EXPRESSIVE INCENTIVES IN INTELLECTUAL PROPERTY

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American copyright and patent laws are founded on utilitarian notions of providing limited incentives to create socially valuable works. This Article shows that incentives that express solicitude for and protect a creator's strong personhood and labor interests can serve to support this underlying purpose. In so doing, this Article opens up a new line of inquiry in thinking about structuring intellectual property incentives, by showing that important incentives exist beyond traditional pecuniary incentives. Through this lens, this Article demonstrates that what scholars typically see as a conflict between theories of utilitarianism and moral rights in intellectual property can in fact come together in a useful harmony. The Article then shows a number of areas in copyright and patent law in which expressive incentives seem to be employed, such as attribution, the structure of duration, copyright's originality requirement and its reversion right, and patent's first-to-invent standard. These areas are promising ones for investigation into the ideal mix of pecuniary and expressive incentives in intellectual property.

INTRODUCTION

According to the dominant American theory of intellectual property, copyright and patent laws are premised on providing creators with just enough incentive to create artistic, scientific, and technological works of value to society at large by preventing certain would-be copiers' free-riding behavior.[1] Another group of scholars reasons instead that creators deserve moral rights in their works: either by virtue of the labor they expend to create them or because the works are important components of creators' personhood (the aspects of creators' personality infused into and bound up in their

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[1] *Infra* section I.A. Typically grounded in distinct theories are other important forms of intellectual property, such as trademarks. Jeanne C. Fromer, *The Role of Creativity in Trademark Law*, 86 NOTRE DAME L. REV. (forthcoming 2011). As such, I do not consider those other forms herein.

works).[2] Yet other academics highlight a rhetoric focused on authorship and inventorship within intellectual property law, discussing whether the rhetoric is harmless but agreeing that it is devoid of substantive effect.[3]

Scholars nearly always see the utilitarian and moral-rights theories as disjoint,[4] likely because utilitarian theories are more concerned with maximizing benefit to society via a properly calibrated incentive to creators whereas moral-rights theories place more emphasis on the creator's interests. In this Article, I show that the two theories can be complementary in important ways. As evidence from a multitude of vantage points demonstrates, creators of copyrightable and patentable work typically attach great significance to their personhood and labor interests in their work.[5] As such, the incentive to create ought to be all that much stronger when intellectual property laws are structured, both to protect these interests and to communicate its solicitude for authors' moral rights. Drawing on a rich legal literature on the interaction of law and norms and expressive theories of law, I call the ways in which copyright and patent law find both to communicate this solicitude and protect these personhood and labor interests "expressive incentives." The law's careful use of expressive incentives can bolster the utilitarian incentive to create valuable intellectual property, both by protecting creators' labor and personhood interests and by employing rhetoric communicating concern for these interests. This particular marriage of the utilitarian and moral-rights theories in the use of expressive incentives has been undertheorized, if not overlooked, as a valuable arrow in intellectual property's quiver.[6] When scholars explore incentives in intellectual property, they have not much looked beyond offering pecuniary incentives[7] to appreciate that utilitarian incentives can be expressive as well. I ground the notion of expressive incentives in intellectual property in the analogous philosophical issue of the possibility of rights in utilitarian systems.

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[2] *Infra* section I.B.

[3] Oren Bracha, *The Ideology of Authorship Revisited: Authors, Markets, and Liberal Values in Early American Copyright*, 118 YALE L.J. 186 (2008); Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 MICH. L. REV. 1197, 1197 (1996).

[4] *Infra* section II.A. In section II.A, I discuss some important exceptions, which take a different approach than mine. *See* Rochelle Cooper Dreyfuss, *The Creative Employee and the Copyright Act of 1976*, 54 U. CHI. L. REV. 590 (1987); Alfred C. Yen, *The Interdisciplinary Future of Copyright Theory*, *in* THE CONSTRUCTION OF AUTHORSHIP 159 (Martha Woodmansee & Peter Jaszi eds., 1994).

[5] *Infra* section II.B.

[6] Some legal scholarship occasionally hints at related possibilities. *E.g.*, Sara K. Stadler, *Forging a Truly Utilitarian Copyright*, 91 IOWA L. REV. 609, 664-65 (2006) ("[W]ithholding copyright from fine artists—but granting moral rights—would address the primary concerns of Creators, who care more about the integrity of their work, and receiving credit for its authorship, than they do about licensing its reproduction on consumer goods."); *cf.* Jane C. Ginsburg, *Moral Rights in a Common Law System*, 1 ENT. L. REV. 121 (1990) (analyzing how some common-law countries—Australia, the United Kingdom, and the United States—have recently implemented moral-rights protections for authors).

[7] *E.g.*, David S. Abrams, *Did TRIPS Spur Innovation?: An Analysis of Patent Duration and Incentives To Innovate*, 157 U. PA. L. REV. 1613, 1615 (2009); Ian Ayres & Paul Klemperer, *Limiting Patentees' Market Power Without Reducing Innovation Incentives*, 97 MICH. L. REV. 985, 986-87 (1999); Shyamkrishna Balganesh, *Foreseeability and Copyright Incentives*, 122 HARV. L. REV. 1569, 1571 (2009); William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326 (1989); Lydia Pallas Loren, *The Pope's Copyright? Aligning Incentives with Reality by Using Creative Motivation to Shape Copyright Protection*, 69 LA. L. REV. 1, 4 (2008); Diane Leenheer Zimmerman, *Copyrights as Incentives: Did We Just Imagine That?*, 12 THEORETICAL INQUIRIES L. 29, 29 (2011).

By complicating the conceptual landscape of intellectual property incentives to include expressive incentives, this Article seeks to open a new line of inquiry into the optimal structure of incentives. For society's benefit, intellectual property utilitarians seek to award the least incentive possible in exchange for a requisite degree of valuable artistic, scientific, and technological creation.[8] Expressive incentives are likely to assist utilitarians in this quest. Many might be relatively cost-free for society to provide but very valuable to creators themselves, thereby enhancing the intellectual property incentive at little loss to society at large. In fact, it is plausible that, to secure expressive incentives, individual creators would be willing to relinquish some traditional pecuniary incentives that are costly for society to provide.

After setting the theoretical stage in Parts I and II, Part III illustrates a number of aspects of current copyright and patent laws that seem to offer expressive incentives: attribution, the structure of duration, copyright's originality requirement and right of reversion, patent's first-to-invent standard, and patent claiming. To demonstrate, patent law requires a form of attribution, which gives credence to inventors' personhood and reputational interests: regardless of who owns the patent rights, the individual inventors must be named in the patent.[9] As another example, copyright law keys duration to the authors' lifetime, rather than a statistically equivalent fixed term, suggesting solicitude for protection at least as long as the author's personhood interests are strongest, during the author's lifetime.[10] Part III is primarily descriptive of how intellectual property—consciously or not—currently contains incentives that might operate expressively. As set out, the illustrations in Part III highlight how intellectual property laws might expressively amplify incentives to create and also suggest avenues of further study to optimize incentives. It is the hope that this Article can be the start of a conversation—theoretically and empirically—which will move us closer toward establishing the ideal mix of expressive and pecuniary incentives.

I. THEORIES OF INTELLECTUAL PROPERTY

American copyright law protects "original works of authorship fixed in any tangible medium of expression, now known or later developed," including literary works, sound recordings, movies, and computer software code.[11] To obtain copyright protection, authors need only create an original fixed work. There is no requirement that a work be published to be protected.[12] Protection vests in authors without any formalities, like registration.[13] A copyright holder receives the exclusive right to reproduce the work, sell copies of it, and prepare derivative works, among other things,[14] typically until seventy

[8] Joseph P. Liu, *Owning Digital Copies*, 42 WM. & MARY L. REV. 1245, 1315 (2001).
[9] *Infra* section III.A.
[10] *Infra* section III.B.
[11] 17 U.S.C. §§ 101, 102(a); *see infra* section III.D (discussing the originality requirement as expressive incentive).
[12] 17 U.S.C. § 102 (requiring only that a work be fixed in "any tangible medium of expression" to be copyrightable).
[13] Registration of a protected work with the Copyright Office is permissive. *Id.* § 408. To bring an infringement action, though, a copyright holder must in the ordinary case first have registered the copyright with the Copyright Office. *Id.* § 411(a).
[14] *Id.* § 106 (granting the right to prepare derivative works; rent, lease, or lend works; perform works publicly; display works; and digitally transmit works).

years after the author's death.[15] Copyright protection extends to the expression of particular ideas rather than to the ideas themselves.[16] Yet protection actually reaches well beyond the literal work to works that are copied and substantially similar,[17] "else a plagiarist would escape by immaterial variations."[18]

Patent law looks different. It grants protection to inventors of useful, novel, and nonobvious inventions.[19] Patents are granted after successfully undergoing examination by the Patent and Trademark Office (PTO) to ascertain that an invention meets patentability conditions and the description in the patent application satisfies certain disclosure requirements.[20] The patent right permits the patentee to exclude others from practicing the invention claimed in the patent for a term of typically twenty years from the date the patent application was filed.[21]

With this brief overview of copyright and patent law, I now turn to the theories scholars put forth to justify these laws: utilitarianism and moral rights (in two flavors, labor-desert and personhood).

A. Utilitarianism

According to the Supreme Court, Congress, and many legal scholars, utilitarianism has been the dominant purpose of American copyright[22] and patent law.[23] According to utilitarian theory, copyright law provides the incentive of exclusive rights for a limited duration to authors to motivate them to create culturally valuable works.[24] Without this incentive, the theory goes, authors might not invest the time, energy, and money necessary to create these works because they might be copied cheaply and easily by free-riders, eliminating authors' ability to profit from their works.[25]

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[15] *Id.* § 302(a); *see infra* section III.B (analyzing the structure of duration as expressive incentive).

[16] *Id.* § 102(b); Nichols v. Universal Picture Corp., 45 F.2d 119, 121 (2d Cir. 1930). According to the Supreme Court, the idea-expression dichotomy "strike[s] a definitional balance between the First Amendment and the Copyright Act by permitting free communication of facts [and opinions] while still protecting an author's expression." Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 556 (1985).

[17] Corwin v. Walt Disney Co., 475 F.3d 1239, 1253 (11th Cir. 2007); Whitehead v. Paramount Pictures Corp., 53 F. Supp. 2d 38, 46 (D.D.C. 1999).

[18] *Nichols*, 45 F.2d at 121.

[19] 35 U.S.C. §§ 101-103.

[20] *Id.* § 131. The Patent Act requires disclosure of certain content within the patent by calling for a written description, enablement, and best mode. *Id.* § 112. *See generally* Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539, 547-94 (2009) (describing these requirements, and arguing that they do not suffice for useful and clear disclosures).

[21] 35 U.S.C. § 154(a).

[22] Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 558 (1985); 122 CONG. REC. 2834 (1976) (statement of Sen. McClellan); Balganesh, *supra* note 7, at 1576-77; Landes & Posner, *supra* note 7, at 326.

[23] Diamond v. Chakrabarty, 447 U.S. 303, 307 (1980); Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 330-31 (1945); Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1597-99 (2003); F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 697 (2001).

[24] Sterk, *supra* note 3, at 1197.

[25] Alina Ng, *The Author's Rights in Literary and Artistic Works*, 9 J. MARSHALL REV. INTELL. PROP. L. 453, 453 (2010); Symposium, *The Constitutionality of Copyright Term Extension: How Long Is Too Long?*, 18 CARDOZO ARTS & ENT. L.J. 651, 676 (2000) [hereinafter *Copyright Term Extension*] (statement of Wendy Gordon).

Parallel reasoning supports patent law's protection of inventors' exclusive rights in their technologically or scientifically valuable inventions for limited periods of time. The theory is that public benefits accrue by rewarding inventors for taking two steps they likely would not otherwise have taken: to invent, and possibly commercialize, in the first place; and second, to reveal information to the public about these inventions that serves to stimulate further innovation.[26]

Utilitarianism aligns fluently with (and is frequently justified in strong part by) the U.S. Constitution's grant of power to Congress "[t]o 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."[27] Some utilitarians understand social welfare to be maximized by the creation of more artistic, scientific, and technological works.[28] Others, like William Fisher, employ a broader understanding that intellectual property protection ought to "help foster the achievement of a just and attractive culture."[29]

Pursuant to utilitarianism, the rights conferred by copyright and patent laws are designed to be limited in time and scope.[30] The reason for providing copyright and patent protection to creators is to encourage them to produce socially valuable works, thereby maximizing social welfare.[31] If the provided rights are exceedingly extensive, society would be hurt (and social welfare diminished).[32] For one thing, exclusive rights in intellectual property can prevent competition in protected works, thereby allowing the rightsholder to charge a premium for access and ultimately limiting these valuable works' diffusion to society at large.[33] For another, given that knowledge is frequently cumulative, society benefits when subsequent creators are not prevented from building on previous artistic, scientific, and technological creations to generate new works.[34] For these reasons, copyright and patent laws ensure both that the works they protect fall into the public domain in due course and that third parties are free to use protected works for certain socially valuable purposes.[35]

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[26] Fromer, *supra* note 20, at 547-54. Utilitarian thinking comes in different flavors. One is the prospect theory, which suggests that inventors are rewarded with a patent right to centralize investment in the patented invention's commercialization and improvement, which in turn benefits society. Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 266 (1977). Related to that theory is advocacy for direct protection of commercialization, because of its valuable role in diffusion of inventions. *E.g.*, Michael Abramowicz & John F. Duffy, *Intellectual Property for Market Experimentation*, 83 N.Y.U. L. REV. 337 (2008). Another is the signaling theory, which proposes that patents are useful signals to financiers that the patenting firm is a worthy investment. Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 37 (2005); Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625, 636-37, 648 (2002).

[27] U.S. CONST. art. I, § 8, cl. 8.

[28] William W. Fisher III, *Theories of Intellectual Property*, *in* NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 168 (Stephen R. Munzer ed., 2001) [hereinafter NEW ESSAYS] (discussing this view).

[29] *Id.*

[30] Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 997 (1997).

[31] Ralph S. Brown, *Eligibility for Copyright Protection*, 70 MINN. L. REV. 579, 592-96 (1985).

[32] Lemley, *supra* note 30, at 996-97.

[33] *Id.*

[34] *Id.* at 997-98.

[35] *Id.* at 999.

At bottom, utilitarian theories of intellectual property rest on the premise that the benefit to society of creators crafting valuable works offsets the costs to society of the incentives the law offers to creators.[36] Because this utilitarian framework establishes a cost-benefit analysis, the leading scholarly analysis of intellectual property has used an economic lens.[37]

B. Moral Rights

Despite the dominance of utilitarian thinking in American intellectual property law, scholars also proffer other theories to justify intellectual property protection. These theories are typically grounded in the notion of natural or moral rights that authors and inventors deserve by virtue of having created their works.[38] I use the term "moral rights" herein to refer to deontological theories of intellectual property, rather than the class of laws, almost all foreign to the United States, that explicitly incorporate these theories.[39]

Moral-rights theories typically come in two flavors: labor-desert and personhood. Labor-desert theory sees intellectual property rights as a Lockean acknowledgment of the labor of creation, in granting copyright or patent protection to creators that have worked sufficiently hard.[40] According to this thinking, intellectual property rights cease to be justified when they "harm … other persons' equal abilities to create or to draw upon the preexisting cultural matrix and scientific heritage."[41] Unlike the utilitarian viewpoint, which seeks to discontinue intellectual property rights when they cease to be efficient, the American labor-desert approach typically refuses to grant protection in labored-on works only when third parties are prevented from drawing on the public domain.[42]

Personhood theories also view intellectual property protection as a moral right of sorts, but unlike labor-desert approaches, see a creative work as a Hegelian extension of the author's personality.[43] According to Margaret Radin, a leading American legal-personhood theorist, "to achieve proper self-development—to be a person—an individual needs some control over resources in the external environment. The necessary assurances of control take the form of property rights."[44] There are related

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[36] *Id.* at 996-97.

[37] *E.g.*, SUZANNE SCOTCHMER, INNOVATION AND INCENTIVES (2006); John P. Conley & Christopher S. Yoo, *Nonrivalry and Price Discrimination in Copyright Economics*, 157 U. PA. L. REV. 1801 (2009); 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); Lemley, *supra* note 30.

[38] *E.g.*, Balganesh, *supra* note 7, at 1576-77; Brown, *supra* note 31, at 589-90.

[39] ROBERTA ROSENTHAL KWALL, THE SOUL OF CREATIVITY: FORGING A MORAL RIGHTS LAW FOR THE UNITED STATES 37-52 (2010) (describing protections in France, Germany, and other countries). Legal implementations principally encapsulate rights of attribution and integrity. *Id.* at 5.

[40] Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L.J. 1533, 1540-83 (1993); Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287, 296-330 (1988).

[41] Gordon, *supra* note 40, at 1563-64.

[42] *Id.* at 1564; *cf.* Seana Valentine Shiffrin, *Lockean Arguments for Private Intellectual Property*, *in* NEW ESSAYS, *supra* note 28, at 138, 146-58 (arguing that Lockean arguments justify only minimal protection).

[43] Lawrence C. Becker, *Deserving To Own Intellectual Property*, 68 CHI.-KENT L. REV. 609 (1993); Hughes, *supra* note 40, at 330-65; Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957 (1982).

[44] Radin, *supra* note 43, at 957; *accord* JEREMY WALDRON, THE RIGHT TO PRIVATE PROPERTY 4 (1988) (noting that Hegelians "establish a connection between respect for property and respect for persons").

understandings of personhood: Roberta Kwall sees "the [work's] importance as a reflection of the author's meaning and an embodiment of her message."[45] Sonia Katyal views creative works as expressions of a person's individualism and freedom.[46] And Stewart Sterk perceives that a theory grounded in moral rights "conjures up a genius irrevocably committed to his work."[47]

Despite its occasional invocation in copyright, personhood theory is less frequently invoked as an explanation for patent law.[48] Kwall suggests that personhood theories are absent in patent law because functional scientific and technological works "are perhaps less likely [than artistic works] to need modifications that may ultimately conflict with the creator's artistic vision in order to serve their intended functions."[49] Alternatively, Justin Hughes hypothesizes "an implicit social judgment that the degree of personality reflection in most patented works is different and smaller than in most copyrighted works": To him, patentable inventions

> usually embody strongly utilitarian solutions to very specific needs. We tend not to think of them as manifesting the personality of an individual, but rather as manifesting a raw, almost generic insight. In inventing the light bulb, Edison searched for the filament material that would burn the longest, not a filament that would reflect his personality. Marconi chose to use a particular wavelength for his radio because that wavelength could travel much farther than waves slightly longer, not because that wavelength was his preferred form of expression.[50]

That said, other scholars underscore a strong notion of the romantic inventor employing his or her particular brand of genius to create valuable scientific and technological works. As Mark Lemley puts it, "Think of Einstein the patent clerk, working late into the night on the theory of relativity, or Darwin the scientist-explorer, recording in his journal ideas that would shake the world."[51] Moreover, Keith Aoki observes that patent law confers rights on inventors that have employed a particular brand of creative genius.[52] In fact, Radin's characterization of the connection between personhood and control over one's resources seems just as apt for inventions as it does for artistic works protected by copyright law.[53]

While Radin discusses the general theory for property in depth, she merely notes that personhood theory has relevance to copyright law. Radin, *supra* note 43, at 1013 n.202.

[45] KWALL, *supra* note 39, at 25.

[46] Sonia K. Katyal, *Semiotic Disobedience*, 84 WASH. U. L. REV. 489 (2006).

[47] Sterk, *supra* note 3, at 1197.

[48] Lemley, *supra* note 30, at 1031-34.

[49] Roberta Rosenthal Kwall, *Originality in Context*, 44 HOUS. L. REV. 871, 874–75 (2007).

[50] Hughes, *supra* note 40, at 341-42.

[51] Mark A. Lemley, *Romantic Authorship and the Rhetoric of Property*, 75 TEX. L. REV. 873, 880 (1997); *accord* Keith Aoki, *Authors, Inventors and Trademark Owners*, 18 COLUM.-VLA J.L. & ARTS 191, 213-16 (1994).

[52] Aoki, *supra* note 51, at 217-18.

[53] *Supra* TAN 44.

All in all, an inventor might maintain personhood interests in his or her creations, but perhaps in different ways than those an author retains in his or her artistic works, an issue I return to in depth in Part II.[54]

Personhood theories typically suggest a broader scope of intellectual property protection than utilitarian and labor-desert theories. Margaret Radin theorizes that "[o]nce we admit that a person can be bound up with an external 'thing' in some constitutive sense, … by virtue of this connection the person should be accorded broad liberty with respect to control over that 'thing.'"[55]

The American government and commentators generally disclaim any significant presence of moral-rights protection within American copyright and patent law[56] beyond a limited right of attribution and integrity in visual arts enacted in 1990.[57]

C. Rhetoric of Moral Rights

Despite the dominance of the utilitarian framework in American intellectual property protection, scholars underscore historical and rhetorical uses of moral rights in copyright law.[58] Legal scholars similarly point to inventorship rhetoric in patent law. This section explores these scholars' discussions of these rhetorical relics of moral rights in American intellectual property law.

In the context of copyright, Oren Bracha writes:

> Authorship is copyright's ghost in the machine. In American culture, … the author—as the heroic creator of original intellectual works and as their rightful owner—looms large. The author plays an important role in popular understanding of copyright law…. Even in this postmodern era during which the "death of the author" has been proclaimed countless times, we often continue to picture solitary authors creating original ideas *ex nihilo* through their intellectual labors. This picture lies at the normative heart of our vision of copyright.[59]

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[54] *Infra* section II.B.2.

[55] Radin, *supra* note 43, at 960. *But see* Justin Hughes, *The Personality Interest of Artists and Inventors in Intellectual Property*, 16 CARDOZO ARTS & ENT. L.J. 81, 81-82 (1998) (noting the argument that "the creator's personality interest in her work must be balanced against the personality interest of consumers—who will be further creators—using her work in their own acts of creation/expression"); Jennifer E. Rothman, *Liberating Copyright*, 95 CORNELL L. REV. 463, 499-500 (2010) (same); John Tehranian, *Parchment, Pixels, & Personhood: User Rights and the IP (Identity Politics) of IP (Intellectual Property)*, 82 U. COLO. L. REV. 1 (2011) (same).

[56] Dastar Corp. v. Twentieth Century Fox Film Corp., 539 U.S. 23, 34-35 (2003); REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW 4 (Comm. Print 1961) [hereinafter COPYRIGHT OFFICE REPORT]; KWALL, *supra* note 39, at 23-26; Orrin Hatch, *Toward a Principled Approach to Copyright Legislation at the Turn of the Millennium*, 59 U. PITT. L. REV. 719, 722 (1998).

[57] Visual Artists' Rights Act, Pub. L. No. 101-650, §§ 601-610, 104 Stat. 5089, 5128-33 (1990) (codified at 17 U.S.C. § 106A); *see infra* section III.A (discussing attribution in this Act's context). *But see* H.R. REP. NO. 100-609, at 33-37 (1988) (asserting that pre-1990 copyright law granted moral rights required by the Berne Convention).

[58] Bracha, *supra* note 3, at 188; Peter Jaszi, *Toward a Theory of Copyright: The Metamorphoses of "Authorship"*, 1991 DUKE L.J. 455, 455.

[59] Bracha, *supra* note 3, at 188. Aspects of copyright law cannot be explained so easily in terms of authorship, such as the right's expansion over time. *See* Lemley, *supra* note 51, at 887 ("Has authorship gotten more romantic over time? Surely not since the invention of the romantic authorship concept,

By authorship, Bracha appears to be referring to its prototypical act by a prototypical actor: as Jane Ginsburg puts it, "a human being who exercises subjective judgment in composing the work and who controls its execution."[60]

Copyright's authorial focus first congealed in England in the early eighteenth century. It was in England that a true and extensive copyright system first arose, following on the heels of laws that had served to promote crown favoritism, printer monopolies, and censorship.[61] Soon after the printing press arrived in England in 1476, royal grants of privilege and patents to publishers for exclusive printing of certain books or types of books became common.[62] Once a publisher acquired an author's work, the author's rights were at an end.[63]

The author, however, was emerging as a central figure,[64] not in small part because of an emerging professional class of writers.[65] In 1710, came the Statute of Anne, upon which most subsequent copyright legislation worldwide would be based.[66] The stated purposes were to relieve authors from piracy and "for the Encouragement of learned Men to compose and write useful Books."[67] On its face, the printer's right became the author's right.

Oren Bracha meticulously describes the injection of authorship into American copyright in the eighteenth and nineteenth centuries.[68] In the eighteenth century, like England, the United States bestowed copyright on a work's author rather than its publisher.[69] Nineteenth century developments continued to emphasize the author's centrality in copyright law. For example, the requirement that works be original to the author to be copyrightable became a rhetorically central aspect of copyright law, even as courts rendered the originality threshold minimal.[70] Additionally, copyright scope expanded from protecting only against near verbatim duplication of works to "general control of an intellectual work."[71] Despite these manifestations of author centrality, authorial ownership of copyrights weakened in the nineteenth century through rules like the work-for-hire doctrine vesting many copyrights in employers.[72]

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which … traces to the eighteenth century."). Mark Lemley suggests that the phenomenon of propertization explains this expansion and other facets of copyright law. *Id.* at 874.

[60] Jane C. Ginsburg, *The Concept of Authorship in Comparative Copyright Law*, 52 DEPAUL L. REV. 1063, 1063-64, 1073-88 (2003). An exhaustive definition of authorship would surely be more complex (and tend to vary by country). *Id.* at 1064. The most important copyright treaty, the Berne Convention, principally permits member countries to define authorship as they see fit. *Id.* at 1069.

[61] BRUCE W. BUGBEE, GENESIS OF AMERICAN PATENT AND COPYRIGHT LAW 50 (1967).

[62] BENJAMIN KAPLAN, AN UNHURRIED VIEW OF COPYRIGHT 2-3 (1967).

[63] BUGBEE, *supra* note 61, at 51.

[64] Bracha, *supra* note 3, at 193; Ginsburg, *supra* note 60, at 1064.

[65] Lionel Bently & Jane C. Ginsburg, *"The Sole Right … Shall Return to the Authors"*, 25 BERKELEY TECH. L.J. (forthcoming 2010).

[66] Craig Joyce, *A Curious Chapter in the History of Judicature*, 42 HOUS. L. REV. 325, 361 (2005).

[67] Statute of Anne, 1710, 8 Ann., c.19 (Eng.).

[68] Bracha, *supra* note 3, at 189.

[69] *Id.*

[70] *Id.* at 190; Jaszi, *supra* note 58, at 483. *But cf. infra* section III.C (elaborating how the originality requirement can be an expressive incentive).

[71] Bracha, *supra* note 3, at 190.

[72] *Id.* at 191, 248-55; *see infra* sections III.A-B (discussing the work-for-hire doctrine in the contexts of attribution and duration).

In light of copyright's historical focus on authorship, its current rhetoric is similarly grounded, with its authorial focus, in moral rights. Bracha states that "[a]uthorship [i]s embedded in copyright law as an ideology," often in ways that do not realistically characterize actual authorship.[73] He concludes that "authorship in modern copyright discourse [is] merely a harmless declaratory layer of rhetoric, a relic of bygone times that has little influence on 'real' copyright law."[74]

By contrast, Stewart Sterk is convinced that this rhetoric is harmful, in that it results in an overprotective copyright law unmoored from utilitarian realities.[75] He observes that this rhetoric "evokes sympathetic images of the author at work," with the aim of "extending the scope of copyright protection [to] reliev[e] the author's plight."[76] Sterk notes that this author-centered rhetoric has accompanied most attempts (often successful) at expanding copyright protection.[77] As a result, he thinks that copyright law protects works, like architectural designs, that did not need the copyright incentive to be made.[78] He also argues that copyright law's attempts to reward deserving authors are misplaced because "[t]he beneficiaries of expanded copyright doctrine often are not struggling authors but faceless corporate assignees well-versed in the ways of the business world."[79]

A similar story of rhetoric might be told in patent law. Despite the scarcity of moral-rights invocations in patent law, scholars observe rhetoric in patent law depicting the inventor as a romantic individual who infuses inventive genius into his or her creations.[80] For one thing, patent rights initially vest in inventors, who must technically file a patent application, even in the now common case of corporate assignment of patent rights.[81] Moreover, an inventor's name will always remain on a patent for his or her invention, even if someone else owns the patent rights.[82]

In sum, according to conventional wisdom, utilitarian thinking dominates American justifications of intellectual property law, but there are also voices proclaiming moral rights—in its two flavors of labor-desert and personhood—as the legal rationale. Supplementing these voices are scholars who highlight significant rhetoric about authorship and inventorship in intellectual property laws.

II. EXPRESSIVE INCENTIVES IN INTELLECTUAL PROPERTY

In this Part, I show that theories of utilitarianism and moral rights are not disjoint, as conventional wisdom tends to suggest. I demonstrate that they can work together harmoniously to maximize societal benefit from improved production of artistic, scientific, and technological works. Relatedly, the scholarly emphasis on moral-rights

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[73] Bracha, *supra* note 3, at 266-67.
[74] *Id.* at 267.
[75] Sterk, *supra* note 3, at 1197.
[76] *Id.*
[77] *Id.* at 1199.
[78] *Id.* at 1197-98.
[79] *Id.* at 1198.
[80] JAMES BOYLE, SHAMANS, SOFTWARE, & SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY 128-30 (1996); Aoki, *supra* note 51, at 213-16; Steven Cherensky, Comment, *A Penny for Their Thoughts*, 81 CAL. L. REV. 597, 599-600, 605 (1993).
[81] Cherensky, *supra* note 80, at 599-600, 605, 649 (citing 35 U.S.C. § 111).
[82] Hughes, *supra* note 50, at 351; *infra* section III.B (discussing attribution in patent law).

rhetoric in intellectual property law overlooks the substantive impact expressions of solicitude for and protections of moral rights can have on stimulating valuable copyrightable and patentable creations.

Evidence from multiple vantage points demonstrates how significantly authors and inventors care about their moral rights in the works they create. These creators tend to have a constellation of beliefs vis-à-vis their works that together stress their strong personhood and labor interests in these works. Pertinently, as discussed below, they believe that their self-concept is critically bound up in their creations, they are uniquely situated to employ their personal vision and genius to create their works, they create in large part for reputational gains, they psychologically possess their creations, and they frequently hold strong interests in their works' integrity.[83]

As such, utilitarians ought to be deeply occupied with giving weight in intellectual property laws to creators' moral-rights interests. Utilitarians, focused on providing for society's gain via a minimal incentive for maximal artistic, scientific, and technological production, ought to appreciate that expressing solicitude in copyright and patent law for creators' moral rights in a variety of ways can provide expressive incentives to creators to create, perhaps in ways that traditional pecuniary incentives do not. In building this case for expanding the concept of intellectual property's incentives to include expressive incentives as well as traditional pecuniary ones, I draw parallels to literature on law and norms and expressive theories of the law. This literature has been underutilized in intellectual property discussions with regard to incentives within copyright and patent law.[84] I also emphasize the consistency of my inclusive notion of expressive incentives with philosophical work on utilitiarianism.

Section A discusses the possibility of connecting utilitarianism and moral rights. Section B provides the lynchpin for this combination, by setting out the evidence that authors and inventors care deeply about their personhood and labor interests in their creations. As such, utilitarianism ought to give serious weight to expressive incentives to authors and inventors, where appropriate. Section C builds further support for expressive incentives by grounding the notion in scholarship on law and norms, expressive theories of law, and philosophical utilitarianism.

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[83] *Infra* section B.

[84] Legal scholarship discusses norms with regard to regimes outside the scope of traditional intellectual property laws. *E.g.*, Emmanuelle Fauchart & Eric von Hippel, *Norms-Based Intellectual Property Systems: The Case of French Chefs*, 19 ORG. SCI. 187 (2008) (cooking); Jacob Loshin, *Secrets Revealed: How Magicians Protect Intellectual Property Without Law*, *in* LAW AND MAGIC: A COLLECTION OF ESSAYS 123 (Christine A. Corcos ed., 2010) (magic); Dotan Oliar & Christopher 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 (2008) (stand-up comedy). There is also scholarship on norms and its relationship to copyright and patent law. *E.g.*, Arti Kaur Rai, *Regulating Scientific Research: Intellectual Property Rights and the Norms of Science*, 94 NW. U. L. REV. 77 (1999) (norms against securing exclusive patent rights); Jennifer E. Rothman, *The Questionable Use of Custom in Intellectual Property*, 93 VA. L. REV. 1899 (2007) (scope of rights); Sean B. Seymore, *Rethinking Novelty in Patent Law*, 60 DUKE L.J. 919 (2011) (patent novelty); John Tehranian, *Infringement Nation: Copyright Reform and the Law/Norm Gap*, 2007 UTAH L. REV. 537 (copyright infringement).

A. Connecting Utilitarianism and Moral Rights

The theories of utilitarianism and moral rights, as just presented in the previous Part, are almost always seen as disjoint.[85] Scholars typically choose just one of the theories on which to hang their views of intellectual property. Why these views seem incompatible to so many usually goes unanalyzed. Nonetheless, explicit evaluators note that utilitarian theories are more concerned with maximizing benefit to society via a properly calibrated incentive to creators whereas moral-rights theories more heavily emphasize creators' interests.[86] Occasionally, as demonstrated in the previous Part, thinkers appreciate the historical or rhetorical force of moral-rights thinking, all the while making utilitarianism supreme in setting policy.[87]

Nonetheless, there is a modicum of valuable scholarship that suggests that utilitarian and moral-rights theories or values can overlap in crafting intellectual property laws.[88] In the context of arguing that copyright law's work-for-hire doctrine ought not to be applied to university academics' works, Rochelle Dreyfuss argues that the utilitarian approach of maximizing the public interest ought to seek to optimize artistic works' quality by giving authors control of their works in some circumstances.[89] As she explains, "Severing financial considerations from other creative concerns harms … those [interests] of the public in high-quality, accessible, creative material."[90] Dreyfuss's insight about the interaction of utilitarian and moral-rights theory is that utilitarian intellectual property laws ought to be concerned also with the quality of works produced, something that had been a traditional focus of author-centered moral-rights theories.[91]

In another vein, Alfred Yen observes that both utilitarianism and moral rights should guide the structure of intellectual property laws.[92] Discussing only copyright law, Yen sets forth two reasons. First, he sets out evidence that American law, both historically and at present, views copyright as a tool to effectuate both utilitarianism and moral rights.[93] Second, Yen argues that the economic thinking necessary to implement utilitarian intellectual property laws cannot answer all necessary questions, such as getting hold of reliable data on individual preferences necessary for calculating utilities.[94]

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[85] *E.g.*, Brown, *supra* note 31, at 607; Julie E. Cohen, *Creativity and Culture in Copyright Theory*, 40 U.C. DAVIS L. REV. 1151, 1155-57 (2007); Jane C. Ginsburg, *A Tale of Two Copyrights: Literary Property in Revolutionary France and America*, 64 TUL. L. REV. 991, 993-94, 1023 (1990); Radin, *supra* note 43, at 984-86; Jessica Silbey, *The Mythical Beginnings of Intellectual Property*, 15 GEO. MASON L. REV. 319, 319 (2008).

[86] Ginsburg, *supra* note 85, at 993-94, 1023.

[87] *Supra* TAN 58-82.

[88] *Cf.* Eyal Zamir & Barak Medina, *Law, Morality, and Economics: Integrating Moral Constraints with Economic Analysis of Law*, 96 CAL. L. REV. 323, 325-28 (2008) (providing a general model for incorporating threshold deontological constraints into economic analysis of the law).

[89] Dreyfuss, *supra* note 4, at 590-93, 643.

[90] Dreyfuss, *supra* note 4, at 606. For example, Dreyfuss reasons that granting copyright ownership to universities for academic writing might inhibit authors' creativity by emphasizing the popular taste to which the university would likely want the work to appeal over perhaps more controversial topics. *Id.* at 609-12. Dreyfuss makes parallel arguments for control of academic works' dissemination, *see id.* at 615-20 (arguing that university control of the timing of dissemination might dampen both the work's quality and the author's reputation), and derivative works, *id.* at 624.

[91] *Id.* at 643.

[92] Yen, *supra* note 4, at 164; *accord* Fisher, *supra* note 28.

[93] *Id.* at 164-64.

[94] *Id.* at 169-72.

He suggests that in those cases, it is useful to supplement intellectual property rules with moral-rights interests.[95]

This scholarship helpfully shows that utilitarianism and moral rights can play a joint role in structuring the substantive aspects of intellectual property laws. Herein, I take a different approach to establish that utilitarianism and moral rights can be and ought to be in greater confluence than the conventional wisdom would have us believe. That is, solicitude for, and sometimes protection of, creators' moral rights can strengthen utilitarian incentives in copyright and patent law, thereby melding the two theories together in an underexplored way.[96] In the next section, I show that evidence from numerous perspectives strongly shows that artists and inventors hold strong and central labor and personhood interests in the works that they create. So as to maximize the utilitarian incentive to create valuable works for society, then, it is helpful to complicate our understanding of incentives beyond traditional pecuniary incentives to include expressive incentives that convey solicitude for and effectuate these labor and personhood interests, thereby maximizing the creative incentive, for the benefit of society.[97]

B. Creators' Strong Beliefs in Moral Rights

This section inspects considerable evidence from many vantage points—including philosophy, psychology, sociology, and the arts—to demonstrate how comprehensively and strongly many creators of artistic, scientific, and technological works believe in their moral rights in their works. Taken together, a constellation of interests creators typically possess about their works yields a strong conclusion about creators' deep conviction in their moral rights.

Before delving into creators' beliefs vis-à-vis their works, a clarification is in order. Beside the point of my inquiry is whether these creators' beliefs reflect the process by which individuals (or groups of individuals) end up creating artistic, scientific, and technological works. My focus instead is on how individuals tend to perceive their creations and creative process, because that is critical for optimizing the incentives that can actually motivate creators to innovate. Therefore, while research inquiries doubting the centrality of any particular authors or inventors to their works' creation are interesting,[98] they are not germane to my analysis. These theories have not typically

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[95] *Id.*

[96] This harmonization focuses on traditional accounts of utilitarianism rather than on commercialization theory, as set out in Abramowicz & Duffy, *supra* note 26.

[97] *Cf.* David Fagundes, *Property Rhetoric and the Public Domain*, 94 MINN. L. REV. 652, 660 (2010) ("In legal discourse, [rhetoric's] appeal has two valences. First, rhetoric frames legal arguments, and those frames determine what substantive legal analysis applies to the issue at hand. Second, the choice to use particular terms can persuade—or dissuade—by calling up particular associations that generate visceral reactions in listeners."); Jessica Silbey, *Comparative Tales of Origins and Access: Intellectual Property and the Rhetoric of Social Change*, 61 CASE W. RES. L. REV. 195 (2010) (same).

[98] Some sociological work labels the centrality of any individual's genius to his or her inventions "mythology," and places the emphasis instead on sociological factors that make almost any individual's role incidental rather than crucial. S.C. GILFILLAN, THE SOCIOLOGY OF INVENTION 10-11, 71 (1935). As an example of such evidence, this work points to the frequency of near-simultaneous inventions. *Id.* at 75-76. *See generally* Mark A. Lemley, *The Myth of the Lone Inventor*, 110 MICH. L. REV. (forthcoming 2012) (discussing implications for patent law). With regard to literary works, one robust strand of literary analysis has sought to show that the author ought not be the central figure in literary works, above and

affected norms about the personhood and labor interests authors and inventors have in their creations and therefore do not affect what would realistically motivate these creators.

I separate my discussion on authors' beliefs from that of inventors'. Although derived from different sources, much that is said about one will apply to the other. Nonetheless, the moral-rights interests authors have in their works likely differ in some important ways from those inventors have in their creations.

1. Authors

In a recent book on writing, the author Margaret Atwood offers three pages of reasons why she writes. Many relate to an author's personhood and labor interests: to list a few, "To express myself"; "Because I knew I had to keep writing or else I would die"; "Because to create is human. Because to create is Godlike"; "To amuse and please myself"; "Because I was possessed"; "Because I got pregnant by the Muse and needed to give birth to a book"; "To act out antisocial behavior for which I would have been punished in real life"; "To satisfy my desire for revenge"; "Because the story took hold of me and wouldn't let go"; "To search for understanding of the reader and myself"; "To bear witness to horrifying events that I have survived"; and "To make a name that would survive death."[99] Some of these are about an author harnessing personal emotions or history into an artistic product. Others are about satisfying some deeply felt personal urge to create something intrinsically linked to one's self-concept. Yet others invoke the author's concern with reputation. What they share, nonetheless, as this section shows, is how intrinsically linked these reasons are to authors' personhood interests and how commonly held similar beliefs are.

One critical belief authors usually have about their creations is that they are intimately linked to their self-concept. Philosophical and psychological work demonstrates that one's possessions are tightly bound up in a person's self-concept.[100] Objects over which people have control or which they themselves have created or manipulated are more likely to be perceived as part of a person's self-concept than other types of objects.[101] In this context, psychological benefits shown to flow from this connection to one's possessions include the experience of efficacy, a feeling of personal autonomy, and a positive association between these possessions and one's sense of

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beyond, say, the audience that interprets these works, those literary works from which the author is inspired and borrows, and the publisher that distributes and markets these works. DAVID SAUNDERS, AUTHORSHIP AND COPYRIGHT 5-9 (1992); LIOR ZEMER, THE IDEA OF AUTHORSHIP IN COPYRIGHT 6 (2007); Martha Woodmansee, *On the Author Effect: Recovering Collectivity*, *in* THE CONSTRUCTION OF AUTHORSHIP, *supra* note 8, at 15, 16-17.

[99] MARGARET ATWOOD, NEGOTIATING WITH THE DEAD: A WRITER ON WRITING xx-xxii (2002).

[100] MIHALYI CSIKSZENTMIHALYI & EUGENE ROCHBERG-HALTON, THE MEANING OF THINGS: DOMESTIC SYMBOLS AND THE SELF 16 (1981); John Christman, *Distributive Justice and the Complex Structure of Ownership*, 23 PHIL. & PUB. AFF. 225, 235-36 (1994); Lita Furby, *Possessions: Toward a Theory of Their Meaning and Function Throughout the Life Cycle*, 1 LIFE-SPAN DEV. & BEHAV. 297, 317-24 (1978); Jon L. Pierce, Tatiana Kostova & Kurt T. Dicks, *The State of Psychological Ownership*, 7 REV. GEN. PSYCHOL. 84, 85-86 (2003).

[101] Furby, *supra* note 100, at 311-13; Pierce, Kostova & Dicks, *supra* note 100, at 92-93; Ernst Prelinger, *Extension and Structure of the Self*, 47 J. PSYCH. 13, 17-18 (1959); Radin, *supra* note 43, at 959-61; F.W. Rudmin & J.W. Berry, *Semantics of Ownership*, 37 PSYCHOL. REC. 257, 257 (1987).

self.[102] Margaret Radin theorizes a tight bond between self and object when the object is personal (such as someone's own wedding ring), rather than fungible with another item of at least equal market value (such as a purchased wedding ring in a jeweler's hands).[103] Psychologist Lita Furby discerns, moreover, that people think something is theirs when it is associated with them.[104]

Likely for all of these reasons, people experience these possessory and self-concept effects with their artistic creations, especially because they made them and they are far from fungible.[105] A striking illustration of this notion comes from the novelist Anne Lamott, who states with regard to writing published in her childhood, "I understood immediately the thrill of seeing oneself in print. It provides some sort of primal verification: you are in print; therefore you exist."[106] Another comes from John Milton's characterization of books containing authors' essence: "We should be wary … what persecution we raise against the living labors of public men, how we spill that seasoned life of man preserved and stored up in books; since we see a kind of homicide may be thus committed, sometimes a martyrdom; and if it extend to the whole impression, a kind of massacre."[107]

A feeling of psychological ownership in these works—even absent legal ownership—according to one group of psychologists, "helps people define themselves, express their self-identity to others, and maintain the continuity of the self across time."[108] People feel a sense of psychological ownership when they "control[an object], com[e] to know the target intimately, and invest[] the self in the target."[109] All three seem to happen in varying—but pertinent—ways when authors create artistic works, typically by expending great amounts of time and energy to author highly personal works.[110] Coinciding with this view is the metaphor of author as parent to his or her literary works, commonly invoked since the sixteenth century.[111]

Because of this possessory interest authors have in their creations, they frequently believe strongly in their works' integrity, in the sense that they ought to be able to

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[102] Christman, *supra* note 100, at 236-37; Pierce, Kostova & Dicks, *supra* note 100, at 88-90.
[103] Radin, *supra* note 43, at 959-60.
[104] Furby, *supra* note 100, at 314; *accord* MEIR DAN-COHEN, HARMFUL THOUGHTS: ESSAYS ON LAW, SELF, AND MORALITY 264-92 (2002).
[105] CSIKSZENTMIHALYI & ROCHBERG-HALTON, *supra* note 100, at 28; Pierce, Kostova & Dicks, *supra* note 100, at 86, 93-94; *accord* G.W.F. HEGEL, PHILOSOPHY OF RIGHT §§ 68-69, at 54-56 (T.M. Knox trans., Oxford University Press, 1952); Hughes, *supra* note 55, at 87-88. On authors' belief that their creations are personal and not fungible, see *infra* TAN 117-129.
[106] ANNE LAMOTT, BIRD BY BIRD: SOME INSTRUCTIONS ON WRITING AND LIFE xiv (1994).
[107] JOHN MILTON, AREOPAGITICA; A SPEECH FOR THE LIBERTY OF UNLICENC'D PRINTING, TO THE PARLAMENT OF ENGLAND (1644); *accord* Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 250 (1903) (Holmes, J.); Thomas F. Cotter, *Pragmatism, Economics, and the Droit Moral*, 76 N.C. L. REV. 1, 7-8 (1997); Hughes, *supra* note 50, at 329-30; Samuel Warren & Louis Brandeis, *The Right To Privacy*, 4 HARV. L. REV. 193, 207 (1890).
[108] Pierce, Kostova & Dicks, *supra* note 100, at 89.
[109] *Id.* at 92.
[110] Jeanne C. Fromer, *A Psychology of Intellectual Property*, 104 NW. U. L. REV. 1441 (2010). The fact that creators value their works more highly than do purchasers and owners of these works, Christopher Buccafusco & Christopher Jon Sprigman, *The Creativity Effect*, 78 U. CHI. L. REV. 31 (2011), is likely related, at least partially, to these personhood interests.
[111] MARK ROSE, AUTHORS AND OWNERS: THE INVENTION OF COPYRIGHT 38 (1993).

prevent their works from alteration.[112] As Michelangelo illustrates in his explanation of his control of his commissioned painting of the Sistine Chapel,

> As soon as I had begun this work … I told the Pope how, in my opinion, the placing of the Apostles there alone would have a very poor effect. He asked why, and I replied, "Because they also were poor." He then gave me fresh instructions, which left me free to do as I thought best.[113]

Similarly, many authors have strong feelings about controlling the contexts in which their works are used. For example, photographer Richard Avedon, in licensing his works, sought to forbid other photographs from appearing on the same page as his.[114] There is a countervailing view, as articulated by Amy Adler, of "the profound artistic importance of modifying, even destroying, works of art, and of freeing art from the control of the artist."[115] Adler suggests that a view that artists have integrity interests in their work has become increasingly obsolete.[116]

Beyond the strong influence of artists' creations on their self-concept (and concomitant desire for integrity many have), much else about authorship is considered to be highly personal. Authors typically view the process of creation as both personal and subjective.[117] Filmmaker Francis Ford Coppola conveys the most important piece of advice for his children, who work in the arts: "Always make your work be personal."[118] As I explore in prior work on creativity's role in intellectual property law, artists are pre-occupied with "harnessing experiences and themes for artistic expression."[119] Painter Henri Matisse observes that he is "unable to distinguish between the feeling [he] ha[s] for life and [his] way of expressing it."[120] Creativity scholars Jacob Getzels and Mihalyi Csikszentmihalyi recount that the goal of the "artist . . . [is] to be sensitive to salient life experiences, and to translate these into [artistic] products, thereby preserving as much of the impact of the experience as possible, while at the same time revealing meanings that were not perceived before the work of art was completed."[121] Csikszentmihalyi elaborates that "[a]rtists find inspiration in 'real' life—emotions like love and anxiety, events like birth and death, the horrors of war, and a peaceful afternoon in the

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[112] Carter v. Helmsley-Spears, Inc., 71 F.3d 77, 81 (2d Cir. 1995).
[113] Letter from Michelangelo to Ser Giovan Francesco Fattucci, Jan. 1524, *reprinted in* ARTISTS ON ART 61-62 (Robert Goldwater & Marco Treves eds., 1945).
[114] *Artists Get No Respect*, 28 COLUM. J.L. & ARTS 435, 444-45 (2005) (statement of Eugene Mopsik).
[115] Amy M. Adler, *Against Moral Rights*, 97 CAL. L. REV. 263, 265 (2009).
[116] *Id.*
[117] ROSE, *supra* note 111, at 113-29; Fromer, *supra* note 110, at 1467; Jane C. Ginsburg, *Creation and Commercial Value*, 90 COLUM. L. REV. 1865, 1881-88 (1990); Rebecca Tushnet, *Economies of Desire*, 51 WM. & MARY L. REV. 513, 516 (2009).
[118] Ariston Anderson, *Francis Ford Coppola: On Risk, Money, Craft & Collaboration*, THE 99 PERCENT, http://the99percent.com/articles/6973/Francis-Ford-Coppola-On-Risk-Money-Craft-Collaboration (last visited Jan. 29, 2011).
[119] Fromer, *supra* note 110, at 1467; *accord* CSIKSZENTMIHALYI & ROCHBERG-HALTON, *supra* note 100, at 28; Dreyfuss, *supra* note 4, at 607.
[120] ARTISTS ON ART, *supra* note 113, at 410; *accord id.* at 471 ("I believe that the great painters … have attempted to force this unwilling medium of paint and canvas into a record of their emotions.") (quoting painter Edward Hopper).
[121] JACOB W. GETZELS & MIHALY CSIKSZENTMIHALYI, THE CREATIVE VISION 154 (1976).

country."[122] There is a seemingly endless supply of instances of this principle: Spanish painter Pablo Picasso's painting *Guernica* was inspired by his views on the destruction of the Spanish Civil War, fought during his lifetime.[123] Philip Roth's novels about secular American Judaism in the face of Jewish tradition[124] mirror the world in which he grew up.[125] The latest novel by Israeli author David Grossman, about a mother coping with her son's battles in the Israeli Army, works through the pains he endured following his children's service in the same army and one child's death in battle.[126] And slightly more lowbrow, a novel by reality television star Nicole Richie, the adopted daughter of the singer Lionel Richie, is about the Hollywood lifestyle of the adopted daughter of a famous singer.[127]

Closely related to this widespread view that artists infuse their creations with their experiences and emotions is the conventional position that artists are creative geniuses.[128] As such, they are thought to employ their originality in ways that only they could.[129]

Additionally, to authors, the artistic works they create are a vehicle for their reputational interests, surely strong personhood interests. A key reason many authors create literary works is expectation of reputational benefits, such as recognition and attention.[130] For example, in the context of open-source production of software, scholars provide evidence that a quest for reputation has largely driven the enterprise.[131]

Finally, there is a widely held belief that authors are entitled to some control over their works, for having labored on them.[132] William Blackstone articulates this commonly held principle: "When a man by the exertion of his rational powers has produced an original work, he has clearly a right to dispose of that identical work as he pleases, and any attempt to take it from him, or vary the disposition he has made of it, is an invasion of his right of property."[133]

All in all, this section shows a collection of beliefs that authors typically hold (as society at large often does too) about their strong personhood and labor interests in the works they create. With this demonstration, I now turn to the beliefs that inventors tend to hold with regard to their creations.

2. Inventors

As this section shows, the set of beliefs inventors hold with regard to their inventions is similar to those artists hold about their works. However, they are not

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[122] MIHALY CSIKSZENTMIHALYI, CREATIVITY 85 (1996).
[123] GIJS VAN HENSBERGEN, GUERNICA: THE BIOGRAPHY OF A TWENTIETH-CENTURY ICON (2004).
[124] *E.g.*, PHILIP ROTH, THE GHOST WRITER (1979); PHILIP ROTH, PORTNOY'S COMPLAINT (1969).
[125] PHILIP ROTH, THE FACTS: A NOVELIST'S AUTOBIOGRAPHY (1988).
[126] Ethan Bronner, *An Israeli Novelist Writes of Pain, Public and Private*, N.Y. TIMES, Nov. 17, 2010, at C1 (citing DAVID GROSSMAN, TO THE END OF THE LAND (2010)).
[127] NICOLE RICHIE, THE TRUTH ABOUT DIAMONDS: A NOVEL (2005).
[128] ROSE, *supra* note 111, at 6, 113-29; Catherine L. Fisk, *Authors at Work: The Origins of the Work-for-Hire Doctrine*, 15 YALE J.L. & HUMAN. 1, 5 (2003); Woodmansee, *supra* note 98, at 16, 21.
[129] Dreyfuss, *supra* note 4, at 607.
[130] Greg Lastowka, *Digital Attribution*, 87 B.U. L. REV. 41, 58 (2007).
[131] ERIC S. RAYMOND, THE CATHEDRAL AND THE BAZAAR 64 (1999); Lastowka, *supra* note 130, at 59.
[132] Adam D. Moore, *A Lockean Theory of Intellectual Property*, 21 HAMLINE L. REV. 65, 78 (1997).
[133] 2 WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND *405-06; *accord* ROSE, *supra* note 111, at 34-38 (describing Daniel Defoe's similar writings).

identical. Even though both artists and inventors believe they have personhood and labor interests in their works, there appear to be some crucial differences.

Just as authors believe their creations are intimately linked to their self-concept,[134] so too inventors think their inventions are closely linked to theirs. Given that they created their inventions, they tend to feel tightly bound to them.[135] In fact, inventors discuss how much their inventions are a part of their identity.[136] Relatedly, empirical work demonstrates the considerable significance inventors attach to the personal satisfaction and the intellectual challenge they derive from inventing.[137] Psychological work also shows that the desire for self-expression is a main reason why inventors invent.[138]

An extreme story illustrates the strong connection inventors can feel to their creations. In the 1980s, Petr Taborsky worked for a Florida power company, having been assigned to assist on a research project using bacteria to extract ammonia from a clay used in filtering water.[139] The company terminated the project after it appeared that it would not be successful and reassigned Taborsky to work on other tasks. Taborsky, captivated by the research problem, nonetheless, continued to work on the original research question.[140] Taborsky figured out how to use bacteria to accomplish this extraction.[141] Taborsky was stunned to learn that he had no legal rights in the invention, having signed them away to his employer in his contract.[142] Angry and determined, he refused to turn over his research notebooks.[143] Taborsky fought so far as being convicted of theft of the notebooks, being jailed for refusing to assign to the company the patents he ultimately secured for the invention, and later refusing an executive pardon.[144] Taborsky stated that he was willing to go to jail because his employers "weren't entitled to" his invention.[145] Although he was likely driven in part by pecuniary considerations, the extent to which he was willing to be punished was surely underscored by his personhood-

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[134] *Supra* TAN 100-111.

[135] Pierce, Kostova & Dicks, *supra* note 100, at 94.

[136] *E.g.*, *Ride, Sally, Ride*, INVENTORS DIG. , http://www.inventorsdigest.com/?p=1196 (last visited Feb. 4, 2011) (statement of Sally Ride); *see* J.A. Chambers, *Relating Personality and Biographical Factors to Scientific Creativity*, 78 PSYCHOL. MONOGRAPHS: GEN. & APP. 1, 6 (1964). There is a countervailing norm in the sciences, that of a form of communism, in that "[t]he substantive findings of science are a product of social collaboration and are assigned to the community." ROBERT K. MERTON, THE SOCIOLOGY OF SCIENCE 273 (1973). Merton's thinking might hold more strongly for the scientific community generating theories, than for technological innovators. The former is less relevant to intellectual property, as scientific theories typically are not protectable, while innovation based on those theories is. Fromer, *supra* note 110.

[137] ALFONSO GAMBARDELLA ET AL., THE VALUE OF EUROPEAN PATENTS: EVIDENCE FROM A SURVEY OF EUROPEAN INVENTORS 4-5, 35-36, 36 tbl. 5.1 (2005), *available at* http://www.alfonsogambardella.it/PATVALFinalReport.pdf; Henry Sauermann & Wesley M. Cohen, *What Makes Them Tick? Employee Motives and Firm Innovation*, 56 MGMT. SCI. 2134, 2134 (2010); John P. Walsh & Sadao Nagaoka, *Who Invents?: Evidence from the Japan-US Inventor Survey* 22 (July 5, 2009), *available at* http://www.prism.gatech.edu/~jwalsh6/inventors/WhoWalshNagaoka090707FinalUS.pdf.

[138] JOSEPH ROSSMAN, INDUSTRIAL CREATIVITY: THE PSYCHOLOGY OF THE INVENTOR 200 (1964).

[139] Leon Jaroff, *Intellectual Chain Gang*, TIME, Feb. 10, 1997, at 64.

[140] *Id.*

[141] *Id.*

[142] *Id.*

[143] *Id.*

[144] *Id.*

[145] IPADVOCATE.ORG, TABORSKY CASE STUDY: WASTEWATER TREATMENT 8, *at* http://www.ipadvocate.org/studies/taborsky/Taborsky.pdf (last visited Jan. 22, 2011).

based determination, in his words, that "the notebooks were mine and the work was mine."[146]

Another personhood interest that inventors, and society writ large, believe is that inventors are creative geniuses, uniquely situated to fashion their inventions.[147] Catherine Fisk elaborates that "[t]he popular and even the academic vision of invention in the nineteenth century was that of the genius alone in his workshop, tinkering away until suddenly a bright idea came to him in a flash."[148] A quintessential (and somewhat mythical) example is Thomas Edison, depicted as laboring and tinkering with possibilities for the light bulb and then coming up with a solution in a stroke of genius.[149] Thomas Jefferson, a noted inventor himself, colorfully called inventions "the fugitive fermentation of an individual brain."[150] Fisk observes that this view has been so longstanding that "[b]y the nineteenth century, … it was so widely accepted as to seem a matter of natural right."[151] Twentieth-century psychological work confirms the continuing endurance of this belief, showing that an inventor's most important perceived characteristic is originality.[152]

Take Johannes Gutenberg's invention of the printing press as but one example of an inventor's unique situatedness. A critical step in Gutenberg's invention required solving how to press paper to affix images or type.[153] Gutenberg did so when he was participating in a wine harvest, which led him to draw a connection between using the principles for pressing grapes to make wine to press paper to affix images or type.[154] This illustration suggests what sociologist Robert Merton has shown more systematically, that "[o]nce a scientific problem has been defined, profound individual differences among scientists will affect the likelihood of reaching a solution."[155]

This belief that inventors are uniquely placed to solve particular problems in certain ways is not identical to views about authors' uniquely personal connection to their artistic works. Inventors, unlike authors, are ultimately guided to their creations by functional considerations of solving a particular problem, such as cooling air, creating software to encrypt communications, or providing a vaccine for polio.[156] A poignant childhood memory, vacation experience, or lasting emotion might help guide the inventor's mind to particular scientific and technological problems to study or successful problem solutions.[157] However, if personal emotions, memories, or themes do not help solve a particular problem inventors will be guided away from them and by functional

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[146] *Morning Edition: Disputes Arise over Intellectual Property Rights* (NPR radio broadcast Sept. 30, 1996), *transcript at* http://www.cptech.org/ip/npr.txt.

[147] GILFILLAN, *supra* note 98, at 72; Catherine L. Fisk, *Removing the 'Fuel of Interest' from the 'Fire of Genius': Law and the Employee-Inventor, 1830-1930*, 65 U. CHI. L. REV. 1127, 1133, 1137-38, 1160 (1998); Hughes, *supra* note 55, at 143-45.

[148] Fisk, *supra* note 147, at 1160.

[149] *Id.* at 1161.

[150] Letter from Thomas Jefferson to Isaac McPherson, *in* THE WRITINGS OF THOMAS JEFFERSON 333 (Saul K. Padover ed., 1967).

[151] Fisk, *supra* note 147, at 1142.

[152] ROSSMAN, *supra* note 138, at 48.

[153] DEAN KEITH SIMONTON, SCIENTIFIC GENIUS: A PSYCHOLOGY OF SCIENCE 34-35 (1988).

[154] *Id.*

[155] MERTON, *supra* note 136, at 349.

[156] *Id.* at 349; Fromer, *supra* note 110, at 1468-71; *supra* TAN 49-50.

[157] WILLIAM KINGSTON, INNOVATION, CREATIVITY, AND LAW 89 (1990).

considerations to particular solutions.[158] Inventions have an expressive element in the ways identified above, but they might be superseded by functional considerations. For Gutenberg, if his experience with grape presses did not help solve the problem of affixing print to paper, Gutenberg likely would have searched elsewhere—possibly beyond his personal experiences and emotions—to find a solution.[159]

User innovators are one subset of inventors likely to have strong personhood interests in their inventions.[160] They are users of commercial products that rely on their experiential needs to modify these products to satisfy their own needs.[161] As Katherine Strandburg illustrates with mountain biking equipment, "user innovations often depended on information that the inventors had obtained through their own cycling experience, reflecting their own unique circumstances and interests, such as a desire to bike in extreme weather conditions or to perform acrobatic stunts."[162] Their principal goal is to improve commercial products to which they have a personal connection based on use or reputation within the relevant user community.[163] These motivations are frequently romantic and personal. User innovators, explains Strandburg, "may be more likely to be personally invested in their inventions and more likely to believe that there are 'acceptable' and 'unacceptable' uses for them."[164] Thus, user innovators might strongly hold personhood interests in their advancements.

Inventors' regard for their inventions' integrity might be strong, given their heavy personhood interests.[165] That said, their integrity interests are less at risk than authors'.[166] If a third party makes changes to someone's invention, that invention might no longer work, thus discouraging such changes.[167] By contrast, the public might readily consume changed artistic works, at a detriment to authors' integrity.[168] Therefore, while inventors' integrity interests might be strong, they are somewhat less at risk than authors'.

Another personhood aspect vital to inventors is their reputational interest. Empirical studies show that inventors are heavily concerned with the prestige and

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[158] Fromer, *supra* note 110, at 1468-71; *see* MICHAEL J. GELB & SARAH MILLER CALDICOTT, INNOVATE LIKE EDISON 47-82 (2007) (highlighting Thomas Edison's "solution-centered mindset" as essential to his inventive success).

[159] In parallel, the audience for artistic works is frequently interested in understanding a creator's intended meaning. Hughes, *supra* note 55, at 142-43. By contrast, the audience for inventions is typically not. *Id.*

[160] ERIC VON HIPPEL, DEMOCRATIZING INNOVATION (2005); ERIC VON HIPPEL, THE SOURCES OF INNOVATION (1988); Katherine J. Strandburg, *Users as Innovators: Implications for Patent Doctrine*, 79 U. COLO. L. REV. 467, 468-69, 478-81 (2008). Like creators, users of copyrightable and patentable works generally can have personhood interests in the works they consume but did not create. Julie E. Cohen, *The Place of the User in Copyright Law*, 74 FORDHAM L. REV. 347 (2005); Jessica Litman, *Creative Reading*, 70 LAW & CONTEMP. PROBS. 175 (2007); Rothman, *supra* note 55. That insight's implications are crucial to ensuring the correct overall intellectual property scope and duration but are beyond this Article's scope.

[161] Strandburg, *supra* note 160, at 479-80.

[162] *Id.* at 480-81.

[163] William W. Fisher III, *The Implications for Law of User Innovation*, 94 MINN. L. REV. 1417, 1418-30 (2010); Strandburg, *supra* note 160, at 469-70, 481.

[164] Strandburg, *supra* note 160, at 498.

[165] Dreyfuss, *supra* note 4, at 641.

[166] *Id.*

[167] *Id.*

[168] *Id.*

reputation that can result from their creative activities.[169] Robert Merton, despite describing a communism pervading the scientific community,[170] observes that scientific norms give innovators a claim to "recognition and esteem," such as via eponymy for their results (as in the Copernican system or Boyle's law).[171] This reputation interest is so important, in Merton's view, that society's systems of priority in discovery are designed to protect this interest.[172] If the view that almost all innovations are inevitable products of society's accumulated knowledge is correct,[173] it is all the more striking to see the severe priority fights that ensue when there is near-simultaneous invention by more than one individual.[174]

Finally, inventors underscore the connection between their labor and their discoveries or creations.[175] Thomas Edison famously noted, "Genius is one percent inspiration, ninety-nine percent perspiration."[176] Inventors and those aspiring to invent repeat this aphorism, emphasizing the belief in laboring toward inventions.[177] Moreover, in another example, scientists who made a significant breakthrough with the hypothalamus gland emphasized their labor as a key aspect of their work: "Nobody before had to process millions of hypothalami…. The key factor is not the money, it's the will … the brutal force of putting in 60 hours a week for a year."[178]

All in all, the evidence suggests that inventors' typical personhood and labor interests in their inventions are qualitatively similar to those characteristic of authors in their artistic works. However, some notable differences appear between the two, particularly based on inventions' functionality, a quality not necessary for artistic works. Therefore, inventors' personhood interests might easily deform to accommodate functionality. In addition, despite qualitative similarity, it is also possible that these interests take on different magnitudes for authors and inventors as distinct groups.

Some notions of personhood and labor that authors and inventors associate with their creations might seem outdated in today's corporate environments, in which collaboration is mainstay and firm ownership of rights in these creations is rampant.[179] Contemporary invention is frequently "the product of many people's work on a corporate

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[169] GAMBARDELLA ET AL., *supra* note 137, at 4-5, 35-36, 36 tbl. 5.1; ROSSMAN, *supra* note 138, at 152 tbl. 9.

[170] *Supra* note 136.

[171] MERTON, *supra* note 136, at 273, 293-305 (taking cognizance, also, of science's institutional norm of humility, of arguing one's debt to one's predecessors).

[172] *Id.* at 273-74; *accord* Rebecca S. Eisenberg, *Proprietary Rights and the Norms of Science in Biotechnology Research*, 97 YALE L.J. 177, 197-207 (1987); *cf. infra* section III.D (exploring the first-to-invent standard as an expressive incentive).

[173] *Supra* note 98.

[174] *See* MERTON, *supra* note 136, at 370-83 (noting, also, scientists' strong resistance to studying the phenomenon of multiple invention).

[175] Hughes, *supra* note 55, at 145; Moore, *supra* note 132, at 78.

[176] Thomas Alva Edison, *quoted in* BARTLETT'S FAMILIAR QUOTATIONS 555 (Justin Kaplan ed., 16th ed. 1992).

[177] Chris Dunmire, COACHINGYOURCREATIVITY.COM, *Inspiration vs. Perspiration: A Light Bulb Moment on Edison's Creative Genius*, http://www.coachingyourcreativity.com/articles/inspiration-perspiration.shtml (last visited Jan. 28, 2011); THEGREATNESSMIND.COM, *"Genius Is 1% Inspiration and 99% Perspiration." – Thomas Edison*, http://www.thegreatnessmind.com/2010/11/25/genius-is-1-percent-inspiration-and-99-percent-perspiration-thomas-edison/ (Nov. 25, 2010).

[178] BRUNO LATOUR & STEVE WOOLGAR, LABORATORY LIFE 118 (1986).

[179] GAMBARDELLA ET AL., *supra* note 137, at 3.

research project"[180] and professional writing is equally collaborative.[181] Nonetheless, authors' and inventors' beliefs in their constellation of moral-rights interests seem to remain undiminished—and perhaps even magnified—in today's collaborative and corporate environments. For one thing, studies emphasize the unique vantage point creators still bring to their collaborations.[182] Moreover, creators' articulations of their strong moral-rights interests have not diminished in today's more collaborative environments.[183] In fact, evidence points to increasing individualism in contemporary society, despite (or perhaps in spite of) ever more collaboration and corporatization.[184]

Given the importance to authors and inventors of their personhood and labor interests in their creative works, copyright and patent laws advance their utilitarian goal when they incorporate this significance into the incentives they offer to creators. By providing incentives that express solicitude for and effectuate creators' moral rights—something critical to them—copyright and patent laws can provide a strong incentive to creators to make socially valuable works.[185]

Incentives—the underpinning of intellectual property—work only if they motivate authors and inventors to create (or indirectly stimulate others, like firms, to encourage them to create).[186] Incentives in intellectual property law, as conventionally understood, offer the creator some pecuniary advantage to encourage socially valuable artistic, scientific, or technological production.[187] However, creators' beliefs in their moral rights typically seem to predominate their pecuniary interests in creating (at least in their own—possibly self-serving—statements).[188] If true, providing expressive incentives to creators might be more useful to intellectual property's utilitarian goals than providing traditional pecuniary incentives in two reinforcing ways. First, assuming they are more valuable to creators than traditional incentives, they might be more of a lure to creators.[189] Second, they might be cheaper for society to provide than pecuniary incentives, thus maximizing

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[180] Fisk, *supra* note 147, at 1133.

[181] Woodmansee, *supra* note 98, at 24-25.

[182] MERTON, *supra* note 136, at 345-46; Sauermann & Cohen, *supra* note 137, at 2136.

[183] GAMBARDELLA ET AL., *supra* note 137, at 35-36, 42-43; Hughes, *supra* note 55, at 93.

[184] Hughes, *supra* note 55, at 93-95.

[185] In an ongoing project of interviews with artists and inventors, Jessica Silbey finds that obtaining intellectual property protection is important to creators as a moral and personal matter. Jessica Silbey, *Creative Culture, Innovating Ways, and Intellectual Property Law* (unpublished manuscript) (on file with author); E-mail from Jessica Silbey to Jeanne C. Fromer (July 8, 2010, 10:08 EST) (on file with author); *cf.* MARY MADDEN, PEW/INTERNET & AMERICAN LIFE PROJECT, ARTISTS, MUSICIANS AND THE INTERNET 20 (Dec. 5, 2004) (showing that half of all artists questioned think that copyright laws are successful in protecting artists' rights), *available at* http://www.pewinternet.org/~/media//Files/Reports/2004/PIP_Artists.Musicians_Report.pdf.pdf.

[186] Loren, *supra* note 7, at 34-40.

[187] *See* sources cited *supra* note 7.

[188] *E.g.*, CSIKSZENTMIHALYI, *supra* note 122, at 107-26; Fromer, *supra* note 110, at 1483.

[189] *Cf.* Ginsburg, *supra* note 6, at 122 ("A writer who feels secure that she will receive name credit for her work, or an artist who can rely on the continued existence of his sculpture, may find this background knowledge more conducive to creative activity."). Interesting psychological research shows that providing individuals with incentives to act creatively might counterproductively dampen their creativity. *E.g.*, Beth A. Hennessey & Teresa M. Amabile, *Reward, Intrinsic Motivation, and Creativity*, 53 AM. PSYCHOL. 674 (1998). These incentives too tend to be pecuniary. Forthcoming work assesses how the particular incentives intellectual property offers or might offer ex ante affect creativity. Christopher J. Buccafusco & Jeanne C. Fromer, *The Psychology of Incentives in Intellectual Property* (unpublished manuscript).

the utilitarian bargain evermore. Even if moral-rights interests do not dominate pecuniary interests, given their pervasiveness, creators' moral-rights interests are at the very least important for consideration as incentives in intellectual property's cost-benefit calculus.

Viewed this way, an optimized intellectual property system would likely contain some mix of pecuniary and expressive incentives. The law might layer expressive incentives atop the current pecuniary incentives it offers. Or, perhaps more tantalizingly, some of the law's current pecuniary incentives could be replaced by certain expressive incentives valued sufficiently by creators. Of course, a utilitarian framework would consider the full costs and benefits of various pecuniary and expressive incentives: their desirability to creators, the costs they impose on society, and the benefits society derives from creators' works motivated by these incentives.

The discussion above concentrates on both creators and society. What to make, then, of the fact that firms today own most patent rights and most valuable copyrights?[190] As just discussed, it seems that authors and inventors hold strong personhood and labor beliefs, even in today's corporate world.[191] As argued above,[192] their actual views, even if poorly reflective of corporate realities, ought to be dominant in this context. However, if most intellectual property rights either automatically or inevitably vest in firms, in exchange for some consideration—salary, payment, or other reward—to the creator, then it might seem to dampen the need for expressive incentives for creators. It would then seem to follow that the incentives offered by copyright and patent laws ought to speak principally to firms instead of creators.[193]

Nonetheless, for three reasons, individuals still need at least some (pecuniary and expressive) incentives that intellectual property laws provide: First, not all intellectual property rights are divested from a work's creator.[194] Second, even when they are, incentives can indirectly motivate creators to focus on creative production rather than other expenditures of time and effort.[195] Authors and inventors must still have adequate incentive to create in the first instance. In fact, thoughtful firms are interested in providing such incentives to their employees, even when their employees will not own intellectual property rights in their creations: Evidence shows that some firms confer awards and other recognition on their most productive creator-employees.[196] Finally, and perhaps most importantly in the context of expressive incentives, just because firms ultimately secure most intellectual property rights does not mean that no sticks in the bundle of rights ought to remain with the creator. For example, as discussed below,

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[190] Most patentable inventions are created in a corporate context. A study by John Allison and Mark Lemley shows that over eighty-five percent of patents were assigned by individual inventors to a corporate entity by the time of patent issuance. John R. Allison & Mark A. Lemley, *Who's Patenting What? An Empirical Exploration of Patent Prosecution*, 53 VAND. L. REV. 2099, 2117 (2000). For copyright statistics, see *infra* TAN 265.

[191] *Supra* TAN 179-184.

[192] *Supra* TAN 98.

[193] Julie E. Cohen, *Copyright as Post-Industrial Property*, 2011 WISC. L. REV. (forthcoming).

[194] *Supra* note 190; *infra* TAN 265.

[195] Fromer, *supra* note 110, at 1483.

[196] GAMBARDELLA ET AL., *supra* note 137, at 35-36. The need for expressive incentives in the law might be diminished in cases of corporate creation to the extent that firms comprehensively provide optimal expressive incentives to motivate their employees.

patent law requires attribution of invention to the individual inventors, even despite corporate ownership of the associated patent rights.[197]

These possibilities merely underscore the importance of future work studying incentives empirically. Empirical work can help demonstrate the appropriate audiences of intellectual property's incentives. It can also break down whether certain incentives ought to be aimed at creators and others at firms. It is hypothesized here that some expressive incentives might prove valuable to creators even if they know they are unlikely to retain the pecuniary incentives offered by intellectual property laws. The theoretical framework established herein of expressive incentives as a possible supplement to traditional pecuniary incentives ought to help structure the ideal shape of incentives in a utilitarian intellectual property system.

C. Expressive Law

The previous sections establish the notion of expressive incentives in intellectual property and show how they can help maximize a utilitarian system due to creators' beliefs about their moral-rights interests. I now anchor the notion of expressive incentives using work in other legal areas on law and norms and expressive theories of law. I also demonstrate how philosophical thinking on utilitarianism supports the inclusion of expressive incentives in those intellectual property law offers.

A robust literature studies the interaction between legal content and social norms, both descriptively and prescriptively. A dominant view of the interaction is that the law ought to institutionalize the norms people have, to bolster law's enforceability and legitimacy.[198] As Robert Cooter observes in the case of legal punishment, "When law aligns with social norms, the law can use state sanctions to supplement social sanctions. For example, fines can supplement the shame associated with being a tax cheater. Supplementing the social sanction with a legal sanction increases the total sanction."[199] Conversely, when the law does not accord with people's norms, some scholars say that the law's credibility is undermined.[200]

Scholars show—in the context of criminal law—that people frequently assume the law's rules are the same as their own moral attitudes.[201] People generally will

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[197] *Infra* section III.A.

[198] *E.g.*, Yuval Feldman, *The Behavioral Foundations of Trade Secrets: Tangibility, Authorship, and Legality*, 3 J. EMPIRICAL LEGAL STUD. 197, 231 (2006); Richard D. Schwartz & Sonya Orleans, *On Legal Sanctions*, 34 U. CHI. L. REV. 274, 294-99 (1967); *cf.* Robin Bradley Kar, *The Deep Structure of Morality*, 84 TEX. L. REV. 877, 878-79 (2006) (positing that law and morality share a deep structure "to allow us to resolve various classes of social contract problems flexibly"). A variation posits that in a democracy, laws could not be passed without majority support, and thus legal content is based on preexisting agreement in society at large. Robert E. Scott, *The Limits of Behavioral Theories of Law and Social Norms*, 86 VA. L. REV. 1603, 1614 (2000). Another puts forward that the law helps coordinate people's behavior by instituting a focal point for it. Robert D. Cooter, *Three Effects of Social Norms on Law: Expression, Deterrence, and Internalization*, 79 OR. L. REV. 1, 20 (2000); Richard H. McAdams, *A Focal Point Theory of Expressive Law*, 86 VA. L. REV. 1649, 1651-53 (2000).

[199] Cooter, *supra* note 198, at 15; *accord* Saul Levmore, *Norms as Supplements*, 86 VA. L. REV. 1989, 2009-10 (2000).

[200] John M. Darley, Kevin M. Carlsmith & Paul H. Robinson, *The Ex Ante Function of Criminal Law*, 35 LAW & SOC'Y REV. 165, 183 (2001).

[201] *Id.* at 165-68.

suppose that the law took the "right" approach, one that is consistent with their moral attitudes, even when it did not.[202]

Yet more pointedly, even when legal goals differ from people's norms, the law can sometimes achieve those goals in the guise of those different norms.[203] Specifically, Paul Robinson shows that the Model Penal Code, expressly designed to deter crime, frequently is retributive instead, thereby deferring to lay intuitions and norms of justice.[204] For example, the Code contains the following rules and standards, which are strikingly retributive and are hard to explain under deterrence theories: excuses, such as insanity and duress; a failure to take into account coercive crime control factors, like age, family situation, and difficulty of crime detection; and standards requiring jury speculation as to what the defendant believed or hoped.[205] Robinson explains what might seem like a puzzle, by hypothesizing that "effective crime control requires a criminal code that is seen as adhering to the community's shared perceptions of just desert."[206] He elaborates that

> the perception of a criminal code as doing justice is necessary for the code's moral credibility, which in turn is necessary for the effective crime control that the drafters seek. It is necessary because the extent of criminal law's moral authority determines the extent of its ability to shape community norms and to influence people's conduct through normative forces.[207]

That is, incorporating communal norms of retribution into criminal laws augments the laws' ability to deter criminal conduct.[208] This amplification of deterrence works by getting potential criminals to see the communal shame they would suffer were they to commit crimes, thereby deterring them more readily than laws conventionally designed to deter—without retribution—would.[209] To secure greater compliance with criminal law, then, Robinson and John Darley argue for "a just desert allocation of liability, [in an] unusual form: … based upon the community's shared principles of justice rather than on those developed by moral philosophers."[210]

This view of the harmonious interaction on law and norms has important implications for intellectual property laws with regard to incentive design. Just as criminal law can obtain deterrence by imposing retributive punishments that communally shame offenders, so too can intellectual property laws provide utilitarian incentives to create sounding in moral rights. Given that creators' norms are suggestive of their strong personhood and labor interests in their works, intellectual property laws can amplify the

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[202] *Id.* at 182.
[203] Paul H. Robinson, *Why Does the Criminal Law Care What the Layperson Thinks Is Just?: Coercive Versus Normative Crime Control*, 86 VA. L. REV. 1839 (2000); Paul Robinson & John M. Darley, *The Utility of Desert*, 91 NW. U. L. REV. 453 (1997).
[204] Robinson, *supra* note 203, at 1839.
[205] *Id.* at 1842-57.
[206] *Id.* at 1840.
[207] *Id.*
[208] Robinson & Darley, *supra* note 203, at 454.
[209] Robinson, *supra* note 203, at 1840-41, 1861-62; Robinson & Darley, *supra* note 203, at 457.
[210] Robinson & Darley, supra note 203, at 456.

incentives to create by offering those that are protective of, or express solicitude for, these moral-rights interests.[211]

To be sure, there is another—conflicting—way to see the law's role with regard to norms. This alternative view suggests that the law ought to institutionalize those things that lawmakers find desirable but are not norms.[212] According to this perspective, norms frequently come with their own social enforcement systems (like reputational loss), so law's force ought to be imposed only when there is no good extra-legal mechanism to achieve a result.[213] Regardless whether this view is sensible, it is not germane to designing intellectual property law's incentives. Unlike criminal law or other legal prohibitions (including those against infringement of intellectual property rights), incentives that seek to motivate individuals to create socially valuable works—something they are under no obligation to do—should align with how people actually view the world. If lawmakers were to decide that certain incentives were optimal in contravention of widespread norms on creation, the incentives would not realistically motivate creators to craft valuable works for society.[214]

Related to work on law and norms are expressive theories of law. According to this branch of thought, "expressive theories tell actors—whether individuals, associations, or the State—to act in ways that express appropriate attitudes toward various substantive values."[215] Scholars have developed robust expressive legal theories

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[211] There is, however, a difference from the criminal context. Criminal law operates to sanction violators, even when they are ignorant of its rules. U.S. v. Int'l Minerals & Chem. Corp., 402 U.S. 558, 566 (1971). For this reason, coincidence of norm and criminal law sensibly causes even the ignorant to obey the criminal law. By contrast, intellectual property incentives can work only when creators are aware of them. That said, as most authors and inventors are repeat players in the intellectual property system, Liza Vertinsky, *Comparing Alternative Institutional Paths to Patent Reform*, 61 ALA. L. REV. 501, 538 (2010), they are likely to have this awareness after a first legal interaction.

[212] *E.g.*, Feldman, *supra* note 198, at 232 (describing this view); Charles R. Tittle & Alan R. Rowe, *Moral Appeal, Sanction Threat, and Deviance*, 20 SOC. PROBLEMS 488, 488 (1973); Nigel Walker & Michael Argyle, *Does the Law Affect Moral Judgments?*, 4 BRIT. J. CRIMINOLOGY 570 (1964).

[213] Feldman, *supra* note 198, at 232.

[214] *Cf.* Zamir & Medina, *supra* note 88, at 327 ("[S]ince people's behavior is commonly influenced by social norms and prevailing moral intuitions, any theory seeking to explain and predict people's behavior should take threshold constraints into consideration."). In this sense, the context and thrust of my thesis avoids a critique made against Louis Kaplow & Steven Shavell, *Fairness Versus Welfare*, 114 HARV. L. REV. 961 (2001). They argue that "if individuals in fact have tastes for notions of fairness—that is, if they feel better off when laws that exist or events that they observe are in accord with what they consider to be fair—then analysis under welfare economics will take such tastes into account when measuring individuals' well-being, just as it will take any other tastes into account." *Id.* at 1350. Most pertinently, "[t]he soundness of a judgment depends on the validity of the arguments underlying it, not on the number of its supporters or the intensity of their support," the latter of which is the focus of Kaplow and Shavell's argument. Zamir & Medina, *supra* note 88, at 338. This argument has little salience in the context of offering people incentives to take action; here, what people think matters significantly more than a free-floating rightness or wrongness.

[215] Elizabeth S. Anderson & Richard H. Pildes, *Expressive Theories of Law: A General Restatement*, 148 U. PA. L. REV. 1503, 1504 (2000); *accord* Scott, *supra* note 198, at 1622-23; Cass R. Sunstein, *On the Expressive Function of Law*, 144 U. PA. L. REV. 2021, 2024-28 (1996). In Matthew Adler's view, expressive theories conflict with utilitarianism, in that maximizing utility has nothing to do with expression. Matthew D. Adler, *Expressive Theories of Law: A Skeptical Overview*, 148 U. PA. L. REV. 1363, 1461-63, 1472-73 (2000). I, however, think they are compatible, as sending expressive signals through the law can maximize utility.

in other legal areas.[216] Elizabeth Anderson and Richard Pildes analyze many constitutional rules aimed at expressing moral values, such as against discrimination under the Equal Protection Clause and in favor of religious freedom under the Establishment Clause.[217] Cass Sunstein writes that environmental laws, such as endangered species protection, are "a symbol of a certain conception of the relationship between human beings and their environment."[218] Carol Rose and others suggest that property law expresses "the central role of the institution of property in mediating human conflicts and in drawing people into a fruitful moderation and mutual attentiveness."[219] Working in the area of criminal law, Dan Kahan, similar to Paul Robinson, argues that the law can expressively deter people from committing crimes.[220] He suggests, for example, that certain punishments, like imprisonment, express greater community disapproval than do others, like fines.[221] As such, individuals—reasonably seeking to avoid greater community shame—ought to be deterred from committing crime by the former class of punishments more than they would be by the latter.[222] Kahan advises "a community that cares about deterrence … to concern itself not just with how much pain different punishments impose and how many dollars they cost, but also with how forcefully they communicate society's condemnation."[223]

One can likewise see the worth of expressive incentives in intellectual property. In addition to the utility of conferring expressive incentives that protect moral-rights interests so as to spur creators to make valuable works,[224] expressive incentives can also convey solicitude for the personhood and labor values about which authors and inventors care deeply. By mere virtue of this expression, these incentives can also encourage authors and inventors to create socially valuable works and then opt into intellectual property systems that express respect for their moral rights.

Accommodation of expressive incentives in a utilitarian intellectual property system also finds parallel grounding in philosophical thinking on utilitarianism. Utilitarianism, as articulated by classical thinkers like Jeremy Bentham and John Stuart Mill, "holds that actions are right in proportion as they tend to produce happiness [or pleasure or welfare]; wrong as they tend to produce the reverse."[225] The goal to

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[216] Orthogonal is the notion in trademark law that marks can become important for societal and cultural expression. Rochelle Cooper Dreyfuss, *Expressive Genericity: Trademarks as Language in the Pepsi Generation*, 65 NOTRE DAME L. REV. 397 (1990).

[217] Anderson & Pildes, *supra* note 314, at 1531-51.

[218] Sunstein, *supra* note 215, at 2024.

[219] Carol M. Rose, *Rhetoric and Romance: A Comment on Spouses and Strangers*, 82 GEO. L.J. 2409, 2410 (1994); *accord* Nestor M. Davidson, *Property and Relative Status*, 107 MICH. L. REV. 757, 760 (2009); Carol M. Rose, *Introduction: Property and Language, or, the Ghost of the Fifth Panel*, 18 YALE J.L. & HUMAN. 1, 6-9 (2006).

[220] Dan M. Kahan, *Social Influence, Social Meaning, and Deterrence*, 83 VA. L. REV. 349, 350-52 (1997).

[221] *Id.* at 352.

[222] *Id.* at 383-85. *But see* ERIC A. POSNER, LAW AND SOCIAL NORMS 97-103 (2000) (arguing that criminal punishments that shame can fail to deter when the relevant sub-community sees these punishments as a badge of honor).

[223] Kahan, *supra* note 220, at 383.

[224] *Supra* TAN 198-214.

[225] JOHN STUART MILL, UTILITARIANISM 7 (2d ed., Hackett Publishing Co. 2001) (1861); *accord* JEREMY BENTHAM, AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION (J.H. Burns & H.L.A. Hart eds., The Athlone Press 1970) (1780).

maximize is society's overall happiness or welfare.[226] According to Mill and other utilitarians, the things intellectual property laws traditionally seek to promote—"the progress of Science and useful Arts"[227] and societal enjoyment of the goods that tend to be covered by these laws—are quintessential goals for which utilitarians ought to strive.[228]

Utilitarian thinking in intellectual property is typically one flavor of philosophical utilitarianism: rule utilitarianism.[229] According to this form, "[i]nstead of individual decision procedures, we evaluate codes of moral rules. The ideal code is the set of rules where the consequences of everyone following them would be better than the consequences of everyone following any other set of rules. We then assess acts indirectly. The right act is the act called for by the code."[230] Intellectual property laws establish rules with the aim of maximizing social welfare by encouraging individuals to create valuable works with the reward of incentives, enough to make individuals pursue creation but not so much as to harm society.[231]

Today, we frequently overlook that classical models of utilitarianism account for the expressive effects of various courses of action in selecting the optimal one. Jeremy Bentham made much the same point as Dan Kahan and Paul Robinson about choosing criminal punishments that express community shame to maximize punishments' efficacy.[232] Both Bentham and Mill indicate that virtue, freedom, individuality, and other ethical goals that many might see as foreign to utilitarianism are desirable goals, in that they bring people and society happiness or pleasure, thereby maximizing general welfare.[233] Measuring individual utility based on "the relative personal importance [a person] assigns to various economic (and noneconomic) alternatives"[234] allows us to measure the value individuals attach to the constellation of interests at stake from a moral-rights perspective.[235] Moreover, Mill defends the protection of moral rights, or more generally, "a personal right—a claim on the part of one or more individuals, like that which the law gives when it confers a proprietary or other legal right."[236] He reasons that

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[226] MILL, *supra* note 225, at 11-12.
[227] U.S. CONST. art. I, § 8, cl. 8.
[228] *See* MILL, *supra* note 225, at 4-5, 14 (listing as fundamental goals mental cultivation; pleasure from music, art, and poetry; and knowledge about nature and history); HENRY SIDGWICK, THE METHODS OF ETHICS 114 (1962) (listing as ideal goods knowledge, the development of knowledge, and beauty).
[229] Moore, *supra* note 132, at 65.
[230] TIM MULGAN, UNDERSTANDING UTILITARIANISM 120 (2007); *accord* David O. Brink, *Mill's Ambivalence About Rights*, 90 B.U. L. REV. 1669, 1671 (2010).
[231] *Supra* section I.A. *But cf.* Moore, *supra* note 132, at 74-76 (observing that American copyright and patent laws might not implement rule utilitarianism strictly).
[232] BENTHAM, *supra* note 225, at 171 n.o.
[233] *Id.*; JOHN STUART MILL, ON LIBERTY (General Books LLC 2010) (1859); MILL, *supra* note 225, at 36-37; *cf.* ALAN RYAN, PROPERTY AND POLITICAL THEORY 10 (1984) ("The line of demarcation between the instrumental view [of property and work] and the self-developmental view is not sharp.").
[234] John C. Harsanyi, *Morality and the Theory of Rational Behaviour*, *in* UTILITARIANISM AND BEYOND, *supra* note 214, at 39, 53.
[235] *Cf.* Zamir & Medina, *supra* note 88, at 333-35 (discussing how utilitarians sometimes argue that accounting comprehensively for both long-term and indirect effects in their analyses "leads to conclusions that are akin to threshold deontology").
[236] MILL, *supra* note 225, at 42-59.

> [j]ustice is a name for certain classes of moral rules which concern the essentials of human well-being more nearly, and are therefore of more absolute obligation, than any other rules for the guidance of life; and the notion which we have found to be of the essence of the idea of justice—that of a right residing in an individual—implies and testifies to this more binding obligation.[237]

Respecting rights, according to Mill, can have social utility in large part because doing so prevents harm to others on metrics that matter to them.[238]

So too in intellectual property we can see the desirability of accounting for notions of moral rights in utilitarianism. Because moral rights—at least the constellation of personhood and labor interests discussed above—matter so much to authors and inventors, accounting for them in the rules that constitute the American utilitarian system of intellectual property ought to maximize overall welfare by incorporating the metrics that matter to them so as to maximize the return to society on creative works.

This survey of other branches of scholarship, in both law and philosophy, deepens the support for enlarging our understanding of incentives in intellectual property to include those that are expressive. Literature on law and norms suggests that intellectual property incentives ought to rely on authorship and inventorship norms that will persuade authors and inventors to create. Expressive theories of law further indicate the utility of incentives in intellectual property that express solicitude for creators' moral-rights interests. Finally, philosophical thinking on utilitarianism endorses and encourages looking to non-pecuniary interests that contribute to people's happiness or pleasure to maximize utility for society.

With the case for expressive incentives as a desirable category of incentive in intellectual property law established, I now turn to areas in intellectual property law that can be understood as already encompassing these incentives.

III. ILLUSTRATIONS

In this Part, I examine areas in American copyright and patent law in which expressive incentives seem to be at work. I do so for two reasons. First, these illustrations should help underscore major possible types of expressive incentives, thereby also suggesting areas in which it might prove useful to bulk up or alter intellectual property law's incentives with expressive ones. Second and relatedly, these illustrations ought to suggest areas of further study, particularly empirically. The exact

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[237] *Id.* at 59.

[238] *Id.* at 57-63. Contemporary philosophers make variants of this argument. *E.g.*, R.M. HARE, THE LANGUAGE OF MORALS (Oxford University Press 1991) (1952). These philosophical parallels might not satisfy those normatively committed above and beyond all other considerations to moral rights rather than utilitarianism. Some contemporary philosophers, most notably David Lyons, seek to show how to read Mills as consistent with a "utilitarian approach to moral rights and justice" that avoids common problems philosophers usually encounter in trying to fuse the two, such as reconciling utilitarianism's maximization of welfare with inviolable rights. DAVID LYONS, RIGHTS, WELFARE, AND MILL'S MORAL THEORY 14-17 (1994); *accord* Brink, *supra* note 230, at 1691-99; Philip Pettit, *The Consequentialist Can Recognise Rights*, 38 PHIL. Q. 42, 51-53 (1988); Peter J. Hammond, *Utilitarianism, Uncertainty and Information*, *in* UTILITARIANISM AND BEYOND, *supra* note 214, at 85, 90-102. *But see* Amartya Sen, *Personal Utilities and Public Judgements: Or What's Wrong with Welfare Economics*, 89 ECON. J. 537, 554 (1979).

form expressive incentives ought to take and the ideal mix of expressive and pecuniary incentives are both important questions for future study.[239]

In turn, I consider attribution, the structure of duration, a right of reversion, originality, the first-to-invent rule, and claiming rules.

A. Attribution

One possible expressive incentive is a right attributing a protected work to its creators. Attribution is considered very desirable by creators. For one thing, by 2005, authors were choosing Creative Commons licenses requiring attribution ninety-four percent of the time.[240] In this section, I explore why attribution can serve as an expressive incentive, as well as how attribution is found in patent law but is principally absent in copyright law.

A work's attribution to its creators can be an expressive incentive for two reasons, both related to personhood interests. First, attribution can bolster an author's or inventor's reputation.[241] Attribution makes it easy to broadcast a creator's involvement, enabling the public to give kudos to the creator. A strongly positive reputation can provide the creator with financial rewards, such as increased professional opportunities and a higher salary.[242] In this sense, providing attribution to creators is nothing more than a traditional pecuniary incentive.[243] Yet attribution can also be expressive. By bolstering a creator's reputation, attribution expresses the creator's central value to his or her work. Just as Robert Merton observed with regard to eponymy in scientific theories, attribution rewards the creator with reputational gain, something important to the creator in having created the work.[244]

Attribution can also serve as an expressive incentive in another way. In a visible way, it establishes a link between the creator and the creator's work. By doing so, it concretizes the personhood interest creators have in viewing their creations as strong components of their self-concept.[245] Even if the creator ends up having no rights to control the work's use, attribution retains for the creator this visible link. Attribution can bestow a right of sorts in the creator, even when the other rights intellectual property law provides lie elsewhere.[246]

As attribution shows, a single right can confer both pecuniary and expressive incentives. Attribution can provide creators with increased pecuniary rewards during

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[239] *Cf.* Yuval Feldman & Orly Lobel, *The Incentives Matrix: The Comparative Effectiveness of Rewards, Liabilities, Duties, and Protections for Reporting Illegality*, 88 TEX. L. REV. 1151, 1152 (2010) (studying in the context of encouraging employees to report illegality the efficacy of four different legal mechanisms: antiretaliation protection, duty to report, liability fines, and monetary incentives).

[240] NEIL NETANEL, COPYRIGHT'S PARADOX 217 (2008).

[241] Catherine L. Fisk, *Credit Where It's Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, 50 (2006).

[242] *Id.*

[243] *Cf.* Henry Hansmann & Marina Santilli, *Authors' and Artists' Moral Rights*, 26 J. LEGAL STUD. 95, 104-05 (1997) (explaining how moral-rights protections might serve pecuniary purposes).

[244] *Supra* section II.B; *see also* Fisk, *supra* note 241, at 76-101 (describing contemporary attribution norms, such as those for Hollywood screen credit and in scientific articles).

[245] *Supra* section II.B.

[246] *Cf.* Fisk, *supra* note 241, at 53 ("[L]egal rights to knowledge must be bifurcated into exclusivity rights … and attribution rights….").

their careers, as well as boost their reputation and highlight their creations as extensions of the self.

An attribution right can take different forms. The protected work itself—such as a film, novel, computer software, or a machine—might contain the requisite attribution. By contrast, attribution might be more indirect, by appearing in a registration or application for legal rights in the work. In this sense, attribution will be visible only to those reviewing the work's legal rights.

Moreover, varying remedies might be provided for breach of attribution. The law might provide damages, for lost financial opportunities[247] or for personhood harms suffered. It might also require correction of attribution errors. Alternatively, the law might nullify exclusive rights in the work or forbid distribution of a creator's works lacking the proper attribution.[248]

Having outlined some basic attribution possibilities, I now describe how patent and copyright laws provide for attribution. Patent law requires attribution to inventors of patented inventions. It requires that all inventors be named in an invention's patent application (and any issued patent).[249] In so doing, patent law acknowledges the individuals who contributed sufficiently to the invention's creation. Patent law provides two possible remedies for failure to attribute the invention in the patent to the correct set of inventors. If an attribution error was made without deceptive intent, the PTO can authorize a correction, with no further repercussion to the patent rights.[250] Otherwise, an attribution error renders the patent invalid.[251]

This attribution requirement is both robust and weak. It is hardy by providing the harsh penalty of patent invalidity for deceptive attribution errors, making it likely that patentees will comply with it. From the vantage point of bestowing attribution, however, it would seem that correcting attribution errors (as it does when they are not deceptive) is more protective of the attribution interest. Patent invalidity might be harsh, but it does not directly correct attribution errors (although there might indirectly be a governmental decision stating the correct attribution in the course of patent invalidation).

This attribution requirement is also less robust than a requirement attributing all produced or commercialized patented inventions to their inventors. The current requirement conveys attribution information not to all users or viewers of the invention, but only indirectly to those people who see the relevant patent. Nonetheless, many, if not most, commercialized patented inventions are attributable through two steps to their inventors through the invention itself. Patent law encourages patentees to mark their inventions with the associated patent number, so as to provide notice (constructively) of patent rights for damages recovery in an infringement action.[252] So doing leads interested parties directly from invention to patent, which attributes the invention to its inventors.

Interestingly, as law and practice moved away from granting employees ownership of patent rights in their inventions,[253] one might have imagined that patent law's attribution to inventors would have also fallen away. Yet patent law still requires

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[247] *Id.*
[248] *See id.* (noting the presence of this latter remedy in moral-rights regimes).
[249] 35 U.S.C. § 116; 37 C.F.R. §§ 1.41-1.51; Pannu v. Iolab Corp., 155 F.3d 1344, 1349 (Fed. Cir. 1998).
[250] 35 U.S.C. §§ 116, 256.
[251] *Pannu*, 155 F.3d at 1348-51.
[252] 35 U.S.C. § 287(a).
[253] Fisk, *supra* note 147, at 1130.

this attribution even in the not infrequent case that inventors working in a corporate setting have contracted away their patent rights to their employer.[254] Catherine Fisk ascribes this requirement to "reinforce[ment] in the public mind [of] the idea that individual effort, not an organized and employer-sponsored research agenda, produced most inventions."[255] She concludes that patent law, in requiring attribution, invites inventors to identify their creations as a product of their personal genius.[256]

By contrast, American copyright law lacks a general right attributing protected works to their authors.[257] Nothing in copyright law generally requires that authors be identified as a condition for copyright protection or provides authors with an attribution right.[258] That said, copyright law will sometimes encourage attribution of protected works. It does so by promoting copyright registration, which requires that a work's authors be listed.[259] To secure copyright protection, a work need not be registered[260] (and thus there is no comprehensive requirement of attribution). Copyright law, however, provides a significant incentive to register copyrights, as registration is almost always a prerequisite to an infringement action.[261] When a copyright is registered, then, attribution happens indirectly, similarly as in patent law. One difference is in a remedy for attribution errors: Copyright law provides for supplementary registration to correct them, but does not invalidate the copyright.[262]

There is a major exception to registration's attribution of a work to its individual authors, with regard to the doctrine of works made for hire. According to this doctrine, copyright automatically vests in the employer for works created by employees in the scope of their employment (and by some commissioned to do works).[263] When a copyright is registered in a work made for hire, the employer is to be listed as the author, with nary of a mention of the employee-creator.[264] As of 1955, forty percent of all copyright registrations were works made for hire and the percentage has likely increased since then.[265] For this significant class of works, there is no attribution to the individual creator.

Even beyond registration as a situs of attribution, copyright's work-for-hire doctrine erases the employee-creator. The work-for-hire doctrine principally originated out of concerns for efficiency. As a practical matter, notes Kenneth Crews, it is not surprising that "all rights to [these] works would accordingly repose with the employer who presumably funded the creation."[266] If ownership of works by employees would nearly always pass to the employer by agreement (or similarly, commissioned works to

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[254] Robert P. Merges, *The Law and Economics of Employee Inventions*, 13 HARV. J.L. & TECH. 1, 2 (1999).
[255] Fisk, *supra* note 147, at 1140.
[256] *Id.*
[257] Dreyfuss, *supra* note 4, at 641.
[258] *Id.*
[259] 17 U.S.C. § 409.
[260] *Id.* § 408(a).
[261] *Id.* § 411.
[262] 37 C.F.R. § 201.5(b)(2)(ii).
[263] 17 U.S.C. § 201.
[264] U.S. Copyright Office, Form TX, http://www.copyright.gov/forms/formtx.pdf (last visited Jan. 31, 2011).
[265] Lemley, *supra* note 51, at 883.
[266] Kenneth D. Crews, *Copyright Duration and the Progressive Degeneration of a Constitutional Doctrine*, 55 SYRACUSE L. REV. 189, 194, 214-19 (2005).

the commissioner), it would seem more effective to grant the initial copyright to the patron than require a transfer each time.[267] The doctrine originated in the courts in the mid-nineteenth century, with judges deciding that copyright in certain employee-created works was intended to be held by the employer.[268] Congress implemented this doctrine statutorily in 1909,[269] later revising it in 1976.[270]

When Congress codified the work-for-hire doctrine, rather than rewrite the copyright corpus in an unwieldy way, it labeled the employer or commissioner as the work's author.[271] In this sense, the label can be viewed as nothing more than a term of art to designate the copyright's legal owner.[272] Justin Hughes suggests another reason for this label: the patron has "tremendous control over [its] artistic program," particularly when "the patron's intentions imbue and control the artistic endeavor."[273] Judicial analysis of whether a work was made for hire reflects this understanding.[274] This conception accords with at least some artists' views of commissioned and non-commissioned works: Hughes tells of a visual artist who "said that although her patron had given her great 'creative leeway,' she could not put her 'heart and soul' into the work."[275]

That said, some commentators object that this understanding is out of place given the authorial focus of the Constitution's grant of congressional power to enact copyright laws.[276] Moreover, many authors view even commissioned works as personal experiences within their control.[277] Even if true that the patron has a greater degree of control over a work than when the individual creator works alone, the creator is not an automaton but is engaged in individual expression within the patron's constraints.

The truth about hired authorship likely lies somewhere between the two poles. As Fisk observes, "Early twentieth-century firms used that same mythic genius in their effort to assert corporate control over an increasingly wide range of intellectual property, while at the same time downplaying or ignoring individual creative genius so as to assert corporate ownership over those copyrighted works."[278] In the main, employers are likely dictating some contours of employees' works, while employees are devising and implementing others. The erasure of the employee-writer, then, from copyright law (including from any attribution similar to that obtained by those outside of the work-for-hire doctrine) likely under-represents the degree of personhood and labor interests the individual creator has in these works.

In sum, then, absent a small class of optional copyright registrations for works not made for hire, copyright law does not generally provide for attribution of works.

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[267] Ginsburg, *supra* note 60, at 1088.
[268] Bracha, *supra* note 3, at 249-55; Fisk, *supra* note 128, at 5-7.
[269] Act of March 4, 1909, ch. 320, § 62, 35 Stat. 1075, 1088.
[270] Copyright Act of 1976, Pub. L. No. 94-553, § 101, 90 Stat. 2541.
[271] Act of March 4, 1909, ch. 320, § 62, 35 Stat. 1075, 1088; Bracha, *supra* note 3, at 261-62.
[272] Fisk, *supra* note 128, at 5.
[273] Hughes, *supra* note 55, at 154; *accord* Hansmann & Santilli, *supra* note 243, at 134; Peter Jaszi, *On the Author Effect*, *in* THE CONSTRUCTION OF AUTHORSHIP, *supra* note 8, at 29, 34.
[274] Hughes, *supra* note 55, at 155 (citing cases).
[275] *Id.* at 156.
[276] Dreyfuss, *supra* note 85, at 602-04; Ginsburg, *supra* note 60, at 1089-90.
[277] *Supra* TAN 113 (citing Michelangelo).
[278] Fisk, *supra* note 128, at 6.

Nonetheless, via the Visual Artist Rights Act of 1990 (VARA), copyright law does confer an attribution right in a very limited subset of copyrighted works, to creators producing visual art in distributions of less than two hundred.[279] These creators have the right "to claim authorship" and prevent the use of their name on works created by others or modified versions of their work.[280] By contrast, European laws typically provide a general right of attribution, as recognition of the author's moral rights in a work.[281]

In sum, patent law provides attribution to inventors generally, although not in the most robust and direct sense. Copyright law provides attribution indirectly in a limited number of cases and directly in an even smaller number of cases under VARA.

Given that attribution might plausibly serve as an expressive incentive, it is useful for further exploration as a possible motivator for authors and inventors to create. In fact, authors and inventors might consider it to be more valuable than pecuniary rights provided by intellectual property protection.[282] Moreover, depending on implementation, society would seem to be able to provide this right at a relatively low cost, if any. Linking attribution of individual creators to any registration or application for intellectual property rights would seem to be cheap to provide. By contrast, requiring attribution every time someone's creation is invoked could be expensive to implement, given the amorphousness of invocation and the possibility that the quality of creators' works would suffer from constantly needed attributions.[283] In combination, due to the likely high value to authors and inventors and possible low cost to society, a carefully designed attribution right might be a useful incentive for intellectual property laws to provide, perhaps even replacing some other pecuniary incentive.

B. The Structure of Duration

As another example of a possible expressive incentive, this time in copyright law, consider the structure of duration. Take Stieg Larrson. About a year before he died, he wrote a trilogy of crime novels[284] that, after his passing, went on to sell more than thirty million copies.[285] Under American copyright law, which confers protection for the lifetime of the author plus seventy years, these books will remain under copyright for just over seventy years.[286] J.D. Salinger, by contrast, wrote *The Catcher in the Rye* at the age of thirty-two and died fifty-nine years later.[287] By the same rule, his copyright endures for 129 years (the fifty-nine years of his life following the writing plus seventy years after his death). Thus, Salinger receives nearly fifty-nine years' worth of protection that Larrson does not. Even a single author's works can have dissimilar durations. Had

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[279] 17 U.S.C. §§ 101, 106A.
[280] *Id.* § 106A(a).
[281] Lastowka, *supra* note 130, at 68-69.
[282] Fisk, *supra* note 241, at 50.
[283] Rebecca Tushnet, *Naming Rights: Attribution and Law*, 2007 UTAH L. REV. 789, 795-810.
[284] *Millennium Trilogy—Stieg Larsson, the Man Behind Lisbeth Sanders*, STIEGLARSSON.COM, http://www.stieglarsson.com/Millennium-series (last visited Aug. 25, 2010). The books in the trilogy are *The Girl with the Dragon Tattoo*, *The Girl Who Played with Fire*, and *The Girl Who Kicked the Hornet's Nest*. *Id.*
[285] *Big E-sales For Larsson's Millennium Trilogy*, CBS NEWS, July 22, 2010, http://www.cbsnews.com/stories/2010/07/22/entertainment/main6702903.shtml (last visited Aug. 25, 2010).
[286] *Infra* TAN 306.
[287] Charles McGrath, *J.D. Salinger, Literary Recluse, Dies at 91*, N.Y. TIMES, Jan. 28, 2010, at A1.

Salinger written another novel in the days before his death, copyright in that work would endure for six decades less than that of *The Catcher in the Rye*. Copyright duration, then, varies based on the length of the author's lifetime, and not on the work that has been created. Compare this situation with patent duration. Under American patent law, patents generally last for twenty years from the date of patent application.[288] Patent law frequently considers this date to be the invention date.[289] Patent duration varies based upon the work that has been created, not the inventor's lifespan.

After a summary of the copyright and patent duration rules, I explain how copyright's general structure of duration might serve as an expressive incentive, whereas patent law's does not.

Until 1976, copyright duration was fixed and keyed to a work's publication. The 1710 Statute of Anne protected previously printed books for twenty-one years, and new books for fourteen years, with a term of fourteen more if the author was still living.[290] In 1790, Congress enacted the first federal copyright law, with the same durational terms.[291] Over time, Congress extended copyright duration, and by 1909, the law provided for a first term of twenty-eight years, followed by a renewal term of another twenty-eight years.[292]

In 1976, Congress completed a major overhaul of copyright law. According to the House Report, changes to copyright's durational structure—instituting a general term of lifetime of the author plus fifty years—stood above other revisions.[293] The House of Representatives Judiciary Committee felt bound to adduce the rationale for this monumental change. Some proffered reasons related to the longer duration provided by this change, such as accounting for increased average life expectancies for authors and for the longer commercial life of works.[294] Two reasons, however, related to the change in durational structure, from a fixed term to one keyed to the author's lifetime. First, it would simplify matters. Before, a person inquiring into whether a work was in the public domain for purposes of, say, licensing, would need to look at the work's date of registration or publication. But now an author's copyrights would all expire simultaneously, a "definite, determinable event, and it would be the only date that a potential user would have to worry about."[295] Second, Congress observed that a "very large majority of the world's countries have adopted a copyright term of the life of the author and fifty years after the author's death."[296] This disparity had already "provoked considerable resentment and some proposals for retaliatory legislation."[297] Reciprocal protection through conformity with international practice, Congress thought, would redound to the benefit of American authors.[298]

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[288] *Infra* TAN 312.
[289] *Infra* TAN 340.
[290] BUGBEE, *supra* note 61, at 54.
[291] Copyright Act of May 31, 1790, ch. 15, § 1, 1 Stat. 124.
[292] Act of March 4, 1909, ch. 320, § 23, 35 Stat. 1075, 1080.
[293] COPYRIGHT LAW REVISION, H.R. REP. NO. 94-1476, at 133 (1976) [hereinafter 1976 HOUSE REPORT].
[294] *Id.* at 134-35.
[295] *Id.*
[296] *Id.*
[297] *Id.*
[298] *Id.*

Despite these asserted advantages, the Copyright Office noted two downsides to switching to a life-plus-years format. First, it would be easier to measure copyright duration with a fixed term commencing with the work's creation or publication as soon as the copyright starts.[299] While an author is still alive, one could not definitively compute copyright's duration with a life-plus-years structure. Even when the author has died, information about the author's date of death might not be readily accessible.[300] By contrast, one can measure a fixed duration once one knows when the copyright commenced.[301] Additionally, a fixed duration could be employed across the board regardless of the type of copyrighted work, whereas a life-plus-years format would necessitate treating certain works—like anonymous works—differently.[302]

The 1976 Act treated three types of copyrighted works differently with regard to their duration: works made for hire, anonymous works, and pseudonymous works.[303] The last two involve works whose true author is unknown; thus, copyright duration cannot be based on any particular life.[304] For these three types of works, Congress provided for a term of seventy-five years from the year of first publication or one hundred years from creation, whichever expires sooner.[305]

In 1998, Congress, in the Copyright Term Extension Act, extended the postmortem term of copyright duration to seventy years.[306] (The increase of twenty years was applied across copyright duration, also extending the duration of works for hire and anonymous and pseudonymous works to ninety-five years from the year of first publication or one hundred twenty years from creation, whichever expires sooner.[307])

Although the tale of patent duration begins similarly to copyright's, it diverges quickly to be a story of stability. Congress's first patent law, in 1790, protected new and useful inventions "for any term not exceeding fourteen years."[308] After an experiment with discretionary renewal terms,[309] Congress changed patent duration in 1861 to seventeen years from the patent grant, with no possibility of renewal.[310] TRIPs, an international treaty signed by the United States in 1994, required patent duration to last at least twenty years from the date of patent application.[311] To comply with the treaty,

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[299] COPYRIGHT OFFICE REPORT, *supra* note 56, at 48.
[300] *Id.* Accordingly, the Act provides a presumption as to an author's death. 17 U.S.C. § 302(e).
[301] COPYRIGHT OFFICE REPORT, *supra* note 56, at 48.
[302] *Id.* at 48-49.
[303] This Act also treats differently works that were jointly authored but not made for hire, by virtue of the fact that they have multiple authors. 17 U.S.C. § 302 (1976). Copyright in these works last for the life of the last surviving author plus fifty years after the last surviving author's death. *Id.*
[304] *Id.* § 101.
[305] *Id.* § 302(c).
[306] Pub. L. No. 105-298, 101, 112 Stat. 2827 (1998).
[307] *Id.*
[308] Patent Act of April 10, 1790, ch. 7, 1 Stat. 109.
[309] In 1836, Congress authorized a three-person board (Commissioner of the Patent Office, Secretary of State, and Solicitor of the Treasury) to approve, in its discretion, a seven-year extension of the patent term upon a patentee's petition. Act of July 4, 1836, ch. 357, § 18, 5 Stat. 117, 124-25. The maximum patent term thus became twenty-one years.
[310] Act of Mar. 2, 1861, ch. 88, § 16, 12 Stat. 246, 249.
[311] Agreement on Trade-Related Aspects of Intellectual Property Rights art. 33, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, art. 33, 108 Stat. 4809, 869 U.N.T.S. 299.

Congress changed patent duration to be twenty years from the date of patent application.[312]

Having described the different duration regimes of copyright and patent law, I now show how copyright law's durational structure can serve as an expressive incentive, while patent law's does not. I first note that it is important not to conflate duration's structure with its length. In theory, duration can be long or short.[313] Setting an appropriate length within the framework of a utilitarian system is principally an economic question.[314] In fact, commentators note that patent duration is significantly shorter than copyright's because of economic differences between the two subject matters: There is greater social need to have patented items fall into the public domain so that they might be built upon cumulatively to advance scientific and technological progress, while copyrighted matter is not as necessary in that way, not least because copyright law permits subsequent creators to borrow ideas and certain amounts of expression from these works.[315]

Once one chooses an appropriate durational length for copyright, one still must decide how to structure that duration. That is, a copyright's duration might be statistically equivalent in length whether it lasts, say, seventy-five years from the work's creation or, instead, for the author's lifetime plus fifty years.[316] In fact, when it enacted the 1976 Copyright Act, Congress saw the two terms (the former for works made for hire and anonymous and pseudonymous work, the latter for other works) as statistically equivalent.[317] Once the decision that approximately seventy-five years is an appropriate length, one must still decide whether to create a term keyed to the relevant work's creation, the author's lifetime (plus some possible fixed term), or some other variable altogether.

As Benjamin Kaplan notes, the particulars of copyright duration can serve as an inducement for people to create copyrightable works.[318] One way to provide incentive for people to create, then, is to use a durational structure that is particularly salient to creators. The structure of copyright duration can be seen as doing just that by invoking the author's personhood interests as an incentive. By setting the author's lifetime as the essential variable of copyright protection, copyright law shields works in an author-centered way: for the author's lifetime (and a fixed terms of years following that). The author's lifetime is arguably the duration for which the author's personhood interest in his or her works remains intact, in that the author is associating works with self-concept and building a reputation.[319] Duration with a life-plus-years term is keyed to the author himself or herself, also sending a signal of how important the author is in copyright

[312] Uruguay Round Agreements Act, Pub. L. No. 103-465, 108 Stat. 4809 (Dec. 8, 1994).
[313] Saul Cohen, *Duration*, 24 UCLA L. REV. 1180 (1976-77).
[314] Joshua S. Gans & Stephen P. King, *Patent Length and the Timing of Innovative Activity*, 55 J. INDUS. ECON. 772, 772 (2007); Ted O'Donoghue, Suzanne Scotchmer & Jacques-Francois Thisse, *Patent Breadth, Patent Life, and the Pace of Technological Progress*, 7 J. ECON. & MGMT. STRATEGY 1, 4 (1998).
[315] Samuel J. Elder, *Duration of Copyright*, 14 YALE L.J. 417, 422 (1905); Landes & Posner, *supra* note 7, at 361.
[316] COPYRIGHT OFFICE REPORT, *supra* note 56, at 50.
[317] 1976 HOUSE REPORT, *supra* note 293, at 138; *accord* KAPLAN, *supra* note 62, at 113.
[318] KAPLAN, *supra* note 62, at 114-15.
[319] *Supra* section II.B.1.

law.[320] Because copyright duration is arguably the most visible component of copyright law,[321] this expressive incentive can be particularly helpful to advancing copyright's goal of encouraging artistic creations.

Were copyright law to provide a statistically equivalent duration of a fixed term, it might not offer the same incentive to authors because it would not be offering protection for the author's personhood or signaling any solicitude for it. Keying duration to the work's creation or registration, as was once done, signals the work's importance at the author's expense. The current durational structure, by contrast, assures the author that protection will attach for the author's lifetime (and then some).[322] In fact, Avishalom Tor and Dotan Oliar show, in an experiment, that individuals prefer a lifetime-plus-years term like Congress implemented to a comparable fixed term.[323]

My understanding also makes sense of how authors seem to get treated differently for copyright duration. When two people create nearly identical works at different points in their lifetimes—one, say, the day before death and the other, say, fifty years before death—they will receive different terms of protection (70 years in the first example and 120 in the second). When the same author creates two works—one early in life and another later on—copyright protection on both will expire at the same time, meaning different protective terms for each work. These results seem unfair from the narrower vantage point of rewarding equal term lengths to all similarly situated people or work. However, by viewing duration as an expressive incentive, these differential lengths make sense. If protection of the author's personhood interests is an important goal, awarding a term that takes account of the author's particular circumstances fulfills that goal in a way the same fixed term across the board does not.

Duration keyed to an author's being need not only be for the author's lifetime. There are other possibilities, although they might not be as strongly expressive of protecting authorship interests. For example, copyright duration might alternatively be keyed to the artist's career. Or, in a weaker form of protection of authorship interests, duration might be based on a fixed term with renewals keyed to the author's continuing lifetime. In fact, duration used to take this form.[324]

Whether Congress intended this expressive effect for the 1976 change in durational structure, my explanation makes sense of the change, perhaps moreso than its

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[320] That said, extending copyright duration beyond the lifetime of the author arguably goes beyond a moral-rights justification, given that the author is no longer alive. *Copyright Term Extension*, *supra* note 25, at 682-83 (statement of Wendy Gordon). However, the addition of seventy years past the author's lifetime acts like an insurance policy, giving some certain degree of protection, when a person creates a copyrightable work toward the end of his or her life.

[321] 1976 HOUSE REPORT, *supra* note 293, at 133.

[322] This understanding also makes sense of copyright's durational structure for works of joint authorship. *Supra* note 303. For such works, copyright endures until seventy years after the death of the last surviving joint author. 17 U.S.C. § 302(b). This way, all joint authors' personhood interests are undoubtedly protected.

[323] Avishalom Tor & Dotan Oliar, *Incentive To Create Under a "Lifetime-Plus-Years" Copyright Duration*, 36 LOY. L.A. L. REV. 437, 480-81 (2002). Tor and Oliar offer a different and complementary explanation of why individuals prefer a lifetime-plus-years term to a comparable fixed term. They suggest that individuals are not fully rational, overestimating duration under a life-plus-years term. *Id.* at 441-42. They hypothesize that authors are overly optimistic about how long they will live, an effect compounded when individuals add together unlike quantities (here, lifetime and a fixed term of years). *Id.* at 458-88.

[324] *Supra* TAN 290.

asserted reasons. One ground suggested that the change would simplify matters for users of copyrighted materials, as all of an author's copyrights would expire at once.[325] Surely, that is true. But it also creates additional offsetting complications, which make it unlikely that this change alone justifies the structural change. For one thing, a term fixed to the author's lifetime is more difficult to trace than one fixed to some fact about the relevant work. For example, it is harder to know if a book's author is still alive (or ascertain the author's date of death) than to know when a book's copyright was registered (or when the book was published, for that matter).[326] For another thing, it becomes harder to determine copyright duration for works made up of separate contributions (such as a book comprised of original essays), as the copyright in each contribution will expire at the conclusion of seventy years following the date of its author.

Another rationale offered by Congress was that of conforming to the life-plus-years duration of other countries.[327] Accordance with other countries' durational structure must have been a thumb on the scale in favor of the switch in durational structure. Harmonization would ensure simplicity, in that copyrights on the same work in many countries would expire simultaneously, and without foreign resentment at more restrictive terms in the United States.[328] But this interest could not have been the whole weight, given how the United States ignores its treaty obligations or countervailing foreign laws in other areas of intellectual property.[329] In fact, Bruce Lehman, the Assistant Secretary of Commerce in 1995, testified before Congress that the life-plus-years structure was easy for the United States to adopt because our legislators were in agreement with it anyhow.[330]

It is likely that, rather than harmonizing just for its own sake, Congress also wanted to accord with other countries' durational structure because it was convinced on the merits that this structure was appropriate.[331] In fact, France's adoption in the 1790s of a copyright duration of at least the author's lifetime sounded in large part in the authors' rights in the personal artistic property they create.[332] Similarly, the 1948 Berne Convention for the Protection of Literary and Artistic Works and its precursors advocated duration for the author's lifetime plus at least thirty years, emphasizing the centrality of authors' rights in their works.[333]

Compare the expressive incentive offered by copyright's general durational structure with its absence in the durational structure for works made for hire. Recall that the current duration for works for hire is ninety-five years from the year of first publication or one hundred twenty years from creation, whichever expires sooner.[334]

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[325] *Supra* TAN 295.
[326] Landes & Posner, *supra* note 7, at 361; Tor & Oliar, *supra* note 323, at 456.
[327] *Supra* TAN 296-298.
[328] *Supra* TAN 296-298.
[329] Two examples are patent law's first-to-invent standard in the face of a first-to-file standard around the world, *infra* section D, and moral-rights protections, KWALL, *supra* note 39, at 25-52.
[330] *The Copyright Term Extension Act of 1995: Hearing on S. 483 Before the Senate Comm. on the Judiciary*, 104th Cong. 31 (1995).
[331] Elder, *supra* note 315, at 418, 421.
[332] 1 SAM RICKETSON & JANE C. GINSBURG, INTERNATIONAL COPYRIGHT AND NEIGHBOURING RIGHTS: THE BERNE CONVENTION AND BEYOND 5-6 (2d ed. 2006).
[333] *Id.* at 44-46, 49, 72-73; SAM RICKETSON, THE BERNE CONVENTION FOR THE PROTECTION OF LITERARY AND ARTISTIC WORKS: 1886-1986, at §§ 7.9, 7.14 (1987).
[334] *Supra* TAN 307.

Commentators justifying the differential durations for works for hire and other copyrightable works do so on both practical and theoretical grounds. When ownership automatically vests in the employer, often a corporation or other enduring entity, duration cannot typically be measured against the employer's lifetime.[335] Practically, it must be keyed to something else, such as the creation or publication date.[336] Nonetheless, duration might still have been keyed to the lifetime of the creator, a natural person.[337] Future work ought to explore whether works made for hire should be treated differently. It is unclear whether a work for hire's creator—an employee working for a salary or someone toiling away on a commissioned work—already has sufficient incentive to create absent copyright protection, namely the creator's wages.[338] Is this situation sufficiently distinct from creation of other copyrightable material, which frequently occurs outside of the corporate environment, even if corporate interests are ultimately assigned many of these copyrights? A patron that owns copyright in a work plausibly needs copyright's protection against free riders (thus supplying the incentive to employ creative people).[339] As such, copyright law must protect these creative patrons. Is that to say, however, that the individual creator of a work made for hire needs no incentive to spur creation? If copyright law's assumption is wrong, it might be worthwhile to consider keying duration for works made for hire to the individual creator's lifetime, thereby also reasserting this creator's presence in copyright law.

Now consider patent duration. Recall that patent duration is currently determined by reference to administrative acts related to seeking a patent: the date of patent application (although until recently it was keyed to the date of patent grant). In a strong sense, however, patent duration is a fixed term keyed to the invention date. The patent-application date is presumptively seen as the invention date, via the application's constructive reduction to practice of the invention.[340]

Under either view, patent's durational structure directs attention to the invention or patent right, with nary a reference to the inventor. In some ways, that is unsurprising, given that patent law focuses so heavily on the invention itself by asking whether it is new, nonobvious, and useful before granting a patent. As I show in prior work, these questions are all designed principally to assess whether the invention solves a problem worthy enough to deserve a valuable patent right.[341] Perhaps in this sense patent law is less occupied with the inventor's personhood, just as inventors themselves seem to concede some personhood to create a functional invention solving a particular problem.[342]

Or, perhaps, patent law's durational structure is misguided. There is persuasive evidence that individual inventors have sufficient personhood interests in their inventions (albeit possibly different ones than authors have in their artistic works).[343] For these

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[335] Crews, *supra* note 266, at 194, 214-19.
[336] *Id.*
[337] *Cf. id.* at 237 ("[T]he copyright law of many other countries is centered more on the interests of the author, or the person who actually did the creative work, whether or not in the context of employment.").
[338] Sterk, *supra* note 3, at 1229.
[339] *Id.*
[340] Hyatt v. Boone, 146 F.3d 1348, 1352 (Fed. Cir. 1998).
[341] Fromer, *supra* note 110.
[342] *Supra* section II.B.2.
[343] *Id.*

inventors, patent duration might do a better job of indicating its protection of them vis-à-vis their inventions in a way that encourages more or better innovation. A useful way to do this might be to key patent duration to these inventors and their personhood interests in some way, as with copyright duration's expressive incentive.

This possibility does not require lengthening patent duration to inventors' lifetimes, let alone a lifetime-plus-years structure. Assuming there are good reasons to keep patent duration at approximately the same length as it is now, one could key duration to the inventor without lengthening the patent term. One possibility is to create a roughly equivalent term, although broken up with the possibility of extensions keyed to the inventor's continuing lifetime. Another option is to key duration to the inventor's remaining career duration, which is more likely to fall in line with the twenty years currently afforded to a patentee from the date of patent application. A patent duration keyed to the inventor could have the effect of communicating to the inventor that his or her personhood is important to the patent system and will be protected. Moreover, it could protect inventors' moral-rights interests in their creations for a duration commensurate with those interests, as copyright's general durational structure does. This in turn could help strengthen the utilitarian incentive that patent law offers to stimulate innovation.

C. Right of Reversion

As with copyright's durational structure, copyright law's right of reversion expresses solicitude for and protects authors' moral-rights interests. Going back to England's 1710 Statute of Anne, copyright law gave authors a right of reversion.[344] The Statute of Anne provided that if a work's author was still living after the copyright term of fourteen years, the copyright would return to the author for another equal term.[345] As Lionel Bently and Jane Ginsburg explain, "[i]n theory, the second fourteen years should have enabled the author to grant rights anew from a stronger bargaining position should her work have earned a substantial audience."[346] Ostensibly, then, this right's purpose was to help authors who might have contracted away their rights to the first copyright term for too little money.[347] However, this right frequently went unexercised for two reasons. First, authors would commonly contract away their full copyright (including the reversionary right) to a publisher.[348] Second, at that historical juncture, by the time the reversionary right kicked in, it was typically not worth exercising: either because an author's work became valueless within the first term or the work became so valuable that the author was already updating the work, thus securing another copyright anew (along with an opportunity to renegotiate unfair terms).[349]

When the United States enacted its first copyright law, it built on the Statute of Anne in many ways, but did not expressly include a right of reversion to authors, even though it granted two sequential copyright terms of fourteen years each, the second contingent on the author's survival.[350] As in England, authors could contract away the

[344] Bently & Ginsburg, *supra* note 65.
[345] Statute of Anne, 1710, 8 Ann., c.19, § 1 (Eng.).
[346] Bently & Ginsburg, *supra* note 65.
[347] *Id.*
[348] *Id.*
[349] *Id.*
[350] Copyright Act of May 31, 1790, ch. 15, 1 Stat. 124.

full two terms.[351] In the nineteenth century, courts became more protective of the author, allowing the author to contract away the second term in advance only expressly.[352] In response, publishers' contracts typically had authors give up both terms expressly, without separate consideration for the second term.[353]

1976 brought a more robust right of reversion to copyright law. The new law gave the author (or statutory heir) a right to terminate any grant of the copyright from thirty-five to forty years from the grant date (with between two and ten years of advance notification of termination).[354] Nonetheless, this right has been less author-protective than it might seem, as the advance notice requirement is not author-friendly and courts have sometimes allowed authors to relinquish the right.[355] The right is in fact infrequently exercised.[356] Moreover, there is no termination right provided to the individual creators of a work made for hire.[357]

In two ways, this right of reversion can serve as an expressive incentive. First, even if it is not exercised very much, it sends a powerful signal to authors that copyright law cares about the personhood, labor, and possessory interests they have in their work, by allowing them to regain control of the rights in their work at a certain point in time. Second, to the extent it can plausibly be exercised, the right is protective of those same moral-rights interests authors have in their works. The right of reversion can be seen as restoring to the author control over the work on which he or she labored and infused with personhood. Rights in works which, to the author, are intimately linked with the author's being can be reunited, so to speak, with the author. With this right, then, copyright law might be understood as offering the expressive incentive of control, of knowing that a decision to contract away rights will not—even legally—extinguish the moral rights the author believes attach to the copyrighted work.

D. Originality

Another illustration of expressive incentives can be found in copyright law's originality requirement. As noted earlier, copyright protection extends to fixed original works of authorship.[358] In this section, I show how the originality requirement, while not protective of authors' moral-rights interests in any substantive way, expresses solicitude for them. As such, unlike the traditional view of originality as a mere restriction,[359] the originality requirement can be seen also as an expressive incentive.

The Supreme Court's most recent formulation of the originality requirement occurred in *Feist Publications, Inc. v. Rural Telephone Service Co.*,[360] a case involving the copyrightability of a local telephone directory listing names in alphabetical order

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[351] Bently & Ginsburg, *supra* note 65.
[352] *Id.* (citing cases).
[353] *Id.*
[354] 17 U.S.C. § 203.
[355] Bently & Ginsburg, *supra* note 65.
[356] L. RAY PATTERSON & STANLEY F. BIRCH, JR., A UNIFIED THEORY OF COPYRIGHT (Craig Joyce ed., 2009), *printed in* 46 HOUS. L. REV. 259, 272 (2009).
[357] 17 U.S.C. § 203.
[358] *Supra* TAN 11-12.
[359] *E.g.*, Ginsburg, *supra* note 117, at 1870; Diane Leenheer Zimmerman, *It's an Original! (?): In Pursuit of Copyright's Elusive Essence*, 28 COLUM. J.L. & ARTS 187, 189–90 (2005).
[360] 499 U.S. 340 (1991).

along with their towns and telephone numbers.[361] The *Feist* Court held that work is original so long as it "was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity."[362] The requisite level of creativity, according to the Supreme Court, "is extremely low; even a slight amount will suffice."[363] A work must merely evidence "intellectual production, … thought, and conception."[364] Originality does not match up to a requirement of true novelty; a minimally creative work is protectable even if there is a nearly identical work, so long as the other work was not copied.[365] As Judge Learned Hand observed, "[I]f by some magic a man who had never known it were to compose anew Keats's *Ode on a Grecian Urn*, he would be an 'author,' and, if he copyrighted it, others might not copy that poem, though they might of course copy Keats's."[366] It is thus the rare work that will not meet the low threshold of originality. For example, the Court held that the telephone directory in *Feist* was insufficiently original because its factual raw data did not owe its existence to the directory creator and the selection and alphabetical arrangement of the directory entries is not creative enough.[367] The threshold for copyright protection is thus minimal but not absent.

Even though there are some works of authorship that are insufficiently original to receive copyright protection, they are few compared with the vast set of authored works that qualify under the minimal originality standard.[368] In this sense, copyright law would protect almost the same set of works absent its originality standard. As a practical matter, why then include a nominal originality standard?

Of course, one answer might be that it is worthwhile to exclude certain unoriginal works from copyright, even if they are few and far between.[369] This traditional view sees originality as a restriction in copyright law.

An additional way to see originality, though, is as an expressive incentive. It communicates to authors that it will protect works infused with the author's personality. In both of its components—independent creation and a modicum of originality—copyright's standard of originality highlights, as I explore in depth in previous work, "an author identifying subjective emotional themes or ideas to transform into artistic expression."[370] With regard to the requirement of independent creation, the emphasis is

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[361] *Id.* at 342.
[362] *Id.* at 345.
[363] *Id.*
[364] *Feist*, 499 U.S. at 362.
[365] *Id.* at 345-46.
[366] Sheldon v. Metro-Goldwyn Pictures Corp., 81 F.2d 49, 54 (2d Cir. 1936). Others might copy Keats's poem because any copyright on it has long expired, leaving the work in the public domain. John C. O'Quinn, *Protecting Private Intellectual Property from Government Intrusion*, 29 PEPP. L. REV. 435, 504 n.455 (2002).
[367] *Feist*, 499 U.S. at 361–64.
[368] Alan E. Garfield, *Calibrating Copyright Statutory Damages To Promote Speech*, 38 FLA. ST. U. L. REV. 1, 34 (2010).
[369] There is debate over whether the Supreme Court's understanding of originality is sensible. *Compare* Zimmerman, *supra* note 359, at 205-06 (suggesting that it accords with the Constitution's minimal requirements for copyright) *with* Ginsburg, *supra* note 117, at 1907-13 (arguing in favor of protection for certain works that are often considered to have "low authorship," principally facts and information collected in databases).
[370] Fromer, *supra* note 110, at 1492.

on the personal discovery of a subjective problem that artists express in their work. Justice Holmes recognized as much in one of the Supreme Court's most notable copyright decisions, *Bleistein v. Donaldson Lithographing Co.*[371] In holding a color poster advertising a circus to be copyrightable,[372] Justice Holmes wrote that creation of an artistic work "is the personal reaction of an individual upon nature. Personality always contains something unique. It expresses its singularity even in handwriting, and a very modest grade of art has in it something irreducible, which is one man's alone. That something he may copyright…."[373]

The emphasis helps explain why it is that Judge Learned Hand's hypothetically (though improbably) identical and subsequent version of Keats's *Ode on a Grecian Urn* receives copyright protection, even though Keats's version—an identical problem solution—is already a part of the cultural fabric. Because locating the themes and emotions typically necessary to artistic creativity is so personal, copyright law places greater value on rewarding authors for using their pen to convert their valuable emotional and subjective concepts into an artistic product than on making sure that identical works do not receive a copyright.[374] Relatedly, independently created artistic works appropriating the works of others, such as those of Jeff Koons,[375] can nonetheless contain sufficient personhood to be original.[376]

The originality standard thus expresses solicitude for authors' personhood interests in their works. As such, it ought to signal to authors that copyright laws will be protective of these interests in significant ways. In this way, it can serve as an expressive incentive for authors, even though it does not directly protect authors' moral-rights interests.

E. First To Invent

One can observe a similar expressive incentive at work in patent law with regard to its first-to-invent standard. After describing this standard and its unique position in the international scheme of patent law, I explain how it can serve as an expressive incentive, in addition to being a threshold requirement for patentability.

As discussed above, a patent can be obtained on an invention that is novel, useful, and nonobvious.[377] Suppose two inventors come up with the same invention. Patent law dictates that only one of them is entitled to a patent in that invention: the person who was the first to invent.[378] The law has a mechanism for determining priority between competing claims to inventorship: "there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence

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[371] 188 U.S. 239 (1902).
[372] *Id.* at 251.
[373] *Id.* at 250. That said, *Feist*'s rejection of copyright protection for sweat-of-the-brow works also renounces any solicitude for an author's labor interests in those works.
[374] Fromer, *supra* note 110.
[375] *E.g.*, Blanch v. Koons, 467 F.3d 244 (2d Cir. 2006).
[376] *Cf.* Hughes, *supra* note 55, at 127 (arguing that an appropriation artist might be "trying to *recapture* and *reconvey* his own personal expression").
[377] *Supra* TAN 19-21.
[378] Dennis D. Crouch, *Is Novelty Obsolete?*, 16 MICH. TELECOMM. & TECH. L. REV. 53, 54 (2009); Mark A. Lemley & Colleen V. Chien, *Are the U.S. Patent Priority Rules Really Necessary?*, 54 HASTINGS L.J. 1299, 1299 (2003).

of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other."[379]

By contrast, patent law in almost every other country employs a first-to-file system, awarding a patent to the first applicant (to have invented).[380] There has been a strong push, most recently in the most recent attempt at patent reform this year,[381] to change American patent law to a first-to-file system.[382] Proponents emphasize that harmonization with the rest of the world's laws would help establish consistency in entitlement to patent rights.[383] They also suggest that the administrative costs of resolving disputes over priority far exceed those for determining the first filer's identity.[384] Opponents of this legal change maintain that the change would discriminate against small firms or individual inventors, who might take longer to file a patent application than a big firm would.[385] They argue that a switch might be unconstitutional, stating that Congress is authorized to award patent rights only to inventors.[386]

Whichever side one takes in this debate, there seems to be a strong sense that the fairest rule in the abstract is to award patent rights to the first to invent, but for the administrative costs and harmonization interest.[387] Even though a first-to-file system would likely produce differences in priority in a tiny fraction of patents issued annually,[388] there are numerous proponents of retaining the first-to-invent system.

What seems to drive the notion that it is fair to vest patent rights in the first to invent is likely linked closely to inventors' personhood and labor interests. Inventors hold strong reputational interests in their creations, and as such are strongly invested in attribution of their inventions to them.[389] More broadly, inventors tend to feel strong personhood and psychological possessory interests in their creations.[390] Robert Merton has observed that "fights over priority, with all the typical vehemence and passionate feelings, are not merely expressions of hot tempers, although these of course raise the temperature of controversy; basically, they constitute responses to what are taken to be violations of the institutional norms of intellectual property."[391] Merton notes

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[379] 35 U.S.C. § 102(g).
[380] Crouch, *supra* note 378, at 54-56.
[381] Patent Reform Act of 2011, S. 23, 112th Cong. § 2.
[382] Crouch, *supra* note 378, at 57-59.
[383] Lemley & Chien, *supra* note 378, at 1302-05.
[384] *Id.*
[385] *Id.* at 1299.
[386] Karen E. Simon, *The Patent Reform Act's Proposed First-To-File Standard*, 6 J. MARSHALL REV. INTELL. PROP. L. 129, 150 (2006).
[387] Max Stul Oppenheimer, *Harmonization Through Condemnation*, 40 VAND. J. TRANSNAT'L L. 445, 468 (2007) (citing other proponents of this view); *cf.* Adam J. Sedia, *Storming the Last Bastion: The Patent Reform Act of 2007 and Its Assault on the Superior First-To-Invent Rule*, 18 DEPAUL J. ART, TECH. & INTELL. PROP. L. 79, 124-25 (2007) (explaining how even countries that have first-to-file systems allow for prior user rights, "indicat[ing] at least general discomfort with the fairness of an absolute first-to-file system").
[388] *See* Lemley & Chien, *supra* note 378, at 1331 (emphasizing, however, that the number "is no smaller—and indeed is somewhat larger—than the percentage of patents that are ever enforced").
[389] *Supra* TAN 169-174.
[390] *Supra* section II.B.2.
[391] MERTON, *supra* note 136, at 293.

furthermore that these institutional norms in intellectual property are borrowed from the norms of the scientific community itself.[392]

It would seem, then, that American patent law's first-to-invent standard can serve as an expressive incentive to inventors. It prominently signals to inventors that their personhood norms—including reputation and self-concept—are accorded respect in patent law's award of rights.[393] In addition, then, to serving as a restriction on who might receive a patent, it can spur inventors to invent in the constraints of the patent system by expressing solicitude for their interests. This insight should give Congress pause before it replaces the first-to-invent standard with a first-to-file one.

F. Claiming

As a final illustration of expressive incentives, consider the requirement in patent law that an inventor include in his or her patent "one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."[394] Effectively, then, the inventor must define the invention: for a machine, say, the inventor would typically set out its parts, and their interactions in operation, and for a process, its steps. As I discuss in previous work, the objective of this claiming is to communicate clearly the invention covered by a patent.[395] This communication is important, both for ensuring that the public knows what it can and cannot use during the patent term without a license and for helping the PTO and others examine the invention's scope for assessing the patent's validity.[396]

Patent law's claiming requirement thus asks inventors to envision the full extent of their invention and then decide how much of that to claim. When an inventor files a patent application, it is either individually or on behalf of an assignee.[397] In either case, the inventor must take an oath that he or she invented the creation described in the patent claims,[398] ensuring even in the latter case that the inventor can influence the claim scope. Of course, patent applicants cannot always claim as broadly as they might want. PTO examiners might, for reasons of patent validity, persuade or require patent applicants to narrow their claims.[399] Nonetheless, inventors can still play a significant role in defining their invention, beyond merely having created the invention.

This claiming requirement can be viewed as an expressive incentive to inventors. By giving inventors a degree of control over defining their invention, patent law expresses solicitude for and protects inventors' personhood and labor interests. For one thing, it reinforces the psychological possessory interest they feel in the invention. Moreover, it enables inventors to define the invention so closely linked with their self-concept. Additionally, claiming can help inventors control the shape of their reputation. Finally, beyond protecting their moral-rights interests, the mere fact that inventors claim

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[392] *Id.*
[393] *Cf.* Ryan K. Dickey, *The First-To-Invent Patent Priority System*, 24 B.U. INT'L L.J. 283, 292 (2006) ("Arguments to retain the first-to-invent system are especially powerful in light of non-utilitarian theories, such as fairness and personhood.").
[394] 35 U.S.C. § 112.
[395] Jeanne C. Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719, 731 (2009).
[396] *Id.*
[397] *Supra* section A.
[398] 35 U.S.C. § 115.
[399] Mark A. Lemley & Bhaven Sampat, *Examining Patent Examination*, 2010 STAN. TECH. L. REV. 2, 6.

their inventions expresses solicitude for these same interests, by indicating that the inventor is well-situated to do so.

By contrast, consider copyright law's lack of a requirement that authors claim their works to secure copyright protection, beyond having written a protectable work in the first place.[400] Depending on one's view of art, this configuration can be seen as an expressive incentive itself or a lack thereof. Some authors, grounded in classical and Romantic traditions, "ought to have no compunction about enunciating the essential criteria [of their works], whether they are objective or reflective of his own personality."[401] But authors convinced that "art [is defined] by the effect it has on the world, regardless of the creator's intent," "might be reluctant to characterize their art based on their own interpretive views."[402] Authors falling into the first camp might view claiming requirements akin to patent law's as offering an expressive incentive, while those of the second view would find the current framework more in step with offering an expressive incentive to leave authors free from defining the works in which they have strong personhood or labor interests.

All in all, the illustrations offered in this Part show just some ways in which expressive incentives manifest (or fail to show up) in intellectual property laws. They shed light on some considerations one might want to consider in studying the ideal mix of expressive and traditional pecuniary incentives, including where they might best manifest in copyright and patent law and the kinds of interests expressive incentives might protect.

CONCLUSION

This Article shows that what most scholars have seen as a conflict between theories of utilitarianism and moral rights in intellectual property can in fact come together in a useful harmony. Moral-rights interests, if employed intelligently in the form of expressive incentives, can increase the utilitarian incentive to create copyrightable or patentable works at minimal cost to society, thereby helping intellectual property laws fulfill their constitutional purpose. In that sense, this Article's aim is to complicate the understanding of incentives, beyond traditional pecuniary ones, to include expressive incentives. This Article illustrates many areas in which expressive incentives might be seen as currently residing in copyright and patent law: attribution, durational structure, copyright's originality requirement and right of reversion, patent's first-to-invent standard, and claiming in patent law.

Although this Article's goal has been to deepen the discussion of incentives in intellectual property laws, the ultimate goal of this line of inquiry is to illuminate the ideal mix of pecuniary and expressive incentives. As future work, a number of empirical projects would be particularly beneficial. First, it would be helpful to understand when pecuniary incentives might be traded away for expressive ones. For instance, would creators prefer copyright duration lasting for the author's lifetime to a statistically longer, but fixed, duration? Would creators be willing to relinquish some of intellectual property laws' exclusive (pecuniary) rights for a practicable form of attribution? Second, understanding the effects of different expressive incentives on creation would be valuable. One might compare regimes based on whether they confer moral rights of

[400] Fromer, *supra* note 395, at 743-52.
[401] *Id.* at 789.
[402] *Id.*

sorts: for example, the production of visual art before and after VARA's enactment; countries with moral-rights protections and comparable ones without; and regimes with a first-to-invent standard and those with a first-to-file standard. Relatedly, we need to understand the costs and benefits of particular expressive incentives, such as attribution to a creator in a protected work itself as compared with in legal registration or application. Finally, it is important to probe how much incentives should speak to creators and how much to the firms that typically take pecuniary control of creators' works. A richer understanding of pecuniary and expressive incentives will go a long way to optimizing intellectual property laws.