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ARTICLE

CREATING AROUND COPYRIGHT

Joseph P. Fishman

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CREATING AROUND COPYRIGHT

Joseph P. Fishman*

It is generally understood that the copyright system constrains downstream creators by limiting their ability to use protected works in follow-on expression. Those who view the promotion of creativity as copyright's mission usually consider this constraint to be a necessary evil at best and an unnecessary one at worst. This conventional wisdom rests on the seemingly intuitive premise that more creative choice will deliver more creativity. Yet that premise is belied by both the history of the arts and contemporary psychological research on the creative process. In fact, creativity flourishes best not under complete freedom, but rather under a moderate amount of restriction. Drawing from work in cognitive psychology, management studies, and art history, this Article argues that contemporary copyright discourse has overlooked constraint's generative upside. The Article unpacks the concept of constraint into seven characteristics: source, target, scope, clarity, timing, severity, and polarity. These characteristics function as levers that determine a given constraint's generative potential. Variation in that potential provides an underappreciated theoretical justification for areas in which copyright law is restrictive, such as the exclusive derivative work right, as well as areas where it is permissive, such as the independent creation and fair use defenses. The Article reveals that the incentives versus access debate that has long dominated copyright theory has misunderstood the relationship between creativity and constraint. Information may want to be free, but creativity does not.

INTRODUCTION

“Art is always the result of constraint. To believe that it rises higher as it becomes freer is to believe that what keeps a kite from rising is its string.”

— André Gide, 1904¹

Copyright constrains creators. Although the grant of exclusive rights incentivizes some to produce new information, it also limits others' ability to use that information as raw material for follow-on expression. Copyright owners are in most cases entitled to charge any

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¹ ANDRÉ GIDE, *The Evolution of the Theater*, in MY THEATER 263 (Jackson Matthews trans., 1952).

license fee they wish or to refuse to license altogether, so proprietary information is often burdensome to appropriate lawfully.

To intellectual property scholars, that burden has long been a common target. On the standard account, copyright protections exist primarily in order to promote creativity.² Because creativity is a cumulative process, entitling upstream creators to control downstream use has traditionally been justified as a necessary evil, socially valuable only to the extent that it stimulates upstream creation in the first place.³ Many believe that this value has been overstated. Our copyright system, the argument goes, ends up stifling more downstream creativity than is offset by the marginal upstream creativity that the system incentivizes.⁴ Upstream creators would have sufficient motivation to invest in creating even without control of downstream use. Granting them this control raises downstream creators' costs to the point where copyright suppresses more marginal creativity than it encourages. If the necessary evil is not really necessary, then our intellectual property system — an instrument intended to be “subservient to the value of creativity” — has become perverse.⁵

² See, e.g., *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975) (stating that the “ultimate aim” of copyright law is “to stimulate artistic creativity for the general public good”); *Kelly v. Arriba Soft Corp.*, 336 F.3d 811, 820 (9th Cir. 2003) (“The Copyright Act was intended to promote creativity, thereby benefitting the artist and the public alike.”); *Warner Bros. Inc. v. Am. Broad. Cos.*, 720 F.2d 231, 240 (2d Cir. 1983) (“It is a fundamental objective of the copyright law to foster creativity.”); Julie E. Cohen, *Creativity and Culture in Copyright Theory*, 40 U.C. DAVIS L. REV. 1151, 1151 (2007) (“Creativity is universally agreed to be a good that copyright law should seek to promote . . .”); Ned Snow, *The Regressing Progress Clause: Rethinking Constitutional Indifference to Harmful Content in Copyright*, 47 U.C. DAVIS L. REV. 1, 40 (2013) (“[I]n no uncertain terms the Court has articulated a view of copyright that defines the primary objective of copyright as creativity or originality (which turns on creativity).”).

³ See, e.g., WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 69 (2003); Michele Boldrin & David K. Levine, *Does Intellectual Monopoly Help Innovation?*, 5 REV. L. & ECON. 991, 991 (2009); Mark A. Lemley, *Ex Ante Versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 131 (2004).

⁴ See *infra* section II.A, pp. 1346–51. There are other prominent critiques that I do not take up in this Article. Among these are the familiar problem that copyright's monopoly rents impose deadweight loss on society, see, e.g., LANDES & POSNER, *supra* note 3, at 11; the rights-based argument that the First Amendment entitles downstream creators the liberty to express themselves using elements of others' copyrighted works, see, e.g., Rebecca Tushnet, Essay, *Copy This Essay: How Fair Use Doctrine Harms Free Speech and How Copying Serves It*, 114 YALE L.J. 535 (2004); and the claim that human flourishing requires the capability to participate in cultural meaning making in ways that copyright law limits, see, e.g., William Fisher, *Theories of Intellectual Property*, in *NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY* 168, 192–93 (Stephen R. Munzer ed., 2001). My goal is to address the creativity debate on its own terms.

⁵ LAWRENCE LESSIG, *FREE CULTURE* 19 (2004). The same critique, right down to the master/servant metaphor, can be found in JAMES BOYLE, *THE PUBLIC DOMAIN* 15 (2008), which argues that “[c]opyright, intended to be the servant of creativity . . . is becoming an obstacle.”

Much of scholars' criticism focuses on the creations that might have been made if creators had fewer constraints.⁶ The existing literature, however, gives little attention to the question of how restrictions on downstream reuse affect the expressive works that downstream creators are likely to make. What is the result of pushing those downstream to create around a copyright?

Paradoxically, the result is often new creativity. George Lucas crafted the plot for *Star Wars* only after he failed to get a license for a remake of *Flash Gordon*. Unable to use the precise creative universe he initially identified, he distilled particular visual and thematic aspects of that universe and used them to construct the now-familiar setting a long time ago in a galaxy far, far away.⁷ Video game enthusiasts have a similar licensing holdup to thank for *Donkey Kong* and the birth of the Mario character, which its creator initially intended to be Popeye.⁸ Historical accounts of the Fashion Originators' Guild, which in the 1930s began enforcing private restrictions on copying fashion designs, report that the prohibitions increased design innovation.⁹ Today, many musicians who rely on sampling have developed new, intricate forms of layering and collage in an effort to work around copyright limits on simpler uses of samples.¹⁰ A filmmaker finds artistic inspiration in the search for affordable soundtrack music after his first choice has proven too expensive.¹¹ A poet who riffs off others' texts finds similar inspiration in having to stay within the boundaries of the fair use defense.¹² "Rather than limiting my creativity," he says, "these

⁶ See, e.g., LESSIG, *supra* note 5, at xiv (arguing that, in order to promote creativity, "follow-on creators and innovators [should] remain as free as possible from the control of the past"). For other examples, see section II.A, *infra* pp. 1346–51.

⁷ J.W. RINZLER, *THE MAKING OF STAR WARS* 4 (2007).

⁸ See JEFF RYAN, *SUPER MARIO: HOW NINTENDO CONQUERED AMERICA* 23 (2011); ADAM SUTHERLAND, *THE STORY OF NINTENDO* 30 (2012); Nick Paumgarten, *Master of Play*, *NEW YORKER*, Dec. 20, 2010, at 86.

⁹ See C. Scott Hemphill & Jeannie Suk, *The Law, Culture, and Economics of Fashion*, 61 *STAN. L. REV.* 1147, 1194 & n.192 (2009) (collecting historical sources).

¹⁰ See KEMBLEW MCLEOD & PETER DICOLA, *CREATIVE LICENSE: THE LAW AND CULTURE OF DIGITAL SAMPLING* 190–91, 195–96 (2011); Thomas W. Joo, *Remix Without Romance*, 44 *CONN. L. REV.* 415, 457–58 (2011); Justin Morey, *Copyright Management and Its Effect on the Sampling Practice of UK Dance Music Publishers*, *J. INT'L ASS'N FOR STUDY POP. MUSIC*, 2012, at 48, 59.

¹¹ See David Newhoff, *Copyright and the Creative Process*, *THE ILLUSION OF MORE* (July 7, 2013), <http://illusionofmore.com/copyright-and-the-creative-process> [http://perma.cc/3CAL-KTB3].

¹² Austin Kleon, *Copyright Law and the Art It Inspires*, *N.Y. TIMES: ROOM FOR DEBATE* (Oct. 10, 2012), <http://www.nytimes.com/roomfordebate/2012/10/10/does-the-law-support-inventors-or-investors/copyright-law-and-the-art-it-inspires> [http://perma.cc/E4K3PD4W]. Fair use, a judge-made doctrine now codified at 17 U.S.C. § 107 (2012), is "an equitable rule of reason" which "permits courts to avoid rigid application of the copyright statute when, on occasion, it would stifle the very creativity which that law is designed to foster." *Stewart v. Abend*, 495 U.S. 207, 236 (1990) (internal citation omitted) (first quoting *Sony Corp. of Am. v. Universal*

[copyright] constraints make the poems better.”¹³

These works are the product of a fundamental yet underappreciated fact about the creative process: it thrives best not under complete freedom, but rather under a moderate amount of restriction. Scratch the surface of most art forms and you will find a set of rules. Whether it is the structure and meter of a sonnet, the form of a sonata, the plot conventions of a Shakespearean comedy, the technique of classical ballet, or the basic shapes of a Cubist painting, art typically has a governing framework, a set of conventions that restricts its subjects while still allowing a seemingly infinite number of possibilities within those constraints.¹⁴ Constraint’s creative power is the central conceit behind the popular cooking competition *Iron Chef*, in which participants must prepare dishes featuring a surprise ingredient. Indeed, competing on that show is how Amanda Cohen, chef at the popular vegetarian restaurant Dirt Candy in New York City, came up with the idea for the restaurant’s signature dish.¹⁵ Even art that appears to be freeform and improvisatory is subject to rules. A jazz solo conforms to the harmony of the accompaniment. Improv comedians perform sketches revolving around fixed themes. And when artists rebel against a particular framework, they nearly always adopt a new one.¹⁶ Arnold Schoenberg, for example, famously abandoned tonality in musical composition, only to adopt the rules of twelve-tone technique.¹⁷ In each of these cases, the rules that define artistic conventions generate endless possibilities for exploring the same playing field.¹⁸

City Studios, Inc., 464 U.S. 417, 448 (1984), then quoting Iowa State Univ. Research Found., Inc. v. Am. Broad. Cos., 621 F.2d 57, 60 (2d Cir. 1980).

¹³ Kleon, *supra* note 12.

¹⁴ See JON ELSTER, ULYSSES UNBOUND: STUDIES IN RATIONALITY, PRECOMMITMENT, AND CONSTRAINTS 209–13 (2000); see also Clive James, *Hit Men*, NEW YORKER, July 7, 1997, at 70, 72 (noting in reference to movie production budgets that “[t]o accept and transcend limitation can be a source of creative vibrancy, whereas to eliminate it with money almost always leads to inertia”).

¹⁵ SENDHIL MULLAINATHAN & ELDAR SHAFIR, SCARCITY: WHY HAVING SO LITTLE MEANS SO MUCH 19–20 (2013); see also Marc Graser, *Fresh Ingredients Infuse “Top Chef,”* VARIETY (Nov. 6, 2012, 4:00 AM), <http://variety.com/2012/tv/news/fresh-ingredients-infuse-top-chef-1118061766> [<http://perma.cc/KM2D-CRM2>] (quoting *Top Chef* executive producer’s view that the program is about “how the constraints of working with limited ingredients and resources force you to make more creative choices” (internal quotation marks omitted)).

¹⁶ See Philip N. Johnson-Laird, *Freedom and Constraint in Creativity*, in THE NATURE OF CREATIVITY 202, 212–13 (Robert J. Sternberg ed., 1988).

¹⁷ See MARGARET A. BODEN, THE CREATIVE MIND 95 (2d ed. 2004).

¹⁸ See *id.*; Dean Keith Simonton, *Creativity in Personality, Developmental, and Social Psychology: Any Links with Cognitive Psychology?*, in CREATIVE THOUGHT 309, 311 (Thomas B. Ward et al. eds., 1997).

Constraint's generativity extends beyond the arts.¹⁹ Entrepreneurial firms have begun to embrace constraint as an organizational management philosophy. They have found that having to design around a limitation yields new ideas that would not have emerged as quickly in the absence of that limitation.²⁰ That means embracing existing constraints, like budgets or scarcity of raw materials, as stimuli for unconventional solutions. It also means voluntarily imposing artificial prohibitions, like a hypothetical illegalization of an existing business model.²¹ No less an innovator than Google summed up this attitude in its oft-repeated principle that "[c]reativity loves constraint."²² Marissa Mayer, an architect of that principle at Google and now-CEO of Yahoo!, has stated that "[c]reativity thrives best when constrained," attributing Google's innovation in software to the company's need to satisfy a heterogeneous consumer base.²³

That a decrease in creative freedom could yield an increase in creative production is a process already well known to psychologists. In both controlled experiments and fieldwork, researchers have found that a moderate amount of constraint increases creativity.²⁴ Limitlessness lets us default, sometimes unconsciously, to what we have seen before. As one researcher put it, "[w]ithout constraints, composition

¹⁹ I adopt here Professor Jonathan Zittrain's definition of generativity as "a system's capacity to produce unanticipated change through unfiltered contributions from broad and varied audiences." JONATHAN ZITTRAIN, *THE FUTURE OF THE INTERNET — AND HOW TO STOP IT* 70 (2008) (emphasis omitted).

²⁰ See, e.g., CHRIS BILTON, *MANAGEMENT AND CREATIVITY* 77–85 (2007); JEFF DYER ET AL., *THE INNOVATOR'S DNA* 78–79 (2011); Michael Gibbert et al., *In Praise of Resource Constraints*, 48 *MIT SLOAN MGMT. REV.* 15 (2007); Scott Dadich, *Design Under Constraint: How Limits Boost Creativity*, WIRED, Feb. 23, 2009, http://archive.wired.com/culture/design/magazine/17-03/dp_intro [<http://perma.cc/98JB-ZXLZ>]; Henry Doss, *Innovation: A Tale of Language, Marissa Mayer, Francis Bacon and the Sonnet*, FORBES (Mar. 4, 2013, 10:00 AM), <http://www.forbes.com/sites/henrydoss/2013/03/04/innovation-a-tale-of-language-marissa-mayer-francis-bacon-and-the-sonnet> [<http://perma.cc/YBT8-LKHT>]; Bill Fischer, *Don't Relax Constraints, Embrace Them*, FORBES (Jan. 9, 2012, 4:25 AM), <http://www.forbes.com/sites/billfischer/2012/01/09/dont-relax-constraints-embrace-them> [<http://perma.cc/4MNZ-4ZEH>]; Matthew E. May, *How Intelligent Constraints Drive Creativity*, HARV. BUS. REV. (Jan. 30, 2013), <http://blogs.hbr.org/2013/01/how-intelligent-constraints-dr> [<http://perma.cc/MXP3-K6ZQ>]; Uri Neren, *The Number One Key to Innovation: Scarcity*, HARV. BUS. REV. (Jan. 14, 2011), <http://blogs.hbr.org/2011/01/the-number-one-key-to-innovati> [<https://perma.cc/C9HN-S7V9>]; David Sturt, *Creativity: How Constraints Drive Genius*, FORBES (July 12, 2013, 1:32 PM), <http://www.forbes.com/sites/groupthink/2013/07/12/creativity-how-constraints-drive-genius> [<http://perma.cc/Y9BT-6WFB>].

²¹ See, e.g., DYER ET AL., *supra* note 20, at 78–79.

²² *Id.* (quoting Marissa Mayer).

²³ Marissa Ann Mayer, *Creativity Loves Constraints*, BLOOMBERG BUSINESSWEEK (Feb. 12, 2006), <http://www.businessweek.com/stories/2006-02-12/creativity-loves-constraints> [<http://perma.cc/V2MZ-PJR0>]. Jeff Bezos, CEO of Amazon.com, adopts a similar stance. In its early days, Amazon had scarce capital. That scarcity stimulated Amazon's development of its associates program, a cheap but effective way to drive traffic to its website. "[F]rugality," Bezos explained, "drives innovation, just like other constraints do. One of the only ways to get out of a tight box is to invent your way out." *Bezos on Innovation*, BLOOMBERG BUSINESSWEEK (Apr. 16, 2008), <http://www.businessweek.com/stories/2008-04-16/bezos-on-innovation> [<http://perma.cc/L2V2-4ETV>].

²⁴ See *infra* section III.B, pp. 1362–69.

takes place in a cul-de-sac of the customary (a familiar subject) and the successful (a style worth an 'A' in the past, in this class)."²⁵ Constraint mitigates this phenomenon. When the mind is forced to navigate within limits and around obstacles, it is less likely to revert to previous solutions. Because human imagination benefits from adding a bit of resistance to the path of least resistance, freedom and creativity often work at cross-purposes.

Copyright scholarship has neglected constraint's generative upside for the production of creative expression downstream. This Article fills that gap. In doing so, it moves beyond the long-running debate in utilitarian copyright discourse that has pit the value of downstream creativity against the need for upstream incentives. Both sides of that debate have embraced a tradeoff starker than need actually exist. Copyright restrictions that produce upstream incentives, like so many other constraints under which creators work, can themselves stimulate creativity. Indeed, copyright excludability can do directly what other constraints can only do obliquely: limit access to the most familiar solutions.

To be sure, there is such a thing as counterproductive constraint. Psychologists describe a curvilinear relationship between creativity and constraint: increasing constraint up to a point increases creative output, but past that point, any further increases will cause that output to drop off.²⁶ Locating that point on the constraint axis is the key to optimizing a cumulative creativity regime, and this Article offers a theoretical model for how to approach the question.

The Article proceeds in five parts. Part I introduces the definition of creativity that I employ here. Part II reviews the place of creative workarounds in intellectual property discourse. Patent commentary going back over fifty years has acknowledged the potential social value in stimulating efforts to develop alternatives to existing technology. The basic insight is that the patentee's right to exclude triggers a virtuous cycle in which one invention begets a competing and sometimes even better invention. Copyright scholarship has paid comparatively little attention to that potential for expressive works. And in neither field have scholars considered how constraint can benefit innovators during the creative process.

Part III surveys the substantial psychology and management literature on creativity under constraint. Building off of that literature, Part

²⁵ Patricia D. Stokes, *Using Constraints to Generate and Sustain Novelty*, 1 PSYCHOL. AESTHETICS, CREATIVITY, & ARTS 107, 107 (2007).

²⁶ See *infra* section III.B, pp. 1362–69; see also ELSTER, *supra* note 14, at 212–13 (observing a curvilinear relationship from perspective of aesthetic theory); Sandra Ohly et al., *Routinization, Work Characteristics and Their Relationships with Creative and Proactive Behaviors*, 27 J. ORG. BEHAV. 257 (2006) (finding curvilinear relationship between time pressure and creativity).

IV develops a model that theorizes when constraints are likely to help and when they are likely to hurt. Because different kinds of constraint affect creativity in different ways, the model here envisions constraint as a combination of several qualitative variables: source, target, scope, clarity, timing, severity, and polarity. A given constraint's generative potential depends on the way it mixes these variables. The inquiry therefore involves asking not only how much but also what kind of constraint is at issue.

Part V uses this model as a lens through which to assess both existing copyright law and potential revisions to it. The degree of a constraint's generativity provides an underappreciated theoretical justification for areas in which copyright law is restrictive, such as the exclusive derivative work right, as well as areas where it is permissive, such as the independent creation and fair use defenses. At the same time, my analysis suggests several ways to make existing copyright constraints more generative than they already are. First, legal actors should make the boundaries of copyright owners' entitlements less fuzzy. Cumulative creativity would be better off with at least some bright lines within an area of law defined almost entirely by ambiguous standards that discourage create-around efforts. Second, even where particular adaptations are infringing, courts should take care not to prohibit the artistic processes that generated them. Creating around product constraints is both more feasible and more engaging than creating around process constraints. Third, because constraints enable creativity best when artists perceive them as challenges to be overcome rather than burdens to be borne, the most generative copyright restrictions will likely be those that creators intrinsically respect. This underscores the importance of avoiding policies likely to stoke popular backlash. For creators who find inspiration in navigating other constraints but not in navigating copyright, the problem may have as much to do with sociocultural factors as it does with the objective qualities of the constraint itself.

I. A BRIEF DEFINITION OF CREATIVITY

In order to measure creativity, one must first be able to recognize it. Copyright doctrine is not well equipped to handle that task, but psychology is. In order to understand the creative process better, legal scholars have in recent years begun to mine the psychological literature for insight that economic models have not been able to provide.²⁷

²⁷ See, e.g., Jeanne C. Fromer, *A Psychology of Intellectual Property*, 104 NW. U. L. REV. 1441 (2010) (protectability thresholds); Gregory N. Mandel, *Left-Brain Versus Right-Brain: Competing Conceptions of Creativity in Intellectual Property Law*, 44 U.C. DAVIS L. REV. 283 (2010) (joint creation); Erez Reuveni, *Copyright, Neuroscience, and Creativity*, 64 ALA. L. REV. 735 (2013) (ac-

These findings illuminate intellectual property policy in two ways. First, simply enough, they reveal how creators go about the process of creation. Second, as Professor Jeanne Fromer has emphasized, they can fill the gap left by researchers' inability to gather reliable data on how intellectual property affects innovation outcomes.²⁸ Because it has proven so difficult to show a causal link between intellectual property incentives and particular results on the ground, psychological research can at least inform policymakers about how to encourage creative thinking.²⁹

Psychologically, there is no difference between scientific creativity and artistic creativity; the mechanisms are the same.³⁰ In each domain, creativity lies in the generation of a product or idea that satisfies two criteria: originality and appropriateness.³¹ The first criterion tracks whether the product is new in some significant way, while the second criterion tracks whether it has some social value (as creativity scholar Keith Sawyer notes, "many dreams are novel but rarely have any impact on the world after breakfast"³²). Both are measured according to the consensus of a particular community.³³ What is

cess to information). For a creativity scholar's introduction of the field to a patent law audience, see R. Keith Sawyer, *Creativity, Innovation, and Obviousness*, 12 LEWIS & CLARK L. REV. 461 (2008).

²⁸ Fromer, *supra* note 27, at 1444, 1458–59. Although the intellectual property literature has recently begun to distinguish between the terms "innovation" and "creativity," see, e.g., Doris Estelle Long, *Crossing the Innovation Divide*, 81 TEMP. L. REV. 507, 511 n.14 (2008), most scholars continue to use them interchangeably, see Gaia Bernstein, *In the Shadow of Innovation*, 31 CARDOZO L. REV. 2257, 2271–72 (2010). My analysis here follows the latter convention.

²⁹ Fromer, *supra* note 27, at 1444, 1458–59.

³⁰ See TERESA M. AMABILE, CREATIVITY IN CONTEXT 34 (1996) ("[T]here is one basic form of creativity, one basic quality of products that observers are responding to when they call something 'creative,' whether they are working in science or the arts."). For summaries of the literature showing that the creative process operates similarly across both scientific and artistic domains, see Fromer, *supra* note 27, at 1444; Mandel, *supra* note 27, at 331.

³¹ See, e.g., DEAN KEITH SIMONTON, ORIGINS OF GENIUS 5–6 (1999); Teresa M. Amabile, *The Social Psychology of Creativity: A Componential Conceptualization*, 45 J. PERSONALITY & SOC. PSYCHOL. 357, 358–59 (1983); Richard E. Mayer, *Fifty Years of Creativity Research*, in HANDBOOK OF CREATIVITY 449, 449 (Robert J. Sternberg ed., 1999); Sawyer, *supra* note 27, at 462; Morris I. Stein, *A Transactional Approach to Creativity*, in THE 1955 UNIVERSITY OF UTAH RESEARCH CONFERENCE ON THE IDENTIFICATION OF CREATIVE SCIENTIFIC TALENT 172 (Calvin W. Taylor ed., 1955) (defining creativity as "that process which results in 'a novel work that is accepted as tenable or useful or satisfying by a group at some point in time'" (citation omitted)); Robert J. Sternberg & Todd I. Lubart, *The Concept of Creativity: Prospects and Paradigms*, in HANDBOOK OF CREATIVITY, *supra*, at 3, 3.

³² Sawyer, *supra* note 27, at 462.

³³ AMABILE, *supra* note 30, at 33–37; SIMONTON, *supra* note 31, at 6. According to this definition, a creator's independent invention of an existing product is original, even if another creator in a different place may have come up with the idea first. Professor Dean Simonton gives the example of Galileo's discovery of sunspots, which was novel to Europeans although the Chinese had discovered them a thousand years earlier. SIMONTON, *supra* note 31, at 6.

new and appropriate is that which the audience deems new and appropriate.³⁴

Legal scholars have recently noted this definition's conceptual similarity to patent law's novelty and utility requirements.³⁵ The definition meshes well with copyright requirements, too. Originality is, after all, "[t]he *sine qua non* of copyright."³⁶ And the appropriateness requirement demands only that an audience find value in the product,³⁷ whether it be the technological value of a better mousetrap or the entertainment value of *The Mousetrap*.³⁸ Appropriateness thus encompasses the sort of aesthetic utility that one nineteenth-century copyright decision identified when it explained, "[w]hatever is beautiful is useful, because beauty gives pleasure, and pleasure is a kind of happiness, and happiness is the ultimate object of the use of all things."³⁹ Since the arbiter of value is the audience, the psychological definition of creativity evokes "intellectual property's aim of giving protection for products that are requisitely new, while leaving to society the question of how valuable the product ought to be considered."⁴⁰

Whether a task is susceptible to a creative approach depends on whether the task is well structured or ill structured.⁴¹ A well-structured problem is one that may be solved algorithmically based on definite and available criteria. The statement of the problem dictates a path to the solution. Jigsaw puzzles, standardized tests, and crosswords are all examples of well-structured problems. There is no room for originality, and hence no room for creativity, in naming an eight-letter phrase beginning with the letter S that identifies a short-lived

³⁴ SIMONTON, *supra* note 31, at 6.

³⁵ See Fromer, *supra* note 27, at 1484–85; Mandel, *supra* note 27, at 334–35; see also John C. Huber, *Invention and Inventivity Is a Random, Poisson Process: A Potential Guide to Analysis of General Creativity*, 11 CREATIVITY RES. J. 231, 232 (1998) ("Some commonly accepted definitions of creativity closely parallel those of patents . . ."); cf. Mandel, *supra* note 27, at 334 n.211 ("[T]he consensual definition tracks [patent law's] nonobviousness requirement."). Patent law's novelty requirement is nonetheless stricter than psychologists' in that it excludes independent creation of an existing invention. Fromer, *supra* note 27, at 1486.

³⁶ Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991).

³⁷ Fromer, *supra* note 27, at 1459–60; Mandel, *supra* note 27, at 335; Sawyer, *supra* note 27, at 462.

³⁸ See AGATHA CHRISTIE, *THE MOUSETRAP* (1952); see also *Mouse Trap (Game)*, WIKIPEDIA, [http://en.wikipedia.org/wiki/Mouse_Trap_\(game\)](http://en.wikipedia.org/wiki/Mouse_Trap_(game)) (last visited Feb. 1, 2015) [<http://perma.cc/36WS-E77P>].

³⁹ Henderson v. Tompkins, 60 F. 758, 763 (C.C.D. Mass. 1894) (quoting ALBERT HENRY WALKER, *WALKER ON PATENTS*) (internal quotation mark omitted).

⁴⁰ Fromer, *supra* note 27, at 1461.

⁴¹ The distinction was explored in detail in Herbert A. Simon, *The Structure of Ill Structured Problems*, 4 ARTIFICIAL INTELLIGENCE 181 (1973). See also PATRICIA D. STOKES, *CREATIVITY FROM CONSTRAINTS* 4–6 (2006); ROBERT D. WEISBERG, *CREATIVITY: UNDERSTANDING INNOVATION IN PROBLEM SOLVING, SCIENCE, INVENTION, AND THE ARTS* 138–40 (2006).

1765 statute.⁴² An ill-structured problem, by contrast, offers no straightforward path to solution. Because an ill-structured problem fails to specify all information necessary for an appropriate result, it must be solved heuristically, not algorithmically.⁴³ Writing a law review article, for instance, is an ill-structured task. So is composing a sonata, deciding how to invest money, finding a cure for a disease, or designing a building.⁴⁴ Unless these tasks are governed by paint-by-number-style instructions, there is no fully predictable way to accomplish them.⁴⁵

It is within ill-structured problem spaces that creativity emerges.⁴⁶ Where the path to a solution is unknown at the outset, there is opportunity for a new and appropriate take on things. Creators need to bump around the problem space searching for an answer, a process that is obviated where the range of possible answers is foreordained. Copyright law implicitly reflects this distinction between ill-structured and well-structured problems through its merger doctrine.⁴⁷ This doctrine denies copyright protection where an underlying idea can be expressed in a predictably limited number of ways (the idea and expression have, in essence, “merged”).⁴⁸ In those situations, the problem is well structured, precluding the exercise of creativity that copyright protection is intended to promote.

The path to the goal is not the only part of an ill-structured problem that can be uncertain. Sometimes the goal itself is incompletely specified, awaiting development or discovery by the problem solver.⁴⁹ Early Cubists, for example, did not start out with a clear idea of what

⁴² See Stamp Act, 5 Geo. 3, c. 12 (1765), repealed by 6 Geo. 3, c. 11 (1766). Apologies to any readers still working on 41-Across in the *Los Angeles Times* daily crossword from February 9, 2014.

⁴³ AMABILE, *supra* note 30, at 35.

⁴⁴ Architecture is Professor Herbert Simon’s paradigmatic example: “There is initially no definite criterion to test a proposed solution, much less a mechanizeable process to apply the criterion. The problem space is not defined in any meaningful way, for a definition would have to encompass all kinds of structures the architect might at some point consider . . .” Simon, *supra* note 41, at 187–88.

⁴⁵ Professor Teresa Amabile illustrates this distinction by comparing two chemists synthesizing a new hydrocarbon complex: The first applies a familiar step-by-step process, while the second has to devise that process for the first time. Although in either case the product may be both new and appropriate, only the second process is creative. AMABILE, *supra* note 30, at 36.

⁴⁶ See *id.* at 35–36; STOKES, *supra* note 41, at 4.

⁴⁷ See Fromer, *supra* note 27, at 1495 (noting that merger doctrine applies when a problem leads “directly and obviously” to its solution with little creativity required).

⁴⁸ See, e.g., *Kern River Gas Transmission Co. v. Coastal Corp.*, 899 F.2d 1458, 1463–64 (5th Cir. 1990); *Morrissey v. Procter & Gamble Co.*, 379 F.2d 675, 678–79 (1st Cir. 1967).

⁴⁹ AMABILE, *supra* note 30, at 35–36 (observing that many “heuristic tasks do not have clearly defined solutions or goals, and it is part of the problem-solver’s task to identify them”).

artistic problems their nascent style was meant to address.⁵⁰ The destination, let alone the route to get there, was unfixed.

That a task's goal can be ill structured has led many theorists to treat not just problem solving but also problem finding as a locus of creativity. While creative problem solving involves generating a new and appropriate answer to an already identified problem, creative problem finding involves "discover[ing] the problem and first pos[ing] the question in such a way that it lends itself to solution."⁵¹ A scientist who identifies a new use for an existing product or process is a creative problem finder, as is an artist who chooses a new subject to explore.⁵² Creativity scholar Jacob Getzels illustrates this concept using a hypothetical driver who blows a tire on a backcountry road only to discover that he has no tire jack in the trunk. If he sets off in search of a tire jack, he has formulated the problem uncreatively; if, by contrast, he searches his surroundings for another way to raise the car off the ground, he has formulated it creatively.⁵³ The uncreative problem finder wanders for miles seeking a service station, while the creative problem finder realizes that he can use the pulley at the barn fortuitously located across the street.⁵⁴ While many associate creativity most with problem solving, creativity in problem finding is just as important.⁵⁵ Problem finding affects the trajectory of problem solving. As Einstein and Infeld put it: "The formulation of a problem is often more essential than its solution, which may be merely a matter of mathematical or experimental skill. To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science."⁵⁶

While this model of creativity is intuitive enough when applied to science, the notion of artistic "problems" to be found and solved might at first seem puzzling.⁵⁷ Most of us do not tend to view expressive

⁵⁰ STOKES, *supra* note 41, at 4; WEISBERG, *supra* note 41, at 580, 583-84.

⁵¹ Sawyer, *supra* note 27, at 474; see also AMABILE, *supra* note 30, at 35-36. For an in-depth exploration of creative problem finding, see the essays in *PROBLEM FINDING, PROBLEM SOLVING, AND CREATIVITY* (Mark A. Runco ed., 1994).

⁵² See, e.g., Fromer, *supra* note 27, at 1463 (giving example of Picasso's *Guernica*); J.W. Getzels, *The Problem of the Problem*, in *NEW DIRECTIONS FOR METHODOLOGY OF SOCIAL AND BEHAVIORAL SCIENCE* 37, 42 (R. Hogarth ed., 1982) (giving example of Matisse, who "set himself the problem of painting grass red and roses green"); Sawyer, *supra* note 27, at 473-74 (giving examples of laparoscopic surgery and Post-It notes).

⁵³ Getzels, *supra* note 52, at 38-39.

⁵⁴ *Id.*

⁵⁵ Sawyer, *supra* note 27, at 473 ("[H]istorically, the most radical breakthroughs result from problem finding creativity.").

⁵⁶ ALBERT EINSTEIN & LEOPOLD INFELD, *THE EVOLUTION OF PHYSICS* 95 (1938); see also MAX WERTHEIMER, *PRODUCTIVE THINKING* 123 (1945) ("Often in great discoveries the most important thing is that a certain question is found. Envisaging, putting the productive question is often more important, often a greater achievement than solution of a set question . . .").

⁵⁷ Fromer, *supra* note 27, at 1467 (noting this conceptual difficulty).

works, even great ones, as solutions to problems. Yet that is, at bottom, what they are. The artist's problem, according to Getzels and fellow creativity expert Mihaly Csikszentmihalyi, is how to translate life experiences into an expressive medium and to "reveal[] meanings that were not perceived before the work of art was completed."⁵⁸ Defining and overcoming that challenge infuses all artistic decisions, from formulating the goal of a project to selecting its thematic content to picking the physical materials for its execution.⁵⁹ A solution to an expressive problem could be depicting a recognizable subject in a way that will produce a particular impact (say, the barbarism conveyed in Picasso's *Guernica* or Stravinsky's *Rite of Spring*), representing old themes in a new style (Monet's development of Impressionism, or Braque and Picasso's development of Cubism), developing a new goal (Mondrian's move to nonrepresentational art), or deploying an effective rhetorical tool for advocacy (Swift's use of satire in *A Modest Proposal*).⁶⁰ Not every artistic problem will involve a clearly defined goal, and not every artist will approach a task with a goal already in mind.⁶¹ In all cases of creative expression, however, the artist formulates a problem and produces expression intended to solve it.⁶²

Do copyright law's infringement restrictions promote creativity — that is, novel and appropriate solutions to ill-defined problems — downstream? As the next Part shows, copyright scholarship has often viewed these restrictions as a threat to creative production. Yet, as I explain below, they may produce the opposite result.

II. CREATIVITY AND CONSTRAINT IN COPYRIGHT THEORY

Intellectual property rights yield a well-recognized static inefficiency by granting firms exclusive rights that allow them to price informational goods above their marginal cost of production. The resulting deadweight loss is traditionally thought to be tolerable because it comes with a dynamic efficiency: inducing firms to invest in creative projects that they would not have pursued without the means to exclude imitators who could free ride off that investment. But this dynamic efficiency also carries with it a potential dynamic inefficiency. Innovation is cumulative. In both science and art, the creations of to-

⁵⁸ JACOB W. GETZELS & MIHALY CSIKSZENTMIHALYI, *THE CREATIVE VISION* 154 (1976).

⁵⁹ WEISBERG, *supra* note 41, at 583–84 (discussing problem finding in the visual arts); *see also* Fromer, *supra* note 27, at 1467.

⁶⁰ *See* STOKES, *supra* note 41, at 5–6, 33–38, 108–11; WEISBERG, *supra* note 41, at 577–84.

⁶¹ *See* WEISBERG, *supra* note 41, at 139–40 (describing a painter who begins work at an "easel without any specific idea of what she wanted to paint, knowing only that she wanted to work").

⁶² *See* Fromer, *supra* note 27, at 1467.

day will become raw material for the creations of tomorrow.⁶³ That the goods protected by intellectual property are not only one's present output but also another's future input means that too much exclusivity can impede the production of new goods over time. As a result, any exclusive right should be large enough to induce investment in creativity upstream but not so large that it unnecessarily inhibits creativity downstream.

How legal constraint affects innovation is a question with which both copyright and patent scholars have struggled. Yet the two groups treat the issue in surprisingly different ways. Patent commentary has had a robust debate over the social value of stimulating effort to develop alternatives to existing technology — “inventing around,” in patent parlance. Copyright theory lacks a similarly developed discussion over the downstream benefits of circumventing protected works. With the occasional exception, discussed below, commentators in the copyright space have tended to focus on upstream incentives as the only potential casualty of downstream choice. This Part first surveys how copyright's constraints have been analyzed. It then turns to the concept of “inventing around” within the patent literature and explores whether that concept can do meaningful work in a utilitarian account of copyright's effects.

A. *The Constraint Critique*

The extent of copyright law's constraint on downstream creators depends chiefly on two of the owner's exclusive rights: the right to reproduce a copyrighted work⁶⁴ and the right to prepare “derivative works” from it.⁶⁵ Courts have interpreted the reproduction right broadly. It guards against not just copying an entire work (say, photocopying a book), but also against nonverbatim copying that yields a work deemed to be “substantially similar” to protected expression.⁶⁶ Copying particular narrative elements like character and plot details may suffice.⁶⁷ So may appropriating the “total concept and feel” of the

⁶³ The sources on this point are legion. *See, e.g.*, *White v. Samsung Elecs. Am., Inc.*, 989 F.2d 1512, 1513 (9th Cir. 1993) (Kozinski, J., dissenting from denial of rehearing en banc) (“Nothing today, likely nothing since we tamed fire, is genuinely new: Culture, like science and technology, grows by accretion, each new creator building on the works of those who came before.”); LANDES & POSNER, *supra* note 3, at 66–68 (noting that because “[c]reating a new expressive work typically involves borrowing or building on material from a prior body of works,” *id.* at 66–67, less copyright protection means lower costs of expression).

⁶⁴ 17 U.S.C. § 106(1) (2012).

⁶⁵ *Id.* § 106(2).

⁶⁶ *See generally* ROBERT C. OSTERBERG & ERIC C. OSTERBERG, SUBSTANTIAL SIMILARITY IN COPYRIGHT LAW § 1:1 (2014); Shyamkrishna Balganesh, *The Normativity of Copying in Copyright Law*, 62 DUKE L.J. 203, 214–33 (2012).

⁶⁷ *See, e.g.*, *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 55–56 (2d Cir. 1936) (concluding that pervasive copying of dramatic elements may constitute infringement); Metro-

copyrighted work, whether it is a television program, greeting card, song, or Halloween mask.⁶⁸ Copying even a quantitatively small portion of the protected work may be enough to infringe.⁶⁹

The derivative work right protects against preparation of “a work based upon one or more preexisting works.”⁷⁰ In practice, this right does little that the capacious reproduction right has not done already. Because any derivative will incorporate some independently copy-rightable element of the original work, an infringement of the derivative work right will usually infringe the reproduction right as well.⁷¹ Thus, in the average case of downstream adaptation, it may not matter whether the accused work is analyzed under the reproduction right or the derivative work right.⁷²

Goldwyn-Mayer, Inc. v. Am. Honda Motor Co., 900 F. Supp. 1287, 1297–99 (C.D. Cal. 1995) (holding that a car commercial involving a James Bond-type protagonist likely infringed the copyright in the James Bond character); Anderson v. Stallone, No. 87-0592 WDKGX, 1989 WL 206431, at *5 (C.D. Cal. Apr. 25, 1989) (holding that copyrights in the characters from the *Rocky* film franchise were infringed by an unauthorized plot outline for a new sequel).

⁶⁸ Dawson v. Hinshaw Music Inc., 905 F.2d 731, 733 (4th Cir. 1990); Sid & Marty Krofft Television Prods., Inc. v. McDonald’s Corp., 562 F.2d 1157, 1167 (9th Cir. 1977); Roth Greeting Cards v. United Card Co., 429 F.2d 1106, 1110 (9th Cir. 1970); BSS Studio Inc. v. Kmart Corp., No. 98 C 6298, 1999 WL 1427831, at *1 (N.D. Ill. Dec. 21, 1999).

⁶⁹ See, e.g., Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 548–49 (1985) (several hundred words from a five-hundred-page book); Bridgeport Music, Inc. v. Dimension Films, 410 F.3d 792, 796 (6th Cir. 2005) (two-second sample of sound recording).

⁷⁰ 17 U.S.C. § 101.

⁷¹ Cf. H. COMM. ON THE JUDICIARY, 89TH CONG., COPYRIGHT LAW REVISION PART 6: SUPPLEMENTARY REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW: 1965 REVISION BILL 17 (Comm. Print 1965) (noting that while a broad reproduction right might render a separate derivative work right unnecessary, “omit[ting] any specific mention of it would be likely to cause uncertainty and misunderstanding”). Some courts and commentators have even concluded that the derivative work right as currently interpreted is superfluous. See *Twin Peaks Prods., Inc. v. Publ’ns Int’l, Ltd.*, 996 F.2d 1366, 1373 (2d Cir. 1993); MELVILLE B. NIMMER & DAVID NIMMER, *NIMMER ON COPYRIGHT* § 8.09[A] (2012); Michael Abramowicz, *A Theory of Copyright’s Derivative Right and Related Doctrines*, 90 MINN. L. REV. 317, 334–35 (2005); Jed Rubinfeld, *The Freedom of Imagination: Copyright’s Constitutionality*, 112 YALE L.J. 1, 50 (2002). For a discussion of the infrequent instances in which the derivative work right can do what the reproduction right cannot, see Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1018–19 (1997).

⁷² See, e.g., *Well-Made Toy Mfg. Corp. v. Goffa Int’l Corp.*, 354 F.3d 112, 117 (2d Cir. 2003), *abrogated on other grounds by Reed Elsevier, Inc. v. Muchnick*, 559 U.S. 154 (2010) (noting that the same “substantial similarity” test applies whether the defendant’s product is analyzed as a reproduced work or a derivative work); *Litchfield v. Spielberg*, 736 F.2d 1352, 1357 (9th Cir. 1984) (stating that the derivative work standard examines whether the accused work “would be considered an infringing work if the material which it has derived from a prior work had been taken without the consent of a copyright proprietor of such prior work” (quoting *United States v. Taxe*, 540 F.2d 961, 965 n.2 (9th Cir. 1976) (emphasis added)) (internal quotation mark omitted)). For recent arguments concerning the proper limits of the derivative work right, see generally Daniel Gervais, *The Derivative Right, or Why Copyright Law Protects Foxes Better than Hedgehogs*, 15 VAND. J. ENT. & TECH. L. 785 (2013); Pamela Samuelson, *The Quest for a Sound Conception of Copyright’s Derivative Work Right*, 101 GEO. L.J. 1505 (2013).

Conceptual redundancy aside, the range of nonliteral copying that these exclusive rights cover leaves no doubt that “copyright law is intended to reach improvers as well as counterfeiters.”⁷³ Subject to the fair use defense, downstream creators who invent new but unlicensed twists and turns on copyrighted material are infringers. Copyright law limits how these creators may construct their expression.

Some justify that limitation on natural rights grounds, appealing to theories of Lockean desert and Hegelian personhood interests.⁷⁴ Looking beyond the creator’s personal stake, however, what does society get out of restricting downstream use? The dominant utilitarian analysis has come to be known as copyright’s “incentives/access” tradeoff, weighing upstream incentives to create against downstream access to the work.⁷⁵ The standard case for derivative works exclusivity encompasses several arguments, all of which look upstream.⁷⁶ The first argument, which the Supreme Court emphasized in *Campbell v. Acuff-Rose Music, Inc.*,⁷⁷ concerns whether the upstream creator will produce the original work to begin with.⁷⁸ Since derivative markets offer authors additional revenue streams on top of the primary market for the underlying work, giving them exclusive access to those derivative markets may spur investment in the underlying work.⁷⁹ A second ar-

⁷³ Lemley, *supra* note 71, at 1019.

⁷⁴ See, e.g., Lawrence C. Becker, *Deserving to Own Intellectual Property*, 68 CHI-KENT L. REV. 609, 610–11 (1993); Justin Hughes, *The Personality Interest of Artists and Inventors in Intellectual Property*, 16 CARDOZO ARTS & ENT. L.J. 81 (1998) (analyzing three kinds of personality interests underlying intellectual property).

⁷⁵ See, e.g., LANDES & POSNER, *supra* note 3, at 11, 22–24, 66–67; Glynn S. Lunney, Jr., *Reexamining Copyright’s Incentives–Access Paradigm*, 49 VAND. L. REV. 483, 492–98 (1996). The “access” side of the tradeoff encompasses not just adaptive users interested in producing follow-on expression, but also nonadaptive users interested primarily in consuming the work. *Id.* at 497–98. Reading a book, listening to a song, and seeing a movie are each more expensive if a copyright owner has the ability to charge consumers a supracompetitive price. This Article focuses on adaptive access, the form most directly related to the promotion of creativity. *But cf.* Jessica Litman, *Creative Reading*, LAW & CONTEMP. PROBS., Spring 2007, at 175, 179–80 (arguing that reading, listening, and viewing are themselves acts of creativity).

⁷⁶ For a thorough overview of, and critical responses to, the arguments presented here, see Derek E. Bambauer, *Faulty Math: The Economics of Legalizing The Grey Album*, 59 ALA. L. REV. 345, 357–91 (2008) (critiquing upstream justifications for the derivative work right).

⁷⁷ 510 U.S. 569 (1994).

⁷⁸ *Id.* at 593 (“[T]he licensing of derivatives is an important economic incentive to the creation of originals.”).

⁷⁹ See, e.g., Jane C. Ginsburg, *Creation and Commercial Value: Copyright Protection of Works of Information*, 90 COLUM. L. REV. 1865, 1910–11 (1990) (“Potential derivative works exploitations are often taken into account in the decision whether to make the initial investment in a work’s creation. . . . A broad scope of protection, thus, may favor the broader production of works. . . .”); Paul Goldstein, *Derivative Rights and Derivative Works in Copyright*, 30 J. COPYRIGHT SOC’Y U.S.A. 209, 216 (1983) (arguing that copyright’s derivative work right “enables prospective copyright owners to proportion their investment in a work’s expression to the returns expected not only from the market in which the copyrighted work is first published, but from other, derivative markets as well”).

gument asks not whether but *when* the upstream creator will produce the work. Without an exclusive adaptation right, perhaps the author of an original work would rush adaptations to market, even though society would be better off if she waited and gauged demand for the original.⁸⁰ On this theory, the derivative work right corrects potential distortions in the scheduling of derivative works' publication, what Professor Michael Abramowicz has called "a tool that allows authors to take their time."⁸¹ A third argument focuses on the copyright owner's ability to price discriminate.⁸² By splintering the right to adapt a work from the right to copy it, copyright owners can name one price to ordinary consumers and another price to adapters, who may be willing to pay more. This allows owners to sort buyers according to their intended use, theoretically increasing revenue while minimizing dead-weight loss.

So far, so good. But when attention shifts downstream, to the "access" side of the tradeoff, many prominent commentators see a steep cost in the form of a less creative culture. They argue that, whatever the benefits occurring upstream, giving copyright owners more control over nonliteral copying means getting less cultural innovation downstream.⁸³ On this popular view, the incentives/access tradeoff is lopsided. The need for access overwhelms the need for incentives. The upshot is that our regime is backward. Instead of catalyzing creativity, copyright calcifies it. If we could compensate creators adequately while minimizing restrictions downstream, creativity would be better off. But in our world of copyright constraint, what might have been follow-on expression is never expressed.⁸⁴ Copyright has become the law of missed opportunities.

⁸⁰ E.g., Randal C. Picker, *Fair Use vs. Fair Access*, 31 COLUM. J.L. & ARTS 603, 613–14 (2008); see also LANDES & POSNER, *supra* note 3, at 110 (noting a similar potential timing distortion in which the author of an original work "delay[s] publishing it until he ha[s] created the derivative works as well").

⁸¹ Abramowicz, *supra* note 71, at 320.

⁸² See, e.g., Lunney, *supra* note 75, at 631. See generally Michael J. Meurer, *Copyright Law and Price Discrimination*, 23 CARDOZO L. REV. 55 (2001).

⁸³ See, e.g., Warner Bros. Inc. v. Am. Broad. Cos., 720 F.2d 231, 240 (2d Cir. 1983) (observing that although "[i]t is a fundamental objective of the copyright law to foster creativity," the substantial similarity inquiry's downstream effects have the capacity to "diminish the prospects for creativity"); Christina Bohannon, *Taming the Derivative Works Right: A Modest Proposal for Reducing Overbreadth and Vagueness in Copyright*, 12 VAND. J. ENT. & TECH. L. 669, 675 (2010).

⁸⁴ See LESSIG, *supra* note 5, at 104–06 (questioning how much "creativity is never made just because the costs of clearing the rights are so high," *id.* at 104); *id.* at 185–88 (lamenting this loss of creativity); *id.* at 249 ("When you focus the issue on lost creativity, people can see the copyright system makes no sense."); Olufunmilayo B. Arewa, *Creativity, Improvisation, and Risk: Copyright and Musical Innovation*, 86 NOTRE DAME L. REV. 1829, 1840 (2011) (arguing that today's copyright would have "inhibited creativity by composers such as Bach and Mozart," who "borrowed extensively in their works").

These missed opportunities drive an intuitively appealing case against limiting downstream use of protected information. An early evangelist was Richard Stallman, founder of the free software movement.⁸⁵ Professor Lawrence Lessig introduced Stallman's ethos of unconstrained innovation to a broader audience in his 2004 book *Free Culture*, advocating for an intellectual property system in which "follow-on creators and innovators remain *as free as possible* from the control of the past."⁸⁶ In the decade since, a growing number of scholars have voiced concern that copyright restrictions are stifling downstream creativity. Professor Laura Heymann, for example, describes the common view that restrictions on the public domain are necessarily "restrictions on creativity" and that "[a] creator who has some limitations on the 'raw materials' he can use to create is thwarted in the creative process."⁸⁷ Similarly, Professor Wendy Gordon writes that creativity will have difficulty "surviving" the calculus of navigating licensing constraints,⁸⁸ and Professor Lydia Loren contends that licensing costs lead to the creation of works that are "not as culturally rich or as authentic as they could have been if the costs of reuse were lower."⁸⁹ Similar critiques abound.⁹⁰ Anthropologist Christopher Kelty epitomizes perhaps the strongest form of this sentiment, albeit applied to technological innovation, in his opening statement at a recent debate on the patent system: "[W]hat is the oxygen of innovation? What is it that keeps innovation alive from moment to moment and what is it that can be stifling? . . . I submit that the oxygen of innovation is freedom. Freedom to operate, freedom to experiment, freedom from

⁸⁵ See RICHARD M. STALLMAN, *FREE SOFTWARE, FREE SOCIETY* 32, 50 (2d ed. 2010); cf. Clark D. Asay, *A Case for the Public Domain*, 74 OHIO ST. L.J. 753, 755 (2013) (noting that the free software movement is based on the theory that "freedom of use fosters increased collaboration, which in turn spurs inventive and creative activity").

⁸⁶ LESSIG, *supra* note 5, at xiv. Lessig, like some others, is also concerned about a separate set of social costs besides depriving audiences of creative works. See LAWRENCE LESSIG, *REMIX* 92 (2008) (arguing that even if most remix products would be unappealing to consumers, they are still valuable insofar as they allow individual speakers to express their ideas); see also, e.g., Rebecca Tushnet, *Economies of Desire: Fair Use and Marketplace Assumptions*, 51 WM. & MARY L. REV. 513, 537 (2009) ("[C]reativity is a positive virtue, not just because of its results but because of how the process of making meaning contributes to human flourishing."). For more on these other costs, see *supra* note 4.

⁸⁷ Laura A. Heymann, *The Trademark/Copyright Divide*, 60 SMU L. REV. 55, 85 (2007).

⁸⁸ Wendy J. Gordon, *Authors, Publishers, and Public Goods: Trading Gold for Dross*, 36 LOY. L.A. L. REV. 159, 191 (2002).

⁸⁹ Lydia Pallas Loren, *The Pope's Copyright? Aligning Incentives with Reality by Using Creative Motivation to Shape Copyright Protection*, 69 LA. L. REV. 1, 14 (2008).

⁹⁰ See, e.g., Cohen, *supra* note 2, at 1191–92 (arguing that the creative process demands broad freedom in order to generate the unexpected). *But cf.* Annemarie Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author*, 2012 STAN. TECH. L. REV. 5 (pointing to the generativity of constraint in arguing that works authored through artificial intelligence should be copyrightable).

constraint and control, freedom to fail.”⁹¹ On this account, legal restriction on downstream use of information is at best a necessary — and significant — evil for the creation of expressive works.

B. *Inventing Around and Creating Around*

Patent theory offers a more optimistic view of the relationship between creativity and constraint. Courts and commentators have recognized the process of inventing around patents as a generative source of, rather than a stifling impediment to, creativity. One of the earliest and most enthusiastic proponents was Judge Evan Alfred Evans of the Court of Appeals for the Seventh Circuit. In a pair of cases from the early 1940s, he endorsed inventing around as an engine of competition that ultimately hastens technological progress.

First, in *James P. Marsh Corp. v. U.S. Gauge Co.*,⁹² the court was faced with a defendant who had tried to invent around a patented component of a steam pressure gauge.⁹³ The accused device successfully performed the patented invention’s function while omitting one of the elements disclosed in the patent claims.⁹⁴ The lower court had held that the defendant’s device, although beyond the literal scope of the claims, nevertheless infringed under the doctrine of equivalents.⁹⁵ The Court of Appeals reversed.⁹⁶ Writing for the court, Judge Evans posited that the patent system “spurs the competitors to put forth their best effort to produce a product as good, yet different from the patentee’s.”⁹⁷ He noted that this circumvention effort often absorbs as much creative energy as “the conception or development of invention itself.”⁹⁸ When such redirection of effort occurs:

[T]he patent system is working at its best. For it is then that we have competition between a holder of a legal monopoly and his competitors. It illustrates how the legal monopoly evidenced by a patent excites the competitors to their best to meet or excel the product covered by the existing patent.⁹⁹

⁹¹ Zero1, *Patent Pending Event: Does the U.S. Patent System Stifle Innovation? An Oxford-Style Debate*, YOUTUBE (Nov. 12, 2013), <https://www.youtube.com/watch?v=H-RFwTCigNc> (statement beginning at 11:02).

⁹² 129 F.2d 161 (7th Cir. 1942).

⁹³ *Id.* at 164.

⁹⁴ *Id.* at 165.

⁹⁵ See *James P. Marsh Corp. v. U.S. Gauge Co.*, 42 F. Supp. 998, 1000–01 (N.D. Ill. 1941), *rev’d*, 129 F.2d 161 (7th Cir. 1942).

⁹⁶ *James P. Marsh Corp.*, 129 F.2d at 166.

⁹⁷ *Id.* at 164.

⁹⁸ *Id.* at 165.

⁹⁹ *Id.*

Seven months later, in *Chicago Steel Foundry Co. v. Burnside Steel Foundry Co.*,¹⁰⁰ Judge Evans again wrote a decision overturning an infringement judgment, this time holding the patent-in-suit invalid for obviousness.¹⁰¹ Although the accused infringer had done nothing to invent around the patented invention and the sole issue was the patent's validity, Judge Evans offered the following admitted "digression"¹⁰² to justify the existence of the patent system:

[A]n inventor brings forth an apparatus which is better and made at less cost than anything heretofore made or used in this field. All competitors are threatened with loss and perhaps ruin if an equally good product is not made and sold at prices which meet the new patented product. At once, the inventive and creative talents of competitors are aroused. They are spurred to their best efforts to produce, not merely as good, but a better, product, by a new, non-infringing method or apparatus. Thus, instead of displaying monopolistic traits, the patent fosters competition among inventors and begets new and better products at lesser costs. As a result the public is the beneficiary.¹⁰³

On this view, patents promote "leapfrogging" competition, through which technological improvers displace incumbents over time.¹⁰⁴

Other proponents focus less on easily identified sequential improvement and more on the need to differentiate potential solutions. William Davis, former Chairman of the Department of Commerce's Patent Survey Committee, applauded the patent system's "enforced diversity of innovation" in congressional testimony before the Special Committee on Atomic Energy in 1946.¹⁰⁵ Opposing a proposed compulsory licensing system for all inventions utilizing atomic energy, Davis analogized innovation to a mining prospect and argued that the best way to develop the prospect would be to diversify search routes.¹⁰⁶ In an uncertain territory, it is efficient to instruct each member of the search team:

¹⁰⁰ 132 F.2d 812 (7th Cir. 1943).

¹⁰¹ *Id.* at 818.

¹⁰² *Id.* at 816.

¹⁰³ *Id.*

¹⁰⁴ For a recent statement of the theory, see Rochelle Cooper Dreyfuss, Response, *Tailoring Incentives: A Comment on Hemel and Oullette's Beyond the Patents-Prizes Debate*, 92 TEX. L. REV. SEE ALSO 131, 135 (2014) ("[B]ecause infringement can sometimes cover substantial variations on the embodiments revealed in the patent, inventing around can . . . morph into leapfrogging — that is, into the development of superseding inventions that are far superior to the initial advance."). On leapfrogging more generally, see David S. Evans, *Antitrust and the New Economy* (ALI-ABA Continuing Legal Education, Sept. 14, 2000) (describing a race in which "firms invest heavily to displace the leader by leapfrogging the leader's technology").

¹⁰⁵ *Atomic Energy Act of 1946: Hearings Before the Special Comm. on Atomic Energy*, 79th Cong. 61 (1946) (statement of William Davis, Chairman, Dep't of Commerce Patent Survey Comm.).

¹⁰⁶ *Id.*

[Do] not follow in anybody else's footsteps; wherever you see footsteps turn aside and go somewhere else — because the natural tendency of mankind is partly 'sheepish,' . . . they like to follow other people's footsteps.

The effect of the patent system in what we might call the lower levels of invention, is to force diversity. A is a manufacturer of can openers; B is a competitor. B comes along with a new type of can opener. He gets a patent on it. A can't copy it, but he still has to stay in the can-opener business, so he gets busy and gets himself up some new type of can opener, and it is usually a little better than B's.¹⁰⁷

The force of Davis's theory does not depend on sequential improvement. A competing inventor may indeed surpass the patentee, as Davis envisioned in his can-opener hypothetical, but that point is secondary. More important is that inventing around increases the number of proposed solutions. In an uncertain environment where the optimal solution isn't known *ex ante*, a diverse set of solutions ensures the greatest chance of success.¹⁰⁸ Thus, even if hindsight reveals that an invent-around product failed to improve on a particular patented invention, the system that generated the invent-around is still serving a useful purpose. Judge Giles Rich, often considered the father of modern patent law, would later speak of these two benefits as "improvement" and "enrichment."¹⁰⁹ The latter increases the odds of the former by expanding the range of alternatives.

Many contemporary commentators have agreed that innovation is improved through a mandatory differentiation mechanism in a problem space large enough to accommodate differentiation.¹¹⁰ They are

¹⁰⁷ *Id.* (internal quotation mark omitted). The mining metaphor would prove to be an influential one in patent scholarship. See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 271–75 (1977) (arguing that broad patent scope is preferable because it allows the patentee to develop an innovation "prospect" without rent dissipation from competitors, just as property rights over physical prospects reduce rent dissipation during a gold rush).

¹⁰⁸ The classic argument in favor of diverse R&D investments under uncertainty is Richard R. Nelson, *Uncertainty, Learning, and the Economics of Parallel Research and Development Efforts*, 43 REV. ECON. & STAT. 351 (1961).

¹⁰⁹ Giles S. Rich, *Principles of Patentability*, 28 GEO. WASH. L. REV. 393, 399 (1960).

¹¹⁰ See, e.g., F. SCOTT KIEFF ET AL., PRINCIPLES OF PATENT LAW 70–71 (4th ed. 2008); Matthew J. Conigliaro et al., *Foreseeability in Patent Law*, 16 BERKELEY TECH. L.J. 1045, 1050 & n.17 (2001); Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709, 753–54 & n.248 (2012); Oskar Liivak, *Maintaining Competition in Copying: Narrowing the Scope of Gene Patents*, 41 U.C. DAVIS L. REV. 177, 214 (2007); Craig Allen Nard, *A Theory of Claim Interpretation*, 14 HARV. J.L. & TECH. 1, 40–41 (2000). For a particularly extensive discussion, see SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHTS OF THE S. COMM. ON THE JUDICIARY, 84TH CONG., THE PATENT SYSTEM AND THE MODERN ECONOMY 18–19 (Comm. Print 1957) (George E. Frost) (arguing that "the most experienced workers often do not explore what ought to be explored and doggedly adhere to the thinking of the past," *id.* at 18, that "society must positively compel the exploration of alternatives," *id.* at 19, and that the patent successfully performs this function because "[e]xisting concerns are forced — upon pain of payment of royal-

joined by the Court of Appeals for the Federal Circuit, which in multiple decisions has cited inventing around as a social benefit of the patent system.¹¹¹ There is some soft empirical support for this theory. In 1959, the Patent Law Association of Los Angeles surveyed its clients about the frequency and effects of inventing around.¹¹² Of 282 respondents, 57% said they had attempted to design around another's patent.¹¹³ Of these respondents, 61% reported that they had obtained results superior to the patented invention, and an additional 26% reported that they had obtained items equal in merit.¹¹⁴ Only 13% reported coming up with inferior devices.¹¹⁵ Moreover, 75% reported that invent-around efforts had opened up new fields of R&D, and 78% made additional inventions during the course of those efforts.¹¹⁶ Other studies have similarly indicated the prevalence of inventing around.¹¹⁷ Anecdotal success stories include the VCR, which was the result of an attempt to circumvent the then-dominant video recording technology,¹¹⁸ several recent advances in three-dimensional printing;¹¹⁹ the flu-

ties or even foreclosure from a successful development — to explore all alternatives with an open mind," *id.*)

¹¹¹ See, e.g., *TiVo Inc. v. EchoStar Corp.*, 646 F.3d 869, 883 (Fed. Cir. 2011) (en banc); *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1520 (Fed. Cir.) (per curiam), *supplemented by* 64 F.3d 675 (Fed. Cir. 1995) (per curiam), *rev'd on other grounds*, 520 U.S. 17 (1996); *Westvaco Corp. v. Int'l Paper Co.*, 991 F.2d 735, 745 (Fed. Cir. 1993); *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 828 (Fed. Cir. 1992); *Slimfold Mfg. Co. v. Kinkead Indus., Inc.*, 932 F.2d 1453, 1457 (Fed. Cir. 1991); *Yarway Corp. v. Eur-Control USA, Inc.*, 775 F.2d 268, 277 (Fed. Cir. 1985); *State Indus., Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1235–36 (Fed. Cir. 1985); see also *Baxter Int'l, Inc. v. Abbott Labs.*, 315 F.3d 829, 830 (7th Cir. 2003) (describing a patentee's successful manufacturing process that gave a competitor the "incentive to invent around" it, eventually inventing a process that was "distinct . . . but equivalently cheap and effective").

¹¹² Russell M. Otis & Wm. Douglass Sellers, *Our Patent System Works: A Reply to the Melman Report*, 42 J. PAT. OFF. SOC'Y 295, 324–25 (1960).

¹¹³ *Id.* at 325. This was defined as "develop[ing] a directly competitive item not covered by the patent." *Id.* at 317.

¹¹⁴ *Id.* at 325.

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ Edwin Mansfield et al., *Imitation Costs and Patents: An Empirical Study*, 91 ECON. J. 907, 913 (1981); see also C.T. TAYLOR & Z.A. SILBERSTON, *THE ECONOMIC IMPACT OF THE PATENT SYSTEM* 183–84 (1973) (reviewing survey data from British inventors showing prevalence of inventing around); Jessica Silbey, *Patent Variation: Discerning Diversity Among Patent Functions*, 45 LOY. U. CHI. L.J. 441, 464–65 & n.58 (2013) (providing data from qualitative interviews with inventors and patent attorneys who embrace inventing around as a source of scientific progress).

¹¹⁸ Richard S. Rosenbloom & Michael A. Cusumano, *Technological Pioneering and Competitive Advantage: The Birth of the VCR Industry*, CAL. MGMT. REV., Summer 1987, at 51, 57–61.

¹¹⁹ Melba Kurman & Hod Lipson, Op-Ed, *Why Patents Won't Kill 3D-Printing Innovation*, LIVESCIENCE (Jul. 29, 2013, 10:25 AM), <http://www.livescience.com/38494-3d-printing-and-patent-protection.html> [<http://perma.cc/39RJ-B6G8>].

id catalytic cracking process used in modern petroleum production;¹²⁰ Zantac, the blockbuster histamine-2 blocker that increased the half-life and decreased the toxicity of its predecessor, Tagamet;¹²¹ inkjet printing;¹²² chemical vapor deposition, invented in the course of designing around Edison's patent on the carbon filament light bulb;¹²³ and, according to some, the high-pressure steam engine, a previously abandoned (and, as it would turn out, superior) technology revived only in response to a dominant patent over low-pressure systems.¹²⁴

There is another way to characterize the improvement and enrichment benefits ascribed to inventing around: creativity under constraint. The differentiated inventions that result from circumventing a patent are, to varying degrees, original and appropriate solutions — creative solutions — to the same ill-structured problem that the patented invention targeted. Downstream inventors devise those solutions because of patent constraints upstream. Indeed, creativity lies at the heart of the Seventh Circuit's theory in *Chicago Steel Foundry* that the patentee's exclusive control "arouse[s]" the "inventive and creative talents of competitors."¹²⁵ Inventing around, then, complicates the argument that more creative choice ensures more creativity. Constraint can spur creativity, too.

To be sure, inventing around has its critics among patent scholars.¹²⁶ Some think that it's more trouble than it's worth. Society may win, they argue, where an invent-around happens to yield a genuinely promising alternative solution. The problem is that the circumventing

¹²⁰ NEWTON COPP & ANDREW ZANELLA, *DISCOVERY, INNOVATION, AND RISK* 186–88 (1993); Amos A. Avidan et al., *Innovative Improvements Highlight FCC's Past and Future*, OIL & GAS J., Jan. 8, 1990, at 33.

¹²¹ JIE JACK LI, *BLOCKBUSTER DRUGS* 30–33 (2014).

¹²² HAL R. VARIAN ET AL., *THE ECONOMICS OF INFORMATION TECHNOLOGY* 26–27 (2004); *Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy Before Fed. Trade Comm'n* 94 (2002) (statement of Prof. Hal Varian).

¹²³ Lemley, *supra* note 110, at 754; Ron D. Katznelson & John Howells, *Inventing-Around Edison's Incandescent Lamp Patent: Evidence of Patents' Role in Stimulating Downstream Development* 18–19 (Oct. 9, 2013) (unpublished manuscript), <http://works.bepress.com/cgi/viewcontent.cgi?article=1073&context=rkatznelson> [<http://perma.cc/G4PC-ZWTL>].

¹²⁴ George Selgin & John L. Turner, *Strong Steam, Weak Patents, or the Myth of Watt's Innovation-Blocking Monopoly, Exploded*, 54 J.L. & ECON. 841 (2011). *But see* Joel Mokyr, *Technological Change, 1700–1830*, in 1 *THE ECONOMIC HISTORY OF BRITAIN SINCE 1700*, at 12, 24 (2d ed. 1994) (providing a historical account, refuted by Professors Selgin and Turner, that the patentee succeeded in blocking development of the high-pressure steam engine during the life of the patent).

¹²⁵ *Chi. Steel Foundry Co. v. Burnside Steel Foundry Co.*, 132 F.2d 812, 816 (7th Cir. 1943).

¹²⁶ For varying degrees of skepticism, see SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHTS OF THE S. COMM. ON THE JUDICIARY, 85TH CONG., *AN ECONOMIC REVIEW OF THE PATENT SYSTEM* 50–52 (Comm. Print 1958) (Fritz Machlup) [hereinafter Machlup]; Michael Abramowicz, *Perfecting Patent Prizes*, 56 VAND. L. REV. 115, 190–91 (2003); Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 HARV. L. REV. 1813, 1869–70 (1984); Donald F. Turner, *The Patent System and Competitive Policy*, 44 N.Y.U. L. REV. 450, 455 (1969).

invention may be no better, either in immediate impact or in fertility for future research, than the circumvented one. Where that's the case, the downstream inventor has simply reinvented the wheel, often at considerable R&D cost. On this account, the duplicative effort expended to invent around the patent is socially wasteful. Moreover, even where the effort yields a meaningfully different product, perhaps those R&D resources would have been better allocated to solving yet unsolved problems, rather than to solving already solved ones in different ways.¹²⁷

Whether one thinks inventing around improves social welfare depends on whether one expects the enrichment and improvement benefits to dominate the cost of redundant effort. There is good reason to suspect that they do.¹²⁸ Even if they don't, however, the criticism is beside the point. The worry is not that inventing around is an ineffective creative stimulus. The worry is that inventing around is an expensive creative stimulus. Even taking seriously the concern over duplicative investment, circumventing patent constraint remains a generative source of original and appropriate solutions to technological problems.

The copyright literature has mostly neglected a comparable "creating around" theory of expression.¹²⁹ Instead, as the previous section explained, it treats the law's restraint as an impediment to creativity. Forcing detours around the copyrighted work doesn't arouse the "creative talents" to which Judge Evans referred in the patent context. Rather, in Judge Easterbrook's words, it only "slows progress in literature and art . . . forcing authors to re-invent the wheel."¹³⁰ Copyright theory, far more than patent theory, has romanticized limitlessness. That romance obviates the need to account for the generative constraints that patent jurisprudence has historically underscored. When constraint is conceptualized as creativity's opposite, it is hard to have

¹²⁷ See Machlup, *supra* note 126, at 51–52.

¹²⁸ See Lemley, *supra* note 110, at 753 (arguing that concerns over duplicative investment overstate the likelihood that competitors will "achieve the same end in the same way").

¹²⁹ In a recent essay, Professor Dan Burk takes the inventing-around analogy in a different direction. He highlights the phenomenon of technologists trying to develop dissemination methods that circumvent copyright restrictions on transmission mechanisms like cable TV. See Dan L. Burk, *Inventing Around Copyright*, 109 NW. U. L. REV. ONLINE 64 (2014). This Article centers on developing substitutes for particular informational goods, while Professor Burk's theory centers on developing substitutes for those goods' distribution platforms.

¹³⁰ *Nash v. CBS, Inc.*, 899 F.2d 1537, 1540 (7th Cir. 1990). Other courts have condoned creating around without taking a position on its welfare effects. See, e.g., *Eden Toys, Inc. v. Marshall Field & Co.*, 675 F.2d 498, 501 (2d Cir. 1982) ("Even if an alleged copy is based on a copyrighted work, 'a defendant may legitimately avoid infringement by intentionally making sufficient changes in a work which would otherwise be regarded as substantially similar to that of the plaintiff's.'" (quoting *Warner Bros. Inc. v. Am. Broad. Co.*, 654 F.2d 204, 210 (2d Cir. 1981))).

anything good to say about it. One might support the constraint's corresponding upstream incentives, perhaps, but not the constraint itself.

Still, a few scholars have tried. Professor Justin Hughes has argued that by allowing downstream creators to “borrow *some*, but not borrow too much, intellectual property laws force creators to express themselves by differentiating themselves from what has come before.”¹³¹ That differentiation, according to Hughes, enriches culture in the long run. Professor Polk Wagner briefly notes a comparison to inventing around in positing that constraint can induce expression of new information.¹³² Professor William Landes and Judge Richard Posner conjecture that copyright excludability protects famous works from “congestion externalities” that would destroy their cultural salience over time.¹³³ Thus, imitative copyists might oversaturate society with images of Mickey Mouse, to the point where that cultural good loses its value.¹³⁴ To guard against that possibility, they contend, copyright limits the public's ability to appropriate those goods. Abramowicz notes a separate economic cost of crowding around the same expressive works, focusing on the wasteful rent dissipation that would result from overentry if derivative markets were left open to all.¹³⁵

These analyses are the optimistic exceptions to the rule. None of them, however, has asked whether constraint can aid creativity. Answering that question moves beyond rational actor models that suppose if we only ratchet up the disincentives to copy, then downstream creators will find some other way to solve the problem, or maybe some better problem to solve. Such models run right back into the constraint critique. Supply and demand curves, critics have stressed, do not describe how creativity works.¹³⁶ According to those critics, copyright's disincentives don't redirect creativity. They kill it. If that much is true, copyright maximalists interested in promoting a creative culture are on a fool's errand. So long as creativity withers under copyright constraint and thrives when set free, focusing on monetary incentives misses the mark.

¹³¹ Justin Hughes, “Recoding” *Intellectual Property and Overlooked Audience Interests*, 77 TEX. L. REV. 923, 981 (1999).

¹³² R. Polk Wagner, Essay, *Information Wants to Be Free: Intellectual Property and the Mythologies of Control*, 103 COLUM. L. REV. 995, 1008–09 (2003).

¹³³ LANDES & POSNER, *supra* note 3, at 222–28.

¹³⁴ *Id.* at 225–26.

¹³⁵ See Abramowicz, *supra* note 71, at 357–61; cf. Christopher S. Yoo, *Copyright and Product Differentiation*, 79 N.Y.U. L. REV. 212, 263–64 (2004) (arguing that when excess entry occurs, policymakers should “adjust[] the degree of similarity needed to constitute copyright infringement” in order to push new works further away from existing works).

¹³⁶ See, e.g., Cohen, *supra* note 2, at 1193; Tushnet, *supra* note 86, at 522–36; Diane Leenheer Zimmerman, *Copyright as Incentives: Did We Just Imagine That?*, 12 THEORETICAL INQUIRIES L. 29 (2011).

What is needed, then, is a better understanding of how the creative mind responds to the imposition of limits. Perhaps creators always need the widest possible berth of choice to let the imaginative process play out. Or, as the next Part details, perhaps not.

III. CONSTRAINT AS A SOURCE OF CREATIVITY

Pablo Picasso once stated that “forcing yourself to use restricted means is the sort of restraint that liberates invention. It obliges you to make a kind of progress that you can’t even imagine in advance.”¹³⁷ The theme that constraint generates creativity runs through many creators’ introspections on the process of making culture. Poet Paul Valéry wrote that restrictions “often encourage inventions that would never have resulted from complete freedom.”¹³⁸ André Gide, a Nobel Prize laureate in literature, continued the passage excerpted in this Article’s epigraph by noting that “[a]rt aspires to freedom only in periods of illness, when it would prefer to live easily. Whenever it feels vigorous, it seeks struggle and obstacle. . . . Art is born of constraint, lives on struggle, dies of freedom.”¹³⁹ Composer Igor Stravinsky similarly remarked:

[M]y freedom will be so much the greater and more meaningful the more narrowly I limit my field of action and the more I surround myself with obstacles. Whatever diminishes constraint, diminishes strength. The more constraints one imposes, the more one frees one’s self of the chains that shackle the spirit.¹⁴⁰

And philosopher Eric Hoffer observed that constraint breeds novelty, concluding that “[a] society which gives unlimited freedom to the individual, more often than not attains a disconcerting sameness. On the other hand, where communal discipline is strict but not ruthless . . . originality is likely to thrive.”¹⁴¹

Early psychological theories of creativity contradicted this view. They conceptualized freedom as a vehicle for creativity and constraint as a vehicle for conformity.¹⁴² This perspective set up a negative linear relationship between limitations and creative output. More of the former means less of the latter. Characteristic of this view was Professor Morris Stein’s statement in 1961 that “[s]ocieties that are full of ‘don’ts,’ ‘shouldn’ts,’ and ‘mustn’ts’” discourage creativity because

¹³⁷ FRANÇOISE GILOT & CARLTON LAKE, *LIFE WITH PICASSO* 57 (1964) (internal quotation mark omitted).

¹³⁸ Paul Valéry, *The Opening Lecture of the Course in Poetics*, in 13 *COLLECTED WORKS OF PAUL VALÉRY* 89, 91 (Ralph Manheim trans., 1964).

¹³⁹ GIDE, *supra* note 1, at 263–64.

¹⁴⁰ IGOR STRAVINSKY, *POETICS OF MUSIC* 65 (Arthur Knodel & Ingolf Dahl trans., 1947).

¹⁴¹ ERIC HOFFER, *THE PASSIONATE STATE OF MIND* 21 (1955).

¹⁴² See R. KEITH SAWYER, *EXPLAINING CREATIVITY* 17–18 (2d ed. 2012).

they “restrict freedom of inquiry and autonomy.”¹⁴³ In the 1980s, Professor Teresa Amabile incorporated this freedom-centered conception of creativity into a model based on creators’ “intrinsic motivation.”¹⁴⁴ Her thesis, which has greatly influenced subsequent creativity scholarship, is that people are more creative when motivated primarily by innate interest in a task, rather than a goal imposed by others.¹⁴⁵ Because freedom and personal autonomy increase intrinsic motivation, it follows that they also increase creativity.¹⁴⁶ Amabile theorized that without the intrinsic motivation that limitlessness affords, creators are wont to fall back on familiar routines. Creativity, then, must abhor external directives.¹⁴⁷

Since the early 1990s, however, empirical evidence has been mounting that, contrary to the freer-is-better account, certain forms of constraint in fact enhance creativity. Interestingly, Amabile’s current views are not necessarily to the contrary. She has recently observed that constraint may indeed foster creativity where resources are sufficient to satisfy the constraint and the rules are both clear and challenging.¹⁴⁸ External constraint and intrinsic motivation need not be incompatible. Picasso, Valéry, Gide, Stravinsky, and Hoffer may have been on to something after all.

This Part discusses psychologists’ case for constraint’s generative upside. Section III.A examines the basic cognitive mechanisms that make problem finders and solvers creative. It introduces what some psychologists have called the Path of Least Resistance theory, in which limiting access to familiar solutions enhances creative cognition. Sec-

¹⁴³ Morris I. Stein, *Creativity in a Free Society*, 41 EDUC. HORIZONS 115, 130 (1963); see also *id.* at 119 (“To be capable of [creativity], the individual requires freedom — freedom to explore, freedom to be himself, freedom to entertain ideas no matter how wild and to express that which is within him without fear of censure or concern about evaluation.”).

¹⁴⁴ See AMABILE, *supra* note 30, at 15; Amabile, *supra* note 31, at 365–66; Teresa M. Amabile, *A Model of Creativity and Innovation in Organizations*, 10 RES. ORG. BEHAV. 123 (1988).

¹⁴⁵ On the intrinsic motivation model’s influence, see Brent D. Rosso, *Creativity and Constraints: Exploring the Role of Constraints in the Creative Processes of Research and Development Teams*, 35 ORG. STUD. 551, 553 (2014).

¹⁴⁶ The groundwork for this thesis is Professors Edward Deci and Richard Ryan’s self-determination theory, which relates intrinsic motivation to self-perceptions of freedom. See EDWARD L. DECI & RICHARD M. RYAN, *INTRINSIC MOTIVATION AND SELF-DETERMINATION IN HUMAN BEHAVIOR* 49 (1985); Edward L. Deci, *Effects of Externally Mediated Rewards on Intrinsic Motivation*, 18 J. PERSONALITY & SOC. PSYCHOL. 105 (1971); Edward L. Deci & Richard M. Ryan, *The Empirical Exploration of Intrinsic Motivational Processes*, in 13 *ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY* 39 (Leonard Berkowitz ed., 1980).

¹⁴⁷ See AMABILE, *supra* note 30, at 120, 176–77, 267; see also Rosso, *supra* note 145, at 553–54 (summarizing Amabile’s conclusions).

¹⁴⁸ Teresa Amabile & Steve Kramer, *Necessity, Not Scarcity, Is the Mother of Invention*, HARV. BUS. REV. (Mar. 25, 2011), <http://hbr.org/2011/03/necessity-not-scarcity-is-the> [<http://perma.cc/S67R-TC4Q>]. I return to Amabile’s important caveats in Part IV.

tion III.B reviews the burgeoning empirical evidence that certain forms of constraint enhance creativity.

A. Creativity and the Path of Least Resistance

The basic intuition underlying constraint's emergence as a positive force in creativity theory is a story of overabundance. The more resources one has, the easier it is to find and solve a problem in a manner that imitates a prior exemplar. Some freedom is critical, but too much of it invites stasis.¹⁴⁹

This phenomenon stems from creativity's cognitive mechanisms. According to the influential model developed by Professor Ronald Finke and his colleagues, problem solving occurs over the course of two phases.¹⁵⁰ In the initial "generative" phase, an individual develops "preinventive structures," loose mental representations such as verbal combinations or visual images that serve as potential precursors to a solution.¹⁵¹ He may retrieve these structures directly from memory, synthesize them by combining other structures, or transfer them analogically from another domain.¹⁵² These structures are necessarily incomplete, sometimes no more than "a mere germ of an idea."¹⁵³ This is where the second, "exploratory" phase comes in. The individual explores and interprets these structures, feeling out their suitability as solutions to the problem.¹⁵⁴ If that process doesn't yield a satisfactory solution on the first try, the individual will shuttle back and forth between generating and exploring preinventive structures, updating those structures with the feedback from each cycle until a solution emerges.¹⁵⁵

The constraints that govern the appropriateness of the solution affect the structures that individuals will retrieve during the creative

¹⁴⁹ See MIHALY CSIKSZENTMIHALYI, *CREATIVITY: FLOW AND THE PSYCHOLOGY OF DISCOVERY AND INVENTION* 332 (1996) (concluding that "too many resources . . . can have a deadening effect on creativity").

¹⁵⁰ See RONALD A. FINKE ET AL., *CREATIVE COGNITION* 17–20 (1992); Steven M. Smith et al., *Constraining Effects of Examples in a Creative Generation Task*, 21 *MEMORY & COGNITION* 837, 837 (1993); Thomas B. Ward et al., *Creative Cognition*, in *HANDBOOK OF CREATIVITY* 189, 191–93 (Robert J. Sternberg ed., 1999). While others have further divided creative cognition into additional steps, see generally, e.g., Mark A. Runco & Ivonne Chand, *Cognition and Creativity*, 7 *EDUC. PSYCH. REV.* 243 (1995), the basic framework is similar. See Thomas B. Ward, *Cognition, Creativity, and Entrepreneurship*, 19 *J. BUS. VENTURING* 173, 175 (2004) (noting compatibility between models).

¹⁵¹ FINKE ET AL., *supra* note 150, at 17, 20.

¹⁵² *Id.* at 20–21.

¹⁵³ Ward et al., *supra* note 150, at 191.

¹⁵⁴ See FINKE ET AL., *supra* note 150, at 17, 24–26.

¹⁵⁵ *Id.* at 17.

process.¹⁵⁶ If there are few constraints, most individuals by default seek out a prior successful exemplar and work in a top-down fashion to conform the solution to it.¹⁵⁷ Following this path of least resistance inhibits originality, and hence creativity, by launching a mimetic approach to problem solving. The ultimate product will closely resemble the exemplar from which it sprang.¹⁵⁸ Whether the creator is conscious of it or not, there has been a powerful cognitive constraint at work all along: the exemplar itself.

Increasing the amount of constraint that the individual must satisfy breaks the mimetic cycle. Constraint makes it more difficult to retrieve a fully formed exemplar that will remain appropriate to the task.¹⁵⁹ As a result, preinventive structures grow more abstract and less likely to conjure up a previous solution.¹⁶⁰ Rather than conform a solution to an already well-developed model, the individual must instead consult broader knowledge frameworks and engage in the sort of conceptual synthesis and analogy that tends to produce original ideas.¹⁶¹

This approach to creative cognition has come to be known as the Path of Least Resistance theory.¹⁶² To be sure, there's nothing inherently wrong with following the path of least resistance, as Professor Thomas Ward, the theory's pioneer, has emphasized.¹⁶³ Conforming solutions to prior exemplars is, in fact, a perfectly efficient way to approach many problems. But it's not a terribly effective route to originality. And where the problem solver transfers aspects of the exemplar to a new context where they are unnecessary or detrimental to the solution, it's not an effective route to appropriateness, either.¹⁶⁴ In the 1970s, for example, Sony almost abandoned plans for the CD on the ground that an LP-sized digital disc would hold far more music than most consumers would be willing to pay for. Apparently, the thought of creating a smaller disc hadn't occurred to the company's engineers.¹⁶⁵ Sony realized its error only when it saw another firm using

¹⁵⁶ See Thomas B. Ward, *Structured Imagination: The Role of Category Structure in Exemplar Generation*, 27 *COGNITIVE PSYCH.* 1, 35 (1994); Ward, *supra* note 150, at 183–84.

¹⁵⁷ See C. Page Moreau & Darren W. Dahl, *Designing the Solution: The Impact of Constraint on Consumers' Creativity*, *J. CONSUMER RES.*, June 2005, at 13, 15; Stokes, *supra* note 25, at 107–08; Ward, *supra* note 156, at 35–36; Ward et al., *supra* note 150, at 183.

¹⁵⁸ See Ward, *supra* note 156, at 36; Ward, *supra* note 150, at 183.

¹⁵⁹ Stokes, *supra* note 25, at 108.

¹⁶⁰ FINKE ET AL., *supra* note 150, at 31; Ward, *supra* note 156, at 36.

¹⁶¹ Ward, *supra* note 156, at 36.

¹⁶² See, e.g., Steve M. Smith & Thomas B. Ward, *Cognition and the Creation of Ideas*, in *THE OXFORD HANDBOOK OF THINKING AND REASONING* 459 (Keith J. Holyoak & Robert G. Morrison eds., 2012).

¹⁶³ Ward, *supra* note 150, at 184.

¹⁶⁴ *Id.* at 185.

¹⁶⁵ *Id.* at 175.

smaller discs.¹⁶⁶ That error, according to Ward, was probably the product of path-of-least-resistance thinking.¹⁶⁷ Cognitively, then, creativity is better off under constraints that encourage a more abstract approach.¹⁶⁸

The next section describes in greater detail a few of the significant empirical studies that show the theory at work.¹⁶⁹ They indicate that too little constraint is as bad for creativity as too much, and that certain constraints lead to more creativity than others.

B. Empirical Studies

1. *Creative Invention Experiments.* — In 1990, Finke conducted a pioneering study of creativity under constraint.¹⁷⁰ In a series of controlled experiments, participants were shown a set of fifteen basic component shapes, including both simple pieces like a sphere or a cylinder and more specialized pieces like a hook or a handle.¹⁷¹ They were then asked to design a useful object using exactly three of those shapes.¹⁷² In an experimental group, participants were randomly assigned their shapes.¹⁷³ In a control group, participants could choose any shapes they liked.¹⁷⁴

In all groups, participants were given potential categories of objects, such as furniture, toys, or scientific instruments. After they had finished, a blind panel of judges rated each invention according to its originality and appropriateness, creativity's constituent parts.¹⁷⁵ Any object that was rated sufficiently appropriate and original was deemed a creative invention.¹⁷⁶

In the first study, Finke compared the creativity ratings under three different conditions: (1) the category was random but the parts were chosen, (2) the category was chosen but the parts were random, and (3)

¹⁶⁶ JOEL ARTHUR BARKER, PARADIGMS 112-14 (1993).

¹⁶⁷ Ward, *supra* note 150, at 182.

¹⁶⁸ *Id.* at 185.

¹⁶⁹ For other empirical work not discussed here, see Roy Yong-Joo Chua & Sheena S. Iyengar, *Creativity as a Matter of Choice: Prior Experience and Task Instruction as Boundary Conditions for the Positive Effect of Choice on Creativity*, 42 J. CREATIVE BEHAV. 164 (2008); and Jacob Goldenberg et al., *Creative Sparks*, 285 SCIENCE 1495 (1999). An extensive literature review can be found in C. Page Moreau & Darren W. Dahl, *Constraints and Consumer Creativity*, in TOOLS FOR INNOVATION 104 (Arthur B. Markman & Kristin L. Wood eds., 2009).

¹⁷⁰ RONALD FINKE, CREATIVE IMAGERY: DISCOVERIES AND INVENTIONS IN VISUALIZATION 39-61 (1990).

¹⁷¹ *Id.* at 40.

¹⁷² *Id.* Participants were never specifically instructed to be creative. *Id.* at 42.

¹⁷³ *Id.*

¹⁷⁴ *Id.*

¹⁷⁵ *Id.* at 43-44.

¹⁷⁶ *See id.*

both the category and the parts were random.¹⁷⁷ Finke found that the group that was randomly assigned both category and part designed the greatest number of creative inventions, while the group whose members were free to choose their own parts generated the fewest creative inventions.¹⁷⁸ The appropriateness of the inventions remained roughly constant across experimental conditions — it was only originality that differed.¹⁷⁹ Finke hypothesized that being forced to think in unconventional ways about objects and their uses increased creativity.¹⁸⁰

A second study added a variation to the experimental conditions.¹⁸¹ One group was assigned not only object categories, but also specific object *types* within those categories (for example, in the furniture category, a subject would be further constrained to designing a chair). Another group was instead assigned a specific *function* for the object (for example, in the furniture category, a subject would be further constrained to designing something that could be used by the disabled). The results demonstrated that certain constraints are less productive than others. The group that had been assigned an object function produced about as many creative inventions as the group from the first study that could choose any function. By contrast, the group that had been assigned an object type produced fewer than half as many creative inventions as the group from the first study.¹⁸²

Finke concluded that as an assigned object grew more specialized, it became more difficult to design using randomly selected parts. A broad category like furniture gives enough room for novel structures that remain useful, but a narrower category contains necessary elements too specific to be satisfied.¹⁸³ The sweet spot was a bounded, but not too bounded, inventive territory.

Finke's studies were some of the first experimental evidence that an incremental increase in restrictions could enhance creative output. Notably, however, the experiments did not include a control group in which both category and object parts could be freely chosen, which Finke considered to be "trivially unconstrained."¹⁸⁴ To those who believe maximum creative choice yields maximum creativity, the matter may not be so trivial. The subsequent experiments discussed below explore a starker contrast between maximized and minimized constraint.

¹⁷⁷ *Id.* at 45.

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ FINKE ET AL., *supra* note 150, at 69.

¹⁸¹ FINKE, *supra* note 170, at 63–81.

¹⁸² *Compare id.* at 67, *with id.* at 45.

¹⁸³ *Id.* at 81.

¹⁸⁴ FINKE ET AL., *supra* note 150, at 69.

2. *Creative Cognition in Toy Design.* — Marketing Professors Page Moreau and Darren Dahl continued Finke's work by examining how individuals' cognitive processes shift when confronted with constraint.¹⁸⁵ As in Finke's study, the experiment required participants to design a product, in this case a toy, by combining various shapes. Each participant saw a set of twenty shapes but could use only five of them. The experiment involved two forms of constraint. First, some participants were allowed to choose their parts, while others were required to accept parts that were randomly assigned. Second, some participants were permitted to use as many of the selected five parts as they wished, while others were required to use all five.¹⁸⁶

After sketching out and describing the toy design, participants answered a series of questions about the creative process. Those responses measured whether, consistent with path-of-least-resistance cognition, the participant had used a top-down process of conforming the design to a known exemplar or had instead used a bottom-up constructive strategy. Finally, a blind panel of product design professionals judged the originality and appropriateness of each design.

Moreau and Dahl found that as the constraints increased, so did creative cognition. Participants who were randomly assigned their object parts tended to process in an exploratory, creative way, while participants who chose their own parts tended to pursue a goal-oriented approach based on prior exemplars.¹⁸⁷ The study also noted a strong creative synergy between the constraint of being assigned the object parts and the constraint of having to use all five of them. Participants who had to contend with both on average employed significantly more creative processing than others did.¹⁸⁸

As creative cognition increased, so did creative output. Deviating from the path of least resistance made the designs more original and, to Moreau and Dahl's surprise, did not reduce their appropriateness.¹⁸⁹ But deviation took a great deal of cognitive effort. "Only when participants were highly constrained did they abandon a top-down, exemplar-driven approach in exchange for more constructive, creative processes."¹⁹⁰

¹⁸⁵ See Moreau & Dahl, *supra* note 157.

¹⁸⁶ *Id.* at 16.

¹⁸⁷ *Id.* at 17-18.

¹⁸⁸ *Id.*

¹⁸⁹ *Id.* at 18.

¹⁹⁰ *Id.* at 21.

3. *Creative Cognition in Knitwear*. — A later study, conducted by Dahl and Professor Anne-Laure Sellier, contextualized these findings by answering three open questions: (a) whether maintaining freedom to choose inputs but moderating the size of the input universe affects creativity; (b) how participants' self-perception of creativity under constraint compares to observers' objective ratings; and (c) whether the effect of constraint depends on participants' level of experience in the creative medium.¹⁹¹

The study asked participants to knit a child's scarf. All participants had at least some knitting experience, but those with the highest skill level were tracked separately from the others. Unlike in previous experiments, participants maintained freedom to choose their inputs (in this case, yarn) across all experimental conditions. The researchers manipulated the constraint variable not by assigning inputs but rather by changing the size of the input universe. One group could choose from among twice as many yarns as the other. All participants were instructed to "be creative."¹⁹²

Professionals involved in knitwear design judged participants' output. They ranked the scarves according to overall creativity as well as several variables that, as in previous studies, tracked originality and appropriateness. Upon finishing the project, each participant also provided a self-assessment of the scarf's creativity.

The study found that participants' perceptions diverged significantly from those of the observers.¹⁹³ Irrespective of experience level, knitters with more yarns perceived their creativity to be greater than did knitters with fewer yarns. Yet among the experienced knitters, those with fewer yarns earned higher creativity ratings than those with more yarns. Among inexperienced knitters, the amount of choice did not significantly affect creativity in either direction. Contrary to the participants' subjective self-assessment, constraining the universe of options left experienced creators better off and inexperienced creators no worse off.

"Choice," Dahl and Sellier concluded, "gives consumers the illusion that the extensive selection of creative inputs will make them more creative."¹⁹⁴ If that illusion holds true outside the lab, then "experienced creator[s] would seek out the largest choice set available" — even though their creativity might suffer as a result.¹⁹⁵

¹⁹¹ Anne-Laure Sellier & Darren W. Dahl, *Focus! Creative Success Is Enjoyed Through Restricted Choice*, 48 J. MARKETING RES. 996, 1001–02 (2011).

¹⁹² *Id.* at 999.

¹⁹³ *Id.* at 1000–01.

¹⁹⁴ *Id.* at 1004.

¹⁹⁵ *Id.*

4. *Design Fixation*. — Maximizing the size of choice sets is not the only way creators may unwittingly subvert their own creativity. As engineering design scholar David Jansson and cognitive psychologist Steven Smith showed in a famous series of experiments, familiarity with an existing solution to a problem can cause difficulty conceptualizing alternatives.¹⁹⁶ The study tasked advanced undergraduate engineering students with devising as many varied designs of a product as possible. For each experiment, one group was shown an exemplar of a possible design; a control group was not. The two groups generated nearly the same number of designs. But those who were shown the exemplar showed far less variability across their range of designs, were less likely to include useful features that the exemplar lacked, and regularly copied the exemplar's flaws.¹⁹⁷ Despite the instruction to vary their designs, the students simply hewed to the model. Jansson and Smith termed this phenomenon “design fixation.”

The design-fixation effect has also been discovered among experienced practitioners. When Jansson and Smith ran a similar experiment using professional engineers, they again found that those shown a prior exemplar tended to conform to it, including its flaws.¹⁹⁸ A subsequent experiment by others found that even engineering design faculty who were aware of design fixation were unconsciously affected by it in their own product designs.¹⁹⁹

These studies highlight the gravitational pull of precedent. Familiar examples, it turns out, have an exceptionally strong grip on the human mind — even for those trying to escape them. Of course, building off of prior solutions is an indispensable part of the creative process, in science and art alike. Replication of existing product features may be entirely appropriate in a given instance. But not in every instance. The difficulty posed by design fixation is that individuals may not consider potential alternatives as thoroughly as they should. Or, to put it another way, the difficulty posed by design fixation is that

¹⁹⁶ See David G. Jansson & Steven M. Smith, *Design Fixation*, 12 *DESIGN STUD.* 3 (1991).

¹⁹⁷ *Id.* at 8–9.

¹⁹⁸ See *id.* at 9.

¹⁹⁹ See J.S. Linsey et al., *A Study of Design Fixation, Its Mitigation and Perception in Engineering Design Faculty*, 132 *J. MECHANICAL DESIGN* 1 (2010). For other recent studies finding fixation effects, see Carlos Cardoso & Petra Badke-Schaub, *The Influence of Different Pictorial Representations During Idea Generation*, 45 *J. CREATIVE BEHAV.* 130 (2011); Evangelia G. Chrysikou & Robert W. Weisberg, *Following the Wrong Footsteps: Fixation Effects of Pictorial Examples in a Design Problem-Solving Task*, 31 *J. EXPERIMENTAL PSYCHOL.: LEARNING, MEMORY, & COGNITION* 1134 (2005); and Vimal Viswanathan & Julie S. Linsey, *Design Fixation and Its Mitigation: A Study on the Role of Expertise*, 135 *J. MECHANICAL DESIGN* 8 (2013).

it constrains creators' choices. As Finke predicted, fidelity to prior solutions homogenizes the universe of new solutions.²⁰⁰

There is, however, evidence suggesting that this fixation effect can be mitigated. A recent replication study using the same exemplars as Jansson and Smith found that the effect could be reduced by expressly instructing participants not to reuse particular elements.²⁰¹ Like the law of infringement, these instructions prohibited copying aspects of the prior solution. The participants who were given the instructions successfully designed around them, avoiding fixation on the suboptimal exemplar.²⁰²

5. *Fieldwork.* — To test whether creativity and constraint have the same relationship in the field as in the lab, management professor Brent Rosso conducted a three-month ethnographic study at a multinational corporation with significant R&D expenditures.²⁰³ He observed the day-to-day dynamic of product and technology development teams and completed dozens of semi-structured interviews with team members.²⁰⁴ Rosso's goal was to measure team perception of early-stage creativity under constraint.²⁰⁵ Unlike Dahl and Sellier's lab experiment, he did not contrast self-reporting with an objective indicator of innovative output.²⁰⁶ Nevertheless, his ethnography provides a thick description of how creative individuals experience various constraints in the real world.

Rosso found that employee perceptions depended on the type of constraint. Employees responded more positively to restrictions on the possible solution to a problem ("product constraints"), such as a desired R&D goal, than to restrictions on the process of reaching a solution ("process constraints"), such as time or personnel.²⁰⁷ Constraining the ends, in other words, aroused more divergent thinking than constraining the means. Where interviewees thought that constraint helped

²⁰⁰ Cf. Smith et al., *supra* note 150, at 845 (noting that even though "learning and benefiting from prior experience is one of the most important human adaptive traits," fixation and other "unintentional" constraints "may be especially limiting to the discovery of novel ideas").

²⁰¹ See Chrysikou & Weisberg, *supra* note 199, at 1144. These results contradicted Jansson and Smith, who had found that instructions did little to curb the fixation effect. See *id.* (discussing Jansson & Smith, *supra* note 196). Professors Evangelia Chrysikou and Robert Weisberg hypothesize that the difference lies in the manner in which instructions were given. While they had monitored whether individual participants had read the instructions and comprehended them fully, Jansson and Smith had given their instructions in a group setting and did not monitor individual comprehension. Chrysikou and Weisberg concluded that participants are likely to follow such "defixation" instructions so long as they comprehend them. *Id.*

²⁰² See *id.*

²⁰³ Rosso, *supra* note 145.

²⁰⁴ See *id.* at 556–57.

²⁰⁵ See *id.* at 561–62.

²⁰⁶ See *id.* at 580.

²⁰⁷ *Id.* at 567–70.

their creative process, they spoke of being stimulated to try something new, describing the limitation as a provocation to move past the status quo.²⁰⁸ Where they thought that it hurt, they spoke of being confined to the status quo.²⁰⁹

Significantly, one of the constraints at issue was patent exclusivity, which Rosso classified as a product constraint.²¹⁰ In Rosso's interviews, the R&D teams tended to treat intellectual property rules as "facts of life."²¹¹ Teams indicated that these rules "often help[] to define what could even be considered creative in a given domain."²¹²

For product and process constraints alike, employee perceptions also depended on the severity of constraint. Echoing Finke's experimental results, Rosso found that perceived creativity thrived best when constraints were present but not too strong. "[B]oth overabundance and scarcity of constraints," Rosso concluded, "are debilitating."²¹³

Rosso also discovered that social dynamics shape individuals' attitudes toward the role that constraint plays in the creative process. Certain group dynamics enabled teams to leverage limitations as motivating challenges, while different dynamics led teams to treat limitations as nuisances.²¹⁴ "How a team interpreted the constraints they were facing," Rosso determined, "played an important role in whether those constraints would inhibit or enhance team creativity."²¹⁵ These findings complement others' conclusions on the contingent role that attitudinal climate plays in moderating constraint's effects. Amabile and her colleagues found that time pressure enhances creativity when people feel like they are "on a mission," but it inhibits creativity when they feel like they are "on a treadmill."²¹⁶ Similarly, a recent multi-industry survey of ninety-four innovation project teams revealed that, where a team's climate supported risk-taking and exploration of unusual approaches, teams produced innovative, higher-quality products under financial resource constraints.²¹⁷ Where the climate was less supportive, by contrast, those positive results were absent.²¹⁸ While constraints alone did not significantly correlate with innovation, con-

²⁰⁸ See *id.* at 572, 576–77.

²⁰⁹ See *id.*

²¹⁰ See *id.* at 566–67, 569. It is not clear whether the R&D teams were contending with product patents alone or with method patents as well.

²¹¹ See *id.* at 567.

²¹² *Id.*

²¹³ *Id.* at 578.

²¹⁴ See *id.* at 576–77.

²¹⁵ *Id.* at 580.

²¹⁶ Teresa M. Amabile et al., *Creativity Under the Gun*, HARV. BUS. REV., Aug. 2002, at 52, 56.

²¹⁷ Matthias Weiss et al., *Making Virtue of Necessity: The Role of Team Climate for Innovation in Resource-Constrained Innovation Projects*, 28 J. PRODUCT INNOVATION MGMT. 196 (2011).

²¹⁸ See *id.* at 203–04.

straints combined with an environment of “psychological safety and tolerance of mistakes” did.²¹⁹ This much should come as no surprise. We are, reasonably enough, more likely to harness constraints to their creative advantage when we enjoy the process.

6. *Summary.* — None of these studies perfectly map on to the restrictions of the copyright system. Their resource constraints draw clearer lines than does copyright’s substantial similarity test or its fair use doctrine. Moreover, they focus on physical products like toys and clothes but not on textual content like novels and songs.²²⁰ As guides for how to approach copyright policy, they are incomplete.

Nevertheless, these studies still shed light on some basic questions. They tell a Goldilocks tale of creativity and constraint. There can be too much restriction, but there can also be too little, and somewhere in between is an amount that is just right. They also suggest that not all constraints are created equal (or are equally creative). The effect of limiting creative choice will depend on a combination of factors, including how the limit operates, who is being limited, who is doing the limiting, and when the limit is imposed. A proper conceptualization of constraint thus comprises not a single indivisible variable, but rather an aggregation of multiple characteristics. Those characteristics are the subject of the next Part.

IV. A MODEL OF GENERATIVE CONSTRAINT

Thus far, this Article has discussed the intuitive risks and counter-intuitive rewards that constraint holds for the creative process. Copyright’s incentives/access debate has done a good job recognizing the risks. Yet it has all but ignored the rewards. On the traditional account, the total amount of creativity that the copyright system generates is equal to the difference between two variables: the upstream creative output that copyright protection incentivizes minus the downstream creative output that copyright restriction suppresses. A creating-around view recognizes a third variable that the traditional account overlooks: the downstream creative output that copyright restriction stimulates. My analysis thus supplements the standard upstream incentives justification for copyright protection.

The size of this overlooked variable does not depend on copyright’s incentive effects upstream. The system could provide few incentives upstream while still generating much creativity downstream, or vice versa. In theory, if copyright restrictions generate more downstream

²¹⁹ *Id.* at 204.

²²⁰ For discussion of an experimental study examining the effect of information constraints on software innovation, see *infra* p. 1396. Even software, however, may be an imperfect analogy for artistic expression. See *infra* note 359.

creativity than they suppress, they would yield a net creativity gain even in the extreme scenario in which they fail to incentivize *any* marginal creativity upstream. According to some, we're much closer to that extreme than defenders of copyright care to admit.²²¹ Even assuming that's true, though, copyright constraint could still be defended if it stimulates enough creativity downstream to pay for itself. Of course, if the upstream benefits are in fact substantial, then the downstream benefits have less heavy lifting to do. Either way, all downstream effects — gains as well as losses — should be part of the calculus. If we are to take seriously copyright law's mandate "to stimulate artistic creativity for the general public good,"²²² we need to begin recognizing the generativity of constraint.

The constraint critique of copyright law emphasizes the importance of serendipity and unpredictability to the creative process.²²³ Not every step of the creative process is purposive; many of its fruits are unanticipated at the outset. This is profoundly true, so far as it goes. But this vital serendipity does not come solely from expansive choice. Roadblocks produce their own serendipities. That is the lesson of inventing around. Roadblocks have given us technologies that no one foresaw at the start.²²⁴

It is also the lesson Picasso taught when he said that constraint "obliges you to make a kind of progress that you can't even imagine in advance."²²⁵ Restrictions can invite problem finding and problem solving we would not otherwise have thought to pursue. When members of Kanye West's production team could not obtain a license for a music sample from the owner of a sound recording, they decided to re-record the sample themselves.²²⁶ The resulting track, "All Falls Down,"²²⁷ was, in the team's estimation, better off for it.²²⁸ After

²²¹ See, e.g., Julie E. Cohen, *Copyright as Property in the Post-Industrial Economy: A Research Agenda*, 2011 WIS. L. REV. 141, 143; Zimmerman, *supra* note 136.

²²² *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975).

²²³ See, e.g., Cohen, *supra* note 2, at 1178, 1190–91; Tushnet, *supra* note 86, at 542–43.

²²⁴ See *supra* pp. 1354–55.

²²⁵ See GILOT & LAKE, *supra* note 137, at 57 (internal quotation mark omitted) and accompanying text. This phenomenon prompted art critic Clement Greenberg's observation that "the pressure of the resistance offered by the conventions of a medium of communication" can:

[A]ct to guide and evoke and inspire; it can be an enabling as well as a resistant pressure; and it guides and enables and evokes and inspires precisely by virtue of its resistance. Measure in verse and in music, patterns in ballet, ordered necessities of progression in drama, prose or verse fiction, and movies: These have empowered creation at the same time as they have constrained it — and because they have constrained it.

CLEMENT GREENBERG, *HOMEMADE ESTHETICS* 48 (1999).

²²⁶ See MCLEOD & DICOLA, *supra* note 10, at 190. They did, however, have a license from the publisher that owned the rights to the composition. *Id.*

²²⁷ KANYE WEST, *All Falls Down*, on *THE COLLEGE DROPOUT* (Roc-A-Fella Records 2004).

²²⁸ MCLEOD & DICOLA, *supra* note 10, at 190.

filmmaker David Newhoff was unable to incorporate a cover of The Shirelles' classic "Tonight's the Night"²²⁹ into a film scene, he discovered a public domain song that he wished he had thought of to begin with.²³⁰ "Because I couldn't have what I thought I wanted in the first place," he reflected, "I ended up with something much better simply because I was forced to go look for it."²³¹ Without copyright's constraints, we wouldn't have these creations.

Create-around benefits are particularly visible in segments of the digital sampling world. Professors Kembrew McLeod and Peter Di-Cola's recent ethnography, though far from a pro-copyright case study, reports that many DJs find creative inspiration in transcending the limitations that copyright imposes.²³² One described various layering techniques he uses to "camouflage" unlicensed samples, which, in his words, "put[s] some creativity into it as opposed to just straight thievery."²³³ A jazz musician praised the technique of another DJ who, in an effort to avoid licensing, knew how to "take a sound, and turn it sideways and press it down and stretch it out and move it — to actually take that raw material and create something new."²³⁴ Yet another explained how the challenge of circumventing sampling restrictions makes the music "more beautiful It makes you want to change that sound because if you just *use it* then it's theirs and that's stealing."²³⁵

An ethnomusicological study of copyright's effects on British sampling culture uncovered similar creative practices.²³⁶ Just as some producers had once found a creative muse in the technological limitations of sampling equipment, so too do they now find a muse in the legal limitations of copyright licensing. One producer explained the exploratory process that copyright encouraged:

In the same way as having a sample, you're imposing those restrictions upon yourself, and quite often it's the pushing up against those restrictions and dealing with music that is already completed and using that as the starting point for something else — it's those restrictions which I think really test and encourage your creativity So yeah, you tend to take less obvious bits of records and obviously you hunt for more obscure records, or you chop something within an inch of its life so even you've forgotten

²²⁹ THE SHIRELLES, *Tonight's the Night*, on TONIGHT'S THE NIGHT (Scepter Records 1961).

²³⁰ See Newhoff, *supra* note 11.

²³¹ *Id.*

²³² See MCLEOD & DICOLA, *supra* note 10, at 194–96.

²³³ *Id.* at 195.

²³⁴ *Id.* at 196.

²³⁵ KEMBREW MCLEOD, OWNING CULTURE 95 (2001) (internal quotation marks omitted).

²³⁶ See Morey, *supra* note 10, at 59.

what you sampled . . . The new cautious approach in itself becomes a limitation, but not necessarily a bad one.²³⁷

For these creators, copyright has a stimulating effect — not necessarily the upstream version that we’re accustomed to, but the downstream version of creating around.

Obviously, imposing constraint is not a Pareto-optimal fix for cultural production. Professors Lawrence Lessig, James Boyle, Peter Jaszi, and Patricia Aufderheide, among others, have told powerful stories about missed opportunities inflicted by the copyright system.²³⁸ No one can reasonably deny that copyright restrictions prevent some creators from producing valuable work. But there would be other missed opportunities if all copyright restrictions were eliminated. Removing constraint, just like adding constraint, means that some creations will never be made. If serendipity is our lodestar for creativity policy, limitlessness has no pride of place over limitedness.

The problem with idealizing free culture is not that freedom and openness always hurt creativity. To a degree, they help. The problem, rather, is that this idealization tells only half the story behind the creative process. Not every constraint is necessarily productive, and we are right to question whether particular ones help or hurt (a task that I take up below). But not every freedom is necessarily productive, either. Scholars have rightly spent much time tearing down the romantic narrative of the sole creator. But we should resist the temptation to replace it with an equally romantic narrative about creative freedom. That freedom is in some sense an oxymoron. Creators are always under some constraint, whether consciously or not.²³⁹ As the design-fixation studies demonstrate, familiarity confers its own powerful but

²³⁷ *Id.* (alterations in original).

²³⁸ See, e.g., BOYLE, *supra* note 5, at 153–59; LESSIG, *supra* note 5, at 105–06, 181–82; PATRICIA AUFDERHEIDE & PETER JASZI, CENTER FOR SOCIAL MEDIA, UNTOLD STORIES: CREATIVE CONSEQUENCES OF THE RIGHTS CLEARANCE CULTURE FOR DOCUMENTARY FILMMAKERS 7–29 (2004), http://www.cmsimpact.org/sites/default/files/UNTOLDSTORIES_Report.pdf [<http://perma.cc/P639-QJRP>].

²³⁹ See Robert J. Sternberg & James C. Kaufman, *Constraints on Creativity: Obvious and Not So Obvious*, in THE CAMBRIDGE HANDBOOK OF CREATIVITY 467, 479 (James C. Kaufman & Robert J. Sternberg eds., 2010) (describing “internal constraints” that impede creativity precisely because “the individual is usually not even aware that they exist”); Patricia D. Stokes, *Creativity from Constraints: What Can We Learn from Motherwell? From Mondrian? From Klee?*, 42 J. CREATIVE BEHAV. 223, 234 (2008) (arguing that because stylistic conventions constrain any artistic domain, true artistic freedom is left to those experts who “self-impose constraints on their currently successful solutions”); David Daley, *David Byrne: “Do You Really Think People Are Going to Keep Putting Time and Effort into This, If No One Is Making Any Money?”*, SALON (Dec. 21, 2013, 4:00 PM), http://www.salon.com/2013/12/21/david_byrne_do_you_really_think_people_are_going_to_keep_putting_time_and_effort_into_this_if_no_one_is_making_any_money [<http://perma.cc/CRD9-3GZW>] (quoting musician David Byrne’s perspective that, because art is inherently constrained by its environment, “a lot of creative decisions are kind of made for us, and the trick is then working creatively within those constraints”).

often hidden constriction.²⁴⁰ Solving an ill-structured problem one way can inhibit recognition of other solutions and ways to define the problem. “In effect, one becomes a prisoner of one’s own expertise.”²⁴¹ An individual can be constrained by prior solutions or by express limits that make reliance on prior solutions less likely. Both limit creative choice, but at least the latter one promotes originality.

This is the underappreciated dynamism of constraint on expression. However open our copyright system becomes, creators will always be constrained. The question is by what: a constraint that promotes creativity, or a constraint that does not? Copyright law will better fulfill its purpose if those crafting it and critiquing it pay close attention to the fact that optimizing constraint doesn’t necessarily mean minimizing it.

Still — and here’s the rub — optimizing doesn’t mean maximizing, either. That fact makes implementing these insights at the policy level extraordinarily difficult. Even if the ideal amount of constraint is larger than zero, the exact number remains unknown. That uncertainty quickly evokes visions of a Laffer Curve.²⁴² An increase in constraint yields an increase in creativity — up until a point. Past that point, however, increasing constraint only reduces creativity. Without having at least a rough sense of where the creativity-maximization point lies, we cannot determine whether the existing level of copyright constraint falls on the left or the right of the curve’s crest. If the latter, then even accepting the proposition that some positive amount of constraint is a good thing, there is still some force to the charge that copyright harms downstream creativity. Indeed, after accounting for all the other constraints in life that creators must face, perhaps creators are already at or past the ideal point even before copyright enters the picture. That would mean that *any* amount of copyright restriction is too much — leading full circle back to the claim that I questioned at the outset of this Article: restricting downstream creators through copyright is at best a necessary evil.

²⁴⁰ See *supra* p. 1366; see also Sternberg & Kaufman, *supra* note 239, at 479–80.

²⁴¹ Sternberg & Kaufman, *supra* note 239, at 480.

²⁴² The Laffer Curve posits that there exists an optimal tax rate somewhere between 0% and 100%. At either extreme, the government will collect no revenue. The devil is in the details of identifying where between 0% and 100% that optimal point lies. Several authors have drawn analogies between the Laffer Curve and copyright policy framed in terms of incentives rather than constraint. See, e.g., Salil K. Mehra, *Copyright, Control, and Comics: Japanese Battles over Downstream Limits on Content*, 56 RUTGERS L. REV. 181, 185–86 (2003); Lior Jacob Strahilevitz, *Wealth Without Markets?*, 116 YALE L.J. 1472, 1480–81 (2007) (reviewing YOCHAI BENKLER, *THE WEALTH OF NETWORKS* (2006)); see also Matt Schruers, *Copyright’s Laffer Curve, or, Why the Republican Study Committee Was Right*, DISRUPTIVE COMPETITION PROJECT (Nov. 19, 2012), <http://www.project-disco.org/intellectual-property/111912-copyrights-laffer-curve-or-why-the-republican-study-committee-was-right/> [<http://perma.cc/ED7V-9VF6>].

One particularly alluring form of this objection focuses on the market for creativity. Insofar as consumers prefer expressive goods that they deem to be creative, creators seemingly have a private incentive to constrain themselves even without any legal intervention.²⁴³ Moreover, it is presumably the creators, rather than the government, who have the best information about which restrictions aid their individual creative processes. If creators have both the incentives and the information necessary to commit to self-restriction, then copyright constraint appears redundant at best and harmful at worst.

Nevertheless, private ordering alone is unlikely to optimize constraint. To begin with, even if audiences desire creativity, it's unclear that market signals are effective at identifying it. Markets for cultural goods are susceptible to herd behavior and information cascades in which successes and failures are driven more by social influence than by the goods' innate quality.²⁴⁴ On top of this, to whatever extent markets do aggregate preferences for creativity, there remains the problem of managing risk. Creative production is an inherently uncertain process.²⁴⁵ But derivative works like sequels, film adaptations, and spinoffs will on average be surer bets than the initial works on which they are based.²⁴⁶ Because familiar solutions tend to be safer, as William Davis suggested in his 1946 congressional testimony on the patent system,²⁴⁷ the rational move will often be to follow another's

²⁴³ Cf. DYER ET AL., *supra* note 20, at 78–79 (discussing voluntarily imposed constraints in developing new business models).

²⁴⁴ See, e.g., DEAN KEITH SIMONTON, GREAT FLICKS: SCIENTIFIC STUDIES OF CINEMATIC CREATIVITY AND AESTHETICS 76–77 (2011) (describing how information cascades skew the distribution of financial returns on movies and “undermine[] the connection between the box office figures and cinematic merit,” *id.* at 76); Matthew J. Salganik et al., *Experimental Study of Inequality and Unpredictability in an Artificial Cultural Market*, 311 SCIENCE 854, 855–56 (2006) (presenting experimental findings that music ratings are strongly influenced by perceptions of others' music ratings and conjecturing that experts in cultural markets “fail to predict success not because they are incompetent judges or misinformed about the preferences of others, but because when individual decisions are subject to social influence, markets do not simply aggregate pre-existing individual preferences,” *id.* at 856).

²⁴⁵ The risks can range from financial investment, see, e.g., LANDES & POSNER, *supra* note 3, at 233 (discussing the market for pop music records, where “[w]hich [records] will be hits and which flops is not knowable in advance”); Jonathan M. Barnett, *Copyright Without Creators*, 9 REV. L. & ECON. 389, 391 (2013) (observing that because “commercial outcomes in creative markets are extremely skewed and unpredictable,” those markets are characterized by a high degree of risk), to social acceptance, see, e.g., MARK A. RUNCO, CREATIVITY 299 (2d ed. 2014) (“[C]reative ideas are sometimes risky. . . . There is . . . a risk involved in considering or sharing ideas, and the more original the idea, the larger the risk.”).

²⁴⁶ See EDWARD JAY EPSTEIN, THE BIG PICTURE 142–43 (2005) (discussing the relatively reliable consistency of franchise films like *Jurassic Park* and *Star Wars*); Michael Abramowicz & John F. Duffy, *Intellectual Property for Market Experimentation*, 83 N.Y.U. L. REV. 337, 394 (2008) (“An initial work will almost certainly face more risk than a derivative work, if for no other reason than that creators of derivative works will avoid making derivatives of flops.”).

²⁴⁷ See *supra* pp. 1352–53.

lead.²⁴⁸ To be sure, intermediaries like movie studios and publishing houses mitigate this phenomenon somewhat by building risk-diversified portfolios that enable the hits to subsidize the flops.²⁴⁹ But within those intermediaries, the individuals responsible may still have professional incentives not to stick their necks out. An unsuccessful effort that follows a successful template is generally safer than an unsuccessful attempt that charts an untested course.²⁵⁰ “Failure is OK,” one commentator notes, “so long as one fails *conventionally*.”²⁵¹ In an environment like that, avoiding the path of least resistance through self-constraint seems improbable.

Of course, many creators are motivated by nonpecuniary interests.²⁵² Those creators who prefer risk, who care more about doing things their own way than about maximizing financial returns or securing a supervisor’s approval, are certainly less susceptible to these incentives to conform. Yet even they aren’t assured of identifying and applying productive constraints consistently. The creative process is seldom characterized by self-awareness or predictability.²⁵³ A threshold difficulty is recognizing how particular constraints affect outcomes. The creators in the knitwear study, for example, felt that more choice made their products more creative, even as their audience considered those products to be less creative.²⁵⁴ Beyond this information gap, in-

²⁴⁸ Continuing the mining metaphor that Davis and Professor Edmund Kitch each adopted, *see supra* pp. 1352–53, one media-economics scholar has observed:

Movie industry executives can be likened to a group of people wandering in a fog, looking for gold nuggets. When one person finds a nugget, others flock to the same area and search, because that area is more likely to have other, though perhaps smaller, nuggets. . . . [I]t is logical . . . that when a success is eventually proven, sequels and derivative films flow one after another until the expected marginal revenues from yet another bad movie fall below the required rate of return.

DAVID WATERMAN, *HOLLYWOOD’S ROAD TO RICHES* 240 (2005).

²⁴⁹ *See* Barnett, *supra* note 245, at 401.

²⁵⁰ For a discussion of how this dynamic plays out in creative industries, *see* TYLER COWEN, *WHAT PRICE FAME?* 144 (2000). Professor Tyler Cowen explains:

When one manager errs, superiors may assume that the manager exhibited poor judgment. But when several managers imitate each other’s behavior, and (sometimes) end up making a common mistake, their superiors are more likely to assume that the world was too difficult to predict. The attempt to protect and extend reputation thus can stifle innovation.

Id.

²⁵¹ Eric Bonabeau, *The Perils of the Imitation Age*, *HARV. BUS. REV.*, June 2004, at 47; *cf.* JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT INTEREST AND MONEY* 158 (1936) (observing in the context of investment strategy that “it is better for reputation to fail conventionally than to succeed unconventionally”).

²⁵² *See supra* p. 1357.

²⁵³ *See* Sternberg & Kaufman, *supra* note 239, at 479–80 (describing unconscious “internal constraints” that push individuals to conform, *id.* at 479); *supra* p. 1370 (discussing the unpredictability of the creative process).

²⁵⁴ *See* Sellier & Dahl, *supra* note 191, at 1004–05.

dividual creators also face the hurdle of implementation. Even those who know to avoid the fixation effect still struggle to do so when left to their own devices.²⁵⁵ Overall, relying exclusively on self-regulation will likely leave creativity-enhancing constraints on the table.

The limits of self-regulation suggest that nonvoluntary restrictions can play a generative role. Assessing how well our current copyright restrictions happen to serve in that role requires a finely grained understanding of constraint's various moving parts. Conceptualizing constraint as a function of multiple qualitative variables, rather than the single variable plotted on a Laffer-like curve, permits a more nuanced analysis of how copyright law affects creativity on the ground. On this theory, one cannot speak of an optimal quantity of constraint without first identifying the kind of constraint that is at issue. Yet the creativity literature has not yet provided such a taxonomy. I address that gap here by introducing a model of constraint's various elements and their application to creative expression. Drawing from and synthesizing the work discussed in the previous Part, I unbundle constraint into seven different characteristics: source, target, scope, clarity, timing, severity, and polarity. This model provides the conceptual scaffolding for the discussion of particular copyright doctrines in Part V, as well as for future empirical investigation.

The constraints that are best structured to generate creativity within a given population will be those whose characteristics collectively satisfy two criteria. First, they should promote variability, that is, differentiation from an existing corpus of exemplars.²⁵⁶ A constraint that encourages replication of the status quo would fail this test, while a constraint that encourages diversification would pass it.²⁵⁷ Second, because intrinsic motivation matters, constraints should also promote engagement. Creators tend to find more inspiration from rules if they derive satisfaction from following them.²⁵⁸ Each of constraint's characteristics will be at its generative best when pushing toward variable products and engaged processes. My theory is that copyright's basic excludability mechanism promotes variability, pushing creators closer to the creativity-maximization point rather than away from it. At the

²⁵⁵ See *supra* p. 1366.

²⁵⁶ See STOKES, *supra* note 41, at 7–8.

²⁵⁷ See *id.* at 5–6 (discussing constraints that turn ill-structured problems into well-structured ones); see also FINKE ET AL., *supra* note 150, at 32 (distinguishing between “restrictions that encourage new explorations and considerations, and those that tie one to conventional approaches”). There may be such a thing as excessive variability. Most people appreciate artistic novelty only up until a point, but no further. Aesthetic development is thus incremental rather than punctuated. See Fromer, *supra* note 27, at 1479–83. At the same time, it would be foolish to inhibit individuals with innately high variability. Over time, many have come to enjoy Van Gogh's art, Stravinsky's music, and Keats's writing, even if early audiences didn't.

²⁵⁸ See *supra* p. 1368.

same time, the mechanism's late-stage enforcement and ambiguous scope impedes that variability and may sow disengagement as well.

A. *Source*

It is reasonable to expect that a constraint's impact would depend on the constraint's origin. Perhaps Schoenberg's productivity under the strictures of his twelve-tone musical scale would have played out differently had they been foisted on him rather than voluntarily adopted. And perhaps Shakespeare's success with the sonnet form would have been different if the form had been dictated by government fiat rather than by the stylistic conventions of the domain in which he worked. The first step in analyzing a constraint should be to identify its source.

A useful analytic tool is Professor Jon Elster's division of artistic constraints into three categories: invented, chosen, and imposed.²⁵⁹ An invented constraint is one that the creator takes on as a strictly voluntary precommitment. Think of Schoenberg's dodecaphony, Man Ray's rayographs, or Francis Bacon's thrown paint. These are restrictions that, the creator predicts, will have some positive effect on the expression he produces. A chosen constraint is generated by the genre's stylistic conventions. Shakespeare did not invent the sonnet form, nor did Mozart invent the sonata form. Each of them, however, adopted the form's constraints. Of course, some creators may not experience adherence to particular conventions as much of a choice. But often enough, compliance is a voluntary act.

Imposed constraints emanate neither from the creator nor from the expressive domain in which she works. Instead, they are mandated by outside forces incidental to the genre.²⁶⁰ If a composer wants to write a flute concerto, he is stuck with the physical range of the flute. If a director has a strict budget, she cannot overspend. If a commissioned artist is given marching orders by a client, he must follow them, at least on pain of losing the commission.

Copyright's prohibition on reusing protected material is an imposed constraint. For this reason, analogies to chosen constraints like sonnets and sonatas might seem dubious. Invented and chosen constraints should have an easier time securing creators' buy-in than imposed ones, which bear less expressive significance to those constrained by them. All other things being equal, we should expect an imposed constraint to provoke less engagement. Moreover, even within the

²⁵⁹ ELSTER, *supra* note 14, at 175–76.

²⁶⁰ As Elster notes, there is often a relationship between chosen and imposed constraints, as technical limitations spill over into stylistic ones. See *id.* at 176 (discussing early records whose small physical capacity affected conventions surrounding jazz solos in the prewar era).

universe of imposed constraints, people might distinguish between physical incapacity and human agents' directives. Necessity may be the mother of invention, but maybe not where the necessity extends no further than another's say-so.

Still, even if this is a distinction with a difference, it is not a dispositive one. The successful experiments discussed in section III.B involved imposed constraints. There are also historical examples of creators finding inspiration in working around restrictions that were entirely of others' making. Hays Code-era filmmakers and Victorian novelists innovated new ways to convey meaning not in spite of, but because of, imposed constraints on content.²⁶¹ James Joyce responded to censorship with the cryptic yet profoundly influential prose of *Finnegan's Wake*.²⁶² Even the most repressive regimes elicit creative responses.²⁶³ One does not need to endorse repression as cultural policy to appreciate that the constraints we impose on each other can generate unanticipated and valuable forms of creativity.

Generative yet imposed constraints need not be so dramatic. Artists in creative fields with robust anticopying norms have thrived in producing new material that adheres to those norms. In stand-up comedy, for instance, the reputational cost of appropriating others' jokes stimulates continued innovation in developing new ones.²⁶⁴ Such norms are unlikely to propagate in most large-scale creative industries.²⁶⁵ But law can perform the same function. Innovators can find

²⁶¹ See *id.* at 227–33 (exploring how the Hays Code enabled directors to develop new forms of double entendre, innuendo, and layered meaning); NORA GILBERT, BETTER LEFT UNSAID: VICTORIAN NOVELS, HAYS CODE FILMS, AND THE BENEFITS OF CENSORSHIP 2 (2013) (“Rather than being ruined by censorship, the novels written in nineteenth-century England and the films produced under the Production Code were stirred and stimulated by the very forces meant to restrain them.”).

²⁶² PAUL VANDERHAM, JAMES JOYCE AND CENSORSHIP 59 (1998).

²⁶³ See, e.g., Yu Hua, *The Spirit of May 35th*, N.Y. TIMES (June 23, 2011), <http://www.nytimes.com/2011/06/24/opinion/global/24iht-june24-ihmag-hua-28.html> (offering a Chinese novelist's account of how evading state censorship has “give[n] full rein to the rhetorical functions of language, elevating to a sublime level both innuendo and metaphor, parody and hyperbole, conveying sarcasm and scorn through veiled gibes and wily indirection. Surely our language has never been as rich and vital as it is today.”); Philippe D. Radley, *Censorship as a Creative Stimulus: The Russian Experience*, 53 WORLD LITERATURE TODAY 201, 202 (1979) (arguing that, paradoxically, Russia's censorship policies are responsible for its prominent literary culture).

²⁶⁴ See 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, 1853–54, 1857 (2008).

²⁶⁵ See Jonathan M. Barnett, *The Illusion of the Commons*, 25 BERKELEY TECH. L.J. 1751, 1754–55 (2010) (“Reputation-driven norms exert no force against one-shot or other participants that have no rational interest in accumulating reputational capital and . . . can be expected to exhibit declining force in general as any market exhibits increased group size, economic values, capital-intensity requirements and variation in innovative capacity.”); cf. ROBERT C. ELLICKSON, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES 167 (1991) (arguing that tight-knit groups are likely to develop strong social norms). Case studies of anticopying norms within

engagement in inventing around patents, notwithstanding patent law's status as an imposed constraint.²⁶⁶ Some artists already describe similar engagement in creating around copyright law.²⁶⁷

The actual magnitude of the creating around phenomenon deserves empirical investigation. At the very least, it is apparent that many artists doubt that copyright law has much to offer the creative process,²⁶⁸ suggesting significant room for improvement. Even where engagement is low, however, copyright's status as an imposed constraint is probably not the primary culprit.

B. Target

The constraint's target is the locus of activity or resources that is constrained. Rosso's process/product dichotomy²⁶⁹ speaks to this particular element. A constraint on process limits how a given task may be completed. It could involve money, time, resources, or methodology. Imagine a poet participating in a contest whose rules provide a tight deadline, prohibit consultation with peers, and require handwritten submissions. The finished poem might be in free verse and on any subject imaginable, but the poet is nevertheless under several process constraints. A constraint on product, by contrast, limits the range of permissible solutions, irrespective of the process of getting there. Think here of a second poet constricted by the metrical demands of the chosen genre.

Broadly speaking, all constraints target at least one of these two categories. But the boundaries between them are porous. What limits process often limits product, and vice versa. Matisse composed his cutouts under the process constraint of using scissors and painted paper rather than applying paint directly to a canvas.²⁷⁰ His product

creative communities have thus tended to focus on close-knit groups. *E.g.*, David Fagundes, *Talk Derby to Me: Intellectual Property Norms Governing Roller Derby Pseudonyms*, 90 TEX. L. REV. 1093, 1133 (2012); Aaron Perzanowski, *Tattoos & IP Norms*, 98 MINN. L. REV. 511, 578 (2013).

²⁶⁶ See Silbey, *supra* note 117, at 464–65 & n.58.

²⁶⁷ See *supra* p. 1336 and pp. 1370–71.

²⁶⁸ See, *e.g.*, PATRICIA AUFDERHEIDE ET AL., COPYRIGHT, PERMISSIONS, AND FAIR USE AMONG VISUAL ARTISTS AND THE ACADEMIC AND MUSEUM VISUAL ARTS COMMUNITIES 26 (2014), <http://www.collegeart.org/pdf/FairUseIssuesReport.pdf> [<http://perma.cc/5GSB-VCWV>] (reporting that interviewed artists “typically did not want to think about copyright as they made their work for fear of it interfering with their creativity”); J.S.G. Boggs, *Who Owns This?*, 68 CHI.-KENT L. REV. 889, 889 (1993) (providing an artist's account that “I see much in the nature of the laws sadly lacking in any real understanding of the creative process”); William M. Landes, *Copyright, Borrowed Images, and Appropriation Art: An Economic Approach*, 9 GEO. MASON L. REV. 1, 1 (2000) (“Artists and judges have very different views regarding how the law should treat appropriation art. The artist perceives legal restraints on borrowing as a threat to artistic freedom.”).

²⁶⁹ See *supra* p. 1367.

²⁷⁰ Patricia D. Stokes, *Crossing Disciplines: A Constraint-Based Model of the Creative /Innovative Process*, 31 J. PRODUCT INNOVATION MGMT. 247, 252 (2014).

was inextricably bound up with that process. The same will not be true of the poet participating in the contest. His time pressures do not necessarily alter the solution he is pursuing. Thus, there is sometimes, but not always, a feedback loop between product and process constraints.

For expressive works, the category of product constraint may be subdivided further into goal and element.²⁷¹ A goal constraint is the most foundational criterion for determining what is or isn't appropriate.²⁷² When a goal constraint is widely recognized, it takes the form of a genre. Thus, a composer may be limited to a Baroque-style concerto, a screenwriter to a romantic comedy, a choreographer to a *pas de deux*, or a painter to surrealism. An original goal constraint represents a radical break with existing convention and, if it ends up being widely adopted, may give rise to a new convention. Element constraints limit the thematic material within the domain that is available for recasting and recombination. These are the bits and pieces of culture that creators have at their disposal, what Paul Klee figuratively called the "contents of the paint box."²⁷³

A goal constraint ultimately dictates whether other constraints are compatible with the project.²⁷⁴ Where a goal constraint conflicts with element or process constraints, something has to give. One must either find a different problem to solve, or, if feasible, relax the other constraints. This phenomenon explains the result of Finke's second creative invention experiment. When participants struggled to create an appropriate chair, it was because the goal constraint (a chair) conflicted with an element constraint (the basic object parts available to them).²⁷⁵ When that goal constraint was broadened to furniture more generally, the conflict dissipated.

Copyright law straddles the border between product and process constraint. At the product level, copyright restricts both goal and element. If my goal is to make the next *Rocky* film, copyright law tells

²⁷¹ Here I am modifying Professor Patricia Stokes's typology somewhat. She adds another category, subject constraints, which regulate content and motifs. Stokes, *supra* note 25, at 109. Because I do not see a material difference between a work's content and its stylistic elements, I conflate the two categories. Stokes also uses a fourth category, task constraint, which is analogous to process constraint as I use it here. *See id.* Finally, what I call an element constraint Stokes calls a source constraint. *Id.* I avoid that term because of its overlap with source in the sense that I use it here, to refer to the entity doing the constraining.

²⁷² Stokes has elsewhere referred to goal constraints as criterion constraints. Stokes, *supra* note 270, at 249.

²⁷³ Stokes, *supra* note 25, at 109 (quoting PAUL KLEE, THE DIARIES OF PAUL KLEE, 1898-1918, at 244 (Felix Klee ed., 1964)) (internal quotation mark omitted).

²⁷⁴ *See id.*

²⁷⁵ *See supra* p. 1363.

me in fairly simple terms that I had best get a license.²⁷⁶ If I merely wish to use protected material from *Rocky* as an element of some other follow-on project, copyright limits the circumstances under which I may do so. Fair use doctrine grants me the privilege to use copyrighted material under particular circumstances,²⁷⁷ while under other circumstances I am again confined to what the copyright owner will allow. Product constraint is copyright's most easily recognizable restriction on creative choice.

The constraint at the process level is subtler. While processes can be patented, they cannot be copyrighted.²⁷⁸ Copyright law scrutinizes what downstream creators make rather than how they make it. That means no upstream creator has an exclusive right over method. Nevertheless, because of the product/process feedback loop, copyright law can still place significant constraints on process. Homage and pastiche are not product goals in themselves; they are paths to get there. How much of those paths are available depends on how much copyright law permits. A maximalist copyright law shorn of the fair use defense, the *scènes à faire* doctrine,²⁷⁹ and other safeguards for borrowing and quotation would cast a long shadow not just over what society creates but also how society creates. Even a minimalist copyright law that regulated only verbatim reproduction would still restrict processes at the margin. For some, verbatim reproduction is itself an expressive process. Take Mike Bidlo, whose professed goal is to undermine traditional myths of romantic genius and originality — and whose process for reaching that goal is to construct exact duplications of canonical twentieth-century works.²⁸⁰ A minimalist copyright law, let alone existing copyright law, would require him to obtain a license from the

²⁷⁶ See *Anderson v. Stallone*, No. 87-0592 WDKGX, 1989 WL 206431, at *5 (C.D. Cal. Apr. 25, 1989).

²⁷⁷ 17 U.S.C. § 107 (2012). For a comprehensive discussion of these circumstances, see Pamela Samuelson, *Unbundling Fair Uses*, 77 *FORDHAM L. REV.* 2537 (2009).

²⁷⁸ See 17 U.S.C. § 102(b) (withholding copyright subject matter over, among other things, any “procedure, process, system, [or] method of operation”).

²⁷⁹ The doctrine deems a genre's stock elements to be unprotectable ideas. It provides that “a copyright owner can't prove infringement by pointing to features of his work that are found in the defendant's work as well but that are so rudimentary, commonplace, standard, or unavoidable that they do not serve to distinguish one work within a class of works from another.” *Gaiman v. McFarlane*, 360 F.3d 644, 659 (7th Cir. 2004) (quoting *Bucklew v. Hawkins, Ash, Baptie & Co.*, 329 F.3d 923, 929 (7th Cir. 2003)) (internal quotation marks omitted).

²⁸⁰ See *Mike Bidlo*, in 1 *THE GROVE ENCYCLOPEDIA OF AMERICAN ART* 266 (Joan Marter ed., 2011); Nadine Rubin Nathan, *Asked and Answered: Mike Bidlo*, *T MAG.* (July 2, 2010, 12:43 PM), <http://tmagazine.blogs.nytimes.com/2010/07/02/asked-answered-mike-bidlo> [<http://perma.cc/UUS7-R5RU>] (discussing Bidlo's “dead ringers” for Warhol's famous Brillo boxes and other “exact replicas”).

original owners.²⁸¹ The unavoidable effect of any copyright system, maximized or minimized, is to constrain some range of processes. The question is which.

Other than Rosso's recent work, there has not been empirical exploration of whether product and process constraints affect creativity differently. But, as between the two, there is good reason to expect that product constraints have less downside. To begin with, even if product constraints stimulate explorations beyond the path of least resistance, Rosso's research suggests that creators tend to remain better engaged when they feel autonomy over how that exploration may be conducted.²⁸² In addition, processes are more generative. One can use the same process to create an endless number of different products. Society reaps the benefit of that diversified output. If a particular product is restricted, creators can generate others. But when process is restricted, so is the entire universe of products that rely on that process. A constraint on process limits far more than does a constraint on product.

At the product level, copyright targets creations that repeat familiar expression. That target provides a more direct way of achieving the variability ends for which creativity scholars value arbitrary constraints.²⁸³ The theory of path of least resistance praises constraint because and to the extent that it keeps creators away from the tried and true. One could achieve that objective obliquely, as experimental researchers have done, by layering constraint targets until the tried and true loses viability. Or one could achieve it simply by defining the tried and true as the constraint's target. This direct route is more tailored to the creative function of constraint and less likely to be over-inclusive. Through its product constraint, copyright law tries to lessen the homogenization of creative expression.²⁸⁴

Copyright's process constraint is more troubling. Still, some amount of it is inevitable. Just how much is a function of the next component: scope.

²⁸¹ And obtain a license he does. See Laura Gilbert, *No Longer Appropriate?*, THE ART NEWSPAPER, May 9, 2012, <http://www.theartnewspaper.com/articles/No-longer-appropriate/26378>.

²⁸² See *supra* pp. 1367–68.

²⁸³ See *supra* note 257; pp. 1364–65, 1376.

²⁸⁴ This characterization is consistent with Abramowicz's microeconomic theory of the derivative work right. See Abramowicz, *supra* note 71, at 357–61; see also ODED SHENKAR, COPYCATS: HOW SMART COMPANIES USE IMITATION TO GAIN A STRATEGIC EDGE 6–10 (2010); Bonabeau, *supra* note 251, at 45; Marvin B. Lieberman & Shigeru Asaba, *Why Do Firms Imitate Each Other?*, 31 ACADEMY MGMT. REV. 366, 372–73 (2006).

C. Scope

Constraint scope measures how many choices within a domain a given constraint precludes. It is likely the most difficult element of constraint to optimize for creativity, not to mention a source of voluminous debate for copyright scholars focused on upstream incentives and downstream access.²⁸⁵ Beyond the “tight, but not too tight” conclusion, creativity scholars have not made much headway in specifying ideal constraint scope.

Nevertheless, one fundamental guideline does emerge. Constraint must not be so broad that it turns an ill-structured problem into a well-structured one or, worse, a problem whose solution set is null. As Elster notes, “[c]onstraints must leave room for choice.”²⁸⁶ Because variability within constraint is a necessary condition for the cultivation of originality, architects of constraint must pay close attention to the number of choices being restricted and the number that remain in the pool.²⁸⁷ The idea is analogous to the proposal of Professors Rochelle Dreyfuss and James Evans to limit patentable subject matter to claims that can be invented around.²⁸⁸ Expressive problem spaces, like technological ones, should be constrained no more than would permit a diversity of solutions.

In the case of literary expression, whose pool is vast, there is often some leeway. The cost of locking up certain choices is, as Judge Boudin wrote in *Lotus Development Corp. v. Borland International, Inc.*,²⁸⁹ that “subsequent authors treating the same themes must take a few more steps away from the original expression.”²⁹⁰ Within many expressive problem spaces, there is room to take those exploratory steps.²⁹¹ These spaces boast a Chomskyan “discrete infinity” — the ability to combine and permute discrete units into an endless array of

²⁸⁵ See, e.g., Matthew J. Sag, *Beyond Abstraction: The Law and Economics of Copyright Scope and Doctrinal Efficiency*, 81 TUL. L. REV. 187 (2006).

²⁸⁶ ELSTER, *supra* note 14, at 176.

²⁸⁷ See *id.*; Johnson-Laird, *supra* note 16, at 218 (defining creativity as involving “freedom of choice” that is “made from among options that are specified by criteria”).

²⁸⁸ Rochelle C. Dreyfuss & James P. Evans, *From Bilski Back to Benson: Preemption, Inventing Around, and the Case of Genetic Diagnostics*, 63 STAN. L. REV. 1349, 1372 (2011) (arguing that the feasibility of inventing around should be a criterion for patentable subject matter, which would “require both a grasp of the field and an understanding of the patented invention’s epistemic significance within it”).

²⁸⁹ 49 F.3d 807 (1st Cir. 1995), *aff’d*, 516 U.S. 233 (1996).

²⁹⁰ *Id.* at 819 (Boudin, J., concurring). Literary expression stands in contrast to “functional” expression like software code, which tends to have less space for creating around. *Id.*; see also David Fagundes & Jonathan S. Masur, *Costly Intellectual Property*, 65 VAND. L. REV. 677, 713 (2012) (noting that because of the idea/expression dichotomy, “copyrights are much easier to engineer around than patents”).

²⁹¹ See Hughes, *supra* note 131, at 981.

meanings.²⁹² So long as ideas are not copyrightable and the public domain remains rich,²⁹³ the discrete units that are restricted remain a small fraction of the cultural universe. If the path of least resistance is blocked, there remain other paths to try, other opportunities for serendipitous encounters to occur.

The usual rejoinder here is that language matters. “Synonymy is suspect,” Professor Leslie Kurtz reminds us, “and no two terms are likely to have exactly the same meaning.”²⁹⁴ True enough. But that fact alone is not a reason to privilege the meaning to which one initially defaults over the meaning that one subsequently makes in order to satisfy a constraint. Indeed, Kurtz’s analysis shows how constraint can sharpen meaning rather than dull it. She points to John Keats’s “Ode to a Nightingale,” reflecting on how trite the ideas could be if conveyed through different language.²⁹⁵ It is not coincidence that the elevated expression she praises was restricted by a rigid meter and rhyme scheme.

The fair use doctrine that has developed over the past two decades has carved out space for downstream creators who develop transformative adaptations of prior expression.²⁹⁶ In doing so, it sets up a regime of selective excludability. Reusing protected expression is neither categorically restricted nor categorically permitted. Under that regime, at least as it is usually applied, downstream creators may use whatever process they wish so long as the product is transformative. This constraint, like the derivative work exclusivity that operates in the background, promotes variability. Courts have sometimes strayed from this approach, however, and used language suggesting that a process is *per se* infringing.²⁹⁷ Most notoriously, the court in *Bridgeport Music, Inc.*

²⁹² See NOAM CHOMSKY, *NEW HORIZONS IN THE STUDY OF LANGUAGE AND MIND* 3 (2000).

²⁹³ These are not foregone conclusions, however. See *Golan v. Holder*, 132 S. Ct. 873, 906 (2012) (Breyer, J., dissenting) (attacking majority’s holding that Congress may restore copyright protection to works in the public domain because shrinking that domain “restricts, and thereby diminishes, Americans’ preexisting freedom to use formerly public domain material in their expressive activities”).

²⁹⁴ Leslie A. Kurtz, *Speaking to the Ghost: Idea and Expression in Copyright*, 47 U. MIAMI L. REV. 1221, 1228–29 (1993) (citation omitted). For similar arguments, see Mark Bartholomew & John Tehranian, *An Intersystemic View of Intellectual Property and Free Speech*, 81 GEO. WASH. L. REV. 1, 70 (2013); Cohen, *supra* note 2, at 1176.

²⁹⁵ Kurtz, *supra* note 294, at 1229.

²⁹⁶ See, e.g., *Seltzer v. Green Day, Inc.*, 725 F.3d 1170 (9th Cir. 2013); *Cariou v. Prince*, 714 F.3d 694 (2d Cir. 2013); *Blanch v. Koons*, 467 F.3d 244 (2d Cir. 2006); *Suntrust Bank v. Houghton Mifflin Co.*, 268 F.3d 1257 (11th Cir. 2001). Because fair use does much more than promote creativity, it also protects a number of socially desirable but nontransformative uses, ranging from scholarship to news reporting to web indexing. See Samuelson, *supra* note 277, at 2555–615.

²⁹⁷ See, e.g., *Rogers v. Koons*, 960 F.2d 301, 303 (2d Cir. 1992) (beginning the opinion by noting that the “key to this copyright infringement suit” was “defendants’ borrowing of plaintiff’s expression”).

*v. Dimension Films*²⁹⁸ declared, “Get a license or do not sample.”²⁹⁹ Process constraints of this sort are far broader in scope, and thus far more problematic, than product constraints. Copyright’s restrictions will remain most generative if courts focus on the accused work rather than on the artistic practices behind it. The *Bridgeport* court acted in the name of doctrinal clarity, an eminently laudable goal in this model, but that clarity could be achieved more generatively through product constraint. Admittedly, as I acknowledged in the previous section, some processes are inevitably intertwined with the fruit that they bear. But that is not reason for courts to constrain processes unnecessarily.

How broad or narrow constraint scope should be to promote creativity is ultimately a difficult empirical question that psychologists have yet to resolve. The answer ought to color what kinds of adaptations the fair use doctrine should permit. Until then, it is at least clear that embracing constraint as a source of generativity is fully consistent with fair use’s basic architecture, along with the idea/expression dichotomy and a capacious public domain.

D. Clarity

Some constraints are clearer than others. The haiku and the sonnet employ unambiguous rules of meter, stress, and structure. One can readily discern whether one has complied with those rules. By contrast, many stylistic conventions employ messier standards. Comedy is expected to have a certain narrative arc, but it’s difficult to determine *ex ante* precisely when that expectation is met.³⁰⁰ Classical style requires a sonata’s development section to elaborate on the motives and themes introduced in the exposition section, yet it gives little guidance about what constitutes appropriate elaboration.³⁰¹ Obscenity occurs whenever Justice Stewart sees it.³⁰² In this second group of constraints, the corpus generates the criteria, rather than the other way around.

Creativity researchers who laud the beneficial role of constraints tend to focus on clear rules. I am not aware of any empirical work that assesses clarity’s significance in the relationship between constraint and creativity. But all else being equal, unclear prohibitions are likely worse than clear ones. An ambiguous constraint’s scope

²⁹⁸ 410 F.3d 792 (6th Cir. 2005).

²⁹⁹ *Id.* at 801. While *Bridgeport*’s holding dealt only with substantial similarity, this language has affected perceptions of fair use. See David Fagundes, *Crystals in the Public Domain*, 50 B.C. L. REV. 139, 153 (2009).

³⁰⁰ See, e.g., ANDREW STOTT, COMEDY 1–3 (2d ed. 2014) (describing slipperiness of criteria for evaluating comedy).

³⁰¹ THOMAS SCHMIDT-BESTE, THE SONATA 77–79 (2011).

³⁰² See *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart, J., concurring).

might extend indefinitely, and guessing wrong is often costly. Elster observes that in former Communist countries, dissident authors sought clear boundaries from censors because it would enable “writing around” them; censors refused for precisely the same reason.³⁰³ While there may be some speakers willing to engage in expression no matter the costs, they would presumably be just as willing if the constraints were clear.³⁰⁴ Consistent with this hypothesis, Rosso’s fieldwork found that R&D employees appreciated precisely drawn constraints.³⁰⁵ If this theory is correct, then unclear prohibitions are more suppressive downside than generative upside.

Unsurprisingly, the need for brightly drawn boundaries animates the jurisprudence and commentary on inventing around a patent. The Supreme Court has recognized that “[a] zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention only a little less than unequivocal foreclosure of the field.”³⁰⁶ It’s tough to think outside the box if you don’t know where the box ends.

The same principle should apply to creating around a copyright. The difficulty is that copyrights, unlike patents, have no delineated claims defining their periphery. Because infringement doctrines like substantial similarity, the idea/expression dichotomy, and fair use leave room for debate about which aspects of a copyrighted work are protected and which are not, creating around can be an uncertain business.³⁰⁷ Lessig states that fair use is no more than “the right to hire a

³⁰³ ELSTER, *supra* note 14, at 233; JON ELSTER, *POLITICAL PSYCHOLOGY* 90 (1993).

³⁰⁴ It is true that ambiguity might mitigate the costs of suboptimal constraint scope. If a constraint were drawn clearly but too narrowly, ambiguity could helpfully broaden it. But what’s doing the useful work in that scenario is the constraint’s scope, not its ambiguity; the creator would be better off with a broad and certain rule, rather than a zone of ambiguity surrounding an otherwise narrow one.

³⁰⁵ Rosso, *supra* note 145, at 564 (discussing how “respondents found the definition and clarity resulting from product requirement constraints to be quite helpful,” even though such specificity “might be expected to be perceived as inhibiting creative possibilities”).

³⁰⁶ *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236 (1942); *see also* *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2130 (2014) (explaining that imprecise patent claims “foster the innovation-discouraging ‘zone of uncertainty’ against which this Court has warned” (citation omitted)); *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 732 (2002) (“If competitors cannot be certain about a patent’s extent, they may be deterred from engaging in legitimate manufactures outside its limits . . .”); *Gen. Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 369 (1938) (“The limits of a patent must be known for . . . the encouragement of the inventive genius of others . . .”); *In re Bilski*, 545 F.3d 943, 977 (Fed. Cir. 2008) (Newman, J., dissenting) (“Uncertainty is the enemy of innovation.”); Craig Allen Nard, *Certainty, Fence Building, and the Useful Arts*, 74 *IND. L.J.* 759, 791–95 (1999) (discussing virtues of certainty for invent-around activity).

³⁰⁷ *See* *Nash v. CBS, Inc.*, 899 F.2d 1537, 1540 (7th Cir. 1990) (recognizing confusion over the proper level of generality for analyzing wrongful copying and acknowledging that “[a]fter 200 years of wrestling with copyright questions, it is unlikely that courts will come up with the answer any time soon, if indeed there is ‘an’ answer, which we doubt”).

lawyer.”³⁰⁸ Other scholars have noted the “false positives” problem that these uncertain boundaries produce.³⁰⁹ Typically, this issue is framed in terms of mitigating downstream harm: claiming exclusive rights in anything more than is necessary only exacerbates society’s existing loss from the incentives/access tradeoff. But from a creating-around perspective, uncertain copyright scope has an added layer of perniciousness. Even if a copyright owner overclaims his actual property right, downstream creators could create around it so long as the wrongly extended boundaries are clear. That’s not optimal, to be sure, but at least there is some generative payoff. If the boundaries are fuzzy, however, the chill on create-around efforts compounds the overclaiming problem. Not only does the upstream creator receive a windfall, but the downstream constraints become less productive, too. Clarity, in other words, may not only decrease constraint’s costs but also increase its benefits.

There is some support for this approach in the Supreme Court’s decision in *Fogerty v. Fantasy, Inc.*³¹⁰ That case involved a musical composition deemed not substantially similar to the protected work and therefore not infringing. In addressing the standards under which a successful defendant could recover attorney’s fees under the Copyright Act, the Court explained that “it is peculiarly important that the boundaries of copyright law be demarcated as clearly as possible” in order to “enrich[] the general public through access to creative works.”³¹¹ The defendant had achieved that objective by “increas[ing] public exposure to a musical work that could, as a result, lead to further creative pieces.”³¹² Lower courts have understood this language to refer to expansion of the public domain.³¹³ Yet a successful defense could conceivably do no more than slice the pie differently between plaintiff and defendant, who (unless found to be infringing) holds a copyright on the accused work. Dismissal of the claim would have distributional consequences as between the litigants, but the size of the public domain remains constant. An alternative reading is that clear

³⁰⁸ LESSIG, *supra* note 5, at 187.

³⁰⁹ See Ben Depoorter & Robert Kirk Walker, *Copyright False Positives*, 89 NOTRE DAME L. REV. 319, 329–32 (2013). But see Steven J. Horowitz, *Copyright’s Asymmetric Uncertainty*, 79 U. CHI. L. REV. 331 (2012) (arguing that, according to the models developed by behavioral psychologists, downstream users facing potential losses will tend to be risk seeking, rather than risk averse).

³¹⁰ 510 U.S. 517 (1994).

³¹¹ *Id.* at 527.

³¹² *Id.*

³¹³ See, e.g., *Gonzales v. Transfer Techs., Inc.*, 301 F.3d 608, 609 (7th Cir. 2002) (summarizing *Fogerty* as having reasoned that “a successful defense enlarges the public domain, an important resource for creators of expressive works”); *Identity Arts v. Best Buy Enter. Servs. Inc.*, No. C 05-4656 PJH, 2008 WL 820674, at *3 (N.D. Cal. Mar. 26, 2008) (same).

boundaries “lead to further creative pieces”³¹⁴ by enabling create-around efforts. Knowing where the copyright owner’s entitlement ends allows downstream creators to circumvent it.

In sum, the underappreciated benefit of creating around places a theoretical premium on predictability, something that copyright law has historically struggled to provide. If that theory is accurate, it complicates the law’s ability to generate creativity downstream.

E. Timing

Acting in concert with clarity, timing refers to the stage at which the creator learns if she has successfully satisfied the constraint. Like several other components explored here, timing has not been the subject of empirical study. Elster does, however, offer a useful theoretical framework. Constraints can be early, middle, or late.³¹⁵ An early constraint occurs at the moment of creation, such as where an artist applies stylistic conventions in crafting his work. A middle constraint occurs after creation but prior to public distribution, such as where a gatekeeper refuses to disseminate the work unless changes are made. And a late constraint occurs after distribution has already occurred, such as where an outside regulator decides that a work should be banned.

Because early constraints afford the most opportunity for creating around, they are more generative than middle or late constraints.³¹⁶ An artist who knows the rules of the game from the outset can tailor his work to those rules. This is why courts in patent cases emphasize the need for clarity *ex ante*.³¹⁷ By contrast, an artist who learns those rules only after completing the work has wasted his time. True, he might be able to redo the project knowing now what he did not know then. But if he anticipates that his initial understanding could be erroneous, he may not attempt to create around in the first place.

For some, copyright is an early constraint. This is the case for media firms. It is also true of the individual DJs who have pushed their sampling techniques in new directions in an effort to create around copyright,³¹⁸ and, less productively, the documentary filmmakers whose “clearance culture” has meant a near total refusal to incorporate

³¹⁴ *Fogerty*, 510 U.S. at 527.

³¹⁵ ELSTER, *supra* note 14, at 229. Elster’s nomenclature is actually the more elegant “upstream,” “midstream,” and “downstream.” I depart from it here in order to avoid possible confusion over my own usage of those terms.

³¹⁶ *See id.* at 233.

³¹⁷ *See supra* note 306 and accompanying text.

³¹⁸ *See supra* p. 1371.

unlicensed material from copyrighted works.³¹⁹ Yet for countless others, copyright functions as either a middle or late constraint. Individuals in many creative communities are not especially conscious of copyright law in the midst of the creative process. They are affected by its restrictions only after the fact — when gatekeepers like publishers, distributors, and insurers intervene.³²⁰ Here, too, copyright constraint functions less generatively than it could. The optimal timing is early. Greater clarity on the ground, not just in the courts, would go a long way toward shifting the timing of constraint earlier in the creative process.

F. Severity

Every constraint comes with a penalty for breach, some great (say, for violating political censorship in authoritarian states) and some trivial (for violating an invented constraint that could be discarded at will). A constraint's impact on creativity will depend somewhat on its location along a severity spectrum that measures the stakes of non-compliance. Though penalties for expressive activity sometimes involve governmental actors, they operate more frequently on the level of social norms. An artist who wants to be accepted within a particular stylistic community has to play by certain rules. Failure to adhere to those rules could mean failure to gain approval from audiences and peers. For many, that failure is a powerful penalty.³²¹

In short, the choice of sanction matters. That observation may sound banal to a legal audience. To date, however, there has been no empirical investigation of how constraint severity influences the creative process. When social scientists speak of a constraint's burden, they tend to have in mind its scope, rather than its enforcement mech-

³¹⁹ See generally AUFDERHEIDE & JASZI, *supra* note 238; Anthony Falzone & Jennifer Urban, *Demystifying Fair Use: The Gift of the Center for Social Media Statements of Best Practices*, 57 J. COPYRIGHT SOC'Y U.S.A. 337, 340 (2010).

³²⁰ See AUFDERHEIDE ET AL., *supra* note 268, at 26; James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 YALE L.J. 882, 905 (2007); Jennifer E. Rothman, *The Questionable Use of Custom in Intellectual Property*, 93 VA. L. REV. 1899, 1903 (2007) (discussing frequent instances in which "gatekeepers in the science, media, and publishing worlds enforce . . . customary [clearance] practices and norms" prior to distribution); Jessica Silbey, *Harvesting Intellectual Property: Inspired Beginnings and "Work-Makes-Work," Two Stages in the Creative Processes of Artists and Innovators*, 86 NOTRE DAME L. REV. 2091, 2128–29 (2011) (concluding based on interview data that "IP as a formal legal entitlement is not clearly present in the beginning of [creative] endeavors — or even in the early stages of the work," *id.* at 2128, but instead "intervenes somewhere in the middle of the professionalization of the individual or business as either (1) an effect on personal or ethical impulses or (2) an external framework imposed upon the situation by lawyers or business managers," *id.* at 2129 (emphases omitted)).

³²¹ For an extensive discussion of social norms' role in constraining creative choice, see KAL RAUSTIALA & CHRISTOPHER SPRIGMAN, *THE KNOCKOFF ECONOMY* 104–22, 177–79 (2012).

anism.³²² But a toothless constraint, even if broad, would likely have little impact on creativity.³²³ At the opposite extreme, it's conceivable that a narrow but draconian constraint would discourage creative activity without generating much in return. The issue is partly risk aversion. Individuals might view skirting the constraint's margins as too perilous, particularly where those margins are not perfectly defined.³²⁴ More speculatively, high penalties might also hurt engagement. As sanctions increase and the constraint is perceived to be less fair, individuals may cease to view creating around as an intrinsically motivating act.³²⁵ Rather than leverage the constraint for creativity, they would simply avoid the domain altogether. Others with a higher risk tolerance might reject the constraint altogether.³²⁶ Thus, even if one thinks creating around is socially valuable in principle, high sanctions present a significant danger of overdeterrence.

Copyright manages to fall on different sides of this spectrum simultaneously. Formally, the Copyright Act allows steep statutory damages awards, up to \$150,000 per work infringed.³²⁷ Even for those with meritorious defenses, litigation costs alone are likely prohibitive.³²⁸ On the other hand, many copyright owners tolerate arguably infringing downstream reuse,³²⁹ and, perhaps partly as a result, many downstream creators don't pay much attention to those constraints during the creative process.³³⁰ Those who are most inclined to play with copyrighted expression often have little interest in learning, let alone complying with, what copyright demands. The ideal scenario would require drastically lower penalties, but also drastically higher buy-in from downstream creators. Without both, creating around may be limited to the universe of creators who are both copyright conscious and risk seeking. As I discuss in Part V, decreasing copyright severity

³²² See, e.g., ELSTER, *supra* note 14, at 279; Rosso, *supra* note 145, at 578.

³²³ Relatedly, artificial deadlines are less powerful motivators than real ones. See MULLAINATHAN & SHAFIR, *supra* note 15, at 27 (positing that the ineffectiveness of fake deadlines and fake tickling share a common psychological bond).

³²⁴ See Shyamkrishna Balganes, *Foreseeability and Copyright Incentives*, 122 HARV. L. REV. 1569, 1620 (2009) ("The uncertainty of the standard, if anything, is likely to deter potential users . . . from treading too close to the boundaries of impermissible copying.")

³²⁵ See Teresa M. Amabile, *How to Kill Creativity*, HARV. BUS. REV., Sept.–Oct. 1998, at 77, 83 (discussing how a "climate of fear" within the workplace can undermine employees' intrinsic motivation).

³²⁶ See ELSTER, *supra* note 14, at 279 (noting that lack of flexibility may be "so severe as to induce a move to abolish the constraints entirely").

³²⁷ 17 U.S.C. § 504(c) (2012).

³²⁸ See, e.g., PATRICIA AUFDERHEIDE & PETER JASZI, RECLAIMING FAIR USE 4–5 (2011); Depoorter & Walker, *supra* note 309, at 325.

³²⁹ See generally Tim Wu, *Tolerated Use*, 31 COLUM. J.L. & ARTS 617 (2008).

³³⁰ See, e.g., AUFDERHEIDE ET AL., *supra* note 268, at 26, 28; MCLEOD & DICOLA, *supra* note 10, at 116–17 (describing interviewees' refusal or unwillingness to pay for licenses, regardless of copyright law). The distribution process, however, is a different matter. See *supra* p. 1388.

is likely to boost creativity not just through the freedoms it opens up, but also by shoring up the way that its remaining constraints are perceived.

G. Polarity

Last, and perhaps least important, is the constraint's polarity. A constraint can be either a positive rule, instructing what must be done, or a negative rule, instructing what must not be done. In the language of injunctions, constraints are either mandatory or prohibitory.³³¹

Copyright law is built on the back of prohibitory constraint. With the exception of attribution requirements for some visual art,³³² copyright speaks only to what is forbidden, not to what is required. In the history of cultural expression, by contrast, mandatory constraints abound. Indeed, most of the analogies I have offered throughout this Article — metrical verse, compositional structures, plot conventions, cooking competitions — specify what must be included but not what must be excluded. One may be tempted to conclude that copyright constraint is therefore a fundamentally different breed from the constraints under which creators have historically thrived.

Yet on closer inspection, polarity appears not to have a significant effect on constraint's generativity. Prohibitory constraints inhabit a variety of artistic domains. Music theory, for example, has several. Classical practice proscribes the use of parallel fifths or octaves in voice-leading, as well as doubling the leading tone.³³³ Throughout the medieval and Renaissance periods, prevailing rules of harmony also forbade the use of an augmented fourth — an interval perceived to be so dissonant that it was nicknamed the “devil in music” (*diabolus in musica*).³³⁴ Some Islamic art avoided figural imagery, a constraint that catalyzed an outpouring of calligraphic and geometric designs.³³⁵ Lipograms, texts that deliberately omit one or more letters, have been

³³¹ See, e.g., *Louis Vuitton Malletier v. Dooney & Bourke, Inc.*, 454 F.3d 108, 114 (2d Cir. 2006) (contrasting mandatory and prohibitory injunctions).

³³² See 17 U.S.C. § 106A.

³³³ *Parallel (Consecutive) Fifths, Octaves Definition*, THE HARVARD DICTIONARY OF MUSIC 631 (Don Michael Randel ed., 4th ed. 2003); H.E. PARKHURST, A COMPLETE SYSTEM OF HARMONY 52 (2d ed. 1908).

³³⁴ *Tritone Definition*, THE HARVARD DICTIONARY OF MUSIC, *supra* note 333, at 911.

³³⁵ See, e.g., *Geometry and Islamic Art*, SIMONS CTR. FOR GEOMETRY & PHYSICS, STONY BROOK UNIV. (Aug. 17, 2010), <http://scgp.stonybrook.edu/archives/984> [<http://perma.cc/CHL3-YWB7>]; Stanley Meisler, *A Timeless Exhibition with Exquisite Timing*, L.A. TIMES (Aug. 29, 2004), <http://articles.latimes.com/2004/aug/29/entertainment/ca-meisler29> [<http://perma.cc/H9VK-SVPL>]; *Islamic Arts: The Prohibition Against Images*, ENCYCLOPAEDIA BRITANNICA, <http://www.britannica.com/EBchecked/topic/295642/Islamic-arts/61831/The-prohibition-against-images> (last updated Apr. 7, 2014) [<http://perma.cc/4GW9-2865>].

around for millennia.³³⁶ In the hands of the right author, this prohibitory constraint stimulates more inventive use of vocabulary, as in Georges Perec's 300-page novel *La Disparition*, which avoids the letter "e" entirely.³³⁷ The Hays Code, mentioned above, was chock full of generative proscriptions on content.³³⁸ Twitter's 140-character limitation is a prohibitory constraint that has spurred novel expressive styles and, according to many, more focused expression.³³⁹

In addition, even mandatory constraints can induce prohibitory ones over the course of creating a work. Earlier choices constrict later ones, as the route taken precludes many otherwise attractive options.³⁴⁰ Anyone who has ever written half a rhyming couplet, only to struggle with how to complete it, has already learned that lesson. So has anyone who has tried to excise repeated usage of the same phrases within an article draft. Those of us who have had these experiences probably can recall instances in which having to circumvent one way of expressing an idea led to an unanticipated new way. And the expression benefited from that differentiation.

Corroborating this intuition is the fact that many creators succeed within communities that have developed anticopying norms.³⁴¹ For the reasons described above, these norms aren't likely to spread within larger industries. But in those industries where they have, individuals have flourished under the requirement to avoid mimicking predecessors' work.³⁴² To the extent that this phenomenon is generalizable across creative media, it bolsters the case that prohibitory constraint can enhance variability without killing engagement. That copyright

³³⁶ See *Lipogram Definition*, THE PRINCETON ENCYCLOPEDIA OF POETRY AND POETICS 809 (Roland Greene et al. eds., 4th ed. 2012).

³³⁷ See PAUL SCHWARTZ, GEORGES PEREC: TRACES OF HIS PASSAGE 32–33 (1988) (discussing how Perec's constraints enriched, rather than impoverished, his use of language).

³³⁸ See *supra* note 261 and accompanying text.

³³⁹ See TINA SEELIG, INGENIUS: A CRASH COURSE ON CREATIVITY 111–12 (2012) (describing various expressive art forms that Twitter's character limit has generated); Barb Dybwad, *TWEET SUCCESS: Why We Love Twitter's 140 Character Limit*, MASHABLE (Aug. 22, 2009, 8:54 AM), <http://mashable.com/2009/08/22/twitter-140-character-limit> [<http://perma.cc/TSJ3-PWWX>] (arguing that Twitter's limitations encourage clearer communication because "[w]hen faced with the need for an economy of language, you're forced to periodically think twice about what exactly it is you're trying to say"). Biz Stone, a cofounder of Twitter, has been quoted as saying: "Creativity comes from constraint. That's one of the basic rules of Twitter. That 140 characters seems like a constraint, but look what people have been able to do with it . . ." Allison Stadd, *Behind-the-Scenes Look at Twitter Co-Founder Biz Stone's Film with Ron Howard*, MEDIABISTRO (Feb. 8, 2013, 10:00 AM), http://www.mediabistro.com/alltwitter/biz-stone-ron-howard_b35763 [<http://perma.cc/65WW-XKSY>].

³⁴⁰ See ELSTER, *supra* note 14, at 242 ("[E]ach choice made in the creation of a work of art serves as a constraint on later choices.").

³⁴¹ See *supra* p. 1378.

³⁴² See Oliar & Sprigman, *supra* note 264, at 1855–56.

prohibits, rather than mandates, does not make an obvious difference in the creativity analysis.

V. GENERATIVE INFRINGEMENT DOCTRINES

Recognizing the generativity of constraint opens up a new vista for assessing copyright's infringement doctrines. Tailored appropriately, those doctrines can be more than just means to secure incentives upstream. They can also be, in the spirit of Professor John Maguire's aphorism, a system of wise restraints that make us creative.³⁴³ That system would doubly fulfill copyright's purpose: incentivizing investment in creativity upstream, and promoting creative problem solving and finding downstream.

What might such a system look like? In some fundamental ways, it would look like the system we already have. First, it would place limits on adaptations of protected expression — what we call the derivative work right. Second, it would carve out space for high-variability products — what we call fair use. And third, because differentiation from the creator's subjective pool of prior exemplars drives creativity, it would constrain copying but not chance overlaps with works that the creator had never encountered — what we call the independent creation defense. In other ways, however, it would look different. It would be transparent, easily assessed at the point of creation, and respected by the creative communities that it governs.

In this Part, I examine how changing certain copyright constraints, and keeping some others the same, may best generate downstream creativity. My aim is not to offer a unified theory of how to build a copyright law that would leave the world best off; for that, one would have to balance creativity gains against the self-expression and deadweight-loss concerns that this Article has bracketed.³⁴⁴ My aim, rather, is to examine what kind of creativity gains could be added to the scale.

A. Constraints that Help

Start with what copyright gets right. Copyright law assigns the ability to prepare derivative works exclusively to the copyright owner. Others who prepare a derivative work without authorization are not only infringers, but are also denied any copyright protection in the

³⁴³ In 1936, Maguire famously described law as “the system of wise restraints that make men free.” See Viet D. Dinh, *What Is the Law in Law & Development?*, 3 GREEN BAG 2D 19, 27 (1999).

³⁴⁴ See *supra* note 4.

original expression that they contribute to the existing work.³⁴⁵ One could, however, imagine an alternative system in which the creator of an unauthorized derivative work would receive copyright protection in the new incremental expression, but nevertheless remain unable to exploit the derivative work without the original owner's permission. That way, downstream and upstream creators would have leverage over each other in bargaining. The downstream creator could not use the old material without permission, but neither could the upstream creator use the new material without permission.

Indeed, such an alternative system is precisely how U.S. patent law handles downstream adaptation. While the Patent Act grants patentees the right to exclude others from practicing the invention, others remain free to design improvements on it.³⁴⁶ As a result, downstream inventors who build on patented technology may receive patents on their incremental improvements, and may then exclude the patentee. These dueling exclusivities have fueled the phenomenon of "blocking patents," in which neither party can use the downstream adaptation without the other's permission, incentivizing bargaining toward efficient cross-licensing.³⁴⁷

The possibility of incentivizing similar bargaining over expressive adaptations has prompted some scholars to call for a "blocking copyrights" regime.³⁴⁸ Professor Robert Merges suggests that the best explanation for the absence of blocking copyrights is a moral rights-based policy favoring authors' reputational interests.³⁴⁹ Yet viewed through the lens of generative constraint, copyright's derivative work exclusivity has utilitarian appeal as well. The derivative work right limits individuals' ability to repeat the same expressive solutions as their predecessors. As I explained in Part IV, this constraint target has the potential to enhance creativity. It impedes access to the prior exemplars that line the path of least resistance, channeling create-around expeditions that lead to a more diversified stock of expression. That expressive diversity ultimately redounds to society's benefit.

³⁴⁵ 17 U.S.C. § 103(a) (2012) (providing that "protection for a work employing preexisting material in which copyright subsists does not extend to any part of the work in which such material has been used unlawfully"). For examples of how this rule plays out in practice, see *Gracen v. Bradford Exchange*, 698 F.2d 300, 302-03 (7th Cir. 1983); and *Anderson v. Stallone*, No. 87-0592 WDKGX, 1989 WL 206431, at *8-11 (C.D. Cal. Apr. 25, 1989).

³⁴⁶ See 35 U.S.C. § 154 (2012).

³⁴⁷ See generally Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75 (1994).

³⁴⁸ See, e.g., Lemley, *supra* note 71, at 1074-77; Kelly Casey Mullally, *Blocking Copyrights Revisited*, 37 COLUM. J.L. & ARTS 57, 65-69 (2013).

³⁴⁹ See Robert P. Merges, Comment, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2659 n.15 (1994).

Of course, these low-resistance works are not the only ones that the derivative work right excludes. It also impedes access to some innovative uses of copyrighted content. Translating between languages or turning a novel into a film, for instance, may involve immense amounts of creativity, yet these are quintessentially derivative works within the copyright owner's control.³⁵⁰ Audiences lose out on these works if copyright prevents their production. The question is whether that loss is offset by gains from creating around, plus whatever marginal upstream activity is incentivized. That question is one that opponents of the derivative work right haven't yet tried to answer.

Thinking about copyright's structure in terms of constraint targets suggests that the answer could be yes. A blocking copyrights regime would still impose a constraint, only with a less generative target. Like existing copyright law, it would prohibit downstream creators from exploiting copyrighted material without permission. Unlike existing law, however, it would channel them toward producing adaptations that are likely to be cross-licensed. For downstream creators interested in reusing copyrighted material, a blocking copyrights regime imposes a mandatory constraint requiring them to produce something attractive to the original copyright owner. That might make for efficient bargaining, but it's a risky creativity policy. Channeling downstream energy toward creating works that fit the copyright owner's vision is not a high-variability proposition.³⁵¹

Without a derivative work right, we may get more homogenization.³⁵² That's costly if the name of the game is creativity.³⁵³ The wider the range of undiscovered appropriate solutions to a problem, the more audiences may miss out when problem solvers become locked

³⁵⁰ See 17 U.S.C. § 101 (including "motion picture version[s]" and "translation[s]" as examples of derivative works).

³⁵¹ See Oren Bracha & Talha Syed, *Beyond Efficiency: Consequence-Sensitive Theories of Copyright*, 29 BERKELEY TECH. L.J. 229, 274 (2014) (arguing that copyright owners will tend to license only those uses that are "conventional [and] mainstream . . . rather than a subversive or experimental variant").

³⁵² See *supra* section IV.B, 1379–82; see also Abramowicz, *supra* note 71, at 321 ("[I]n a world without the derivative right, unauthorized derivative works will tend to be close substitutes for the authorized derivative works. And they will tend to be even closer substitutes for other unauthorized derivative works."); Hughes, *supra* note 131, at 942 (arguing that "control spread among divergent individuals enhances the diversity of meanings in a culture and provides a valuable barrier against homogenization of ideas").

³⁵³ Too much differentiation can also present its own problems. What audiences for creative expression define as appropriate often limits how much originality creators can get away with; generally, the sweet spot is new, but not too new. See *supra* note 257. That audiences tend to prefer differentiation within recognizable stylistic conventions counsels in favor of a robust idea/expression dichotomy and *scènes à faire* doctrine. Of course, putting aside concerns over excessive newness, homogenization also has other positive network effects, like shared participation in culture. But these are analytically separate from, and at some level may work at cross-purposes to, generating creative outputs.

into a single solution. And if audiences value a multiplicity of solutions separately from the content of those solutions, the cost of that lock-in is exacerbated. The expressive arts, where appropriateness is often extremely ill-defined and where audiences desire new works even though there's nothing wrong with the old ones, check both of those boxes. To the extent that the derivative work right encourages create-around effort, it furthers — not frustrates — copyright's goal of "stimulat[ing] artistic creativity for the general public good."³⁵⁴ Thus, although the current derivative works system constrains more broadly than a hypothetical blocking copyrights system, it may also constrain more wisely.³⁵⁵

A recent experimental study on open and closed innovation in software coding supports this theory.³⁵⁶ Participants entered into a two-week contest to see who could produce the best design for a complex bioinformatics algorithm. In one group, participants submitted solutions that were then available to all other participants in the group. Those participants were then free to build off of the existing solutions. In another group, submissions couldn't be seen by others until the end of the contest. The study found that when solutions were available for all to use, participants experimented less and submitted a more homogeneous set of solutions.³⁵⁷ While free access to others' solutions enabled iterative improvements, it also instigated more path dependency, risking lock-in to suboptimal solution paths.³⁵⁸ The study's designers concluded that where a problem is susceptible to a wide range of desirable solutions, closed innovation systems lower the likelihood that such lock-in will occur. Insofar as expressive domains tend to feature ill-defined criteria for appropriateness that permit such a wealth of solutions, copyright's derivative work right may serve a similar function. By limiting access to certain adaptations, copyright encourages diversity in creative expression.³⁵⁹

³⁵⁴ *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975).

³⁵⁵ This does not necessarily mean that blocking patents are themselves unwise. One could make the case that, relative to copyrightable subject matter, patentable subject matter features (1) less risk that other successful but undiscovered solutions lie outside the path that the patentee has chosen; and (2) fewer consumers who value differentiation as an independent virtue. These distinctions would make blocking patents more attractive than blocking copyrights. The less concerned we are about finding other paths, the less costly path dependency is.

³⁵⁶ See Kevin J. Boudreau & Karim R. Lakhani, "Open" *Disclosure of Innovations, Incentives and Follow-on Reuse: Theory on Processes of Cumulative Innovation and a Field Experiment in Computational Biology*, 44 RES. POL'Y 4 (2015).

³⁵⁷ *Id.* at 21, 24.

³⁵⁸ *Id.* at 28.

³⁵⁹ To the extent that functional expression like software features a narrower range of potential solutions for any given problem, experimentation may be less useful and path dependency less risky. In such cases, convergence around a single search path could be the preferred outcome.

One might also imagine a system that restricts *any* use of protected expression. Section IV.C discussed how such a regime would multiply constraint scope exponentially, excising not just particular products but also a host of generative processes. This is no mere hypothetical. It has already been occurring to varying degrees within several creative industries.³⁶⁰ Nothing in this Article's constraint model, the sources from which it draws, or real-life creative practice suggests that a constraint scope this wide-ranging confers significant benefits downstream.

Here, of course, is where fair use comes in. I am undoubtedly saying nothing new in recognizing that fair use has a critical role to play in limiting constraint scope.³⁶¹ The Supreme Court has, after all, called it the "guarantee of breathing space within the confines of copyright."³⁶² Seldom recognized, however, is that fair use itself confines creators — in the best possible way. By providing a bounded range of unlicensed copying that may be conducted, fair use serves as a mandatory constraint on downstream creators just like the hypothetical blocking copyright would, but with one critical difference. Instead of steering activity in the same direction as the upstream creator would go, it steers that activity toward *transformation*.³⁶³ This is the generative constraint target par excellence. Fair use's emphasis on transformativeness for adaptive uses is a high-variability restriction on how individuals may copy from the past. Through its selective excludability, fair use doctrine engenders its own underappreciated form of creating around.

This selective excludability need not crowd out expressive processes that rely on appropriation from the copyright owner. Instead, it can push those processes toward variability. It would preserve the discursive community-building that Professors Scott Hemphill and Jeannie Suk call flocking, while still stimulating differentiation within the flock.³⁶⁴ One can celebrate musical remixes, for instance, without celebrating a regime in which every musical remix is categorically privileged. When the DJs discussed in Part IV create around copyright by

See id. at 29–30. The theory described here, like some other copyright theories, may thus be an uneasy fit for software. *Cf., e.g.,* Fromer, *supra* note 27, at 1505–06.

³⁶⁰ *See, e.g.,* AUFDERHEIDE & JASZI, *supra* note 238; Gibson, *supra* note 320, at 903–04.

³⁶¹ For a recent encapsulation, see generally AUFDERHEIDE & JASZI, *supra* note 328. *See also* Samuelson, *supra* note 277, at 2617 (arguing that the common denominator of all fair uses is limiting the copyright monopoly in ways that promote the public good).

³⁶² *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 579 (1994).

³⁶³ *See* Balganesch, *supra* note 66, at 261 (discussing how fair use "signal[s] to potential defendants the range of behavior that will be tolerated before liability is imposed").

³⁶⁴ Hemphill & Suk, *supra* note 9, at 1152–53 (presenting a theory of flocking and differentiation).

pushing sampling into ever more playful territory,³⁶⁵ the system is working.

The possibility of unfair use, fair use's negative space, deters a potential entitlement mentality regarding use of cultural goods. Fair use offers potential copiers abundance; unfair use guards against overabundance. Courts find that downstream creators making otherwise transformative use of protected expression cannot copy more than is reasonable to solve the expressive problem.³⁶⁶ Fair use guidelines used within communities of practice encourage individuals to borrow expression, so long as they borrow frugally.³⁶⁷ And individuals who are conscious of fair use's limits can harness them as artistic challenges during the creative process.³⁶⁸ There is such a thing, the doctrine instructs, as too much.

The virtues of trimming expressive excess should be familiar to most of us. Authors convey themselves more clearly with word limits than without. A scholar who is forced to distill a single-sentence thesis tends to write more clearly than one who is not. An idea may remain muddled unless its proponent is compelled to reduce it to an elevator pitch. These constraints compel more precise problem definition and solution. Through its negative space, fair use doctrine works much the same way. It is copyright law's built-in page count.

³⁶⁵ See *supra* p. 1371.

³⁶⁶ See, e.g., *Elvis Presley Enters., Inc. v. Passport Video*, 349 F.3d 622, 628–29 (9th Cir. 2003) (holding that although a documentary film's inclusion of historical Elvis television clips was transformative, the defendants nevertheless infringed because the clips were too extensive, “in excess of [the] benign purpose” of telling part of the story of Elvis's life, and instead were “simply rebroadcast for entertainment purposes that Plaintiffs rightfully own”), *abrogated on other grounds by Flexible Lifeline Sys., Inc. v. Precision Lift, Inc.*, 654 F.3d 989 (9th Cir. 2011) (per curiam); *Warner Bros. Entm't Inc. v. RDR Books*, 575 F. Supp. 2d 513, 539–48 (S.D.N.Y. 2008) (holding that an unauthorized Harry Potter “Lexicon” had a transformative purpose as a reference work, but nevertheless infringed by quoting verbatim hundreds of words at a time, “in excess of its otherwise legitimate purpose of creating a reference guide,” *id.* at 544); *cf. Blanch v. Koons*, 467 F.3d 244, 258 (2d Cir. 2006) (finding that an artist's copying of the plaintiff's photograph was fair use where the artist copied “only that portion of the image necessary to evoke ‘a certain style of mass communication’”).

³⁶⁷ See, e.g., CTR. FOR MEDIA & SOC. IMPACT, CODE OF BEST PRACTICES IN FAIR USE FOR POETRY 8 (2011), http://www.cmsimpact.org/sites/default/files/documents/pages/fairusepoetrybooklet_singlepg_3.pdf [<http://perma.cc/S2WG-HNZN>] (explaining that one of the “key questions” a court will ask is whether “the material taken [is] appropriate in kind and amount, considering the nature of the copyrighted work and of the use”); *id.* at 10 (advising poets who are considering quoting copyrighted texts that “quotations should be brief in relation to their sources, unless there is an articulable rationale for more extensive quotation”); see also AUFDERHEIDE & JASZI, *supra* note 328, at 177–85 (asking those considering relying on fair use to determine their expressive purpose and whether they've taken more than is necessary to accomplish it).

³⁶⁸ See Kleon, *supra* note 12 (providing poet's account of how fair use's “legal constraints can actually be turned into artistic constraints,” and concluding that “[r]ather than limiting my creativity, these constraints make the poems better.”).

Another conceivable variation on copyright's infringement doctrines is elimination of the independent creation defense. Current law excuses any overlap between works, even identical ones, so long as that overlap is fortuitous.³⁶⁹ In other words, only copying counts. As Judge Learned Hand memorably explained the matter: "[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."³⁷⁰ Less improbably, musicians from time to time converge around substantially similar melodies, forcing courts to determine whether copying was involved.³⁷¹ Patent law, by contrast, contains no such defense. The patentee's exclusive rights are good against the world, even against those who independently discover the invention.³⁷²

Why not offer a similarly robust right to copyright owners? A number of responses have been offered, pointing to copyright's high information costs;³⁷³ comparatively minimal eligibility requirements;³⁷⁴ and goal of generating abundant, even if not efficient, expression.³⁷⁵ More recently, Fromer has offered a supply-side theory rooted in the psychology of artistic creativity.³⁷⁶ Because audiences value creative problem finding in the arts, "copyright law places a 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 only one problem solution receives the prize of copyright."³⁷⁷

The analysis here suggests a separate psychological explanation. The cognitive mechanisms of creativity require differentiation from prior models that occupy the problem space that an individual is exploring.³⁷⁸ By diverging from any such model, individuals are engaged in creative cognition — regardless of whether the fruits of their cognition resemble the fruits of others' processes. Copyright law reasonably predicts that the surest path to a creative culture is for indi-

³⁶⁹ See, e.g., *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345–46 (1991); *Mag Jewelry Co. v. Cherokee, Inc.*, 496 F.3d 108, 116 (1st Cir. 2007); *Boisson v. Banian, Ltd.*, 273 F.3d 262, 270–71 (2d Cir. 2001).

³⁷⁰ *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 54 (2d Cir. 1936).

³⁷¹ See, e.g., *Jones v. Blige*, 558 F.3d 485 (6th Cir. 2009); *Three Boys Music Corp. v. Bolton*, 212 F.3d 477 (9th Cir. 2000); *Bright Tunes Music Corp. v. Harrisongs Music, Ltd.*, 420 F. Supp. 177, 179–80 (S.D.N.Y. 1976); *Fred Fisher, Inc. v. Dillingham*, 298 F. 145, 148–49 (S.D.N.Y. 1924) (L. Hand, J.).

³⁷² See, e.g., *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 477–78 (1974).

³⁷³ Clarisa Long, *Information Costs in Patent and Copyright*, 90 VA. L. REV. 465, 529–33 (2004).

³⁷⁴ Dale P. Olson, *Copyright Originality*, 48 MO. L. REV. 29, 34 (1983).

³⁷⁵ See PAUL GOLDSTEIN, *GOLDSTEIN ON COPYRIGHT* § 2.2.1.1 (3d ed. 2014).

³⁷⁶ See Fromer, *supra* note 27, at 1492–93.

³⁷⁷ *Id.* at 1493.

³⁷⁸ See *supra* section III.A, pp. 1360–62.

viduals to differentiate themselves from their subjective pools of exemplars. To eliminate the independent invention defense would effectively mandate a single, universal pool. In principle that might be possible if one could devise a reasonably searchable copyright index, an almost certainly infeasible task. The practical result would be excessive constraint scope and poor constraint clarity. A constraint that broad and unclear would dissipate any generative benefit that it might confer. Requiring differentiation only from the creator's personal path of least resistance is a far less costly way to induce the creative cognition that copyright law seeks.

B. Constraints that Hurt

Despite these positive design features, two aspects of the copyright system diminish its constraints' usefulness. The first is a question of clarity and timing. Unpredictable constraints make for predictably safe expression. It's difficult to create around copyright law effectively while its boundaries remain hard to locate. The second is a question of source and severity. Many downstream creators don't engage with copyright's imposed constraints in a productive way. For most people, compliance with copyright law will not be intrinsically motivating.

On the problem of uncertainty, a number of scholars have proposed legislative interventions that would inject some predictability into fair use, copyright's most famously fuzzy standard. Suggestions have included adding statutory safe harbors for relatively uncontroversial uses,³⁷⁹ empowering the Copyright Office to issue nonprecedential advisory opinions in specific cases,³⁸⁰ and establishing an administrative agency to promulgate fair use rules.³⁸¹ A full evaluation of these individual proposals is beyond my scope here. For my purposes, the important point is that their merits extend beyond reducing transaction costs or curbing unnecessary wealth transfers from society to copyright owners. If adopted, they would also facilitate creating around.³⁸²

Even if Congress doesn't step into the fray, copyright's clarity is already improving somewhat from within. A growing descriptive literature shows that fair use is clearer than previously thought.³⁸³ In addition, industries ranging from documentary film to online video to media education have implemented codes of best practices that are

³⁷⁹ See Gideon Parchomovsky & Kevin A. Goldman, Essay, *Fair Use Harbors*, 93 VA. L. REV. 1483 (2007).

³⁸⁰ See Michael W. Carroll, *Fixing Fair Use*, 85 N.C. L. REV. 1087 (2007).

³⁸¹ See Jason Mazzone, *Administering Fair Use*, 51 WM. & MARY L. REV. 395 (2009).

³⁸² See *supra* p. 1386 (arguing that bright lines can increase constraints' benefits downstream).

³⁸³ See, e.g., Michael J. Madison, *A Pattern-Oriented Approach to Fair Use*, 45 WM. & MARY L. REV. 1525 (2004); Matthew Sag, *Predicting Fair Use*, 73 OHIO ST. L.J. 47 (2012); Samuelson, *supra* note 277.

guiding both individual creators and the intermediaries on whom they rely toward a better sense of where the constraint boundaries fall.³⁸⁴ To be sure, this combination of scholarship and grassroots efforts cannot provide the legal immunity that legislative reform can. But even so, to the extent that these developments give creative communities greater confidence in their ability to distinguish between acceptable and unacceptable borrowings, they still promote a healthier form of copyright constraint. Such community standards not only improve the constraint's clarity, but, in so doing, shift its timing as well. As the effect of restriction moves earlier in the creative process, individuals grow better equipped to create around it.³⁸⁵ They gain both the freedom that fair use provides and the serendipity of unanticipated cultural encounters that navigating unfair use generates. The more that copyright law can fuel such line drawing, the more productive copyright constraint will be for downstream creators.

As clarity and timing improve, creators may grow less frustrated with copyright law as a whole. But much more needs to be done before infringement avoidance becomes a reliable source of intrinsic motivation. The severity and source of copyright constraint loom large here. In popular perception, copyright law is rotten. The public has increasingly come to view copyright as heavy-handed corporate protectionism, "a juggernaut" that is "crushing cherished creative and expressive freedoms."³⁸⁶ That perception, combined with the ease of ignoring the law during the act of creation (as distinguished from the act of distribution, typically controlled by copyright-conscious intermediaries), makes this constraint a burden. Engagement is bound to suffer.³⁸⁷ While copyright's formal constraints are structured to promote downstream creativity, that potential may lie dormant for many people until the law does something to shed its negative image.

³⁸⁴ Preliminary results from a 2014 national survey of documentary filmmakers, for example, indicate that in the vast majority of cases, insurers and broadcasters are comfortable relying on fair use as long as "they had a letter from a lawyer attesting that the use was fair." CTR. FOR MEDIA & SOCIAL IMPACT, DOCUMENTARIANS, FAIR USE AND BEST PRACTICES (Oct. 2014), <http://cmsimpact.org/fair-use/related-materials/documents/documentarians-fair-use-and-best-practices> [<http://perma.cc/JX86-U8H5>]. A decade earlier, before the creation of a statement of best practices, both filmmakers and intermediaries were more likely to avoid fair uses altogether. *Id.* For a review of these statements, see AUFDERHEIDE & JASZI, *supra* note 328, at 127–47. *But see* Jennifer E. Rothman, *Best Intentions: Reconsidering Best Practices Statements in the Context of Fair Use and Copyright Law*, 57 J. COPYRIGHT SOC'Y USA 371, 376 (2010) (arguing that codes of best practices often contain "more wishful thinking than reality" and promise more certainty than existing case law warrants).

³⁸⁵ See *supra* section IV.E, pp. 1388–89.

³⁸⁶ Paul Goldstein, *Copyright's Commons*, 29 COLUM. J.L. & ARTS 1, 2 (2005); see also Jane C. Ginsburg, Essay, *How Copyright Got a Bad Name for Itself*, 26 COLUM. J.L. & ARTS 61 (2002).

³⁸⁷ See AUFDERHEIDE ET AL., *supra* note 268, at 25 (reporting on artists who see copyright as an impediment to creativity and so choose not to think about it).

Copyright enforcers and policymakers thus have some rehabilitation work to do before society is likely to see a fully blossomed creating-around effect. How to go about enacting that reform is a complex subject in its own right.³⁸⁸ But a good start would be scaling back some of the “long and strong” excesses that have given copyright its bully persona without delivering much incentive value upstream.³⁸⁹ Take, for example, copyright’s current term length, which in 1998 was extended from fifty to seventy years past the author’s death.³⁹⁰ Because of discounting to present value, these extra decades do little to fuel upstream production.³⁹¹ The term extension’s most visible legacy has not been marginal creative works newly incentivized, but rather a popular backlash against the entire copyright system.³⁹² Of course, as a political matter, any proposal to shorten the copyright term is almost surely going nowhere.³⁹³ But at least as a normative ideal, a shorter copyright would be widely perceived as a more legitimate one.

A similar lightning rod is the Copyright Act’s statutory damages scheme, which permits awards of up to \$150,000 per work infringed even in the absence of actual damages.³⁹⁴ These sanctions are unlikely to be imposed for infringement stemming from downstream adaptation.³⁹⁵ Nevertheless, the specter of becoming the occasional exception

³⁸⁸ See, e.g., Ginsburg, *supra* note 386, at 61–64; Jessica Litman, *Real Copyright Reform*, 96 IOWA L. REV. 1, 15 (2010); John Tehranian, *Infringement Nation: Copyright Reform and the Law/Norm Gap*, 2007 UTAH L. REV. 537, 538.

³⁸⁹ See AUFDERHEIDE & JASZI, *supra* note 328, at 16.

³⁹⁰ See Sonny Bono Copyright Term Extension Act, Pub. L. No. 105-298, § 102, 112 Stat. 2827, 2827–28 (1998) (codified as amended at 17 U.S.C. §§ 301–304 (2012)).

³⁹¹ Brief of George A. Akerlof et al. as Amici Curiae in Support of Petitioners at 12, *Eldred v. Ashcroft*, 537 U.S. 186 (2003) (No. 01-618), 2002 WL 1041846; Robert P. Merges, *One Hundred Years of Solicitude: Intellectual Property Law 1900–2000*, 88 CAL. L. REV. 2187, 2236–37 (2000) (“From an incentive point of view, the [Copyright Term Extension Act] is virtually worthless; viewed from a present-value perspective, the additional incentive to create a copyrightable work is negligible for an extension of copyright from life-plus-fifty years to life-plus-seventy years.”).

³⁹² See Ben Depoorter, Essay, *The Upside of Losing*, 113 COLUM. L. REV. 817, 837–38 (2013) (describing how a failed constitutional challenge to Congress’s extension of the copyright term “became a symbol representing the darker side of the expansion of intellectual property laws”).

³⁹³ On the normative desirability yet political infeasibility of a shorter copyright term, see Mark P. McKenna, Book Review, *Fixing Copyright in Three Impossible Steps: Review of How to Fix Copyright by William Patry*, 39 J.C. & U.L. 715, 715–16 (2013). At a minimum, the United States’s entry into the Berne Convention prevents it from dipping below a life-plus-fifty-years term. Berne Convention for the Protection of Literary and Artistic Works art. 7, Sept. 9, 1886, S. TREATY DOC. NO. 99-27, 1161 U.N.T.S. 3 (amended Sept. 28, 1979).

³⁹⁴ 17 U.S.C. § 504(c); see Ben Depoorter et al., *Copyright Backlash*, 84 S. CAL. L. REV. 1251, 1265 (2011) (recounting “public sentiment that the awards [against individual infringers] are disproportionate and excessive”).

³⁹⁵ See AUFDERHEIDE & JASZI, *supra* note 328, at 32. *But see* *Rogers v. Koons*, 960 F.2d 301, 313 (2d Cir. 1992) (remanding the case to the district court with the observation that, because of “wilful and egregious behavior,” appropriation artist Jeff Koons “may be a good candidate for enhanced statutory damages”).

to the rule chills a great deal of lawful downstream creativity.³⁹⁶ Commentators today speak of statutory damages in the same breath as the punitive excesses of Prohibition.³⁹⁷ Formally excusing creative adaptations from the statutory damages regime (or at least its upper reaches) could enhance copyright's perception among downstream creators without much risk of losing marginal works upstream.

In addition, educators responsible for copyright training could do more to explain how copyright restrictions could be leveraged as artistic challenges. There is some precedent for this sort of constraint "brand management." Creativity scholars have found that intrinsic motivation remains high, even in the face of extrinsic motivators, when individuals are expressly told about extrinsic motivation's potential negative effects and the importance of remaining engaged in the task.³⁹⁸ Society will get more creativity out of the copyright system if not only copyright scholarship, but also public copyright discourse more generally, comes to recognize the value of creating around.

CONCLUSION

Constraint has gotten a bad rap. We should not expect that restricting the choice set of downstream *creators* necessarily restricts downstream *creativity*. This Article has argued that, on the contrary, some amount of restrictiveness is actually desirable. Whether restriction will help or hurt depends on what is restricted, how it is restricted, and how difficult it is to create around.

Drawing from psychological research, I've offered a predictive model of the surprising ways in which copyright constraint can stimulate downstream creativity, and the not-so-surprising ways in which it can stifle it. What is needed now is better empirical investigation of how these effects are actually playing out in individuals' and firms' creative work. Anecdotal evidence shows that copyright restrictions are indeed generative for some. But we lack a fine-grained understanding of who is benefiting, who isn't, and what explains the difference.

Measuring creative output will likely be an ineffective approach. As copyright scholars well know from trying to assess copyright constraint's downside, "[e]vidence of the works not created because of [licensing] costs is difficult to obtain, as it is evidence of a negative."³⁹⁹

³⁹⁶ See, e.g., Joseph P. Liu, *Copyright and Breathing Space*, 30 COLUM. J.L. & ARTS 429, 429 (2007) (noting statutory damages' "well-documented" chilling effect).

³⁹⁷ See, e.g., Depoorter et al., *supra* note 394, at 1269. See generally Donald P. Harris, *The New Prohibition: A Look at the Copyright Wars Through the Lens of Alcohol Prohibition*, 80 TENN. L. REV. 101 (2012).

³⁹⁸ See SAWYER, *supra* note 142, at 80.

³⁹⁹ Loren, *supra* note 89, at 14.

The same is true of constraint's upside. Many creators ignore copyright restrictions, and we don't know what works they might have created if compelled to create around. On both sides, we can legitimately wonder about the road not taken.

Both ethnography and controlled experimentation geared toward the model I have presented here could offer clearer windows into how creative cognition responds to legal constraint. Admittedly, gathering that data poses a formidable challenge. Creativity and constraint each have many moving parts. But even under existing empirical uncertainty, utilitarian theories of copyright should at least recognize that the law's restrictions may have creativity payoffs beyond the upstream incentives that these theories have traditionally emphasized. Any account of copyright constraint that treats it as a pure cost downstream, whether worth the corresponding upstream benefits or not, is incomplete. Information may want to be free, but creativity does not.