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Costly Intellectual Property

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INTRODUCTION

Patents and copyrights originate from the same constitutional source of law,[1] and for this reason they are in some respects similar. Patent and copyright law alike extend to inventors and authors exclusive rights over the fruits of their intellectual labors, enabling owners to extract value from intangible goods that would otherwise not be profitable.[2] Both systems are premised on a utilitarian bargain, allowing inventors and authors to have socially costly monopoly interests in their inventions and works in order to encourage socially beneficial innovative and artistic production.[3] And patents and copyrights both last only for finite periods, in contrast to the perpetuity of most property interests, in order to both enrich the

1. *See* U.S. CONST. art. I, § 8 ("Congress shall have the Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . . .").

2. 17 U.S.C. § 106 (2006) (enumerating six exclusive rights of copyright owners); 35 U.S.C. § 154(a)(1) (2006) (enumerating exclusive rights of patent owners).

3. Dastar Corp. v. 20th Century Fox Film Corp., 539 U.S. 23, 33–34 (2003) ("The rights of a patentee or copyright holder are part of a 'carefully crafted bargain' under which, once the patent or copyright monopoly has expired, the public may use the invention or work at will and without attribution.").

public domain and enable the creation of follow-on inventions and works of authorship.[4]

Yet, in at least one salient respect,[5] patents and copyrights are quite different. Patents vest only after an applicant successfully navigates a cumbersome examination process administered by the federal Patent and Trademark Office ("PTO"). Copyrights, by contrast, arise costlessly and often unintentionally, as soon as an author fixes a work of authorship in a tangible medium of expression.[6] Patents, in other words, are very costly to acquire, while acquiring a copyright costs authors almost nothing at all.

That patents and copyrights vest so differently raises a problem, and presents a puzzle. The problem—at least purportedly—is that each of these vesting systems generates social costs far in excess of its benefits. Critics of the patent system charge that the examination process represents a classic deadweight loss, imposing prohibitive costs on patentees while generating no offsetting benefits by screening out invalid or ineffectual patents.[7] Critics of the copyright system charge that by extending exclusive rights to just about any work of authorship, society suffers from a glut of copyrights that deters future creation by imposing information and transaction costs on would-be authors.[8]

In this Article, we question this conventional wisdom, arguing that the costliness of patents and the costlessness of copyrights have positive, rather than negative, effects on social welfare. The first step of our argument leverages emergent insights from the economic literature about costly screening processes. As scholars have observed in other settings, burdensome processes for vesting legal rights have social costs and benefits apart from the substantive end they are meant to serve. Such processes are costly screens, forcing actors who seek to acquire legal rights to consider whether acquisition of the right

4. 17 U.S.C. § 302 (establishing a term of seventy years after the death of the author for most copyrights); 35 U.S.C. § 154 (establishing patent duration of twenty years from effective date of filing).

5. Of course, patent and copyright differ in many other respects. For example, patent law extends to inventors broader exclusive rights than copyright law extends to authors, a point that we return to in detail below. *See infra* Parts II, III.

6. *See* 17 U.S.C. § 102(a) ("Copyright protection subsists, in accordance with this title, in original works of authorship fixed in any tangible medium of expression . . . .").

7. *See generally* DAN L. BURK & MARK A. LEMLEY, THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT (2009) (critiquing the current patent vesting system).

8. *See, e.g.*, Molly Shaffer Van Houweling, *Author Autonomy and Atomism in Copyright Law*, 96 VA. L. REV. 549, 613–30 (2010) ("[A]tomistic copyright causes information and transaction cost problems."); Justin Hughes, *Size Matters (or Should) in Copyright Law*, 74 FORDHAM L. REV. 575, 576–79 (2005) (observing that copyright law increasingly protects smaller "microworks," and that this trend is problematic).

will be worth the cost of doing so. Such screens cause actors to self-select against acquisition of rights that will not generate much private value, and limit the vesting of those rights for reasons unrelated to the substantive content of the process itself.

Bringing this insight to bear on intellectual property ("IP") casts the vesting of both patents and copyrights in a new light. The much-maligned patent examination process functions as a classic costly screen. It deters applicants from seeking patents when the value of the exclusive right is less than the price of overcoming the screen. Moreover, because of a distinctive asymmetry in patent law's generation of social and private value, the effect of this screen is to deter the production only of those low private value patents that also have low (or negative) social value. Examined in this light, the costly examination process is not a deadweight loss at all, but an efficient way to exclude the very kind of patents most likely to generate anticommons concerns.

Process costs—or, more accurately, their absence—also help explain why copyright's oft-criticized low vesting threshold generates social benefits in ways unappreciated by its critics. Because copyright law constructs authors' property rights differently—and much more narrowly—than patent law constructs property rights, it produces very different private/social value asymmetries. If law were to impose a costly screen as a precondition of copyright vesting, such a screen would exact social costs well in excess of any benefits it produced. Costly copyrights would preclude the creation of only innocuous works of authorship, thereby failing to generate any meaningful social value. Process costs for copyright vesting would, however, deter the creation of works that have low value for their author but high value for the public—thus precluding production of one of the paradigmatic kinds of work that copyright was designed to create.

Refracting the patent and copyright vesting systems through the lens of costly screen theory thus enables us to tell a very different story than the one currently animating most writing on this topic. Rather than regarding the patent examination process (and the lack of any process for acquiring copyrights) as social problems, we show that they are in fact beneficial ways to maximize social welfare from IP production.

But application of costly screen theory not only reconfigures the conventional normative account of vesting IP rights, it also provides a solution to a longstanding, related puzzle. Scholars have often asked why law creates such different vesting thresholds for copyrights and patents. This question has often been addressed in the literature, but without a satisfactory conclusion. We argue that costly

screens provide a complete and parsimonious answer to this puzzle, and indeed that this insight allows us to craft more generally a theory of IP process. Our answer to this problem does not rely, as other accounts have, on the mere fact that copyrights and patents extend differential strengths of property rights to owners. Rather, we suggest that there is a complex interrelationship between the breadth of exclusive rights in information, the social/private value asymmetries those rights generate, and the optimal process that should govern how those rights vest. Indeed, we claim that this insight may be abstracted to the law more generally, and conclude by briefly examining related fields where costly screen theory can make sense of a purportedly suboptimal process (or the purportedly suboptimal lack of such a process).

This Article proceeds in four parts. Part I explains the essentials of costly screen analysis, providing a basis for the discussion that follows. Part II applies these ideas in the patent setting, arguing that the supposedly wasteful patent examination process actually enhances social welfare because it encourages efficient self-selection by patentees. Part III makes a similar move in the context of copyrights, showing by means of a counterfactual thought experiment that imposition of costly screens as a prerequisite to vesting exclusive rights in works of authorship would be counterproductive because it would preclude the creation of many highly socially valuable works. Part IV generalizes these insights in two ways. First, it articulates a general theory of IP process that illuminates a basic relationship between the statutory construction of exclusive rights in information and the means by which those rights should vest. Second, it extrapolates our argument outside the IP context, showing that elaborate processes (or the conspicuous lack of any such process) for vesting legal rights may be socially beneficial in ways that their critics have failed to appreciate.

I. THE SOCIAL VALUE OF COSTLY SCREENS

Costly screens—which we define as the price that an actor must pay to the government in order to take a given action—are ubiquitous. If you want to (legally) drive a car, you have to get a license from the local Department of Motor Vehicles, remit the requisite fees, and successfully undergo a basic competency evaluation. Owners who want to develop or significantly modify their real property must seek permits from and pay fees to the relevant local building authority. Similarly, operators of businesses must comply with federal regulations that often impose permit

requirements on operations likely to produce noxious effluents. Many, and possibly most, activities that may impose large-scale externalities require their agents to navigate a costly screen in one way or another.[9]

These screens are often understood in terms of the content of the processes themselves. Licensing requirements evaluate driver skill to assure that the streets are not crowded with dangerously incompetent motorists. Permitting requirements for construction encourage compliance with building codes designed to ensure safety, while similar requirements for manufacturing encourage compliance with federal regulations designed to reduce pollution. Yet this standard account cannot explain all aspects of such screening processes. Requiring payment of a license or permit fee merely raises the costs of acquiring these rights, and does not appear to have any nexus with driver competence or building safety. And many screening processes have been shown to lack any meaningful substantive bite,[10] so that they more closely resemble a byzantine bureaucratic maze than a serious evaluation of an actor's competence or safety.

In light of the shortcomings of this standard explanation, an alternative account—which we refer to throughout this Article as costly screen theory—has emerged.[11] Its exponents, increasingly numerous in the legal academy, have argued that cumbersome procedural requirements have social value not because of their substantive accuracy, but simply because some actors cannot afford to pay the price associated with these costly screens, and are thus precluded from acquiring the associated rights. So long as costly screens select against those actors whose exercise of the right at issue would be socially counterproductive, such screens enhance aggregate welfare value regardless of the substance of the process that they impose.[12]

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9. There are conspicuous exceptions. People are free to have children absent any licensing requirement, and regardless of their parental fitness.

10. We discuss several of these types of processes below. *See infra* Part IV.B.

11. Scholars have applied costly screen theory in various legal settings. *See, e.g.*, Hans Gersbach, *The Money-Burning Refinement: With An Application to A Political Signaling Game*, 33 INT'L J. GAME THEORY 67, 72–86 (2004); Paul Milgrom & John Roberts, *Price and Advertising Signals of Product Quality*, 94 J. POL. ECON. 796 (1986); Eric A. Posner, *Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective*, 68 U. CHI. L. REV. 1137, 1160–61 (2001); Michael Spence, *Job Market Signaling*, 87 Q. J. ECON. 561 (1973); Matthew C. Stephenson, *A Costly Signaling Theory of "Hard Look" Judicial Review*, 58 ADMIN. L. REV. 753 (2006); Joseph Stiglitz & Andrew Weiss, *Sorting out the Differences Between Screening and Signaling Models*, *in* PAPERS IN COMMEMORATION OF THE ECONOMIC THEORY SEMINAR AT OXFORD UNIVERSITY (Michael Dempster ed., 1989).

12. Indeed, costly screen theory is agnostic as to the content of the screen itself. A fee in the amount of X on actors is functionally equivalent to a process that requires no fee but imposes transaction costs equivalent to X.

To illustrate how costly screens can affect and sometimes enhance the production of goods, consider an imaginary firm called DouglasCo.[13] DouglasCo manufactures a product called Bairds, but its manufacturing process also generates social costs in the form of pollution.[14] Society thus wants DouglasCo to manufacture Bairds, but only when their production enhances social welfare—that is, only when the private value of producing Bairds (i.e., the profits they generate for DouglasCo) exceeds the social costs of their production (i.e., pollution). The problem, though, is that DouglasCo cannot be counted on to limit its production by reference to this calculus because its production operates independently of any aggregate social welfare analysis. DouglasCo will continue to manufacture Bairds whenever they create private value for the firm because it does not, by assumption, bear the social costs of its pollution.[15]

Now imagine that a government actor, Regulator, is charged with addressing this problem. How can Regulator limit instances in which DouglasCo's production of Bairds produces a socially harmful amount of pollution? Regulator would love to simply ban production where the social costs of producing Bairds are greater than the private value they create, but she cannot enact this ban because the private value of making Bairds is a fact known only to DouglasCo.

Costly screens may provide a solution to this difficulty. Regulator could simply impose on DouglasCo a price—say, a permit fee—in order to obtain the right to produce Bairds. If the permit fee is greater than the private value that DouglasCo generates by producing Bairds, then DouglasCo will simply cease production. Where DouglasCo's manufacture of Bairds creates more pollution than it does private value, Regulator's imposition of a costly screen to stymie the firm's production is a welfare-maximizing outcome.

But there is no guarantee that the costly screen will block DouglasCo from producing Bairds in all cases when producing Bairds is welfare diminishing, and no guarantee that the costly screen *will not* block DouglasCo from producing Bairds when producing Bairds is welfare enhancing. Regulator's costly screen will stop DouglasCo's production *whenever* the screen makes production of Bairds a losing proposition for the firm, including even those instances where

13. We would like to thank our mentor and colleague Douglas Baird for tolerating our use of his name in connection with this hypothetical.

14. We make the simplifying assumption that the only social cost exacted by DouglasCo's production of Bairds is pollution. In reality, the social costs of producing any good are much more varied.

15. In more formal terms, we would say that the social costs of DouglasCo's manufacture of Bairds are not internalized.

production creates no pollution.[16] The fundamental problem is that DouglasCo will react based on how the costly screen compares to the *private value* of producing Bairds, while Regulator really cares about the *social value* of producing Bairds, which depends on the amount of pollution generated.

Given this mismatch, is it ever possible for Regulator to impose costly screens in a way that is likely to enhance social welfare? We think the answer is yes, and in order to illustrate how, we introduce one more variation to this extended hypothetical. Assume that DouglasCo makes two kinds of Bairds, A and B. Imagine that Baird A earns DouglasCo significant profits and usually (but not always) results in relatively little pollution. In other words, making Baird A is always a winning proposition for DouglasCo and often (but not always) a winning proposition for society at large. Baird B, by contrast, earns DouglasCo much less by way of profit, but it invariably generates significant pollution. In other words, making Baird B is (barely) a winning proposition for DouglasCo, but it is always a losing proposition for society. Let's assume further that Regulator has no idea beforehand whether DouglasCo is making Baird A or Baird B, even after the goods have hit the marketplace. (This may seem like a contrived set of circumstances, but we will demonstrate later that a great proportion of intellectual property actually does have these features.)

Under these circumstances, Regulator can use costly screens to exploit the asymmetry between the private value that the Bairds create for DouglasCo and the public value that they generate for society at large. As we have seen, Baird A sometimes creates social benefits and sometimes does not, but it always generates value for DouglasCo. By contrast, Baird B is always harmful to society, and only sometimes generates value for DouglasCo.[17] So, if Regulator can at least determine the value that Baird B creates for DouglasCo, it can set a costly screen priced at, or slightly above, that value. This screen will make it so that DouglasCo will no longer produce Baird B (since the screen would cost more than the profits generated by that good), but will not preclude production of Baird A (since the profits from

16. The story is actually a little bit more complicated because the imposition of the screen itself is a social cost that must be reflected in the cost-benefit analysis, so the screen is desirable only where the private value of making Bairds exceeds both the pollution generated by the manufacturing process and the cost to DouglasCo of navigating the screen.

17. One might wonder why DouglasCo would bother making Baird B at all, since Baird A is consistently more profitable for the firm. It may do so because Baird A is difficult to produce, and cannot be generated with any regularity. While this may seem odd, we will demonstrate that this too is a feature common to copyrights and patents.

making Baird A remain greater than the costs imposed by the screen). Here, then, Regulator's costly screen is welfare enhancing because it blocks production of a socially costly good while continuing to allow production of a (frequently) socially beneficial one.[18]

Consider as well this variation: What if production of Baird B, despite its marginal profitability for DouglasCo, sometimes led to massive pollution while at other times created no pollution at all? This small change alters the result entirely. Here, imposing a costly screen would still preclude DouglasCo from making highly polluting and therefore socially costly versions of Baird B, but it would also preclude the firm from making nonpolluting and therefore socially beneficial versions of Baird B. Under these conditions, Regulator could no longer conclude that imposing costly screens on DouglasCo's production of Bairds would likely be welfare enhancing. If the "good" Baird Bs outnumbered the "bad" Baird Bs, it would be a mistake to block their production entirely.

This highly abstracted example illustrates how processes imposed by government in advance of exercising a given right can generate social value that is independent of the content of the process itself. The extended hypothetical we have sketched out here, while highly abstract, describes two major areas of intellectual property law—patent and copyright—and lays the foundation for showing how the processes for vesting each of these rights are best understood as costly screens. We take up this argument in the sections that follow.

II. COSTLY PATENTS

For patent applicants, the process of patent examination is costly. The average patent applicant will pay more than $20,000 to obtain a patent, and that figure can be much higher for patents in complex technological fields. At the same time, examination does not reliably weed out the worst patents. Patent examiners have significant private incentives to grant even invalid patents and little incentive to block them. Examiners are also able to devote only a short amount of time to examining each patent. Even the procedural rules governing patent examinations are stacked against denials. Consequently, patent attorneys have come to believe that they can push through nearly any patent application with continuous appeals

18. The costly screen clearly does not create a perfect world where DouglasCo produces Baird A only when that production is socially beneficial. The screen will permit all production of Baird A, which by assumption will include some instances in which that production will be socially costly. We illustrate here only that costly screens can represent Pareto improvements, not that they necessarily eliminate all social problems.

and re-filings. These improperly granted patents can exact social costs, dissuading firms from entering into markets or commercializing inventions and clogging the processes of innovation.

If patent examination is both expensive and ineffective, why continue it? In light of these twin failings, scholars have proposed two types of systemic reforms. Some advocate investing greater resources in more extensive examination by the PTO.[19] Others, pointing to the large percentage of patents that are economically insignificant, suggest scaling back (or even eliminating) the PTO examination process and moving toward a system of (free) patent registration and ex post review in the courts, much like copyright.[20] Both groups, however, treat the expenditures involved in prosecuting a patent solely as the cost of the active examination that takes place, to be minimized wherever possible.

In this Part, we present a novel conception of the role that the PTO process plays in deterring the filing of bad patents. Examination procedures at the patent office impose private costs on patent applicants. These procedural costs act as a costly screen, dissuading putative patent holders from filing for patent rights that they expect will be worth little—we call them "low private value" patents. Because of the structure of patent rights, these low private value inventions will necessarily be harmful, not beneficial, to society at large. That is, they will have "low social value" as well.[21] Consequently, the PTO's costly screen will block only harmful patents; it will not deter innovators from creating genuinely useful inventions. There is thus reason to believe that patent-examination costs are useful simply because they select against socially harmful patents while leaving beneficial ones unscathed.

A. Patent Costs

Stories of ridiculous, invalid, and obvious patents have become commonplace.[22] In recent years the PTO has gained infamy for allowing patents on the process of toasting bread, a stick, and a

19. *See infra* note 40 and accompanying text.

20. *See infra* note 41 and accompanying text.

21. Importantly, the converse is not true. A patent with low private value will have low social value, but a patent with low social value will not necessarily have low private value. We describe and analyze this phenomenon in the Section that follows. *See infra* Part II.B. This Section and the next draw and expand upon Jonathan S. Masur, *Costly Screens and Patent Examination*, 2 J. LEGAL ANALYSIS 687 (2010).

22. *See, e.g.*, 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, 579 (1999) (describing the expanding scope of patentability).

method for swinging on a swing, to name just a few examples.[23] Far more importantly, however, the PTO has granted invalid patents on thousands, if not tens of thousands, of "inventions" in innovative fields such as software, biotechnology, and electronics.[24] These patents, on inventions that either would have been obvious to scientists in the field or were anticipated by prior work, carry with them the potential to stifle innovation and discourage firms from entering into productive markets. Even if they are never litigated—indeed, especially if they are never litigated and are never evaluated in court—these "bad" patents impose significant costs on consumers and producers in precisely those industries in which rapid technological progression and the growth of small-scale market participants are most important.

Patentees will always seek to obtain even invalid patents because they can be used to collect licensing fees and block competitors. But these types of patents are allowed to come into existence only because of the inadequacies and pathologies of the procedures employed by the patent office to screen them out. Unlike nearly every other federal agency, the patent office treats the private parties with whom it interacts—patent applicants—as its "customers,"[25] and the office describes its mission as "help[ing] our customers get patents" and "ensur[ing] strong IP for all Americans."[26] This is not exactly a skeptical stance. Nor is it mere rhetoric. Rather, this view of the PTO's institutional role manifests itself in the procedures that the office has created to process applications and the incentives placed upon the key actors within the system, the patent examiners.

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23. *See* ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS 34 (2004) (enumerating examples of these worthless and obvious patents).

24. *See id.*

25. *See, e.g.*, PATENT AND TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, WORKING FOR OUR CUSTOMERS: A PATENT AND TRADEMARK OFFICE REVIEW 1 (1994) [hereinafter PTO, WORKING FOR OUR CUSTOMERS], *available at* http://www.uspto.gov/web/offices/com/annual/1994/pg1-5.pdf ("We at the PTO remain focused on providing effective and efficient patent and trademark service to our customers."). This is in contrast to other administrative organizations, such as prosecutors' offices, that structure internal cultures and incentives so as to mitigate the effect of rational self-interest. Prosecutors themselves have an incentive to dismiss cases or settle them quickly, for short sentences, in order to dispose of their workload and maximize leisure time. Prosecutors' offices counter this incentive by creating cultures that value longer sentences and higher conviction rates and evaluating line prosecutors on those grounds. *See* Stephanos Bibas, *Plea Bargaining Outside the Shadow of Trial*, 117 HARV. L. REV. 2463, 2470–71 (2004) (discussing prosecutors' personal incentives in managing cases).

26. PATENT AND TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, A PATENT AND TRADEMARK OFFICE REVIEW 7 (1997), *available at* http://www.uspto.gov/web/offices/com/annual/1997/; PTO, WORKING FOR OUR CUSTOMERS, *supra* note 25.

Each patent application filed with the PTO is referred to a single patent examiner, who maintains authority over the application during nearly its entire life.[27] The examiner must decide whether to grant or reject the patent application. Yet these two activities are not symmetric. Rejecting a patent application is more difficult and time-consuming for the examiner than granting one. If the examiner grants the application, there is little process required—the examiner simply announces that she is allowing the application to mature into a patent. If the examiner rejects the patent, however, she must justify that decision and identify the relevant prior documents and the section of the Patent Act that has caused her to reject the application.[28]

Patent examiners receive salary bonuses based on the number of patent applications that they are able to process.[29] This fact, by itself, might skew the examiner's incentives as granting a patent is easier than rejecting one. But the problem is in fact far greater. Unlike a patent grant, an examiner's decision to reject a patent application does not end the matter. First, the patent examiner cannot issue a "final" rejection on the first go-around.[30] If the examiner initially rejects the patent, the applicant is entitled to request a reexamination in front of the same examiner.[31] After this second examination, the examiner may choose to issue a "final" rejection of the application, though she need not do so.[32] (In theory, the examiner and the applicant could engage in an infinitely iterated series of preliminary rejections and reexaminations, and indeed many patents are the subject of three or four office actions before they are finally accepted or rejected.[33]) Yet even if the examiner issues a final rejection of an application, the matter is not closed. If the applicant does not wish to abandon the invention, she may file a continuation

27. *See* ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, PATENT LAW AND POLICY: CASES AND MATERIALS 51–53 (4th ed. 2007) (describing the patent prosecution process).

28. *See* 37 C.F.R. § 1.104(a) (2011) ("The reasons for any adverse action or any objection or requirement will be stated in an Office action . . . .").

29. JAFFE & LERNER, *supra* note 23, at 136 (describing the internal functioning of the PTO).

30. 37 C.F.R. § 1.113(a).

31. *See* JAFFE & LERNER, *supra* note 23, at 136 ("But applicants can modify and appeal patents that are initially rejected . . . . Thus, a rejected patent will typically consume much more of an examiner's time than one that is allowed after the initial application.").

32. 37 C.F.R. § 1.113(a) ("On the second or any subsequent examination or consideration by the examiner the rejection or other action *may* be made final . . . .") (emphasis added).

33. This estimate is based upon conversations with patent prosecutors at a number of law firms, principally Kirkland & Ellis LLP and Schiff Harden LLP. Notes on file with authors.

application.[34] The patent application remains before the same examiner as if the "final rejection" had not been genuinely effective, and the examiner does not receive credit toward her bonus.

Moreover, there is no limit to the number of continuation applications that an applicant may file.[35] If the applicant is willing to pay the necessary costs, the examiner has no way of rejecting the application decisively.

The rational, self-interested examiner thus has a tremendous incentive to grant the vast majority of patent applications. By consequence, essentially all observers agree that the substantive examination of patents at the PTO is of very poor quality.[36] The poor quality of patent examination is all the more galling in light of its high cost. An initial patent application on a relatively complex technology—a semiconductor or biotechnology patent, for instance—will typically cost between $11,000 and $15,000 when prepared by a reputable law firm.[37] Once PTO fees[38] and other attorneys' costs are figured into the

34. 35 U.S.C. § 120. The applicant can also appeal the decision directly to the Board of Patent Appeals and Interferences ("BPAI"), which can overturn the examiner's decision and send the patent back to the examiner for further consideration. *Id.* § 134. If the applicant loses before the BPAI, she then holds the right to appeal the decision to the Federal Circuit. *Id.* § 141. The applicant may also bring a civil action in federal district court against the director of the patent office seeking essentially the same relief, *id.* § 145, though few choose this route.

35. The PTO recently attempted to impose an administrative limit on continuation applications, *see* Changes to Practice for Continued Examination Filings, Patent Applications Containing Patentably Indistinct Claims, and Examination of Claims in Patent Applications, 72 Fed. Reg. 46,716 (Aug. 21, 2007) (to be codified at 37 C.F.R. pt. 1), only to see its regulation struck down by a district court as inconsistent with the Patent Act, 35 U.S.C. § 2. Tafas v. Dudas, 541 F. Supp. 2d 805, 807, 817 (E.D. Va. 2008). This decision was on appeal to the Federal Circuit when the PTO voluntarily agreed to withdraw its new guidelines, mooting the case. *See* Press Release, U.S. Patent & Trademark Office, USPTO Rescinds Controversial Patent Regulations Package Proposed by Previous Administration (Oct. 8, 2009), *available at* http://www.uspto.gov/news/09_21.jsp.

36. *See, e.g.*, JAFFE & LERNER, *supra* note 23, at 142; Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1495 n.1 (2001) [hereinafter Lemley, *Rational Ignorance*] (citing examples of complaints about the PTO's examinations); Mark A. Lemley et al., *What To Do About Bad Patents?*, REGULATION, Winter 2005, at 10, 10 [hereinafter Lemley et al., *Bad Patents*] ("[C]ountless patents that seem reasonable to a lay audience overreach in technical fields . . . ."); Doug Lichtman & Mark A. Lemley, *Rethinking Patent Law's Presumption of Validity*, 60 STAN. L. REV. 45, 47 n.5 (2007) (discussing "[c]alls for patent reform"); Merges, *supra* note 22, at 589–91 (discussing the poor quality of patents and proposing a revamping of the PTO's examination system); Michael J. Meurer, *Patent Examination Priorities*, 51 WM. & MARY L. REV. 675, 676 (2009) ("[T]he PTO struggles to improve examination quality.").

37. *Oversight Hearing on the United States Patent and Trademark Office Before the Subcomm. on Courts, the Internet, & Intellectual Prop. of the H. Comm. on the Judiciary*, 110th Cong. (2008) (statement of Alan J. Kasper, First Vice President, American Intellectual Property Law Association), *available at* http://www.aipla.org/Advocacy%20Shared%20Documents/TES_2008-02-27_110C_PTO-Kasper.pdf, at 7. These figures were confirmed in a number of independent conversations with attorneys at a variety of law firms, principally Kirkland & Ellis LLP and Schiff Harden LLP. Notes are on file with the authors.

equation, an average patentee will spend approximately $22,000 to successfully prosecute a patent application.[39]

In response to the inadequacies of the patent office and the costs of obtaining a patent, scholars have advanced a number of proposals designed to shore up that failing agency and provide a more effective screen against non-novel and potentially harmful patents. Some scholars have recommended increasing PTO funding in order to enable the office to hire more examiners and spend a greater amount of time on each patent.[40] Another, smaller cadre has asserted that patent examinations should be eliminated altogether, with the patent

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38. The PTO charges a variety of small fees for prosecuting a patent. *See*, *e.g.*, 35 U.S.C. § 41(a)(1)(B) (2006) (filing fees); *id.* § 41(a)(2) (fees for claims); 37 C.F.R. §§ 1.16(a)(1), 1.16(k), 1.16(o) (2011) (filing, search, and examination fees); *id.* §§ 1.16(h), 1.16(i) (2011) (fees for claims); *id.* § 1.16(j) (fees for claims); *id.* § 1.18(a) (issuance fees).

39. This figure is based on calculations undertaken by the authors based on a set of representative patents. Notes are on file with the authors and available upon request. In 2001, Mark Lemley estimated the average cost at $10,000 to $30,000. Lemley, *Rational Ignorance*, *supra* note 37, at 1498 (performing back-of-the-envelope calculations of patent costs). If anything, then, the estimate here may be overly conservative.

40. *See generally* H.R. 1908, 110th Cong. (2007); JAFFE & LERNER, *supra* note 23 (proposing that the patent office expend greater funds on more rigorous examination); John R. Allison & Starling D. Hunter, *On the Feasibility of Improving Patent Quality One Technology at a Time: The Case of Business Methods*, 21 BERKELEY TECH. L.J. 729 (2006); Shubha Ghosh & Jay Kesan, *What Do Patents Purchase? In Search of Optimal Ignorance in the Patent Office*, 40 HOUS. L. REV. 1219 (2004); Lemley et al., *Bad Patents*, *supra* note 37, at 12–13. *See also* Patent Reform Act of 2009, S. 515, 111th Cong. (2009) (proposing greater allocations of funds for patent examination). Many of these proposals are coupled with suggestions for meaningful *inter partes* post-grant administrative review, mechanisms by which potential infringers can challenge a patent's validity without undertaking expensive litigation in federal courts. *See* JAFFE & LERNER, *supra* note 23; Joseph Farrell & Robert P. Merges, *Incentives to Challenge and Defend Patents: Why Litigation Won't Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help*, 19 BERKELEY TECH. L.J. 943 (2004); Lemley, *Rational Ignorance*, supra note 37.

Some even recommend a multitiered system of patent review in which applicants can opt for one of several levels of PTO scrutiny with correspondingly strong ex post presumptions of validity. *See, e.g.*, JAFFE & LERNER, *supra* note 23 (proposing an increase in PTO fees as a means of funding more extensive patent examination); Lemley et al., *Bad Patents*, *supra* note 37 (proposing the same); Kristen Osenga, *Entrance Ramps, Tolls, and Express Lanes—Proposals for Decreasing Congestion in the Patent Office*, 33 FLA. ST. U. L. REV. 119, 121 (2005) (proposing the same). Other commentators have suggested heightened ex post renewal fees as a means of thinning the patent thicket, *see, e.g.*, Ian Ayres & Gideon Parchomovsky, *Tradable Patent Rights*, 60 STAN. L. REV. 863, 877–80, but these increased fees would impact only truly abandoned inventions and would have no measurable effect on patents destined for use in nuisance lawsuits. And even more exotic proposals abound, including suggestions for tradable patent rights that will limit the number of patents in force at any given time by compelling patentees to bid on a finite pool of litigation rights. *Id.* at 890–93. *But see* Michael Abramowicz, *The Uneasy Case for Patent Races Over Auctions*, 60 STAN. L. REV. 803 (2007) (arguing that government is ill-suited to determine when patent auctions should be held). These proposals for *inter partes* or multitiered review are in many cases quite compelling, and the theory set forth here can serve a complementary role to any or all of them.

system reverting to a simple system of registration akin to the copyright regime.[41]

These assessments of the patent system share a common feature: they treat the cost of obtaining a patent as simply the purchase price for the substantive patent examination. The costs are viewed as a necessary evil, worthwhile only to the extent that they make substantive examination possible. Hence the view that if costs are high and examination is largely ineffectual, the system should be reformed.[42] Accordingly, most scholars argue that patent costs should be no higher than absolutely necessary to facilitate patent examination—regardless of whether they believe that there should be more or less rigorous examination in the first place.[43] None of these approaches considers the possibility that the high cost of prosecuting a patent might itself have a beneficial effect on the quality of patents issued.

In fact, the cost of obtaining a patent serves an important function: it screens out a significant number of harmful intellectual property rights—patents that would be filed but for that cost. PTO process costs thus create a screen against lower-value patents. If a patentee believes that her property right will be worth less than $22,000 (or so), she will likely refrain from filing in the first place.[44] In the Section that follows, we explain the significance of this screen for commercial firms, patent filers, and the patent system as a whole.

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41. *See, e.g.*, F. Scott Kieff, *The Case for Registering Patents and the Law and Economics of Present Patent-Obtaining Rules*, 45 B.C. L. REV. 55 (2003); Adam Mossoff, *Who Cares What Thomas Jefferson Thought About Patents? Reevaluating the Patent Privilege in Historical Context*, 92 CORNELL L. REV. 953 (2007).

42. *See supra* notes 40–41 and accompanying text.

43. In addition to the sources cited in notes 40–41, *supra*, *see, e.g.*, Rochell Dreyfus, *Pathological Patenting: The PTO as Cause or Cure*, 104 MICH. L. REV. 1559, 1577 (2006) ("Indeed, the fee structure should be accomplishing substantive goals: application fees should be low enough to attract patenting by all inventors and maintenance fees should be high enough to encourage abandonment of noncommercial patents.").

44. It is possible, of course, that patentees will not have good information regarding the potential value of their property rights, and that they will file for substantial numbers of patents that are worth less than $22,000 or refrain from filing for substantial numbers of patents that are worth more than $22,000. We believe this is unlikely. The vast majority of patentees in the modern era are major firms doing business in their inventive field. *See* John R. Allison & Mark A. Lemley, *Who's Patenting What? An Empirical Exploration of Patent Prosecution*, 53 VAND. L. REV. 2099, 2116 (2000) (finding that eighty-five percent of all patents are assigned to corporations upon issuance and noting that the average patent lists more than two inventors). For these types of actors, estimations of commercial value typically precede research and development decisions: firms will only undertake a line of research if they believe (to some degree of certainty) that it will be commercially viable. Their knowledge of the marketplace—necessary to the existence of the business in the first instance—allows them to gauge the potential worth of their property rights.

B. Low Barriers and Private/Public Asymmetries

By itself, the fact that patent application processes function as a costly screen says little about what sorts of patents will be screened out. It also provides little information regarding whether the screen is desirable or undesirable. After all, if the costly screen is not eliminating harmful patents, it serves only to increase transaction costs for patent filers. Yet there is good reason to believe that PTO process costs will screen out disproportionately more harmful patents and thus produce meaningful benefits.

Our objective in this Section is to describe and analyze the types of patents that will or will not be affected by the PTO's costly screen. In order to do so, we subdivide the universe of possible patents into four categories by making two conceptual "cuts." The first step is to determine exactly which sorts of patents the costly screen will select against. Accordingly, we divide the universe of patents into "low" and "high" value types. We define these categories based on the cost of obtaining a patent: those patents that are worth more than $22,000 are, by definition, "high value" patents, and those that are worth less than $22,000 are "low value" patents.[45] It is important to note that "low" does not necessarily mean "greater than or equal to zero." Under certain circumstances, a patent can have negative value.[46] We describe these types of patents in the sections that follow.[47]

The next step is to determine whether the patents affected by the costly screen are "good" or "bad" patents—that is, whether they are beneficial or harmful to innovation and to society more generally. In order to do this, we draw a conceptual distinction between the *private value* of a patented invention and the public or *social value* of that invention. The private value of a patent is what it is worth to the patent holder; the social value is what it is worth to society at large.[48]

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45. We do not mean to overstate the accuracy of these types of determinations. For purposes of the analysis that follows, we describe the operation of the costly screen in terms of orders of magnitude: the screen will deter applicants who believe their patents to be worth on the order of $22,000 (i.e., in the tens of thousands of dollars) or less and will not dissuade applicants who believe they have inventions that are an order of magnitude more valuable (i.e., worth in the hundreds of thousands of dollars or more). Even this crude distinction permits us to draw definitive conclusions about the function and consequences of the PTO's costly screen.

46. We also note that it is not entirely accurate to speak of "low value patents"; the entire point of this conceptual division is that the costly screen will deter applicants from filing for patents that are worth that little. They are more accurately described as "potential" low value patents, but we will refer to them as "low value patents" in the interest of simplicity.

47. *See infra* Parts II.B.2 and 3.

48. Two minor points of clarification. First, to be precise, it is the patent itself (the intellectual property right) that creates private value by allowing the inventor to capture returns from the invention, while it is the *underlying invention* that creates social value. (However, the

Social and private values can be low or high, per the previous distinction.

Using these two distinctions, the universe of patents can be separated into four categories. First, there are patents with both high private value and high social value. These are valuable, novel inventions—new drug compounds, innovative computer circuits, etc.—that contribute something tangible to society and might not exist but for the research incentives created by the patent system. They represent the paradigm case for the patent system. Second, there are patents with high private value and low *or negative* social value. These are minor or insignificant innovations that contribute little to public knowledge but are nonetheless drafted in such a way that they can be used to collect significant licensing fees or litigation awards from profitable companies.[49] Third, there are patents of low private value and low *or negative* social value. These are quite common and come in a variety of shapes and forms; we discuss them in greater detail below. And fourth, one could imagine patents of low private value and high social value. Table 1 illustrates these four potential types of patents graphically.

TABLE 1: FOUR POSSIBLE PATENT TYPES

1. High private value/High social value	2. High private value/Low social value
4. Low private value/High social value	3. Low private value/Low social value

In the sections that follow, we describe these four categories of patents in greater detail and explain their significance in relation to the PTO's costly screen. Our theory is that patents are not evenly distributed among these four categories. Instead, there is a pronounced asymmetry within the universe of potential patents, one

property right can create social costs.) Nonetheless, in the interest of simplicity we will simply refer to low/high private/social value patents. Second, we will describe the social value of a patent (its effect on social welfare) directly, not as a sum of some private benefit and some social cost. We do this for two reasons. First, the private benefit from patent rights typically involves only wealth transfers, which have no effect on social welfare. And second, it is easier to understand and evaluate these quantities separately as there is direct information on them. These moves have no theoretical consequences; we highlight them only for reasons of clarity.

49. *See, e.g.*, Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75 (1994).

that causes the costly screen to block primarily harmful, low social value patents. The PTO's costly screen may succeed in blocking undesirable patents that, if submitted for examination, might slip through the cracks of the substantive examination process.

1. High Private Value/High Social Value Patents

When one thinks of a paradigmatic patent, one typically images a patent that is valuable both to its owners (high private value) and to the public at large (high social value). These types of patents come in many forms and occupy many technological fields—they might cover useful new drug compounds, innovative semiconductor devices, or the like. But they share three common characteristics. First, they must be at least plausibly valid, and thus plausibly enforceable as property rights. Second, they must claim inventions (or important components or subparts of inventions) that are commercially viable and useful in a market economy. Third, the patent must describe inventions that are genuinely new and thus contribute some socially valuable knowledge that did not previously exist. A patent satisfying the first two characteristics is privately valuable—its owner will be able to extract rents either through licensing or through production of the patented good. To have social value—if the invention behind it is to enhance social welfare—the third characteristic must also be present.

The patent system is designed to promote precisely this type of high private value/high social value patent. And while the PTO's costly screen will make these patents slightly more costly to obtain, it will likely block few or none of them. Twenty-two thousand dollars is a meaningful amount of money, but it represents little more than a rounding error in comparison to a truly valuable intellectual property right. The $22,000 cost of obtaining a patent is unlikely to discourage researchers who believe that their work will lead to useful, marketable inventions.[50] Thus, while the costs of getting a patent are

50. We hasten to add that under certain circumstances it is possible that small (or solo) inventors might be subject to capital constraints that would inhibit their ability to obtain a patent or commercialize an invention. Even a valuable idea could be lost if its holder does not possess the necessary $22,000 in start-up capital. Nevertheless, it will be the rare inventor who cannot obtain the financing necessary to prosecute a patent valued in the millions or (in the alternative) find a willing buyer for the same idea. Twenty-two thousand dollars is a fairly small amount of money, even for a solo investor. *See* RAGHURAM G. RAJAN & LUIGI ZINGALES, SAVING CAPITALISM FROM THE CAPITALISTS: UNLEASHING THE POWER OF FINANCIAL MARKETS TO CREATE WEALTH AND SPREAD OPPORTUNITY 17–29 (2003) (arguing, using empirical data, that existing financial markets provide entrepreneurs with plentiful options for raising capital). It is worth noting that $22,000 is far less than the typical mortgage and less even than many unsecured personal loans.

real, they will not deter any valuable innovations that fall into this category. There will be no large losses to society because inventions are not being created.

2. High Private Value/Low Social Value Patents

Although an ideal patent system would not allow patents that generate revenue for their holders without correspondingly benefitting society, the current patent system is far from ideal. A patent may have contributed little or no useful knowledge, but it might nevertheless cover profitable inventions created by others and thus be valuable to its owner.[51] Patents may be privately valuable because they can be deployed offensively, with the intention of collecting awards for infringement or licensing fees;[52] they may hold value as defensive mechanisms for protecting commercial products from competition or from suit for infringement;[53] and they might be usefully employed as signals to dissuade potential market entrants or attract investors and other third parties.[54] As a class, these patents have high private value: they satisfy the first two conditions listed above—plausible validity and commercial relevance.

At the same time, a patent might hold only small or negative social value because it involves little or no socially useful innovation. These patents do not provide the substantial benefits conveyed by the genuinely useful and novel inventions described above. These are the types of patents typically wielded by "patent trolls"—those businesses that contribute no new useful innovative activity but possess a portfolio of patents that they enforce against others.[55]

Like the high private value/high social value patents described above, the PTO's costly screen will not serve as a meaningful barrier

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51. *See* JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 18–21 (2008) (describing the power of invalid patents in collecting rents and interfering with commercialization).

52. *See generally* Kimberly A. Moore, *Worthless Patents*, 20 BERKELEY TECH. L.J. 1521, 1522–24 (2005). On licensing, see Oren Bar-Gill & Gideon Parchomovsky, *The Value of Giving Away Secrets*, 89 VA. L. REV. 1857, 1867 (2003).

53. *See* John H. Barton, *Antitrust Treatment of Oligopolies with Mutually Blocking Patent Portfolios*, 69 ANTITRUST L.J. 851 (2002); Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, *in* 1 INNOVATION POLICY AND THE ECONOMY 119, 121 (Adam B. Jaffe et al. eds., 2001).

54. *See, e.g.*, Mark A. Lemley, *Reconceiving Patents in the Age of Venture Capital*, 4 J. SMALL & EMERGING BUS. L. 137, 144 (2000); Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625, 651–53 (2002).

55. *See generally* Robert P. Merges, *The Trouble with Trolls: Innovation, Rent-Seeking, and Patent Law Reform*, 24 BERKELEY TECH. L.J. 1583 (2009) (describing and analyzing the behavior of patent trolls).

to high private value/low social value patents. The $22,000 barrier to entry is a small fraction of the value to be realized from a patent of this type. Accordingly, the cost of obtaining a patent is almost beside the point for inventions such as these. Patent applicants will file for them despite the cost.

3. Low Private Value/Low Social Value Patents

We now turn to the first class of patents that the PTO's costly screen will select against: those patents that would have both low private value (to their owners) and low social value. Here, because the private value of any individual patent is less than the cost required to obtain it, patent applicants will frequently elect *not* to file for these types of patents. In that sense it is appropriate to think of this category as containing "potential" patents—patents that would exist in large numbers *but for* the costly screen. That is not to say that there will be no such patents—applicants will sometimes err in valuing their own inventions, take gambles, or patent for any number of reasons not involving the prospect of financial gain.[56] But the number of these patents will be much lower than it would be absent the PTO's costly screen.

What sorts of patents (and potential patents) fall into the low private value/low social value category? These patents come in a variety of forms, but two important flavors predominate. The first are those patents that comprise the "patent thicket": essentially worthless patents that are rarely litigated or enforced. The fact that these patents are rarely used does not mean that they have no economic significance, however. On the contrary, they drive up search costs and increase litigation risk for commercial firms that are actually innovating and manufacturing.[57] The very existence of these patents is enough to raise costs for productive firms, regardless of what the patents' owners do with them.[58]

These types of patents raise costs to productive firms in a variety of ways. First, any firm that wishes to enter a market must investigate the IP that exists in that area of technology and determine

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56. Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. (forthcoming 2012) (manuscript at 15–18) (on file with authors) (cataloging the reasons why authors and inventors might produce innovations in the absence of financial motivations).

57. *See* MERGES & DUFFY, *supra* note 27, at 615–16; Ayres & Parchomovsky, *supra* note 40, at 872–74; Christopher R. Leslie, *The Anticompetitive Effects of Unenforced Invalid Patents*, 91 MINN. L. REV. 101, 132–37 (2006).

58. Leslie, *supra* note 57, at 137 (analyzing the harm that even unenforced patents can do to competitors and consumers within the marketplace).

(at least preliminarily) whether those patents are valid.[59] This investigation, even if cursory, can be quite expensive. The search costs of combing through a technological field littered with patents can be prohibitively high for small firms.[60] Second, invalid patents can hamper a firm's ability to raise capital[61] or write contracts with potential customers.[62] Financial markets will be wary of firms that may be targets for lawsuits because they produce infringing products. Customers will hesitate before forming business relationships that may expose them to suits for contributory infringement and resist relying upon suppliers who may be shut down or driven out of the market by a lawsuit.[63] Again, these costs will exist *even if no lawsuits are ever filed*. It is the very fact that firms must search through the thicket of potentially dangerous patents, and the uncertainty that this creates, that drives up business costs.

The invalid patents that create these costs have very low value to their owners—they are valuable only to the extent that their owners wish to keep competitors out of the marketplace. Accordingly, they diminish social welfare by retarding competition without any meaningful inventive quid pro quo.

The second major flavor of low private value/low social value patents—and one that has been comparatively overlooked—is patents that are useful primarily in nuisance lawsuits. Any patent infringement suit (or threat of suit) involving even a *vaguely plausibly* valid and infringed patent has a nuisance settlement value of approximately $10,000. The reason is that any patent defendant who is sued must pay for an opinion letter informing the potential infringer

59. *See* Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp., 383 F.3d 1337, 1344–47 (Fed. Cir. 2004); Ayres & Parchomovsky, *supra* note 40, at 871; Leslie, *supra* note 57, at 132–37.

60. These search costs are difficult to quantify, and to our knowledge no reliable estimate exists. But one can easily imagine that the costs could be quite high, particularly when it comes to products that are potentially covered by hundreds or even thousands of patents, such as smartphones. *See, e.g.*, Jennifer Collins, *Kodak Battles Smartphones over Camera Technology*, MARKETPLACE (June 22, 2011), http://www.marketplace.org/topics/business/kodak-battles-smartphones-over-camera-technology.

61. *See* FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY 8 (2003), *available at* http://www.ftc.gov/os/2003/10/innovationrpt.pdf ("The threat of being sued for infringement by an incumbent [patent holder]—even on a meritless claim—may 'scare . . . away' venture capital financing.").

62. Leslie, *supra* note 57, at 125–27.

63. *See* Joseph Borkin, *The Patent Infringement Suit—Ordeal by Trial*, 17 U. CHI. L. REV. 634, 641 (1950) ("Contributory infringement . . . can serve as an effective side-attack to cut off the economic support of a small producer.").

of the strength of the patent holder's case[64] and guarding against later claims of willful infringement[65]—and the cost of such a letter is approximately $10,000.[66] Substantial numbers of these actions are initiated by solo inventors or patent holding companies with no commercial ventures beyond the exploitation of its IP portfolio.

Costs will rise for productive firms if they are forced to pay small licensing fees or settlements to a series of patent holders who file nuisance lawsuits.[67] Firms that face the prospect of being nickel-and-dimed by the owners of dubious patents may well choose to refrain from investing in new technologies or entering new markets in the first place.[68] In addition, the nuisance lawsuits themselves can produce significant deadweight losses; litigants spend thousands of dollars in transaction costs to prosecute and settle nuisance lawsuits worth $20,000 or less. Accordingly, substantial quantities of even plainly invalid patents can impose significant social costs through sheer force of numbers.

The patents that comprise the "thicket" and those that give rise to nuisance lawsuits represent intellectual property at its very worst.

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64. This is standard practice within the field. *See* Lemley, *Rational Ignorance*, *supra* note 36, at 1513.

65. The patent statute allows courts to assess treble damage penalties against willful infringers. 35 U.S.C. § 284 (2006) ("[T]he court may increase the damages up to three times the amount found or assessed."); *In re* Seagate Tech., LLC, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (setting forth the modern standard for determining when infringement has been willful); *see, e.g.*, Delta-X Corp. v. Baker Hughes Prod. Tools, Inc., 984 F.2d 410, 414 (Fed. Cir. 1993) (explaining that an opinion letter provides near-impenetrable defense to charges of willful infringement); Nickson Indus. v. Rol Mfg. Co., 847 F.2d 795, 800 (Fed. Cir. 1988) (explaining the same). An accused infringer has no affirmative duty to seek an opinion letter if it wishes to avoid liability for willful infringement, *Seagate*, 497 F.3d at 1371, but the chances of a finding of willful infringement increase dramatically when an infringer has not obtained an opinion letter and so nearly any colorable accusation will trigger a request for the opinion of counsel.

66. These estimates are based upon conversations with attorneys at a number of law firms, principally Kirkland & Ellis LLP and Schiff Harden LLP (notes on file with author). The cost of such a letter can be much higher—in the range of $30,000—if the technology involved is complex or the asserted patents are sufficiently numerous.

67. Leslie, *supra* note 57, at 133 (describing the economics of patent nuisance lawsuits).

68. *See* Michael J. Meurer, *Controlling Opportunistic and Anticompetitive Intellectual Property Litigation*, 44 B.C. L. REV. 509, 515 (2003) (analyzing the prospective effects that threats of nuisance lawsuits can have on firm behavior); *see also* Bresnick v. U.S. Vitamin Corp., 139 F.2d 239, 242 (2d Cir. 1943) (Hand, J.) (describing a patent as a "scarecrow" that can deter competition by its very existence). *But see* Brunswick Corp. v. Riegel Textile Corp., 752 F.2d 261, 265 (7th Cir. 1984) (Posner, J.) ("[A] patent known to the trade to be invalid will not discourage competitors from making the patented product or using the patented process, and so will not confer monopoly power . . . ."). Judge Posner may be correct that a patent must be of at least "colorable" validity in order for it to be used as a means of exerting monopoly power, *but see* Leslie, *supra* note 57, at 133, but his analysis does not speak to the possibility that the asymmetric transaction costs involved in patent litigation will enable the holder of a plainly invalid patent to extract small payouts from market entrants.

They do little more than drive up transaction costs for firms that genuinely want to innovate and bring products to markets. Happily, then, the PTO's costly screen will block these sorts of patents in substantial numbers. The upfront costs of obtaining a patent deter potential filers from seeking many of these useless patents that would otherwise wind up in the thicket. And because it costs more to acquire a patent than can be extracted in one or two nuisance settlements, patents become substantially less attractive as business tools and less open to exploitation.[69]

Moreover, the costly screen is even costlier, and thus more effective, against these types of patents. There are two reasons for this. First, many of the more insidious patents described here hold only low private value because they are not plausibly valid.[70] All else being equal, it is more expensive to force a questionable patent through the PTO than a clearly valid one. Patents of suspect validity are more likely to be rejected initially by the patent examiner, forcing the applicant to pay additional attorneys' fees and administrative expenses in order to resubmit the application.[71] Second, the patent thicket is most harmful in heavily congested technical fields, where large numbers of related patents drive up search costs.[72] But the more patents that exist within a given field, the more likely that a patent examiner considering a new application will find prior art casting doubt on whether the invention is novel (and thus patentable).[73] In

69. *See* Robert G. Bone, *Modeling Frivolous Suits*, 145 U. PA. L. REV. 519, 523–24 (1997) (analyzing the nuisance lawsuit as a business tactic). This is not to say that nuisance lawsuits will never be profitable or that firms will never pursue questionable patents with the intent only to extract such settlements. A firm may be able to garner more than one quick payout with each patent, though at the same time it will not necessarily be capable of coercing targets—especially repeat players—into paying even inexpensive blackmail. Because of the costs of obtaining a patent, a firm cannot count on being able to turn a profit, or even recoup its investment, by threatening some number of small, meritless suits; it must actually believe that it has an invention worth commercializing or a valid patent in a commercially useful field before a patent application becomes worth the cost of prosecution.

70. Some patents will hold small private value because they are commercially insignificant—a patent on a method for swinging on a swing, for instance—but these patents are typically irrelevant from an economic or social perspective as well. *See* JAFFE & LERNER, *supra* note 23, at 32 (describing a variety of commercially irrelevant inventions that have nonetheless led to patents).

71. *See supra* Part II.A.

72. *See generally* Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998) (analyzing the negative effects of crowded property rights on economic development); Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698 (1998) (applying the same idea to innovation).

73. *See* 35 U.S.C. § 102 (2006). Examiners have better access to patents than they do to prior art in any other form. JAFFE & LERNER, *supra* note 23, at 145–49 (describing the process of patent examination).

addition, repeated continuations and re-filings—which become necessary if a patent is initially rejected—will delay a patent's issuance, eating into the twenty-year term that begins to run on the day a patent application is filed.[74] Consequently, transaction costs of all types will be higher for inventors who attempt to push through questionable patents, or who attempt to patent inventions in heavily commercialized fields in which those patents might do the most harm.[75]

In effect, then, the very administrative processes that allow patentees to "wear down" examiners simultaneously increase the barriers against the least desirable patents. If the patent system is crudely successful at screening for invalid or damaging patents, it is not only (or primarily) because examiners are actually denying those patents. Rather, the process costs involved in applying for a patent may be playing just as large a role.

Again, of course, the PTO's costly screen will hardly bar all of these low private value/low social value patents; tens of thousands of such applications are filed yearly (and many of them are granted eventually).[76] Yet without a costly screen—if, for instance, the PTO were to move to a registration system[77]—the problem would likely be far worse. By selecting against this class of patents, the costly screen performs a beneficial function. Indeed, the costly screen may be more effective at eliminating harmful low private value/low social value patents than the substantive examination that the process costs are themselves used to purchase.

4. Low Private Value/High Social Value Patents

The previous Section detailed the benefits that the PTO's costly screen provides by weeding out low private value/low social value patents. However, these benefits would be quickly outweighed if the costly screen were similarly deterring inventors from creating (and filing for) low private value/high social value inventions. That is, imagine that an inventor has the opportunity to create an invention of high social value but would only have the incentive to do so if she

74. 35 U.S.C. § 154(a)(2).

75. The semiconductor and computer fields are typically understood to be heavily patented, while the pharmaceutical industry is generally thought to involve fewer overlapping property rights. JAFFE & LERNER, *supra* note 23, at 59–60; Mark A. Lemley, *Ten Things To Do About Patent Holdup of Standards (and One Not To)*, 48 B.C. L. REV. 149, 150 (2007).

76. *See* Lemley, *Rational Ignorance*, *supra* note 36, at 1528 (providing statistics on the rates of patent grants).

77. *E.g.*, Kieff, *supra* note 41, at 59; Mossoff, *supra* note 41.

could obtain a patent on that invention. Imagine further that the patent would hold only low private value. If the costly screen dissuaded inventors from obtaining patents on these inventions, and if the inability to obtain patents dissuaded inventors from innovating in the first place, the loss to society might be significant.

But there is a crucial asymmetry within the universe of potential patents: low private value/high social value patents essentially do not exist. With very few exceptions, any truly novel, commercially relevant invention—that is, any socially productive invention—will give rise to a privately valuable patent on that invention.[78] This is precisely the point of the patent system: patents allow inventors to capture a substantial portion of the wealth created by their inventions.

Importantly, then, the PTO's costly screen will not stand in the way of any high social value inventions. Any such invention would also hold high private value for its owner, and thus it would be worth inventing (and patenting) despite the screen. It is in this sense that the asymmetry in patent law, driven by the strength of the patent right, makes the PTO's examination-based costly screen valuable. The screen does not deter genuine innovation, but it does block large numbers of low private value/low social value patents that create social costs for productive and innovative firms.

Now, to say that the category of low private value/high social value patents is empty is to invite counterexamples. But even inventions that might appear at first glance to fall into this category are not truly low private value/high social value in the sense meant here. Or, put another way, the PTO's costly screen will have no effect on whether they will or will not be developed. Consider, for instance, "orphan" drugs—pharmaceutical inventions for which patent protection has expired (or nearly so).[79] Orphan drugs are low private value/high social value inventions in the most literal sense: these drugs would be valuable to society if manufactured and distributed, but no firm can make a great enough profit from them to render their development commercially worthwhile.[80] As a result, they languish. Yet this has nothing to do with the cost of obtaining a patent on the drugs. These drugs are unprofitable because the costs of obtaining

78. *See* BURK & LEMLEY, *supra* note 7, at 7–8 (describing the usefulness of patents as legal tools for capturing value from innovation).

79. *See* Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 386–87 (2010) (discussing orphaned drugs).

80. *See* Benjamin N. Roin, *Unpatentable Drugs and the Standards of Patentability*, 87 TEX. L. REV. 503, 551–55 (2009) (discussing the financial incentives that lead to the problem of orphan drugs).

Food and Drug Administration ("FDA") approval are so high—in the tens or hundreds of millions of dollars. In addition, once the FDA has approved the drug, any company can manufacture and sell it.[81] Other firms can then free ride off of the first FDA approval without incurring the same costs, competing away the first firm's profits.[82] This is what turns drugs into "orphans"; the $22,000 cost of obtaining a patent is simply irrelevant to the calculation.

Or consider the large number of valuable patents that are given over to the public for one reason or another. This category includes patents on standardized interfaces;[83] patents that are deliberately pooled and made publicly available;[84] and patents that have been obtained in the course of a government contract and must be licensed at zero cost to the government.[85] At first glance, these patents might appear to have high social value but low private value. After all, their owners are bestowing them freely upon the public. But this appearance is misleading. These types of property rights most certainly do have high private value; it just happens that the particular owners who have come into possession of them have chosen to relinquish them, rather than exploit them. This is often because the private owner stands to reap greater benefits from renouncing the patent than from attempting to enforce it.[86] If the patent were owned by another firm with a different business model, the outcome would undoubtedly be very different.[87] Moreover, as we explained above, the creation of the intellectual property right is quite beside the point—it is the underlying technology that matters to society. Inventors are obviously undertaking this research and development even though

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81. *Id.* at 522.

82. *Id.*

83. *See generally* Pamela Samuelson, *Are Patents on Interfaces Impeding Interoperability?*, 93 MINN. L. REV. 1943 (2009) (describing the problems that can arise when these patents are not transferred to the public domain).

84. *See generally* Philip B. Nelson, *Patent Pools: An Economic Assessment of Current Law and Policy*, 38 RUTGERS L.J. 539 (2007) (discussing the role of patent pools as a tool to enhance efficiency and spur innovation).

85. *See*, *e.g.*, Cubic Corp. v. Marty, 229 Cal. Rptr. 828, 834 (Ct. App. 1986) ("[T]he government requires defense contractors to give it title or a license in any patents conceived or reduced to practice during the course of performance of government contracts."). We thank Pam Samuelson for drawing this category of patents to our attention.

86. In the case of the government contractor, for instance, the contractor would undoubtedly prefer to retain the patent right. However, the government contract is more valuable than the property right—and that government contract is undoubtedly worth more than $22,000.

87. We return to this point about nonpecuniary motivations in Part III.C.1, *infra*.

they plan to transfer the intellectual property rights to the public.[88] The PTO's costly screen thus poses no threat to this type of innovation.

Finally, it is possible that patents function as lottery tickets: an inventor might file for large numbers of patents, hoping (but not knowing) that one will become valuable. Ex ante, each individual patent might therefore be worth little to the inventor.[89] On this theory, the costly screen could conceivably deter the filing of some of these lottery tickets.

We have doubts as to this lottery ticket theory, however. At first glance, the theory does not seem to do justice to inventors and patent holders, at least on the valuation scales relevant here. As we noted earlier, the vast majority of patentees in the modern era are major firms doing business in their inventive field.[90] Their knowledge of the marketplace will likely allow them to make judgments far more accurate than the idea of "lottery tickets" would suggest. And again, these valuations need not even be terribly fine-grained; the question is whether the patent is worth only tens of thousands of dollars or substantially more.

But even if the notion of patents as lottery tickets is an accurate representation of reality, it is not clear that the patent system should accommodate it. Massive quantities of low value patents impose significant negative externalities upon other firms seeking to do business in the same markets.[91] The PTO's costly screen would force inventors to invest additional resources in acquiring information about the expected value of their inventions. This would cause them to be more circumspect in selecting which patents to file—precisely the outcome that would be most beneficial to society.[92]

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88. Among other things, it is not necessary to obtain a patent in order to ensure that a technology remains in the public domain. Proof of first inventorship *or* dissemination of the technology to the public will do the trick. *See* 35 U.S.C. § 102(b), (g) (2006).

89. The idea is related, though not identical, to "patent portfolio theory," developed by Gideon Parchomovsky and Polk Wagner, which embodies the idea that in many industries patents are more valuable in groups than they are singly. Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 5–6 (2005). Patent portfolio theory is entirely consistent with the ideas we propound here. If a multitude of patents collectively hold some significant value, each individual patent may be worth a comparably modest amount.

90. Allison & Lemley, *supra* note 44, at 2117.

91. *See supra* notes 57–77 and accompanying text (describing costs related to low private value/low social value patents).

92. This will prove impossible only when patent filing must necessarily precede systematic investigation of the invention's commercial worth, most notably (and perhaps only) as with patents on new pharmaceutical compounds, which are filed before FDA trials on those drugs begin. *See generally* Roin, *supra* note 80, at 523–28. There, whatever effect the PTO's costly screen may be having, it is far from debilitating; the pharmaceutical industry is "thought to be

The preceding examples should provide some indication as to what it means for a patent to have low private value and high social value, and why such patents essentially do not exist. In the end, of course, there could be minor exceptions to the rule. Inventions may fall through the cracks or their value may not become apparent when they are created. One could imagine a transformative idea that does not directly give rise to an "invention"[93] or a peculiar invention that creates wealth that somehow cannot be captured commercially. But these patents will be the rare outliers. Unlike the other three categories of patents, there is no true *class* of low private value/high social value patents. The asymmetry may not be absolute, but it is undoubtedly significant. And the theory here does not depend on this category of patents being entirely nonexistent; as long as there is a meaningful asymmetry, the PTO's costly screen will disproportionately select against patents that are socially harmful.

* * *

Table 2 summarizes this set of relationships between private and social value for various types of patents. Only patents of low private value and low or negative social value—precisely those patents most likely to diminish social welfare—will be meaningfully affected by the cost of PTO procedures. Accordingly, the costly screen established by patent procedures will act only against low social value patents—precisely the type of intellectual property right that the patent system should be weeding out.

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the patent system's greatest success story." *Id.* at 504; *see also* Rebecca S. Eisenberg, *The Problem of New Uses*, 5 YALE J. HEALTH POL'Y L. & ETHICS 717, 720–21 (2005) ("Patent law traditionally takes the lion's share of credit for motivating investments in drug development.").

93. *See* 35 U.S.C. § 101 ("Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter . . . .").

TABLE 2: SOCIAL AND PRIVATE VALUES OF VARIOUS PATENT CLASSES

	High social value	Low or negative social value
High private value	Commercial products; improvements; major components	Blocking patents; valid patents involving little novel research
Low private value	*Essentially none*	Nuisance patents; minor inventions

It remains impossible to know for certain whether the process costs involved with patent examination are justified in the aggregate. After all, every applicant, including those with valid patents and useful inventions, is forced to expend significant resources to obtain a patent. Nonetheless, there is good reason to believe that the costly screen imposed by PTO examination, coupled with the substantive examination purchased by those costs, serves as a productive filter against welfare-diminishing patents without deterring any truly socially productive inventions.

III. COSTLY COPYRIGHTS

Copyrights, like patents, vest in both highly lucrative and popular works as well as in trivial and worthless ones, albeit for very different reasons. In contrast to patents, law allows copyrights to arise with relative ease. Instead of navigating an extensive examination process, authors need only fix their work in a tangible medium in order for federal copyright to vest. The costlessness with which copyrights arise has led to an unchecked increase in copyrighted works of authorship, accompanied by a critical scholarship arguing that this increase is socially harmful and that it should be cabined by the imposition of various screening devices. Analyzing copyrights through the lens of costly screens illustrates why such suggestions may diminish, rather than enhance, social welfare. Because copyrights array differently across classes of value than patents, imposition of costly screens would preclude the production of a crucial category of works (low private value/high social value) while eliminating a class of

works that is largely innocuous (low private value/low social value) and would be detrimental to social welfare.

A. Copyright Costs

The vesting of federal copyrights costs authors almost nothing. Once an author fixes an original work of authorship in a tangible medium of expression, they own the copyright in that work without further ado.[94] Acquiring a copyright is not entirely costless. Vesting requires fixation in a tangible medium of expression, but this is usually effectively costless since fixation occurs coterminously with creation, as where an author types a novel on a laptop computer or paints a portrait on canvas. There are some instances where creation may take place in the absence of fixation, such as where the authors of sound recordings must record their works to perfect their rights, so that, in these cases, fixation will add some cost prior to vesting. Still, the costs of fixing a work are, on average, so low that we can treat them as negligible for the purpose of our analysis.[95]

The essential screenlessness of the federal copyright system has caused copyrights to become ever more numerous, and many authors have expressed reservations about this trend. A primary concern resides in the uncertainty created by the numerosity of copyrights. Some have argued that, in a world where any minimally original and fixed work is likely the subject of copyright protection, the odds that future work will infringe some preexisting right multiplies, deterring risk-averse authors from creation.[96] In a related vein, others have suggested that copyright's low vesting threshold leads to prohibitively high transaction costs because owners are so numerous that even if their rights are ascertainable, creators may be unable (for

94. 17 U.S.C. § 102(a) (2006).

95. Formalities exist in other areas of copyright law. For example, in order to bring a copyright infringement suit in federal court, an owner's work must be registered with the Copyright Office. 17 U.S.C. § 411. Registration also secures other advantages for prevailing parties, including the option of recovering statutory damages, attorney's fees, and court costs. *Id.* § 412. Because registration is not related to the initial vesting of a copyright, and indeed can only occur once vesting has taken place, it is not a formality that is relevant to our analysis.

96. *See, e.g.*, LAWRENCE LESSIG, FREE CULTURE 183–207 (2004) (discussing this information costs concern about the expansion of copyright); James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 YALE L.J. 882, 882 (2007) ("Intellectual property's road to hell is paved with good intentions. Because liability is difficult to predict and the consequences of infringement are dire, risk-averse intellectual property users often seek a license when none is needed.").

pecuniary or practical reasons) to acquire the licenses necessary to clear the rights associated with making future work.[97]

One proposed response to this concern has been to raise the process costs associated with copyright in order to limit the number of copyrights awarded.[98] One such proposal suggests the reintroduction of formalities that were formerly prerequisites for copyright vesting. Prior to the effective date of the Copyright Act of 1976 (" '76 Act"), registration with proper notice was necessary for U.S. copyrights to arise.[99] When the '76 Act became effective, the "fixation in a tangible medium of expression" standard supplanted the preexisting requirements for perfecting copyrights, resulting in a much lower vesting threshold. In recent years, writers have floated various proposals for increasing vesting costs as a way of liming copyrights. Jim Gibson, for example, has called for a straightforward return to a pre-1976 Act formalities regime, arguing for the reintroduction of notice and publication as copyright vesting prerequisites in order to cut down on the accretion of owners' rights.[100] A different but related proposal suggested by Larry Lessig, the Public Domain Enhancement Act, would require owners to pay $1 to renew their copyrights following the fiftieth year of protection.[101] Chris Sprigman has also suggested a scheme by which compliance with a registration system would be a prerequisite to the stronger, property-rule protections of

97. *See, e.g.*, James Gibson, *Once and Future Copyright*, 81 NOTRE DAME L. REV. 167, 168–73 (2005) (arguing that the low copyright vesting threshold threatens to restrict creativity, particularly in digital settings); Van Houweling, *supra* note 8 (discussing this transaction costs concern about the expansion of copyright); *see also, e.g.*, Patricia Aufderheide & Peter Jaszi, *Untold Stories: Creative Consequences of the Rights Clearance Culture for Documentary Filmmakers*, CENTER FOR SOC. MEDIA 7–22 (2004), *available at* http://centerforsocialmedia.org/sites/default/files/UNTOLDSTORIES_Report.pdf (enumerating examples of documentary films that have had difficulty being made due to rights-clearance concerns).

98. For a good overview of the U.S. experience with formalities, see Jane Ginsburg, *The U.S. Experience with Formalities: A Love/Hate Relationship*, 33 COLUM. J.L. & ARTS 311 (2010).

99. 17 U.S.C. § 10 (2006) (1909 Act).

100. *E.g.*, Gibson, *supra* note 96, at 947–50 (encouraging the reintroduction of traditional formalities to limit the expansion of copyright); *see also* Ginsburg, *supra* note 98 (advancing a qualified defense of formalities in copyright); Stef van Gompel, *Formalities in the Digital Era: An Obstacle or Opportunity?* 3 (proceedings of the ALAI Annual Congress, London, England, June 14–17, 2009), *available at* http://www.alai2009.org/Presentations/Van%20Gompel%20Formalities%20in%20the%20digital%20era.doc (arguing that reintroduction of formalities will facilitate copyright clearance and enhance certainty about owners' rights in digital media).

101. The Public Domain Enhancement Act was proposed in the House of Representatives in both 2003 and 2005, but died in committee each time. *See* H.R. 2601, 108th Cong. (2003); H.R. 2408, 109th Cong. (2005); *see also* LESSIG, *supra* note 96, at 248–56 (discussing early versions of the PDEA and the problems it faced gaining traction in Congress).

the Copyright Act.[102] Though very different, these proposals illustrate the push toward increasing process costs among writers concerned about excess copyright.[103]

In this Part, we raise questions about this literature, at least insofar as it suggests that raising the costs of initially acquiring a copyright is an unalloyed good. Using costly screen theory, we illuminate a typically overlooked reason that the proliferation of copyrights may not be as socially harmful as is generally believed. We argue that just as costly screen theory helps to explain the logic of patent's costly examination system, so can it help to explain why copyright lacks any meaningful hurdles to the creation of authors' exclusive rights. Because the Copyright Act confers on owners a much weaker property entitlement than the Patent Act does, copyrights array across classes of value differently than patents. This asymmetry means that costly screens would be as counterproductive in the copyright setting as they would be beneficial in the patent setting.

That copyrights arise without any process costs creates a challenge for analyzing the current system in terms of costly screens. With patents, our analytical approach was straightforward. We established the costs of patent examination, and used that figure as the line dividing high private value patents from low private value patents. Thinking about copyright in terms of costly screens, by contrast, requires a counterfactual thought experiment. We must imagine a cost threshold for copyright vesting, and then examine the implication of that threshold on the creation of works of authorship. For the sake of symmetry and ease of exposition, we posit a world in which getting a copyright is as difficult as getting a patent. In such a world, authors would have to submit their work to an expensive and onerous examination process, and exclusive rights would not vest until after the Copyright Office approved authors' applications. This possible alternative would make copyright vesting just as costly as acquiring a valid patent—about $22,000.[104]

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102. Christopher Sprigman, *Reform(aliz)ing Copyright*, 57 STAN. L. REV. 485, 487 (2004) (suggesting that registration should be a prerequisite for property-rule enforcement of copyright infringement).

103. Any such proposal may have implementation problems because the United States' international obligations under the Berne Convention limit its ability to make copyright vesting contingent on formalities. Since we mention these proposals only to give a sense of the contours of the present copyright literature, we need not address these concerns.

104. This is by no means the only possible option. One can imagine a trademark-like system for vesting copyright that would involve some consideration of a copyright's validity and compliance with formalities, though far less than patent examination entails. Such a system would charge authors the same amount that trademark registrants currently bear, or roughly one thousand dollars. Or one can imagine a system that keeps the current copyright registration

B. Copyright Screens and Public/Private Asymmetries

Our next move is to imagine how such a screen would affect the production of works of authorship. As with patents, we can imagine two axes along which the value of copyright can be arrayed: the *private value* generated for the owner and the *social value* generated for the public. Examples of the private value generated by copyright abound. An author's ability to earn royalties from book or album sales, or a movie studio's capacity to recover revenues from ticket sales to a feature film are largely dependent on the owners having exclusive rights in those works. Works of authorship are typically nonrivalrous and nonexcludable, and, in the absence of legally enforceable exclusive rights, owners would have no recourse to uncompensated consumption of them. It is thus copyright (the exclusive legal entitlement, as distinguished from the protected work) that enables authors to profit from their works,[105] and in so doing generates private value for those authors. The distinction between the author's copyright in the work and the work itself is important. Customers buy books or .mp3s and audiences queue up for movies because they want to see the work

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regime but makes it a prerequisite to vesting rather than to judicial enforcement of infringement actions. This approach would charge authors the current copyright-registration fee, about one hundred dollars, to vest their rights. While it may be interesting to examine the implications of these systems on copyright vesting, we have opted to use the higher threshold in our thought experiment because this Article is about *costly* screens, and the implications of much lower-cost alternatives are simply outside its scope.

105. Copyright is not the exclusive means by which authors earn profits from their work. Contract may furnish a plausible alternative to copyright in some instances. *E.g.*, William Fisher III, *Property and Contract on the Internet*, 73 CHI.-KENT L. REV. 1203, 1250 (1998) (discussing the potential of contract to supplement, and in some cases supplant, copyright as a means for enabling authors to extract value from their works). But as the Supreme Court has emphasized, copyright remains the dominant means by which authors extract value from their creations. *See* Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 558 (1985) ("[T]he Framers intended copyright itself to be the engine of free expression. By establishing a marketable right to the use of one's expression, copyright supplies the economic incentive to create and disseminate ideas.").

Related, copyright is not always necessary for the production of creative works. Some authors may create because they are driven by some other force—desire for literary fame, or simply artistic inspiration—that is unrelated to profit. Moreover, some works—such as computer programs—may be difficult enough to copy that authors can reap sufficient rewards in the gap between first creation and first copy to provide a sufficient incentive to create. *See, e.g.*, Michele Boldrin & David K. Levine, *Perfectly Competitive Innovation*, 55 J. MONETARY ECON. 453 (2008). Our thesis thus operates only with respect to works that are produced primarily in response to financial incentives. But because these incentives are the core driver of the copyright system, *see* Mazer v. Stein, 347 U.S. 201, 219 (1954) (observing that the "economic philosophy" of the Copyright Clause is to "advance public welfare" by "encourag[ing] individual effort" through "personal gain"), this limitation does not diminish the force of our argument.

itself, regardless of whether it is copyrighted.[106] It is thus the *work* that directly generates social value, but the *copyright* in that work that generates private value.

Social value is harder to quantify in terms of dollars, but, as in our patent discussion, we define it simply as the net effect (positive or negative) that copyright has on aggregate welfare. As with private value, examples of the social benefits generated by creative work are familiar. Works of authorship generate aesthetic value, as where a landscape painting causes viewers to experience the beauty of the scene portrayed by the artist. They may also create informational value, as where a cookbook educates users and enables them to make new dishes by following specific instructions. A creative work may also enrich viewers more generally, as where a groundbreaking fictional novel causes readers to think about the world around them, or the craft of writing, in a new way. These forms of social value derive directly from works of authorship themselves and do not require the existence of copyright. Nevertheless, copyright indirectly creates social value by incentivizing the creation of socially valuable works, at least to the extent that such works may not be created but for the protections afforded owners by exclusive rights.[107]

Before we consider the impact of costly screens on the production of works of authorship, we pause to describe how copyrights array across classes of value. As with patents, copyright can produce high or low private value, as well as high or low social value. Our hypothetical copyright-vesting screen constructs the high/low private value barrier. Authors will likely create works that will generate more than the cost of the screen ($22,000), but will not create any works that generate less than that amount. The idea of "low" social value includes possible instances where copyrights create negative social value. The social and private value axes combine to generate four categories. First are high private value/high social value copyrights. These are copyrights that create significant revenue streams for their owner while also contributing knowledge, information, or entertainment to the public (e.g., popular films, best-selling novels). The second category describes copyrights with high private value and low social value, though we believe that such copyrights are vanishingly rare. Third, there are copyrights of low

106. That consumers are copyright-indifferent is obvious. Countless readers enjoy *Moby-Dick* and John Grisham books every year, even though the latter are copyrighted while the former is in the public domain.

107. For this reason, we refer throughout this Section to "high (or low) social value copyrights," although the social value is directly generated by the protected work and not by the property right that attaches to that work.

private value and low social value. We consider at length this category and the argument that costly screens are attractive because they eliminate such copyrights. Finally, some copyrights generate high social value even though they create low private value. We discuss this quadrant in detail as well, discussing the social costs associated with limiting it. Table 3 illustrates these four potential types of copyrights graphically.

TABLE 3: FOUR POSSIBLE COPYRIGHT TYPES

1. High private value/ High social value	2. High private value/ Low social value
4. Low private value/ High social value	3. Low private value/ Low social value

In the following four subparts, we analyze each of these categories of copyrights in more detail. We begin by describing the types of copyrights that populate each quadrant. We then consider how imposing a costly, patent-like screen would affect the production of copyrightable works in each category, and explain how this thought experiment reveals that the current, screenless copyright vesting system is deceptively socially beneficial.

1. High Private Value/High Social Value Copyrights

In the first quadrant lie copyrights that create high value for both their owner and for the public. This is the ideal utilitarian bargain suggested by copyright's constitutional source of law[108]: an author creates a work, the public consumes that work, and the owner leverages her exclusive rights to earn income from that consumption. Copyright's value equation is often more complicated than this account lets on, but frequently matters do unfold in this standard way. To take just one example, George Lucas's popular *Star Wars* films generated enormous private value for their producer, but they also enriched the public, either straightforwardly through the aesthetic experience of seeing the film, or less directly through the generation of cultural touchstones, shared catch-phrases, and timeless motifs. This

108. U.S. CONST. art. I, § 8 ("The Congress shall have power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . . .").

is not to say that the private and social value created by *Star Wars* are equivalent. Rather, the latter must be greater than the former. While George Lucas gets a cut whenever a licensee sells a *Star Wars* product or fans buy a *Return of the Jedi* DVD, much of the value of the beloved sci-fi franchise comes in the form of positive externalities that Lucas cannot internalize.[109] Moreover, the benefit to an individual from seeing the film must be greater than the cost of a ticket. These additional benefits above and beyond what members of the public must pay constitute social value.

Here, the case for copyright is least uneasy.[110] As we have explained above, in the absence of exclusive rights that allow owners to internalize value from their works, creators of even very promising works would likely not make them at all, depriving themselves—and the world—of their value. Copyright is, in other words, a necessary prerequisite for the production of high private value/high social value works. For this reason, the production of such works would be unaffected by high process costs. Twenty-two thousand dollars to secure exclusive rights in the *Star Wars* franchise is laughably trivial compared to the billions that Lucasfilm has garnered thanks to those rights. Charging this much for a copyright would not deter an author who believed that her film, book, or song had the potential for major commercial success.

2. High Private Value/Low Social Value Copyrights

The second category encompasses copyrights that create significant value for their owner, but have low value for the public. There are many of these patents, such as blocking patents that allow owners to extract substantial value through holdups while creating no correlative benefits for society. By contrast, this quadrant contains no—or vanishingly few—copyrights. The very different way in which copyright law enables owners to extract value from their works of authorship makes it unlikely that a work of authorship that generates little or no value for the public will lead to a copyright that proves remunerative for its owner.

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109. Jon Stewart didn't have to pay Lucas for making Stewart's mockery of Dick Cheney even more effective by using Darth Vader comparisons, and we don't have to pay Lucas for the humor value of invoking familiar catchphrases in every day conversation (e.g., "These aren't the droids you're looking for" or "Many Bothans died to bring us this information"). *See generally* Brett Frischmann & Mark Lemley, *Spillovers*, 107 COLUM. L. REV. 257 (2007) (discussing how copyright generates positive externalities).

110. *Cf.* Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 283 (1970) (expressing doubt that economic incentives actually do increase the production of works of authorship).

Two reasons illuminate why this quadrant of the value grid lies largely empty. First, the Patent and Copyright Acts create property rights of very different scopes. Patent rights are significantly broader than the entitlements enjoyed by copyright owners. The Patent Act extends to owners exclusive rights preventing anyone else from practicing the patentee's invention or its equivalents.[111] It is thus very difficult to engineer around a well-drafted patent, and patent holders can accordingly reap extensive rewards from commercial products that embody the ideas behind their inventions.[112] Copyright owners, by contrast, do not enjoy this kind of general prerogative to preclude others from using their work. Instead, they have only six narrowly contoured statutory exclusive rights.[113] The scope of copyrights is further cabined at the front end by the idea/expression dichotomy. A copyright owner exercises rights over only the specific expression that is embodied by the author's work, not to the general ideas that animate it.[114] It is narrowed again at the back end by various statutory defenses, such as fair use[115] and § 110's rabbit warren of rights limitations,[116] all of which add up to permit unauthorized use under many circumstances. The exclusive rights extended by copyright simply do not allow authors to internalize anything close to the full social value that their work actually generates. As a result, a work that creates little social value will have a copyright that almost certainly generates little (or no) private value for its author.

The relative narrowness of copyright owners' exclusive rights points to a second, related reason that the field of high private value/low social value copyrights remains unpopulated: copyrights are much easier to engineer around than patents. First, consider the

111. *See* 35 U.S.C. § 271 (2006) ("[W]hoever without authority makes, uses, offers to sell, or sells any patented invention . . . infringes the patent."); KSR Int'l Co. v. Teleflex, 550 U.S. 398 (2007) (setting the standard for the patent doctrine of equivalents).

112. *See generally* MERGES & DUFFY, *supra* note 27, at 781–923 (describing patent infringement doctrines and explaining their breadth and strength).

113. 17 U.S.C. § 106 (2006) (enumerating six exclusive rights of copyright owners); *see* Jessica Litman, *War Stories*, 20 CARDOZO ARTS & ENT. L.J. 337, 337–38 (2002) ("The copyright statute doesn't give copyright owners the exclusive right to *use their works* for limited times, or the exclusive right to *exploit their works commercially* for limited times. Instead, it gives copyright owners the exclusive rights to reproduce, adapt, distribute to the public and publicly perform or display their works, subject to a host of statutory exceptions.") (emphasis added).

114. 17 U.S.C. § 102(b) (excluding ideas from copyright protection). The Patent Act, by contrast, allows patentees to prevent others from using the ideas that animate their invention for the entire twenty-year exclusive rights period. *See* 35 U.S.C. § 154(a)(2).

115. 17 U.S.C. § 107.

116. *Id.* § 110(5)(B) (permitting public performance of nondramatic musical works by transmission or retransmission in commercial establishments meeting certain size and technology requirements).

idea/expression dichotomy, which limits the subject matter of copyright owners' exclusive rights. Imagine that someone wishes to write his own novel about the misadventures of a misfit young magician, hoping to capitalize on the popularity of the Harry Potter franchise. Such an effort blatantly seeks to free ride off of J.K. Rowling's creativity and success, but, as long as the second book does not copy any of the specific protectable expression (e.g., particular textual passages, sufficiently well-developed characters) in the Harry Potter books, none of Rowling's rights have been violated.[117] Second, copyright's originality requirement creates a safe harbor for authors who inadvertently create infringing works.[118] The independent creation defense allows creators of works identical to preexisting ones a full defense if the second author can show that they created their work without actually copying the first one.[119] By contrast, patent's infringement doctrine allows patentees to enjoin all works that practice the invention—even if the purported infringement in no way derived from or was influenced by the original.[120]

Some critics have suggested that the category of high private value/low social value copyrights is more populous than we claim. One version of this argument invokes the numerous instances in which owners have leveraged their copyright so that future actors were deterred from engaging in creative activity (consider, for example, owners of sound recordings who insist that hip-hop artists get a license in order to sample their works[121]). That such interactions take place is unsurprising; copyright is, after all, the legally enforceable

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117. Rowling might well sue anyway, though, if her reaction to an unauthorized Harry Potter lexicon is any indication. There, a federal court concluded that the creation of an annotated guide to the Potter series was actionable because it took actual expression from Rowling's books. Warner Bros. Entm't Inc. v. RDR Books, 575 F. Supp. 2d 513, 534–38 (S.D.N.Y. 2008). And, for what it's worth, Rowling herself is the defendant in a suit alleging that she copied her Harry Potter character from an earlier book called "Willy the Wizard." Ryan Kisiel, *J.K. Rowling Sued for £500 Million in Plagiarism Lawsuit by Family of Late* Willy the Wizard *Author*, MAIL ONLINE, June 16, 2009, http://www.dailymail.co.uk/tvshowbiz/article-1193283/JK-Rowling-sued-500m-plagiarism-lawsuit-family-late-Willy-The-Wizard-author.html.

118. That is, an author who originally creates a work of authorship that happens to be identical to an earlier one is regarded as not infringing at all. This does not mean that an author who appropriates protected work without consciousness of the infringement enjoys any defense. The latter remains actionable, and in that sense copyright infringement remains a strict liability offense.

119. 17 U.S.C. § 102(a) (requiring that works of authorship be "original" to merit copyright protection); *see* Kregos v. Associated Press, 937 F.2d 700, 716 (2d Cir. 1991) (Sweet, J., dissenting in part) (noting "the fundamental principle of copyright law that independent creation is never infringement").

120. 35 U.S.C. § 271 (2006).

121. *E.g.*, Bridgeport Music, Inc. v. Dimension Films, 383 F.3d 390, 398 (6th Cir. 2004) ("Get a license or do not sample.").

right to preclude others from free riding off the fruits of your creative labor. But few of these instances involve an owner leveraging a *low* social value copyright to do so. Popular sound recording catalogs, for example, do not involve low social value copyrights at all.[122] If anything, just the opposite is typically the case. That a musician has chosen to sample another's work proves that the sample has significant social value. A sample can be effective only to the extent that it is familiar and well known, which means that sampled works have almost invariably achieved both commercial success and broad popularity—the very definition of a high social value work.[123]

Other critics have suggested that copyrights used by their owners in an offensive manner fall into the high private value/low social value category. Examples include owners of literary estates who have enforced copyrights in order to keep famous authors' personal letters private (e.g., J.D. Salinger, Richard Wright),[124] as well as Scientologists who have brought copyright suits against former members to prevent the public release of internal documents relating to the governance of their religion.[125] The former example does not seem to fit within this category at all; the work of renowned novelists generates enormous value for society as well as private value for its author. One might imagine that Scientologists (or any organization, for that matter) might acquire costly copyrights for the sole purpose of suppressing critical public dialogue about itself.[126] While this use of copyright may indeed exact some social costs, such uses are relatively rare, and in any event, their impact is limited due to copyright's

122. Some writers have compared the music catalog owners' demands for licenses to that of patent trolls, *see* Tim Wu, *Jay-Z Versus the Sample Troll: The Shady One-Man Corporation That's Destroying Hip-Hop*, SLATE (Nov. 16, 2006), http://www.slate.com/id/2153961/, but this comparison is inapt. Companies like Bridgeport Music that acquire catalogues of copyrights do so for the same reason any music publisher acquires musical works: to negotiate licenses for works in the owner's catalog, and to protect against unauthorized use of those works. Such companies often create value by clearing rights to bodies of work that have become disorganized and conflicted. *See Bridgeport Music*, 383 F.3d at 393–96 (discussing Bridgeport's work with respect to George Clinton's catalog).

123. This does not mean that the strict "license all samples" rule is optimal. It may well be the case that society is better served by allowing free use of samples to facilitate second-generation creation. Our point here, though, is merely a descriptive claim that the copyright in the sampled work belongs in the high social value category, not the low social value category.

124. Wright v. Warner Books, Inc., 953 F.2d 731 (2d Cir. 1991); Salinger v. Random House, Inc., 811 F.2d 90 (2d Cir. 1987).

125. Religious Tech. Ctr. v. Netcom On-Line Comm'n Servs., Inc., 907 F. Supp. 1361 (N.D. Cal. 1995).

126. Or it may well be the case that Scientologists would continue to produce religious tracts even in the absence of exclusive rights, in which case our theory has nothing to say about them because they are not responding to the profit motivations that characterize the basic copyright bargain.

allowing numerous opportunities to engineer around its exclusive rights.[127]

Ultimately, and most importantly, it is irrelevant to our thesis whether or not there are any copyrights in the high private value/low social value quadrant because the existence of a costly screen will not affect the production of any high private value copyright. For the purposes of this discussion, we have defined "high private value" works as those generating profits in excess of the cost of the $22,000 copyright screen. Works that fall into this category (if there are any) will, by definition, generate sufficient private value to make it worth authors' time to create them, and will continue to be produced regardless of whether they are socially suboptimal.[128] Authors will create such works, in other words, with or without high vesting costs. So while we remain skeptical that there are many—or even any—works of authorship that generate high private value but low social value, that is not an issue that can be affected by the presence or absence of costly screens, and thus one that is not addressed by this Article.

3. Low Private Value/Low Social Value Copyrights

Low private value/low social value copyrights bring value to neither their owner nor society. And thanks to the low threshold required for copyright vesting, these copyrights are ever more numerous. At first glance, this seems to create a problem for our claim that increased process costs would be detrimental to social welfare. Costly screens cause authors to self-select against the acquisition of exclusive rights worth less than a given threshold amount (here, $22,000). In Part II, we explained that the appeal of costly screens for patents is that they select against this very category. Why, then, should we not embrace costly screens in copyright for similar reasons? In this Section, we identify three types of purported low private value/low social value works that arguably might be eliminated by imposing substantial process costs as a barrier to vesting exclusive

127. These workarounds are discussed in *supra* Part III.B.3. Some critics have also suggested that there are high private value works that have low social value because they are truly pernicious—child pornography or snuff films, for example. Even if they do belong in this quadrant, such works are typically not created for private profit but from some other, unsavory motivation, and their creation would be unaffected by the presence or absence of screens because creators of these works do not need exclusive rights to profit from them.

128. *See* Christopher A. Cotropia & James Gibson, *The Upside of Intellectual Property's Downside*, 57 UCLA L. REV. 921, 961–65 (2010) (observing that pornography, even if socially pernicious, will tend to be produced independently of whether it is protected by copyright).

rights, and we show why none of them actually weigh in favor of that approach.

First, many—perhaps most—copyrights in this quadrant are trivial in the sense that they have no social impact whatsoever, good or bad. Copyright arises in any work meeting the low originality threshold that is fixed in a tangible medium of expression, whether the author wants exclusive rights or not.[129] This is why the third quadrant is so populous. An email written to a friend, a home movie of a family gathering, or a doodle drawn on the back of a cocktail napkin each get the same copyright protection as blockbuster Hollywood movies or bestselling mystery novels, despite the fact that the value of the former works to their authors or the public is negligible.

Imposing a costly screen as a vesting requirement would certainly eliminate these copyrights. But who cares? Even if it were socially beneficial to cut down on these copyrights by imposing a costly screen (which would certainly work because, after all, no one is going to pay $22,000 to preserve exclusive rights in a drawing on the back of a cocktail napkin[130]), the presence of trivial and inadvertent copyrights has no impact on our analysis of the implications of costly screens. The reason is simple: these works may not create any social value, but neither are they harmful. Rather, they are innocuous because they will never be enforced in a socially costly way. In fact, the average layperson probably does not know (and certainly does not care) that their email or home movie or doodle happens to be copyrighted, so these rights, however proliferant, cannot have a deterrent effect on future creation. These copyrights could be relegated to oblivion by costly screens, but society wouldn't gain anything if they were.

"Microworks" may also fall into the low private value/low social value category. Several scholars have expressed concern that the copyright in very small works of authorship, such as the individual author contributions that make up the popular online encyclopedia Wikipedia, will prohibit future creation because the transaction costs (and litigation fears) associated with using such material are prohibitively high.[131] The concern is that small copyrights may allow their owners to engage in socially costly but privately lucrative holdouts, which has been a major driver of the anticommons problem

129. For an interesting narrative illuminating the frequency with which we all create—and infringe—copyrights on a regular basis, see John Tehranian, *Infringement Nation: Copyright Enforcement and the Law/Norm Gap*, 2007 UTAH L. REV. 537.

130. Unless the author's name happens to be Picasso.

131. *See, e.g.*, Hughes, *supra* note 8, at 575–76; Van Houweling, *supra* note 8, at 563.

in the patent setting.[132] Consider, for example, Wikipedia.[133] Every sentence in a given Wikipedia entry could be copyrighted by a separate author, since the site's entries are collaboratively written by many different people. Reproducing a Wikipedia entry, then, may seem to raise all manner of ex ante transaction costs (striking licensing deals with numerous owners) or ex post litigation fears (deriving from numerous acts of infringement against those owners). For those who share this concern, costly screens may seem like an ideal way to select against copyrighted microworks and reduce their multiplication.

Upon closer examination, though, we do not believe that costly copyrights would generate significant benefits. The reason is that, for the most part, microworks do not present a significant risk of welfare-diminishing holdouts. This is because the numerous limitations on owners' exclusive rights and opportunities for users to work around those rights that we discussed earlier[134] preclude, or at least starkly limit, the kind of holdout concerns that affect patent law.[135] Wikipedia[136]—a commonly cited example for the potential dangers of microworks—illustrates this point. First, the likelihood that the owner of a Wikipedia sentence will sue someone for infringement seems vanishingly small, both because owners aren't likely to even know that they have a copyright and because people rarely, if ever, contribute to Wikipedia for financial reasons.[137] Indeed, Encyclopedia Britannica never sued individuals for using its materials, and in fact explicitly

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132. Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CALIF. L. REV. 1293, 1321 (1996) (discussing holdouts and other anticommons-like concerns derived from excess copyright).

133. *See, e.g.*, Van Houweling, *supra* note 8, at 563–64 (citing Wikipedia as an example of a "microwork" that would be socially counterproductive if subject to copyright).

134. *See supra* Part III.B.3 (discussing copyright's various limitations and workarounds).

135. Michael A. Heller, *The Boundaries of Private Property*, 108 YALE L.J. 1163, 1175, 1175 n.61 (1999) ("Compared with patent law, copyright law's tragedy of the anticommons is less costly. The 'fair use' doctrine means that copyright holders do not have the right to exclude nonowners from low-intensity uses of protected works."). We stress that this does not necessarily mean that copyright is a "narrow" ownership interest in some absolute sense but only that copyright is significantly, and meaningfully, narrower than patent.

136. Van Houweling, supra note 8, at 621–22 (discussing Wikipedia as an example of a microwork that may create socially costly holdouts). We should emphasize that we agree with a significant proportion of Professor Van Houweling's excellent article on atomism in intellectual property. Indeed, her theory undergirds much of the argument we put forth above regarding patents. But on this particular point we do not think that the threat of holdouts from microworks is large enough to justify substantially increasing the costs of obtaining a copyright.

137. On the contrary, Wikipedia contributors include material largely in order to gain fame and/or contribute to a store of knowledge, so they would likely *want* others to use their material. *See* Andrew George, *Avoiding Tragedy in the Wiki-Commons*, 12 VA. J.L. & TECH. 8, 33–34 (2007) (discussing the importance of status among peers as a driver of production among Wikipedians).

permitted such uses in noncommercial settings.[138] But even if it were the case that the owner of the copyright in a Wikipedia paragraph sued a user for infringement, the defendant would have a host of plausible statutory defenses. Fair use would be a promising candidate if, as seems likely, the defendant were using the Wikipedia microwork in an academic and/or noncommercial setting.[139] The defendant would also possess many plausible alternatives for workarounds. For instance, the idea/expression dichotomy would allow a defendant to appropriate as much factual information from Wikipedia as they wanted to, so long as they expressed those facts in an original manner.[140]

A third and final copyright may also fall into the low private value/low social value category. Orphan works are those whose copyright ownership has become unclear and prohibitively difficult to trace.[141] Creators who wish to use orphan works find themselves in a double bind. They can use the work, raising the possibility that the owner will emerge later and demand exorbitant damages or seek a crippling injunction. Or they can forego use in light of these litigation fears. One of the most familiar examples of orphan works is old newsreel footage. The current owners of the rights in decades-old newsreels can rarely be ascertained from the newsreels themselves, so that documentary filmmakers interested in using the newsreels must either engage in a costly search to clear rights to the work, or use the footage and face the ongoing risk of costly litigation—all this despite that the newsreel almost certainly no longer generates much value for

138. In fact, Encyclopedia Britannica's copyright policy explicitly allows for copying of its material under many circumstances. *See Terms of Use*, ENCYCLOPEDIA BRITTANICA (Aug. 26, 2011), http://corporate.britannica.com/termsofuse.html ("You may display, reproduce, print or download content on the Services only for your personal, non-commercial use. If you are a teacher, scholar or student, you may copy reasonable portions of the content for lesson plans, interactive whiteboards, reports, dissertations, presentations, school newspapers and for similar nonprofit educational purposes to the extent permitted by applicable law.").

139. 17 U.S.C. § 107 (2006) (identifying "scholarship" and "research" as illustrative fair uses, and indicating that the noncommercial character of a use weighs in favor of fair use).

140. One might rejoin that there are some facts or ideas so simple that there is only one way that they can be expressed. To the extent that this is the case, copyright law again sides with users. The merger doctrine holds that when a fact or idea is capable of only a single expression, future users are free to copy that expression, regardless of the owner's exclusive rights. *See, e.g.*, Schoolhouse, Inc. v. Anderson, 275 F.3d 726, 730 (8th Cir. 2002) (noting the idea that similarity in expression cannot be used to show copyright infringement when there is only one way or only a few ways of expressing an idea).

141. For a good overview of the orphan works issue, including summaries of relevant legislative efforts and other government documents, see *Orphan Works*, U.S. COPYRIGHT OFFICE, http://www.copyright.gov/orphan/ (last visited Jan. 29, 2012).

its owner.[142] And because few of these copyrights actually earn value for their owners, it may initially appear that they fall into the low private value/low social value category, so that imposing costly screens would have the salubrious effect of eliminating them.

The orphan works problem, and the specter of related nuisance litigation, raises serious concerns, and has spawned pending legislation designed to allay the concerns of future creators in order to encourage the use of these works.[143] It is probably the case that orphan works generate only low private value and low social value now, but this is irrelevant to our thesis, which concerns only the private and social value of copyrights at the time of vesting. At the time of their vesting, newsreels likely generated value for their creators, who licensed them to be shown before feature films, and for society, who relied on them for news and entertainment. That these initially valuable works have since migrated across classes of value from the first (high private value/high social value) to the third (low private value/low social value) quadrant does not relate to our investigation into how screens affect the initial decision to acquire a copyright. Indeed, if our conjecture that most orphan works were initially both socially and privately valuable is correct, then it is likely that they would still be created even if the costs of acquiring a copyright were raised significantly.[144]

4. Low Private Value/High Social Value Copyrights

The fourth and final category of copyrights contains those that generate positive value for the public, but only a little value for their owners. With patents, this quadrant did not concern us because it was largely empty. By contrast, there are numerous low private value/ high social value copyrights, and as a result the dynamics of costly screens operate quite differently in this setting.

It may initially seem counterintuitive that a work could create significant value for society while the associated copyright could fail to create correlative high value for its owner. This is, as we have shown, essentially never the case with patents. But particularly as compared

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142. *See* LESSIG, *supra* note 96, at 97–99 (2004) (discussing orphan works as a hurdle to the creation of documentary films).

143. *E.g.*, Shawn Bentley Orphan Works Act of 2008, S. 2913, 110th Cong. (2008). *See generally* U.S. COPYRIGHT OFFICE, REPORT ON ORPHAN WORKS 22 (2006), *available at* http://www.copyright.gov/orphan/orphan-report.pdf.

144. We stress that the concerns we raise about process costs at the outset of copyright vesting do not warrant skepticism about formalities that arise *after* copyright vesting. Indeed, such proposals appear to impose process costs in a way that do not raise the specter of deterring the creation of socially valuable works, and may well be a good idea.

to patent, copyright law's narrow ownership entitlements allow owners to internalize much less of the overall value that their work generates.[145] This imbalance between the capacity of works of authorship to create positive externalities—"spillovers" in Frischmann and Lemley's phrasing[146]—and the incapacity of copyrights to accrue that value for owners means that copyright generates a great deal of works whose social value is significant despite earning relatively little private value for its author. Indeed, a copyright must generate significant social value if the relatively smaller amount of that value that owners can internalize is going to provide authors sufficient incentive to create.

In a world animated by our hypothetical costly screen, then, when the amount of value authors can extract from a given copyright falls below $22,000, authors will typically not create the associated work, regardless of whether that outcome is bad for the public.[147] Costly screens would thus suppress production of low private value/ high social value copyrights, causing society to bear the losses that

145. *See supra* Part III.B.2.

146. *See* Frischmann & Lemley, *supra* note 109 (referring to positive externalities created by intellectual property generally as "spillovers").

147. We do not mean to discount the possibility that authors will create for reasons unrelated to copyright. Some works are created not for profit, but simply because the author wants to share an idea with the world (this Article is one of them). *See generally* YOCHAI BENKLER, THE WEALTH OF NETWORKS 2–7 (2006) (discussing nonmarket production of creative work). *But cf.* Lior Strahilevitz, *Wealth Without Markets?*, 116 YALE L.J. 1472, 1495–97 (2007) (expressing skepticism about Benkler's enthusiasm for nonmarket production). Other authors may create work independently of the existence of copyright because they are incentivized by subcultural norms rather than formal exclusive rights. *See, e.g.*, Dotan Oliar & Chris Sprigman, *There's No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-Up Comedy*, 94 VA. L. REV. 1787, 1790 (2008) (showing that stand-up comedians create jokes independently of copyright's incentives).

Such authors will continue to create works regardless of costly screens, but because of this—indeed, because such authors are largely indifferent to copyright—they are not a class of creators that is relevant to our thesis. As we explained at the outset, costly screen theory can explain only those actors who create copyrights out of a desire for financial reward. And because this economic incentivist model is the core premise of the U.S. intellectual property system, our thesis retains substantial leverage even in the presence of works motivated by other than pecuniary gain.

And as the examples we discuss in this Section illustrate, most works in the low private value/high social value quadrant are created out of at least some desire for profit. This is certainly true of thinly copyrighted works like directories or works that require numerous copyrights like news photos; no author makes either of these kinds of works purely from creative desire. And while we can imagine that some authors would pen brilliant works even knowing they would be commercial failures, most authors write in the hope of earning at least enough to make a living. This explains why even now almost all authors of significant literary works seek to publish their books for profit, rather than simply making them available for free on the internet.

result when such works go unproduced. Consider three categories of copyrights that would be especially vulnerable to costly screens.

First are "thinly" copyrighted works, like phone directories, information databases, or any useful compilation of facts.[148] Copyright law already limits the profitability of these fact-intensive works, extending to them slender exclusive rights limited only to their original selection or arrangement of facts.[149] Because creators of data compilations already face limited profit margins, costly screens would be particularly likely to preclude their production.

Second, consider creators who require numerous copyrights to protect their exclusive rights. A freelance news photographer, for example, may take hundreds of pictures in a week, depending on exclusive rights in all of them just to make sure that the few that are published are used with permission and for a fee.[150] Freelance writers work on a similar model, and would be loath to shop their work around to publishing outlets in the absence of some legal recourse against use without permission. In a slightly different vein are authors who create a very high number of distinct works on a regular basis, such as television news stations, which create numerous separate broadcasts daily. In a world requiring a $22,000 threshold for copyright vesting, the price of protecting multiple works would skyrocket for each of these authors. Less well-capitalized actors, such as impecunious freelance writers or photographers, would likely be priced out of their profession. And only broadcast news stations that were parts of wealthy conglomerates would be able to sustain the costs of associated copyrights, driving smaller-scale news outlets out of the business.

Finally, and most saliently, consider the socially valuable work that is nevertheless a commercial failure for its copyright owner. George Lucas may be the emblematic owner for whom the copyright system works ideally, but he is also the exception rather than the rule.[151] The relationship between the true quality and the commercial

148. *See* 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13.03[A] (2001) (discussing thinly copyrighted works).

149. *E.g.*, Feist Publ'ns v. Rural Tel. Serv. Co., 499 U.S. 340, 350–51 (1991) (holding that copyright in factual compilations is limited to originality in selection or arrangement of facts).

150. *Cf.* Ginsburg, *supra* note 98, at 342–43 (discussing the unique difficulties vesting costs would impose on authors who depend on the creation of multiple works).

151. Even Lucas struggled initially. His first feature film, *THX 1138*, arguably falls in the low private value/high social value quadrant. *See THX 1138*, LUCASFILM, http://www.lucasfilm.com/films/other/thx1138.html (last visited Mar. 3, 2012) ("Stark and austere, the striking visual wasteland of Lucas' faceless future floundered in its initial release at the box office but later gained traction among cult audiences and critics."). Though later considered to be a socially valuable film in its own right, *THX 1138*'s greatest value may have

appeal of a work of authorship is weak at best, and this disparity is exacerbated by the extent to which copyright's relatively narrow scope limits owners' abilities to internalize the social value—positive externalities—created by their works. One example of the brilliant commercial failure is the work whose true value is only understood well after its publication. Herman Melville's *Moby-Dick* is widely considered one of the great American novels, but sold so miserably that its author had to abandon writing to seek an income elsewhere.[152] Vincent Van Gogh's paintings are some of the most original and influential in history. Yet no one wanted them during Van Gogh's life,[153] although today they are valued at tens of millions of dollars.[154] Many less famous works also generate social value well in excess of the private value they accrue for owners. Films may fail at the box office, but introduce influential tropes and concepts that are unprotected (and therefore unprofitable for owners)[155] because they amount to unprotectable ideas.[156] Academic treatises rarely earn significant profits for their authors,[157] though they too may generate highly socially valuable insights about their subject matters. And many nonfamous artists sell paintings for modest prices that could well understate the social value in terms of aesthetic pleasure that those works generate.

In our current world, where copyrights vest automatically, artists need not negotiate any screens in order to secure rights in their works. They thus remain freer to experiment, taking shots with innovative works that promise to push the envelope of artistic or literary expression, even if the attempt is not that commercially successful, perhaps in the hope that their ideas will catch fire and make them millionaires. But in a world where securing a copyright

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come from its influence on Lucas's subsequent filmmaking. *See The Influence and Imagery of Akira Kurosawa*, THE SECRET HISTORY OF STAR WARS, http://secrethistoryofstarwars.com/kurosawa1.html (last visited Mar. 3, 2012) ("Annoyed by the rejection and failure of *THX 1138*, Lucas instead turned his attention to the opposite direction: he deliberately set out to make a commercial film. With this was born *American Graffiti* . . . .").

152. ANDREW DELBANCO, MELVILLE: HIS WORLD AND WORK 6–7 (2005).

153. In one famous anecdote, a baker said to Van Gogh, "No more bread," when Van Gogh again tried to trade paintings for food.

154. *See* G. Fernandez, *The Most Expensive Paintings Ever Sold*, THE ARTWOLF.COM ONLINE ART MAG., http://www.theartwolf.com/10_expensive.htm (listing the substantial prices paid for various Van Gogh works).

155. The Marx Brothers' DUCK SOUP (Paramount Pictures 1933) is now considered their best and most highly influential work, but it was a critical and commercial failure at the time of its release. *See Duck Soup (1933)*, FILMSITE MOVIE REVIEW, http://www.filmsite.org/duck.html.

156. 17 U.S.C. § 102(b) (2006) (ideas are not copyrightable).

157. One of us can personally attest to this point. *See* DAVID FAGUNDES & ROBERT C. LIND, QUESTIONS & ANSWERS: COPYRIGHT LAW (LexisNexis 2010).

requires a heavy front-end payment of $22,000, the possibility of commercial failure will deter many such innovative creators. Realistic creators will likely balk at the idea of having to invest additional tens of thousands of dollars in work that is not likely to recoup even the cost of the screen. And while wildly optimistic authors might be inclined to invest in a costly copyright despite their low chances of success, they may well lack the funds to do it. Of course, third-party companies like publishing houses or movie studios could step in to finance costly copyrights, as they finance other costs of creation. But in a world where such intermediaries were necessary, the resulting creative products would likely be those calculated to maximize the intermediaries' profits rather than to generate positive but not internalizable spillover benefits like innovative ideas or novel artistic forms.

Even if copyright owners were required to navigate costly screens for their exclusive rights to vest, many copyrights would arise and creative work would persist. Lucasfilm would still make *Star Wars* movies despite $22,000 worth of process costs because it will still earn scads of cash even though it cannot charge a royalty every time someone says, "May the force be with you." But the indifference of wealthy and institutional creators to costly screens should not cause us to dismiss the effect of those screens on less well-capitalized creators. The less privately remunerative copyrights that costly screens would deter do not necessarily create less social value than their privately lucrative counterparts. Requiring copyright owners to bear the costs of a cumbersome process prior to vesting would inflict heavy, though not obvious, costs on the public as well.

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Copyrights array very differently than patents across the four classes of value because they are constructed differently, and more narrowly, than patents. The first quadrant—high private value/high social value—is heavily populated with familiar examples of commercially successful works. The second quadrant—high private value/low social value—lies empty because copyrights that produce only low social value likely cannot allow their authors enough leverage to extract meaningful private value. The third quadrant—low private value/low social value—is heavily populated, albeit with largely innocuous copyrights. The final quadrant—low private value/high social value—is crowded as well, with copyrights that are valuable for society but that do not allow their authors to extract enough value to

clear the price of a costly screen. We summarize these relationships in Table 4 below:

TABLE 4: SOCIAL AND PRIVATE VALUES OF VARIOUS COPYRIGHT CLASSES

	High social value	Low or negative social value
High private value	Commercially valuable, socially popular copyrights (Star Wars films; Harry Potter books)	Vanishingly few
Low private value	Thin copyrights (directories, compilations); valuable commercial failures; iterative copyrights	"Microworks"; trivial and inadvertent works

As this table illustrates, the second and fourth quadrants of the copyright grid are populated inversely to the patent setting. While there are many high private value/low social value patents and few low private value/high social value patents, just the opposite is the case with copyright. As a result, application of costly screens in copyright would be counterproductive rather than beneficial. If copyright vesting required navigation of a process costing about as much as patent examination does, a crucial class of authors would be systematically deterred from creating works. Those authors seeking to make works that promise enormous social benefits but only paltry private ones would simply decline to produce such works, regardless of the lost public benefits. Of course, one might point out that these social costs might be offset by the other effect of a costly screen: selecting against low private value/low social value copyrights. But as we have seen, most low private value/low social value works are simply innocuous rather than socially harmful, so that the benefits of reducing them would be negligible. It is for these reasons, we believe, that the copyright system is sensibly devoid of high vesting costs.

IV. COSTLY SCREENS IN BROADER CONTEXT

Refracting copyright and patent through the lens of costly screen analysis provides related insights about each of these fields. It explains why the dearth of process prior to copyright vesting and the burdensome process accompanying patent grants are each more beneficial than the current literature suggests. In this Part, we observe two points beyond our core insight about the efficiency of the present IP vesting system. First, we propose a unified theory of IP process that draws on our earlier discussion of costly screens to explain why law places such disparate hurdles in the paths of patent and copyright owners. Second, we look at other legal contexts whose administrative structures (or lack thereof) can be illuminated by the efficiency (or inefficiency) of costly screens.

A. A Unified Theory of IP Process

Many writers have sought to explain why patents arise only after a cumbersome examination process, while copyrights vest immediately upon fixation without any process at all. Prior analyses have looked to the differential scope of the rights conferred by patent and copyright law;[158] the divergent social aims of the two fields;[159] the relative difficulty of evaluating the quality of the subject matter protected by patent versus copyright;[160] and the incentives created by the different degrees of searching required for each of the rights to vest.[161] Yet despite these numerous attempts, scholars have yet to provide a persuasive explanation for the puzzling disparity between these two systems.[162]

158. *E.g.*, Dale P. Olson, *Copyright Originality*, 48 MO. L. REV. 29, 34 (1983) (arguing that because patent is a broader—and potentially more socially costly—right than copyright, there should be more barriers to its vesting). We distinguish our theory from Olson's later in this Section.

159. 1 PAUL GOLDSTEIN, COPYRIGHT: PRINCIPLES, LAW AND PRACTICE § 2.2.1, at 63–64 (1989) (arguing that patent seeks only to encourage efficient production of information, while copyright seeks to encourage as much information production as possible, requiring more limits on the creation of patents).

160. Clarisa Long, *Information Costs in Patent and Copyright*, 90 VA. L. REV. 465, 469–70, 487–89 (2004) (arguing that it makes more sense to have barriers to the creation of patents because their subject matter is susceptible to objective judgments, while works of authorship are relatively more subjective).

161. John Shepard Wiley, Jr., *Copyright at the School of Patent*, 58 U. CHI. L. REV. 119, 146–47 (1991) (arguing that the barriers associated with patent encourage more searching, causing researchers to learn more and refine their work more carefully).

162. For an excellent discussion of each of these explanations and how they fail to fully explain the differences between the two systems, see Jeanne C. Fromer, *A Psychology of Intellectual Property*, 104 NW. U. L. REV. 1441, 1453–56 (2010).

The costly screening model we have developed here provides the most coherent account of the divergent methods by which patents and copyrights are awarded. In contrast to the foregoing theories, which seek to explain IP's vesting disparities in terms of the different subject matter governed by each system, we offer a unified theory of the administrative processes surrounding intellectual property—a theory of "IP process"—centered on the costs of those processes. Our theory is based on the relative strengths of the intellectual property rights awarded, but not in the most obvious sense. Patents are not examined simply because they involve stronger property rights and thus could do more damage than copyrights if granted imprudently. Copyrights do not arise merely upon fixation in a tangible medium of expression only because they are weaker rights that pose little threat if they spring into being haphazardly and easily. Such a simplistic explanation cannot account for the fact that patent examination is highly unreliable—the PTO grants many invalid patents—yet has been allowed to persist. If patents (and not copyrights) are examined purely because improperly granted patents can cause harm, the current system is surely failing.

The effect of these differences between patents and copyrights is, instead, indirect. The strength of the intellectual property right defines the various classes of value that each entitlement will create. Because patent rights are broad, low private value/high social value patents do not exist. A patent would allow an inventor to capture much of the benefit from any patent that created significant social value. Similarly, because copyrights are narrow, high private value/low social value copyrights do not exist—they are too easy to engineer around. On the other hand, low private value/high social value copyrights are plentiful.

Accordingly, costly screens embedded within the patent and copyright systems will disproportionately select against different classes of intellectual property rights by affecting how and whether those rights vest in the first instance. In the patent context, there exists a good argument for costly screens. Due to the distinctive value asymmetries created by the relative strength of patent as a property right, screens preclude only the production of inventions that create zero or negative social value. Inventions that create high social value but generate little value for their owners exist in negligible numbers at best, so denying them patents by using costly screens does not reduce social welfare.

But copyright presents a different story. The prevalence of low private value/high social value works suggests that imposing screens as a precondition to the acquisition of copyright would be

counterproductive. The costlier the screen, the more likely it is that authors will decline to create works where they are skeptical of clearing the value of the screen. In copyright, unlike in patent, erecting costly screens as a prerequisite to vesting raises serious concerns about precluding the creation of works that are enriching for society even though they generate little value for their authors.

Once the current system of patent examination—as well as a hypothetical system of copyright examination or fees—is understood as a costly screen, the final piece of this puzzle falls into place. The breadth of the patent right creates an asymmetry that the costly patent screen exploits in a way that creates social welfare; the comparatively narrow copyright creates an asymmetry that would interact with a costly screen in ways likely harmful to social welfare. The breadth of the intellectual property right defines the appropriate shape—and cost—of the process used to bestow it.

This is, at one level, a descriptive claim: the reason that patent and copyright have such different vesting thresholds is that these vesting thresholds select differently across the different classes of value created by patent (a broader right) and copyright (a weaker one). But this descriptive claim is inextricable from our normative argument. Our theory of IP process works because patent's costly screens and copyright's lack of them encourage invention and creation at a socially beneficial level. This theory thus implies that the current patent and copyright systems are both unfairly maligned, albeit in very different ways. The standard account is that patent places too many expensive roadblocks in the way of acquiring exclusive rights,[163] while copyright has a problematically low vesting threshold.[164] Costly screen theory, and in particular, our theory of IP process, demonstrates why each of these systems may in fact be much closer to optimal than is typically believed.

We hasten to add that we do not mean to claim that the congressional architects of the intellectual property system intended or understood this result. The patent examination and copyright registration systems most likely arose for other reasons, or through

163. *See*, *e.g.*, *supra* note 41 and accompanying text (noting Kieff's and Mossoff's suggestions for reform, such as elimination of the patent examination system altogether).

164. *See, e.g.*, Gibson, *supra* note 97, at 221–31 (arguing for reintroduction of formalities in order to weed out socially negative copyrights); *cf., e.g.*, LESSIG, *supra* note 96, at 289–91 (advocating for reforms in the registration, renewal, and marking requirements for copyrights); Sprigman, *supra* note 102, at 517 (suggesting that registration should be a prerequisite for property-rule enforcement of copyright infringement).

historical accident.[165] But it would be odd to imagine that these systems could persist through two centuries if they did not lead to improvements in societal well-being.[166] Our theory of IP process, animated by the idea of costly screens, shows that this is likely the case. There is a deep relationship between how statutory rights in information are constructed and what kind of process is optimal to govern the vesting of those rights.

B. Process Costs and Cognate Fields

1. Beneficially Costly Law Systems

Our argument that costly screens are beneficial for the patent system rested on the premise that while the examination process is substantively ineffective, it still produces value by forcing applicants to select against seeking patents that have only low private value. And because of patent's distinctive asymmetry—namely, that there are no or vanishingly few patents of low private value that also generate high social value—this effect is on-balance positive for social welfare. In this Section, we abstract this insight onto the law more generally, identifying two cognate fields characterized by high process costs. We then show why those processes—typically criticized as excessively cumbersome—may be more socially beneficial than is commonly thought.

Begin with due process protections. Many employees may only be fired "for good cause" as a matter of either contract or state or federal law.[167] Employers seeking to discharge employees subject to these protections typically must provide the employees with hearings

165. There is a straightforward historical story to be told about this divergence, of course. The modern PTO grew out of the Patent Board established by the Patent Act of 1790. *See* P.J. Frederico, *Operation of the Patent Act of 1790*, 85 J. PAT. & TRADEMARK OFF. SOC'Y 33, 33–35 (2003) (describing the formation and original functions of the Patent Board). The lack of formalities required for copyrights to vest reflects international norms brought to bear on U.S. law by our obligations under the Berne Convention. *See International Copyright*, UNITED STATES COPYRIGHT OFFICE, http://www.copyright.gov/fls/fl100.html ("There are no formal requirements in the Berne Convention."). Neither of these narratives, however, provides an explanation of why patent and copyright processes have developed in such different ways.

166. *Cf.* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW § 21.5, at 614 (5th ed. 1998) (explaining the "apparent tendency of the common law to develop efficient rules of conduct" and the counterarguments to this proposition).

167. *See, e.g.*, 55 ILL. COMP. STAT. 5/3-7012 (2007) ("Except as is otherwise provided in this Division, no deputy sheriff in the County Police Department, no full-time deputy sheriff not employed as a county police officer or county corrections officer and no employee in the County Department of Corrections shall be removed, demoted or suspended except for cause, upon written charges filed with the Board by the Sheriff and a hearing before the Board thereon upon not less than 10 days' notice at a place to be designated by the chairman thereof.").

before neutral arbiters and show that good cause for termination exists.[168] Employers have certain advantages in these hearings, particularly repeat-player status and the resources to hire attorneys.[169] At the same time, they also bear some asymmetric costs: they must often create and fund the hearing board,[170] and they must pay employee wages during hearing pendency (and often cannot recover those wages if they are victorious at the hearing).[171] Numerous critics have suggested that such hearings do little but counterproductively raise employers' costs,[172] but this ignores their costly screening function. Forcing employers to bear the costs of termination hearings causes them to select against terminations that are not worth the administrative trouble—a private decision that the employer is in the best position to make. Moreover, the asymmetries at play in this context mirror those at play in patents. Few terminations will generate high social value but only low private value for employers (indeed, such an example is hard to imagine). More likely, if it is worth an employer's time and trouble to navigate the thicket of a due process hearing, society will also benefit—an employee that bad is almost certainly inflicting general social costs as well.

168. *See generally* Mathews v. Eldridge, 424 U.S. 319, 348 (1976) ("The essence of due process is the requirement that 'a person in jeopardy of serious loss [be given] notice of the case against him and opportunity to meet it.' ") (alteration in original) (quoting Joint Anti-Fascist Comm. v. McGrath, 341 U.S. 123, 171–72 (1951) (Frankfurter, J., concurring)); Bd. of Regents of State Colls. v. Roth, 408 U.S. 564, 573 (1972) ("[W]here a person's good name, reputation, honor, or integrity is at stake because of what the government is doing to him, notice and an opportunity to be heard are essential.") (quoting Wisconsin v. Constantineau, 400 U.S. 433, 437 (1971)).

169. *Cf.* Guido Calabresi & Jeffrey O. Cooper, *New Directions in Tort Law*, 30 VAL. U. L. REV. 859, 863–64 (1996) (discussing the disparate interests and incentives of corporate defendants' and plaintiffs' attorneys); Marc Galanter, *Why the "Haves" Come Out Ahead: Speculations on the Limits of Legal Change*, 9 LAW & SOC'Y REV. 95, 97 (1974) (asserting that "differences in their size, differences in the state of the law, and differences in their resources" distinguish between "repeat players" and "one-shotters" in the legal system). In some instances, employees will be represented by collective bargaining units who are also repeat players, which may serve to mitigate these advantages to some extent.

170. *See, e.g.*, 55 ILL. COMP. STAT. 5/3-7003 (2007) (stating that each Illinois county is responsible for paying the salary and expenses of the members of the boards established to conduct due process hearings for county employees).

171. *Cf.* Goldberg v. Kelly, 397 U.S. 254, 264 (1970) ("[T]ermination of aid pending resolution of a controversy over eligibility may deprive an eligible recipient of the very means by which to live while he waits.").

172. *See, e.g.*, Ellis v. Sheahan, 412 F.3d 754, 758 (7th Cir. 2005) (Posner, J.) (suggesting that the "costs and benefits of alternative remedial mechanisms" should drive the determination of the options for recourse made available by an employer to its employees).

Consider also housing evictions. Landlords may not exercise self-help and summarily lock out tenants who breach their leases.[173] Rather, tenants are entitled to summary eviction proceedings[174] that tend to advantage and disadvantage landlords for the same reasons as termination hearings: landlords enjoy helpful repeat-player status, but have to bear costs associated with eviction.[175] Many critics have argued that this procedure is prohibitively costly for landlords, who have to bear most of the costs of the process even though the tenants were delinquent,[176] as well as tenants, whose involvement in eviction proceedings can be located by future landlords, which permanently taints their chances of obtaining housing.[177] Here too, though, this critical scholarship fails to take into account the costly screen function of eviction proceedings. The process costs imposed by summary evictions function as a helpful information-forcing device, causing landlords to limit their evictions only to those tenants whose delinquency is so privately costly that it exceeds the costs of eviction itself—an assessment that landlords are uniquely well-suited to make. Moreover, it is difficult to imagine that there will be any evictions that generate low benefits to landlords but high benefits to society at large; the low private value/high social value quadrant of the grid is empty.[178] A tenant troublesome enough to make a landlord undergo an

173. JESSE DUKEMINIER ET AL., PROPERTY 408–10 (6th ed. 2006) (describing the growing trend among states to prohibit self-help as a permissible remedial measure for landlords and the increased availability of summary proceedings as an alternative).

174. *See generally* A & M Towing & Recovery, Inc. v. Guay, 923 A.2d 628, 628–30 (Conn. 2007) (corporate tenant entitled to certain specific processes); Hughes v. Sanders, 847 So. 2d 165, 167 (La. Ct. App. 2003) (tenants entitled to adequate service of process in addition to summary eviction proceedings); Lowell Hous. Auth. v. Melendez, 865 N.E.2d 741, 744–45 (Mass. 2007) (summary eviction process used to remove tenant accused of endangering other residents, in accordance with lease agreement).

175. In California, for example, even where a landlord successfully shows cause for eviction, he must remove the tenant's belongings from the premises and place them in a storage facility—at his own expense. *See* CAL. CIV. CODE § 1990 (West 2011) (describing the amounts and methods for reimbursement of a landlord's initial posteviction storage expenses).

176. *See* Chi. Bd. of Realtors, Inc. v. City of Chi., 819 F.2d 732, 736–37 (7th Cir. 1987) (Posner, J.) (reinforcing the notion that landlords are responsible for most costs associated with the rental process by upholding a municipal ordinance allowing tenants to withhold rent payments to the extent of a landlord's failure to comply with the lease terms and allowing a credit against rent expenses for repairs a tenant undertakes herself).

177. See Lior Jacob Strahilevitz, *Reputation Nation: Law in an Era of Ubiquitous Personal Information*, 102 NW. U. L. REV. 1667, 1679 (2008) ("Evictions via summary proceedings . . . necessarily generate public records, and it is those public records that will prove so damaging to tenants the next time they try to rent an apartment.").

178. A full analysis of this question is well beyond the scope of this Article, but there is a plausible story to be told that eviction valuations function in precisely this way. Any high social value eviction—for instance, the eviction of a disruptive tenant who is violent and engaged in illegal activity—likely holds high private value as well; the disruption strikes most heavily at

eviction proceeding is likely to make life difficult for others as well (by making noise or failing to keep up the premises, for example). It is entirely possible, then, that the process costs of summary evictions generate significant social welfare via their screening function.

2. Beneficially Costless Law Systems

Just as our process costs approach to patents explains how other complex administrative procedures generate unappreciated benefits, our costly screen analysis of copyright illuminates how at least one area of law, prior restraints on speech, notable for a striking absence of administrative procedure may have an internal logic beyond what commentators have typically appreciated.

The United States has a long tradition of opposition to blocking speech before its release to the public, instead preferring to allow speakers to interact freely in the belief that an unfettered exchange of ideas is the best way to encourage democratic dialogue.[179] As a result, courts have been particularly skeptical of anything that looks like a licensing procedure for speech.[180] Licenses for the press (which were common in colonial America) are per se illegal,[181] and state action that even resembles licensure of speech (e.g., licenses for parades, and even regulation of vanity license plates) has been invalidated.[182]

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other nearby tenants who are often under the auspices of the same landlord. The paradigmatic low private value/low social value eviction might be a tenant who is not disruptive but is delinquent on rent; turning such a tenant out onto the street might lead to crime and social disruption. This is the category of eviction against which a costly screen will select. The danger posed by such a screening mechanism is that tenants will exploit the procedural costs involved with eviction by breaching their leases in minor ways, up to the point of making eviction worthwhile. Like any transaction cost, then, the costly screen could inhibit efficiency-enhancing transactions by enabling unnecessary bad behavior. Nonetheless, this danger may be less pronounced in residential housing than in other contexts. Tenants are likely to be highly risk averse—the downside risk of miscalculating and being evicted is substantial, and renters are often people with little margin to spare—and thus less inclined to push their luck.

179. Near v. Minnesota, 283 U.S. 697, 713 (1931) (roundly rejecting prior restraint).

180. Freedman v. Maryland, 380 U.S. 51, 57–60 (1965) (invalidating a licensing scheme requiring approval from the municipal board as a precondition of permission to license the showing of films).

181. Se. Promotions, Ltd. v. Conrad, 420 U.S. 546, 558–59 (1975) ("The presumption against prior restraints is heavier—and the degree of protection broader—than that against limits on expression imposed by criminal penalties.").

182. *E.g.*, Sons of Confederate Veterans, Inc. v. Comm'r of the Va. Dep't of Motor Vehicles, 288 F.3d 610, 626–27 (4th Cir. 2002) (invalidating restrictions on license plates for a heritage organization); MacDonald v. Safir, 26 F. Supp. 2d 664, 676–77 (S.D.N.Y. 1998) (invalidating a parade permit system as an impermissible prior restraint).

There are well-rehearsed constitutional and prudential reasons for the per se rule against prior restraints,[183] though some writers have cast doubt on the latter.[184] Here, we seek to advance an additional rationale for the rule against prior restraints that is rooted in process costs. If courts permitted licensure of speech, the resulting administrative apparatus would cause would-be speakers to limit speech only to instances where the private value of their speech was greater than the cost of a license. In many cases, this would be socially costless, where the speech at issue generated only low social value as well (it is, after all, easy to ignore annoying or inane speech). But it is possible, as with copyright, to imagine numerous instances where speech has relatively low private value (because it may not be particularly remunerative) but high social value (because the public finds it inspiring, or edifying, or beautiful). This is because speech, like works of authorship subject to copyright, creates disproportionately high positive externalities—such as aesthetic enjoyment and intellectual insight—that cannot be recouped by its creator.

Take, for instance, street performers. Sure, most of them are terrible, but they can be easily tuned out or walked past, so those that create low social value are basically innocuous. Some street performers are pretty good, though, and bring value by making city streets more colorful and giving passersby a brief moment of aesthetic pleasure. Regardless of whether they create low or high social value, though, almost all street performers make little enough that a licensing requirement would put them out of business.[185]

Much the same is true of publicly distributed flyers. While most of them deservedly go straight to the trash, some of them may

183. *E.g.*, Vincent Blasi, *Toward a Theory of Prior Restraint: The Central Linkage*, 66 MINN. L. REV. 11, 24 (1981) (arguing that prior restraints are worse than other kinds of speech restrictions because they induce self-censorship, expand the scope of government control over expression, and delay the dissemination of speech).

184. *See* Stephen R. Barnett, *The Puzzle of Prior Restraint*, 29 STAN. L. REV. 539, 549–50 (1977) (questioning whether prior restraints actually are a uniquely pernicious form of speech regulation); *cf.* CASS SUNSTEIN, ON RUMORS: HOW FALSEHOODS SPREAD, WHY WE BELIEVE THEM, WHAT CAN BE DONE 9–10 (2009) (questioning the idea that more speech is always better by observing that misleading and inflammatory speech can cause mass misperceptions and undermine democratic dialogue).

185. Popular folk singer Tracy Chapman performed for spare change in Harvard Square before she was discovered by her record label, *see* Stephen Thomas Erlewine, *Tracy Chapman*, ALLMUSIC, http://allmusic.com/artist/tracy-chapman-p3874/biography (last visited Apr. 12, 2012) (biography of Chapman); *Tracy Chapman, Harvard Square, 1985*, ABOUT TRACY CHAPMAN (Apr. 14, 2006), http://www.about-tracy-chapman.net/tracy-chapman-harvard-square-1985/ (photograph of Chapman busking in Harvard Square), but she's the commercially successful exception that proves the rule.

articulate important and creative ideas. Our own American Revolution was affected to a nontrivial extent by ideas propounded in publicly distributed, privately made pamphlets.[186] But making flyers for indiscriminate public consumption is hardly a highly remunerative endeavor, so if such speech were subject to a costly license it would likely be stamped out, along with the social value it creates. So as each of these examples illustrate, the costs of screening out speech of low private value but high social value would overbear any trivial advantages of eliminating low private value/low social value speech, which suggests that speech licensure exacts net social welfare costs, independent of whether it is constitutionally suspect.

CONCLUSION

Patents do not come cheaply to applicants. Copyrights, on the other hand, arise costlessly, frequently, and even unintentionally. The stark contrast between the onerous patent examination process and the easy, instantaneous vesting of copyrights seems puzzling. These systems have also drawn criticism as causing valueless copyrights to proliferate while placing unnecessary burdens on patentees. Examining this problem through the prism of costly screen theory helps to make sense of the difference between these very different systems for vesting property rights in information, and it reveals one reason that these much-maligned processes may not be as problematic as they are commonly described.

While navigating the cumbersome patent examination process can exact social costs, it also has the advantage of eliminating low social value patents (while precluding the creation of no or few high social value patents). Copyright's screenlessness, on the other hand, may permit the creation of numerous low social value copyrights, but these copyrights are relatively innocuous, and the ease of vesting assures the continued creation of high social value copyrights that would be eliminated by the imposition of costly process prior to vesting. Our analysis points in the direction of a unified theory of IP process, one that illuminates the foundational connection between how law structures intellectual property rights and how that structure necessitates particular processes for granting those rights.

186. An example is Thomas Paine's *Common Sense* (1776), which challenged the authority of the British Crown at a crucial time in late colonial America. The text of this pamphlet is available at http://www.earlyamerica.com/earlyamerica/milestones/commonsense/text.html.