

HONEST COPYING PRACTICES

Joseph P. Fishman*

One of intellectual property theory's operating assumptions is that creating is hard while copying is easy. But it is not always so. Copies, though outwardly identical, can come from different processes, from cheap digital duplication to laborious handmade re-creation. Policymakers around the world face a choice whether such distinctions should affect liability. The two branches of intellectual property that condition liability on actual copying, copyright and trade secrecy, give different answers. Both in the United States and elsewhere, trade secrecy regimes distinguish between copying methods deemed illegitimate and those deemed legitimate, what international treaties call "honest commercial practices." Copyright regimes, by contrast, are largely indifferent. They focus on the end product, not the process of its production.

Trade secrecy and copyright are not often seen as a natural pair, but on the question of how copies are made, the former has much to offer the latter. This Article examines how a defendant's method of copying could function as a policy lever within international copyright law. Because differences in method can matter to copyright policy's intended beneficiaries—owners, readers, and follow-on authors—it should also matter to copyright policy's crafters. Yet before that goal can be implemented, there seems to be a stumbling block. International treaty commitments require member states to provide owners an exclusive reproduction right that covers copying performed in any manner. Nevertheless, that commitment has not stopped states from treating laborious copying differently than cheap copying in limited contexts, such as private uses. The problem is that the normative rationale underlying these limited exceptions remains understudied and therefore unsystematically implemented. A closer inspection reveals that the same flexibilities in international law that have allowed states to make these exceptions also allow them to consider the defendant's method of copying as a structural element of the reproduction right itself. The resulting regime would look something like trade secrecy's tolerance for honest commercial practices—what I dub here "honest copying practices."

INTRODUCTION

One of intellectual property theory's operating assumptions is that creating is hard while copying is easy. But it's not always so. Say you would like to reproduce a drawing. You might photocopy it in a matter of seconds or

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instead recreate it by hand in a matter of days. Or perhaps you would like a copy of your favorite photograph. You could copy and paste a digital file on a computer or instead stage the entire subject matter anew in front of a camera. Copies, though outwardly identical, can come from different processes.

Policymakers around the world face a choice whether such distinctions should affect a copyist's liability. The two branches of intellectual property that condition liability on copying, trade secrecy and copyright, take different views.¹ Both in the United States and elsewhere, trade secrecy regimes distinguish between copying methods deemed illegitimate and those deemed legitimate. Appropriation is only actionable if it is done through means that the law deems, in the language of international treaties, "contrary to honest commercial practices."² Copyright regimes, by contrast, are largely indifferent. They focus on the end product, not the process of its production.

Trade secrecy and copyright aren't often seen as a natural pair, but on this issue—whether the law should care how copies are made—the former has much to offer the latter. I have argued elsewhere that an ideal copyright infringement standard would focus not just on a defendant's end product but also, as trade secrecy does, on its process.³ The gist of that argument is that differences in process matter to several traditional constituencies of copyright policy. For rights-holders, costly imitation poses less risk of market usurpation than cheap imitation. For consumers, a work remade from scratch may satisfy a different demand than would a digital duplication. For authors, deliberately tracing an expert's creative steps can teach technical skills that automated processes cannot. Because the question of how copies are made can matter to copyright policy's intended beneficiaries, it should also matter to copyright policy's crafters.

Before copyright infringement standards can become sensitive to process, however, a significant practical issue is whether such sensitivity would be feasible under existing international law. Those already familiar with this

1 Patent law, by contrast, extends liability even to those who independently invent what happens to be covered by an existing patent. See, e.g., *Allen Eng'g Corp. v. Bartell Indus.*, 299 F.3d 1336, 1351 (Fed. Cir. 2002) ("[C]opying . . . is of no import on the question of whether the claims of an issued patent are infringed."). Whether that extension is justified has prompted considerable debate elsewhere. See, e.g., Robert P. Merges, *A Few Kind Words for Absolute Infringement Liability in Patent Law*, 31 *BERKELEY TECH. L.J.* 1 (2016); Samson Vermont, *Independent Invention as a Defense to Patent Infringement*, 105 *MICH. L. REV.* 475 (2006). I do not take a position here on that question, focusing instead on the forms of IP infringement that require copying under existing law.

2 Agreement on Trade-Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods art. 39(2), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 33 *I.L.M.* 81 [hereinafter *TRIPS Agreement*]; see also Michael Risch, *Trade Secret Law and Information Development Incentives*, in *THE LAW AND THEORY OF TRADE SECRECY: A HANDBOOK OF CONTEMPORARY RESEARCH* 152, 166 (Rochelle C. Dreyfuss & Katherine J. Strandburg eds., 2011) ("Unlike all other forms of intellectual property, the trade secret right to exclude applies only when information is obtained by improper means . . .").

3 See Joseph P. Fishman, *The Copy Process*, 91 *N.Y.U. L. REV.* 855 (2016).

area might suppose that it forecloses the possibility entirely. The Berne Convention—the foundational multilateral treaty governing copyright law—guarantees owners a broad and seemingly process-agnostic right of “authorizing the reproduction of . . . [protected] works, in any manner or form.”⁴ Changing the treaty requirements, which bind the United States along with 168 other nations, is not a particularly realistic option. Because any such changes would require unanimous support of member states, any proposed revision is commonly dismissed as a political nonstarter.⁵

Yet despite Berne’s seemingly strict provision, a closer inspection of existing state practices reveals potential for greater flexibility. The inclination to treat laborious copying differently than cheap, digital copying is already reflected in scattered pockets of several jurisdictions’ domestic laws, though typically confined to a limited context like private use. The problem is that the normative rationale underlying these limited exceptions is understudied and, as a result, unsystematically implemented in practice. Establishing a process-sensitive copyright infringement standard would pose less of a sea change than it might seem at first blush.

This Article examines how a defendant’s means of copying could function as a policy lever within international copyright law. My goal here is to make the case that a process-sensitive infringement standard is both normatively desirable and legally achievable. Notwithstanding the capacious definition of the reproduction right, the same flexibilities within the Berne Convention that have already allowed states to make targeted exceptions also allow them to consider the defendant’s method of copying as a structural feature of the reproduction right itself. Under the standard I propose here, the resulting regime would look something like trade secrecy’s tolerance for honest commercial practices—what I dub here “honest copying practices.” Copyright and trade secrecy are, in this sense, two branches of the same tree, each recognizing that copying’s impact on social welfare depends not only on what is copied and why it is copied (as courts routinely acknowledge already) but also how.

The Article proceeds in three parts. Part I surveys the existing law in several representative jurisdictions along with the international treaties that constrain those jurisdictions’ decisionmaking. This Part contrasts copying methods’ central role in trade secrecy on the one hand with their perceived irrelevance in copyright on the other. In Part II, I explain why changing the method of copying can often change the copying’s impact on social welfare. I argue that copyright law would function better if it began identifying honest copying practices that, as in trade secrecy law, were exempt from liability. Part III turns to questions of implementation. I conclude that international copyright law is equipped to distinguish between proper and improper

4 Berne Convention for the Protection of Literary and Artistic Works art. 9(1), Sept. 9, 1886, 828 U.N.T.S. 221 [hereinafter Berne Convention].

5 See *id.* art. 27(3); see also, e.g., Edward Lee, *Copyright, Death, and Taxes*, 47 WAKE FOREST L. REV. 1, 2–3 (2012); Silke von Lewinski, *International Copyright over the Last 50 Years—A Foreign Perspective*, 50 J. COPYRIGHT SOC’Y U.S.A. 581, 584–85 (2003).

processes through Berne's Article 9(2), the same mechanism it already uses to distinguish between proper and improper products and purposes. As a matter of international commitments, a state could begin discriminating between honest and dishonest copying practices today. It simply needs the will to do so.

I. COPYING METHODS IN INTELLECTUAL PROPERTY LAW

When scrutinizing a defendant's conduct, trade secrecy's liability standard filters out certain processes of appropriation. Some methods of copying protected information, "honest commercial practices" in the parlance of major international agreements (or "proper means" in the equivalent U.S. common-law terminology), remain perfectly lawful. By contrast, copyright law for the most part lacks such a filter. As this Part discusses, however, traces of one can be found in various provisions if one squints just hard enough.

A. *Trade Secrecy*

Trade secrecy law's distinction between lawful and unlawful means of copying is virtually as old as the cause of action itself.⁶ The doctrine, developed extensively under U.S. common law and a major influence on the international agreements that would later follow,⁷ requires courts to consider not only *what* the defendant copied but also *how*.⁸

Policing the boundary between proper and improper means of acquiring protected secrets is a matter of interpretation. That a given process might be otherwise legal outside of trade secrecy law is not dispositive. It could violate no independent rule and still constitute misappropriation.⁹

6 *E.g.*, *Tabor v. Hoffman*, 23 N.E. 12, 13 (N.Y. 1889) (concluding that once a medicine is sold to the public, anyone is permitted to use "chemical analysis and a series of experiments, or . . . any other use of the medicine itself, aided by his own resources only, [in order to] discover the ingredients and their proportions").

7 See ELIZABETH A. ROWE & SHARON K. SANDEEN, *TRADE SECRECY AND INTERNATIONAL TRANSACTIONS* 4 (2015) ("[C]urrent international trade secrecy norms and harmonization efforts are based principally on the [Uniform Trade Secrets Act].").

8 See, *e.g.*, *Pioneer Hi-Bred Int'l v. Holden Found. Seeds, Inc.*, 35 F.3d 1226, 1238 (8th Cir. 1994) ("[T]he critical inquiry is whether the defendant obtained the secret by 'improper means.'" (quoting RESTATEMENT (FIRST) OF TORTS § 757(a) (AM. LAW INST. 1939))); *Hurst v. Hughes Tool Co.*, 634 F.2d 895, 898 (5th Cir. 1981) (finding no improper means where the defendant acquired information by asking an inventor questions); *E.I. Du Pont De Nemours & Co. v. United States*, 288 F.2d 904, 911 (Ct. Cl. 1961) ("Anyone is at liberty to discover a particular trade secret by any fair means, as by experimentation or by examination and analysis of a particular product. Moreover, upon discovery the idea may be used with impunity."); UNIF. TRADE SECRETS ACT § 1 (amended 1985), 14 U.L.A. 433 (1990). While my discussion here focuses on wrongful acquisition, liability for misappropriation can also occur when one acquires the secret legitimately but subsequently uses or discloses it without authorization.

9 See, *e.g.*, *E.I. duPont deNemours & Co. v. Christopher*, 431 F.2d 1012, 1014 (5th Cir. 1970) (holding aerial surveillance to be improper even though the defendants "conducted all of their activities in public airspace, violated no government aviation standard, did not

Judges have endeavored to preserve some flexibility over what's in and what's out, rejecting the possibility of an exhaustive catalogue and instead promoting a standard that tracks the relevant industry's accepted norms of "commercial morality and reasonable conduct."¹⁰ Predictably, with such an open-ended standard, there remain certain means of appropriation whose legal status is open to reasonable disagreement.¹¹ Nevertheless, some significant consensuses have emerged over time. U.S. law has long identified some processes, such as reverse engineering, as acceptable.¹² Others, such as acquisition through trespass or fraud, have been deemed categorically unacceptable.¹³ A plaintiff in a trade secret case will always need to devote some attention to the defendant's methods. Even if a defendant can be shown to have appropriated the plaintiff's secret, the plaintiff must also show that the defendant's particular process of appropriation falls in the wrong bucket.¹⁴

This distinction between proper and improper means emerged on the world stage relatively recently. Historically, trade secrets had not been included among the forms of intellectual property governed by international

breach any confidential relation, and did not engage in any fraudulent or illegal conduct").

10 *Id.* at 1016 (quoting RESTATEMENT (FIRST) OF TORTS § 757 cmt. f (AM. LAW INST. 1939)).

11 Take, for example, the question of dumpster diving. See William Lynch Schaller, *Secrets of the Trade: Tactical and Legal Considerations from the Trade Secret Plaintiff's Perspective*, 29 REV. LITIG. 729, 753 (2010) (describing the propriety of dumpster diving as "especially ambiguous" in trade secrecy law). Compare *Drill Parts & Serv. Co. v. Joy Mfg. Co.*, 439 So.2d 43, 49–50 (Ala. 1983) (proper), and *Tennant Co. v. Advance Mach. Co.*, 355 N.W.2d 720, 725 (Minn. Ct. App. 1984) (proper), with *Frank W. Winne & Son, Inc. v. Palmer*, No. 91-2239, 1991 WL 155819, at *1 (E.D. Pa. Aug. 7, 1991) (improper).

12 See, e.g., *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476 (1974) (calling reverse engineering a "fair and honest means . . . [of] starting with the known product and working backward to divine the process which aided in its development or manufacture"); *Tabor v. Hoffman*, 23 N.E. 12, 13 (N.Y. 1889); UNIF. TRADE SECRETS ACT § 1 cmt. 2 (UNIF. LAW COMM'N 1985) (including reverse engineering within a catalog of proper means); Sharon K. Sandeen, *The Limits of Trade Secret Law: Article 39 of the TRIPS Agreement and the Uniform Trade Secrets Act on Which It Is Based*, in *THE LAW AND THEORY OF TRADE SECRECY: A HANDBOOK OF CONTEMPORARY RESEARCH* 537, 561 (Rochelle C. Dreyfuss & Katherine J. Strandburg eds., 2011) (calling reverse engineering an "antithesis of 'improper means'"). The United States recently codified the leeway given to reverse engineering in the Defend Trade Secrets Act, Pub. L. No. 114-153, 130 Stat. 376 (2016). See 18 U.S.C. § 1839(6)(B) (2012) (providing that reverse engineering may not be considered "improper means" under the federal law of trade secret misappropriation).

13 See, e.g., RESTATEMENT (FIRST) OF TORTS § 759 cmt. c (AM. LAW INST. 1939) (including "bribing or otherwise inducing employees or others to reveal the information in breach of duty" in a catalog of improper means).

14 See, e.g., *E.I. Du Pont De Nemours & Co. v. United States*, 288 F.2d 904, 911 (Ct. Cl. 1961) ("Anyone is at liberty to discover a particular trade secret by any fair means, as by experimentation or by examination and analysis of a particular product. Moreover, upon discovery the idea may be used with impunity."); *MicroStrategy, Inc. v. Bus. Objects, S.A.*, 331 F. Supp. 2d 396 (E.D. Va. 2004) (attempting to parse between proper competitive intelligence and improper corporate espionage).

treaties.¹⁵ That gap began to be filled in the late 1980s during the early negotiations over what a few years later would become the Trade-Related Aspects of Intellectual Property Rights (“TRIPS”) Agreement.¹⁶ The final text of the treaty requires member states to protect against appropriating trade secrets “in a manner contrary to honest commercial practices.”¹⁷ The same language had appeared less than a year earlier in the North American Free Trade Agreement, the first multilateral treaty to provide for trade secret protection.¹⁸

The concept of “honest commercial practices” under TRIPS, like the U.S. version that preceded it, is flexible by design. TRIPS gives little guidance on which commercial practices ought to be considered dishonest. A footnote to the main text specifies only that such practices would mean “at least practices such as breach of contract, breach of confidence and inducement to breach.”¹⁹ Indeed, TRIPS affords arguably even more flexibility than domestic U.S. law, which provides a longer (though still nonexhaustive) list of paradigmatically improper means.²⁰ As others have observed, these skeletal requirements allow member states to determine what constitutes dishonest commercial practices according to their individual cultural and industrial norms.²¹ In Germany, for instance, one court held that a competitor may not gain access to secret information by pretending to be a customer.²²

The European Union has recently followed the United States’ lead in designating reverse engineering as an acceptable means of copying.²³ The

15 See Sandeen, *supra* note 12, at 539.

16 *Id.* at 539, 544.

17 TRIPS Agreement, *supra* note 2, art. 39(2).

18 See North American Free Trade Agreement art. 1711, Dec. 17, 1992, 32 I.L.M. 612. The terminology of honest commercial practices harkens back to the Paris Convention for the Protection of Industrial Property, whose Article 10*bis* requires member states to protect against “[a]ny act of competition contrary to honest practices in industrial or commercial matters.” Paris Convention for the Protection of Industrial Property art. 10*bis*(2), July 14, 1967, 21 U.S.T. 1583. Not surprisingly, the TRIPS Agreement’s trade secrecy section explicitly presents itself as an extension of that treaty. See TRIPS Agreement art. 39(1) (requiring members to provide trade secrecy protection “[i]n the course of ensuring effective protection against unfair competition as provided in Article 10*bis* of the Paris Convention”).

19 TRIPS Agreement, *supra* note 2, art. 39(2) n.10.

20 See ROWE & SANDEEN, *supra* note 7, at 30 (contrasting Article 39(2) with the equivalent provision of the UTSA).

21 See ROWE & SANDEEN, *supra* note 7, at 31 (“[T]he implementation of Article 39 also depends upon applicable commercial, cultural and social norms, some of which may be different from those of the United States and EU countries. In other words, what one country might define as dishonest commercial practices may be acceptable behaviour in another country.”); Sandeen, *supra* note 12, at 559.

22 See MICHAEL KNOSE, 2 TRADE SECRETS THROUGHOUT THE WORLD § 15:33 (2016).

23 See 18 U.S.C. § 1839(6)(B) (2012) (providing that reverse engineering may not be considered “improper means” under the federal law of trade secret misappropriation); UNIF. TRADE SECRETS ACT § 1 cmt. 2 (UNIF. LAW COMM’N 1985) (including reverse engineering within a catalog of proper means).

2016 E.U. Trade Secret Directive instructs that “[i]n the interest of innovation and to foster competition, . . . [r]everse engineering of a lawfully acquired product should be considered as a lawful means of acquiring information, except when otherwise contractually agreed.”²⁴ In the ensuing paragraph, the Directive makes clear that its real target is “parasitic copying or slavish imitations.”²⁵ The explicit carve out of reverse engineering signals that the parasitism to be avoided must be something more than just deliberate, verbatim copying. Reverse engineering, after all, can often yield a perfect imitation, indistinguishable from the original. What makes copying “parasitic or slavish” is a question of how it’s done.

In short, both the long history of U.S. common law and the comparatively short history of international treaty practice have molded trade secrecy into a fundamentally process-sensitive cause of action. From jurisdiction to jurisdiction and from industry to industry, courts can fashion the contours of liability according to defendant’s chosen method of copying.

B. Copyright

Copyright law sends a more mixed message on copy process than does trade secrecy. Reproduction is near universally understood to be the centerpiece of its package of exclusive rights.²⁶ Surprisingly then, the Berne Convention existed for almost a century without any express requirement that member states include that right. It was only in 1967 that such a provision was added.²⁷ The delay was due to disagreement over just what exactly a reproduction right ought to cover.²⁸

24 Directive 2016/943 of the European Parliament and of the Council of 8 June 2016 on the Protection of Undisclosed Know-How and Business Information (Trade Secrets) Against Their Unlawful Acquisition, Use and Disclosure, recital 16, 2016 O.J. (L 157/1) 1, 4 (EU); *see also id.* art. 3(1)(b), at 10 (providing that acquisition of a trade secret shall be lawful when accomplished through “observation, study, disassembly or testing of a product or object that has been made available to the public or that is lawfully in the possession of the acquirer of the information”).

25 *Id.* recital 17, at 3.

26 *See, e.g.,* PAUL GOLDSTEIN & P. BERNT HUGENHOLTZ, *INTERNATIONAL COPYRIGHT: PRINCIPLES, LAW, AND PRACTICE* 307 (3d ed. 2012) (“Historically, the right to make copies of a copyrighted work is the seminal author’s right”); SAM RICKETSON, *THE BERNE CONVENTION FOR THE PROTECTION OF LITERARY AND ARTISTIC WORKS: 1886–1986*, at 369 (1987) (calling the reproduction right “undoubtedly the most fundamental right which has been accorded historically to authors under national legislation”); Mark A. Lemley, *Dealing with Overlapping Copyrights on the Internet*, 22 U. DAYTON L. REV. 547, 550 (1997) (“The most fundamental of all rights in copyright is the exclusive right to reproduce the work.”).

27 *See* 2 WIPO, *RECORDS OF THE INTELLECTUAL PROPERTY CONFERENCE OF STOCKHOLM, JUNE 11 TO JULY 14, 1967*, at 1143 (1971) (“The *Programme* proposed that a general right of reproduction should be recognized in Article 9(1)”).

28 *See* RICKETSON, *supra* note 26, at 370 (“[W]hile it is true to say that in 1886 each country which was to join the projected Union accorded protection to the reproduction right, it cannot be said that there was agreement between these states as to the scope and content of this right. This is undoubtedly the reason why no attempt was made at this stage to insert a general reproduction right in the Convention.”).

The text that ultimately garnered consensus does not define the term “reproduction.” It does, however, specify that the right extends to such reproductions “in any manner or form.”²⁹ This final clause appears to lend the right significant breadth. Indeed, the World Intellectual Property Organization (WIPO) commentary on the provision opines that the clause is “wide enough to cover all methods of reproduction: design, engraving, lithography, offset and all other printing processes, typewriting, photocopying, xerox, mechanical or magnetic recording (discs, cassettes, magnetic tape, films, microfilms, etc.), and all other processes known or yet to be discovered.”³⁰ Similarly, the E.U. Information Society Directive requires member states to provide authors exclusivity over “reproduction by any means and in any form, in whole or in part.”³¹ The U.S. Copyright Act is terser, simply granting a right “to reproduce the copyrighted work in copies.”³² But courts interpreting that provision have left little doubt about its breadth, explaining that a laboriously made copy is just as much a reproduction as an easily made one.³³

Nevertheless, there are glimpses of process sensitivity scattered through both international and domestic laws. The E.U. Information Society Directive, for example, treats digital copying differently than analogue. Its thirty-eighth recital states:

Member States should be allowed to provide for an exception or limitation to the reproduction right for certain types of reproduction of audio, visual and audio-visual material for private use, accompanied by fair compensation. This may include the introduction or continuation of remunera-

29 Berne Convention, *supra* note 4, art. 9(1).

30 WORLD INTELLECTUAL PROPERTY ORGANIZATION [WIPO], GUIDE TO THE BERNE CONVENTION FOR THE PROTECTION OF LITERARY AND ARTISTIC WORKS (PARIS ACT, 1971) 54 (1978) [hereinafter WIPO Guide]; *see also* ZOHAR EFRONI, ACCESS-RIGHT: THE FUTURE OF DIGITAL COPYRIGHT LAW 220 (2011) (noting that the language “[in] any manner” refers to “technical procedure of making a copy; in other words, manner is the reproduction technology”).

31 Directive 2001/29/EC, of the European Parliament and of the Council of 22 May 2001 on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society, art. 2, 2001 O.J. (L 167) 10, 16 [hereinafter Information Society Directive]; *see also* IRINI STAMATOUDI & PAUL TORREMAN, *The Information Society Directive, in* EU COPYRIGHT LAW: A COMMENTARY 395, 402 (Irina Stamatoudi & Paul Torremans eds., 2014) (“This [article of the Directive] covers both analogue and digital reproductions of the work It is therefore irrelevant whether a wooden sculpture is photographed, copied by hand from the photograph into a marble, then photographed again and loaded on a site on the Internet. All these acts are considered to be reproductions.”).

32 17 U.S.C. § 106(1) (2012).

33 *See, e.g.,* Sturdza v. United Arab Emirates, 281 F.3d 1287, 1300 (D.C. Cir. 2002) (observing that copyright’s inquiry into unlawful copying turns on “whether [the defendant’s] end product . . . is substantially similar to [the plaintiff’s], not how it got that way”); Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc., 797 F.2d 1222, 1237 (3d Cir. 1986) (“[T]he fact that it will take a great deal of effort to copy a copyrighted work does not mean that the copier is not a copyright infringer. The issue . . . is simply whether the copyright holder’s expression has been copied, not how difficult it was to do the copying.”).

tion schemes to compensate for the prejudice to rightholders. Although differences between those remuneration schemes affect the functioning of the internal market, those differences, with respect to analogue private reproduction, should not have a significant impact on the development of the information society. Digital private copying is likely to be more widespread and have a greater economic impact. *Due account should therefore be taken of the differences between digital and analogue private copying and a distinction should be made in certain respects between them.*³⁴

Reflecting this greater leeway for nondigital copying, Article 5.3's grandfather clause allows member states to limit or remove liability for "use in certain other cases of minor importance where exceptions or limitations already exist under national law, provided that they only concern analogue uses."³⁵ The implicit rationale is that analogue copying is more difficult for the copyist and therefore less economically threatening to the owner.

Some E.U. states have implemented such an exception in their respective domestic laws. Italy, for example, expressly permits reproduction for personal use when the copy is "made by hand or by a means of reproduction unsuitable for circulating or diffusing the work in public."³⁶ Likewise, Germany and Hungary permit private reproduction of complete books and periodicals if done manually.³⁷ Outside the European Union, a similar carve out appears in Japan's copyright law, which allows users to reproduce works for private use unless "[such] reproduction is made by means of automatic reproduction machines . . . [placed] for the use by the public."³⁸ In other words, copying with a paintbrush and canvas is permissible. Copying with a photocopier is not.

In the U.S. Copyright Act, such process-based limitations are largely absent. There is, however, one significant exception. The compulsory license for reproducing musical works, commonly known as the "mechanical" license, explicitly distinguishes between automatically duplicating an existing recording and creating a new recording from scratch.³⁹ One who simply hits copy and paste on a computer cannot rely on the compulsory license without first securing permission directly from the owner of the copyright in the reproduced recording. By contrast, one who rerecords the musical work in the studio is relieved of that extra burden—even if the result sounds identical to a digital duplicate. Measured against the backdrop of the rest of the U.S. Copyright Act, this compulsory license regime is a striking departure. It is the only section of the statute that discriminates between the means of copy-

34 Information Society Directive, *supra* note 31, recital 38 (emphasis added).

35 *Id.* art. 5(3)(o).

36 See GOLDSTEIN & HUGENHOLTZ, *supra* note 26, at 381.

37 See Urheberrechtsgesetz [UrhG] [Act on Copyright and Related Rights], Sept. 9, 1965, Bundesgesetzblatt [BGBl], as amended, art. 53(4) (Ger.), https://www.gesetze-im-internet.de/englisch_urhg/englisch_urhg.html; Act No. LXXVI of 1999 on Copyright, art. 35(2) (Hung.), <http://www.wipo.int/edocs/lexdocs/laws/en/hu/hu084en.pdf>.

38 Chosakuken Ho [Copyright Act] Law No. 48 of 1970, art. 30(1)(i) (Japan).

39 See 17 U.S.C. § 115(a)(1) (2012).

ing when assessing liability. For all other copyrightable subject matter, one is seemingly the same as any other.

Unlike trade secrecy law, then, copyright law contains no general framework for filtering potential claims according to the process employed by the copyst. The law in several countries at least gestures in that direction by carving out laborious copying for preferential treatment under limited circumstances. But those limits are strong. They are either restricted to purely private uses, as in Italy and Japan, or to a specific subject matter category, as in the United States. This uneven implementation does not appear to be the product of careful judgment. Even as both domestic and international copyright laws seem to accept the premise that the process of copying can matter, that premise has not been rigorously theorized or consistently applied. In Part II, I explain why it deserves a more significant place than it has yet received in determining the scope of infringement liability.

II. WHY COPY PROCESS MATTERS

If you'd like to watch a trailer for a recent or upcoming Hollywood blockbuster, you could watch the original studio version. Or you could watch one of the over 200 videos (and counting) in CineFix's "Homemade Movies" series, a collection of self-described "creative remakes of your favorite trailers and movie scenes" containing "shot-for-shot remakes using low-budget DIY materials."⁴⁰ The producers "analyse every shot to see what the important details are" and "watch it repeatedly with the performers to memorize the timing of everything before taking a stab at it."⁴¹ The resulting films range from *Star Wars* to *Frozen* to *The Amazing Spider-Man 2*.

The "Homemade Movies" series is part of a broader phenomenon of laborious re-creations, some visibly amateur but many of professional quality. Consider a few other recent ones. After studying Ansel Adams's iconic *Autumn Moon* photograph, a group of astronomers reverse engineer the exact location and the once-every-nineteen-years moment in which the moon would return to the same spot as it did when Adams clicked the shutter, and photographers gather then and there to recreate the image with scientific precision.⁴² An appropriation artist faithfully replicates a photograph of a musical group by stripping out the background and shading, projecting that altered image onto a piece of wood, painting the image onto the wood, and then gluing 1000 shards of broken vinyl records on top of it.⁴³ Fans of the

40 See CineFix, *Homemade Movies*, YOUTUBE, <https://www.youtube.com/playlist?list=PL1AXWu-gGX6Jto21cZ4vrtBZ4fW6s6Vxz> (last visited Oct. 6, 2017).

41 Tom Eames, *CineFix's Homemade Movies Interview: "Sock Puppets Are Especially Fun,"* DIGITAL SPY (May 7, 2013), <http://www.digitalspy.com/fun/news/a479352/cinefixs-homemade-movies-interview-sock-puppets-are-especially-fun/>.

42 See Roger W. Sinnott, *An Ansel Adams Encore*, SKY & TELESCOPE, Jan. 2006, at 93.

43 See *Friedman v. Guetta*, No. CV 10-00014, 2011 WL 3510890, at *1 (C.D. Cal. May 27, 2011); Sean Bonner, *Thierry Guetta, aka Mr. Brainwash Sued for Copyright Infringement over Run DMC Image*, BOING BOING (Jan. 6, 2011), <https://boingboing.net/2011/01/26/thierry-guetta-aka-m.html>.

film *Raiders of the Lost Ark* remake the entire film, shot for shot, in a version so astoundingly similar as to earn its own documentary and critical praise declaring that “[m]imicry can be even harder than the original.”⁴⁴ A young man spends months recreating a Beyoncé music video, imitating every bit of choreography, cinematography, and even facial expressions, then posts it to YouTube, where it becomes a minor viral sensation.⁴⁵ Two artists spend weeks building detailed scale models replicating famous historical photographs like the Hindenburg crash, the Loch Ness monster, and the first moon landing, relying on physical materials from tarps to cotton balls to achieve the desired visual effect.⁴⁶

What all these productions have in common is a deliberately resource-intensive copy process. Expressive content that could have been achieved using a few keystrokes on a computer is instead achieved through far more time-intensive methods. The reasons why second comers would want to make such an investment vary. Some do it to learn how to do it, others want to tap a market that prizes handmade products, still others prefer a difficult process for its expressive value, some might simply find the experience fun, and then there are those who just want the attention. Add those reasons together and it means that a significant number of copyists are not always going to use the cheapest means of copying available.

Yet it is precisely the cheapest means that has given rise to much of modern copyright law.⁴⁷ Sticking with that baseline even in a world of deliber-

44 Amy Nicholson, *After 33 Years and an Airplane Explosion, Their Raiders of the Lost Ark Remake Is Almost Complete. Are They?*, LA WEEKLY (Nov. 12, 2014), <http://www.laweekly.com/arts/after-33-years-and-an-airplane-explosion-their-raiders-of-the-lost-ark-remake-is-almost-complete-are-they-5205358>; RAIDERS!: THE STORY OF THE GREATEST FAN FILM EVER MADE (Jeremy Coon Productions 2015).

45 See Jen Carlson, *Meet Ton Do-Nguyen, The Snuggie “Countdown” Kid Beyoncé Calls “Brilliant,”* GOTHAMIST (July 21, 2012), http://gothamist.com/2012/07/21/we_talk_to_ton_do-nguyen_the_snuggi.php.

46 See Sheena McKenzie, *12 Famous Photos Painstakingly Recreated with Miniature Models*, CNN (Dec. 23, 2015), <http://www.cnn.com/style/article/historys-most-famous-photos-recreated-miniature-models/index.html>.

47 As the U.S. Supreme Court has observed,

From its beginning, the law of copyright has developed in response to significant changes in technology. Indeed, it was the invention of a new form of copying equipment—the printing press—that gave rise to the original need for copyright protection. . . . Thus, for example, the development and marketing of player pianos and perforated rolls of music preceded the enactment of the Copyright Act of 1909; innovations in copying techniques gave rise to the statutory exemption for library copying embodied in § 108 of the 1976 revision of the Copyright law; the development of the technology that made it possible to retransmit television programs by cable or by microwave systems prompted the enactment of the complex provisions set forth in 17 U.S.C. § 111(d)(2)(B) and § 111(d)(5) (1982 ed.) after years of detailed congressional study.

Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 430, 430 n.11 (1984) (footnote omitted) (citations omitted); see also WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 42 (2003) (“[M]odern technology

ately difficult copying hurts social welfare in three different ways. I discuss them below.

A. *The Ratio Between Imitation Cost and Innovation Cost*

All else being equal, the economic harm from imitation falls as the cost of imitation rises. Stringent copyright protection is meant at least in part to provide an artificial bulwark against quick and cheap copying (relative to the cost of creating innovation). But if a particular form of copying is naturally neither quick nor cheap to begin with, that bulwark's social costs come closer to overwhelming its social benefits.

This proposition is already implicit within trade secrecy policy and, to a lesser extent, copyright policy. On the trade secrecy side, inflated imitation cost is a standard justification for allowing reverse engineering.⁴⁸ By definition, the information protected as a trade secret is difficult to uncover through recreating the innovator's steps.⁴⁹ That difficulty gives some comfort to policymakers who would otherwise worry about how to insulate investments from ruinous competition. By making second comers shoulder enough imitation cost, the law better allows innovators to recoup their expenditures. It's thus unsurprising that, as discussed in the previous Part, reverse engineering is widely recognized as a paradigmatically proper means of appropriating secret information.⁵⁰ In the United States, this cost-sharing function of the reverse-engineering exception dates back to some of its earliest trade-secret jurisprudence.⁵¹

Though not as well entrenched, a similar rationale occasionally appears in the copyright context. As discussed above, the economic distinction between cheap and costly copying is already embedded within the E.U.'s

has reduced the time it takes to make copies, as well as enabled perfect or near-perfect copies to be made at low cost, and as a result the importance of copyright protection has increased for many types of expressive work.”).

48 See, e.g., Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE L.J. 1575, 1590 (2002) (defending trade secrecy's allowance of reverse engineering because “the costs and time required for reverse engineering already protect most innovators”).

49 See, e.g., UNIF. TRADE SECRETS ACT § 1(4)(i) (UNIF. LAW COMM'N 1985) (limiting protection to information that is “not . . . readily ascertainable by proper means”); TRIPS Agreement, *supra* note 2, art. 39(2)(a) (limiting protection to information that is “not . . . generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question”).

50 See *supra* Part I.

51 See, e.g., *A.O. Smith Corp. v. Petroleum Iron Works Co. of Ohio*, 73 F.2d 531, 539 (6th Cir. 1934) (observing that law should not “advantage the competitor who by unfair means . . . obtains the desired knowledge without himself paying the price in labor, money, or machines expended by the discoverer”); *Tabor v. Hoffman*, 23 N.E. 12, 13 (N.Y. 1889) (concluding that once a medicine is sold to the public, anyone is permitted to use “chemical analysis and a series of experiments, or . . . any other use of the medicine itself, aided by his own resources only, [in order to] discover the ingredients and their proportions”).

Information Society Directive.⁵² Italy's exception for handmade copying turns on the method's "unsuitab[ility] for circulating or diffusing the work in public."⁵³ Together with the distribution right that itself raises the cost of competing with the owner, permitting reproduction only through laborious processes lowers the possibility that cheaply made private copies could slip through the cracks and enter the market. The caselaw interpreting the mechanical license in the United States is even more explicit about the importance of imitation costs. Under the previous version of its Copyright Act, which contained a more tersely worded and ambiguous license provision than today's incarnation, courts were called on to determine whether a given use of a musical work was "similar" to the act of recording it for the first time.⁵⁴ That provision teed up the question of whether the process of mechanically or digitally duplicating an existing recording (as opposed to recording a new performance of it) was similar to the initial process of recording it. Resoundingly, courts answered "no." The difference in imitation costs loomed large. As one appellate court explained:

[W]hile the difference between making a recording and duplicating a recording (making a recording of a recording) may seem negligible semantically, the impact of the latter upon the copyright interest of the composer is clear. The copyright holder's benefit is substantially reduced by the inevitable lower profits which result from duplicators who can re-record for a fraction of the original cost and thus undersell the authorized recorder.⁵⁵

There is thus an economically straightforward argument that copyright case outcomes should depend in part on the ratio between the author's innovation cost and the copyist's imitation cost. The less the former outstrips the latter, the less the need for liability. Still puzzling, however, is the inconsistency with which this insight has been operationalized. Start, for example, with the European position that costly methods only affect the legal status of the copying when done in private.⁵⁶ Why should that be so? If a method of copying requires such high fixed costs that it approaches the cost of the initial creation,⁵⁷ the copyist is not economically better off than the original author. The average cost of production for either of them would be roughly

52 Information Society Directive, *supra* note 31, recital 38 (recognizing that relative to "analogue" copying, digital copying is likely to be "more widespread and have a greater economic impact").

53 See GOLDSTEIN & HUGENHOLTZ, *supra* note 26, at 381.

54 17 U.S.C. § 1(e) (1970) (amended 1976).

55 *Heilman v. Bell*, 583 F.2d 373, 376 (7th Cir. 1978). For similar conclusions, see *Edward B. Marks Music Corp. v. Colo. Magnetics, Inc.*, 497 F.2d 285, 288 (10th Cir. 1974); *United States v. Bodin*, 375 F. Supp. 1265, 1267 (W.D. Okla. 1974); and *Fame Publ'g Co. v. S & S Distribs., Inc.*, 363 F. Supp. 984, 988 (N.D. Ala. 1973).

56 See Information Society Directive, *supra* note 31, recital 38; *id.* art. 5(3)(o).

57 For an entertaining example, see *TIM'S VERMEER* (High Delft Pictures 2013), a documentary that follows a novice's efforts to recreate a Vermeer painting using the process that, according to his hypothesis, the artist himself had once used. Performing that process required years of preparation, including building the optical devices on which he believed Vermeer relied, constructing a full-scale replica of the room that was the subject

the same. For some copy processes, then, even reproduction beyond the strictly private would leave the owner's core markets intact. Another example is the United States' invocation of copy process for mechanical licenses in music but nowhere else. The same economic arguments that courts emphasized for music apply with equal force for other subject matter categories, particularly visual and audiovisual materials.

B. *Educative Copying*

A second social cost of treating re-creations the same as digital duplicates is inhibiting the process of learning by doing. As any art student knows, a great way to master one's craft is to copy a master. Recreating a piece from scratch lets the copyist peer under the hood to see how it works.⁵⁸ Hands-on copying generates more than just another copy; it also generates experiential learning. It is the reason why New York's Metropolitan Museum of Art, like several other peer institutions, allows visitors to set up an easel and recreate paintings in its galleries in order to "celebrate[] intensive technical study [and] deep observation" and "encourage[] sustained engagement with a diverse range of media."⁵⁹

To recognize any of this is simply to acknowledge that reverse engineering has an educative payoff not just for technologists but for artists as well. When it comes to technological creativity, the type typically of more relevance to patent law than to copyright law, the point should already be familiar. In undergraduate engineering curricula, dissecting and reassembling working models has become a routine form of acquiring expertise.⁶⁰ The practice has been found to increase awareness of the design process, encourage development of curiosity, and increase motivation and conceptual retention.⁶¹ When those students leave the classroom and enter the industry, reverse engineering's utility to long-term innovation still remains. Auto-

of the original painting, mixing pigments, and finally a painstaking several months of putting brush to canvas.

58 See Daniel Gervais, *The Derivative Right, or Why Copyright Law Protects Foxes Better than Hedgehogs*, 15 VAND. J. ENT. & TECH. L. 785, 851 (2013) ("By copying a master's work, the 'pupil' might at least get a glimpse of the great author's mind, which would seem like a normatively desirable process."); Sara K. Stadler, *Forging a Truly Utilitarian Copyright*, 91 IOWA L. REV. 609, 646 (2006) ("In copying technique, one learns technique; in copying style, one learns style. If the copyist is lucky, he finds his own style in the end, but even if he does not, his mastery of technique makes him capable of creating beauty."); Malcolm Jones, *There's Nothing Wrong—And a Lot That's Right—About Copying Other Artists*, DAILY BEAST (Jan. 26, 2014), <http://www.thedailybeast.com/articles/2014/01/26/there-s-nothing-wrong-and-a-lot-that-s-right-about-copying-other-artists.html>; Jonathan Jones, *Why Would-Be Artists Should Imitate the Greats*, THE GUARDIAN (Sept. 19, 2009), <http://www.theguardian.com/artanddesign/2009/sep/19/aspiring-artists-should-imitate-masters>.

59 *Copyist Program*, METRO. MUSEUM OF ART, <http://www.metmuseum.org/events/programs/met-creates/copyist-program> (last visited Oct. 6, 2017).

60 See Katie Grantham et al., *A Study on Situated Cognition: Product Dissection's Effect on Redesign Activities*, ADVANCES IN ENGINEERING EDUC., Summer 2013, at 2.

61 *Id.*

motive manufacturers, for instance, regularly take apart competitors' models and put them back together in order to investigate design choices that they might not have otherwise appreciated.⁶² As one analyst explained, "[a]s much as you think you know . . . nothing beats picking up the parts, feeling them, weighing them, and knowing the processes that made them."⁶³

Once we cross over to copyrightable subject matter—a world less likely to be catering to anyone with "engineer" in a job title—reverse engineering might seem a more remote concept. But it is not. Taking apart a Haydn sonata is a lot like taking apart a Hyundai Sonata. In the eighteenth century, a young J.S. Bach taught himself compositional practice by arranging others' music.⁶⁴ In the twentieth, a legion of composers, producers, and instrumentalists did the same thing.⁶⁵ The same learning-by-copying process has benefited the work of artists, filmmakers, and photographers as well.

Educational uses, of course, have traditionally received wider leeway for copying protected works. But that leeway often isn't sufficient to immunize recreating another's work without authorization. The Berne Convention purports to permit member states to insulate educational uses, but the relevant provision speaks only about "teaching."⁶⁶ In the case of formal coursework where the copying is performed or at least supervised by an instructor, perhaps Berne provides some cover. Outside the classroom context, however, the exception's applicability is dubious.⁶⁷ The problem with that narrow scope is that learning by doing can happen even without a classroom. Indeed, trade secrecy theory has emphasized precisely this insight in

62 See Carl Hoffman, *The Teardown Artists*, WIRED (Feb. 1, 2006), <https://www.wired.com/2006/02/teardown/>.

63 *Id.* (internal quotation marks omitted).

64 See Olufunmilayo B. Arewa, *From J.C. Bach to Hip Hop: Musical Borrowing, Copyright and Cultural Context*, 84 N.C. L. REV. 547, 610 (2006).

65 See, e.g., PAUL F. BERLINER, *THINKING IN JAZZ: THE INFINITE ART OF IMPROVISATION* 95–97 (1994) (describing various ways in which, "[j]ust as children learn to speak their native language by imitating older competent speakers, so young musicians learn to speak jazz by imitating seasoned improvisers"); JOHN SEABROOK, *THE SONG MACHINE: INSIDE THE HIT FACTORY* 59 (2015) (recounting how Clive Calder and Mutt Lange's early experience of "taking hit songs apart, figuring out how they worked, and putting them back together again . . . gave both men a keen appreciation for what went into making a hit, knowledge that served them both very well later on").

66 Berne Convention, *supra* note 4, art. 10(2).

67 See WIPO Guide, *supra* note 30, ¶ 10.10 (observing that the term "teaching" in Article 10.2 refers to "educational institutes, municipal and state schools and private schools," but that "mere scientific research is not within the scope of the paragraph"); RICKETSON, *supra* note 26, at 497–98 ("[T]he word 'teaching' was to include teaching at all levels—in educational institutions and universities, municipal and State schools, and private schools. Education outside these institutions, for instance general teaching available to the general public but not included in the above categories, should be excluded." (quoting 2 WIPO, RECORDS OF THE INTELLECTUAL PROPERTY CONFERENCE OF STOCKHOLM, JUNE 11 TO JULY 14, 1967, at 1148 (1971))).

pushing for greater tolerance of reverse engineering.⁶⁸ As Judge Posner has noted, reverse engineering receives privileged treatment in trade secrecy doctrine because it “involves the use of technical skills that we want to encourage.”⁶⁹ The point is equally applicable to much of copyrightable subject matter, yet Berne’s educational use provision seems oblivious to it.

The mismatch is partly due to the fact that Berne seems to classify educational use by *intent* rather than by *effect*. Of course, students enrolled in a course of study are trying to learn something (or so we teachers hope, at least). That institutionalized intent is a perfectly good proxy for the socially desirable outcome of actual learning, but it is worth remembering that it is the outcome itself that we are trying to promote. That outcome can occur even absent a specific intent to achieve it. One might be copying the hard way in order to show off and draw attention to oneself, another might be doing it to gain competitive intelligence, and still another might be doing it for sheer enjoyment. None of these purposes is educational in the sense that Article 10.2 privileges. Yet each of them is capable of teaching the copyist valuable skills all the same.

In certain jurisdictions, some—though, as I will return to shortly, not all—of this educative copying could be permissible under laws that generally exempt private reproductions. Within the European Union, the Information Society Directive permits member states to withhold liability for copying done “for private use and for ends that are neither directly nor indirectly commercial.”⁷⁰ As discussed above, a few member states have taken advan-

68 See, e.g., LANDES & POSNER, *supra* note 47, at 370 (“[R]everse engineering will often generate knowledge about the product being reverse engineered that will make it possible to improve it or develop or improve other products.”); Jeanne C. Fromer, *A Legal Tangle of Secrets and Disclosures in Trade: Tabor v. Hoffman and Beyond*, in INTELLECTUAL PROPERTY AT THE EDGE: THE CONTESTED CONTOURS OF IP 286 (Rochelle C. Dreyfuss & Jane C. Ginsburg eds., 2014) (“[R]equiring third parties to reverse engineer—rather than use the secret directly—might also be helpful to the third parties (and society at large) by teaching them more about the information, its uses, and further refinements.”); Jerome H. Reichman, *How Trade Secrecy Law Generates a Natural Semicommons of Innovative Know-how*, in THE LAW AND THEORY OF TRADE SECRECY: A HANDBOOK OF CONTEMPORARY RESEARCH 189 (Rochelle C. Dreyfuss et al. eds., 2011) (“[T]he process of reverse engineering itself, by methodically extracting the innovator’s know-how from a given application, tends to generate technical improvements over time, including cost-saving modes of manufacture that reduce prices to consumers.”).

69 Rockwell Graphic Sys., Inc. v. DEV Indus., Inc., 925 F.2d 174, 178 (7th Cir. 1991).

70 Information Society Directive, *supra* note 31, art. 5(2)(b). The provision also conditions use on payment of “fair compensation” to the rightholder, *id.*, though recital 35 of the Directive leaves open the possibility that the amount of such compensation could be zero “where the prejudice to the rightholder would be minimal.” *Id.* recital 35; see also Case C-463/12, Copydan Båndkopi v. Nokia Danmark A/S, 2015 E.C.R. ¶¶ 56–62, <http://curia.europa.eu/juris/document/document.jsf?text=&docid=162691&pageIndex=0&doclang=EN> (holding that E.U. member states retain discretion to determine whether a particular harm falls below the minimal level that would require any compensation under Article 5(2)(b)).

tage of this exemption to distinguish between manual and mechanical copy processes.⁷¹

Yet this distinction has been implemented more narrowly than it deserves, largely because commentators tend to ignore its pedagogic virtues. Typically, they treat tolerance for private copying as a pragmatic sacrifice, pointing to the unrealistically steep monitoring costs that would need to be incurred if the right were to be worth anything to its owners.⁷² On this theory, an ideal regime would allow the rightholder to exclude (or at least collect a set fee through a compulsory license) for every private copy. Only thanks to the practical difficulty of tracking all those unobservable copies do private copyists get a free pass.

To be sure, some have noted that withholding a right to exclude private copying can yield genuine social benefits. Allowing such copying to proceed without need for clearing individual licenses curbs the potential for corporate surveillance and promotes access to information.⁷³ But these benefits would flow regardless of how the copying is done, whether by hand or by automation. So long as the various methods of copying remain bundled together like this, policymakers face a binary choice between exempting all of them and exempting none of them.

When the choice is framed as all or none, some may very well choose none. And indeed, some do. Several E.U. jurisdictions do not exercise their prerogative under the Information Society Directive to offer an exception to private copying.⁷⁴ In the United States, existing fair use doctrine covers some private copying, such as taping television broadcasts,⁷⁵ but not necessarily the kind that would help those recreating works by hand. Courts have held that downloading a free file online for personal consumption counts as an infringing commercial use because the downloader avoids the copy's customary market price.⁷⁶ Presumably, unless copying methods were to matter, repainting a Picasso and hanging it on the wall should count for the same

71 See *supra* Section I.B.

72 See, e.g., ANTÓNIO VITORINO, RECOMMENDATIONS RESULTING FROM THE MEDIATION ON PRIVATE COPYING AND REPROGRAPHY LEVIES 20 (2013) (“[T]he main rationale underlying the private copying exception is linked to the practical difficulty of the licensing of copies made by consumers for their private use.”); WORLD INTELLECTUAL PROPERTY ORGANIZATION, INTERNATIONAL SURVEY ON PRIVATE COPYING: LAW AND PRACTICE 2015 5 (2016) [hereinafter WIPO International Survey] (commenting that countries exempt private copying because it is “practically impossible to grant permission to large numbers of individuals, or to monitor how such permission is subsequently used”); Christophe Geiger & Franciska Schönheer, *The Information Society Directive*, in E.U. COPYRIGHT LAW: A COMMENTARY 395, 473 (Irina Stamatoudi & Paul Torremans eds., 2014) (“[I]t has been held that unlike limitations based on higher ranking considerations such as access to information, the private copying exception is merely justified by reasons of practicability.”).

73 See Geiger & Schönheer, *supra* note 72, at 473.

74 See WIPO International Survey, *supra* note 72, at 3–4 (noting that within the European Union, Cyprus, Ireland, Luxembourg, and Malta have no private copying exception).

75 See *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 456 (1984).

76 See *BMG Music v. Gonzalez*, 430 F.3d 888, 890–91 (7th Cir. 2005); *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1015 (9th Cir. 2001); see also *Sega Enters. Ltd. v.*

reason.⁷⁷ Moreover, there is some evidence that institutional actors do not consider existing fair use law to be a meaningful shield. Many museums offering copyst programs carve out any item to which they do not control the copyright, including any outside the permanent collection.⁷⁸ If fair use reliably excused such handmade repainting, such exclusions would not be necessary.

Part of the hesitance to embrace a full-throated educational-use exception may be some justifiable concern that such learning-by-doing arguments go too far. Maybe copying can indeed help one create something new. But, after all, so can virtually any human activity. Serendipity is a major contributor to innovation,⁷⁹ yet who would argue in favor of free access to *any* product or service that might play a role in serendipitous discovery? Jane Ginsburg has noted that the inputs into a prospective author's creation process are myriad; one might just as well be inspired by drinking cups of coffee as by copying works of authorship.⁸⁰ Once one starts arguing that potential inputs should be free simply because they are potential inputs, it is hard to find a natural stopping point.

Focusing on the process of copying, however, provides one. Not every act of reproduction need be exempted. Policymakers could distinguish between retracing an author's steps by hand and digitally duplicating the end product. Hands-on copy processes tend to reveal more about inner workings of the copied content than does automated replication on a computer.⁸¹ A country like Italy, which already makes such distinctions based expressly on the cost-ratio grounds discussed in the previous Section,⁸² has even more reason to do so than it acknowledges. Copying that is harder to accomplish

MAPHIA, 857 F. Supp. 679, 687 (N.D. Cal. 1994) (downloading free video games counts as commercial).

77 See Fishman, *supra* note 3, at 914–15.

78 See, e.g., *FAQ*, BROOKLYN MUSEUM, <https://www.brooklynmuseum.org/about/faq/> (last visited Oct. 6, 2017) (“Copying is restricted to works in the permanent collections”); *Tips for Visiting the Frye*, FRYE ART MUSEUM, fryemuseum.org/tips/ (last visited Oct. 6, 2017) (“It is prohibited to copy works of art on loan to the Frye Art Museum and works of art restricted by copyright.”); *Visiting FAQ and Announcements*, CLEVELAND MUSEUM OF ART, <http://www.clevelandart.org/visit/visitor-information/visiting-faq-and-announcements> (last visited Oct. 6, 2017) (“It is prohibited to copy works of art on loan to the museum and works of art restricted by copyright.”).

79 See generally Sean B. Seymore, *Serendipity*, 88 N.C. L. REV. 185 (2009).

80 Jane C. Ginsburg, *Fair Use for Free, or Permitted-but-Paid?*, 29 BERKELEY TECH. L.J. 1383, 1390 (2014).

81 Of course, it could also be said that even if employing computerized duplication doesn't teach you much about the content, it might still teach you something about something else—say, computers. Once one begins looking past authorship and considering the full range of activities worth learning how to do, my argument wouldn't seem to reduce much the existing sprawl of the learning-by-doing rationale. But I don't consider it copyright policy's job to optimize every conceivable source of social welfare. As far as copyright is concerned, a focus on authorship remains appropriate.

82 See *supra* Section II.A.

not only poses less risk to the original author upstream but also offers more educational payoff to the copyists downstream.

C. Audience Preferences

Thus far, it might seem as if the next step would be to encourage adoption of more Italy-style private copying regimes. Doing that much would be an improvement. But it would still be short of ideal. The copyist isn't the only one who can benefit from laborious methods of copying. Often enough, audiences do too.

Consumers may value a handmade re-creation differently than a digital duplicate, even if they are facially identical. The remade Ansel Adams photographs, Beyoncé video, and *Raiders* film mentioned in this Part's introductory Section each acquire particular expressive meaning precisely because someone other than the original author used a discernably high level of talent and industriousness to accomplish them. As one reviewer noted in the case of the *Raiders* remake, Spielberg had a valuable resource that his downstream imitators lacked—creative freedom: "If a shot wasn't working, he could change it. If a stunt failed, he could scrap it. By contrast, [the recreated film] was manacled to Spielberg's caprice. . . . Mimicry can be even harder than the original."⁸³

In one sense, the notion that audiences would celebrate the skill necessary to achieve verisimilitude is nothing new. Viewers have long delighted at the display of artistic skill, and certain acts of faithful replication can be distinctively skillful. In the sixteenth century, the Duke of Mantua was actually pleased to discover that his putative Raphael painting had been a forgery because, as one of his contemporaries recounts the story, he valued it "even more, for it is something out of the course of nature that a man of excellence should imitate the manner of another so well, and should make a copy so like."⁸⁴ In recent years, this phenomenon has been captured by the lab experiments of George Newman and Paul Bloom, who found that participants tended to rate an original artwork and an identical copy equally valuable when they were told that a low amount of effort was required to create the original but a high amount of effort was required to duplicate it.⁸⁵ Those results make sense if one thinks about images or film the same way one thinks about the performing arts: endpoints of a dynamic process rather than a static product.⁸⁶ When audiences are given information about a piece of art's history of production, they receive it as performance.

83 Nicholson, *supra* note 44.

84 5 GIORGIO VASARI, LIVES OF THE MOST EMINENT PAINTERS SCULPTORS AND ARCHITECTS 108–09 (Gaston du C. De Vere trans., Philip Lee Warner 1913) (1550).

85 See George E. Newman & Paul Bloom, *Art and Authenticity: The Importance of Originals in Judgments of Value*, 141 J. EXPERIMENTAL PSYCHOL.: GEN. 558, 564–65 (2012).

86 See Denis Dutton, *Artistic Crimes*, 19 BRIT. J. AESTHETICS 302, 305 (1979) ("If we see an actor or a dancer or a violinist at work, we are constantly conscious of human agency. Less immediately apparent is the element of performance in a painting Yet we are in such cases no less confronted with the results of human agency.").

In another sense, however, there is something distinctly modern about valuing the presence of human labor in production processes. Walter Benjamin famously wrote that as images would become more mechanically reproducible, their “aura” of authenticity would dissipate.⁸⁷ As the line between original and copy blurred, he thought, all copies would be equal. Yet Benjamin missed the full implications of his foundational insight. As mechanically reproduced copies proliferate, auras don’t necessarily disappear. They relocate. Today, any *nonmechanically* reproduced copies can acquire an aura all their own.⁸⁸ As one recent essay argued:

No matter how mechanical a reproduction is, once there is no huge gap in the process of production between version *n* and version *n + 1*, the clear-cut distinction between the original and its reproduction becomes less crucial—and the aura begins to hesitate and is uncertain where it should land.⁸⁹

If all of this talk of aesthetics and aura seems a bit too metaphysical, think of Etsy. Think of the Arts and Crafts movement a century ago, the “maker” movement today, and the continuing growth of DIY culture.⁹⁰ Their premise is that the direct involvement of de-industrialized, individualized labor in making reproductions—of furniture, of clothing, of jewelry, or of just about anything else—enhances those reproductions’ value, whether measured in economic or cultural terms. Indeed, a 2015 marketing study found that consumers tend to perceive handmade objects as being more valuable than machine-made ones, even when holding functional quality constant and even when the producer remains anonymous.⁹¹ If you’ve ever paid more for a handmade object, you’ve already internalized this lesson.

And so it is for expressive works. What is true for everyday items can be true of cultural artifacts. Copyright theory treats reproductions as substitutes, but substitutability may depend on process as much as on product. Audi-

87 Walter Benjamin, *The Work of Art in the Age of Mechanical Reproduction*, in ILLUMINATIONS 217 (Hannah Arendt ed., Harry Zohn trans., Schocken Books 1968) (1935).

88 See WINNIE WON YIN WONG, VAN GOGH ON DEMAND: CHINA AND THE READYMADE 16 (2013) (“In the culture of the ubiquitous copy . . . it is the *manual* technology of reproduction—that is, hand-copied painting—that has been reinvested with a certain, though now paradoxical, authenticity.”).

89 Bruno Latour & Adam Lowe, *The Migration of the Aura or How to Explore the Original Through Its Fac Similes*, in SWITCHING CODES: THINKING THROUGH DIGITAL TECHNOLOGY IN THE HUMANITIES AND THE ARTS 275, 283 (Thomas Bartscherer & Roderick Coover eds., 2011); see also Daniel Zalewski, *The Factory of Fakes*, NEW YORKER (Nov. 28, 2016), <http://www.newyorker.com/magazine/2016/11/28/the-factory-of-fakes>.

90 See, e.g., Michele Krugh, *Joy in Labour: The Politicization of Craft from the Arts and Crafts Movement to Etsy*, 44 CANADIAN REV. AM. STUD. 281, 282 (2014) (noting that craft advocates’ “focus on ‘hand making’ is used to make explicit the difference between the labour involved in individually producing objects and that involved in the context of the division of labour for mass producing objects”); James Fallows, *Why the Maker Movement Matters: Part I, the Tools Revolution*, ATLANTIC (June 5, 2016), <https://www.theatlantic.com/business/archive/2016/06/why-the-maker-movement-matters-part-1-the-tools-revolution/485720/>.

91 See Christoph Fuchs et al., *The Handmade Effect: What’s Love Got to Do with It?*, 79 J. MKTG. 98, 107 (2015).

ences can perceive a second comer's re-creation of an existing work as a complement in a way that they would never perceive a mechanical duplicate.⁹² To burden the production of such re-creations is not to stem the flow of identical goods, as the standard theory would suggest, but to inhibit the development of qualitatively distinct goods.

Some second-comers who elect a more difficult means of copying may be trying to tap into that demand. For others, market demand can be secondary. The same scarcity of human labor that drives audience reactions might also drive a copyist's communicative goals in the first instance. It is one reason why, for example, some filmmakers prefer to use analogue rather than digital media to record photographs and motion pictures.⁹³ As one of those filmmakers tells it, today's Michelangelos thinking through how to make the next sculpture of David have two choices: "I can scan David's body and print out the perfect proportions on a 3-D printer, or I can start from a block of marble and chip away. The process is different and I have to be more creative with marble to achieve a result that becomes a masterpiece."⁹⁴

Here lie the limits of quarantining re-creations within a private-copying regime. Private copying has no audience. If legal tolerance for such copying exists only within an exemption for private activity, consumer interests are never addressed. A private-copying exception would not help many of the artists discussed in this Article, like the one who jigsawed those 1000 shards of vinyl records together to recreate a protected image,⁹⁵ or the ones who create three-dimensional scale models of famous photographs.⁹⁶ The minute those reproductions are publicly displayed, they are no longer private.

For audiences to benefit from hands-on re-creations, copyists will thus need a different path to permissibility. Of course, there is always direct licensing with the copyright owner. But I am skeptical that the market is going to solve the clearance problem on its own. All of the uses discussed here are by definition hard to do. The standard economic case for copyright depends on copying being meaningfully cheaper than original creation. When that condition is absent, it seems backwards to require the copyist to incur additional license fees and potential transaction costs. Many re-cre-

92 Cf. *Kwikset Corp. v. Sup. Ct.*, 246 P.3d 877, 889 (Cal. 2011) (noting that "[t]o some consumers, processes . . . matter," and offering examples of conflict-free diamonds and union-made goods); Douglas A. Kysar, *Preferences for Processes: The Process/Product Distinction and the Regulation of Consumer Choice*, 118 HARV. L. REV. 526, 532 (2004) ("[C]onsumer products—even when physically indistinguishable—are not perfect substitutes to the extent that they are produced using different processes about which consumers have strong feelings.").

93 See DAVID SAX, *THE REVENGE OF ANALOG: REAL THINGS AND WHY THEY MATTER* 62 (2016) ("Film was a choice, and those who chose to use it . . . did so because they loved something about the analog process and the look it produced. Film photographers wanted a more hands-on relationship with their material.").

94 *Id.* at 63.

95 See *supra* note 43 and accompanying text.

96 See *supra* note 46 and accompanying text.

ations would not get made. The upshot would be foregone re-creations without much social payoff.

The next Part concludes the analysis by examining how such a path can be found within current law.

III. IMPLEMENTING A PROCESS-SENSITIVE INFRINGEMENT TEST

In previous work, I have argued that the fair use doctrine enables U.S. courts to discriminate between copy processes.⁹⁷ When the defendant's particular method of copying offers social benefits, a judge could weigh that factor in its fair use analysis much the same way as judges already weigh the social benefits of particular end products. Still unanswered, however, is a fundamental question: Is such sensitivity to process achievable within the broader system of international copyright law, which constrains both the United States as well as the vast majority of other countries?

The answer is yes. The argument may seem an uphill climb given Berne's "in any manner" language in the definition of the reproduction right.⁹⁸ To suggest that not all methods of reproduction cash out the same way in the final analysis appears to flout that requirement. Were the thought not so far-fetched, I might here weigh the possibility that Berne could be amended.⁹⁹

Yet such an amendment, however helpful in clarifying matters, should not be strictly necessary. Berne itself provides sufficient flexibility as is—one simply needs to look for it. The key is Article 9(2), commonly known as the "Three-Step Test." That provision allows member states to permit otherwise-infringing reproductions "[1] in certain special cases, provided that such reproduction [2] does not conflict with a normal exploitation of the work and [3] does not unreasonably prejudice the legitimate interests of the author."¹⁰⁰ Member states agreed to add this provision in 1971 as part of a broad compromise over the inclusion of a reproduction right within Berne's requirements.¹⁰¹ The Three-Step Test both gives and takes away: it grants states leeway to limit the scope of the reproduction right while simultaneously limiting the scope of those limitations. Since its addition to Berne, it has become a ubiquitous ingredient in international copyright lawmaking, incorporated into the TRIPS Agreement,¹⁰² the World Intellectual Property

97 See Fishman, *supra* note 3, at 906.

98 Berne Convention, *supra* note 4, art. 9(1).

99 See *id.* art. 9(2).

100 *Id.* (bracketed numbers added).

101 See MARTIN SENFLEBEN, COPYRIGHT, LIMITATIONS AND THE THREE-STEP TEST 47 (2004) ("The feasibility of the plan to attain the formal recognition of a general right of reproduction . . . depended on whether or not the Conference would succeed in finding a satisfactory formula for permissible limitations.").

102 See TRIPS Agreement, *supra* note 2, art. 13.

Organization Copyright Treaty (“WIPO Copyright Treaty”),¹⁰³ and various other copyright-related multilateral accords.¹⁰⁴

Enough has been written on this provision to fill a small library, and readers within the field may be understandably fatigued to find its invocation here yet again. My argument is in one sense radical but in another—and perhaps less obvious—sense quite banal. Since I presume that readers haven’t read this far in search of banality, I’ll start with the former. The test has historically been used to authorize leniency toward certain purposes, actors, or resulting products—not toward methods. The critique practically writes itself. Surely the category of “normal exploitation” within the test’s second step should include making permanent, near-exact, and public-facing copies. Moreover, how could the means of copying affect the “legitima[cy]” of the owner’s interests under the third step, given the expansive grant of the exclusive right to reproduce by “any manner” in the first instance?¹⁰⁵

All of this is to say that the categories of “normal” and “legitimate” must emerge from some normative theory.¹⁰⁶ Some may balk at a set of first principles that envisions copyright selecting not only among types of copies but also among types of copying. That move appears to distort the law’s historical form. No less an authority than William Blackstone once wrote that copyright infringement occurs “whatever method be taken of exhibiting . . . [the owner’s] composition to the ear or the eye of another, by recital, by writing, or by printing, in any number of copies, or at any period of time,” simply because “it is always the identical work of the author which is so exhibited.”¹⁰⁷ That doctrinal agnosticism regarding a defendant’s methods would seem to fix courts’ focus squarely on end products.

The reality, however, is more complicated. Copyright’s traditional form is already sensitive to the defendant’s process, just in a way that we tend to take for granted. Unlike its patent law cousin, copyright has in fact never

103 See World Intellectual Property Organization Copyright Treaty art. 10, Dec. 20, 1996, 2186 U.N.T.S. 202 [hereinafter WIPO Copyright Treaty].

104 See, e.g., Beijing Treaty on Audiovisual Performances art. 13(2), June 24, 2012, 51 I.L.M. 1214; see also DANIEL J. GERVAIS, (RE)STRUCTURING COPYRIGHT: A COMPREHENSIVE PATH TO INTERNATIONAL COPYRIGHT REFORM 62 (2017) (observing that, since its inclusion in the TRIPS Agreement, the Three-Step Test has become “the cornerstone for almost all limitations and exceptions to all intellectual property rights in international law”).

105 See Berne Convention, *supra* note 4, arts. 9(1), 9(2).

106 See Report of the Panel, *United States—Section 110(5) of the US Copyright Act*, WTO Doc. WT/DS160/R (June 15, 2000) (concluding that the term “legitimate” within the TRIPS Agreement’s version of the test covered both “lawfulness from a legal positivist perspective” as well as “legitimacy from a more normative perspective”); GOLDSTEIN & HUGENHOLTZ, *supra* note 26, at 378 (“The words ‘legitimate’ and ‘reasonable’ in the third step presumably inject normative meaning into the three-step test and, arguably, admit a variety of public interests into the three-step equation.”).

107 2 WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 305 (U. Chi. Press 1979) (1766).

concerned itself solely with end products.¹⁰⁸ From its earliest years, copyright has distinguished between acts of copying and acts of independent creation.¹⁰⁹ To find infringement, one must ask more than just whether the defendant's copy is too similar. One must also inquire into what the defendant did: copy, or come up with a similar work on her own? Copyright, in other words, is and always has been willing to find some practices honest and others dishonest—even holding end products constant.

Once the law opens the door to sorting good processes (such as creation) from bad ones (such as copying), it is a natural extension to subdivide the categories one step further by asking what *means* of copying the defendant employed. Indeed, some official commentary on Article 9(2) practically invites such divisions. The official guide to the Convention published by WIPO explains that what counts as reasonable under the test's third step may change along with "arrival of new copying techniques" that increase the economic impact of a given copy.¹¹⁰ It is always these newer—that is, cheaper—techniques that cause the trouble. The growing ubiquity of temporary digital reproductions stored within computer memory became a flashpoint during negotiations of the 1996 WIPO Copyright Treaty, ultimately preventing any definitive statement from appearing in the main body text.¹¹¹ In 2001, the E.U. Information Society Directive highlighted the "increased economic impact" that copyright exceptions and limitations may have in the digital environment, noting that "the scope of certain exceptions or limitations may have to be even more limited when it comes to certain new uses of copyright works and other subject-matter."¹¹² As one leading commentator on the Three-Step Test has explained, "[d]igital technology . . . alters copyright's balance because an improvement of copying techniques enhances the possibilities of taking advantage of exempted uses."¹¹³

108 Because patent law lacks an independent invention defense, infringement can be found based entirely on the resemblance between the plaintiff's and defendant's products. *See, e.g., Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1351 (Fed. Cir. 2002).

109 3 WILLIAM F. PATRY, PATRY ON COPYRIGHT § 9:32 n.1 (2017) (discussing *Roworth v. Wilkes* [1807] 170 Eng. Rep. 889, 890 (K.B.)).

110 WIPO Guide, *supra* note 30, at 56.

111 Instead, the contracting parties confined their interpretation of existing law to an agreed statement. *See* World Intellectual Property Organization [WIPO], *Diplomatic Conference on Certain Copyright and Neighboring Rights Questions: Agreed Statements Concerning the WIPO Copyright Treaty*, WIPO Doc. CRNR/DC/96 (Dec. 23, 1996) ("The reproduction right, as set out in Article 9 of the Berne Convention, and the exceptions permitted thereunder, fully apply in the digital environment, in particular to the use of works in digital form."). For more on the divisive negotiations, see Pamela Samuelson, *The U.S. Digital Agenda at WIPO*, 37 VA. J. INT'L L. 369, 382–92 (1997).

112 Information Society Directive, *supra* note 31, recital 44.

113 SENFTLEBEN, *supra* note 101, at 35 (footnote omitted); *see also* Guido Westkamp, *The "Three-Step Test" and Copyright Limitations in Europe: European Copyright Law Between Approximation and National Decision Making*, 56 J. COPYRIGHT SOC'Y U.S.A. 1, 5 (2008) (noting that the test was a reaction to advancing "reprographic technology" and was meant to "prevent the eradication of existing markets").

These regular consternations over digital advances underscore a basic truth: copyright policy has always been sensitive to process. Its modern development at the international level has actually been chock-full of it. We are less inclined to think about laborious processes only because our law has usually been a one-way ratchet. Lawmakers have been preoccupied with the easiest way. And as the easiest gets even easier over time, more red flags go up around uses that might have once seemed insignificant but could now quickly balloon to industrial scale.

But if copyright is able to grow more restrictive in order to address easy copying, it should equally be able to shrink those same restrictions in order to address difficult copying. However novel the proposal, tailoring liability around the means of copying actually fits comfortably within the text of Article 9(2).¹¹⁴ The “normal exploitation” requirement is meant to track the owner’s actual and reasonably foreseeable markets of significant economic importance.¹¹⁵ Most copyright owners do not expect much competition from copies whose cost of production approaches the cost of making the original. Were it otherwise, the economic protection that copyright exclusivity provides would be unnecessary to begin with. To be sure, there are exceptions, particularly within industries that rely on recreative performances. Mounting a new production of a play, for example, might be an expensive undertaking but is also a core part of the playwright’s expected market. An unlicensed new production of that play may very well fall within the owner’s “normal exploitation” and, therefore, fail the Three-Step Test. But for visual and audiovisual media like photography, painting, sculpture, and film, recreating the work from scratch is not an activity on which owners usually rely for income and should not lie within their control.

A similar analysis applies to the “unreasonable prejudice” of owners’ “legitimate interests” under the third step. Just as in trade secrecy law, there is considerable play in the joints here for individual states to determine what ought to constitute honest copying practices.¹¹⁶ As a general matter, this

114 There is a debate whether the three steps ought to be analyzed sequentially or holistically, a question on which I remain agnostic here. Whether much rides on the difference, in any event, is questionable. See Justin Hughes, *Fair Use and Its Politics—At Home and Abroad*, in COPYRIGHT LAW IN AN AGE OF EXCEPTIONS AND LIMITATIONS 234, 242 (Ruth L. Okediji ed., 2017) (“No matter how much prose a tribunal throws into keeping the second and third steps analytically distinct, for practical purposes the second and third steps will always (or almost always) overlap.”).

115 See, e.g., Report of the Panel, *supra* note 106, ¶ 6.180; RICKETSON, *supra* note 26, at 483 (“[T]he expression ‘normal exploitation of a work’ refers simply to the ways in which an author might reasonably be expected to exploit his work in the normal course of events. . . . [T]he determination of what is a normal exploitation will depend upon the kind of work in question.”); SENFTLEBEN, *supra* note 101, at 193 (arguing that normal exploitation is prejudiced only where “the authors are deprived of an actual or potential market of considerable economic or practical importance”).

116 See RICKETSON, *supra* note 26, at 484 (commenting that “a flexible standard of reasonableness to be ultimately determined by each national law appears as good a way as any” to determine which prejudices are reasonable and which are not).

step calls for a proportionality inquiry, balancing the magnitude of the owner's likely loss against the magnitude of others' likely gains.¹¹⁷ The defendant's method of copying can easily affect that balance. As the previous Part argued, recreating a work by hand rather than digitally duplicating it can reduce owners' private costs while increasing both the copyist's and audiences' benefits. A given copy could fail the test if generated through one process of copying while passing it generated through another.

Finally, an open-ended process filter can be confined to "certain special cases" as the first step of the test requires. This clause does not demand a catalogue of every specific instance to be excepted. Instead, it requires only that the general scope of any exception be known and particularized, including through judicial interpretation.¹¹⁸ Justin Hughes has recently characterized fair use as a Berne-compliant framework for judges to determine specific exceptions, rather than a list of those exceptions themselves.¹¹⁹ Giving states the leeway to consider process in their application of the Three-Step Test, without specifying how that application should cash out in specific cases, could function in much the same way. Moreover, factor-based standards percolate through caselaw over time, eventually developing more certain boundaries as patterns emerge.¹²⁰ As others have recognized, Article 10.2's requirement of "certain special cases" can accommodate dynamic systems that gradually move from the abstract to the particular.¹²¹ Existing fair use doctrine is one such system. Process sensitivity would be another.

On this score, trade secrecy's history of developing the concept of "honest commercial practices" provides a good model for copyright. It might not

117 See SENFTLEBEN, *supra* note 101, at 211 ("[T]he detriment to the authors must be reasonably related to the benefit of the users. In other words, it must be proportionate. The open terms 'interest', 'legitimate', and 'unreasonable' all point in this direction." (footnote omitted)); Christophe Geiger et al., *The Three-Step Test Revisited: How to Use the Test's Flexibility in National Copyright Law*, 29 AM. U. INT'L L. REV. 581, 595 (2014) (describing the "several filters" present in this step, whereby "the legitimacy of the interests invoked by the authors and right holders are to be weighed against the reasons justifying the use privilege").

118 See Report of the Panel, *supra* note 106, ¶ 6.108 ("[T]here is no need to identify explicitly each and every possible situation to which the exception could apply, provided that the scope of the exception is known and particularised. This guarantees a sufficient degree of legal certainty.").

119 See Hughes, *supra* note 114, at 251–56.

120 See, e.g., Pamela Samuelson, *Unbundling Fair Uses*, 77 FORDHAM L. REV. 2537, 2541 (2009) (examining hundreds of fair use cases and finding that "fair use law is both more coherent and more predictable than many commentators have perceived once one recognizes that fair use cases tend to fall into common patterns"). Samuelson further notes that identifying such patterns "makes it easier to argue that fair use accommodates a number of 'certain special cases.'" *Id.* at 2543–44 n.38.

121 See, e.g., Geiger et al., *supra* note 117, at 614 ("[O]pen factors such as those in the U.S. fair use doctrine allow courts to determine 'certain special cases' of permissible unauthorized use in the light of the individual circumstances of a given case, just as must occur to some degree in closed list systems. With every court decision, a further 'special case' becomes known, particularized and thus 'certain' in the sense of the three-step test.").

have been clear in the doctrine's primordial days that, say, reverse engineering would be a proper means of acquisition. But as courts confronted similar facts multiple times, that proposition came to be widely recognized nationally and, eventually, internationally. An honest copying practices exemption within copyright could follow a similar trajectory.

Overall, there is no reason to treat a flexible process-based exemption any differently than the flexible product- or purpose-based ones that exist under current fair use systems. I realize that, to some commentators, comparisons to U.S. fair use is a kiss of death. Despite fair use law's defenders, there is doubt in some corners whether it complies with the Three-Step Test to begin with.¹²² If you already share that doubt, nothing I have said in this Article is likely to change your mind.¹²³ But for everyone else who is not ready to abandon fair use in the name of Berne, my argument is that sensitivity to process should not be abandoned either.

CONCLUSION

Copyright law would better serve the public interest if it became more sensitive to the diversity of processes through which copies are made. Standard copyright models assume cheap copying. Those stereotypically cheap processes deserve to remain within the owner's control, exactly as they are now, unless there is another good reason to exempt them. But laborious recreation methods yield entirely different welfare effects that the standard models fail to capture. They often pose less risk, offer more spillovers in teaching the technical skills of authorship, and offer a materially different product to audiences. These differences are obscured when infringement liability treats all means of copying as equals. A copyright system that could distinguish between these different methods could produce more desirable outcomes.

A comparative look at different jurisdictions' copyright systems reveals that this recognition is often bubbling close to the surface. Nevertheless, none of these systems has acknowledged the full policy significance of copying methods. As a result, a distinction between methods tends to be applied, if at all, only in limited areas such as private copying exceptions. But the payoff is more generalizable than has typically been recognized.

Trade secrecy learned this lesson long ago. It does not merely gesture at the differences between copying methods, as copyright does, but rather makes those differences a key to liability. Copyright lawmakers should start paying attention. Adopting an honest copying practices limitation would be both wise as a normative matter and compatible with international copyright

122 See, e.g., Herman Cohen Jehoram, *Restrictions on Copyright and Their Abuse*, 27 EUR. INTELL. PROP. REV. 359 (2005).

123 That attempt has already been ably made by Geiger et al., *supra* note 117, and by Hughes, *supra* note 114.

law as a descriptive matter. While trade secrecy doesn't get much airtime in copyright policy discussions, on this issue it deserves more of it. Sensitivity to defendants' various processes is a practice worth copying.