



**DOTAN
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EXPLORING MOTIVATIONS TO CREATE

DOTAN OLIAR'S work explores the creative ecosystem. By focusing on various legal and extra-legal incentives, disincentives and constraints, he seeks to shed light on what and how much people create in the expressive and technological arts. He teaches courses on intellectual property law, law and economics, and entrepreneurship. In his scholarship, he uses positive and normative law and economics and empirical, quantitative, and behavioral methods to evaluate creative activity across diverse contexts and industries.

A native of Israel, Oliar became interested in innovation when he served his national duty as an officer in the technology-infused intelligence Unit 8200. Oliar earned his undergraduate law and philosophy degrees at Tel-Aviv University, graduating first in his 123-student law section. He grew interested in American law while taking courses from professors who had obtained their doctorates in law from U.S. law schools. Following law school, Oliar clerked for Justice Jacob Kedmi on the Israeli Supreme Court.

After clerking, Oliar moved to the United States to pursue graduate legal studies at Harvard Law School, where he deepened his acquaintance with intellectual property law and gained exposure to the economic approach to law. His LL.M. thesis, conducting an economic analysis of copyright's fair use doctrine in the digital age, won the Irving Oberman writing award. During his S.J.D. studies, he served as a fellow at the Olin Center for Law, Economics and Business and at the Berkman Center for Internet and Society. At Berkman, he was a member of the group that launched Creative Commons, a set of technologically embedded copyright licenses that facilitate the open sharing of content. He wrote his S.J.D. dissertation on the framing of the Constitution's Intellectual Property Clause. The University of Virginia hired Oliar as an associate law professor in 2007, and he became tenured in 2011. He currently conducts graduate studies at the University's Economics Department.

Oliar's scholarship can be organized around four themes: (1) empirical analysis of U.S. Copyright Office records; (2) technological change and the

transformation of intellectual property rights; (3) the scope of Congress's intellectual property power; and (4) behavioral analysis of incentives to create.

EMPIRICAL ANALYSIS OF U.S. COPYRIGHT OFFICE RECORDS

At its core, intellectual property law attempts to balance providing incentives to create, on the one hand, with ensuring a broad dissemination of expressive works and inventions, on the other. A trade-off exists since incentives are provided by awarding rights to exclude and restrict access. What copyright scope would strike this balance optimally? In recent decades, scholars have hotly debated whether copyrights are excessive or inadequate, but with little to no empirical support for their claims. To address this state of affairs, Oliar has turned, in a series of recent works, to analyzing the hitherto neglected records kept at the Copyright Office, which happens to be one of the few—and by far the largest—public registries of copyright claims in the world. These records contain much data about the operation, use, and performance of our copyright system, and can be used to improve it.

In “Copyright Preregistration: Evidence and Lessons from the First Seven Years 2005-2012,” 55 *Ariz. L. Rev.* 1073 (2013), Oliar and his co-author, UVA Law graduate Nicholas Matich '13, examine copyright owners' actual use of the 2005-minted preregistration formality. Several industries lobbied for this Copyright Act amendment, which was intended to enhance copyright owners' ability to combat the leakage of content to the Internet prior to its official date of release. Based on interviews with users of the preregistration system and their attorneys, and on an originally constructed dataset of more than 6,000 preregistrations, the article finds that the system operates in ways that are markedly different from those anticipated in the legislative history. First, industry use of preregistrations was largely limited to (parts of) the movie and TV industries, while others—notably the music industry—made virtually no use of it. Second, preregistration was often used strategically in litigation, after infringement had already been detected rather than in advance of it. The case of preregistration should give Congress pause before acting on demands for greater intellectual property protections. Such demands may exaggerate actual need, and the protection afforded, which comes at a social cost, is unlikely to be revisited later.

In “Copyright Registrations: Who, What, When, Where and Why,” 92 *Tex. L. Rev.* 2211 (2014), Oliar and coauthors Nate Pattison and UVA Law

graduate K. Ross Powell '15 constructed and analyzed a dataset comprising the 2.3 million copyright registration records for the years 2008-2012. They downloaded these records from the Copyright Office's online search page using a specially written computer program. The article provides a snapshot of contemporary copyright registration patterns. It describes the types of works being registered, how the registrations of individuals and firms differ, when works are being registered relative to their dates of creation and publication, the age distribution of authors in different creative fields, and the geographic distribution and concentration of registration claimants. As the article reports, corporate authors tend to be geographically concentrated and to register published works, computer software, periodicals, and movies, whereas individual authors tend to be geographically dispersed and to register unpublished works, music, and drama. Among registered works, authors of music tend to be most productive in their 20s whereas literary authors tend to be most productive in their 50s.

Oliar's current work, “Registering Authors: Challenging Copyright's Race, Gender and Age Blindness,” *Geo. Wash. L. Rev.* (forthcoming 2018), co-authored with George Washington University law professor Robert Brauneis, is the result of academic partnership with the Copyright Office, under which the office handed the authors all copyright registration data from 1978 to 2014. The article challenges copyright law's theoretical abstraction from author-specific characteristics. Copyright law aims generally to provide authors with incentives to create, assuming a general, unitary author figure. The authors created probabilistic race and gender variables for all authors of registered works, basing them on U.S. Census data on the racial and gender makeup of individuals with particular last and first names, respectively. Among other things, they find that, statistically speaking, authors of different races, genders, and ages tend to register different types of works, often at different rates; that two-thirds of all authors are male; and that men and women tend to co-author with similarly gendered individuals. They suggest that copyright theory must explicitly account for the mechanism by which legal entitlements induce particular authors to choose which works to create and with whom to collaborate. This mechanism appears to involve social, cultural, and gender-related characteristics that the major theories of copyright law do not currently acknowledge.

Oliar plans to further use registration data in future work to assess the extent to which particular copyright law amendments tended to enhance creativity.

TECHNOLOGICAL CHANGE AND THE TRANSFORMATION OF INTELLECTUAL PROPERTY RIGHTS

Which IP rights should the state allocate, and when, to whom, and how should these answers evolve with technological change? In “The Copyright-Innovation Trade-Off: Property Rules, Liability Rules, and Intentional Infliction of Harm,” 64 *Stan. L. Rev.* 951 (2012), Oliar explores the way incentives to create content should be traded off against incentives to create new and better technologies to enjoy and reproduce content. Imposing liability on the makers of technologies such as record players, radio, television, photocopiers, VCRs and file-sharing networks for related acts of infringement would incentivize the creation of content, but would disincentive technological innovation. Freeing them from liability would induce technological innovation but would disincentivize the creation of content. Cases concerning all the aforementioned technologies have reached the Supreme Court, but its ad-hoc rulings do not provide a general approach to striking the copyright-innovation trade-off. The article likens technological and expressive creativity to conflicting activities, just like those of a rancher and a farmer, where harm is the result of simultaneous operation. Oliar charts the disparate incentives that would follow from handling content-technology interferences under each of Guido Calabresi and A. Douglas Melamed’s four property and liability rules. He argues that none of these rules can produce optimal incentives to all. Oliar advocates the adoption of a new set of “modifiable” entitlements that produce superior incentives to create content and technology and to reduce the incidence of interference between these activities. Under “modifiable” rules, courts would be allowed to reallocate entitlements to the more efficient party based on a review, during litigation, of the parties’ earlier investment decisions. Oliar argues that copyright law, which allows courts to excuse infringement via the fair use doctrine, can be understood as embodying a modifiable property rule in authors.

Oliar continues to explore the optimal structure of IP entitlements and to draw on property theory in a current working paper, “Right on Time: First Possession in Intellectual Property Law,” co-authored with UVA Law graduate James Stern ’09, now a professor at William & Mary Law School. The paper analyzes intellectual property law as a rule of first possession. It surveys and motivates the many patent, copyright, and trademark law doctrines that award rights based on either the rule of capture or the rule of first committed searcher, rules which should be familiar to first-year

law students from cases such as *Pierson v. Post* (N.Y. 1805). It emphasizes that the two rules differ in the time in which they allocate exclusive rights, and that the right rule should be the one that best balances the costs and benefits of early versus late awards of exclusivity to particular resources. The intellectual property context illuminates considerations of notice to third parties, which are often taken as given in the tangible property context but should be provided for explicitly when it comes to conflicting claims to intangibles. The intellectual property context is further unique in exhibiting relatively frequent doctrinal shifts between the two aforementioned conceptions of first possession, which the authors suggest might be explained by the possibility that the social costs and benefits of intellectual property rights are highly sensitive to technological change.

THE SCOPE OF CONGRESS’S INTELLECTUAL PROPERTY POWER

Oliar conducted his S.J.D. studies at a time when a hotly debated case was making its way up the court system. In *Eldred v. Ashcroft* (2003), the Supreme Court upheld the constitutionality of a 20-year retroactive extension of the copyright term. Much of the case rested on historical evidence on the scope of Congress’s power under the Intellectual Property Clause. Oliar’s research informed his S.J.D. dissertation as well as three articles.

In “Making Sense of the Intellectual Property Clause: Promotion of Progress as a Limitation on Congress’s Intellectual Property Power,” 94 *Geo. L.J.* 1771 (2006), Oliar argued against the conventional wisdom according to which the first words in the clause, “to promote the progress of science and useful arts” are merely a nonbinding, hortatory preamble, an argument that relied on the framers’ arguable intent. Reviewing overlooked parts of the framers’ debates in the Constitutional Convention, Oliar rather concluded that the most likely inference one can draw from the convention’s records is that the framers, as a collective body of differently minded people, wished these words to be part of the grant of power to Congress and—most importantly—to also limit it at the same time. Oliar reached this conclusion by tracking proposals made by James Madison and Charles Pinckney during the convention to empower the future Congress not only in regard to copyrights and patents, but also to establish national educational, trade, and research institutions. The latter proposals were largely overlooked in the literature, but textual parts thereof, containing the progress language, made it into the text of the clause. Oliar reconstructed the framers’ intent relating to the progress language by a close reading, tracking which parts

of these proposals were adopted and which rejected, and by putting these textual decisions in greater context. Further, while many have suggested that limitations in the IP clause should be enforced using a heightened standard of judicial review, Oliar proposed a way for courts to enforce the progress limitation using a deferential one. In *Golan v. Holder* (2012), the Supreme Court indeed enforced the progress limitation using a deferential standard.

In “The (Constitutional) Convention on IP: A New Reading,” 57 *UCLA L. Rev.* 421 (2009), Oliar solved several factual puzzles surrounding the IP debates at the Constitutional Convention that had long haunted scholars of the IP clause. For example, analyzing textual differences among historical sources statistically, Oliar could conclude that James Madison proposed in the convention that Congress should have the power to issue patents, going against the conventional wisdom of historians in the field. Oliar further went against the conventional wisdom that proposes that the clause be read disjunctively as embodying two distinct and unrelated congressional powers, one over patents and the other over copyrights. Oliar’s historical research and findings suggest that the clause should be read holistically as granting Congress broad powers in the area of intellectual property law.

In “Resolving Conflicts among Congress’s Powers Regarding Statutes’ Constitutionality: The Case of Anti-Bootlegging Statutes,” 30 *Colum. J.L. & Arts* 467 (2007), Oliar explores the question of inter-clause constitutionality conflicts, which several IP-related enactments raise. The article zeroes in on statutes that impose civil and criminal liability on those who make and traffic in bootleg recordings of live concerts. Can these statutes, which seem to exceed Congress’s IP clause power, nevertheless be upheld under Congress’s Commerce Clause power? Oliar pushed the ball by reviewing the full set of limitations in the IP clause that the statutes are in tension with, and by introducing to the literature several Supreme Court cases that serve as close precedents for disposing of inter-clause conflicts regarding statutes’ constitutionality. Oliar suggests that these cases show a particularist approach to the question, namely one that is mindful of the extent of the clash between a particular enactment and the arguably violated constitutional limitation. Though the Court’s jurisprudence is a far cry from providing clear guidance on the issue, it is at least instructive in dispelling the prevalent and diametrically opposed views that Congress can either never or always circumvent limitations set in one enumerated power by acting under another.

BEHAVIORAL ANALYSIS OF INCENTIVES TO CREATE

Oliar’s first article, “Incentives to Create Under a ‘Lifetime-Plus-Years’ Copyright Duration: Lessons from a Behavioral Economic Analysis for *Eldred v. Ashcroft*,” 36 *Loy. L.A. L. Rev.* 437 (2002), written while he was in the middle of his S.J.D. studies and co-authored with a then-fellow S.J.D. candidate, Avishalom Tor (now a law professor at the University of Notre Dame), was one of the first-ever to conduct a behavioral analysis of intellectual property doctrine. The article explores the incentives that the current copyright term, structured as the life of the author plus seventy years, generates as compared with an alternative, otherwise equivalent, fixed term of years that would last for the average author’s life plus seventy years. For its first two centuries, U.S. copyright law used a fixed term of years, but the Copyright Act of 1976 adopted the current rule based on the international standard. The article argues that two well-documented biases—over-optimism and subadditivity—result in having authors perceive a life-plus-years copyright term as longer than an otherwise equivalent fixed copyright duration.

Oliar returned to this behavioral theme several years later in “There’s No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-Up Comedy,” 94 *Va. L. Rev.* 1789 (2008), co-authored with Chris Sprigman (then a University of Virginia law professor), exploring extra-legal social norms and behavioral regularities among stand-up comedians. The project was inspired by the observation that while joke-stealing accusations often fly between stand-up comedians, there is a paucity of litigated cases involving comedy. The article explores the various doctrinal hurdles that make it especially hard to win a lawsuit over joke theft, and shows that comedians resolve disagreements over joke and comedic routine ownership using a set of social norms. Violation of these norms is privately policed using sanctions such as tarnished reputation, refusals to share a stand-up bill and—when all else fails—a punch in the nose. While this set of norms often orders the topics of ownership, transfer, use, and sanctions in ways that are similar to copyright law, at other times norms and law differ markedly. The article cautions against viewing social norms as necessarily superior to law, and suggests that each system has relative merits and demerits. Most interestingly, the article notes that joke theft was once an accepted practice in the industry, and makes sense of the contemporaneous evolution of the norm system and of standup comedy itself—from its earlier “joke book” style to its current point-of-view-driven character.

Oliar’s research reflects an admirable attempt to better understand

human creativity, its determinants and correlates, and consequently shape the law to better let it flourish. In his quest to do so, he has not shied away from making bold methodological strides into the disciplines that best fit his research questions, be it a historical foray into the debates at the constitutional convention, a theoretical analysis of the economic incentives generated by alternative legal rules, statistical data analysis of government records, or the exploration of psychological biases and social norms. He has also recently acquired and used an improved set of quantitative skills, started a collaboration with the Copyright Office, and opened up a body of empirical copyright scholarship. True to his subject of study, Oliar has established himself as one of his generation's most careful and innovative scholars of creativity.

EXCERPTS

THE COPYRIGHT-INNOVATION TRADE-OFF: PROPERTY RULES, LIABILITY RULES, AND INTENTIONAL INFLICTION OF HARM

Adapted and abridged
64 *Stan. L. Rev.* 951 (2012)

INTRODUCTION

Should copyright law impose liability on innovators of technologies used to copy, manipulate, or disseminate protected content? Intellectual property law's goal, and constitutional mandate, is to promote both authorship and invention. Often, each of these goals can be pursued independently. Sometimes, however, they conflict. New technologies—such as record players, radio, motion pictures, photocopiers, VCRs, MP3 players, and file-sharing networks—often weaken copyright owners' control over content. As the Supreme Court observed, imposing copyright liability on technology companies would promote authorship but chill innovation, while immunizing innovators from liability would promote innovation but chill authorship. How should the law balance these two interests?

This Article takes a first-principles approach to content-technology conflicts. It views authorship and innovation as two economic activities that interfere. It conducts a systematic analysis of how allocating property rules and liability rules to copyright owners and innovators would induce each group to invest both in pursuing its own trade and in minimizing the copyright-innovation interference.

For example, a property rule in innovators—an entitlement allowing them to manufacture any technology regardless of harm to copyright owners—may drive some of them to produce harmful technologies and to actively promote their use for infringement. Such inefficient investments in technology creation and harm generation may allow some innovators to extract value from copyright owners in return for shutting down. Imagine, for instance, an innovator contemplating a technology—such as an online file-sharing network—that creates a small value of 10 but that also harms copyright owners by 100. Backed by a right to market this technology,

Footnote citations are not included in excerpts.

an innovator would produce it. The innovator and copyright owners would quickly realize that all can be made better off by shutting down the technology. In negotiations, the innovator would not accept anything less than 10 to shut down while copyright owners would pay 100 at most. Under equal bargaining power, the innovator would shut down in return for 55. Assume, however, that when the innovator creates the new technology, he can invest an extra 5 to increase the technology's harmful effect to 200. While a net loss in social welfare, this investment in harm exacerbation would pay off for the innovator, because it would increase the copyright owners' maximal willingness to pay to 200, thus increasing the innovator's settlement amount to 105. This is just one effect of one legal rule—this Article provides a comprehensive analysis of the incentives generated by each of the four classic entitlements.

Charting the incentive effects of alternative legal rules can explain observed phenomena and predict future ones. For instance, before the rise of file-sharing networks over the past decade, the relevant Supreme Court precedent, *Sony Corp. of America v. Universal City Studios, Inc.*, was largely understood as vesting a property rule in innovators. Several courts found that file-sharing networks actively induced infringement by end users, a behavior consistent with the predicted behavior of the similarly protected innovator in the numerical example in the preceding paragraph. Also consistent with that example were the negotiations between Napster, the file-sharing network, and music labels, pursuant to which Napster would shut down its harmful technology in return for value.

A major cost of legal rules is that they may drive protected parties to make clearly inefficient investments. For instance, the innovator in the numerical example above found it privately profitable to invest in a socially harmful technology. When it comes to technological change, lawmakers often cannot predict the nature of future technologies before they are invented. Their choice is often limited to allocating background entitlements under limited information regarding the future. Although lawmakers cannot observe the nature of the parties' investments in real time, they might still be able to verify their type (socially beneficial or harmful) once a content-technology conflict occurs. A legal system that, upon observing a protected party who invested inefficiently, reallocates the entitlement to its counterpart, will provide the parties with improved incentives to invest. Contrary to conventional wisdom regarding content-technology conflicts, this prescription—which the Article calls “modifiable entitlements”—holds true even if the parties can transact costlessly at the

time a conflict occurs. The purpose of this prescription is not to overcome transaction costs after the parties' activities already conflict. In such a case, under costless bargaining, the efficient result will happen regardless of the applicable entitlement, as the example above shows. Rather, this prescription seeks to make the parties invest efficiently at an earlier time when they cannot yet transact, a time when improved incentives to invest may prevent a future conflict from arising. Further, modifiable entitlements are generally superior to traditional entitlements even if courts can observe the nature of parties' investments only some of the time.

The Supreme Court's decision in *MGM Studios Inc. v. Grokster, Ltd.* suggests that the legal system is at times capable of verifying the nature of the parties' earlier investments during a conflict, and of reallocating entitlements accordingly. In *Grokster*, the Ninth Circuit allowed the technology company to rely on the background entitlement from Sony to manufacture its harmful technology. The Supreme Court likely believed that the technology was harmful (i.e., it was of little or no independent value yet created great harm to copyright owners) and so the Court reallocated the entitlement to copyright owners. Doctrinally, it did so by crafting a new theory of liability—intentional inducement—that led to a reversal of the outcome below. Providing improved investment incentives therefore requires mechanisms to reallocate entitlements from innovators to copyright owners in certain cases (such as by way of the Court's doctrinal innovation in *Grokster*), but also from copyright owners to innovators in other appropriate cases. The fair use doctrine is one major way in which the latter reallocation can be done, and indeed Sony can be read as having used the doctrine in this way. The Article suggests creating a general “reverse fair use doctrine” that would allow courts to reallocate entitlements from innovators to copyright owners.

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II. A FRAMEWORK FOR APPROACHING THE COPYRIGHT-INNOVATION TRADE-OFF: INCENTIVES TO INVEST UNDER DIFFERENT RULES

This Part studies the friction between two economic actors—copyright owners and technology innovators. It adopts Calabresi and Melamed's focus on property rules and liability rules as major ways in which the law resolves conflicting use problems. It charts systematically the disparate incentives that different entitlements provide copyright owners and innovators to invest in their own activities and to reduce the interference between those

activities. Though the analysis is conducted in the context of content-technology conflicts, it builds upon work by Lucian Bebchuk and contributes to a literature of a more general applicability.

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F. SUMMARY: Copyright Owners' and Innovators' Incentives to Invest Under Property Rules and Liability Rules

The distortions in the parties' investment decisions can be summarized as follows:

TABLE 17 - Copyright Owners' and Innovators' Investment Under Different Rules

The contents of the table are included in Table 18, below.

III. ANALYSIS: HOW THE FRAMEWORK CAN BE USED TO PREDICT CREATORS' BEHAVIOR AND TO MAKE BETTER LAW

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2. Modifiable entitlements: a proposal to improve incentives to invest

The analysis has thus far assumed that the law's role is limited to setting background entitlements that would apply in all types of content-technology scenarios. Indeed, oftentimes the most that lawmakers can do ex ante is choose the entitlement that produces the best investment incentives across all possible scenarios. However, viewing the question ex post, once a technology already exists, the legal system might be able to determine the scenario into which a particular technology's interaction with content falls. When it can, how should it use that added information?

Much of the distortion in ex ante investments stems from the behavior of inefficient parties. Protected by an entitlement, an innovator might invest in a harmful technology. Protected by an entitlement, a copyright owner might invest in a business model that will soon be replaced by a revolutionary technology. In such cases, protected parties invest knowing that their investments are inefficient and will be shut down ex post. They invest nevertheless because owning the entitlement assures them that shutting down ex post will be accompanied by a payment. However, if the legal system can observe ex post that a protected party invested inefficiently, it should reallocate the entitlement in favor of the other party (and it does not matter whether it does so by a property rule or a liability rule). Such a principle of modifying initial allocations would deny entitlements ex post

to copyright owners and innovators who planned to profit from inefficient investments. If parties expected such modifications to obtain ex post, they would not invest inefficiently ex ante.

Assume a legal system in which, for example, Congress sets initial entitlements that parties can later assert in litigation. We shall call them "modifiable" entitlements. In that system, courts can verify the type of content-technology scenarios in play. If Congress initially allocates copyright owners a modifiable property rule or a modifiable liability rule, a court that later observes a revolutionary-technology scenario in litigation could still afford the innovator a property rule that would allow it to market the technology freely. Likewise, if Congress initially allocates to innovators a modifiable property rule or a modifiable liability rule, a court that later observes a harmful-technology scenario in litigation could still afford copyright owners a property rule that would enable them to enjoin the technology. A court that observes an efficient-coexistence scenario will simply apply the initial entitlement chosen by Congress.

All modifiable entitlements provide optimal investment incentives to parties foreseeing revolutionary-technology and harmful-technology scenarios. Each modifiable entitlement in these scenarios would protect the efficient party, driving it to invest optimally, and would deny protection to the inefficient party, driving it not to invest (which is again efficient). Modifiable entitlements thus could only distort investment decisions of parties in efficient-coexistence scenarios. What would these distortions be?

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To conclude, the parties' investments under the modifiable rules would be as follows:

TABLE 18 - Investment Distortions Assuming that Scenario Types Are Verifiable in Courts

EX ANTE INVESTMENTS	MODIFIABLE PROPERTY RULE IN COPYRIGHT OWNERS	MODIFIABLE LIABILITY RULE IN COPYRIGHT OWNERS	MODIFIABLE PROPERTY RULE IN INNOVATORS	MODIFIABLE LIABILITY RULE IN INNOVATORS
COPYRIGHT OWNERS' INCENTIVES TO CREATE	Optimal [Excessive]	Optimal [Highly excessive]	Optimal [Inadequate]	Optimal [Optimal]
COPYRIGHT OWNERS' INCENTIVES TO MINIMIZE THE INTERFERENCE	Inadequate [Inadequate]	Highly inadequate [Highly inadequate]	Optimal [Excessive]	Optimal [Optimal]
INNOVATORS' INCENTIVES TO CREATE	Inadequate [Inadequate]	Optimal [Optimal]	Optimal [Excessive]	Optimal [Highly excessive]
INNOVATORS' INCENTIVES TO MINIMIZE THE HARM	Inadequate [Inadequate]	Optimal [Optimal]	Highly inadequate [Highly inadequate and perverse]	Highly inadequate [Highly inadequate]

Entries in brackets represent distortions assuming that scenario types are never verifiable, as in Table 17.

Table 17 above, whose content is included in brackets in Table 18 here, reflects the cumulative distortive effect associated with different legal rules when lawmakers cannot determine the type of particular content-technology scenarios *ex post*. Table 17 thus reflects, among other things, investments by clearly inefficient parties. Table 18 reflects a much-improved incentive structure that would follow if lawmakers could always verify scenario types *ex post* and modify initial allocations so as to deny protection to inefficient parties. Modifications, we saw, might happen in harmful-technology and revolutionary-technology settings. For parties in these two scenarios, all modifiable entitlements would generate optimal investment incentives, and are therefore indistinguishable. The distortions of modifiable rules reflected in Table 18 are those stemming from efficient-coexistence scenarios only.

While Table 17 unrealistically assumed that lawmakers can never observe *ex post* parties that had invested inefficiently *ex ante*, Table 18 unrealistically assumes that lawmakers can always do so. In reality, the *ex ante* incentives associated with modifiable rules lie somewhere in the range between the values noted in the two tables. The better the courts' ability to verify scenario types during litigation, the better the bundles of *ex ante* incentives from which policymakers can choose.

The point of the modification prescription is to make the parties invest desirably *ex ante*. If courts deny protection to harmful technologies *ex post*, for example, none would be created *ex ante*. This prescription differs from the conventional wisdom pertaining to content-technology conflicts, according to which courts should consider whether to reallocate entitlements through the fair use doctrine only if the parties are unable to transact at the time of conflict.

REGISTERING AUTHORS: CHALLENGING COPYRIGHT'S RACE, GENDER AND AGE BLINDNESS

Adapted and abridged
(with Robert Brauneis) (*Geo. Wash. L. Rev.*, forthcoming 2018)

INTRODUCTION

Who is the author in copyright law? To devise a successful copyright system, lawmakers must know more about the central figure in copyright law: the

author. We believe that there is much to be gained from finding out who actually creates the books, articles, songs, movies, plays, art, and software that are the bedrock of American education, science, culture and entertainment. What is the race, gender, and age of the authors of those works?

In the pages to come, we pursue answers to these questions by examining a hitherto untapped data source: the United States Copyright Office Electronic Catalog. For the first time, through its Academic Partnership Program, the Office has provided us a full copy of the Catalog as it stood in late 2014.

Our empirical analysis focuses on three variables that are not in the Copyright Office's data, but that we generate, namely authors' race, gender and age. We are able to calculate authors' ages by subtracting their birth year from the year in which they created their works. Establishing authors' gender is not as simple. To answer this question we use probabilities drawn from the gender distribution of first names under the 1990 U.S. Census. Similarly, we determine authors' probabilistic race and ethnicity using last name data based on the 2000 U.S. Census.

Relying on Census statistics involves the risk that the gender (race) make up of authors' first (last) names might be different than the one in the general population, such that the statistics reported may not be accurate. This risk is not substantial in the gender context, since the vast majority of first names are exclusively male or female, or virtually so. Last names, by comparison, are not nearly as determinative of a person's race and ethnicity. Therefore, first, as a benchmark, we use population racial and ethnic distribution of last names. We then use regression analysis to estimate the relative average ratio of racial and ethnic propensities to register copyrighted works as the one that best fits the observed data. We explain why the results reached under our first method somewhat underestimate the true racial and ethnic registration disparities. Qualitatively, however, these estimates are consistent with one another.

Part I below provides basic information about the Catalog and the subset of registration records that we analyze in this Article. Part II analyzes authors' race and ethnicity. Among other things, we find that on average, authors of different races and ethnicities tend to register works at markedly different rates and tend to create and register different types of works. Part III analyzes authors' gender. Among other things, we find that two-thirds of authors are male, that the gender gap has been decreasing over time, that men and women tend to register different types of works and that both men and women show a strong within-group bias in choosing coauthors. Part

IV focuses on authors’ age. It shows that the average age of authors has increased over time, on par with the general population age trend. Different works tend to be created by authors of different age mean and variance. While authorial participation has shown signs of greater diversity over time, this trend has neither been linear nor universal.

Part V details policy implications. Our findings suggest a need for a fundamental revision of copyright theory. Copyright theory—which tends to view the author in an abstract, uniform, a-historical and individualistic manner—needs to account for the mechanism by which copyright entitlements induce particular authors to choose which works to create. Our findings suggest that this mechanism contains important situating components, including social, cultural and biological characteristics.

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II. RACE AND ETHNICITY

A. Methodology: Inferring Race and Ethnicity from Last Names

Registration records do not specify individual authors’ race or ethnicity, so we use their last names as a proxy. Under federal policy, the Census Bureau asked people to self-identify as members of one or more of six races—white, black, Native American or Alaskan, Asian, Hawaiian or other Pacific Islander, and “Some Other Race.” In addition, it asked them to separately note whether they are “Spanish, Hispanic, or Latino,” which it regards as their ethnicity, rather than race.

We would like to emphasize that in conducting race and ethnicity statistics, we have not taken any decision as to which races and ethnicities exist, how they should be called, and which individuals belong in which group. Rather, our statistics reflect a list of races and ethnicities defined and named by the government, into which census respondents self-selected.

When, as shorthand, we make statements about the race or ethnicity of a certain cross-section of authors, we are referring to the average of the probable race or ethnicity of individuals in that cross-section.

MAKING SENSE OF THE INTELLECTUAL PROPERTY CLAUSE: PROMOTION OF PROGRESS AS A LIMITATION ON CONGRESS’S INTELLECTUAL PROPERTY POWER

**Adapted and abridged
94 Geo. L.J. 1771 (2006)**

The question is whether intellectual property laws can be held unconstitutional for failure to “promote the progress of science and useful arts.” The Constitution’s Intellectual Property Clause empowers Congress “[t]o Promote the Progress of Science and Useful Arts, by securing to Authors and Inventors the Exclusive Right to their respective Writings and Discoveries.” Below, the “ends” part of the clause (“to...”) is referred to as the Progress Clause, and the “means” part (“by...”) as the Exclusive Rights Clause.

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II. THE FRAMERS’ STARTING POINT

The federal Constitutional Convention kicked off in Philadelphia on May 25, 1787. On August 18, James Madison of Virginia and Charles Pinckney of South Carolina proposed vesting several additional powers in the federal legislature, as follows:

TABLE 1 - Immediate Origins of the Clause

SUBJECT MATTER	POWERS PROPOSED BY MADISON	POWERS PROPOSED BY PINCKNEY
PATENT	To secure to the inventors of useful machines and implements the benefits thereof for a limited time (“Madison’s patent power”)	To grant patents for useful inventions (“Pinckney’s patent power”)
COPYRIGHT	To secure to literary authors their copy rights for a limited time (“Madison’s copyright power”)	To secure to authors exclusive rights for a certain time (“Pinckney’s copyright power”)
EDUCATION	To establish a University (“Madison’s education power”)	To establish seminaries for the promotion of literature and the arts and sciences (“Pinckney’s education power”)
ENCOURAGEMENTS	To encourage, by proper præmiums and provisions, the advancement of useful knowledge and discoveries (“Madison’s encouragements power”)	To establish public institutions, rewards and immunities for the promotion of agriculture, commerce, trades, and manufactures (“Pinckney’s encouragements power”)

These proposals were referred to the Committee of Eleven that recommended the adoption of the Intellectual Property Clause, as it now

appears in the Constitution.

The eight proposals by Madison and Pinckney and the eventual text of the Clause are the only sources that have survived the Convention regarding the discussion of intellectual property. For better or worse, Madison and Pinckney's eight powers are the only source material from the Convention on which one can draw.

...

Part III argues that the text of the Progress Clause was adapted from the “ends” parts in Madison and Pinckney’s education and encouragements powers, and that the text of the Exclusive Rights Clause was adapted from Madison and Pinckney’s patent and copyright powers.

IV. THE PROGRESS CLAUSE WAS INTENDED AS A LIMITATION

The process of the Clause's framing, reviewed in Part III in detail, suggests that the Progress Clause was intended as a limitation. This Part identifies three specific indications of the Framers' collective intent while they were framing the Progress Clause to have it limit Congress's power. These three, reviewed immediately below, are not presented as three absolute demonstrations that each proves the Framers' intent beyond any reasonable doubt. Rather, they each suggest that the inference that the Framers intended the Progress Clause as a limitation is more likely than the opposite inference. When viewed together, the three converge to form a consistent story according to which the Framers intended the Progress Clause as a limitation.

Madison and Pinckney's patent and copyright powers suggested vesting in Congress plenary patent and copyright powers. Had the rest of the Framers shared Madison and Pinckney's intentions, they would have likely adopted their proposals without change, and Congress's intellectual property power would have likely looked like the current Exclusive Rights Clause. Instead, the Framers as a group changed the proposals before adopting them, suggesting disagreement. Moreover, the nature of the change was such that they subjected Madison and Pinckney's plenary patent and copyright powers as a means to achieving ends they specified in the Progress Clause (but not other ends). The change that the Framers inserted tends to suggest that they did not wish to vest in Congress plenary powers over patents and copyrights, but rather wanted to limit the exercise of these powers to the end of promoting progress in science and useful arts.

The origin of the Progress Clause further tends to suggest that it was intended as a limitation. The Progress Clause originated from the “ends” parts in Madison and Pinckney's rejected encouragements powers, and Pinckney's rejected education power. The “ends” parts of the rejected powers served as a limitation on the rejected powers: there was strong contemporaneous opposition to vesting education and encouragements powers in the federal government. At the same time, Madison and Pinckney proposed these controversial means (but not less controversial means: patents and copyrights) with accompanying ends that directed the exercise of the rejected proposals. The correlation between widespread opposition to particular means and the fact that those means were proposed together with public-regarding ends implies causality between the two. Madison and Pinckney either shared some of the objections that the other Framers had toward vesting these powers in Congress and therefore limited these powers, or knew of the other Framers' objections and wished to increase the chances that their proposals would pass. Thus, the best reading of the ends parts in the rejected proposals is as a limitation. The fact that the Framers took the limiting ends language from the rejected proposals, and tacked it onto Madison and Pinckney's patent and copyright proposals, suggests that they wished the limiting language to serve in the same limiting role.

This argument is finally supported by contextualizing the Clause's framing process in the larger scheme of the Convention's political makeup. The delegates to the Convention agreed that the Continental Congress was too weak to act effectively, but they disagreed as to how much change to the Articles of Confederation was needed. On one side were nationalists (also “centralists”) who believed that a substantial invigoration of the central government was needed. On the other side were states-righters who believed that the Union should largely remain confederate, namely a loose association of independent states. The Constitution reflects the compromise struck between the camps.

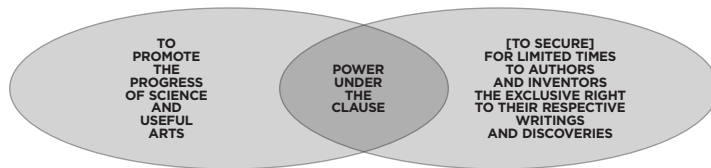
Madison and Pinckney were nationalists, and thus their views reflect a more centralist line than that of the Convention as a whole, which was composed of nationalists and states-righters. Indeed, Madison and Pinckney would vest in Congress plenary patent and copyright powers. The Framers, a group whose collective view was less nationalist than Madison and Pinckney's, subjected the powers they proposed to public regarding “ends.” The fact that this change was done by a body less centralist and more suspicious of the central government than Madison and Pinckney tends to suggest that the change was intended as a limitation on power.

Summing up, the three considerations—the fact that the Framers would not adopt the intellectual property proposals in the plenary form in which they were made, the political makeup of the Convention, and the origin of the words in the Progress Clause as qualifiers of other powers—all contribute to one consistent story according to which the Progress Clause was intended to limit Congress’s intellectual property power.

V. SOLVING THE PUZZLE OF THE CLAUSE’S STRUCTURE

Part III’s reconstruction of the Clause’s framing process also reveals that the Clause emerged from two types of grants of power formulated as “to” clauses. The Progress Clause stemmed from the “to” clause in Madison’s Encouragements Power, and the Exclusive Rights Clause stemmed from the “to” clauses in Madison and Pinckney’s Patent and Copyright Powers. At the same time, the Framers intended each grant of power to be limited and, significantly, to limit the power granted by the other. The Exclusive Rights Clause was intended to limit the “means” by which the “ends,” detailed in the Progress Clause, may be achieved. Conversely, the Progress Clause was intended to limit the ends to which the powers in the Exclusive Rights Clause could be put. The power granted to Congress under the Clause is thus demarcated by complex language that, in its whole, both delineates a power and its limitations as explained just above. This power is located at the intersection of the two clauses, each participating in defining the power and in limiting it at the same time. This can be represented graphically:

FIGURE 4: *A Model of the Clause (Structural Relation between Progress Clause and Exclusive Rights Clause)*



The unique textual structure of the Clause is best explained as reflecting the Framers’ intent regarding it. The Framers wished to vest in Congress an intellectual property power that would be limited to the promotion of progress of science and useful arts, and they also wished to exclude Congress from using other means to exercise this limited power, namely the founding of a university and the grant of encouragements. The Framers used language as best as they could to reflect this complex intent through the text of the Clause.

VII. TOWARD A JUDICIAL CONCEPT OF PROGRESS UNDER THE CLAUSE

This Part will assume that the aforementioned would lead courts to find that the Progress Clause is a constitutional limitation. As a matter of positive constitutional doctrine, Congress’s Article I powers are reviewed under a deferential standard, which the Supreme Court has explicitly applied to the Clause. One should reach the conclusion that the Progress Clause is a limitation that should be enforced by a deferential standard. There is much more that courts could and should do in order to give the Progress Clause meaning as a limitation under this standard.

“Progress,” of course, is not a clearly defined concept. What seems important, however, is that a discourse as to what “promote[s] progress” in intellectual property simply *begin*.

To get this discourse going, I suggest the following criterion. An intellectual property enactment does not “promote the progress of science and useful arts” and is therefore unconstitutional if its marginal benefits, in terms of creativity and knowledge, are extremely outweighed by its marginal costs in terms of creativity and knowledge.

Legislation whose positive effects on creativity and knowledge are non-existing, arguable, or very small, and whose negative effects are proven, material, and great, will present the right opportunity to determine that the limitation in the Progress Clause has been violated.

The suggestion that courts take into account the promoting and stifling effects on creativity and knowledge does not reflect a suggestion for a heightened standard of review. Rather, it regards the nature of the limitation set in the Progress Clause. The text of the Progress Clause speaks of “advancement.” Advancement means a forward movement. If an act has advancing and retarding effects on the arts and sciences, then advancement can only happen if the overall effect is positive. Thus, although a judicial balancing of merits and demerits is generally outside the scope of judicial review of other Article I powers, it is appropriate (although under a deferential standard) when it comes to the Clause because such weighing is called for uniquely in the text of the Progress Clause.

Would any of the recent, or recently challenged, enactments fail this test and thus be unconstitutional? That is hard to tell. The answer depends on the evidence that plaintiffs would be able to produce at trial. Regarding any challenged act, if evidence will show such a huge disparity between great costs and tiny benefits, then it should be found unconstitutional.

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