPYRIGHT IN INTERNATIONAL RELATIONS: INTERNATIONAL PROTECTION OF LITERARY AND SCIENTIFIC WORKS (1979).

<sup>&</sup>lt;sup>9</sup> Lemley, *Romantic Authorship*, 898-99. Lemley illustrates the expansion frenzy in reference to the National Basketball Association's copyright claims in the scores of its games, copyright claims in architecture of homes, and trademark infringement claims of property owners against postcards of city skylines. *See* also, *e.g.*, Robert P. Merges & Glenn Harlan Reynolds, *The Proper Scope of the Copyright and Patent Power*, 37 HARV. J. ON LEGIS. 45 (2000): "As an increasing amount of society's wealth is tied up in intangible assets, strong, clear property rights can make a good deal of sense. But it is also possible to have too much of a good thing, and our society is in danger of reaching that point." (at p.45) (The authors hold that there are internal, teleological limits on the power of Congress to create and extend intellectual property). With regard to copyrights, Elkin-Korin notes "if copyright law had once created islands of information, which are subject to the sovereign control of copyright owners, these islands are now turning into a continent leaving little available space in between." Niva Elkin-Korin, *It's All About Control: Rethinking Copyright in the New Information Landscape*, 79, p. 84 in THE COMMODIFICATION OF INFORMATION (Niva Elkin-Korin & Neil Weinstock Netanel, eds., 2002).

<sup>&</sup>lt;sup>13</sup> Semiconductor chips were recently awarded protection in the United States under the *Semiconductor Chip Protection Act of 1984*, 17 *U.S.C.* §§ 901-912. (Supp. IV 1986).

expansion implicates all but the most basic tenets of society: news, information, scientific data,<sup>16</sup> entertainment, technology and so forth.

#### 1. Copyright Law: Creators and Artists at the Wheel

Over the past two-hundred years of copyright history numerous statutory<sup>17</sup> and adjudicatory adjustments, have, almost without exception, resulted in an expansion of the legal protection of authorship.

Copyright<sup>18</sup> law duration has expanded from a renewable fourteen-year term to life of the author plus seventy years after death.<sup>19</sup> The limit of what is defined as copyrightable content is continually being readjusted through moderations of the threshold of originality,<sup>20</sup> and of other authorship requirements.<sup>21</sup> Copyright now protects sound recordings as distinct from the underlying musical compositions.<sup>22</sup> The control rights of copyright owners over the use of their

<sup>16</sup> In observing the increased erosion of the public domain, Robert Merges writes of "creeping propertization" in the pure sciences, *see* Robert P. Merges, *Property Rights Theory and the Commons: The Case of Scientific Research*, Summer 1996 SOC. PHIL. & POL. 145 (1996). *See also* ROBERT P. MERGES, ET AL., INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE (1997) [Hereinafter NEW TECHNOLOGICAL AGE].

<sup>18</sup> Copyright law covers a diverse subject-matter: novels, plays, symphonies, paintings, computer programs, sound recordings, film, live performances, broadcastings, cable transmissions, etc. In this work we refer to all of these, non-invention creations as "authored works" or "copyrighted material".

<sup>19</sup> In the United States the *Copyright Act of 1976*, Pub. L. No. 94-553, 302, 90 STAT. 2541, 2572 (codified at 17 U.S.C. 302 (1994) substituted the renewable fourteen-year term (*Act for the Encouragement of Learning*, 1709, 8 Anne, Ch. 21 (Eng.)) for the broader "life of the author plus 50 years" rule. The *Sony Bono Copyright Term Expansion Act* harmonized the copyright term to the European Union standard of 70 years after death of the author. *Sonny Bono Copyright Term Extension Act* of 1997, H.R. 604, 105<sup>th</sup> Cong. 2 (1997), *Sony Bono Copyright Term Expansion Act*, 17 U.S.C. § 302 (2000). *Compare, e.g., Council Directive* 93/98/EEC of 29 October 1993 harmonizing the term of protection of copyright and certain related rights *O.J.* L 290, 24/11/1993. Implemented in national legislation of EU member States, *see, e.g.,* Article §2, 1, *Belgian Act on Copyright Law and Related Rights*, 30th of June 1994 (*B.S.*, 27 July 1994).

<sup>20</sup> On the development of a lower standard of originality, *see* Ryan Littrell, *Toward a Stricter Originality Standard for Copyright Law*, 41 *B.C. L. Rev.* 193, 196-205 (2001) (discussing the relevant case law). Littrell links the lowered standards of copyright protection to the rise of a romantic conception of authorship. On the romantic conception of ownership *see*, *infra*, Section \_\_\_\_\_. However, a more romantic conception of authorship could also suggest that standards of originality would be stricter. Before creativity is awarded the esteemed status of "authorship" it must be of a nature that sets it apart from the rest of society's productive activities. *See* Peter Jaszi (1991), *Toward a Theory of Copyright: The Metamorphoses of "Authorship*", 1991 DUKE L. J. 455.

<sup>21</sup> On the erosion of the formal standards for copyright, see NEW TECHNOLOGICAL AGE, 345-51.

are covered by copyright law. The content of the database is not covered by copyright law, but might receive sui generis protection (Belgian Cass. 11 mei 2001). However, introductory summaries of case law in legal databases are protected by copyright law. (Vrz. Rb. Brussel, 28 juli 2000). *See generally*, Law of 31th of August 1998, implementation of the European Directive of March 11, 1996 on the Legal Protection of Databases (*B.S.*, 14 November 1998).

<sup>&</sup>lt;sup>15</sup> This applies uniquely to the United States. *See* Rochelle Cooper Dreyfuss, *Information Products: A Challenge to Intellectual Property Theory*, 20 N.Y.U. J. INT'L. & POL. 879 (1988).

<sup>&</sup>lt;sup>17</sup> For an overview, *see* Jessica Litman, *Copyright Legislation and Technological Change*, 68 OR. L. REV. 275 (1989).

<sup>&</sup>lt;sup>22</sup> In the United States, *see* the *Copyright Act* of 1976, 17 *U.S.C.* 302 (1994). The *Rome* and *Phonograms* conventions originally extended copyright to performers, producers of phonograms and broadcasters. At the time, the main concern was with protection of performers against "bootlegging" activities: the fixation and broadcasting of performances without consent, as well as the reproduction of such fixations. *See*, also *WIPO Performances and* 

work have been bolstered, such as in the evolution of performance rights in copyrighted work,<sup>23</sup> and the global convergence towards inalienable moral rights in copyrighted work.<sup>24</sup> The sphere of copyright law has expanded with each wave of technological advancement.<sup>25</sup> The most recent example is the applicability of copyright law to the digital renditions of intellectual content, and the novel means of communicating that information, as implemented by the *Digital Millennium Copyright Act* and the *European Union Information Society Directive*.<sup>26</sup> The prohibition of circumvention technology<sup>27</sup> and the judicial validation of shrinkwrap contracts can be viewed in

*Phonograms Treaty* (WPPT): Article 5 which extends the moral rights of attribution and integrity to performers of live "aural" performances and phonogram recordings. *See* also Article 6 WPPT which bolsters the economic rights of performers, defining them as "exclusive rights of authorizing."

<sup>23</sup> Lemley, *Romantic Authorship*, 887, with reference to Copyright Act of 1976, Pub. L. No. 94-553, 106, 90 Stat. 2541 (codified at 17 *U.S.C. 106(2)* (1994)). With regard to public performance of sound recordings through digital means *see*, *Digital Performance Right in Sound Recordings Act of 1995*, Pub. L. 104-39, 2, 109 Stat. 336. The *Digital Performance Right in Sound Recordings Act* of 1995 establishes an exclusive right to perform sound recordings publicly by means of a digital audio transmission, and introduces a royalty right for digital performances, downloading, uploading and streaming of digital transmissions. See 17 U.S.C. §114.

<sup>24</sup> For an in-depth comparative discussion of this trend, *see* Neil Netanel, *Alienability Restrictions and the Enhancement of Author Autonomy in United States and Continental Copyright Law*, 12 CARDOZO ARTS AND ENT. L.J. 1 (1994) (notes 7-10 refer to adjudicatory innovations in the recognition of moral rights in copyrighted work). For an economic explanation of moral rights, *see* Henry Hansmann & Marina Santilli, *Authors' and Artists' Moral Rights: A Comparative Legal and Economic Analysis*, 26 J. LEGAL STUD. 95 (1997). Moral rights in Europe include, for example, *Belgian Act on Copyright Law and Related Rights*, 30th of June 1994 (*B.S.*, 27 July 1994). Article §1, 2 prescribes non-alienable moral rights of attribution, public divulgement, and non-modification.

<sup>25</sup> For an overview, *see*, *e.g.*, Maureen Ryan, *Cyberspace as Public Space: A Public Trust Paradigm for Copyright in a Digital World*, 79 OR. L. REV. 647, 719 (2000): "recent trends in copyright policy as applied to the digital environment have resulted in a trend toward an unwarranted privatization of cyberspace and the information that flows through it." For a discussion of legislative s concerns with intellectual property protection in the digital era, *see* European Commission, *Green Paper on Copyright and the Challenge of Technology*, C.O.M. (88) 172.

<sup>26</sup> The NII White Paper, developed under the Clinton Administration, is a prime example of this trend. See The Working Group on Intellectual Property Rights, Information Infrastructure Task Force, Intellectual Property and the National Information Infrastructure: The Report of the Working Group on Intellectual Property Rights 2. See likewise in Europe where the European Union Information Society Directive (Directive 2001/29/EC of the European Parliament and of the Council of 22May 2001 on the harmonization of certain aspects of copyright and related rights in the information society, O.J. L 167, 22/06/2001 P. 0010 - 00192001/29/EG). The Information Society Directive harmonizes European copyright laws in the world of digital network and e-commerce. The directive extends the rights of copyright holders to digital communication. See Article 3.1: "Member States shall provide authors with the exclusive right to authorize or prohibit any communication to the public of their works, by wire or wireless means, including the making available to the public of their works in such a way that members of the public may access them from a place and at a time individually chosen by them." The European Union Information Society Directive (Dir. 2001/29/EC, [2001] O.L. 167) introduces a new "production right". See Article 2,: "the exclusive right to authorize or prohibit, direct or indirect, temporary or permanent reproduction by any means or in any form, in whole or in part." This right of production intends to cover all types of electronic and transient copying, especially on-line and digital acts of reproduction and dissemination. This new production right is not limited by a "substantiality" threshold - such as in the Database Directive (At 7(1) Database Directive) where a minimum amount of information must be copied before the right of the database owner is infringed. The Information Society Directive also bolsters the right of authors who have explicit right to authorize or prohibit the communication to the public of "any" communication to the public of their works, by wire or wireless means (Article 3). This "making available" right is another step in the direction of enclosure of new technological uses of content.

<sup>27</sup> The *Digital Millenium Copyright Act* creates a new species of copyright protection, also called "paracopyright", that prohibits not copying itself but the creation of various devices and technologies that might be used to facilitate

light of this.<sup>28</sup> The curtailment of the doctrine of fair use in the presence of on-line licensing

copying by circumventing copyright management devices. In doing so the Digital Millennium Copyright Act introduces a considerable extension of copyright protection by rendering illegitimate the technological tools that might act to circumvent copy protection (§ 1201), while also acknowledging the legitimacy of technical protection schemes (§ 1202). See Digital Millennium Copyright Act, 17 U.S.C. § 1201 (2000). In effect, these "anticircumvention" provisions of the Digital Millennium Copyright Act change the terms of the traditional "arms" race between copy protection and circumvention. "Once adopted by a right holder, these technological self-help means are no longer vulnerable to circumventing technologies because these technologies are now prohibited by law." Niva Elkin-Korin, It's All About Control: Rethinking Copyright in the New Information Landscape, 79, p. 84 in THE COMMODIFICATION OF INFORMATION (Niva Elkin-Korin & Neil Weinstock Netanel, eds., 2002). A similar restriction on circumvention technology is introduced in the European Union by Article 6 of the Information Society Directive (Dir. 2001/29/EC, [2001] O.L. 16.) See also World Intellectual Property Organization, (WIPO), Copyright Treaty (WCT) ordering contracting states to take measures against the circumvention of "effective technological measures" that restrict unauthorized acts in relation to protected works and against unauthorized removal of "electronic rights management information". See Articles 11 and 12 WCT. These prohibitions on circumvention are not absolute. In the American context, see Jane C. Ginsburg, How Copyright Got a Bad Name for Itself, 26 COLUM. J.L. & ARTS 61 (2002) (the DMCA contains institutional safeguards that allow Courts to interpret the legislation so as to prevent overreaching). In the European Union Article 6(4) of the Information Society Directive mandates that the fair uses listed in the Directive (Article 5(2) a, 52(c)-(e), 5(3) (a)-(b) and 5(3)(e) should remain intact so that the beneficiary of the defense retains access to the material protected by automated rights management devices. The problem with such a detailed rule is that it provides no protection to defenses that are not mentioned in Article 6(4). See Guy Tritton, Intellectual Property in Europe 371 (2002).

<sup>28</sup> In *ProCD* it was first held in the United States that shrinkwrap licenses, which allegedly contract for restrictions on the "re-use" of copyrighted information, are enforceable. See ProCD, 86 F. 3d. 1447 (7th Cir. 1996). For a comprehensive review of the debate surrounding ProCD and the larger issues at stake in shrinkwrap contracts, see Michael Madison, Legal-Ware: Contract and Copyright in the Digital Age, 67 FORDHAM L. REV. 1025 (1998). According to Madison, ProCD goes beyond the enablement of "intellectual property owners to use contract norms to create private property rights that exceed the public rights provided by the Copyright act", it also "shap[es] our conventional understandings regarding copyright and information rights." Id. at 1030-31. For literature favorable to property and freedom of contract in the digital context, see, e.g. Tom W. Bell, Fair Use vs. Fared Use: The Impact of Automated Rights Management on Copyright's Fair Use Doctrine, 76 N.C. L. REV. 557 (1998); Charles Clark, The Publisher in the Digital World, in INTELLECTUAL PROPERTY RIGHTS AND NEW TECHNOLOGIES: PROCEEDINGS OF THE KNOWRIGHT '95 CONFERENCE (Klaus Brunnstein & Peter Paul Sint, eds., 1995); Hardy I. Trotter, Property (and Copyright) in Cyberspace, 1996 U. CHI. LEGAL F. 217 (1997); Robert P. Merges, Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations, 84 CAL. L. REV. 1293 (1996); Robert P. Merges, The End of Friction? Property Rights and Contract in the "Newtonian" World of On-Line Commerce, 12 BERKELEY TECH. L.J. 115 (1997); Maureen A. O'Rourke, Copyright Preemption After the ProCD Case: A Market-Based Approach, 12 BERKELEY TECH. L.J. 53 (1997); Maureen A. O'Rourke, Drawing the Boundary Between Copyright and Contract: Copyright Preemption of Software License Terms, 45 DUKE L.J. 479 (1995); William W. Fisher III, Property and Contract on the Internet, 73 CHI.-KENT L. REV. 1203 (1998) (arguing for an enabling treatment that is sensitive to the public interest). For a critique, see, e.g., Julie E. Cohen, Lochner in Cyberspace: The New Economic Orthodoxy of "Rights Management", 97 Mich. L. Rev. 462 (1998) (the current approach of private contracting reflects an outdated, overly narrow view of economic regulation by government); Dennis S. Karjala, Federal Preemption of Shrinkwrap and On-Line Licenses, 22 DAYTON L. REV. 511 (1997) (with its uniformity such licenses are equivalent to private legislation); Julie E. Cohen, Copyright and the Jurisprudence of Self-Help, 13 BERKELEY TECH. L. J. 1089 (1998) (validates electronic private ordering but holds that Article 2B U.C.C. "shifts the burden of initiating litigation to the licensee, who in many cases will be poorly equipped to bear it" and should be invalidated via principles of preemption and freedom of speech). For a critique on the latter, see David. E. Friedman, In Defense of Private Orderings: A Comment on "Julie Cohen's Copyright and the Jurisprudence of Self-Help", 13 BERKELEY TECH. L. J. 1152 (1998) (freedom of contract and the technologies of digital monitoring and self-enforcement allow producers to better create legally adequate contracts in a mass market context.).

initiatives<sup>29</sup> and automated rights management<sup>30</sup> further illustrates the expansion of copyright law into the digital realm.<sup>31</sup>

# 2. Patent Law: Inventors as Entrepreneurs

The evolution of patent law is characterized by a similar shift towards increased "propertization". The range of the patent system has expanded exponentially over the past fifty years.<sup>32</sup> Patents are being issued for subject matter previously considered beyond the confines of patentability. Software patents,<sup>33</sup> genetic information,<sup>34</sup> and the protection of business methods are apposite examples.<sup>35</sup> At the same time, new forms of patent rights are being developed, such

<sup>31</sup> This issue will be treated in detail below, in \_\_\_.

<sup>34</sup> See also below, Section \_\_\_\_\_.

<sup>&</sup>lt;sup>29</sup> See, infra, Section 2.4.

<sup>&</sup>lt;sup>30</sup> See Niva Elkin-Koren, Copyrights in Cyberspace - Rights without Laws?, 73 Chi.-Kent. L. Rev. 1155 (1998). The author argues that on-line technology allows copyright holders to create new exclusive rights in information goods. According to Elkin-Koren, this process of eroding the public domain should be subject to scrutiny because many of the presumptions in favor of private ordering, the assumptions of economic efficiency and political legitimacy, are misguided. For a similar scepticism towards unrestricted private control of Internet content, see Lawrence Lessig, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD (2001)(increased private control endangers the innovation commons of cyberspace); SIVA VAIDHYANATHAN, COPYRIGHTS AND COPYWRONGS: THE RISE OF INTELLECTUAL PROPERTY AND HOW IT THREATENS CREATIVITY (2001) [hereinafter VAIDHYANATHAN] (copyright stifles creativity, policy concerns trump any property rights-based claims). But see James B. Speta, Book Review: A Vision of Internet Openness by Government Fiat the Future of Ideas: the Fate of the Commons in a Connected World by Lawrence Lessig, 96 NW. U. L. REV. 1553 (2001) (benefits of coordination by enhanced private control might lead to an overall increase of social wealth); Kenneth W. Dam, Self-Help in the Digital Jungle, 28 J. LEGAL STUD. 393 (1999) (self-help systems, even with regard to non-copyrighted material, will empower technology and contract and, with the emergence of efficient standards, promote the wide availability of content, while reducing transaction and search costs); Michael A. Einhorn, Digital Rights Management, Licensing and Privacy, WORKING PAPER (2002) (available at <<htp://papers.ssrn.com/sol3/papers.cfm?abstract\_id=332720>>) (with its flexibility and sophistication, allowing the licensing market to evolve is preferable to comprehensive approaches to a dynamic framework such as the Internet).

<sup>&</sup>lt;sup>32</sup> For an illustration of trends in patent law litigation at the end of the century, revealing the increased scope of the patent system, *see*, *e.g.*, Mark A. Lemley, *Recent Developments in Patent Law*, 6 TEX. INTELL. PROP. L.J. 103 (1997). Member States of the European Union have rationalized their patent application system in the Patent Co-Operation Treaty (PCT Treaty, amended in 1979, modified in 1984). Within the contracting States the degree of protection and enforcement of European patents varies. Courts look at its national patent jurisprudence, decisions of the European Patent Office, and case law in other contracting states. Germany is considered to allow for the broadest claims. *See* R. Adams, *Choice of Forum in Patent Disputes*, 12 EUROPEAN INTELLECTUAL PROPERTY REVIEW 497 (1995).

<sup>&</sup>lt;sup>33</sup> On the statutory treatment of software patents in the United States, *see* DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 754-764, 864-893 (2002). For a critique of software patents and their limited effect on innovation, *see* Lawrence Lessig, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD (2001).

<sup>&</sup>lt;sup>35</sup> State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F. 3d 1368, 47 U.S.P.Q.2d 1596 (Fed. Cir. 1998) (business methods are patentable subject matter under U.S.C.); Larry A. DiMatteo, *The "New" Problem of Business Method Patents: The Convergence of National Patent Laws and International Internet Transactions*, 28 RUTGERS COMPUTER & TECH. L.J. 1 (2002) (describing the convergence toward the recognition of business methods as patentable subject-matter in Japan, Europe and the United States). *See, infra*, Section \_\_\_\_.

as second-tier patent protection systems.<sup>36</sup> Exclusionary rights have expanded beyond enablement<sup>37</sup> and literal infringements to include equivalents.<sup>38</sup> Statutory acts have bolstered opportunities for inventors to obtain patent rights, even for government or state sponsored research.<sup>39</sup> Innovation has been further moved into the domain of the patents system with the creation of a specialized patent court,<sup>40</sup> and the consideration of commercial success as one

<sup>37</sup> Merges and Nelson note that "because a patent examiner must be able to point at elements in prior art that, a heavy burden of "disproving" enablement is placed upon the small shoulders of the PTO [patent office]. This in effect, stretches the enablement doctrine to claims that may be beyond the original intention of the enablement doctrine: that of limiting protection of those inventions that are specified such that one skilled in the relevant art is in a position to use all the embodiments of the claimed invention." Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 848-49 (1990).

<sup>38</sup> Under the doctrine of equivalents, two inventions are considered identical if they accomplish the same result even though they may differ in other artificial ways (*e.g.* name, form and shape). As to its origin, "the doctrine of equivalents developed because of the frequency of cases where, even though the accused product or process does not literally infringe a claim, it may be considered essentially the same device as was patented". *Id.*, at p. 853. For an illustration of expansionary propensities of the doctrine of equivalents *see* Hilton Davis Chemical Company v. the Warner-Jenkinson Company, 114 F.3d 1161 (a product infringes on a patent if it is "unsubstantially" different from what the patent describes). The uncertainty of such a rule of "unsubstantial difference" increases the risk of infringement and will lead to more licensing. *See* remarks by Robert Merges in Teresa Riordan, *Substantial Questions Linger after a Ruling that could give Patent Holders More Power*, N.Y. TIMES, Aug. 21, 1995.

<sup>39</sup> See, e.g., the *Bayh-Dole Act* which grants universities the right to obtain patent ownership on federally sponsored research. Pub. L. No. 96-517, 6(a), 94 Stat. 3015, 3019-28 (1980) (codified as amended at 35 U.S.C. 200-212 (1994).

<sup>40</sup> The U.S. Federal Circuit Court has been associated with many of the extensions of patent law. *See, e.g.,* Robert P. Merges, *One Hundred Years of Solitude: Intellectual Property Law, 1900-2000,* 88 CALIF. L. REV. 2187, 2190 (2000) [hereinafter Merges, *Solitude*], 2224-2232 (ascribing to the Federal Circuit the expansion of non-obviousness in the context of biotechnology and the acceptance business patents and the development of patent doctrine in software); Donald R. Dunner et al., *A Statistical Look at the Federal Circuit's Patent Decisions: 1982-1994*, 5 FED. CIR. B.J. 151 (1995) (noting more than average findings in favor of patent owners before the Federal Circuit); Mark A. Lemley, *An Empirical Study of Twenty-Year Patent Term*, 22 AIPLA Q.J. 369 (1994) (noting higher findings of patent validity by the Federal Circuit), *see also* John R. Allison & Mark A. Lemley, *How Federal Circuit Judges Vote in Patent Validity Cases*, 27 FLA. ST. U.L. REV. 745 (2000). In the same vain of thought, *see* 

<sup>&</sup>lt;sup>36</sup> For an overview, see Mark D. Janis, Second Tier Patent Protection, 40 HARV. INT'L L.J. 151 (1999). In general, "second tier" patents(also referred to as "the utility model" or "petty patents", receive more limited protection(for instance, shorter period of protection) than regular patents but are not subjected to prior patentability examinations. In the context of the anticommons model, second tier patent protection is likely to produce a large number of stake holders, with high information and transaction costs involving the verification of infringements. This is due to the high level of post-issuance uncertainty, see Id. p.151. On second tier patent protection see also, e.g., Ann Bartow, Separating Marketing Innovation from Actual Invention: A Proposal for a New, Improved, Lighter, and Better-Tasting Form of Patent Protection, 4 J. SMALL & EMERGING BUS. L. 1 (2000) (proposing "a modified form of patent protection, which may better accommodate patents that are filed for reasons other than obtaining monopoly protection of an invention for commercial exploitation purposes, such as patents obtained for leveraging competitors and patents used for keeping up appearances.", at p.5). Mark Lemley suggests that the high amount of patents issued, relative to the minimal inspection of substantive requirements represents a degree of "rational ignorance" on the part of the patent system. See Mark Lemley, Rational Ignorance at the Patent Office, 95 Nw. U.L. REV. 1495 (2001). In light of the thesis developed below, infra \_\_, the overall social welfare effect of such patent system depends on the relative costs of pre-issuing inspection of non-active patents, relative to the deadweight losses involved in the post issuance licensing process. For a similar proposal with regard to copyright law, see Jane C. Ginsburg, Creation and Commercial Value: Copyright Protection of Works of Information, 90 COLUM. L. REV. 1865, 1873-93 (1990) (proposing to vary protection across creative "high authorship" works and sweat of the brow/"low authorship" works).

determinant of patentability.<sup>41</sup>

# 3. Trademark Law: Ownership in Words and Signs

Similarly, trademark law has evolved from a concept of tort law, protecting against deceit, to a more rigorous type of protection that is best explained through the analytical lense of property rights.<sup>42</sup> The "propertization" of trademark law has developed from the minimal protection afforded against fraudulent intent to a broader concern for potential customers, and for the rights of control by users.<sup>43</sup>

With the adaptation of the dilution doctrine, trademark owners no longer need to demonstrate consumer confusion<sup>44</sup> or actual injury to obtain compensation from trademark infringers.<sup>45</sup> The trademark dilution doctrine has been extended to non-competing, but also to non-identical marks. Trademark law now protects famous trade dress and product configurations, and provides a cause of action also against consumers who do not use marks properly.<sup>46</sup> Similarly, the adaptation of the doctrine of reverse confusion,<sup>47</sup> and the introduction of product

<sup>43</sup> On the remarkable history and evolution of trademark law, *see* Daniel D. Domenico, *Note: Mark Madness: How Brent Musburger and the Mircale Bra May Have Led To A More Equitable and Efficient Understanding of the Reverse Confusion Doctrine in Trademark Law*, 86 VA. L. REV. 597, 600 (2000). In the United States property rights discourse is most (in)famously applied in Dallas Cowboys Cheerleaders Inc. v. Pussycat Cinema, Ltd., 604 F.2d 200 (2<sup>nd</sup> Cir. 1979); Panavision Int'l v. Toeppen, 141 F.3d 1316 (9<sup>th</sup> Cir. 1998).

<sup>44</sup> The dilution doctrine was uniformly introduced in the United States by the *Federal Dilution Statute*, in 1995, *see* 15 *U.S.C.* 1125(c) (1994).Section 43(3) of the *Langham Act* grants protection to "famous" marks against dilution, regardless of "(1) competition between the owner of the famous mark and other parties, or likelihood of confusion, mistake, or deception."

<sup>45</sup> These aspects of the Federal Dilution Statute were recently narrowed by the Supreme Court. *See The Victor Moseley and Cathy Moseley, dba Victor's Little Secret, Petitioners v. V Secret Catalogue, Inc., et al.*, Certiorari to the United States Court of Appeals for The Sixth Circuit, No.01 1015. Argued November 12,2002 Decided March 4,2003; Docketed: Lower Ct: United States Court of Appeals for the Sixth Circuit January 11, 2002 (00-5320). *See* Declan McCullagh, *Supreme Court Curbs Trademarks' Reach*, N.Y. Times, March 5, 2003. According to the Court recognition of a word or phrase as trademark will not necessarily "reduce the capacity of the famous mark to identify the goods of its owner." This decision is likely to have a big impact on pending and future cases. *See, e.g.,* Linda, Greenhouse, *Retail Giant Asks Court to Protect Its Name*, N.Y. Times, Nov. 13, 2002.

<sup>46</sup> Mark Lemley, The Modern Langham Act and the Death of Common Sense, 108 YALE L.J. 1687, 1698-99 (1999).

Kevin Rhodes, *Comment: The Federal Circuit's Patent Nonobviousness Standards: Theoretical Perspectives on Recent Doctrinal Changes*, 85 NW. U. L. REV. 1051 (1991). The question remains whether these expansions of patent law would have occurred without a specialized court. Specialized courts tend to strengthen the reach of their subject-matter.

<sup>&</sup>lt;sup>41</sup> For a review of the Federal Circuit's development of this doctrine, *see* Robert P. Merges, *Commercial Success and Patent Standards: Economics Perspectives on Innovation*, 76 CALIF. L. REV. 805 (1988).

<sup>&</sup>lt;sup>42</sup> "Courts protect trademark owners against uses that would not have been infringements even a few years ago and protect as trademarks things that would not have received such protection in the past. And they are well on their way to divorcing trademarks entirely from the goods they are supposed to represent." Mark A. Lemley, *The Modern Langham Act and the Death of Common Sense*, 108 YALE L.J. 1687, 1688 (1999).

<sup>&</sup>lt;sup>47</sup> Under the doctrine of reverse confusion, smaller senior users are protected from larger, junior users. Traditional trademark law protects large, established trademarks from smaller, junior users. The doctrine originates from Big O Tire Dealers v. Goodyear Tire and Rubber Co., 561 F. 2d 1365 (10<sup>th</sup> Cir. 1977). For a comprehensive treatment of the doctrine of reverse confusion, *see* THOMAS, J. MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR

design protection<sup>48</sup> are important signposts of the expansion of trademark law. Much of this expansion reflects a tendency to regard trademarks as property or commodities,<sup>49</sup> often leading to the recognition of a broad "merchandising right" in marks.

# B. The Backlash Against Intellectual Property Rights

The expansion of the intellectual property regime has not escaped scrutiny. Commentators are in agreement that the persistent expansion of intellectual property tips the balance towards an all-inclusive enclosure of information goods. Critics of this trend have raised the concern that the expansion of intellectual property rights implicates society in ways that go beyond providing incentives for creation and invention.<sup>50</sup>

As one esteemed commentator notes: "...balance in intellectual property seems over for now. A feeding frenzy has taken its place - not just in the field of patents, but in intellectual property law generally..."<sup>51</sup> A review of the literature reveals that an overwhelming majority of commentators and scholars are disconcerted with the expansive trend of intellectual property law.<sup>52</sup>

Much of the criticism surrounding the expansion of intellectual property law has been triggered by the recent legislative protection of previously unregulated material on the Internet. There are three main strands of criticism on the expansion of intellectual property law. First, it is

COMPETITION (4<sup>th</sup> ed., 1999), For a rejection of broad property rights analysis, *see* Wendy J. Gordon, *On Owning Information: Intellectual Property and the Restitutionary Impulse*, 78 VA. L. REV. 149 (1992).

<sup>48</sup> This evolution in U.S. case law is traced in Margharet Barrett, *Trade Dress Protection for Product Configurations* and the Federal Right to Copy, 20 HASTINGS COMM. & ENT. L.J. 471 (1998); Graeme B. Dinwood, *Reconceptualizing the Inherent Distinctiveness of Product Design Trade Dress*, 75 N.C. L. REV. 471 (1997). On design law in the European context, *see* UMA SUTHERSANEN, DESIGN LAW IN EUROPE (2000).

<sup>49</sup> See, e.g., Kenneth L. Port, *The Illegitimacy of Trademark Incontestability*, 26 IND. L. REV. 519 (1993) (finding that the introduction of the doctrine of trademark incontestability amounts to an unprecedented recognition of a property right in trademarks (15 U.S.C. 1115(b)).

<sup>50</sup> Many prominent scholarly commentators have expressed concern with the expanding development of intellectual property law, *see*, *e.g.*, Mark Lemley, Book Review, *Romantic Authorship and the Rhetoric of Property*, 75 TEX. L. REV. 873, 875 (1997): "I agree both with Boyle's general point that authors get too much protection from modern intellectual property law and with many of his specific concerns about the contours of that law." (book review of Boyle, *Shamans*).

<sup>51</sup> Lawrence Lessig, *The Problem With Patents*, THE STANDARD, April 23, 1999; available at <<<u>http://www.thestandard.com/</u>article/display/ 0,1151,4296,00.html>> (last visited, Sept. 25, 2002). In the context of trademark law, *see* Rochelle Cooper Dreyfuss, *We Are Symbols and Inhabit Symbols, So Should We Be Paying Rent? Deconstructing the Lanham Act and Rights of Publicity*, 20 COLUM.-VLA J.L. & ARTS 123 (1996) (referring to the "privatization" of words and symbols); Mark Lemley, *The Modern Langham Act and the Death of Common Sense*, 108 YALE L.J. 1687 (1999) [hereinafter Lemley, *Death of Common Sense*] (many recent developments cannot be explained by reference to economic theory).

<sup>52</sup> See, e.g., Maureen Ryan, Cyberspace as Public Space: A Public Trust Paradigm for Copyright in a Digital World, 79 OR. L. REV. 647, 647 (2000) ("I argue...that the tendency of Congress, the Courts and, recently, the Clinton Administration to favor a neoclassical rationale results in an unauthorized transfer of information policy from the public realm to the private realm".) Forty-eight law professors gathered forces to submit a brief in support of the challenge to the constitutionality of the CTEA. Brief Amicus Curiae of the Internet Archive in support of Eldred's petition for certiorari in *Eldred v. Ashcroft* (February, 2002) (available online at <<htp://www. law.berkeley.edu/institutes/bclt/ pubs/lemley/>> (Last visited December 1<sup>st</sup>, 2002)). generally held that the recent expansion violates the purpose of advances the progress of arts and sciences because the protection of producers far outweighs what is necessary to achieve the protection of incentives of authors.<sup>53</sup> Second there is the argument, most prominently advanced by Lawrence Lessig,<sup>54</sup> that the free availability of resources, unrestricted by private control rights, is the main impetus behind technological innovation and intellectual and artistic creativity. This "innovation commons" was essential, for instance, to the development of cyberspace. The argument proceeds that, especially in a high tech world, public property has a greater role to play in encouraging innovation and improvement. According to this view, the open source movement provides a striking historical example of the viability of a communitarian perspective on innovation, where profit and monopoly rights are not the cause of innovation.<sup>55</sup> Thirdly, there is a belief that the expansion of copyright law has transgressed beyond protection against unauthorized copying to include the control of the distinction between the protection of ideas and expression.<sup>56</sup> In this view, copyright no longer protects the creative process, it merely protects producers while taxing consumers.<sup>57</sup> The expansion of copyright law protects the

<sup>56</sup> See VAIDHYANATHAN, *supra* note\_\_. Also, if copyright rests in originality, this would require dissection of the creative process of every individual , prior to awarding copyright protection, *see* Jessica Litman, *The Public Domain*, 39 EMORY L.J. 965, 1023 (1990).

<sup>&</sup>lt;sup>53</sup> \_\_\_\_Add references\_\_\_\_

<sup>&</sup>lt;sup>54</sup> Suggesting a public interest explanation, *see* Lawrence Lessig: "Washington is obsessed with intellectual-property rights. It lives under the mistaken idea that stronger IP always means a stronger economy. No doubt it means larger campaign contributions, but whether it means a better market is a tougher question." Lawrence Lessig, *supra* note

<sup>&</sup>lt;sup>55</sup> The paradigm example of the open source movement is GNU/Linux, the successful operating system that is distributed free and is steadily improved and debugged by a network of programmers. Other notable free software includes Perl m the Apache web server, and Sendmail. See Sonia K. Katyal, Book Review, Ending the Revolution: the Future of Ideas. The Fate of the Commons in a Connected World and Copyrights and Copywrongs: The Rise of Intellectual Property and How It Threatens Creativity, 80 TEX. L. REV. 1465, 1471 (2002):"if the digital revolution has taught us anything so far, it is that profit- and copyright - is no longer essential for creativity to flourish, or even to begin." Id. 1486. Maureen Ryan, supra note\_\_\_, at p. 648: "government is required to begin from a public trust baseline because information is a public trust resource subject to public trust principles." But open-source developments do not exist within an economic vacuum. Often pioneering codes end up as commercialized products, leaving their pioneering creators as folk-hero billionaires (see Marc Andreessen and Eric Bina for their work on Mosaic, or the sale of Netscape by Treuhaft and co. to America Online). Even the most successful open source technologies have a business side to them. Companies in the open-source economy make money mainly by tailoring programs for customers, and with service and support. In this business model, software, would increasingly become a service business compared with the traditional model of shipping manufactured software goods. See Steve Lohr, Can "Open Source" Bridge the Software Gap?, N.Y. Times, Aug. 28, 2000 (quoting Irving Wladawsky-Berger, an I.B.M. executive and a member of the presidential Advisory Committee on Information Technology: "I am increasingly coming to the conclusion that the Internet and open-source initiatives are the free marketplace way of dealing with the extremely complex software issues we are facing..."). For a comprehensive treatment of the socioeconomic aspects of open source technology, see Yochai Benkler, Coase's Penguin, or, Linux and "The Nature of the Firm", 112 YALE L.J. 369 (2002).

<sup>&</sup>lt;sup>57</sup> In negating the incentive effect of property rights, Vaidhyanathan draws a distinction between "property talk" and "policy talk". The former benefits authors, while the latter is attentive to the welfare of society as a whole. VAIDHYANATHAN, *supra* note\_\_, 12. For an concise overview of Vaidhyanathan principal viewpoints, *see* Paul Schmeizer, *The Anarchist in the Library: Discussing Cultural Democracy with Siva Vaidhyanathan*, BLOGSPOT, 21 April 2003.

status quo of existing works, to the detriment of the public interest. Stronger intellectual property rights increase the power of holders of those rights versus prospective creators that rely upon existing work. These follow-up creators and innovators will need to obtain authorization from incumbent intellectual property owners.

These accounts suggest that the current trend of "propertization" of information goods<sup>58</sup> strains the natural balance between public and private right in creativity, which rests on "a calculus of net social benefits".<sup>59</sup> This balance between the public and private domain preserves incentives, while at the same time maintaining a relatively free flow of information to allow technological progress and unhindered discourse.<sup>60</sup>

\* \* \*

This Article does not take such a strong position. The role of private property rights in the realm of intellectual or information goods has certainly increased. Increasingly, legislative and judicial decisions have explicitly allocated the various use right in intellectual goods. As the simplified description above indicates, the overall impression is that this process has resulted in stronger protection of producers of content.

# C. Explaining the Emergence of Intellectual Property Rights

While the term "intellectual property law" is a relatively recent paradigm for the treatment information goods,<sup>61</sup> the dominance of a property right conception of intellectual property rights

<sup>&</sup>lt;sup>58</sup> For the purpose at hand this text will refer to the subject matter of intellectual property law as "information goods" or "intellectual goods". The value of these goods is primarily an intangible idea, concept or expression.

<sup>&</sup>lt;sup>59</sup> J.H. Reichman & Pamela Samuelson, Intellectual Property Rights in Data?, 50 VAND. L. REV. 51, 55 (1997).

<sup>&</sup>lt;sup>60</sup> On the mainstream economic rationale underlying intellectual property rights, *see* Nikolaus Thumm, INTELLECTUAL PROPERTY RIGHTS: NATIONAL SYSTEM AND HARMONIZATION IN EUROPE, New York, Physica-Verlag, 186p, *Chapter 3 : Microeconomic Theory of Intellectual Property Rights*, 31-43 (2000) (the public good character of intellectual goods necessitates monopoly rights to ensure innovation and diffusion). On the balance between incentives and monopoly deadweight losses in patent law, *see* Rebecca S. Eisenberg, *Proprietary Rights and the Norms of Science in Biotechnology Research*, 97 YALE L.J. 177 (1987) (on the conflict between patent law and pre-existing norms of diffusion in biomedical sciences). *But see* Scott F. Kieff, *Intellectual Property Rights and the Norms of Science - A Response to Rai and Eisenberg*, 95 NW. U. L. REV. 691 (2001) (availability of patent protection is crucial to biology research; the community norms have always accommodated patents as a necessity). In copyright law the balance can best be described as a system that "provides meaningful incentives to first authors, while allowing second authors room to build on their predecessors' endeavors, as well as reasonable leeway for autonomous consumer enjoyment...". Ginsburg, *supra* note \_\_, at page 65.

<sup>&</sup>lt;sup>61</sup> See Lemley, supra note \_\_\_, tracing the etymological roots of intellectual property: "The modern use of the term "intellectual property" as a common descriptor of the field traces to the foundation of the World Intellectual Property Organization (WIPO) by the United Nations. See Convention Establishing the World Intellectual Property Organization, done July 14, 1967, art. 2(viii), 21 U.S.T. 1749, 1772, 828 U.N.T.S. 3, 11. Since that time, numerous groups such as the American Patent Law Association and the ABA Section on Patent, Trademark, and Copyright Law have changed their names (to the American Intellectual Property Law Association and the ABA Section on Intellectual Property Law, respectively). There were certainly uses of the term in the literature well before this time, especially on the Continent. See, e.g., Davoll v. Brown, 7 F. Cas. 197, 199 (C.C.D. Mass. 1845) (No. 3662) (defining intellectual property as "the labors of the mind, productions and interests as much a man's own, and as much the fruit of his honest industry, as what he cultivates, or the flocks he rears").

has developed especially over the past 15 years.<sup>62</sup> Where does the property law coloration of intellectual property originate? Three alternative explanations are prevalent in the academic debate. In my view, these theories omit essential aspects that underlie the increased activity in the realm of intellectual property law. This Section proposes that the property rights-focus of contemporary intellectual property law results from a dialectic process between technological progress and the value of intellectual property goods. The theory developed in the remainder of this Section holds that the scope of intellectual property law systems is largely determined by changes in the value of information goods; and by the transaction costs involved in the management and enforcement of the rights in these goods. This Section first reviews a number of theories that attempt to explain the increased role of intellectual property law.

### 1. Current Explanations

# a. The Political Economy of Intellectual Property Law

The most straightforward and generally supported explanation for the expansion of intellectual property rights lies with interest group politics. Small, homogenous groups, such as copyright owners, are at a comparative advantage in organizing their interests for the capture of the political and legislative agenda, as opposed to the more heterogeneous, disorganized group of end users of intellectual goods.<sup>63</sup> In this view, factors of political economy are responsible for the strong property right protection awarded to authors, creators, inventors and brand owners.<sup>64</sup>

<sup>&</sup>lt;sup>62</sup> Stephen L. Carter, *Does It Matter Whether Intellectual Property Is Property*?, 68 CHI.-KENT L. REV. 715 (1993); Kenneth W. Dam, *Some Economic Considerations in the Intellectual Property Protection of Software*, 24 J. LEGAL STUD. 321, 332 & n.44 (1995); Frank H. Easterbrook, *Intellectual Property Is Still Property*, 13 HARV. J.L. & PUB. POL'Y 108 (1990); Trotter Hardy, *Property (and Copyright) in Cyberspace*, 1996 U. CHI. LEGAL F. 217 (1997); Edmund W. Kitch, *Patents: Monopolies or Property Rights*?, 8 RES. L. & ECON. 31 (1986); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 275-80 (1977); Wendy J. Gordon, *An Inquiry into the Merits of Copyright: The Challenges of Consistency, Consent, and Encouragement Theory*, 41 STAN. L. REV. 1343 (1989) (discussing similarities between copyright law and the common law of property); Boudewijn Bouckaert, *What is Property*?, 13 HARV. J.L. & PUB. POL'Y 775 (1990).

<sup>&</sup>lt;sup>63</sup> The pioneering work in public choice theory is James M. Buchanan & Gordon Tullock, THE CALCULUS OF CONSENT: LOGICAL FOUNDATIONS OF CONSTITUTIONAL DEMOCRACY (1962). The popular sentiment is that the expansion of intellectual property right are to be attributed to lobbying efforts: "Over the past 50 years, as a result of heavy lobbying by content industries, copyright has grown to such ludicrous proportions that it now often inhibits rather than promotes the circulation of ideas, leaving thousands of old movies, records and books languished behind a legal barrier. Starting form scratch today, no rational, disinterested lawmaker would agree to copyrights that extend to 70 years after an author's death, now the norm in the developed world." The Economist, *Copyrights: A Radical Rethink*, THE ECONOMIST, January 23, 2003. See also, the coming together of the CTEA Act, *supra* note\_\_\_\_.

<sup>&</sup>lt;sup>64</sup> For a description of the economic and political make-up of the intellectual property law system, *see* Yochai Benkler, *VIACOM-CBS MERGER: From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons and User Access*, 52 FED. COMM. L.J. 561, 569-70 (2000): "One starts with an assumption that there are producers and consumers and that consumers are better off when producers have high incentives to produce. One then creates a regulatory system that increases the incentives for commercial production but also increases the costs of becoming any kind of producer, forcing producers to try to recoup these high entry costs by selling to wide audiences. This results in a relatively small number of producers able to fund full-time authoring and pay licensing fees to use existing information, who attempt to recover their investments by capturing wide audiences. Opposite these producers is a wide, passive audience of consumers constrained to select what they buy

Yet political economy cannot in itself explain the entire development of intellectual property law to date; nor can it account for the continued expansion of intellectual property law. If anything, the political economy of copyright in particular, is more leveled in today's digital era. In the current climate, the technology industry has a lobbying agenda that is diametrically opposed to the interest of copyright owners. The business interests of the technology industry conflict with that of copyright holders. That is because the appeal of technological devices increases when these products can be used freely to store and transfer content.<sup>65</sup> The popularity of file sharing, for instance, has created new markets for the computer industry, enhancing the appeal of their products. The easy sharing of audio files spurred the demand for computer systems, hard drives, faster microprocessors, new portable digital devices.<sup>66</sup> Napster created a demand for MP3 players and recordable CD drives, blank media CDRs, and so forth. Given the considerable political power of the electronics industry, one would expect the political balance to tilt towards lower levels of intellectual property law protection.<sup>67</sup>

As will be discussed below, new technological advances have increased the stakes for the

<sup>65</sup> Audio equipment is more attractive to consumers if the recording of phonograms to audio tape is permissible. Similarly, video systems have a stronger appeal if they can be used not merely for playing back movies but also for recording television broad castings. *See* Universal City Studios, Inc. v. Sony Corp. of America Betamax, 659 F. 2d 963 (9th Cir. 1981) (permitting so-called "time shifting" as fair use).

<sup>66</sup> In Amicus Brief No. 01-618, Brief of Amicus Curiae, Intel Corporation in Partial Support of Petitioners, the Intel corporation carefully hints at this interest: "Consumers rely on the digital technologies created by Intel and other companies to gain access to and use content in new and compelling ways. At the same time, the continued viability and expansion of these technologies depend on readily available content that is of potential use and relevance to the public." (page 9). This business interest in unrestricted copyright is also reflected in the active advertisement efforts of manufacturers. *See* Brad King, *Are Ads a Gateway to Illegal CDs?*, Wired News, Apr. 11, 2002. Available at <<<a href="http://www.wired.conm/news/mp3/0,1285,51719,00.html">http://www.wired.conm/news/mp3/0,1285,51719,00.html</a>.

<sup>67</sup> "Although the content industry has contributed heavily to political candidates over the years and maintained a strong lobbying presence in Washington for many years, it cannot expect to ride roughshod over the political interests of the technology industry. Any significant incursions into the freedom to develop new products will encounter forceful opposition from the technology industry, which, over the last decade, has invested substantial resources in the legislative process and gained valuable experience in the working halls of Congress. The economic significance of the technology sector in the United States economy vastly exceeds the contributions of the content industries and technology companies have strong financial motivation to maintain their freedom to innovate". Peter S. Menell, *Envisioning Copyright Law's Digital Future*, forthcoming in the N.Y. LAW. REV. (2002), 153-54. Available at <<hr/>http://repositories.cdlib. org/boaltwp/5/>>. The consumer electronics industry alone, with annual revenues of nearly 100 billion U.S. dollars, is several times larger than the music and film industries combined (with reference to Brad King, *Replay TV Won't Quit, Won't Quit, WIRED NEWS*, June 4, 2002. Available at <<hr/>http://www.wired.com/news/digiwood/0,1412,52944,0 0.html>>

from a narrow, relatively homogenous menu of choices intended to guess what a large number of them will select under these conditions. These producers, in turn, make up the political lobby for continuing the basic structure as it is. This political economy is responsible for an extensive enclosure movement that has pushed our intellectual property law toward ever-increasing centralization, and has squelched concerns that this galloping propertization is attained at the expense both of innovation and of robust democratic discourse that a well-balanced intellectual property law could serve." *See* also, *e.g.*, Tom W. Bell, *The Common Law in Cyberspace*, 97 MICH. L. REV. 1746 (1999); book review of Huber, Peter (1997), *Law and Order in Cyberspace: Abolish the FCC and Let Common Law Rule the Telecosm*, New York, Oxford University Press, 265p.; Jessica Litman, *Copyright, Compromise, and Legislative History*, 72 CORNELL L. REV. 857 (1987) ; Jessica Litman, *Copyright Legislation and Technological Change*, 68 OR. L. REV. 275 (1989); Robert P. Merges, *Intellectual Property Rights and the New Institutional Economics*, 53 VAND. L. REV. 1857 (2000) [hereinafter Merges, *New Institutional Economics*]; Robert P. Merges & Glenn Harlan Reynolds, *The Proper Scope of the Copyright and Patent Power*, 37 HARV. J. ON LEGIS. 45 (2000).

public at large, providing them with a stronger interest to organize effectively.<sup>68</sup> Several groups with an interest in opposing broad intellectual property laws have modest political clout. However, in the aggregate, library associations,<sup>69</sup> social freedom groups,<sup>70</sup> open software movements, consumer protection groups, artists' rights, civil liberties, the digital freedom movement,<sup>71</sup> and the academic community<sup>72</sup> may exert considerable pressure on the political

<sup>&</sup>lt;sup>68</sup> The work of Lawrence Lessig in particular rests upon the notion that cyberspace is a "fundamentally important changed circumstance" in the traditional copyright equation. Because cyberspace makes the public domain so readily accessible, the stakes are raised to keep copyrighted material flowing into the public domain. Lessig raised this argument most recently before the Supreme Court in *Eric Eldred, et al. v. John D. Ashcroft*: No.01-618. *See*, Linda, Greenhouse, *Justices Hear Arguments On Extension Of Copyrights*, N. Y. TIMES, Oct. 10, 2002.

<sup>&</sup>lt;sup>69</sup> The American Library Association has been especially active in challenging regulation with regard to anticircumvention, automated rights management, first sale and database protection. *See* Association of Colleges and Research Libraries, *Washington Watch - ACRL Legislative Agenda* (online at << http://www.ala.org/acrl/legalis.html#copyrite >>).

<sup>&</sup>lt;sup>70</sup> For an example of such concentrated efforts, *see* Amy Harmon, *Owners Of ReplayTV Recorders File Lawsuit*, N.Y. Times, June 7, 2002: "A civil liberties group asked a federal judge in Los Angeles yesterday to rule that owners of ReplayTV recorders are not violating copyright law when they use the device to compile a library of television shows, send a show over the Internet to other Replay owners, or automatically fast-forward through commercials. In filing the lawsuit on behalf of five Replay owners, the Electronic Frontier Foundation argues that the interests of consumers are being overlooked in an continuing lawsuit that pits the major TV networks and movie studios against Sonicblue, the maker of Replay. The media companies said that Sonicblue was contributing to copyright infringement by allowing consumers to engage in activities like assembling an entire season's episodes of a given show or skipping through commercials."

<sup>&</sup>lt;sup>71</sup> See, e.g., The Digital Future Coalition (DFC), compromising educational, scholarly, library, and consumer groups, as well as consumer electronics, telecommunications, computer and ISP industry organizations, to provide balance in litigation and policy discussions about copyright's future. See http://www.dfc.org/dfc1/ Learning\_Center/about.html>>, the Electronic Frontier Foundation, Home Recording Rights Coalition consumer protection organizations: attempting to ensure broad rights of use with regard to VCR's, DATs, MP3 players and other technology involving music and video content, see also the Digital Consumer Organization (<<htp://www.digitalconsumer.org/>> and Boycott-RIAA (see <<http://boycott-riaa.com/>>). This movement is aptly described in JAMES BOYLE, A POLITICS OF INTELLECTUAL PROPERTY: ENVIRONMENTALISM FOR THE NET? (1997). Available at <<htp://www.noemalab .com/sections/ideas/ideas\_articles /pdf/boyle.pdf>> (Protest, advocacy, litigation, gras roots organization, membership, foundation support and digital networking will bring to about social change).

 $<sup>^{72}</sup>$  Under the pretense of "...a professional interest in seeing that intellectual property law develops in ways that best promote its purposes." (Brief Amicus Curiae Supporting Victoria Secret in Moseley v. Victoria Secret, Inc. (August 2002); the academic amicus brief has become a regular feature in court proceedings. See, e.g., Brief Amicus Curiae in support of reversal in Napster, Inc. v. A & M Records, Inc. (available on line at <<htp://www.law.wayne.edu/litman /napster/ Amicus.pdf >>); Brief Amicus Curiae on Behalf of the American Committee for Interoperable Systems in Support of Appellee in ProCD, Inc. v. Zeidenberg, before the Seventh Circuit U.S. Court of Appeals (March 1996); Brief Amicus Curiae of Internet Archive in support of Eldred's petition for certiorari in Eldred v. Ashcroft (February 2002) (available online at <<htp://www.law.berkeley. edu/institutes /bclt/pubs/lemley/>> (Last visited December 1<sup>st</sup>, 2002) . Mark Lemley, for instance, has submitted seven briefs in his relatively short (albeit prolific) career to date as a law professor. Some professors have been even more aggressive in their challenge of the expansion of intellectual property. Professor Lawrence Lessig recently disputed the constitutionality of the Copyright Term Extension Act before the Supreme Court. His argument rests on the premise that the text of the clause in Article I, Section 8 of the Constitution authorizing Congress "to promote the progress of science and useful arts" by issuing exclusive copyrights for "limited times." (Eric Eldred, et al. V. John D.Ashcroft, v.: No.01-618), does not allow the repeated extensions of the duration of copyright protection. See Linda Greenhouse, Justices Hear Arguments On Extension Of Copyrights, N.Y. TIMES, Oct. 10, 2002; see <<http://eldred.cc/ (official web site)>> (last visited, 22<sup>nd</sup> of November 2002). In association with the Berkman Center, Lessig decided to challenge the Sony Bono Copyright Term Expansion Act and actively sought to find

system with their participation in the agenda-setting process of legislative and judicial institutions. Follow-up authors, inventors, and satirists who rely on prior copyrighted or patented material turn to the judicial system to challenge developments that afford broad protection to intellectual property holders.<sup>73</sup> Despite the decision in *Eldred*, constitutional rights provide a final safeguard against legislation that caters too strongly to the private interest of intellectual property right holders.<sup>74</sup>

# b. The Persuasion of Law and Economics of Real Property

Several commentators have linked the broad expansion of intellectual property law to the infusion of the rhetoric of property rights and the application of the economic theory of real property to "the very different world of intellectual property".<sup>75</sup> Allegedly, this trend commenced with a shift in terminology.<sup>76</sup> When intellectual property rights are coated in the language of private property rights, and infringement is described as "theft", creative and innovative work is conceived of in terms of property rights.<sup>77</sup> Once the validity of property rights is accepted, the application of common law property rules and underlying rationales follows naturally.<sup>78</sup> If

<sup>14</sup> Feist is one example where expansion was barred because of perceived constitutional limitations on copyright claims (Feist Pubs., Inc. V. Rural Tel. Serv. Co., 499 U.S. 340, 363-64 (1991). For a discussion of the constitutional aspect of the protection of industrious information products that lack originality in *Feist, see*, Jane C. Ginsburg, *No* "*Sweat*"? Copyright and Other Protection of Works of Information after Feist v. Rural Telephone, 92 COLUM. L. REV. 338, 367-388 (1992). Other examples are plentiful. The most current, high-profile case is the action against the Sony Bono Copyright Term Expansion Act. For a discussion of the constitutional issues in Eldred v. Ashcroft (v.:No.01-618) see Jane C. Ginsburg, Wendy J. Gordon, Arthur R. Miller, and William F. Patry, *The Constitutionality of Copyright Term Extension: How Long is Too Long*, 18 CARDOZO ARTS & ENT L.J. 651 (2000) (including appellants reply brief at 655).
<sup>75</sup> Lemley, supra note \_\_\_\_\_\_, 895-96. For an example of the tendency to revert to real property analogies when

<sup>15</sup> Lemley, *supra* note \_\_\_, 895-96. For an example of the tendency to revert to real property analogies when discussing intellectual property law issues, see the oral arguments in *Eldred*. One of the Supreme Court justices drew the real property analogy because "it's less challenging to the judicial mind". Proceedings, Case no. 99-5430. Reproduced in Jane C. Ginsburg et al., Symposium: *The Constitutionality of Copyright Term Extension: How Long is too Long?*, 18 CARDOZO ARTS & ENT LJ 651, 713 (2000).

<sup>77</sup> Here, the expansion is conceived as a more general trend in the law of information which allocates a larger role to property rights both within and outside intellectual property. Pamela Samuelson, *Information as Property: Do Ruckelshaus and Carpenter Signal a Changing Direction in Intellectual Property Law?*, 38 CATH. U. L. REV. 365, 397-98 (1989). *See also* Justin Hughes, *supra* note

plaintiffs with standing: "The next step was finding a plaintiff, someone suffering harm by the extended copyright period and the abuse of the Constitution it represented." Steven Levy, *Lawrence Lessig's Supreme Showdown*, 10.10 *Wired Magazine* (2002) (online at <<hr/>http://www.wired.com/wired/archive/10.10/lessig\_pr.html>>).

<sup>&</sup>lt;sup>73</sup> This raises the alternative that the expansion is not the entire story of the evolution of copyright. The availability of institutions to challenge legislative capture ensure that counterclaims to expansion get a chance. For a more complete account of the evolution of intellectual property law protection, *see*, *infra* 5.2.4. <sup>74</sup> *Feist* is one example where expansion was barred because of perceived constitutional limitations on copyright

<sup>&</sup>lt;sup>76</sup> Lemley, *supra* note\_\_, 895-96. On the strategic use of rhetoric in the debate over copyright and technology, *see* Ginsburg, *supra* note\_\_. In the hands of copyright owners and consumers, private copying becomes "piracy" and unauthorized copying becomes "sharing", respectively.

<sup>&</sup>lt;sup>78</sup> "The right to exclude others from using your ideas is no more a monopoly than is the right to exclude others from using your barn". Frank H. Easterbrook, *Intellectual Property is Still Property*, 13 HARV. J.L. & POL'Y 108 (1990). On the personal property analogy stretched onto intellectual property, *see* also Mark Rose, AUTHORS AND OWNERS: THE INVENTION OF COPYRIGHT (1993), p. 90 (noting early comparisons of the author's right in literary property to the rights of first possessors in real property chattels). But *see* Lemley, *supra* note \_\_\_, at note 124. "But property in the sense in which it is used by the Chicago School has only recently been brought to bear with much force on intellectual property law."

private property rights enhance investments in the context of common (real) property , the public domain of intellectual goods stands to benefit from the establishment of private property rights.<sup>79</sup> Innovation is best promoted through strong property rights, especially when low transaction costs allow for Coasian bargaining. The case for private property rights and contracts, and against regulation, becomes more attractive if one assumes the smooth functioning of the market, a view which is associated with the Chicago School of law and economics.<sup>80</sup> In Mark Lemley's view the overall effect of the neo-classical economic approach is "a challenge to the very idea of the public domain as an intrinsic part of intellectual property law."<sup>81</sup>

Is it realistic to maintain that the Chicago school of law and economics caused the direction of legislators and courts towards the expansion of our intellectual property law system? While it is arguable that the Chicago School economists have influenced the analytical terms of the debate, the influence of this school of thought should not be overstated. If legal scholarship exerts such profound influence, the current wave of critical attention to the exponential expansion of our intellectual property laws should turn the tide towards a weakening of intellectual property laws.<sup>82</sup> Given the criticism of the majority of commentators, may we expect in the near future a contraction of the law of intellectual property? Most studies attest that the influence of legal scholarship is modest at best.<sup>83</sup> In the social sciences, the nature of the adversarial academic debate tends to generate an overall picture that is noisy,<sup>84</sup> a debate that generally involves an intrinsic amount of indeterminacy.<sup>85</sup> In fact, several distinguished scholars

<sup>&</sup>lt;sup>79</sup> This fits within the Constitutional role allocated to Congress with regard to intellectual property rights to grant authors and inventors exclusive rights over their works in order "to promote the Progress of Science and useful Arts". *U.S. Const.* art. I, § 8, cl. 8.

<sup>&</sup>lt;sup>80</sup> See, e.g., Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283, 311-13 (1996) (linking the rise of property right in intellectual goods to the neo-classical economic theory applied by Chicago School scholars in law and economics and economics); Maureen, Ryan, supra note\_\_, 657 ("neoclassical economic theory views a system of clearly defined property rights as a prerequisite for such market efficiency because the economic model through which the allocative goals of copyright doctrine are theoretically realized requires broad, fully exchangeable property rights"; Mark, Lemley supra note \_\_, 901-902 (with reference to Netanel, at note 121). The view under criticism is perhaps most explicitly worded by Judge Easterbrook. *See* Frank Easterbrook, *supra* note \_\_.

<sup>&</sup>lt;sup>81</sup> Lemley, *supra* \_\_\_, 902. (if premised on the absence of transaction costs and the prevalence of efficient licensing, this "wholesale attack" on the public domain is misled).

<sup>&</sup>lt;sup>82</sup> Even Richard Posner is critical of the expansion of intellectual property law: "These rights keep expanding without any solid information about why they're socially beneficial", and "At the same time that regulations are diminishing, intellectual-property rights are blossoming--(two) opposite trends bucking each other." *See*, Declan McCullagh, *Left Gets Nod from Right on Copyright Law*, CNET NEWS.COM, Nov. 20, 2002.

<sup>&</sup>lt;sup>83</sup> See, generally, David L. Shapiro, In Defense of Judicial Candor, 100 HARV. L. REV. 731 (1997) (legal scholarship is involved in an internal discussion among peers); Harry T. Edwards, *The Growing Disjunction Between Legal Education and the Legal Profession*, 91 MICH. L. REV. 34 (1992) (legal scholarship is remote from reality). The influence of pragmatic and economic scholarship on adjudication and legal policy is generally considered to lie with the development of United States Antitrust law. In general economic scholarship's effect on legal decision-making is more contentious, *see*, *e.g.*, Allen E. Farnsworth, *Law Is a Sometime Autonomous Discipline*, 21 HARV. J.L. & PUB. POL'Y. 95 (1997); Jeffrey L. Harrison, *Trends and Traces: A Preliminary Evaluation of Economic Analysis in Contract Law*, 1988 ANN. SURV. AM. L. 73 (1988). In the patent context *see*, Craig Allen Nard, *Toward a Cautious Approach to Obeisance: The Role of Scholarship in Federal Circuit Patent Law Jurisprudence*, 39 HOUSTON L. REV. 101 (2002) (pragmatic legal scholarship is largely absent from the patent opinions of the Federal Circuit).

<sup>&</sup>lt;sup>84</sup> On the intrinsic indeterminacy in social sciences, *see* Jon Elster, *A Plea for Mechanisms*, in SOCIAL MECHANISMS: AN ANALYTICAL APPROACH TO SOCIAL THEORY (Hedström, Peter and Swedberg, Richard, eds., 1998), pp. 45-73.

<sup>&</sup>lt;sup>85</sup> The academic debate is inherently adversarial. For every academic argument one can find a comment in

have held that this applies in particular to the economic analysis of intellectual property law.<sup>86</sup> As will be argued below, coating intellectual property issues in terms of property rights is a superficial change.

# c. The Dazzling Romance of Authorship

One school of thought has linked the expansion of intellectual property rights to the substitution of the "author-as-genius" for the "author-as-craftsman" conception of the 19<sup>th</sup> century.<sup>87</sup> The general argument posits that authorship today exhibits a flair of romanticism which is related to the individual's ability and talent to create intellectual goods from scratch. Because intellectual authorship is intrinsically exceptional - far beyond "sweat of the brow" work that characterizes most other productive activities - this romantic conception of authorship, carries with it a normative command for stronger protection of intellectual work. In other words, exceptional people deserve privileged protection.<sup>88</sup>

Do we really own the expansion of our intellectual property system to a romantic conception of authorship? I believe we do not. For the argument to be upheld, a historical explanation needs to link an increased romantic conception over time to the expanding reaction of intellectual property law. It is questionable whether such a continued rise in the romantic conception of authorship over time has occurred.<sup>89</sup> To the contrary, the economic reality of today's intellectual

contention with it. This is reflected in the exchange of amicus briefs. In *Moseley v. Victoria Secret* respondents' amicus brief cites the work of Richard Posner in arguing that dilution differs materially from orthodox confusion and does not require proof of actual harm. *See* Brief Amicus Curiae, the International Trademark Association in support of respondents, pp. 12-14 (available at <<hr/>http://www.inta.org/ downloads/brief\_vsecret.pdf>>).

<sup>86</sup> On the inability of economic theory to provide decisive answers to social welfare issue with regard to intellectual property law, see George L. Priest, What Economists Can Tell Lawyers About Intellectual Property: Comment on Cheung, in The Economics of Patents and Copyrights, 8 RES. L. & ECON. 19 (1986); Louis Kaplow, The Patent-Antitrust Intersection: A Reappraisal, 97 HARV. L. REV. 1815, 1833 (1984): "[O]ur knowledge is inadequate to inspire great confidence even in the desirability of having a patent system at all ..."; cited in Craig Allen Nard, Toward a Cautious Approach to Obeisance: The Role of Scholarship in Federal Circuit Patent Law Jurisprudence, 39 HOUSTON L. REV. 101, 123 (at note 73) (2002).

<sup>87</sup> For a historical exploration, see Martha Woodmansee, The Genius and the Copyright: Economic and Legal Conditions of the Emergence of the "author", 17 EIGHTEENTH-CENTURY STUD. 425 (1984).

<sup>88</sup> James D.A. Boyle, SHAMANS, SOFTWARE AND SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY, (1996). For more on the concept of romantic ownership, see, e.g. Keith Aoki, (Intellectual) Property and Sovereignty: Notes Toward a Cultural Geography of Ownership, 48 STAN. L. REV. 1293 (1996) Keith Aoki (1993-94), Authors, Inventors, and Trademark Owners: Private Intellectual Property and the Public Domain , 18 COLUM.-VLA J.L. & ARTS 1. James D.A.Boyle, The Search for an Author: Shakespeare and the Framers, 37 AM. U. L. REV. 625 (1988); Peter Jaszi, Toward a Theory of Copyright: The Metamorphoses of "Authorship", 1991 DUKE L. J. 455 (1991); Pamela Samuelson, The Quest for Enabling Metaphors for Law and Lawyering in the Information Age, 94 MICH. L. REV. 2029 (1996); MARK ROSE, THE INVENTION OF COPYRIGHT 125-128 (1993); Wendy J. Gordon, A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property, 102 Yale L.J. 1533 (1993); Wendy J. Gordon and Sam Postbrief, On Commodifying Intangibles, 10 YALE J.L. & HUMAN. 135 (1998); Symposium Issue, Intellectual Property and the Construction of Authorship, 10 CARDOZO ARTS & ENT. L.J. 227-725 (1992); JANE M. GAINES, CONTESTED CULTURE: THE IMAGE, THE VOICE AND THE LAW (1991); James Boyle, supra note\_; Mark Rose, The Author as Proprietor: Donaldson v. Becket and the Genealogy of Modern Authorship, 23 REPRESENTATIONS 51 (1988); Martha Woodmansee, The Genius and the Copyright: Economic and Legal Conditions of the Emergence of the "Author", 17 EIGHTEENTH-CENTURY STUD. 425 (1984). But see Jessica Litman supra note\_\_ (tackling the problematic nature of "authorship" and the subsequent private property rightsapproach to copyright law).

<sup>89</sup> There is no direct evidence of a continued rise of the romantic conception of authorship over time. The literature

property laws, perhaps best exemplified by the rise of corporate copyright ownership and the transfer of employee inventions to employers,<sup>90</sup> conflicts with "author- or inventor-centrism"<sup>91</sup> and romantic notions of authorship.<sup>92</sup> In another view, the conception of authorship is in itself troublesome. If we concede to the deconstructionist viewpoint, authorship is suspect since texts are unstable and originality is inherently problematic.<sup>93</sup>

\* \* \*

As will be argued below, the expansion of intellectual property may be explained in a more straightforward manner. Intellectual property systems simply trace underlying technological and economic conditions. The expansion of the intellectual property law system has two main causal determinants: (1) the value of information goods; and (2) transaction costs in the management and enforcement of the rights in these goods.

# 2. The Origins of Property Rights in Information Goods

As this Section demonstrates, the rise of private property rights in the development of intellectual property law is hardly surprising. Private property rights are not the result of simple legislative capture by content providers, the stickiness of a romantic conception of authorship, or persuasive scholarship by imperialist economists. Nor is the rise of intellectual property rights due to any endemic change in the law by itself.<sup>94</sup> Private property rights in intellectual property goods are a simple result of changes in economic values that stem from the development of new technology and the opening of new markets. This is not a novel claim. It aligns with the seminal explanation of the emergence of property rights by Harold Demsetz.<sup>95</sup> In Demsetz's words, "[p]roperty rights develop to internalize externalities when the gains of internalization become larger that the cost of internalization."

The connecting factor between Demsetz's example of establishing property rights in land and the case of intellectual property law is externalities. Private rights in land and forest animals among the Montagnes Indians of the Labrador Peninsula developed in response to heightened

does not explain why the appeal of a romantic conception would rise over time. Instead in the era of post-war industrialization and the emergence of the new information economy, little romantic discourse is to be observed. In the new information economy it is the CEO/entrepreneur whO is heralded as truly exceptional.

<sup>&</sup>lt;sup>90</sup> Robert P. Merges, *The Law and Economics of Employee Inventions*, 13 HARV. J. LAW AND TEC. 1 (1999) [hereinafter Merges, *Employee Inventions*].

<sup>&</sup>lt;sup>91</sup> Carol M. Rose, The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems, 83 MINN. L. REV. 129, 151 (1998).

<sup>&</sup>lt;sup>92</sup> Mark Lemley, *Romantic*, *supra* note\_\_\_.

 <sup>&</sup>lt;sup>93</sup> In such a view, the substitution by corporate ownership might have rightly demystified the fallacy of authorship.
 Still, its relinquishment to corporate forces has the result of exposing future creative endeavors to the stifling effect of market forces and monopoly. See VAIDHYANATHAN, supra note\_\_, 10.
 <sup>94</sup> Compare Arti Kaur Rai, Regulating Scientific Research: Intellectual Property Rights and the Norms of Science,

<sup>&</sup>lt;sup>94</sup> Compare Arti Kaur Rai, Regulating Scientific Research: Intellectual Property Rights and the Norms of Science, 94 Nw. L. REV. 77 (1999) (holding that "not market influence but legal change - specifically the change in intellectual property rights" is responsible for the introduction of exclusivity in scientific research). *Id.*, 94. This view is systemic for a belief that granting a property right in an intellectual good makes the pursuit of these intellectual goods more attractive. Two points must be made here. First, the value of such artificial protection is limited by the value of what is granted exclusively via intellectual property law. Secondly, legal change does not fall from the sky. It is driven by underlying social forces. If we are to assume a static economic and norm-based environment, we will need an alternative explanation to explain legal change.

<sup>&</sup>lt;sup>95</sup> Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347-359 (1967).

opportunities in commercial fur trade, in the same way as property rights in information goods emerge in the face of new digital markets for content. Because overhunting presents a relatively serious problem when fur is valuable, there is a strong incentive to internalize costs via property right protection, especially if the costs of defining the boundaries of those rights are lowered.<sup>96</sup> Similarly, if downloading content material on file-sharing systems, such as Napster, dissipates incentives for content providers, this leads to sub-optimal investments<sup>97</sup> and a reluctance of content providers to sell their products on digital markets.<sup>98</sup>

Technological change commentators often fail to consider that, no matter how revolutionary technological advancements may be, the laws of supply and demand and the theoretical framework of external effects apply to technological change in the same manner they do to any other shift in relative costs caused by exogenous changes. That is, even in cyberspace the emergence of new property rights takes place "in response to the desires of interacting people for adjustment to new benefit-cost possibilities."<sup>99</sup> In the context of cyberspace, intellectual property law allows content providers to internalize the commercial synergy between authored works and new technological means of distribution and presentation of information.

It is not my intention to provide a normative claim as to the appropriateness of the specific allocation of property rights, as it has occurred the evolution of intellectual property laws. The basic point made here is that the basic conditions for the origination of private property rights in land among American Indians apply to the market for intellectual property rights. The development of fur trade and the development of a digital market for content holds two aspects in common: (1) a shift in the underlying economic value of the assets in the domain of intellectual property (strong property rights having an enabling effect in salvaging this opportunity), and (2) the decreased costs of defining the boundaries of those goods.

#### a. Increase in the Value of Intellectual Property

Because "our society is predominantly and increasingly a service society"<sup>100</sup> and because "the service portion is increasingly based on information"<sup>101</sup> the value of intellectual goods is now higher than ever. As the economic focus has shifted from tangible to intangible products and services, transactions in services and information, intellectual property is now an essential component of today's economy.<sup>102</sup> The commercial exchange of intangibles is a increasing

<sup>&</sup>lt;sup>96</sup> Demsetz attributes the relative absence of private property rights on the Southwestern plains to the high costs of containing wide range, migratory animals. For Indians of the Labrador Peninsula fencing forest animals was relatively less expensive. Variance in the degree of private property right protection can be explained in relation to the costs involved in the "fencing" of those assets. *See* also Robert C. Ellickson, Property in Land, **102** YALE L.J. 1315-1344 (1993); Barry C. Field, *The Evolution of Property Rights*, 42 KYKLOS 319 (1989). *See* also Dan Lueck, *The Extermination and Conversation of the American Bison*, 31 J. LEGAL. STUD. 609 (2002).
<sup>97</sup> Reichman & Samuleson, *supra* note\_\_, 55. This might explain the emergence of various *sui generis* protections.

 <sup>&</sup>lt;sup>37</sup> Reichman & Samuleson, *supra* note\_\_, 55. This might explain the emergence of various *sui generis* protections.
 <sup>98</sup> Michael A. Einhorn, *Digital Rights Management, Licensing and Privacy*, at p. 7, WORKING PAPER (2002). Available at <<http://papers.ssrn.com/sol3/ papers.cfm?abstract\_id=332720>>.

<sup>&</sup>lt;sup>99</sup> *Id.*, p. 350.

<sup>&</sup>lt;sup>100</sup> Kenneth W. Dam, Self-Help in the Digital Jungle, 28 J. LEGAL STUD. 393, 395 (1999).

<sup>&</sup>lt;sup>101</sup> Id.

<sup>&</sup>lt;sup>102</sup> Today's economy is characterized by an increasing role of traditional services in information goods, and "new economy" components, especially where technology fosters novel commercial applications of information transmission.

percentage of the economy<sup>103</sup> and accounts for a sizeable amount of the GNP of industrialized nations.<sup>104</sup> Intellectual property goods have become a "crucial set of corporate assets in the new information economy".<sup>105</sup> This trend is present in the markets for copyright, patent and trademark.

# i. Copyright Law and the (Several) Miracle(s) of Reproduction

The music industry underwent sweeping changes in the 1940's with the introduction of electronic recording techniques, the development of phonogram records and the breakthrough of the magnetic tape recorder. These technological advances forever altered the nature of the market for music.<sup>106</sup> For those involved in the production of music these advancements increased the stakes considerably. Phonogram records, improved recording techniques, magnetic tapes and tape recorders, and nation-wide markets created a lucrative industry.<sup>107</sup>

With the most recent advancements in digital technology, the means of producing, reproducing, and storing text, music, and movies are significantly enhanced.<sup>108</sup> Combined with perfect, costless reproduction capabilities, improved compression software, and increased bandwidth copyright owners have seen the beginnings of a new electronic or "e-market" for the distribution and commercialization of content.<sup>109</sup>

Digital technology has also increased the value of information. Digital technologies "break through the functional rigidities of print media by providing users with extraction tools that

<sup>&</sup>lt;sup>103</sup> A less frequently discussed trend is that "historically recognized but nonetheless atypical forms of property, such as intellectual property, are becoming increasingly important relative to the old paradigms of property such as farms, factories, and furnishings." Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287, 288 (1988).

<sup>&</sup>lt;sup>104</sup> In 2001, copyright industries (including movies, television programs, home videos, business and entertainment software, books, music and sound recordings) contributed an estimated \$535.1 billion to the U.S. economy, accounting for approximately 5.24% of GDP. See Stephen E. Siwek, Copyright Industries in the U.S. Economy – The 2002 REPORT, INTERNATIONAL INTELLECTUAL PROPERTY ALLIANCE 3 (2002). Available at <<hr/><htp://www.iipa.com/pdf/2002\_SIWEK\_FULL.pdf. >>. On the role of copyright in the American economy, see sources cited in Ginsburg, Bad Name, supra note \_\_\_\_\_ 61 at note 1. A similar trend emerges on a global scale, see The Knowledge-Based Economy: A Set of Facts and Figures, Paris, 1999.

<sup>&</sup>lt;sup>105</sup> Merges, Solitude, 2235.

<sup>&</sup>lt;sup>106</sup> *Id.*, 2196.

<sup>&</sup>lt;sup>107</sup> These technological advancements also enhanced the illegal reproduction and piracy of phonograms. Merges refers to the legislative history of the Sound Recordings Amendment of 1971, showing that 300 million U.S. dollars in revenue parallels 100 million dollars in pirated revenue. Merges, *Solitude, supra* note\_\_, 2197. H.R. Rep. No. 92-87 (1971) (reprinted in MELVILLE NIMMER, NIMMER ON COPYRIGHT, Appendix 18, at 18-3 (1963) (statement of Rep. Kastenmeier). Record companies urged for the creation of state law misappropriation doctrines and special state legislation. *Id.* at 2197 and sources cited therein.

<sup>&</sup>lt;sup>108</sup> Over the past decade information technology has achieved exponential improvements in, *e.g.*, convergence between various technical devices, means of and searching data, flawless, inexpensive and rapid reproduction, processor speeds and memory storage of personal computers. <sup>109</sup> For a review of the evolution of analog to digital technology, *see* Peter S. Menell, *supra* note\_\_, at pp. 56-72.

<sup>&</sup>lt;sup>109</sup> For a review of the evolution of analog to digital technology, *see* Peter S. Menell, *supra* note\_\_, at pp. 56-72. Conversely, once purchased, digital data can be perfectly duplicated at minimum cost. This effect of the intangible nature of digital data is compounded by the availability of peer-to-peer sharing networks. Peer to peer technology allows sharing of computer resources and services by direct exchange between computer systems. Peer to peer technology eliminates the need for centralized servers for storage of the resources. Instead the common pool of shared resources is accessible on each individual user's computer. This evolution creates a strong interest for both content producers and end users. This is discussed further below.

enable them to sort and arrange data in ways meaningful to them".<sup>110</sup> Modern technology can turn incoherent data into meaningful and valuable information.

#### ii. Patent Law: The Marketing Value of a Patent Portfolio

Structural changes in the innovation industry have increased the monetary value of patents. Large scale markets and rising living standards have increased the stakes in innovation, especially in therapeutic products. As research becomes increasingly capital intensive, this brings about the "industrialization of science",<sup>111</sup> reflected in the "corporatization" of industrial research and development,<sup>112</sup> where inventions become strategic tools in a market in which several multinationals are engaged in a competitive race of innovation.

It has become increasingly harder to draw a strict line between fundamental and applied research, because both categories have become of commercial importance due to the increased dynamics between both types of research.<sup>113</sup> Take, for instance, the world of DNA sequencing.<sup>114</sup> Previously, commercial value lay in the *use* of DNA molecules for the production of therapeutic proteins for sale.<sup>115</sup> In today's research climate *information* itself has enormous commercial potential, because it provides a direct base for future discovery.<sup>116</sup> Instead of cloning particular genes, the research and development objective has shifted to the more ambitious task of

<sup>&</sup>lt;sup>110</sup> Reichman & Samuelson, *supra* note \_\_\_, at p. 62 and sources cited in footnote 60.

<sup>&</sup>lt;sup>111</sup> On the origin of this trend that emerged after the Second World War, *see* JEROME R. RAVETZ, SCIENTIFIC KNOWLEDGE AND ITS SOCIAL PROBLEMS (1996).

<sup>&</sup>lt;sup>112</sup> Prior to recognizing corporate ownership of patents, a number of judicial and legislative changes acknowledged the essential role of corporations in the development of patents by their employees. This is reflected in (1) the enforcement of contracts between employers and employees who grant ownership to the latter, and (2) changes to the rules for naming inventors and the holding of patent portfolios. *See* Merges, *Solitude, supra* note\_\_, pp. 2215-2225 (describing this trend).

<sup>&</sup>lt;sup>113</sup> This is reflected in the increasingly overlapping activities by academic and industrial researchers: "Academic and industrial researchers are often working on closely related problems, whether competitively or collaboratively. Noteworthy scientific discoveries are made in industrial laboratories, and patentable inventions are made in university laboratories" (footnotes omitted). Eisenberg, *Proprietary Rights & Norms, supra* note\_\_, 196.

<sup>&</sup>lt;sup>114</sup> The seminal work in this area is by Rebecca Eisenberg: "There are two reasons why informational value looms large relative to tangible value in this context, in contrast to the targeted cloning projects of an earlier era that yielded sequences encoding products of known value. First, high-throughput DNA sequencing typically yields information about DNA sequences for which the corresponding biological functions are not yet understood. It is thus unclear at the time of sequencing whether a particular sequence will have tangible value. Second, high-throughput DNA sequences that do not correspond to any apparent commercial products) along with the occasional bit of wheat (in the form of sequences encoding commercially valuable proteins or offering other uses in tangible form). What is most valuable about these research results, at least initially, is that they provide an information base for future discovery. DNA molecules corresponding to some portions of the sequence, such as those portions that encode valuable proteins or that are the site of diagnostic markers, may ultimately prove valuable as tangible compositions of matter. But it might not be immediately apparent just where in the sequence these nuggets of tangible value lie." Rebecca S. Eisenberg, *Re-Examining the Role of Patents*]. *See also* Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625 (2002) (patents narrow information asymmetries between patentees and observers).

<sup>&</sup>lt;sup>115</sup> Eisenberg, *Role of Patents, supra* note\_\_\_.

<sup>&</sup>lt;sup>116</sup> See on this topic, *infra*, Section\_\_\_.

sequencing entire genomes.<sup>117</sup> Due to technological advances, information itself retains important commercial value.<sup>118</sup> Thus the subject matter of patent law has changed to enable speedy integration into marketable output.<sup>119</sup>

Moreover, intellectual property rights have become valuable assets on capital markets, even before a finished and marketable product exists. Patent portfolios are important tools in attracting investment and venture capital - working as a signal of the credibility of a business venture.<sup>120</sup> As such, patents have come to serve purposes that are unrelated to anticipated commercial successes, and serve to exclude competitors from a market. Patents have become powerful marketing tools, used to enhance the value of the patenting entity, as a signal of the latter's creativity and technological proficiency.<sup>121</sup>

# iii. The Three Risings of Trademark Law

The historical development of standardized manufacturing and processing technologies, centralized distribution techniques, and transportation networks<sup>122</sup> have allowed companies to economize on scale effects by targeting a global consumer economy. In these structural conditions information plays an increasingly important role. Brand recognition is crucial in information-flooded markets that offer a plethora of different products and services. Providing recognizable names, signs, and symbols are crucial instruments in such a competitive environment.<sup>123</sup>

In the service and information economy, advertising and brand loyalty have gained importance. By contrast, in the old, post-industrial economy, transactions mainly concerned discrete, readily identifiable product units. In dynamic, ephemeral service markets, where the role of experience characteristics are important, non-price determinants of commodities play a

<sup>121</sup> Ann Bartow, Separating Marketing Innovation from Actual Invention: A Proposal for a New, Improved, Lighter, and Better-Tasting Form of Patent Protection, 4 J. SMALL & EMERGING BUS. L. 1, 3 (2000). See also Clarisa Long, Patent Signals, supra note\_\_.

<sup>&</sup>lt;sup>117</sup> A patent holder's right to exclude others from using a specific set of intangible genetic information patens traditionally covers genetic information in a physical form, such as molecules of DNA (deoxyribonucleic, RNA (ribonucleic) or proteins. *See* James Bradshaw, *Gene Patent Policy: Does Issuing Gene Patents Accord with the Purposes of the U.S. Patent System?*, 37 WILLAMETTE L. REV. 637 (2001).

<sup>&</sup>lt;sup>118</sup> The commercial value of abstract genetic information has changed over time. "In the early days of patenting genes, the commercial value of genetic information derived not from the control of the information itself, but from control over its embodiment in the form of a tangible composition of matter - *i.e.* proteins." *Id.*, 641 (new genetic information discovery is routine, as is the issuance of gene patents).

<sup>&</sup>lt;sup>119</sup> This applies especially to research in recombinant DNA and related technologies that allow the creation of new organisms with the capacity to produce new products. *See* Eisenberg, *Proprietary Rights & Norms, supra* note\_\_, 195.

<sup>&</sup>lt;sup>120</sup> Id., 196. See also John M. Golden, Biotechnology, Technology Policy, and Patentability: Natural Products and Invention in the American System, 50 EMORY L.J. 101 (2001) (patents provide "intermediate products" to small research firms which are crucial in attracting investments for the further development of commercial products).

<sup>&</sup>lt;sup>122</sup> Merges, *Solitude*, *supra* note\_\_, 2206-ff. The leading example is the Coca-Cola company. The value of the Coca-Cola brand is estimated at160 billion U.S. dollars. Alex Brummer, *Coca-Cola Learns What's Untouchable*, THE GUARDIAN, June 19, 1999. Approximately 88.69% of the value of the company can be traced to brand name value. *See* <<http://pages.stern.nyu.edu/~adamodar/pdfiles/brand.pdf>>.

<sup>&</sup>lt;sup>123</sup> On the legislative history following this structural shift, see Merges, Solitude, supra note\_\_, 2208-2210.

crucial role. This increases the importance of advertising and product differentiation.<sup>124</sup>

The introduction of electronic commerce presents a third step in the rise of trademarks as crucial business assets. Mix today's mass consumer culture with the worldwide, twenty-four hour access-ability of on line products and services, and a new market forum with immense commercial potential is revealed. The importance of brands and recognizable signs is amplified for the purposes of e-commerce, because cyberspace confronts consumers with limitless amount of information. This is due largely to economic factors. The low costs of producing and communicating information via the Internet creates a situation where "the old points of concentration - the presses and distribution systems - no longer present the same insurmountable barriers to entry to becoming a speaker as they do in the mass mediated environment."<sup>125</sup> This results in the drastic reduction of entry barriers for suppliers of products and services. Once again, changes in economic conditions have increased the stakes for the internalization of positive externalities.

# b. Diminishing Transaction Costs

With each technological progression the transaction costs of communicating, and transferring content declines. This cost reduction has occurred with the development of mass media systems, transport systems, the service economy, satellite systems, and the growth of modern telecommunication.

More recently, the costs of contracting have further declined because of advances in information technology. Automated rights management systems, for instance, allow for the mechanical administration of intellectual property licenses. The online availability of intellectual property right database systems reduces search costs.

By controlling and monitoring each individual use, product differentiation can be administered even for purposes that were previously left idle because transaction costs were prohibitively high. As such, technology has improved the capability of intellectual property holders to engage in self-help measures of enforcement of the statutory monopoly rights conferred to them by Congress. Digital encryption technology fences intellectual goods from non-authorized uses. Software of this kind establishes effective rights of exclusion in digital content - be it text, pictures, music, or movies - because access to the encrypted content requires an individualized, non-duplicable digital key. In some instances the developments in digital technology have tilted the protection of intellectual property rights towards more individualized, stronger enforcement.<sup>126</sup> Automated rights management systems, allow content providers to

<sup>&</sup>lt;sup>124</sup> Lemley, *Death of Common Sense*, *supra* note\_, 1693.

<sup>&</sup>lt;sup>125</sup> Yochai Benkler, VIACOM-CBS Merger: From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons and User Access, **52** Fed. Comm. L.J. 561, 568 (2000).

<sup>&</sup>lt;sup>126</sup> Typically, content industries have declined to sue individual end users. Yet, there seems to be a re-adjustment of this strategy: *See* Anne Wile Mathews & Bruce Orwall, *Music Labels Go After Song-Swappers: Recording Companies Plan Lawsuits Against Individuals*, WALL ST. J., July 3, 2002. See in this regard the conviction of a college student, under the No Electronic Theft ("NET") Act, who had posted computer software programs, musical recordings, entertainment software programs, and digitally recorded movies on his Internet web site. *See* <<hr/>
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restrict access to a fee-per-use basis<sup>127</sup> and to monitor with accuracy the use of the content.<sup>128</sup> This technology enables "information providers to enforce standard copyright claims mechanically, without resort to the threat of litigation."<sup>129</sup> There has been much criticism on the use of technology for the enforcement of copyrights. Some have argued that this technology allows intellectual property owners to control their work in ways that are beyond the privileges afforded by intellectual property law.<sup>130</sup> Regardless of this claim, the advent of such effective means of enforcement, forces us to see intellectual property rights protection in more literal

<sup>128</sup> See in this regard: "In the predigital environment copyright gave owners some rights to profit from their work, but law and reality made it impossible to track or physically prevent all uses of "owned" cultural products in school papers or personal conversations. Spielberg could charge for all sorts of ways of viewing Schindler but could not prevent My Grandmother from being made. This is what made it possible for commercial vendors of cultural products to coexist with a vibrant public conversation. Now, movies released in encrypted digital format can be made impervious to this kind of creative recreation, and the recording industry can peek into college dorms to see if kids are mixing their own tapes." Benkler, *supra* note\_\_, 571.

<sup>129</sup> Of course, no enforcement mechanism is truly perfect. The circumvention of DVD Content Scrambling systems, Real Networks' streaming protection measures, Adobe's eBook reader, and the security code of the Xbox game console confirm that whenever technological protection of intellectual property is created, some specialist will always be able to circumvent this technology. The most embarrassing illustration is the faltering of the Secure Digital Music Initiative (SDMI). The recording industry was hopeful that it would secure protection for its future releases with new watermarks technology that places code onto a file that is supposed impossible to remove without damaging the quality of the sound or image. When the SDMI opened a hacking contest, challenging the public to break the digital watermarks. Professor Felten and a team of computer experts cracked several of these watermarks. When Felten wanted to present his findings at a conference the SMDI and RIAA threatened to sue for copyright law violation. Felten's free speech lawsuit was dismissed in the Federal Circuit. See John Schwartz, 2 Copyright Cases Decided in Favor of Entertainment Industry, N.Y. Times, Nov. 29, 2001. There is a wisdom in computer science which holds that the same technology that allows the creation of digital protection can be used to break ("crack") that technology. This has traditionally resulted in an "arms race" between content providers and the so-called underground "hacker" movement. Yet, more complex technological protection requires more complex measures to override this protection. This applies especially when technological protection is built into the hardware frame of the technology, in addition to the software components. See for instance, the protection built into DVD and Playstation 2 playback devices. As the user-friendliness of the circumvention tools reduce - in order to play illegal copies of games a chip needs to be installed into a Playstation 2 - copy protection becomes more effective. This issue is discussed in Ben Depoorter, The Fight over the Direction of Copyright Law in the Digital Era: Cycles and Echelons in Copy Protection, CASLE WORKING PAPER #11, 22p (2003).

<sup>130</sup> See, e.g., Dennis S. Karjala, Federal Preemption of Shrinkwrap and On-Line Licenses, 22 U. DAYTON L. REV. 511, 513 (standardized, uniformly enforceable contracts will regulate and diminish copyright user rights) (1997); Neil Weinstock Netanel, Copyright and a Democratic Civil Society, supra note\_\_.(technology raises high fences that amount to unprecedented copyright control); David A. Rice, Public Goods, Private Contract and Public Policy: Federal Preemption of Software License Prohibitions Against Reverse Engineering, 53 U. PITT. L. REV. 543, 560 (1992) (software license terms amount to "extra-statutory super-copyright"); Pamela Samuelson, The Copyright Grab, WIRED, Jan. 4, 1996 (technology gives right holders much stronger protection than the rights held under the traditional copyright regime.) But see Bell, supra note\_\_, 614-18 (those who rely on methods subject to preemption have the opportunity to exit from copyright into common law).

monitoring costs. Furthermore, as privacy suits are finding their way through courts, Internet Service providers have been compelled to turn over the names of customers suspected of illegally sharing music online. See Jonathan Krim, *File Sharing Forfeits Right to Privacy: Judge Tells Verizon to Identify Customers*, WASHINGTON POST, April 23, 2003, E01.

<sup>&</sup>lt;sup>127</sup> Automated right management systems are technologies that enable copyright owners to regulate reliably and charge automatically for access to digital works. For a further description of automated right management systems, *see* Bell, *supra* note\_\_.

terms. Digital technology brings the law in practice closer to the law in the books.<sup>131</sup> Perhaps some of the criticism of the use of self-help digital technology by producers of intellectual property is due to the fact that such enforcement creates a distribution of use of intellectual property that is quite different than more lenient systems of imperfect enforcement that we have grown accustomed to.<sup>132</sup> Although injunction is the standard remedy, intellectual property law often relies on liability rules when the enforcement costs of property rule protection are prohibitive. For instance, it is prohibitively expensive to monitor all individual uses of photocopiers, blank tapes, CD's, scanners and other devices that can be used to reproduce illegitimate copies of copyrighted work. Instead, the use of these devices is subject to a copyright tax.<sup>133</sup> For the same reason, copyright collectives grant blanket licenses instead of negotiating on each individual use of copyrighted work.<sup>134</sup> By contrast, recent advancements in automated rights management technology, encryption software, and "tethered" technology<sup>135</sup> provide copyright owners with the tools to regulate access and to enjoin unauthorized individual use of content. Of course, such move from liability to property rule protection is not absolute. In the absence of these measures of protection, and in the hands "hackers", the very technology that enables strong enforcement, reduces the costs of the illegitimate transfer of content. Yet, the costs of legitimate fencing are lowered by new technology and are distinct from the costs of

<sup>&</sup>lt;sup>131</sup> According to some, the literal application of copyright and trademark law will bring these areas of law in line with the broad restrictions of use under patent law, *see* Roger D. Blair & Thomas F. Cotter, *An Economic Analysis of Seller and User Liability in Intellectual Property Law*, 68 U. CIN. L. REV. 1, 37-45 (1999). The authors cite the National Information Taskforce (NII) proposal as examples of such extension: "The NII claims, for example, that when a person accesses a website she makes a copy (as defined in the copyright Act) of the site's content, because the text is, in fact, fixed in the random access memory (RAM) of her computer for "a period of more than the statutory duration." The viewer therefore infringes unless the owner of any copyrighted material posted on the website has authorized her access. The logic of this position also suggests that when the recipient of an e-mail message forwards the message to another, she induces the other to make an unauthorized copy (and may be violating the owner's distribution rights as well)." *Id.* at 38. The important point is that, as a medium, on cyberspace digital technology *enables* the enforcement of such literal interpretations.

<sup>&</sup>lt;sup>132</sup> See in this regard the enforcement of individual copyright offenders, as opposed to the traditional regime where commercial piracy was the locus. See also Anne Wile Mathews& Bruce Orwall, Music Labels Go After Song-Swappers: Recording Companies Plan Lawsuits Against Individuals, WALL ST. J., July 3, 2002. These types of suits are now manageable because in the digital environment footprints are left behind.

<sup>&</sup>lt;sup>133</sup> Copyright "taxes" have virtually become a universal feature of copyright enforcement. *See* in the European context, for example, Articles 55-58 of the *Belgian Act on Copyright Law and Related Rights*, 30th of June 1994 (*B.S.*, 27 Juli 1994). Authors, performing artists and producers of audio and visual materials receive an equal subdivision of a 3 percent tax on the sale price on recording equipment, and 2 and 5 Belgian francs of a tax on every hour of analogue and digital recording carriers. In the United States, *see* the *Audio Home Recordings Act* of 1992 which establishes a royalty on the sale of devices and blank recording media. *Audio Home Recordings Act*, Pub. L. No. 102-563, 106 Stat. 4237 (1992) (codified at 17 *U.S.C.* §§ 1001-10). Manufacturers and importers of digital audio recording equipment and blank tapes, disks and other storage devices contribute 2% of the transfer price on digital audio devices and 3% on storage media to a copyright pool. The pool is distributed to owners of musical compositions (one-third) and sound recordings (two-thirds) based in prior year sales and air time. *See* 17 *U.S.C.* §§ 1003-07.

<sup>&</sup>lt;sup>134</sup> See Robert P. Merges, Contracting Into Liability Rules: Intellectual Property Rights and Collective Rights Organizations, 84 CALIF. L. REV. 1293 (1996).

<sup>&</sup>lt;sup>135</sup> "Tethered" technology allows copyright holders to time the exact number of playback of an digital audio or audiovisual good by a consumer and to bar further access after the contractually provided amount of uses. Such measures can be understood as self-help rights of injunction.

preventing illegal activities. I return to this issue in the following Section.

#### c. Discussion

In summary, the increased protection of copyrights, patents, and trademarks can be understood as the combined result of the increased value of these products and a decrease of transaction costs surrounding their marketability and the effective protection of these rights by their producers. Property rights offer an opportunity to content providers to capture the value of their creations, securing investments in an information or knowledge-economy.

Some clarification is in order. Property right activity develops because of *private* incentives of content providers. Precisely for this reason it does not follow that, the emergence of private property rights imply that the accommodation of technology and intellectual property law through property right protection will bring about the most efficient allocation from a societal perspective. Here my analysis departs from the assumption that emergence of property rights equals wealth maximization or that the developing intellectual property rights necessarily follow societies' "cost-benefit equation", as the optimistic claim in the Demsetzian reading of property rights' evolution would have it.<sup>136</sup> Rather, it is suggested that private property right allocations will emerge in light of the interaction of the changed conditions and the preference of those parties that have a strong incentive to internalize the changing costs and benefits. Private property rights are an obvious first-best for those involved in the first stage of legal change. To content providers private property rights establish maximum control rights over intellectual resources.<sup>137</sup> Consequently, private property rights are a main focal point in the struggle over the boundaries of free access to intellectual material.

Section IV will next examine the societal implications of the emerging "propertized" market of intellectual property rights. First, I take a step back and consider the larger social economic process of the emergence of property rights. The original Demsetzian theory on the emergence of property rights leaves open the precise mechanism by which a property rights systems eventually takes shape.<sup>138</sup> The remainder of this Section is a first attempt to fill this void in the context of intellectual property rights.

<sup>&</sup>lt;sup>136</sup> Thomas W. Merill, *The Demsetz Thesis and the Evolution of Property Rights*, 31 J. LEGAL STUD. S331, S332 (2002). See also: "The Demsetz story is a happy one, because it implies that over the long run, property rights will be reallocated in the direction of efficiency". Stuart Banner, *Transition Between Property Rights*, 31 J. LEGAL STUD. S359, S360 (2002) (relating property rights changes to political economy factors such as political hierarchy and power, providing a case study of the British settlers against Maori). See also, "The Demsetz-style story about transaction costs, as well as the related depictions of technological advances and price changes leading to closed access and private investment, is at root quite optimistic". Saul Levmore, *Two Stories About the Evolution of Property Rights*, 31 J. LEGAL STUD. S421, 429 (2002) (discussing the roles of optimistic, transaction costs-based versus pessimistic interest group-based explanations of property regime changes).

<sup>&</sup>lt;sup>137</sup> Property rights, with hard rights of exclusion, provide content providers with more control and discretion in the management of resources than more refined property governance structures. *See* Henry Smith, *Exclusion Versus Governance: Two Strategies for Delineating Property Rights*, 31 J. LEGAL STUD. S453, 457 (2002).(emergence of property rights could also mean increased use of governance rules, i.e. rules that "pick out uses and users in more detail, imposing a more informational burden on a smaller audience of duty holders").

<sup>&</sup>lt;sup>138</sup> "It said virtually nothing about the precise mechanism by which a society determines that the benefits of property exceed the costs, other than to disclaim any position on whether this would necessarily entail a 'conscious endeavor'". Thomas W. Merill, *The Demsetz Thesis and the Evolution of Property Rights*, 31 J. LEGAL STUD. S331, S333 (2002).

# 3. The Evolutionary Mechanism of Intellectual Property Law

#### A. Introduction

The previous Section states that property rights are a natural response to enhanced economic prospects. However, according to Robert Merges, there is "nothing foreordained about the future of the patent system, or of any other branch of the intellectual property system for that matter."<sup>139</sup> I argue that there actually is a degree of determinacy in the evolution of the laws of intellectual property. The remainder of this Section proffers an evolutionary understanding of the social mechanisms underlying the development of intellectual property law.

# B. The Social Mechanics of Intellectual Property Law Expansion

In this Section I argue that the evolution of the intellectual property law system can best be understood as a "B<sub>2</sub>-type process": two causal chains are triggered, each of which affect the independent variable in opposing directions, leaving the net overall effect indeterminate.<sup>140</sup> More specifically, of the two opposing mechanisms, the second mechanism is triggered by the initial causal chain, leaving it impossible to predict the net effect of the two opposing mechanisms. Applied to intellectual property law formation, the expansion of protection for intellectual property holders triggers a counter-reaction that moderates the initial increase of protection.

# 1. Stage One: Perceiving Unrestricted Uses of New Technology as an Opportunity Cost

Traditionally, the first step in the causal mechanism of intellectual property development is a demand by producers to strengthen intellectual property rights. The previous Section explained why property rights make sense in light of technological improvements. However, there is a specific reason why a demand for the *expansion* of intellectual property *law* is the initial response to technological advancements. With the introduction of new technology, intellectual property law enters a stage of uncertainty. In this phase of uncertainty the default position will either entail a general perception that (*i*) the new technology is encompassed by the present intellectual property law (the default interpretation is one of *analogy or precedent*); (*ii*) the new technology is sufficiently different that such analogy is not obvious (the default position is *differentiation*). When the technology is truly innovative, the legal status of uses of it will be subject to substantial uncertainty. Even when involving resources that are governed by strict bright line regulation, the practical situation will be ambiguous as to the exact entitlement of use rights.

Take the example of copyright law. Peer-to-peer networks, new sharing software, wide bandwidth Internet access, and novel compression formats (such as mp3 and Divx) allow users to exchange and manipulate copyrighted content in ways and to degrees that depart from standard notions of copyright rules of access to copyrighted material. In the minds of (self-

<sup>&</sup>lt;sup>139</sup> Merges, *Solitude*, *supra* note\_, 2234.

<sup>&</sup>lt;sup>140</sup> Jon Elster, *A Plea for Mechanisms* 50-52, in SOCIAL MECHANISMS: AN ANALYTICAL APPROACH TO SOCIAL THEORY (Peter Hedstrom & Richard Swedberg, eds., 1998).

serving) end users such novel uses are considered sharing and not piracy. Peer-to-peer sharing activities are very different from the traditional notions of piracy. Among other things, there is an absence of financial transactions, there are no intermediaries, and the same technology can also be used to exchange non-copyrighted material.

Generally, the introduction of new technology is followed by a phase of unrestricted application of this technology to existing copyrighted work. This is partly because the true nature of the problem only truly materializes in the minds of copyright owners when these novel uses become widespread and more visible.<sup>141</sup> First it must become apparent that free use of novel exchange mediums entails substantial opportunity costs to producers, *i.e.* that there are "gains to be internalized". For instance, the music industry discovered only that huge profits were to be made by transferring music in mp3 format over broadband networks, at a stage where such exchanges had become relatively widespread on the Internet.<sup>142</sup> This triggers the initial action by copyright owners to obtain formal enclosure of those novel uses within their privileges as copyright holders.<sup>143</sup>

In this first stage, litigation and lobbying by copyright owners often leads to expansion of copyright law.<sup>144</sup> The *Napster* litigation led to the application of copyright law to a new medium. Since *Napster* sharing legitimately purchased content via peer to peer exchange networks is deemed illegitimate.<sup>145</sup> Previously the "first sale" doctrine protected the right to sell or otherwise

<sup>144</sup> For example, *e.g.*, consider the successful litigation leading to a ban of unauthorized operation of MP3.com's "private" storage lockers for purchased songs (*see* Brad King, *RIAA Wins Suit Against MP3.com*, April 28, 2000 (available at <<http://www.wired.com/news/business /0,1367,35933,00.html>>); the enjoining of the distribution of Streambox's Ripper software, which enabled the recording and storage of streamlined material played on real audio and video players (*see* Clare Haney, *RealNetworks Wins Injunction Against Streambox*, IDG News December 28, 1999; available at <<http://www.idg.net/spc\_111319\_3893 \_1-2081.html>>); RIAA's legal action against MP3board.com's search engine for MP3 files, where the RIAA claimed that it is a violation of copyright laws for a company to provide hyperlinks to publicly accessible Web sites where users can download files (*see* Brad King, *RIAA: No Hyperlinking Allowed*, WIRED NEWS, Jun. 26, 2000, available at <<htp://www.wired.com/news/politics/0,1283,37227,00.html>>), and the judgment entered in *Universal v. Reimerdes* (Universal City Studios, Inc. v. Reimerdes, 111 F. Supp. 2d 346 (S.D.N.Y. 2000)) where which prohibited the dissemination of DeCSS, the DVD decryption program (affirmed by Court of Appeals for the Second Circuit.).

<sup>145</sup> A preliminary injunction enjoined Napster from "engaging in, or facilitating others in the copying, downloading, uploading, transmitting, or distributing plaintiffs' copyrighted musical compositions and sound recordings, protected

<sup>&</sup>lt;sup>141</sup> Historically, copyright owners have always tolerated minor infringements.

<sup>&</sup>lt;sup>142</sup> See also the example of the introduction of compact disc technology: "Even with the introduction and rapid popularity of digitally-encoded compact disks (CDs) and the proliferation of microcomputers beginning in the early 1980's, the record industry did not appreciate the dramatic changes that would be brought about by the emerging digital technologies." Menell, *supra* note\_\_, at p. 49.

<sup>&</sup>lt;sup>143</sup> Take for example, copyright owners' legal action against the Sony Corporation's new digital audio tape and mini-disc technology. These devices enable the production and reproduction of identical copies of authored works with minimal loss of quality. *See* Cahn v. Sony Corp., 90 Civ. 4537 (S.D.N.Y. filed July 9, 1990). This exercise would be repeated with the introduction of DVD players. The Recording Industry Association of America ("RIAA"), representing more over 500 companies engaged in the creation, manufacturing, and distribution of sound recordings, leads the way in most of these efforts. This effort is compounded by inherent product uncertainty in content industries: "One of the reasons that business people in Hollywood are so nervous is that they never really know what's going to win or what's going to lose. They don't know what their markets and audiences really want; they don't know how to adjust things in mid-stream. So there's constant pressure to make their systems more efficient". Siva Vaidhyanathan in Paul Schmeizer, *The Anarchist in the Library: Discussing Cultural Democracy with Siva Vaidhyanathan*, BLOGSPOT, 21 April 2003.

dispose a personal copy that had been lawfully acquired.<sup>146</sup> As a result, the same borrowing of a compact disc from a friend becomes infringement when conducted through a peer-to-peer network.

From this thesis it follows that most revolutionary jumps in technology are thus followed by period of non-applicability of intellectual property law and a time of open-access sharing.<sup>147</sup> Peer-to-peer technology is exemplary of new technology where the synergy between technology and information content is a sufficient departure from prior understandings of the applicability of copyright law. The transfer of copyrighted work on peer-to-peer technology was originally left unfettered because it departed from the for-profit aspects that dominated the legal concept of "piracy". Initially, this brings about a phase of non-applicability of intellectual property law. However, as the use of the technology gained momentum, the line between unauthorized copying left unfettered and large-scale for-profit piracy blurred. Because non-profit large scale copying<sup>148</sup> by end users remained sufficiently different, the music and movie industry needed to demonize the technology and voice existential outcries in order to convince courts to resort to creative interpretation against the default position of unrestricted use. In doing so music and film producers have argued that peer-to-peer technology creates systemic infringements that cumulatively would undermine the underlying industry and the future supply of content.<sup>149</sup>

The above leads to the following conclusions. First, it is not necessarily the case that an unregulated environment creates the conditions for innovation; rather, it is the nature of cutting-

<sup>146</sup> 17 U.S.C. 109(a).

<sup>147</sup> This is the creative pooling that figures prominently in the views of Lawrence Lessig.

<sup>148</sup> The number of *Napster* users has been estimated at 64 million. *See* European Parliament and Council of the European Union, Common Position No. 48/2000, Recital 38, adopted 28 September 2000. Daily users of the other main peer-to-peer networks, such as Kazaa and Morpheus, are currently estimated at over 1 million.

by either federal, or state law, without express permission of the rights owner." Napster, Inc. v. A & M Records, 114 F. Supp. 2d 896 (N.D.Cal. 2000). The Court of Appeals for the Ninth Circuit affirmed in part the District Court Decision. A&M Records, Inc. 239 F. 3, at 1011, 1029. (finding contributory infringement for facilitating direct infringement of its users, with actual knowledge of the infringing materials on its system, finding against fair use because of the commercial the damage to the present and future nature of digital download markets. Similar suits are now underway against other popular file sharing devices that emerged in the wake of Napster. The record industry and Hollywood studios have joined forces to sue MusicCity, Kazaa and Grokster. *See* John Borland, *Suit Hits Popular Post-Napster Network*, CNET NEWS, Oct. 3, 2001. Available at <<htps://news.com.com/ 2100-1023-273855.html >>.

<sup>&</sup>lt;sup>149</sup> The RIAA regularly calls attention to its commissioned reports on declining sales. *See* Reuters, *Labels Say Music Swaps Spur Sales Slum*, CNET NEWS, Aug. 26, 2002 (reporting a study indicating a decline of compact disc shipments if 7 percent in the first six months of 2001 versus 2000) Available at <<http://news.com.com/2100 - 1023-955397.html>>; Margaret Kane, *Is Napster Taking a Toll on CD Sales?*, ZDNET NEWS, May 24, 2000 (in 1997-2000 sales of CDs within a five-mile radius of colleges declined 4 percent over the last two years). Available at <<http://zdnet.com.com/2100-11-52 1033.html?legacy=zdnn>>; Brad King, *Napster: Music's Friend or Foe?*, WIRED NEWS, Jun. 14, 2000 (college stores located near universities that had banned Napster from being used on school computers showed an 8 percent drop in sales from 1999 to 2000). Available at <<htp://www.wired.com/news/business /0,1367,36961,00.html>>. Sale revenues from on-line purchases have increased. Yet, as Emusic.com chairman Robert Kohn acknowledges: "it"s clear that CD sales would have been higher had file trading applications not been around"; Graeme Waerden, *Napster Blamed for Plunge in Singles Sales*, ZDNET NEWS UK, Feb. 26, 2001 (The Recording Industry Association of America figures indicating a drop in number of CD singles shipped in the US in 2000 fell 39 percent). Available at <<htp://news.zdnet.co.uk/story /0,s2084666,00.html>>.

edge innovation itself that initially keeps new uses beyond the grab of intellectual property law. In its early stages ground-breaking technology necessarily finds itself outside the confines of existing legal doctrine.<sup>150</sup> Secondly, given that under conditions of ambiguity users of new technology act according to a default position of free use and access to copyright content, it is to be expected that copyright owners seek expansion. In doing so, producers set the initial agenda of litigation<sup>151</sup> and legislation<sup>152</sup> to establish the application of intellectual property laws to emerging technological applications.<sup>153</sup>

# 2. Second Stage: Loss Aversion

The expansion of intellectual property law triggers a counter movement. In assuring the urgency of their plight producers of intellectual property often overstate their claims.<sup>154</sup> When these demands result in the extension of intellectual property law, this creates outlier cases that

<sup>&</sup>lt;sup>150</sup> The first phase of non-applicability of standing intellectual property law increases with (i) the novelty of the technological breakthrough is significant and; (ii) the level of specificity and rule-based nature of the closest related law. In this regard the more detailed 1976 US copyright Act is less conducive to a status quo in favor of copyright owners, then the more open ended 1909 Copyright Act.

<sup>&</sup>lt;sup>151</sup> See, for example, the legal battle by the Recording Industry Association of America against the MP3 player/recorder "Rio". The RIAA accused Rio of violating the requirements for digital audio recording devices under the Audio Home Recording Act of 1992, and for not employing a Serial Copyright Management System and failure to pay royalties on sales of the digital audio recording device, 180 F.3d at 1079. The court dismissed the claim holding that general computer technology is not included in AHRA. In these cases judges are asked to stretch the "limits of statutory language" through judicial interpretation and interpolation. Jessica Litman, *Copyright, Compromise, and Legislative History*, 72 CORNELL L. REV. 857, 857 (1987) (with reference to U.S. COPYRIGHT OFFICE, BRIEFING PAPERS ON CURRENT ISSUES, reprinted in *Copyright Law Revision: Hearings on H.R. 2223 Before the Subcomm. on Courts, Civil Liberties, and the Administration of Justice of the House Judiciary Comm.*, 94th Cong., 1st Sess. 2053 (1975)). According to Litman, courts continued to rely on older precedent because of the confusion surrounding the 1976 Copyright Act. Much of the confusion arises from the fact that the parties to the negotiation of 1976 agreed upon language, "while disagreeing what the language meant". *See Id.* at 861.

<sup>&</sup>lt;sup>152</sup> Producers regularly address legislators to obtain wholesale legislative amendments to existing laws, or the creation of new legal rules. *See*, for example, the *Digital Millennium Copyright Act*.

<sup>&</sup>lt;sup>153</sup> Ginsburg colorfully describes this a "Pavolvian" response to technology that involve new means of making copies or communicating works. Ginsburg, *Bad Name*, *supra* note\_\_, 68.

<sup>&</sup>lt;sup>154</sup> Some argue that the content industries have a long established tradition of exaggerating their claims. Traditional print publishers argued that public libraries and photocopiers would undermine the market for books and journals, and radios would kill the music industry. Later on, video cassette recorders were claimed to be the death of the film and television industries. Raymond Ku & Ray Shih, *The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology*, 69 U. Chi. L. Rev. 263 (2002). *See* also Ginsburg, *Bad Name, supra* note\_\_\_. Ginsburg claims that overreaching occurs by both copyright owners and consumers of copyrighted content and is to explained by the same independent variable: greed. The author cites reverse engineering and attempts to curb parodying as two prime examples of over-reaching which put copyright owners in a bad light. *Id.* At 8. End users and consumers, on the other hand, overreach when claiming that information "wants to be free" and therefor they should be allowed to freely share movies across peer-to-peer networks. *See* also *Katyal*, supra note\_\_\_ (the conflation of both uses of technology leads some to assert the under-inclusiveness of intellectual property rights and others to err on the side of over-inclusiveness. The same technology that allows peer-to-peer exchange between recreators and innovators is also the venue where piracy efforts are at a maximum).

bring about strong images in the mind of the public.<sup>155</sup> Consider in this regard, the legal suit by *ASCAP* against the *American Boy Scouts Movement* demanding royalties for campfire performances of copyrighted songs. This case fueled the fight against strengthened powers of copyright users and reinforced antitrust awareness with respect to copyright collectives.<sup>156</sup> To the extent that free use develops into a custom (boy scouts performing campfire songs, network users swapping files on Napster, and so forth), the vigorous legal condemnation of these sharing norms among users of copyright content will meet strong resistance. Ironically, by expanding intellectual property law the norms that the legal rules are intended to modify might be strengthened.<sup>157</sup> As another example, imagine the passing of the *Peer-to-Peer Piracy Prevention Act* that proposes to provide immunity to activities that disable, block or impair peer-to-peer networks and private individuals' home computers.<sup>158</sup> In face of such demands by copyright holders, users respond by applying pressure on the intellectual property system for the reversal or moderation of those claims.<sup>159</sup>

<sup>&</sup>lt;sup>155</sup> *But see* Merges, who finds that, due to their intangible nature, the expansion of intellectual property rights take place conceptually and, consequently, face no "natural facts to act as a brake on expansive notions of how broad a right might be, how many people and activities it might reach, or how long it might last..." Merges, *Solitude*, supra note\_\_, 2239. In concreto, this might make it difficult to "turn back a judicially initiated extension of rights". Yet, conceptual expansion translates into real world consequences.

<sup>&</sup>lt;sup>156</sup> Other recurring examples are the attempts to outlaw technology that accommodates infringement, although the technology accommodates legitimate uses. Examples of such dual use technologies include time shifting in the case of home taping, exchange of non copyrighted work or among copyright owners such as young artists in the case of file sharing technology. *See* also the proposal to enforce copyright through the control of the architecture of digital technology, as found in Senator Ernest Hollings proposed *Consumer Broadband and Digital Television Promotion Act*, S. 2048. 107<sup>th</sup> Cong., 2d Sess. In this proposal the FFC and Copyright Office would establish security system standards encoding all rules for all digital media devices sold or offered for sale in the United States. Available at <<<hr/>http://www.politechbot.com/docs /cbdtpa/ho llings.s2048.032102.html>>. According to Ginsburg, the many extensions of intellectual property law that cause public indignation are the result of simple greed on the part of intellectual property holders. *See* Ginsburg, supra note\_\_, *Bad Name*. Dual use technology was explicitly protected in Sony Betamax where the Court recognized the doctrine of "substantial noninfringing use" to protect providers of products that can be used for both legal and illegal purposes. Universal City Studios, Inc. v. Sony Corp. of America Betamax, 659 F. 2d 963 (9th Cir. 1981).

<sup>&</sup>lt;sup>157</sup> There is a growing acceptance of unauthorized distribution of music and films by millions of high school and college students - this produces a generation of citizens who question the legitimacy of copyright protection on the internet. *See* John Schwartz, *Trying to Keep Young Internet Users from a Life of Piracy*, N.Y. TIMES, Dec. 25, 2001. Law makers should apply "gentle nudges" rather than "hard shoves" to enforce a law that attacks a widespread social norm. *See* Dan Kahan, *Gentle Nudges vs. Hard Shoves: Solving the Sticky Norms Problem*, 67 U. CHIC. L. REV. 607 (2000) (examining the robustness of social norms). This might apply in particular to the norms and customs of the sharing of copyrighted material, as developed on cyberspace over peer-to-peer networks.

<sup>&</sup>lt;sup>158</sup> Rep. Howard L. Berman's *Peer-to-Peer Piracy Prevention Act* would exempt from liability destructive acts of counter-circumvention where damage to computers is limited to \$250 dollars. Available at <<htp://www.house.gov/berman/pr072502.htm>>. The Act does not specify whether the planting of viruses, worms, denial-of-service attacks, or domain name hijacking, would be permissible. Although the Act states that "copyright-hackers" should not delete files, the right to sue of anyone subject to an intrusion, during which files are accidentally erased, is limited. *See Could Hollywood Hack Your PC?*, Declan McCullagh CNET News, July 23, 2002. Available at <<htp://news.com.com/2100-1023-945923.html?tag=fd\_lede>>.

<sup>&</sup>lt;sup>159</sup> A broad range of interest groups provides opposing pressure. This includes *e.g.* the open software movement, consumer protection groups, artists' rights, civil liberties, and the digital freedom movement. *See, e.g., The Digital Future Coalition* (DFC), compromising educational, scholarly, library, and consumer groups, as well as consumer electronics, telecommunications, computer and ISP industry organizations, to provide balance in litigation and

The overall evolution of intellectual property law thus represents a cyclical<sup>160</sup> back and forth between initiatives on both sides of the private property and free use coin of intellectual property.<sup>161</sup> The evolution of technology is inherently uncertain. Content producers fear that technology will allow systemic infringements that cumulatively undermine their future.<sup>162</sup> Consumers believe that this very technology will allow the content industry to go beyond intellectual property laws and tighten stronger monopolistic control.<sup>163</sup>

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The question remains whether this process will necessarily generate a satisfactory equilibrium.<sup>164</sup>

policy discussions about copyright's future. *See* http://www.dfc.org/dfc1/ Learning\_Center/about.html>>>, the *Electronic Frontier Foundation, Home Recording Rights Coalition* consumer protection organizations: attempting to ensure broad rights of use with regard to VCR's, DATs, MP3 players and other technology involving music and video content, see also the Digital Consumer Organization (<<htp://www.digitalconsumer.org/>>> and *Boycott-RIAA* (see <<htp://boycott-riaa.com/>>: "Boycott-RIAA was founded because we love music. More and more the RIAA and the major labels have attempted to lock up our culture and heritage through extensive lobbying, outrageous campaign donations, misleading our political leaders, and lying to the public, while misrepresenting the facts. Changing copyright law is not a solution for poor management. Copy protected CDs lock up the music forever, even when the work in question returns to the public domain. This was not part of the copyright bargain our forefathers struck, nor was it ever intended to provide income for the heirs of the copyright holder. It is our intention to make the public, and our leaders aware of the implications and long term consequences to our culture of bowing to every demand the recording industry presents to our congress. It is our intent to continue to unspin the spin and to represent the consumer and independent artists positions on the battlefield that copyright has become.")

<sup>160</sup> Such cyclical shifts also apply with regard to code. Code originates in an environment of free and open-source use. As the value of a code increases, the code eventually is subjected to rights of exclusivity. *See* Lawrence Lessig, *The Law of the Horse: What Cyberlaw Might Teach*, 113 HARV. L. REV. 501, 547 (1999).

<sup>161</sup> To the extent that this counter movement is successful, we may retain some optimism towards the capacity of the intellectual property system in accommodating conflicting interests of users and producers of intellectual property. *Compare* Menell, *supra* note\_\_, citing William Eskridge, *Politics without Romance*, 74 VA. L. REV. 275 (1988) (predicting that such conflicting demand patters lead to regulatory resolutions).

<sup>162</sup> "The problem is that the companies that invest in so many millions of dollars in these high-end commercial products – the sort of products the US Government decided represented culture – stopped believing in copyright. They stopped believing you could regulate culture softly and reasonably, because they were afraid that digital technology would encourage us to undermine the market for those legitimate goods". Siva Vaidhyanathan in Paul Schmeizer, *The Anarchist in the Library: Discussing Cultural Democracy with Siva Vaidhyanathan*, BLOGSPOT, 21 April 2003.

<sup>163</sup> On legislation that proposes to install restrictive security chips in all hardware: "[they] are basically legalizing tactics that are, for all intents and purposes, illegal for all other groups to do... .The media companies are launching a full-tilt assault on taking away fair-use rights from consumers. The reason they are doing that (is because) they are after far greater amounts of control over how consumers use media." Joe Kraus, co-founder of the fair-use rights group DigitalConsumer.org. Brad King, *Bracing for the Digital Crackdown*, WIRED NEWS, August 22, 2002. Available at <<hr/>http://www.wired.com/news/politics/0,1283,54681,00.html>>.

<sup>164</sup> For a relatively optimistic account, *see* Menell, supra note\_\_, at p.6. The twenty-year extension of copyright protection puts "pressure on the system to offset the gains in years with a diminution in the scope of protection, for example, through a more vigorously implemented fair use exception, not only during the last 20 years, but perhaps during the copyright term" (footnote omitted). *See* also the work of Robert Merges, *e.g.*, Merges, *New Institutional Economics, supra* note\_\_ (efficient institutions will emerge); Robert P. Merges, *Contracting Into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CALIF. L. REV.1293 (1996) (same) and Merges, *Solitude, supra* note\_\_, 2187 (propensity of the common law to adopt to societal change). In some way the type B2 process explanation peaks into the black box description of intellectual property law formation as "cyclical

With regard to resource allocation efficiency, the outcome will depend on institutional factors. Will participation of both opposing groups be equal before both courts and legislators? Are both institutions equally geared to consider the claims of the parties in the intellectual property law debate? Or, alternatively, will market interaction abridge some of the interests through the development of norms, or other institutions? With smooth, independent working legal institutions, intellectual property law entitlements could arrive at the efficient equilibrium. Given uncertainty and transaction costs, some have argued that courts are best equipped to solve the problems of the adaptation of intellectual property law to technological evolution.<sup>165</sup> This approach would suggest the usage of open-ended laws, rather than detailed legislative initiatives such as the *Digital Millennium Copyright Act* the *European Union Information Society Directive*.

The issue of the evolutionary adaptability of the intellectual property system does not allow easy evaluation. Intellectual property systems have certainly expanded over time. In light of the demands of an increasingly technologically complex society, a certain degree of propertization is to be expected. But propertization triggers counterclaims, resulting in indeterminate results as to whether a balance will be obtained. From a resource allocation efficiency perspective, the exact composition of the property rights assignments, resulting from this process of propertization, will have differing impacts on social welfare. This Chapter will next explore the role of property rights, in particular the right of exclusion, in the context of patents, copyrights, and trademarks.

## III. PROPERTY FRAGMENTATION: A NEW PARADIGM IN INTELLECTUAL PROPERTY POLICY

This Section explores the possible societal ramifications of the proliferation of intellectual property rights in relation to the economic concept of property fragmentation. Subsection A demonstrates that extension of property right-protection onto increasingly smaller units of intellectual goods is problematic, given the "multi-component" or complementary nature of intellectual property goods. In Sections B to D fragmentation and complementarity (and the presence of institutional safeguards) are explored with regard to the three main intellectual property rights.

This next Section first examines in more detail the institutional framework of patent law,

fluctuations between states of under- and overprotection are a characteristic response to borderline subject matters that fit imperfectly within the classical patent and copyright paradigms" - Reichman & Samuelson, *supra* note\_\_, 64.

<sup>&</sup>lt;sup>165</sup> Merges adopts a three-tiered theory of the adaptive propensity of intellectual property law, "(1) an early period of disequilibrium, when new technology may produce widely divergent results; (2) an extended period of adaptation, when general doctrines developed in earlier areas are applied on a case-by-case basis; and (3) legislative consolidation, in which a major statutory overhaul codifies some of these doctrinal modifications. The overall effect of this three-stage process is the slow, steady extension of property rights over the products of new technologies." Merges, *Solitude*, 2190. This is an argument for case for case-by-case evaluations (not unlike a percolation) prior to consolidation in statutory acts. This implies that systems of judge made law- would be better suited to find a balance in intellectual property law. *See also* Lawrence Lessig, *The Path of Cyberspace*, 104 YALE L.J. 1743 (1995) (arguing for a case-by-case formation of the legal foundation of cyberspace). *But see* Maureen O'Rourke, *Rethinking Remedies at the Intersection of Intellectual Property and Contract: Toward a Unified Body of Law*, 82 IOWA L. REV. 1137, 1140 (1997) [hereinafter O'Rourke, *Rethinking Remedies*] (the interaction between intellectual property law and contract law should be considered "comprehensively and systematically now – before ad hoc judicial decisions impair the market for licensing intellectual property rights.").

copyright law and trademark  $law^{166}$  and relates these institutional parameters to the concept of fragmentation. In each case I examine the presence of factors that might mitigate wasteful fragmentation.

# A. The Societal Effect of Propertization and Fragmentation of Intellectual Property Rights

# 1. Fragmentation of the Public Domain

The expansion intellectual property law fragments the domain of intellectual property goods. The profusion of intellectual property rights divides the ownership of expressions, innovations and words in two principal ways.

First, by creating new intellectual property rights on material previously outside the scope of intellectual property law, new rights of exclusion are established on subject matter that was previously governed by unrestricted rights of use. For example, new database protection legislation provides effective exclusion rights to the creators, for "sweat of the brow" compilations that were previously available for free use.<sup>167</sup>

Secondly, by enhancing and adding to existing protection, exclusionary rights are added to the existing bundle of rights associated with those products. For instance, after copyright added the moral right of alteration to the copyright bundle, a buyer of a copyrighted work is confronted with an additional restriction on the use of the property rights that remains exclusive to the copyright holder.

To understand the full complexity introduced with the expansion of intellectual property law, one must appreciate that a discrete product consists of various inputs, each of which are subject to individual property rights that are not necessarily held by one individual or institution.<sup>168</sup> The next Section explores this issue in more detail.

#### 2. The Divided Nature of Intellectual Property Goods

The divided nature and complementary propensity of intellectual property has largely been ignored in the economic analysis of intellectual property rights. However, it is important to note that there is no "simple 'one-to-one' mapping of products and property rights."<sup>169</sup> As Merges notes:

<sup>&</sup>lt;sup>166</sup> This thesis does not examine the effect and role of trade secrets. Trade secret law does not take ideas or innovation out of the public domain because trade secret law does not provide owners with protection against independent discovery. Liability for trade secret infringement occurs only in the context of improper reverse engineering. Yet, in other ways trade secret is anathema to the norm of science because it is premised on secrecy rather than disclosure, which altogether forecloses further research by the wider the scientific community. *See* Eisenberg, *Proprietary Rights & Norms, supra* note\_\_, 206-207.

<sup>&</sup>lt;sup>167</sup> See European Directive on Database Protection, Directive 96/9/EC of the European Parliament and of the Council of 11March 1996 on the legal protection of databases (*O.J.* No L 77 of 27.3.1996, p. 20.) The format, ordering and presentment of a database are covered by copyright law. *See*, *supra*, Section 5.2.1.

<sup>&</sup>lt;sup>168</sup> See Merges, New Institutional Economics, supra note\_\_\_, 1862: "small speciality firms appear to be increasing their share of overall R&D".

<sup>&</sup>lt;sup>169</sup> *Id.*, 1859 (critiquing the assumption implicit in the neo-classical economic model that "one, and only one, property right covers the entirety of a marketable product", while pointing out, more generally, the important role of institutions in the coordination of intellectual property rights.)

"A commercially viable product will often be assembled from a number of components. One or more of these components may be covered by intellectual property rights, but it is not always true that a complete product will be covered by one, and only one, comprehensive intellectual property right. Complex, multi-component products are the norm in many industries (e.g., autos and consumer electronics), and individual patents often cover only a single component or subcomponent. ... multi-component works are far from uncommon. Indeed, motion pictures, sound recordings, and magazines all have multiple 'components' or inputs."<sup>170</sup>

Today's market for intellectual property is characterized by an increasing degree of composite creation and innovation. Digital technology and ever growing back catalogues have allotted a greater creative role to the combination of intellectual property works in the creative process. Digital production tools enable artists to produce derivative works of art that combine cut and paste processing of samples, images, and sound effects from other creative works. For example, in the case of DJ-mix compilations, artists innovate by combining other artists' tracks in an original version.<sup>171</sup> In a more profound way, the very act of authorship is based on the works that preceded it. Every author stands on the shoulder of his or her predecessors when adding an increment to the creative domain. Litman notes:

"Composers recombine sounds that they have heard before; playwrights base their characters on bits and pieces drawn from real human beings and other playwrights' characters; novelists draw their plots from lives and other plots within their experience; software writers use the logic they find in other software, lawyers translate from old arguments to fit new facts; cinematographers, actors, choreographers, architects and sculptors all engage in the process of adapting, transforming, and recombining what is already out there in some other form."<sup>172</sup>

In this regard the public domain deserves appreciation as "a device that permits the rest of the system to work by leaving the raw material of authorship available for authors to use."<sup>173</sup>

Economic theory describes the potential societal costs of excessive property fragmentation.<sup>174</sup> In the presence of complementarities, the use of resources independently

<sup>&</sup>lt;sup>170</sup> *Id.*, 1859.

<sup>&</sup>lt;sup>171</sup> One of the most highly acclaimed Dj-mix albums, "2 Many DJ's: As Heard on Radio Soulwax", combines 46 songs of various artists. Reportedly, the clearance of the rights on the songs, featured on the album, lasted three years, involving 865 emails, 160 faxes and hundreds of telephone calls. In the end 72 tracks were omitted from the album because the rights could not be obtained in time for those tracks (see <http://breedband.telenet.be/muziek/dossiers/2manydjs/>, last visited, May 12<sup>th</sup>, 2002>).

<sup>&</sup>lt;sup>172</sup> Jessica Litman, *The Public Domain*, 39 EMORY L.J. 965, 966-67 (1990) (footnotes omitted).

<sup>&</sup>lt;sup>173</sup> Id.

<sup>&</sup>lt;sup>174</sup> Originally coined by Frank I. Michelman, *Property, Utility and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARVARD LAW REVIEW 1165-1258 (1968), Michael Heller revitalized the concept of anticommons property. In an article on the transition to market institutions in contemporary Russia, Heller discusses the intriguing prevalence of empty storefronts. Stores in Moscow are subject to underuse because there are too many owners (local, regional and federal government agencies, maffia, etc.) holding rights of exclusion. The definition of the anticommons as employed by Heller, *a property regime in which multiple owners hold effective rights of exclusion in a scarce resource*, provides a powerful tool for property theory. *See* Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARVARD LAW REVIEW 621 (1998). For a recent treatment of the danger of over-fragmentation *see e.g.* Michael A. Heller, *The Boundaries of Private Property*, 108 YALE LAW REVIEW 1163-1223 (1999) (recognizing a "boundary principle" in property law

controlled by different individuals leads to underuse and overpricing. <sup>175</sup> The problem of fragmentation derives from a positive externality due to complementary features of exclusive use rights. The right to exclude is embedded in the control that each property owner exercises over the use of the common resource by other agents. Property excluders do not capture the external effects of their individual decisions. This leads to an excessive level of exclusion, with underutilization of the joint property as a result. When ex-post opportunities arise which require exclusive use of various individual property right on a land parcel, these various fragments become complementary inputs into a more productive unit. Deadweight losses of underutilization or underinvestment occur when transaction costs create an impediment for an effective rebundling of complementary inputs.

Of course, according to Coase's theorem, such initial partitioning of property rights does not matter for the allocation of resources when all rights are freely transferable and transaction costs are zero.<sup>176</sup> Reaggregation into clusters through voluntary transactions between the individual owners will maximize total value of the resources. Once the ideal conditions of the positive Coase theorem are relaxed, over-fragmentation poses an engaging incident of "asymmetric transaction costs."<sup>177</sup> The presence of such asymmetry is due to the fact that the reunification of fragmented rights usually involves transaction and strategic costs of a greater magnitude than those incurred for the original fragmentation of the right. The intuition for such asymmetry is quite straightforward. A single owner faces no strategic costs when deciding how to partition his property. Conversely, multiple non-conforming co-owners are faced with a strategic problem, given the interdependence of their decisions. These strategic costs increase the transaction costs of any attempted reunification of the fragments into a unified bundle.

\* \* \*

that purports to prevent excessive fragmentation; and criticising the Supreme Court's violation of the above principle by way of protecting increasingly minimal property fragments in a recent number of cases). See also Michael M. Heller and Rebecca Eisenberg, Can Patents Deter Innovation? The Anticommons in Biomedical Research, 280 SCIENCE (1998), excerpted as Upstream Patents = Downstream Bottlenecks in 41.3 LAW QUADRANGLE NOTES 93-97 (Fall/Winter 1998) (cautioning against the stationary effects of upstream patents on downstream patent markets); Douglas Lichtman, Property Rights in Emerging Platform Technologies, 29 (2) J. OF LEGAL STUD. 615 (2001) (identifying externalities in emerging markets of platform technology and peripheral sellers); Ben Depoorter & Francesco Parisi, Price Theory of Copyright: The Doctrine of Fair Use, 21 (4) INTERNATIONAL REVIEW OF LAW AND ECONOMICS 453-473 (2001) (upholding the usefulness – from a strategic costs perspective – of fair use in copyright law in the digital era); Thomas J. Miceli & and C.F. Sirmans, Partition of Real Estate; or, Breaking Up Is (Not) Hard to Do, 29 (2) J. OF LEGAL STUD. 783 (2000) (examining the modern statutory remedy that allows courts to order forced sale of an undivided land under joint ownership).

<sup>&</sup>lt;sup>175</sup> James Buchanan & Yong J. Yoon, *Symmetric Tragedies: Commons and Anticommons Property*, 43 J. LAW & ECON. 1 (2000) (demonstrating that the price charged by complementary monopolists is higher than that of a single agent monopolist); Norbert Schulz, Francesco Parisi & Ben Depoorter, *Fragmentation in Property: Towards a General Model*, 158 (4) J. OF INST. & THEOR. ECON. (forthcoming 2002) (proposing that the anticommons deadweight losses are an increasing function in the following three factors: (a) number of property fragments; (b) degree of complementarity of such fragments in subsequent uses; and (c) independence of the pricing of such inputs by the fragmented property owners).

<sup>&</sup>lt;sup>176</sup> Ronald H. Coase, *The Problem of Social Cost*, 3 J. OF LAW & ECON. 1 (1960).

<sup>&</sup>lt;sup>177</sup> Francesco Parisi, *The Asymmetric Coase Theorem: Dual Remedies for Unified Property*, 01-13 GEORGE MASON LAW & ECONOMICS RESEARCH PAPER 1. (2002).

For composite creation and innovation, fragmented exclusion rights are problematic when we contemplate market failure in the licensing and negotiation of future allocations of use rights.

The problem results from the complementary nature of many individual works of intellectual property. In the context of copyrightable content this often means that "every author is also a user of prior works."<sup>178</sup> In effect, the extreme propertization of each of those individual contributions creates a setting where any subsequent author is at risk of being excluded from all possible sources of inspiration.

In this context, the real property-analogy, previously associated with the case for the expansion of intellectual property law, works in the opposite direction: "If every valuable interest constituted property, then practically any act would result in either a trespass on, or taking of, someone's property..."<sup>179</sup>

The application of strict intellectual property rights to the Internet, the a multitude of conflicts between overlapping rights might arise. That is because cyberspace consists of a "whole set of overlapping rights", whereby "a single act of transmission or browsing on the Net can potentially violate all of the exclusive rights listed in the Copyright Act...".<sup>180</sup>

More generally, while the allocation of property-right entitlements may provide incentive to truly original work, it threatens to lower creativity involving original *combinations* of works in the arts and sciences.<sup>181</sup> On a societal level this threatens to undermine the capacity of each potential user to "partake" in the common cultural and scientific conversation.<sup>182</sup>

In order to evaluate the problem, the next Section will consider in more detail the level of exclusionary rights currently present in the property right bundles of patents, copyrighted content and trademarks.

#### B. Patent Law

#### 1. Patent Law and Exclusion Rights

A patent provides an inventor with the exclusive right against all unauthorized uses of the

<sup>&</sup>lt;sup>178</sup> Lemley, *Romantic Authorship*, *supra* note\_\_, 885.

<sup>&</sup>lt;sup>179</sup> Kenneth Vandevelde, *The New Property of the Nineteenth Century: The Development of the Modern Concept of Property*, 29 BUFF. L. REV. 325, 329 (1980) (cited in Boyle, *Shamans*, 48; duplicated in Lemley, *Romantic Authorship, supra* note\_, 885).

<sup>&</sup>lt;sup>180</sup> Mark Lemley, *Dealing with Overlapping Copyrights on the Internet*, 22 U. DAYTON L. REV. 547, 549 (1997). Cited in Korin, *Private Ordering, supra* note\_\_, 1197. *See also* Niva Elkin-Korin, *It's All About Control: Rethinking Copyright in the New Information Landscape* 82 in THE COMMODIFICATION OF INFORMATION (Niva Elkin-Korin & Neil Weinstock Netanel, eds., 2002), 514p: "recent litigation and court decisions could chill investors away from what would be perceived as legally risky technologies, thus shrinking the invested resources in the development of new technologies and business practices, which might threaten the right holders' position." at p. 99. This illustrates the collective action nature of the problem of exclusive rights in intellectual property rights.

<sup>&</sup>lt;sup>181</sup> Katyal, *supra* note\_\_, at p. 1482, with reference to VAIDHYANATHAN, *supra* note\_\_, 143-144 (outlining case law that resulted in lower levels of sampling in recorded works of music). *See also*, Rosemary Coombe, *Left Out of The Information Highway*, 75 OR. L. REV. 237 (1996).

<sup>&</sup>lt;sup>182</sup> Benkler, *supra* note\_\_, 572 (advocating the sustainment of a commons in resources for the production and exchange of information and free access models).

patented product.<sup>183</sup> Exclusion rights are considerable under patent protection. Other potential users of the resource are abstained not only from manufacturing, but also from using, selling, or importing the resource without prior consent from the patent holder.<sup>184</sup> A patentee's exclusive right extends to identical inventions, regardless whether these inventions were copied from the patent and irrespective of any good faith intentions on the part of the patent infringer. In addition, the doctrine of "equivalent patents" extends the control rights of the patentee beyond the terms of the patent description. Under this doctrine the holder may exclude the development of all subsequent, similar, non-identical, useful inventions.

The scope of a patent is the crucial determinant of the scope of an individual patent's exclusionary right. When a patentee argues that his patent has been infringed he or she needs to demonstrate that the infringer's patent or use falls within the boundaries of the claimant's prior, protected patent. The initial decision on patent scope is made by the patent claimant.<sup>185</sup> This decision is subject to the scrutiny of the Patent Office, which verifies whether the claimed invention meets the statutory requirements of novelty, non-obviousness, utility, and enablement.<sup>186</sup> If a patent infringement is litigated, these aspects are re-evaluated by the court.

Because of the strict liability nature of patent infringements, the patentee will in effect enjoin the unauthorized manufacturing, use, sale, or importation by the infringer.<sup>187</sup>

As such, the legal protection of the patent system creates the conditions for the exercise of significant rights of exclusion in inventions.

# 2. Formal Example

The exclusivity awarded by a patent becomes a crucial factor when a prospective follow-up inventor needs to rely on prior, patented, inventions for his own research. Consider the following

<sup>&</sup>lt;sup>183</sup> See generally, e.g., DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW (1998); CASES AND MATERIALS ON PATENT LAW (Martin Adelman et. al., eds., 2002).

<sup>&</sup>lt;sup>184</sup> See 35 U.S.C. §§ 154(a), 271(a) (1994 & Supp. III 1997). This stand in contrast to most other areas of intellectual property law, where only some unauthorized uses are prohibited. See for instance fair use exceptions in copyright law. Also, wrongful intend is not a condition for infringement.

<sup>&</sup>lt;sup>185</sup> Almost universally a patent claim consists of (*i*) a specification of the invention that describes the problem and solution-process which allows other to reproduce the invention; and (*ii*) the claim, which specifies the applications proposed scope of the invention and allows delineation of the invention from the existing state of the art.

<sup>&</sup>lt;sup>186</sup> See, respectively, Sections 102(a), (e), (g); 103; 101; and 112 (35 U.S.C). Similarly, European patent applications must meet the substantive requirements of novelty (not part of the state of the art), involve an inventive step (not obvious to a person skilled in the art) and must be susceptible to industrial application. See Article 52, Convention of the Grant of European Patents (EPC). For a summary, see Tritton, Guy (2002), Intellectual Property in Europe, 2<sup>nd</sup> ed., London, Sweet and Maxwell, 88-123.

<sup>&</sup>lt;sup>187</sup> Robert P. Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75, 77 (1994) [hereinafter Merges, *Blocking Patents*]: "The basic rule [in patent law] is that the right holder has an almost absolute right to obtain an injunctive remedy against the infringer." *See* also Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655 (1994) [hereinafter Merges, *Coase*] citing Smith Int'L, Inc. V. Hughes Tool Co., 718 F.2d 1573, 1577 (Fed. Cir.), cert. denied, 464 U.S. 996 (1983) ("without the right to obtain an injunction , the right to exclude granted to the patentee would have only a fraction of the value it was intended to have, and would no longer be as great an incentive to engage in the tools of scientific and technological research").

formal illustration by Schulz et al..<sup>188</sup> When two firms each hold a patent in a technology that requires the use of both (complementary) patents, any third party desiring use of the technology will need to obtain access to both patents. Suppose that there is a continuum of such third party firms where each firm is characterized by its willingness to pay for the use of the two patents, denoted w. Let w be uniformly distributed across [0, 1]. Suppose the patent holding firm *i* asks a price  $p_i$  for a license to use its patent. Hence the price to be paid to both patent holding firms is  $p_1 + p_2$ . All third party firms with a willingness to pay at least such amount will ask for a license from both firms. Given the assumption on the distribution of the potential licensees the demand for patents is  $1 - (p_1 + p_2)$ , patent holding firm 1 has a profit of

 $p_1(1 - (p_1 + p_2.))$ 

with an analogous expression for firm 2. The decision to set a price for a license can be modeled again as a Nash equilibrium of a simultaneous move game. The equilibrium value of both prices is 1/3 such that both licenses cost 2/3.

Suppose now that both patents are in the hands of just one firm that demands a price of P for a license on both patens. Then the profit of this firm will be

P(1-P)

which will be maximized at  $P = \frac{1}{2}$ . Hence, fragmentation raises the price for both licenses. This induces some firms not to employ the technology. Therefore fragmentation decreases the value created by the technology.

# 3. The Imperfect Patent Licensing Market

As discussed in Chapter II, parties that hold complementary inputs may fail to maximize the total value of resources because of transaction costs or strategic behavior. In the particular case of patent licenses there are several factors that further complicate the licensing process between a patent holder and an improver or follow-up inventor.

#### a. The Unpredictable Path of Innovation

Research on patentable inventions entails a significant degree of ex-ante uncertainty.<sup>189</sup> It is unduly hard to predict inventions in advance or to estimate the value of inventions with some degree of success.<sup>190</sup> Historical examples of the difficultness of getting to an accurate estimation

<sup>&</sup>lt;sup>188</sup> Schulz, Norbert et al, *Fragmentation in Property: Towards a General Model*, 158 (4) JOURNAL OF INSTITUTIONAL AND THEORETICAL ECONOMICS 594-613 (2002).

<sup>&</sup>lt;sup>189</sup> Merges, *Employee Inventions*, *supra* note\_\_, 23.

<sup>&</sup>lt;sup>190</sup> Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1049 (1997) [hereinafter Lemley, *Economics of Improvement*] (with reference to the literature in note 280 which illustrates the computational problems firms have in the management of intra firm inventions: Steven A. Lippman et al., *Heterogeneity Under Competition*, 29 ECON INQUIRY 774 (1991);Michael E. Porter, *The Structure Within Industries and Companies' Performance*, 51 REV. ECON. & STAT. 214 (1979); David J. Teece, *Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy*, 15 RES. POL. 285 (1986)).

of the expected value of present inventions include IBM's underestimation of the future market of home computers.<sup>191</sup>

Uncertainty as to the value of an invention also extends to a follow up invention. The usefulness of a patented good in the licensee's context is subject to another layer of uncertainty when applied to the context of the licensor's invention.

These high levels of uncertainty regarding the value of a patent will make a prospective licensee cautious and reluctant in the negotiation of a licensing price. When both parties' expectations diverge too widely no licensing agreement may be reached.<sup>192</sup> Moreover, as experimental research has demonstrated, uncertainty has a magnifying effect on reservation prices.<sup>193</sup>

Highly detailed contracts might ameliorate the problem but integrating all possible contingencies into contract is costly and not all eventualities are foreseeable.<sup>194</sup>

#### b. Product Complexity

Due to the technical and complex nature of patented products, intellectual property licenses are highly complex and more costly than regular licenses.<sup>195</sup> In the case of technology licenses, transaction costs amount to 20% of the total value of the underlying license.<sup>196</sup> These licensing contracts regularly include complex assignments of partial legal rights, and long term agreements that regulate the future and ongoing relationship between the licensee and licensor.

# c. Valuation and the Information Paradox

<sup>&</sup>lt;sup>191</sup> Merges, *Blocking Patents*, at footnote 41 (1994) (citing NATHAN ROSENBERG, EXPLORING THE BLACK BOX: TECHNOLOGY, ECONOMICS AND HISTORY 220 (1994): "The computer was regarded by its inventors as a purely scientific device..." (quoting from Barbara G. Katz & Almarin Phillips, *The Computer Industry*, in GOVERMENT AND TECHNOLOGICAL PROGRESS 162, 171 (Richard R. Nelson, ed., 1980), . *See also* JON ELSTER, EXPLAINING TECHNICAL CHANGE 111 (1983); JOEL MOKYR, THE LEVER OF RICHES: TECHNOLOGICAL CREATIVITY AND ECONOMIC PROGRESS 154 (1990); CHRISTOPHER FREEMAN, THE ECONOMICS OF INDUSTRIAL INNOVATION 75 (2<sup>nd</sup> ed., 1982).

<sup>&</sup>lt;sup>192</sup> On the dynamics of bargaining breakdown, *see* generally, Robert Cooter, *The Cost of Coase*, 11 J. LEGAL STUD. 1 (1982); Robert Cooter & Stephen Marks, *Bargaining in the Shadow of the Law: A Testable Model of Strategic Behavior*, 11 J. LEGAL. STUD. 225 (1982).

<sup>&</sup>lt;sup>193</sup> In cases of uncertainty the anticommons pricing effect is amplified. The results in Depoorter & Vanneste suggest that licensors ignore the expected value of the licensee's project, and instead focus on the upper range of profitability of surplus. Willingness to accept seems to be anchored onto a proportion of the maximum profitability, rather than a proportion of the expected benefits of the project. In one particular experiment the total uncoordinated reservation price of all licensors that was 7 times above the expected value of the project. In the experiment this created a serious gap between the amount licensor's holders were asking, on the one hand, and what a third party entrepreneur could reasonable offer, on the other hand. *See* Ben W.F. Depoorter & Sven Vanneste, *Putting Humpty Dumpty Back Together: An Experimental test of the Anticommons*, CASLE WORKING PAPER # 14, 32p (2003) (on file with author).

<sup>&</sup>lt;sup>194</sup>"[I]n order for the parties to divide the gains from trade, they must know what those gains are", Lemley, *Economics of Improvement, supra* note\_\_, 1055.

<sup>&</sup>lt;sup>195</sup> *Id.*, 1053.

<sup>&</sup>lt;sup>196</sup> See Id., 1053-53.

Licensing agreements encounter specific problems in the valuation of patents. The uniqueness of every individual invention prevents parties from accurately estimating the "cost of a license on the value of the right licensed."<sup>197</sup> Moreover, it is hard to place separate values on relative contributions of the pioneer and improver, in combination with the uncertainty of the technology prospects of development and profitability.<sup>198</sup>

The information problem is even more complex in the course of license negotiations involving potential rather than actual improvers.<sup>199</sup> In such a context parties face what is known as Arrow's Information Paradox.<sup>200</sup> The actual improver possesses valuable information that he would like to disclose to the patent owner in exchange for money.<sup>201</sup> However, the exchange can not occur before the original owner is in a position to evaluate the information, while at the same time, under prospect theory,<sup>202</sup> this would entail that the patent owner is free to use the patented information once she finds out what the improvement consists of.<sup>203</sup>

<sup>200</sup> KENNETH J. ARROW, SOCIAL CHOICE AND JUSTICE: COLLECTED PAPERS OF KENNETH J. ARROW: THE ECONOMICS OF INFORMATION, 222-24 (1984). Arrow's paradox encapsulates the notion that imperfect information of another's utility function inhibits the ideal Coasian bargaining-model.

<sup>201</sup> Merges, *Blocking Patents, supra* note\_\_, 81. Arrow's paradox also provides a case for the existence of blocking patents.

<sup>202</sup> Under prospect theory the patent system provides incentives but is based on the ability of intellectual property ownership to drive the efficient use of inventions and creations through licensing. The patent system rewards not future investors but instead insures "further commercialization and efficient use of as yet unrealized ideas by patenting then, just as privatizing land will encourage the owner to make efficient use of it." Lemley, *Romantic Authorship, supra* note\_\_, p. 1046. In this manner the patent system is analogous to mineral claims. The pioneering work is Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265-290 (1977).

<sup>203</sup> The problem of negotiation of an improver with a pioneer represents a Catch-22 problem. In Joseph Heller's classic novel, Yossarian, a Word War II bombardier, was too smart to die but not smart enough to find a way out of his predicament: "Orr would be crazy to fly more missions and sane if he didn't, but if he was sane he had to fly them. If he flew them he was crazy and didn't have to; but if he didn't want to he was sane and had to. Yossarian was moved very deeply by the absolute simplicity of this clause of Catch-22 and let out a respectful whistle." JOSEPH HELLER, CATCH 22 (1961). To a certain extend, this dilemma is recognized in intellectual property law doctrine. The balance between the protection of the right of present innovators and future talents, features strongly in the "doctrine of improvement" of patent law. What is improvement and what is imitation? Too much freedom to improver (imitators?) will discourage future development, while granting too much protection to the original parties may halt development of new products. See Lemley, Economics of Improvement, supra note (arguing that patent doctrines of blocking-patents and the reverse doctrine of equivalents should apply equally to the realm of copyright law, because of the various imperfections in the licensing markets, e.g. transaction costs and strategic behavior, will discourage copyright improvements): "Some improvements fall within the scope of the preexisting intellectual property right, either because of an expansive definition of that right or because economic or technical necessity requires that the improver hew closely to the work of the original creator in some basic respect. Here, the improver is at the mercy of the original intellectual property owner, unless there is some separate right that expressly allows copying for the sake of improvement" (footnotes omitted). Id. 990. See also, infra, Section .

<sup>&</sup>lt;sup>197</sup> Id., 1053.

<sup>&</sup>lt;sup>198</sup> Merges, *Blocking Patents*, supra note\_\_, 75.

<sup>&</sup>lt;sup>199</sup> Lemley, *Economics of Improvement*, 1051. On the interaction between initial inventors and improvers in science, *see, e.g.*, Suzanne Scotchmer & Jerry R. Green, *Novelty and Disclosure in Patent Law*, 21 RAND J. OF ECON. 131; Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSP. 29 (1991); Jerry R. Green & Suzanne Scotchmer, *On the Division of Profit in Sequential Innovation*, 26 RAND J. OF ECON. 20 (1995).

#### d. The Conundrum of Potential Prospect Inventors

For potential improvers licensing is especially difficult when transaction costs (1) are higher than perceived (but overly pessimistic) evaluations of the value of improvements; or (2) lead improvers ex-ante to forego improvements in the advent of these transaction costs.<sup>204</sup> Both these options create deadweight losses due to the misperception on either the value of the improvements or the height of the transaction costs. Both are a subset of the more general condition of uncertainty.

As such, these observations give pause to pessimism as to the likelihood that follow-up innovators and improvers, actual and potential, will be successful in obtaining the patent rights to combine into their own research.<sup>205</sup>

# 4. Safeguards and Legal Caps on Dysfunctional Fragmentation of Innovation

The problematic nature of exclusivity of innovation of the patent system depends largely on the institutional framework of patent law. As Merges notes, "sensitivity to the life of a property right after it is initially granted – the pattern of transactions in which it is exchanged, and the institutions that may grow up to facilitate this exchange - reveal much about the optimal nature of the right."

There are a number of factors that may mitigate the problem of fragmentation. Whether these rules and institutions are sufficient to overcome most instances of underuse and underinvestment is an empirical matter. For the moment, it will be useful to identify rules in patent law that might ameliorate the anticommons problems.

Most importantly, patent rights are subject to a limited duration.<sup>206</sup> After expiration of the statutory period<sup>207</sup> patent technology reverts to the public domain, where it be freely used to infuse the future innovation.

Under the doctrines of first-sale and exhaustion doctrines a lawful purchaser is permitted to use and resell patent technology without the patentee's permission.<sup>208</sup> These doctrines apply only to situations where the patent has been sold.

The doctrine of patent misuse prevents cases where patents are used as leverage for the purchase of monopoly in different product markets.<sup>209</sup>

Under the doctrine of "blocking patents" the holder of the narrower ("subservient") patent cannot practice the invention without a license from the holder of the dominant patent, while at

<sup>&</sup>lt;sup>204</sup> *Id.*, at 1055.

<sup>&</sup>lt;sup>205</sup> Merges, New Institutional Economics, supra note, 1860-31 (with reference to the work of Scotchmer and Green).

<sup>&</sup>lt;sup>206</sup> "[A]]l idea property return to the common automatically at some point." Hughes, *supra* note\_\_, 323.

<sup>&</sup>lt;sup>207</sup> Article 33 of the *Trips Agreement* prescribes a minimum period of 20 years from the date of filing, There is no maximum period. See also Article 63 European Patent Convention (20 years). Under national law and E.C. legislation protection is extended for pharmaceutical products, because marketing is often delayed by regulatory procedures. In the United States, patents are protected for a maximum duration of 34 years as provided by 35 U.S.C. § 154 (1982). <sup>208</sup> See DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 976-977 (1998).

<sup>&</sup>lt;sup>209</sup> 35 U.S.C. § 271(d); For a criticism, see Mark Lemley, The Economic Irrationality of the Patent Misuse Doctrine, 78 CAL. L. REV. 1599 (1990). In the European context of antitrust enforcement, see Guy Tritton, INTELLECTUAL PROPERTY IN EUROPE 563-730 (2<sup>nd</sup> ed., 2002).

the same time, the holder of the dominant patent can not integrate the improved feature without a license. Thus, in case where the alleged infringer holds a narrow patent on an improved feature of the broader, allegedly infringed, patent, patent law places both parties in a bilateral monopoly.<sup>210</sup> The doctrine of "blocking patents" presents each party with both a carrot and a stick in the negotiations. Yet a blocking patent situation may develop into an anticommons when a third party wants to obtain two complementary patent that are blocked.<sup>211</sup>

Under the "reverse doctrine of equivalents" no infringement will be found if the innovation carries a significant contribution that takes the invention outside of the original, allegedly infringed patent.<sup>212</sup> When there are substantial technological advancements at stake, patent law thus eliminates the veto rights of complementary right holders (monopoly or bilateral monopoly). In cases of significant technical achievements the reverse doctrine of equivalents acts as a merit-based type of fair use and trumps the right to exclude. This will likely encourage more voluntary licensing in cases where a pioneer and an improver holds exclusive rights into a complementary unit.<sup>213</sup> The doctrine may act as a potential threat of to moderate the expected value of the pioneer and might thus create a "bargaining overlap" between the pioneer and improver.<sup>214</sup>

Similar to a fair use defense, patent law encapsulates a "experimental use" exception for patented technology.<sup>215</sup> This doctrine is, however, restricted to instances where the experimentation does not further the legitimate business interest of the potential infringer.<sup>216</sup>

Unlike copyrighted works, patents do not lend themselves well to pooling by intermediaries. Licensing patents in bulk is extremely difficult because of the more complicated nature of patents and inventions. Especially improvements are hard to categorize. Assessing fees for individual uses might be very hard.<sup>217</sup> There is historical evidence as to a collective exchange pooling in the automobile and aircraft industries, albeit only after many years of "significant litigation and refusal to license" between the main competitors.<sup>218</sup> Also, the rapid turnover rate associated with the software and biotechnology industry prevents the existence of "close-knit" communities that are conducive to the emergence of such pools.<sup>219</sup>

<sup>&</sup>lt;sup>210</sup> See Merges, Bargaining Breakdown, supra note\_\_, 82-83; Merges & Nelson, supra note\_\_, 860-61.

<sup>&</sup>lt;sup>211</sup> Note that the process that unites "blocked" patent does not necessarily extend to third party prospective licensees. <sup>212</sup> Id., 862-68.

<sup>&</sup>lt;sup>213</sup> Merges, Bargaining Breakdown, 76-ff (offering examples of bargaining break down as a case for reverse equivalent).

Id., 95-99.

<sup>&</sup>lt;sup>215</sup> See generally, DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 355-368 (1998).

<sup>&</sup>lt;sup>216</sup> See Roche Prods., Inc. V. Bolar Pharm. Co., 733 F. 2d 858, 863 (Fed. Circ. 1984). See Rebecca S. Eisenberg, Patens and the Progress of Science: Exclusive Rights and Experimental Use, 56 U. CHI. L. REV. 1017 (1989); Jordan P. Karp, Note, Experimental Use as Patent Infringement: The Impropriety of a Broad Exemption, 100 YALE L.J. 2169 (1991).

<sup>&</sup>lt;sup>217</sup> Lemley, *Economics of Improvement*, 1054.

<sup>&</sup>lt;sup>218</sup> Rai, *supra* note\_\_,130. However, the conditions for the emergence of pooling equilibria is not present in all industries. Especially with regard to inventions with high valuation uncertainty, such as found in the biotechnology industry, pooling equilibria are precarious. For a discussion of the emergence of a pooling situation in the automobile and aircraft industry, Id. 129-132.

<sup>&</sup>lt;sup>219</sup> Maureen O'Rourke, Toward a Doctrine of Fair Use in Patent Law, 100 COLUM. L. REV. 1177, 1245 (2000). But compare, on sharing research norms in the field of biotechnology, see, e.g., Rai, supra note\_; Robert P. Merges, Property Rights Theory and the Commons: The Case of Scientific Research, Summer 1996 SOC. PHIL. & POL. 145 (1996). (describing a dual-commons regime- scientists share among each other while enforcing property rights against commercial actors).

As a last resort, the anticommons bottleneck might be overcome by more direct regulatory interventions such as compulsory licensing.<sup>220</sup> Some have argued that compulsory licensing has never been successful in the patent context.<sup>221</sup> The licensing of patents generally involves transfers of unique, highly specialized technologies, the valuation of which relies on prior experience. Non-voluntary licensing may thus give rise to cases of over- or undercompensation and tilts the balance towards "part-to-party valuation."<sup>222</sup> - a perspective similar to the general specific performance bias in economic scholarship of contract law.<sup>223</sup> Furthermore, some have argued that transaction costs and bargaining problems do not bar exchanges but instead lead parties to invest in institutions that lower the costs of exchanges.<sup>224</sup> Compulsory licensing solutions might thus prevent the emergence of these efficiency-enhancing institutions.

# B. Copyright Law

#### 1. Copyright Law and Exclusion Rights

Copyright law protects the expression of ideas.<sup>225</sup> An expression must contain a certain degree of originality and it must result from the author's efforts. Once these conditions are fulfilled, the author benefits from copyright protection without any further formal requirements.

Copyright law grants authors five exclusive rights, each subject to certain exceptions: "1) the right to reproduce in copies or phonorecords; (right of reproduction)<sup>226</sup> 2) the right to prepare derivative works based on the copyrighted work (the adaptation right);<sup>227</sup> 3) the right to

<sup>220</sup> See Jerome H. Reichman & Catherine Hasebzahl, Non-Voluntary Licencing of Patented Inventions, UNCTAD/ICTSD CAPACITY BUILDING PROJECT ON INTELLECTUAL PROPERTY RIGHTS AND SUSTAINABLE DEVELOPMENT (2002) (for a historical perspective, reflections on the TRIPS framework, and licensing practices in Canada and the United States); Jerome H. Reichman & Catherine Hasebzahl, Non-Voluntary Licencing of Patented Inventions: The Canadian Experience, UNCTAD/ICTSD CAPACITY BUILDING PROJECT ON INTELLECTUAL PROPERTY RIGHTS AND SUSTAINABLE DEVELOPMENT (2002) (describing bargaining outcomes and compulsory licensing applications in Canada). Also, the laws of a number of European countries provide for a system of compulsory licensing of a patent where there is no manufacture of the patented product in the country and demand is being fulfilled by importation. Such systems are limited by, e.g., the EU rules on non-discrimination, competition law (see TERENCE PRIME, EUROPEAN INTELLECTUAL PROPERTY LAW 29-74 (2000)) and Article 31 of the TRIPS Agreement (minimum rights regarding remuneration and duration for the grantee of the compulsory licenses). See also the European rules on "compulsory cross licensing" in the context of complementary rights of plant variety and patent protection In the situation where the owner of one right requires the consent of the other right's owner to commercialize a product "on reasonable terns" a license is compulsory when the license is "necessary" for the exploitation of the plant or plant variety. See Article 12, Directive on the Legal Protection of Biotechnological Inventions, [1998] O.J. L.213/13.

<sup>&</sup>lt;sup>221</sup> F.M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE (1980) (linking failures to the pressure from the industry and the patent bar), 456. *See also* Merges& Nelson, supra note\_\_, 840. <sup>222</sup> Merges, *Blocking Patents, supra* note\_\_, 99-102.

<sup>&</sup>lt;sup>223</sup> See Anthony T. Kronman, Specific Performance, 45 U. CHI. L. REV. 351 (1978); Alan Schwartz, The Case for Specific Performance, 89 YALE L.J. 271 (1979); Thomas S. Ulen, The Efficiency of Specific Performance: Toward a Unified Theory of Contract Remedies, 83 MICH. L. REV. 341 (1984). But see Edward Yorio, In Defense of Money Damages for Breach of Contract, 82 COLUM. L. REV. 1365 (1982).

<sup>&</sup>lt;sup>224</sup> Such is the operating hypothesis of much of the work of Robert Merges. *See* Merges, *Coase, supra* note , 2668.

<sup>&</sup>lt;sup>225</sup> On the similarities and overlap between subject matter and social utility of patents and copyrights, see Lemley, *Economics of Improvement, supra* note\_\_,1034-1038.

<sup>&</sup>lt;sup>226</sup> 17 U.S.C. § 106(1).

<sup>&</sup>lt;sup>227</sup> See Id., § 106(2).

redistribute copies or phonocopies of the copyrighted work to the public by sale or other transfers of ownership, or by rental, lease, or lending (right of re..);<sup>228</sup> 4) the right to perform the work in public (right of public performance);<sup>229</sup> and 5) the right to display the work in public (the right of public display).<sup>230</sup> Copyright's exclusionary rights are enforced by temporarily and final injunction. This is also due to the fact that damages are hard to prove, and under-compensation is likely.<sup>231</sup>

#### 2. A Formal Model

Consider the copyright law problem faced by an author in his dealings with a book publisher. Suppose that the author wants to sell his copyright to the book for price  $p_2$  per copy sold. The publisher expects the demand for the book to be  $1 - p_1$ , where  $p_1$  is the price the publisher charges. Aside from costs, the profit of the publisher is thus

 $(p_1 - p_2)(1 - p_1)$ 

and the profit of the author is

 $p_2(1-p_1).$ 

If the author commits first to a price - a natural assumption in this context - the pricing decision can be described by the Nash equilibrium of a two stage game. Equilibrium values are  $\frac{1}{2}$  for  $p_2$  and  $\frac{3}{4}$  for  $p_1$ . If the author had the opportunity to market the book himself the price would be <sup>1</sup>/<sub>2</sub>. Once again the fragmentation of rights results in a higher price and sub-optimal use of the intellectual property- in this example a decrease of potential readership.<sup>232</sup>

3. Safeguards

The exclusionary effect of copyright law is moderated in that it does not protect against independent development. A copyright holder needs to assert actual reliance on the part of the alleged copyright infringer.<sup>233</sup>

<sup>232</sup> See Schulz et al., supra nte\_\_\_.

<sup>&</sup>lt;sup>228</sup> See Id., § 106(3). <sup>229</sup> See Id., § 106(4).

<sup>&</sup>lt;sup>230</sup> See Id., § 106(5).

<sup>&</sup>lt;sup>231</sup> 2 GOLDSTEIN, COPYRIGHT: PRINCIPLES, LAW AND PRACTICE 11.0 at 24748 (1989): "Courts exercise their statutory authority to grant temporary injunctive relief more readily in the context of copyright actions than in any other intellectual property cases (cited in Merges, Coase, supra note\_, 2667). See also, PETER A. STONE, COPYRIGHT LAW IN THE UNITED KINGDOM AND THE EUROPEAN COMMUNITY 91 (1990): "The grant of a final injunction to a successful copyright plaintiff is almost automatic, since its refusal would amount to judicial connivance at the compulsory purchase by the defendant, without statutory authority, of the plaintiff's proprietary rights." See also Information Society Directive (Dir. 2001/29/EC, [2001] O.L. 167.) which reinforces the strength of remedies in the digital context, providing that remedies must be "effective, proportionate and dissuasive". Article 8(1) Information Society Directive (Dir. 2001/29/EC, [2001] O.L. 167).

<sup>&</sup>lt;sup>233</sup> 2 GOLDSTEIN, COPYRIGHT, 7.2.2., at 7:19 (2d ed. 1996). This stands in contrast to patent law, which does not discriminate among independent development, and instead treats all use as infringing. Also, patent law does not contain any use defenses. For an innovative proposal that allays patent law with copyright law in this regard, see

A number of aspects of current copyright law have received criticism. According to Elkin Korin much of the expansion of copyright is due to the erosion of the idea-expression dichotomy.<sup>234</sup> Allegedly, today's standard of originality is one of origin, not novelty. A work receives copyright protection when it has not been copied from another source, and involves a minimum of creativity.<sup>235</sup> But it must be an expression and not an idea, the expression itself is what is protected then. By blurring this distinction the scope of property rights is considerably extended.<sup>236</sup> By reinforcing a stricter requirement of novelty the reach of copyright law could be contained.

Some have argued in favor of limiting copyright remedies to liability rule protection. Lawrence Lessig advances such "compensation without control",<sup>237</sup> for instance via a process of compulsory licensing, where the government could set "reasonable" royalty rates to compensate artists while assuring access to the community of users and prospective inventors.<sup>238</sup>

# 4. The Emergence of Efficient Institutions: Copyright Pooling

As illustrated above, part of the problem with the anticommons in copyright law results from the fact that the fragmented group of copyright holders fail to coordinate the pricing of their licenses.

Collective rights organizations, act as a intermediaries between the right holders (supply) and individual users (demand). The potential availability of a single avenue to purchase the complementary rights might, varying with the inclusiveness of the intermediaries right's collection, solve the problems documented in the economic model of fragmentation.

Firstly, when authors join copyright collectives they "contract into liability rules", as they no longer retain a full veto right on the use of their works, which overcomes the difficulties

O'Rourke, *supra* note\_\_, 1245. But *see* for a rationalization of the many differences in the laws of patents and copyright law, John Shepard Jr. Wiley, *Copyright at the School of Patent*, 58 U. CHI. L. REV. 119 (1991) who characterizes the observed differences as a "simple matter of volume": "The nation in its entire history has granted only 5.27 million patents. It would not be surprising if a country of a quarter of a billion people created that number of different written documents, photographs, and works of art and music in a single day. *Id*, at 182 (footnotes omitted).

<sup>&</sup>lt;sup>234</sup> Under what is called "the law of ideas", the United States case law has provided individuals the protection of ideas as mere personal property. These cases typically involve situations where individuals, unaffiliated with companies, produce ideas and submit them to corporations, who use the ideas without authorization or compensation. *See* M. EPSTEIN, MODERN INTELLECTUAL PROPERTY 259-99 (1992, 2<sup>nd</sup> ed.) (citing case law which imposes requirements of novelty and concreteness on the protection of ideas- including Buchwald v. Paramount Pictures, 13 U.S.P.Q. 2d 1497 (cal. Super Ct. 1990); Murry v. National Broadcasting, 844 U.S. F2d 988 (Second Cir. 1988).

 <sup>&</sup>lt;sup>235</sup> "Copyright shall extend to expressions and not ideas, procedures, methods of operation or mathematical concepts as such." See Article 9(2) TRIPS Agreement.
 <sup>236</sup> See Niva Elkin-Koren, Of Scientific Claims and Proprietary Rights: Lessons from the Dead Sea Scrolls Case, 38

<sup>&</sup>lt;sup>250</sup> See Niva Elkin-Koren, Of Scientific Claims and Proprietary Rights: Lessons from the Dead Sea Scrolls Case, 38 Hous. L. REV. 445 (2001).

<sup>&</sup>lt;sup>237</sup> Katyal, *supra* note\_\_, 1474.

<sup>&</sup>lt;sup>238</sup> LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD 241-258 (2001). See also Wendy J. Gordon, A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property, 102 YALE L.J. 1533 (1993) and O'Rourke, Rethinking Remedies, supra note\_\_\_\_ (because intellectual property increasingly involves contracts and commercial transactions U.C.C. damage remedies should, in most cases, take priority over injunction as the default remedy).

associated with the commitment and coordination of property right rules.<sup>239</sup>

Second, intermediaries hold a certain authority and practical ability to set prices.<sup>240</sup> Copyright collectives and other intermediaries often retain the independent power to specify prices for individual transactions. Copyright intermediaries regularly engage in third degree price discrimination, charging different prices to various broad categories of licensees (e.g., profit/non-profit, number of seats in a venue, number of listeners of the radio station, voltage, etc.).<sup>241</sup> When selling copyrighted products that are complementary inputs, the intermediary would choose prices that are lower than the prices copyright holders would have been chosen if pricing independently from one another. The salient point is that the lower price charged by the intermediary is beneficial to all individual copyright sellers, since it allows them to maximize the total profit from the sale of their licenses, improving upon the alternative anticommons result reached in the absence of price coordination.<sup>242</sup> The paradox – that the intermediaries price is lower than one that would have been chosen by the owners and yet it increases their total profits from the sale – can be understood by recalling that the anticommons equilibrium pricing is the direct outcome of a "prisoner's dilemma" that individual copyright holders face when pricing

<sup>&</sup>lt;sup>239</sup> See Merges, Contracting into Liability Rules, supra note\_\_\_

<sup>&</sup>lt;sup>240</sup> On the license terms and contractual setting of the main performance right organizations in music, the American Society of Composers Authors and Publishers ("ASCAP") and Broadcast Music, Inc. ("BMI") *see* Francesco Parisi & Ben Depoorter, *The Market for Copyrights: The Price Theory of Copyright Collectives*, in THE ECONOMICS OF COPYRIGHT (Wendy J. Gordon & Richard Watts, eds., 2003).

<sup>&</sup>lt;sup>241</sup> For further reference, *see* <<http://www.ascap.com>>, (last visited November 20<sup>th</sup>, 2001).To be more precise, as a matter of law, copyright collectives, such as ASCAP and BMI do not have exclusivity in the sale of copyright licenses. Recent antitrust rulings require copyright owners to retain the ability to issue licenses ("direct licenses") for their work. When involving "complements", owners have no incentive to deviate unilaterally from the coordinated pricing equilibrium induced by the intermediary. Owners will not be able to sell for more than the "collectives" equilibrium price and, given the complementarity of the licenses, they have no incentive to sell for less. The competition between source and intermediary licenses would thus have no effect on the equilibrium price. The antitrust provisions on this point are therefore ineffective. *See* Parisi, & Depoorter, *supra* note\_\_.

<sup>&</sup>lt;sup>242</sup> The question arises whether the analysis applies also to tying practices. ASCAP and other comparable performance right institutions only offer blanket licenses (covering the right to perform the collective's entire repertory) and to a small extent per-program licenses (a blanket license that covering use of the repertory in a specific radio or television program, while requiring the user to keep track of the use). As a practical matter, perprogram licenses are rendered unattractive by ASCAP and BMI, because of a cumbersome procedure and the threatened enforcement of non-intentional infringement. Also, it is questionable whether source- and direct licenses provide alternatives to the preeminent system of blanket licenses in performing rights. The viability of source licenses is hampered, for syndicates generally tend to split-off performance rights to the collective performing rights associations; while original copyright holders are reluctant to license their works individually. In fact, the collectives have objected to anything but blanket licenses and have been ostensibly unwilling – despite efforts by the antitrust authorities - to item-specific licenses (e.g., right to use a particular song once). The most obvious explanation for this reluctance lies in transaction costs saving arguments; see Kirby S. Besen & S. Salop, An Economic Analysis of Copyright Collectives, 78 VA L. REV. 383 (1992). The analysis above provides an additional rationale for the strategy of collectives with regard to blanket-licenses. By tying all licenses together, copyright collectives are able to shield their market power from the potential competition of individual source licenses. Tying, in other words, is instrumental to the sustainability of the concentrated monopolistic pricing of the copyright collectives. Bearing in mind the previous discussion, this has dual effects from an efficiency point of view. In the "complements" case, this prevents the tragic outcome of the anticommons pricing. However, in the "substitutes" case this has the effect of preventing desirable competition. The traditional concern of tying should thus be reappraised in light of the beneficial effects of "packaging" complementary goods, to avoid the undesirable pricing problems discussed above. At first impression, bundling may be the result of the successful coordination of suppliers of complementary goods, who have overcome the hold-out strategies that generate the complementary oligopoly problem.

copyrights independently. While individual sellers could not coordinate prices, intermediaries overcome the anticommons deadweight losses, providing a benefit for society as well as for the owners.<sup>243</sup>

# C. Trademark Law

#### 1. Legal Exclusivity of Trademarks

Trademark protection prevents consumer confusion on the market, by encouraging competitors to use distinctive marks to identify their goods and services.<sup>244</sup> The economizing function of a trademark or brand name is the exclusivity of the right itself. For a trademark to have value it cannot be duplicated. Allowing another company to use the same brand would remove the original brand's identifying function, thereby eliminating its value.<sup>245</sup> Much of substantive trademark law can be explained in this light. For example, in U.S. trademark law sales and licenses of trademarks are restricted,<sup>246</sup> and any sale must be followed by monitoring for quality compliance.<sup>247</sup>

Injunction is the default remedy for trademark infringements.<sup>248</sup> Courts will weigh the

<sup>&</sup>lt;sup>243</sup> Opposite conclusions are reached in the case of substitutes. Here, an intermediary with independent price-fixing authority renders monopolistic pricing sustainable in a Nash equilibrium. The resulting equilibrium favors copyright owners, who are able to maximize total profit from the sale of their licenses, as would happen in a cartel. But such coordination is socially inefficient compared to the alternative competitive (or oligopolistic) equilibrium, since it prevents beneficial competition with the creation of a social deadweight loss.

<sup>244</sup> See, for example, the United States federal trademark statute (The Langham Act of July 5, 1946, ch. 540, 60 Stat. 427 (1946) (codified as amended at 15 U.S.C. 1051-1127 (1994). See, e.g., with regard to European Community Trademarks: proprietors are entitled to "prevent the use, in the course of trade, of signs which are identical or similar to the CTM in relation to goods or services which similar to those covered in the registration". Article 5(2) *Council Regulation (E.C.) No.40/90* on the Community Trademark, [1995] *O.J.* OHIM 50. See, also, First Directive 89/104/EEC of the Council, of 21 December 1988, to Approximate the Laws of the Member States Relating to Trade Marks (*O.J.* EC No L 40 of 11.2.1989, p. 1).

<sup>245</sup> Possible costs of trademarks are that they induce owners to spend on advertising and the promotion of a spurious image of high quality that enables monopoly rents by deflecting consumer from lower price but equal quality substitutes. The conception of trademarks as artificial monopoly has largely been discredited in the economic literature. It is often assumed that consumers are willing to pay a premium for the assurance that a product with a certain chemical formula will be actually manufactured along the formula. William M. Landes & Richard A. Posner, *Trademark Law: An Economic Perspective*, 30 J.L. & ECON. 265, 269, 274-275 (1987).

<sup>246</sup> Sale in gross is prohibited, *see Langham Act* 15 U.S.C. 1060 (1994). By contrast, most European countries allow the assignment of trademarks, even without transfer of the underlying business. The Registry Office can refuse the transfer if it would lead to consumer confusion regarding the trade origin of the good or services. *See* GUY TRITTON, INTELLECTUAL PROPERTY IN EUROPE 294 (2<sup>nd</sup> ed., 2002). This also applies to community trademarks (CTM). A CTM can be assigned "separately from any transfers of the undertakings". Article 17 *Council Regulation* (*E.C.*) *No.40/90* on the Community Trademark, [1995] *O.J.* OHIM 50.

<sup>247</sup> See MERGES, ROBERT ET AL., INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 698-99 (1997); Mark Lemley, *The Law and Policy of Intellectual Property Licensing*, 87 CALIF. L. REV. 111, 134-35 (1999).

<sup>248</sup> In the case of dilution, *see* 15 *U.S.C.* § 1125(c) (2) (Supp. IV 1994): "The owner of a famous mark shall be entitled only to injunctive relief...". O'Rourke, *Rethinking Remedies, supra* note\_\_\_\_, 1146-47: "injunction is the weapon primarily designed to enforce the property right to exclude established under the Patent and Copyright Acts and to protect the public from confusion under the Lanham Act. The injunction, common in intellectual property cases, may be used at virtually any stage of the proceedings to stop infringement." (footnotes omitted). On the conflict between property rule-protection of copyright law and the Fist Amendment *see, e.g.*, Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102

individual facts of the case and consider whether equity demands an injunction, taking into consideration factors such as intent, public interest considerations,<sup>249</sup> legislative intent, harm suffered by the plaintiff, balance of hardship, etc. Because "irreparable injury is presumed" when a plaintiff "demonstrate[s] a likelihood of success on [its] trademark infringement claim," courts regularly issue preliminary injunctions prohibiting the further display and other uses of the infringing trademark.<sup>250</sup>

# 2. The Social Costs of Trademarks

Do trademarks raise concerns from the viewpoint of economic fragmentation?

To a certain extend trademark owners can prevent the use of a mark in criticism or comedy pieces by artists, authors and political groups, news agencies, and so forth. Some have held that the threat of litigation by trademark owners may "have a chilling effect in speech that happens to involve trademarks"<sup>251</sup> and thus hands control of the shape of discourse in the hand of few.<sup>252</sup> Familiar words cannot be used widely for political and social commentary and are no longer freely subject to humor or criticism.<sup>253</sup>

Others believe that the costs of exclusivity over words and symbols hardly outweigh the benefits for consumers. As one commentator notes "the English language has more than one million words, most of which are under-utilized and wide-open, and each year probably more new words are being created freely than subtracted commercially."<sup>254</sup>

The anticommons problem is largely reduced when one considers trademark law's provisions on "generic trademarks". The trademark law doctrine of generic marks restricts exclusive control on both an ex-ante and ex-post level. Trademark protection is terminated when the value of trademark become so commonplace that it attains the status of a "generic" trademark.<sup>255</sup> Under this restriction a word cannot and will no longer be adopted as a trademark when the term refers or has primarily become to understood by the consuming public as referring to a product category.<sup>256</sup> This preempts many of the public discourse concerns regarding the excessive control rights of trademark owners in public discourse.

# E. Current Issues in Intellectual Property Law

YALE L.J. 1533 (1993).

<sup>249</sup> See Hyatt Corp. v. Hyatt Legal Servs., 736 F.2d 1153 (7th Cir. 1989).

<sup>250</sup> See, e.g., Nissan Motor Co., Ltd. v. Nissan Computer Corporation, 89 F. Supp. 2d 1154 (C.D.Cal. 2000) aff'd. without opinion, 246 F.3rd 675 (9th Cir. 2000).

<sup>251</sup> Lemley, *Death of Common Sense*, *supra* note\_\_, 1712. Trademark law may also shape the portrayal of our landscapes. Landowners have claimed trademark rights in their buildings to protect the design of these buildings, to prevent uncompensated depiction of these buildings in whatever form. *See* in this regard the trademark granted to the facade of the New York Stock Exchange or the litigation on the shape of a golf course. *Id.*, 1712, notes 136-140. (with a reference to the relevant trademarks and case law).

<sup>252</sup> Id.

<sup>253</sup> Id., 1696.

<sup>254</sup> Eli Noam, *Two Cheers for the Commodification of Information* 54 in THE COMMODIFICATION OF INFORMATION (Niva Elkin-Korin, & Neil Weinstock Netanel, eds., 2002).

<sup>255</sup> The classic treatment is Ralph H. Folsom & Larry L. Teply, *Trademarked Generic Words*, 89 YALE L.J. 1323 (1980) (proposing an improved economic test for evaluating genericism).

<sup>256 15</sup> U.S.C. §§ 1051-1127 (1976). See also Article 3(1) (a) and (d) of the European Union Trademark Directive.

The previous section underlines the wide-ranging effects of the expansion of intellectual property rights in copyright, patent and trademark law. This Section further documents the close connection between the issue of fragmentation and the various questions that are at stake in the policy debates that currently surface in the field of intellectual property rights.

This Section highlights two current issues in the societal debate of intellectual property: the appropriate role of patent protection in genetic and biomedical material, and the protection of internet business methods. Both these issues are prime examples where underlying economic conditions have pushed the expansive boundaries of patent law.

# 1. Patents on Genetical and Biotechnological Material: From Public to Private Ownership of Organisms and Information

Prior to the 1980's, living organisms, even when modified, were equated with "products of nature."<sup>257</sup> This definition of biotechnological or genetic material as non-patentable subject matter, held most genetic material firmly outside of the sphere of patent law.<sup>258</sup>

More recently, changes in economic undercurrents and the role of such research<sup>259</sup> - has placed pressure on the legal system, the courts in particular, to acknowledge patent claims primarily based on to discoveries of DNA sequences.<sup>260</sup>

Gradually, and decisively after Diamond v. Chakrabarty,<sup>261</sup> patents have been issued on

<sup>257</sup> See, e.g., In re Mancy, 499 F.2d 1289, 1294 (C.C.P.A. 1974) (a strain of micro-organisms found in a soil sample).

<sup>258</sup> A genome is the comprehensive genetic make-up of an organism, compromised of DNA (Deoxyribonucleicacid). Discoveries of DNA sequences contain cloned genes that enable the production of proteins through recombinant DNA technology.

<sup>259</sup> Research in genetic material has surged over the past decade. In 1990 the United States launched the Human Genome Project (funded by the Department of Energy, and the National Institutes of Health) which intended to identify all genes that constitute our genome, and to determine the sequence of the genome's chemical bases and to license the pursuant related technologies in the private sector. As of June 2000, the Working draft of the genome has been available (completed in 2002). The availability of a genome sequence has provided a challenging and unique opportunity of further research towards the linking of new data to medical explanations for diagnostic and therapeutic purposes. The potential development of new therapeutics and diagnostic and commercially successful products and applications opened the horizon of research in this area. With the availability of the sequence, research now begins to analyze the raw sequence to determine the parts of the genome that encode genes, the areas of transcription, and the functional products that the genes encode. It is such research that hopes to bring to the fore the downstream commercial applications that might revolutionize and medical treatments. For further information, *see Five-Year Plan Goes to Capitol Hill*, HUMAN GENOME NEWS (U.S. Dep't of Energy/ Nat'l Insts. Of Health), May 1990, available at <<htps://www.ornl.gov/hgmis/ project/about.html>>. Research into life forms such as agricultural patents has diverse applications, including food consumption, genetically engineered plants and organisms, nature of agriculture new medication, test, and environmental disease.

<sup>260</sup> In 2001 twenty to fifty-thousand gene patents were pending for review at the patent office. Bradshaw, *supra* note\_\_, 640. The American Patent Office has attempted to slow down the tide of EST applications by issuing a set of *Utility Examination Guidelines* on January 5, 2001, The utility requirement states that "whoever invents or discovers any new or useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor..." 35 *U.S.C.* 101.

<sup>261</sup> In Diamond v. Chakrabarty, 447 U.S. 303 (1980) the Supreme Court validated a patent claim on human made, genetically engineered bacterium capable of breaking down multiple components of crude oil. This case compounded the judicial treatment of artificial variants of naturally occurring substances. It cleared the way for the patent protection of biotechnological innovations such as genetically modified organisms and proteins. Patent applications for biotechnological and genetic material need to comply with patent law's minimum standards of novelty, non-obviousness, utility and enablement. Also in Europe the protection to biotechnological inventions has

isolated and purified DNA sequences (separate from the chromosome in which they occur in nature) and on DNA sequences spliced into recombitant vectors or introduced into recombinant cells of a sort that did not exist in nature.<sup>262</sup> Subsequently, patents have been granted on a variety of biotechnological products and processes.<sup>263</sup> In effect, patents on the gene of such protein provide exclusivity in the market for the protein.<sup>264</sup>

Most recent technological advancements have structurally altered the design of research in the field of genetics and genomics.<sup>265</sup> Instead of cloning particular genes, the research and development objective has shifted to the more ambitious task of sequencing entire genomes.<sup>266</sup> This represents a shift in the innovation (and patent) specter from new chemical *entities* to new scientific *information*.<sup>267</sup> More below on this paradigmatic shift in genetic research.

Due to technological advances, information itself has retained important commercial value,<sup>268</sup> increasing the stakes in the assignment of rights to the information. From an evolutionary perspective, the drive for "propertization" can thus be readily explained in reference to the evolutionary theory developed in Section 5.2.3.2. New scientific-technological advances provided economic opportunities in the development of pure genetic information. Because genetic information became a valuable commodity, demands for property right protection arise in earlier stages of the innovation process.

#### a. Information Patents and Anticommons Dangers

Awarding patent claims on information itself, as opposed to the product assembled on the basis if this information, is a significant departure from the traditional understanding of the patent system. Under the conventional bargain of patents, patent law provides exclusivity in the products that are based on the information itself.<sup>269</sup> A monopoly right is awarded in return for the disclosure of that information *and* the free use of the information about the invention for the

been strengthened. After much back and forth between the European Commission and the European Parliament, a Directive was adopted on the protection of biotechnological inventions. *See Directive 98/44/EC* of 6 July 1998 on the Legal Protection of Biotechnological Inventions, [1998] O.J. L.213/13.

<sup>262</sup> Eisenberg, Role of Patents, supra note\_\_., 786.

<sup>263</sup> Biological material which is isolated from its natural environment or produced by means of a technical process is patentable, even if it previously existed in nature. *See EPC* Revised version, Article 23e(1).

<sup>264</sup> This similar to a chemical compound that is vital to a drug.

<sup>265</sup> Eisenberg, Role of Patents, supra note\_\_, 784.

<sup>266</sup> A patent holder's right to exclude other from using a specific set of intangible genetic information patens traditionally covers genetic information in a physical form, such as molecules of DNA (deoxyribonucleic, RNA (ribonucleic) or proteins. *See* Bradshaw, *supra* note\_\_.

<sup>267</sup> Eisenberg, *Role of Patents, supra* note\_\_, 785. For an in depth treatment, *see* John M. Golden, *Biotechnology, Technology Policy, and Patentability: Natural Products and Invention in the American System*, 50 EMORY L.J. 101 (2001). Golden calls for continued government involvement and investment in innovation, coupled with a stricter enforcement of the utility requirements as a condition for patentability.

<sup>268</sup> The commercial value of abstract genetic information has changed over time. "In the early days of patenting genes, the commercial value of genetic information derived not from the control of the information itself, but from control over its embodiment in the form of a tangible composition of matter - *i.e.* proteins." Bradshaw, *supra* note\_\_\_, 641 (new genetic information discovery is routine, as is the issuance of gene patents).

<sup>269</sup> On the social and ethical questions of genetic research, *see e.g.* E.R. GOLD, BODY PARTS: PROPERTY RIGHTS AND THE OWNERSHIP OF HUMAN BIOLOGICAL MATERIALS (1996); T. Caulfield & Williams-Jones, THE COMMERCIALIZATION OF GENETIC RESEARCH: ETHICAL, LEGAL, AND POLICY ISSUES (1999).

purpose of innovation, rather than use of the tangible invention itself.<sup>270</sup> This establishes private rights of exclusion into information, while previously only the concrete output of the information was included in the patent bundle of rights.<sup>271</sup> The disclosure requirement of patent law is defeated when patent rights are granted in the information itself. Awarding exclusivity in the information itself, even when contained in computer-readable media, is especially problematic because patent law's absence of safeguards such as fair use, reverse engineering, and the more limited experimental usage exception of patent law.

The fragmentation effect of this shift is highlighted in the case of genome companies. The genomic industry seeks commercial applications for genome data. It invests in discovering and patenting genes that are useful for the development of commercially viable products. Their business consists of selling the access rights to sequence information, drugs, diagnostic tools, and development. In these cases property rights are established at a very early stage.<sup>272</sup>

Yet, genetic research is a "cummulative endeavor. The work of downstream researchers depends on access to upstream discoveries."<sup>273</sup> This especially rings true in the field of genomics. Given the fragmented nature of the research industry, downstream products are likely to rest upon various material subject to private property rights in the portfolio of various individual right holders.

The anticommons problem is especially daunting in the EST field, where gene fragments have been patented without any knowledge as to their biological function. "Patent holders of these fragments own overlapping sections of the same gene. Creation of commercially viable

<sup>270</sup> The large costs of research and development are held as the primary justification for the patent system. Production costs of a new drugs using chemicals to pharmaceuticals average 500 million U.S. dollars. *See* THE PHARMACEUTICAL RESEARCH AND MANUFACTURERS OF AMERICA, THE PHARMACEUTICAL INDUSTRY PROFILE: R&D THE KEY TO INNOVATION. Available at <<htp://www.phrma.org/publications/publications>>. *See* also Eisenberg, *Role of Patents, supra* note\_\_, 797. Patent rights address the considerable gap between (1) up front cost of developing and establishing a valuable and proven drug onto the market, and (2) the lower costs of copying a drug, by allowing the innovator to enjoin competitors from all use of the claimed invention, and enabling above market prices during the statutorily provided period of monopoly. *See generally* on innovative development, Richard C. Levin et al., *Appropriating the Returns from Industrial Research and Development*, in THE ECONOMICS OF TECHNOLOGICAL CHANGE 247-75 (E. Mansfield & E. Mansfield, eds., 1993); D.C. Mowery & N. Rosenberg, TECHNOLOGY AND THE PURSUIT OF ECONOMIC GROWTH, 293-94 (1989). But *see* R.E. Gold, *Biomedical Patents and Ethics: A Canadian Solution*, 45 MCGILL L.J. 413, 423 (2000) (Gold argues that the incentive based justifications of patents are "mere acts of faith based on uncertain or self-serving empirical evidence").

<sup>271</sup> The patenting of genetic material has received criticism. There is a recognition that market failures in the transfers will be costly. *See* Gregory Beals, *Who Will Own the Code of Life?*, NEWSWEEK, Apr. 10, 2000, at 67.

<sup>272</sup> Alexander K. Haas, *The Wellcome's Trust Disclosures of Gene Sequence Data into the Public Domain and the Potential for Proprietary Rights in the Human Genome*, 16 Berkeley Tech. L.J. 150 (2001). *Compare* Arti Kaur Rai, *Forum: Evolving Scientific Norms and Intellectual Property Rights: A Reply to Kieff*, 95 Nw. U.L. REV. 707 (2001). On the extensive patenting that goes on at major research universities, pointing to a norm that disfavours private property rights in high upstream research, such as gene fragments (ESTs) of unknown function. *See also* Robert P. Merges, *Property Rights Theory and the Commons: The Case of Scientific Research*, Summer 1996 SOC. PHIL. & POL. 145 (1996) (describing science as a limited access commons that combines sharing norms among pure scientists with property rights enforcement against commercial entities).

<sup>273</sup> The most recent innovation is the arrival of "automated high-throughput" sequencing techniques which enable scientist to process large quantities of raw genomic data for which no use is known. Expressed Sequence Tags (EST) are sets of chemical base pairs that identify codes for protein regions with unrevealed biological functions. The pairs are valuable as they may lead to the code of protein products. Even the discovery of parts of gene EST genetic research is a "cummulative endeavor, the work of downstream researchers depends on access to upstream discoveries." Bradshaw, *supra* note\_\_, 642.

products is likely to require the use of multiple gene fragments."<sup>274</sup>

Property rights in genes of unknown functions are problematic. A researcher who investigates a disease or clinical disorder in relation to a particular gene will need to seek licenses from each of the patent right holders of the various possible explanatory ESTs or SNP's. In cases of increased uncertainty as to the synergetic effect of one's own research and the to-be-licensed material, the prospective licensee might forego the intended research. The high degree of uncertainty in the research on gene patents of uncertain use is thus an argument against the propertization of such subject matter, in light of the economic model of fragmentation.<sup>275</sup>

The American Society of Human Genetics describes the problem as follows:

"Normally, a patent ensures that a gene will be available for all researchers and for any company willing to license it. We fear that in the case of ESTs it may have quite the opposite effect. An EST patent, to be useful to the commercial sector, must make broad claims in regard to future use, including protection for the rest of the gene and its protein product, and their use for diagnostic and therapeutic applications. The academic community is unlikely to put major research effort into an EST-identified gene or its protein product if someone else already has the right to license its use based on the trivial effort required to sequence the original EST. In the commercial sector there may be reluctance to invest heavily in further research on EST-identified genes when a small but unknown fraction of them will turn out to have commercial utility, and when the useful ones may be contested by patents involving other ESTs from the same gene. Genome research could end at the level of ESTs."

#### b. Safeguards Against Patents in Information

In responding to the dangers of fragmentation we may envisage devices that *prevent* fragmentation (the ex-ante level) or solutions that *correct* some of the problems (the ex-post level).

#### **Ex-Ante Prevention**

Several aspects of patent law might provide a counterbalance against the wasteful effects of overfragmentation in the context of genetic research.

A gene patent provides the right to exclude others from making, using or selling the physical molecule, but it does not preempt others from "perceiving, using, and analyzing information of what the DNA sequence is."<sup>277</sup>

<sup>274</sup> Haas, *supra* note\_\_, 160-61. *Compare* Remigius N. Nwabueze, *Biotechnology and the New Property Regime in Human Bodies and Body Parts*, 24 LOY. L.A. INT'L & COMP. L. REV. 19 (2002) (property rights allow for better protection).

<sup>275</sup> But *see* Kief, *supra* note\_\_, arguing that current patent law would not block full use of the gene in such circumstances. In a response, Rai cites John Doll, Director of Biotechnology Examination at the Patent and Trade Office (PTO): "The USPTO views this situation as analogous to having a patent on a picture tube. The picture tube patent does not preclude someone else from obtaining a patent on a television set. However, the holder of the picture tube patent could sue the television set makers for patent infringement if they use the patented picture tube without obtaining a license." *See Id.* with source cited in footnote 28.

<sup>276</sup> The American Society of Human Genetics, American Society of Human Genetics Position Paper on Patenting of Expressed Sequence Tags, November 1991<<a href="http://www.faseb.org/genetics/ashg/policy/pol-08.htm">http://www.faseb.org/genetics/ashg/policy/pol-08.htm</a>>. See Adams, M.D., et al. (1991), 'Complementary DNA Sequencing: Expressed Sequence Tags and Human Genome Project', 252 Science 1651.

<sup>277</sup> Bradshaw, supra note\_\_, 642 (with reference to Eisenberg, Role of Patents, supra note\_\_, 788).

A certain consensus has emerged in the patent community that genes should remain unpatentable unless the concrete use of the genes can be described.<sup>278</sup> As a normative collorary, in the stage of sequencing genes, the genes will be unpatentable matter.<sup>279</sup> The human genome project, the international project that maps all human genes, is an interesting example of non-patent incentive conducted research.<sup>280</sup>

An intermediate step is to award patents that provide less extensive control rights to the proprietor. For instance, exclusivity could be granted for more narrow aspects of the right of use in an invention or non-exclusive license rights over a larger field of uses. Such more limited monopoly rights would reduce the amount of exclusivity in the bundle of rights of the patent holder, but might still suffice as incentives for biomedical investments.

### **Ex-Post** Correction

The recent developments in genetic research have led some scholars to propose institutional responses that counter some of the problems resulting from fragmented ownership of patent. These institutions include open genetic database archives, cooperative cross licensing initiatives, such as employed in the computer industry.<sup>281</sup>

Some have found in favor or more stringent regulation of the exercise of control by patent holders.<sup>282</sup> Others propose a registration system of EST's, which provide a short exclusive period, followed a period of compulsory licensing of the right to conduct research on EST, ending with a entry into the public domain.<sup>283</sup>

#### c. Conclusion

For the purpose of resource allocation efficiency, the appropriate balance can not be

<sup>278</sup> See in this regard the activities of the Wellcome Trust (WT). The WT is the world's largest medical charity organization, consisting of a dozen of public and private institutions involved in human genome research, with the "aim of improving human and animal health." At the "Strategy Meetings on Human Genome Sequencing" in Bermuda on issues of sequencing strategy, policy, and data dissemination the Bermuda Agreement was concluded. The most essential findings are that *i*) raw sequence should be freely available in the public domain, with a priority accorded to disclosure of raw genome as soon as possible; and *ii*) proprietary rights should be limited to the "useful benefits derived from genetic information". See The Human Genome Organisation, Summary of Principles Agreed at the International Strategy Meeting on Human Genome Sequencing, Feb. 25-28, 1996), available online at <<< http://www.gene.ucl.ac.uk/ hugo/bermuda.htm>>). See also The Wellcome Trust, The Human Genome: What is the Next Step?, available online at <<< http://www.welcome.ac.uk/en/genome/nextstep.html>>. See also Haas, supra note\_\_, 163.

<sup>279</sup> Gold, supra note\_\_.

<sup>280</sup> For a critical examination of the proof of the stimulating effect of patens on investment levels, citing the Human Genome project as a counterexample. *See* Gold, *supra* note\_\_, 428. In a recent project, pharmaceutical companies have contributed half of the budget for a public-private venture that is putting SNP research into the public domain. *See* NicholasWade, *Ten Drug Makers Join to Find Genetic Roots of Disease*, NEW YORK TIMES, April 15, 2002 (cited in Rai, *supra* note\_\_, 712 at footnote 35).

<sup>281</sup> Bradshaw, *supra* note\_\_\_, 659 (finding in favor of regulation of gene patent law at the post-issuance stage). 282 *Id*.

<sup>283</sup> See Haas, supra note\_\_, 163. The analysis of copyrights collectives, in Section 5.3.4.4 of this Chapter applies to this proposal. But see discussion in Section 5.3.3.4: "Unlike copyrighted works, patents do not lend themselves well to pooling by intermediaries. Licensing patents in bulk is extremely difficult because of the more complicated nature of patents and inventions. Especially improvements are hard to categorize".

determined by comparing a system of patent law protection (innovation is encouraged but with anticommons costs) to a system where there is no patent protection (lowered incentives for investment but no anticommons losses). Rather the correct comparison is between a system of patent protection and an alternative system of trade secrecy where there is no (protected) disclosure and where independent invention is predominant. More generally, the absence of patent law, the protection of investment will be obtained via alternative means. This is exemplified by the research and development in the area of DNA sequencing in both the public and private sector in the historical absence of any certainty with regard to capture of the informational value of these investments.<sup>284</sup>

When conducting comparative institutional analysis,<sup>285</sup> the relevant answers do not reveal themselves though a singular comparison between "innovation with patent protection" versus "innovation without patent protection" but rather, follow from measuring "innovation with patent protection" versus innovation under alternative means of protection.

The economic model of fragmentation details some of the problems that might occur in when attempting to reunify information fragments that are held by separate individuals. As such the economic theory of fragmentation deserves recognition as one important part of the patent puzzle. The issue demands further empirical investigation of the market of licensing and the incentive effects of patents.

# 2. Business Methods

# a. The Extension of Patents to Methods

Most recently United States patent doctrine has begun to treat business methods as patentable subject matter.<sup>286</sup> Originally, business methods were regarded outside of the scope of intellectual property law. Business methods were considered as non-statutory subject matter or rejected because of lack of novelty, non obviousness or business method exception.<sup>287</sup>

<sup>284</sup> Eisenberg, Role of Patents, supra note\_\_, 795.

<sup>285</sup> See generally, Neil K. Komesar, IMPERFECT ALTERNATIVES: CHOOSING INSTITUTIONS IN LAW, ECONOMICS AND PUBLIC POLICY (1994).

<sup>286</sup> State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F. 3d 1368, 47 U.S.P.Q.2d 1596 (Fed. Cir. 1998). State Street concerned a system that enhanced sale effects and tax benefits by pooling individual mutual funds' assets into larger partnership-based investment portfolios. For a critique, see Larry A. DiMatteo, The "New" Problem of Business Method Patents: The Convergence of National Patent Laws and International Internet Transactions, 28 RUTGERS COMPUTER & TECH. L.J.1 (2002); Leo J. Raskind, The State Street Bank Decision: The Bad Business of Unlimited Patent Protection for Methods of Doing Business, 10 FORDHAM INTELL. PROP. MEDIA & ENT. L. J. 61 (1999) (business patents do not engender economic incentives and might deter diffusion of those methods). See also Amm Bartow, Separating Marketing Innovation from Actual Invention: A Proposal for a New, Improved, Lighter, and Better-Tasting Form of Patent Protection, 4 J. SMALL & EMERGING BUS. L. 1 (2000); Rochelle Cooper Dreyfuss, Are Business Method Patents Bad for Business?, 16 SANTA CLARA COMPUTER & HIGH TECH. L. J. 263 (2000); Robert P. Merges, As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform, 14 BERKELEY TECH. L. J. 577 (1999); Richard H. Stern, Scope-of-Protection Problems with Patents and Copyrights on Methods of Doing Business, 10 FORDHAM INTELL. PROP. MEDIA & ENT. L. J. 105 (1999); John R. Thomas (1999), The Post-Industrial Patent System, 10 FORDHAM INTELL. PROP. MEDIA & ENT. L. J. 3 (1999) (the strict application of the industrial application requirement can restore the balance by limiting patent protection to repeatable production and transformation of material objects); John R. Thomas, The Patenting of the Liberal Professions, 40 B. C. L. REV. 1139 (1999).

<sup>287</sup> See, e.g., Hotel Security Checking Co. v. Lorraine Co., 160 F. 467 (2d Cir. 1908) (methods of doing business

Because of the low entry barriers for conducting business online, business methods have become crucial assets for attracting customers on line. Patents on these business methods provide far-stretching rights of exclusivity and exclusion in business models. The "reverse auction" patent of *Priceline.com* provides its owner with exclusivity over all business methods that use a pricing systems in which *buyers* propose a price and supplier auction bid for the supply of the good/service at that price. Patents such as held by *Netcentives* provides exclusivity to frequent-buyer programs on the Internet, the *Cybergold* patent monopolizes pay-per-view advertising.<sup>288</sup>

To many, this turnaround in the treatment of business methods<sup>289</sup> is yet another significant step towards the enclosure of the public domain in the wake of the information economy.<sup>290</sup> It has been argued that granting business methods fits within a broader extension whereby considerations of secondary factors such as the financial success of a commercialized invention, the number of licenses that have been issued on the method, and so forth.<sup>291</sup>

#### b. Anticommons Concern

Because business method patents place severe restraints on the business conduct of competitors, actual and potential,<sup>292</sup> they carry the potential of turning the "superhighway of electronic commerce...into a toll road."<sup>293</sup> The anticommons danger in this respect is considerable.<sup>294</sup> The *Sightsound.com* patent, for instance, has the potential of preventing the sale of any digital audio and or video recording over the Internet, if upheld in court.<sup>295</sup> The problem is compounded by the dynamic nature of the Internet.<sup>296</sup>

are ineligible for patent protection). *Loew's Drive-In Theaters, Inc. v. Park-In Theaters, Inc.*, 174 F.2d 547 (1st Cir. 1949) (scheme for parking automobiles in an open lot); *Ex parte Murray*, 9 U.S.P.Q. 2d (BNA) 1819 (Bd. Pat. App. 1988) (accounting analysis of expenses); In *re Schrader*, 22 F.3d 290,296 (Fed. Cir. 1994) (Newman, J., dissenting) (method of competitive bidding on multiple items).

<sup>288</sup> These examples are borrowed from Jared Earl Grusd, Internet Business Methods: What Role Does and Should Patent Law Play?, 4 VA. L. REV. 9, 13 (1990).

<sup>289</sup> Some attribute this expansion to the protection of software, which empowered creative lawyers to push the limit by acting in the presence of computer technology by describing business methods as new combinations of hardware and software, *see* Merges, *supra* note\_\_, 586 (proposing structural changes to the PTO, such as a competitive application process).

<sup>290</sup> Grusd, *supra* note\_\_ (courts should align prior doctrine with policy concerns when evaluating patent claims in internet business methods).

<sup>291</sup> For a discussion, *see* Robert P. Merges, *Commercial Success and Patent Standards: Economics Perspectives on Innovation*, 76 CALIF. L. REV. 805 (1988) (the focus on secondary factors tends to reward non-technical achievements and undermines the patent system).

<sup>292</sup> Raskind, supra note\_\_, 101.

<sup>293</sup> Id., 72.

<sup>294</sup> Grusd, *supra* note\_\_, at note 63 (acknowledging the link between proliferated and diversely held business patents and the dynamic effect of freezing the development of novel business methods).

<sup>295</sup> Id., at note 27.

<sup>296</sup> On the problematic nature of strong intellectual property protection on the Internet, *see* Lessig: "There is growing skepticism among academics about whether such state-imposed monopolies help a rapidly evolving market such as the Internet. What is "novel", "nonobvious" or "useful" is hard enough to know in a relatively stable field. In a transforming market, it's nearly impossible for anyone - let alone an underpaid worker in the U.S. Department of Commerce who spends on average of eight hours evaluating the prior art in a patent and gets paid based on how many he processes - to identify what's "novel". Costly mistakes get made. On average it takes \$1.2 million to challenge the validity of a patent, which means it is often cheaper simply to pay the royalties than to establish that the patent isn't deserved. "Bad patents" thus become the space debris of cyberspace. Nowhere is this clearer than in

# c. Making Sense of the Property Rights in Business Methods

Because entry barriers are so low in cyberspace, it becomes hard to distinguish oneself from the abundance of competitors, which leaves the pioneer with a strong first-mover advantage.<sup>297</sup> The information paradox<sup>298</sup> increases the importance of being the first on Internet product or service markets. This reduces the need for patent protections; inventors have due incentives to be the pioneering innovator.

On the other hand, licensing is more problematic in the context of business methods. Because the lines between different markets are blurred in the realm of e-commerce, licensing will be conducted in a less friendly environment. See in this regard the recent lawsuit between a retail giant and on-line bookstore.<sup>299</sup> Such lawsuits are indicative of the exercise of strategic veto rights in valuable resource, which has led commentators to propose limits on injunctive remedies for business methods.<sup>300</sup>

#### V. CONCLUSION

The theory of legal evolution, developed in this Article, holds that private property right allocations in intellectual property goods result from changes in economic values that stem from the development of new technology and the opening of new markets. The uncertainty as to successfulness of technology in protecting or circumventing protection of intellectual goods leads to increased efforts of legislative and judicial capture by both content providers and consumers. This technological uncertainty feeds into legal uncertainty with regard to the applicability of current intellectual property laws and the necessity of new legal rules. In

the context of business-method patents. At a recent conference in Israel, I watched as a lawyer terrified the assembled crowd of Internet startups with stories of the increasing number of business-method patents that now haunt Internet space. Patent No. 5,715,314, for example, gives the holder a monopoly over "network-based sales systems" - we call that e-commerce. Patent No. 5,797,127 forms the basis for Priceline.com and effectively blocks any competitor. Patent No. 4,949,257 covers the purchase of software over a network." Lawrence Lessig, The STANDARD, April 23, 1999; Problem With Patents, THE available at <<http://www.thestandard.com/article/display/0,1151 ,4296,00.html>> (last visited, September 25<sup>th</sup>, 2002).

<sup>297</sup> However, insofar that the first-mover advantage is premised on network or lock-in effects the remarkable economic downturn of the information technology industry over the course of 2000-02 seems to have falsified such a theory. For a theoretical discussion of the exaggeration of the differences between classical and e-retailing, including network effects, *see* STAN LIEBOWITZ, RE-THINKING THE NETWORK ECONOMY (2002). Despite these reservations, the argument remains that, given low entry barriers and abundance of unranked information, being first, and getting name recognition can provide a huge short-term advantage. By no means does this imply long run survival if the quality of the product or service on offering is inferior to that of competitors.

<sup>298</sup> The information paradox, as different from Arrow's Information paradox, refers to the condition where an individual is overwhelmed with information, while unable to locate information that is of import/interest. The paradox lies with the reduced level of information relative to the higher availability of that information In the realm of corporate consulting a popular application of the information paradox is the positive correlation between increased levels of investment by companies in cutting-edge information technology, and the reducing grasp on the efficiency of these investments. *See* JOHN THORP, THE INFORMATION PARADOX (1999).

<sup>299</sup> Grusd, *supra* note\_\_, 61: "traditional lines demarcating different industries erode on the Internet". *See* also M. Bolton, *Wal-Mart Agrees to Settle Law Suit against Amazon*, N.Y. TIMES, April 6, 1999, at C6. 300 Raskind, *supra* note\_\_, 103.

determining the proper scope of intellectual property law, intellectual property users and developers are at opposite ends of the spectrum. Holders of intellectual property law will claim that the new technology falls within the existing bundle of the intellectual property right, while end users assert that the technological change is so significant that contemporary intellectual property laws do not apply. The resulting social mechanism predicts a cyclical back and forth of the legal allocation of use rights between producers and users; of which the outcome is often contingent upon one's interpretation of the technological state of the art. Finally, as a matter of allocative efficiency, there exists considerable friction between the 'multi-component' or complementary nature of works and the continued extension of property right-protection to increasingly smaller units of intellectual and scientific creation. Economic theory reveals the problematic societal consequences that may develop in the wake of unbounded fragmentation of property rights.

Rewarding creation and innovation with the allocation of temporary property rights is the time-honored approach to these developments. The legislative or judicial conception and assignment of these new property rights are a crucial matter of social ordering. The outcome of this process determines the control rights in the interaction between new technology and intellectual property content. This Article suggests that society benefits from qualified conceptions of property rights in intellectual property law. However, as the anticommons model demonstrates, the uncoordinated exercise by right holders of their exclusion rights might lead to sub-optimal levels of production. Doctrines of fair use, blocking patents, equivalent patents, and generic trademarks serve as important points of moderation of the deadweight losses that might ensue when dealing with the uncoordinated exercise of control rights over complementary property rights. In light of the anticommons problem these doctrines and institutions retain importance as tools that work to the advantage of both producers and consumers of intellectual property material.