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Fair Use in the Digital Age

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Michael Stern, PhD

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Abstract: Copyright provides broad protection for artists and creators, but these rights are not without limit. In the United States, for instance, the U.S. Copyright Act permits the “fair use” of copyrighted works without infringing under certain circumstances. Other nations overwhelmingly employ the comparable concept of “fair dealing.” Drawing the line between fair use and infringement has proven tricky for the courts, and technology hasn’t made their task any easier. In an effort to help guide both reviews of copyright law abroad and the judicial consideration of fair use disputes, we construct an economic model to derive an optimal level of fair use (or fair dealing). This model is rooted in the purpose of copyright and informed by judicial precedent. Among other things, we find that optimal fair use should be stricter when: (1) the cost of the original work is high; (2) the size of the market for the original work is small; (3) piracy and other forms of leakages, which simply reduce the market potential for the original work, are large; (4) the cost of distributing secondary works is lower; (5) small amounts of transformation matter a lot to consumers; and (6) the fixed cost of producing secondary works are smaller. These findings suggest legislatures and courts should adopt a stricter interpretation of fair use in the Digital Age.

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I. Introduction

Copyright provides broad protection for artists and creators, but these rights are not without exceptions and limitations. In the United States, for instance, Section 102(b) of the U.S. Copyright Act permits the extraction of acts and ideas from copyrighted works without infringing.¹ Also, the “fair use” provisions contained in Section 107 of the U.S. Copyright Act permit the appropriation of copyrighted material to create secondary works of public and constitutional importance in the arenas of free speech, scholarship and research.² The copyright laws of other nations include similar exclusions and limitations, often substituting the comparable concept of “fair dealing” for “fair use.”³ Drawing

¹ 17 U.S.C. § 112(b) (available at: <https://www.law.cornell.edu/uscode/text/17/112>).

² 17 U.S.C. § 107 (available at: <https://www.law.cornell.edu/uscode/text/17/107>); *Campbell v. Acuff-Rose Music*, 510 U.S. 569, 579 (“the goal of copyright, to promote science and the arts, is generally furthered by the creation of transformative works. Such works thus lie at the heart of the fair use doctrine’s guarantee of breathing space within the confines of copyright...”); see also T.F. Cotter, *Fair Use and Copyright Overenforcement*, 93 IOWA LAW REVIEW 1271-1318 (2008).

³ See, e.g., G. D’Agostino, *Healing Fair Dealing? A Comparative Copyright Analysis of Canada’s Fair Dealing to U.K. Fair Dealing and U.S. Fair Use*, 56 MCGILL LAW JOURNAL 309, 356 (2008) (“while Canada and the United Kingdom appear to have a rigid ‘fair dealing’ framework, and the United States appears to have a more flexible structure in fair use, the legal outcomes in the three

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the line between fair use (or fair dealing) and infringement has proven tricky for the courts, and technology hasn't made its task any easier. Technological advancements have contributed greatly to the evolution of copyright's exceptions and limitations, and the copyright laws have "been amended repeatedly ... in response to significant changes in technology."⁴

Continued technological change has governments across the globe contemplating copyright reforms, including modifications to fair use.⁵ Digitization has made the copying, modifying, and distributing of copyrighted content essentially costless, leading to rampant digital piracy, and weakening the protections offered artists and authors under copyright law.⁶ At the same time,

jurisdictions have been for the most part similar") (available at: iposgoode.ca/wp-content/uploads/2008/11/g-dagostino-healing-fair-dealing-mcgill-lj-2008.pdf); J. Band and J. Gerafi, *THE FAIR USE/FAIR DEALING HANDBOOK* (March 2013) (available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2333863); G.W. Austin, *The Two Faces of Fair Use*, 25 *NEW ZEALAND UNIVERSITIES LAW REVIEW* 285-317 (2012) (available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2192277).

⁴ *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

⁵ *See, e.g.*, DIRECTIVE 2001/29/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, ON THE HARMONISATION OF CERTAIN ASPECTS OF COPYRIGHT AND RELATED RIGHTS IN THE INFORMATION SOCIETY (May 22, 2001) (available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:167:0010:0019:EN:PDF>); Copyright and the Digital Economy, AUSTRALIAN LAW REFORM COMMISSION REPORT 122 (February 13, 2015) (available at: <https://www.alrc.gov.au/publications/copyright-report-122>); C. Craig, *The Changing Face of Fair Dealing in Canadian Copyright Law: A Proposal for Legislative Reform*, in *THE PUBLIC INTEREST: THE FUTURE OF CANADIAN COPYRIGHT LAW* (2005) (available at: http://digitalcommons.osgoode.yorku.ca/cgi/viewcontent.cgi?article=1075&context=scholarly_works); A. Sims, *The Case for Fair Use in New Zealand*, 24 *INTERNATIONAL JOURNAL OF LAW AND INFORMATION TECHNOLOGY* 176 (2016); P.S. Menell, *This American Copyright Life: Reflections on Re-Equilibrating Copyright for the Internet Age*, 61 *JOURNAL OF THE COPYRIGHT SOCIETY OF THE USA* 235, 291-98 (2014).

⁶ The impact is seen clearly in the music industry where global sales have fallen from about \$21 billion in 1999 – near the beginning of high-speed Internet services – to about \$7 billion in 2015. The industry struggles to keep up with piracy – nearly any recorded song can be downloaded from YouTube at no cost with the smallest of effort and technical skill. Research also suggests that sales in the movie and book industries are negatively affected by digital piracy. *See, e.g.*, L. Ma, A. Montgomery, P. Singh, and M. Smith, *An Empirical Analysis of the Impact of Pre-Release Movie Piracy on Box-Office Revenue* (July 8, 2014) (hereinafter "*Carnegie Mellon Study*") (available at: <http://ssrn.com/abstract=1782924>) and forthcoming in *INFORMATION SYSTEMS RESEARCH*; Rob, R., J. Waldfogel, *Piracy on the Silver Screen*, 55 *JOURNAL OF INDUSTRIAL ECONOMICS*, 379-393 (2007); A.S. De Vany and W. Walls, *Estimating the Effects of Movie Piracy on Box Office Revenue*, 30 *REVIEW OF INDUSTRIAL ORGANIZATION* 291-301 (2007); D. Bounie, M. Bourreau, and P. Waelbroeck, *Piracy and Demands for Films: Analysis of Piracy Behavior in French Universities*, 3 *REVIEW OF ECONOMIC RESEARCH*

(Footnote Continued. . . .)

the ease with which original works can now be used as inputs for secondary works of types unimaginable even recently – including mashups, remixes, search engines, or digital archiving – has led to questions about the proper scope of fair use in the digital world.⁷ Policymakers are now simultaneously fielding proposals to strengthen copyright and its enforcement as well as confronting efforts to expand the applicability of “fair” exceptions to infringement.

For the purpose of guiding both copyright reform and the judicial consideration of fair use disputes, in this POLICY PAPER we offer an economic model of fair use (which applies with equal measure to the related concept of fair dealing, though we use the term fair use for expositional purposes). While there are some prior theoretical works on fair use, including important research papers by Misceli and Adelstein (2003), Brennan (2005), Yoon (2008), and Cotter (2008), our analysis has a different focus than these earlier works.⁸ Our analysis addresses the welfare-maximizing social planner’s choice of the optimal scope of fair use, where the scope of fair use is rooted in the goals of copyright and interpreted “spatially” in terms of the *transformativeness* of the secondary work. In this way, our approach is closely tied to modern fair use scholarship and judicial reasoning, at least in the United States.⁹ We also seek to make the

ON COPYRIGHT ISSUES 15-27 (2006); D. Glenn, *Dispute Over File Sharing’s Harm to Music Sales Plays Again*, CHRONICLE OF HIGHER EDUCATION (June 17, 2010) (available at: <http://chronicle.com/blogs/wiredcampus/dispute-over-file-sharing-harm-to-music-sales-plays-again/24881>).

⁷ See, e.g., the spirited arguments in L. Lessig, REMIX: MAKING ART AND COMMERCE THRIVE IN THE HYBRID ECONOMY (2008) (available at: <https://archive.org/details/LawrenceLessigRemix>).

⁸ T. Miceli and R. Adelstein, *An Economic Model of Fair Use*, 18 INFORMATION ECONOMICS AND POLICY 359-373 (2006) (available at: <https://works.bepress.com/adelstein/23/download>); T.J. Brennan, “Fair Use” as Policy Instrument, in DEVELOPMENTS IN THE ECONOMICS OF COPYRIGHT (L.N. Takeyama, W.J. Gordon, and R. Towse, eds.) (2005), pp. 80-100 (draft version available at: <http://www.serci.org/2003/brennan.pdf>); K. Yoon, *An Economic Model of Fair Use: Comment*, 20 INFORMATION ECONOMICS AND POLICY 67-74 (2008) (available at: <http://econ.korea.ac.kr/~kiho/works/fuP.pdf>); Cotter, *supra* n. 2.

⁹ C.f., P.N. Leval, *Toward a Fair Use Standard*, 103 HARVARD LAW REVIEW 1105-1136 (1990) (available at: <http://www.yalelawtech.org/wp-content/uploads/leval.pdf>); P.N. Leval, *Campbell as Fair Use Blueprint*, 90 WASHINGTON LAW REVIEW 597, 614 (2015) (available at: <http://digital.law.washington.edu/dspace-law/bitstream/handle/1773.1/1458/90WLR0597.pdf>); M.D. Murray, *What is Transformative? An Explanatory Synthesis of the Convergence of Transformation and Predominant Purpose in Copyright Fair Use Law*, 11 CHICAGO-KENT JOURNAL OF INTELLECTUAL PROPERTY 260 (2012) (available at: <http://scholarship.kentlaw.iit.edu/ckjip/vol11/iss2/8>); M. Sag, *Predicting Fair Use*, 73 OHIO STATE LAW JOURNAL 47-91 (2012) (available at: <http://lawecommons.luc.edu/facpubs/180>); P. Samuelson, *Unbundling Fair Uses*, 77 FORDHAM LAW REVIEW 2537-2621 (2009) (available at: <http://fordhamlawreview.org/issues/unbundling-fair->

(Footnote Continued. . .)

analysis relevant for modern times by establishing the relationship between the proper scope of fair use and digital piracy (and other leakages such as the expense of rights enforcement) and other features of the digital age.

Beginning with Hotelling's (1929) now-standard, spatial economic model of product differentiation and modifying it in ways that account for technological changes in the copyright industries, we derive the optimal level of fair use from the social planner's perspective.¹⁰ As copyright law aims to provide a sufficient income to authors, artists, and programmers to encourage creation of new works, the social planner's task is to maximize consumer surplus (benefits) subject to the author or artist obtaining a risk-adjusted return on the cost of creation of the original work sufficient to justify its creation. While our framework can easily accommodate extensions, we limit our present analysis to a few key concepts of immediate relevance to the issues at hand. We make no attempt to exhaust the implications and interpretations of our economic analysis, but instead provide sufficient details of the model to invite further research that may shed additional light on this important topic.

We find the following: Optimal fair use is stricter – i.e., the qualifying degree of transformation is greater – when: (1) the cost the original work is high; (2) the size of the market for the original work is small; (3) piracy and other forms of leakages, which simply reduce the market potential for the original work, are large; (4) the cost of distributing secondary works is lower; (5) small amounts of transformation matter a lot to consumers; and (6) the fixed cost of producing secondary works are smaller. We offer recommendations on legislative reform, especially for nations considering more “flexible” fair use policies, and our economic framework permits us to recast the statutory fair use factors in a cohesive, economically-sensible way.

Our conclusions and recommendations are straightforward consequences of the basic economic issue at stake in copyright: it is necessary to motivate the creation of new works by establishing protections sufficient to facilitate the recovery of the opportunity costs of creation. However, the environment in which copyright rules exist is not purely economic, and copyright policy must

[uses](#)); N.W. Netanel, *Making Sense of Fair Use*, 15 LEWIS & CLARK LAW REVIEW 175-771 (2011) (available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1874778).

¹⁰ H. Hotelling, *Stability in Competition*, 39 ECONOMIC JOURNAL 41-57 (1929); S. Martin, *ADVANCED INDUSTRIAL ECONOMICS* (2002), at Ch. 4; A summary of Hotelling's model is provided at: <http://www.policomics.com/hotellings-linear-city>.

conform itself to a host of “fair use” claims that serve commercial and noncommercial purposes. In order to understand these constraints, it is important to understand the legal basis of copyright and fair use, topics briefly reviewed in the next Section.

II. Copyright Law, Jurisprudence, and “Fair” Exceptions

Section 106 of the U.S. Copyright Act, like the laws of many countries, provides broad exclusive rights to authors and artists, including the exclusive right: (1) to reproduce the copyrighted work; (2) to prepare derivative works based upon the copyrighted work; (3) to distribute the copyrighted work to the public; (4) to perform the copyrighted work publicly; (5) to display the copyrighted work publicly; and (6) to perform the copyrighted work publicly by means of a digital audio transmission.¹¹ The purpose of copyright is to encourage the creation of new works, some based on modifications of old ones, by creating a market for creative works, thereby providing artists and authors the opportunity for an income.¹²

These rights are quite broad, but they are not without exceptions and limitations. For instance, the exclusive rights granted in Section 106 are limited by the fair use exception of Section 107 of the Copyright Act.¹³ Fair use permits the appropriation of or from a copyrighted work, without permission or compensation, for purposes of creating a new work that serves some valuable social purpose, included activities such as criticism, commentary, news reporting, teaching (including multiple copies for classroom use), scholarship, and research.¹⁴ In deciding whether an appropriation is fair use or infringement,

¹¹ 17 U.S.C. § 106 (available at: <https://www.law.cornell.edu/uscode/text/17/106>).

¹² *Authors Guild v. Google*, 804 F.3d 202, 223 (2nd Cir. 2015), *cert. denied*, 136 S.Ct. 1658 (2016) (“copyright is a commercial doctrine whose objective is to stimulate creativity among potential authors by enabling them to earn money from their creations”); W. Patry, *HOW TO FIX COPYRIGHT* (2011) (“the assessment [of fair use] is driven by whether the claimed fair use furthers the goals of copyright,” which he takes to be “encouraging the creation of new works or providing new insights into old ones (at pp. 212-213)”) (“It is not copyright for copyright’s sake that matters to authors and artists, but rather a steady income (at p. 27)”).

¹³ *Supra* n. 2.

¹⁴ There is some question whether fair use requires a secondary work at all. For instance, in *Sony*, *supra* n. 4, the U.S. Supreme Court held that time-shifting of copyrighted works for personal viewing was a fair use, though the focus of such uses was very limited. *See* 464 U.S. at 458, n. 2 (“This case involves only the home recording for home use of television programs broadcast free over the airwaves.”)

a court must consider, at a minimum, the following four factors: (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work.¹⁵ The fair dealing exceptions of many nations follow a similar approach.¹⁶

In light of such subjective considerations, fair use is determined, almost by necessity, on a case-by-case basis.¹⁷ Thousands of cases have been resolved using these four factors,¹⁸ and while some scholars believe the fair use defense to be “notoriously uncertain,”¹⁹ there are some regularities in judicial decisions

¹⁵ *Id.*

¹⁶ For example, Australian Copyright Law 248A(1A) includes the following factors for determining whether a recording is fair dealing: (a) the purpose and character of the recording; (b) the nature of the performance; (c) the possibility of obtaining an authorised recording of the performance within a reasonable time at an ordinary commercial price; (d) the effect of the recording upon the potential market for, or the value of, authorised recordings of the performance; (e) if only part of the performance is recorded--the amount and substantiality of the part recorded when compared to the whole performance. See http://www.austlii.edu.au/au/legis/cth/consol_act/ca1968133/s248a.html.

¹⁷ Patry, *supra* n. 12 at p. 215 (“[C]reativity does not come in cookie-cutter forms”); Leval (2015), *supra* n. 9 at p. 606 (“Without doubt, a clear rule is a good thing, at least if it produces good results. But bright-line tests applied to complex circumstances are likely to produce unjustifiable results, which will be even more injurious to creativity than uncertainty.”).

¹⁸ For a listing and summary of fair uses cases, see <http://www.copyright.gov/fair-use/fair-index.html>.

¹⁹ T. Bell, INTELLECTUAL PRIVILEGE: COPYRIGHT, COMMON LAW, AND THE COMMON GOOD (2014) (“Fair use limits copyright’s power. ... Despite that codification, fair use remains a notoriously uncertain defense. We often can only guess whether a given use qualifies as “fair” under section 107; it almost always depends on contestable facts (at p. 27).”); D. Nimmer, *Fairest of Them All” and Other Fairy Tales of Fair Use*, 66 LAW AND CONTEMPORARY PROBLEMS 263-287 (2003) (available at: <http://scholarship.law.duke.edu/lcp/vol66/iss1/10>); J. Gibson, *Once and Future Copyright*, 81 NOTRE DAME LAW REVIEW 167-243 (2005) (“Fair use . . . is too indeterminate a doctrine to provide a reliable touchstone for future conduct (at p. 192).”) (available at: <http://scholarship.law.nd.edu/ndlr/vol81/iss1/4>); L. Lessig, FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND THE LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY (2004); M.J. Madison, *A Pattern-Oriented Approach to Fair Use*, 45 WILLIAM & MARY LAW REVIEW 1525-1690 (2004) (available at: <http://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1333&context=wmlr>); Cotter, *supra* n. 2; see also G.L. Priest and B. Klein, *The Selection of Disputes for Litigation*, 13 JOURNAL OF LEGAL STUDIES 1, 4-6, 17-18 (1984) (available at: <https://www.rand.org/content/dam/rand/pubs/reports/2006/R3032.pdf>), hypothesizing that there is a tendency toward 50% plaintiff victories in cases that make it trial.

regarding fair use.²⁰ Looking for patterns in hundreds of fair use decisions over the period 1976 through 2005, Barton Beebe's empirical approach revealed a number of interesting facts.²¹ Beebe's analysis suggests that the fourth factor is a controlling meta-factor for deciding fair use cases, which certainly makes sense from an economic perspective.²² This finding is consistent with the view of the U.S. Supreme Court, and the views of many observers who have read many fair use decisions, that the fourth factor is "undoubtedly the single most important element of fair use."²³ Reviews of fair use jurisprudence, of which there are many, reveals widely varying decisions implicating the first three factors.²⁴ Defendants sometimes prevail even when they had used entire works for obviously commercial purposes.²⁵ Yet, if the secondary work is found at trial to have had a meaningful impact on the market for the original work (the fourth factor), the defendant rarely, if ever, prevails. Beebe's work found that the defendant prevailed in only one of the 141 decisions in his sample when the fourth factor was determined to favor the plaintiff.²⁶ Of the 116 opinions finding the fourth factor favored the defendant, only 6 did not find fair use.²⁷ A few

²⁰ See, e.g., B. Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions, 1978-2006*, 156 UNIVERSITY OF PENNSYLVANIA LAW REVIEW 549-624 (2009) (available at: <http://www.bartonbeebe.com/documents/Beebe%20-%20Empirical%20Study%20of%20FU%20Opinions.pdf>); Murray, *supra* n. 9; Sag, *supra* n. 9; Samuelson, *supra* n. 9; Netanel, *supra* n. 9.

²¹ Beebe, *id.*

²² *Authors Guild v. Google*, *supra* n. 12, 804 F.3d at 223 ("Campbell stressed the close linkage between the first and fourth factors, in that the more the copying is done to achieve a purpose that differs from the purpose of the original, the less likely it is that the copy will serve as a satisfactory substitute for the original.").

²³ *Harper & Row, Publishers, Inc. v. Nation Enterprises*, 471 U.S. 539, 566 (1985).

²⁴ See, e.g., *supra* n. 18.

²⁵ See, e.g., *Bill Graham Archives v. Dorling Kindersley, Ltd.*, 448 F.3d 605 (2d Cir. 2006) (finding that the use of a copyrighted image was transformatively different from the original expressive purpose); Beebe, *supra* n. 20 at pp. 556, 598, finds that commerciality of the secondary work is addressed in 85% of cases but appears to have no systematic impact on the court's decision.

²⁶ Beebe, *id.* at p. 617; Sag, *supra* n. 9 at p. 32, hypothesizes that the fourth factor is "more conclusory than real."

²⁷ *Id.*

cases have determined that the fourth factor favors fair use because there is not a market for the original good.²⁸

A. *Fair Use as Transformation*

Judge Pierre Leval has contributed much to the evolution of fair use jurisprudence. In an important article from 1990, Leval stressed the importance of “transformation” in deciding fair use cases. On the nature of a transformative work, Leval explains:

The use must be productive and must employ the quoted matter in a different manner or for a different purpose from the original. A quotation of copyrighted material that merely repackages or republishes the original is unlikely to pass the test; in Justice Story’s words, it would merely “supersede the objects” of the original. If, on the other hand, the secondary use adds value to the original—if the quoted matter is used as raw material, transformed in the creation of new information, new aesthetics, new insights and understandings—this is the very type of activity that the fair use doctrine intends to protect for the enrichment of society.²⁹

Since Leval asserts that “[a] secondary use that interferes excessively with an author’s incentives subverts the aims of copyright ...,” it follows that the more transformative is a secondary work, the less it interferes with an author’s incentives to create.³⁰ As the Supreme Court in *Campbell*—relying on Leval—concluded, the

central purpose of this investigation is to see ... whether the new work merely “supersede[s] the objects” of the original creation or instead adds something new, with a further purpose or different

²⁸ See, e.g., *Batesville Services, Inc. v. Funeral Depot, Inc.*, No. 02-01011, 2004 U.S. Dist. LEXIS 24336 (S.D. Indiana 2004), slip op. at 19 (available at: <http://www.internetlibrary.com/pdf/batesville-funeral-depot.pdf>) (“The fourth factor is the effect of the use upon the potential market for or value of the copyrighted work. This factor tends to weigh in favor of the fair use defense because there is no market for the copyrighted work itself. Plaintiffs simply give the photographs to their authorized dealers. There is no secondary or downstream market.”)

²⁹ Leval (1990), *supra* n. 9 at p. 1111 (footnotes omitted).

³⁰ *Id.* at p. 1124.

character, altering the first with new expression, meaning, or message; it asks, in other words, whether and to what extent the new work is “transformative.”³¹ *** [However,] the more transformative the new work, the less will be the significance of other factors....

According to Thomas Murray, reviews of fair use decisions since *Campbell* demonstrate that transformativeness is “the dominant test of fair use and in the observation that a finding of transformation in a copyright fair use claim virtually assures a finding that the use is fair” and that the “transformative test has risen to the top of the agency of the copyright academic community.”³²

In light of *Campbell*, Leval concludes that fair use is determined by answering “two essential and intimately intertwined questions:”³³

1. Does the secondary work copy from the original in pursuit of a different objective – a “transformative” purpose?
2. Does the secondary work compete significantly with the original, by offering itself as a significant substitute in markets that the copyright law reserves to the original author?

As normally applied by the courts, this first question falls under the first factor and the second question under the fourth factor.³⁴ Yet, many scholars believe, and perhaps rightfully so, the first and fourth factors amount to a distinction without a difference. Empirical evidence supports this view. Beebe’s study over hundreds of fair use cases reveals that the first and fourth factor are nearly collinear; the outcome of the first factor agreed with the fourth in 84% of cases and “the outcomes of the first and especially the fourth factors appear to drive the outcome of the [fair use] test.”³⁵ Moreover, in judicial decisions, the “transformativeness” of the secondary work appears to matter mainly in terms of how the transformation moves the secondary work further away from the

³¹ *Campbell v. Acuff-Rose*, *supra* n. 2, 510 U.S. at 579 (citations omitted).

³² Murray, *supra* n. 9 at p. 1

³³ Leval (2015), *supra* n. 9 at p. 604.

³⁴ Judicial treatment of the second and third factors is so irregular as to provide no meaningful guidance.

³⁵ Beebe, *supra* n. 20 at pp. 584, 555.

market for the original work. As such, according to Judge Leval, *Campbell* makes the first factor subservient to the fourth.³⁶

With some caution, Leval's two questions can be sensibly condensed into one: is the work sufficiently transformative that it does not compete in the original's exclusive markets?³⁷ Based on a review of recent case law, Michael Murray describes "transformation" as follows:

The lessons of the transformative test for those engaged in creative, artistic, or literary pursuits may be summed up in the following: if you copy an original work, use it for a different purpose than the purpose for which the original work was created. Modify the contents, function, and meaning of the original work through alteration of the original expression or the addition of significant new expression. Otherwise, you are making an unauthorized exploitation of the creative expression of the work for exactly the same reasons and purposes that the original author or artist created the work, and you are depriving the original author or artist of the derivative works right guaranteed by copyright.³⁸

More bluntly, William Strong, in *THE COPYRIGHT BOOK*, does little injustice to fair use jurisprudence when concluding: "[a] use is most likely to be considered permissible if the resulting work does not poach on the commercial value of the original."³⁹ Or, as the Supreme Court observed in *Sony*,

The purpose of copyright is to create incentives for creative effort. Even copying for noncommercial purposes may impair the copyright holder's ability to obtain the rewards that Congress intended him to have. But a use that has no demonstrable effect upon the potential market for, or the value of, the copyrighted work need not be prohibited in order to protect the author's incentive to create. The prohibition of such noncommercial uses

³⁶ Leval (2015), *supra* n. 9 at p. 605.

³⁷ *Id.* at p. 602.

³⁸ Murray, *supra* n. 9 at p. 262.

³⁹ W.S. Strong, *THE COPYRIGHT BOOK* (2014) at p. 273.

would merely inhibit access to ideas without any countervailing benefit.⁴⁰

In *Sony*, the Supreme Court states plainly that the primary concern when analyzing fair use is whether the secondary work or purpose—commercial or not—interferes with the “rewards” Congress intended authors and artists to have as a result of copyright law.⁴¹ Consistent with this view, our economic analysis is based on a “demonstrable effect upon the potential market” for the original work.

To the economist, this legal concept of “transformativeness” is no different than the economic concept of product differentiation. Dennis Carlton and Jeffrey Perloff note that a firm’s product is differentiated when “consumers view its product as different from those of other firms in the industry” and when “consumers view brands in an industry as imperfect substitutes.”⁴² Oz Shy, in his book *INDUSTRIAL ORGANIZATION*, states that “brands are said to be *highly differentiated* if consumers find the products to be very different, so a change in the price of brand *j* will have a small or negligible effect on the demand for brand *i*.”⁴³ Replacing “highly differentiated” with “highly transformative” does little to alter the meaning. Oz Shy also states, “[w]hen two firms are located too closely, they start undercutting each other’s prices.”⁴⁴ Similarly, the Supreme Court in *Campbell* observes that in regards to the fourth factor “the cognizable harm is market substitution.”⁴⁵ So, products that are highly differentiated are not market substitutes, do not meaningfully compete in the same market, and do not usurp the market for the original.⁴⁶ Thus, it seems natural to employ a model of

⁴⁰ *Sony*, *supra* n. 4, 464 U.S. at 449.

⁴¹ *Campbell v. Acuff-Rose*, *supra* n. 2, makes it clear that the commercial nature of the secondary work is not determinative; *see also Authors Guild v. Google*, *supra* n. 12, 804 F.3d at 219 (“Many of the most universally accepted forms of fair use, such as news reporting and commentary, quotation in historical or analytic books, reviews of books, and performances, as well as parody, are all normally done commercially for profit.”).

⁴² D. Carlton and J. Perloff, *MODERN INDUSTRIAL ORGANIZATION* (2005) at p. 200.

⁴³ O. Shy, *INDUSTRIAL ORGANIZATION: THEORY AND APPLICATIONS* (1995) at p. 136 (emphasis in original).

⁴⁴ *Id.* at p. 152.

⁴⁵ *Campbell v. Acuff-Rose*, *supra* n. 2, 510 U.S. at 570.

⁴⁶ *C.f.*, *Fisher v. Dees*, 794 F.2d 432, 438 (9th Cir. 1986) (“Biting criticism suppresses demand; copyright infringement usurps it. Thus, infringement occurs when a parody supplants the original in markets the original is aimed at, or in which the original is, or has reasonable potential to

(Footnote Continued. . .)

product differentiation to evaluate “transformativeness” in the context of fair use.

B. *The Nature of the Secondary Work*

Product differentiation, like transformation, is a rather general concept; one that we believe requires some qualification. While product differentiation is essentially identical to the concept of transformation, differentiation is also a key factor in assessing common infringement and derivative works (something *Campbell* stresses).⁴⁷ As detailed in William Patry’s *How to Fix Copyright*, the same questions posed by Leval for fair use would apply to any infringement inquiry: “the differences between the basic infringement analysis and fair use analysis, where they exist at all, are a matter of degree and not kind.”⁴⁸ Indeed, as Miceli and Adelstein observe, fair use “defines the threshold between legal copying and infringement.”⁴⁹ It seems to us that before the question of whether there is sufficient transformation to qualify for fair use, there is an initial threshold about the “direction” of the transformation.

Fair use does not cover all secondary uses and purposes. As observed by Matthew Sag, “the assessment of transformativeness is not merely a question of the degree of difference between two works; rather, it requires a judgment of the motivation and meaning of those differences.”⁵⁰ Leval concurs, noting “[i]f a transformative purpose is required for fair use, that does not mean that any sort of transformation qualifies.”⁵¹ Michael Murray is more precise, “[c]opyright law seeks first to promote new, original expression in the arts and literature, and second to allow other public interest activities such as education, research,

become, commercially valuable.”); *Authors Guild v. Google*, *supra* n. 12, 804 F.3rd at 223 (“The fourth fair use factor ... focuses on whether the copy brings to the marketplace a competing substitute for the original, or its derivative, so as to deprive the rights holder of significant revenues because of the likelihood that potential purchasers may opt to acquire the copy in preference to the original.”). Criticism, which is permitted under fair use and fair dealing, may suppress the demand for the original, but it is not a substitute for it.

⁴⁷ We are grateful to Professor Timothy J. Brennan for pointing this out after reading a very early draft of this paper.

⁴⁸ Patry, *supra* n. 12 at p. 219.

⁴⁹ Miceli, *supra* n. 8 at p. 360.

⁵⁰ Sag, *supra* n. 9 at p. 56.

⁵¹ Leval (2015), *supra* n. 9 at p. 608.

archiving, news reporting, and comment and criticism of existing works. Transformation requires the copier to fulfill these objectives.”⁵²

In *Authors Guild v. Google*, the Second Circuit put some bounds on appropriations under fair use, noting

the would-be fair user of another’s work must have justification for the taking. A secondary author is not necessarily at liberty to make wholesale takings of the original author’s expression merely because of how well the original author’s expression would convey the secondary author’s different message. Among the best recognized justifications for copying from another’s work is to provide comment on it or criticism of it.⁵³

Also, as stressed in *Campbell*, a secondary use that is a derivative work does not qualify as fair use, since derivative works are protected.⁵⁴ An example by Matthew Sag is illustrative:

The difference between a noninfringing transformative use and an infringing derivative work can be illustrated as follows: if *Pride and Prejudice* were still subject to copyright protection, the novel *Pride and Prejudice and Zombies*, which combines Jane Austen’s original work with scenes involving zombies, cannibalism, and

⁵² Murray, *supra* n. 9 at p. 261 (“the function and purpose of the original works must be changed in the second works in a manner that fulfills fair use objectives that promote the progress of the arts and the creation of new, original expression that benefits the public, namely through research, comment and criticism, educational, archival, or historical-fact uses.”).

⁵³ *Authors Guild v. Google*, *supra* n. 12, 804 F.3d at 215.

⁵⁴ *Campbell v. Acuff-Rose*, *supra* n. 2, 510 U.S. at 592-3 (“2 Live Crew’s song comprises not only parody but also rap music, and the derivative market for rap music is a proper focus of enquiry. Evidence of substantial harm to it would weigh against a finding of fair use, because the licensing of derivatives is an important economic incentive to the creation of originals. Of course, the only harm to derivatives that need concern us, as discussed above, is the harm of market substitution.”) (citations omitted); see also *Authors Guild, Inc. v. HathiTrust*, 755 F.3d 87, 95 (2d Cir. 2014) (“[p]aradigmatic examples of derivative works include the translation of a novel into another language, the adaptation of a novel into a movie or play, or the recasting of a novel as an e-book or an audiobook.”) For a description of derivative works, see, e.g., *Copyright in Derivative Works and Complications*, U.S. COPYRIGHT OFFICE CIRCULAR 14 (2013) (available at: <http://www.copyright.gov/circs/circ14.pdf>). For further explanation of the difference between derivative and transformative works, see, e.g., <http://foundrylawgroup.com/copyright-copywrong-what-are-derivative-and-transformative-works>.

ninjas, would be considered a transformative parody of the original, and thus fair use rather than infringement. In contrast, a more traditional sequel would merely be an infringing derivative work.⁵⁵

Leval contends that “the transformative purpose required to achieve fair use cannot be the same type of transformation that results in a derivative.”⁵⁶ An appropriation that seeks protection under fair use must not go in the “direction” of a derivative work. Likewise, in *Authors Guild v. Google*, when addressing derivative works, the Second Circuit concluded

While such changes can be described as transformations, they do not involve the kind of transformative purpose that favors a fair use finding. The statutory definition suggests that derivative works generally involve transformations in the nature of *changes of form*. [] By contrast, copying from an original for the purpose of criticism or commentary on the original or provision of information about it, tends most clearly to satisfy *Campbell’s* notion of the “transformative” purpose involved in the analysis of Factor One.⁵⁷

An appropriation that seeks protection under fair use must move away—in a spatial sense—from the original but not in the “direction” of a derivative work.

As stressed by Murray, Section 107 lists the purposes that may qualify for fair use, including criticism, comment, news reporting, teaching, scholarship, or research. While not expressly limited to these types of works (i.e., technology has led to additions such as the search engine and digital archiving), the list does suggest Congressional intent regarding some boundaries on the types of purposes falling within the scope of fair use.⁵⁸ For instance, works of criticism, news and parody lend a strong First Amendment flavor to fair use.⁵⁹ Or, as

⁵⁵ *Sag*, *supra* n. 9 at p. 56.

⁵⁶ Leval (2015), *supra* n. 9 at p. 608.

⁵⁷ *Authors Guild v. Google*, *supra* n. 12, 804 F.3d at 215.

⁵⁸ Murray, *supra* n. 9; *Sag*, *supra* n. 9, finds that courts do not look favorably upon secondary works that are of a directly commercial nature.

⁵⁹ See *Eldred v. Ashcroft*, 537 US 186, 219-220 (2003) (one of copyright law’s “built-in First Amendment accommodations” is fair use).

Robert Denicola puts it, fair use is a “restraint against the intrusion of copyright law into constitutional preserves.”⁶⁰

When it comes to fair use, there does appear to be unholy ground. As the court observed in *Authors Guild v. Google*,

The word “transformative” cannot be taken too literally as a sufficient key to understanding the elements of fair use. It is rather a suggestive symbol for a complex thought, and does not mean that any and all changes made to an author’s original text will necessarily support a finding of fair use. *** In other words, the would-be fair user of another’s work must have justification for the taking.⁶¹

That is, it is not enough if the alleged infringer merely uses portion of an original work “to get attention or to avoid the drudgery in working up something fresh,” but a fair use must “involve the kind of transformative purpose that favors a fair use finding.”⁶² Or, as the U.S. Supreme Court stated in *Harper & Row*, fair use is not justified simply because “the user stands to profit from exploitation of the copyrighted material without paying the customary price.”⁶³ Thomas Cotter justifies fair use using a theory of “positive externalities,” which would certainly place some limits on the scope of fair uses.⁶⁴ Scholarship, research and education are activities with presumably large “external” benefits, as demonstrated by the fact all three are regularly subsidized by governments.⁶⁵

Since nearly any analysis of infringement will be based on the degree of “transformation,” the analysis of transformation in the context of fair use requires an analysis of both the *type of* and *extent of* transformation. Fair use implies transformations of a particular sort—one that comports with the public interest motivation of the fair use exception. In this sense, fair use and fair

⁶⁰ R.C. Denicola, *Copyright and Free Speech: Constitutional Limitations on the protection of Speech*, 67 CALIFORNIA LAW REVIEW 283, 293 (1976) (“A more broadly applicable restraint against the intrusion of copyright law into constitutional preserves is the doctrine of fair use.”)

⁶¹ *Authors Guild v. Google*, *supra* n. 12, 804 F.3rd at 214.

⁶² *Id.* 804 F.3rd at 214-215.

⁶³ *Supra* n. 23, 471 U.S. at 562.

⁶⁴ Cotter, *supra* n. 2.

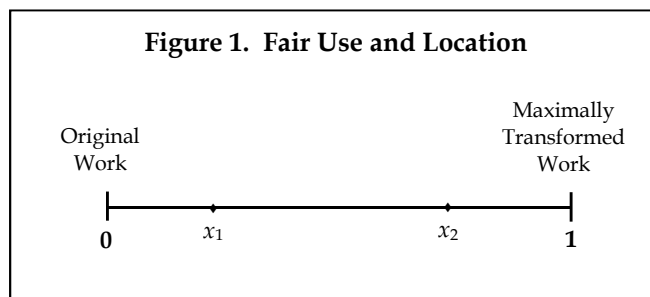
⁶⁵ Governments also subsidize all sorts of things that do not have external benefits, so the point is made with requisite caution.

dealing, which typically lists the particular types of works that qualify as fair use, are in fact more closely related than is often presumed.

In practice, we believe the first factor of Section 107 of U.S. Copyright Law relates to the *type* of transformation. The degree of transformation turns to the fourth factor, to which factors two and three are inputs. So, while we agree with Leval that fair use is a two-step inquiry, our analysis leads us to frame this two-step inquiry in a slightly different, but plausibly consistent, way. Our economic model, importantly, addresses the extent of transformation. Determining the type of transformation seems to be largely a subjective inquiry, though we cannot foreclose the possibility of incorporating such an inquiry into a formal economic model.

III. A Spatial Model of Fair Use

Modern fair use jurisprudence and scholarship indicates that the difference between infringement and fair use is based, in large part, on whether or not the secondary good is sufficiently transformative that it does not compete significantly, in an economic sense, with the original. Transformation is, for all practical purposes, what economists refer to as product differentiation.⁶⁶ Theoretical analyses of product differentiation often employ “location” models. In these models, location may reference an actual physical location, but location is also interpreted more abstractly as consumer “tastes” or brand characteristics.⁶⁷



Imagine that the demand side of the market for the original and any hypothetical secondary works consists of a set of consumers uniformly distributed along the unit interval $[0, 1]$, as illustrated in Figure 1. Consumers’

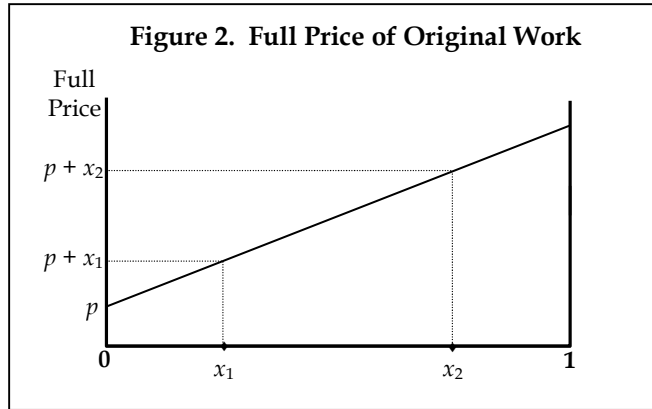
⁶⁶ The linear location model was originated by H. Hotelling, *Stability in Competition*, 39 *ECONOMIC JOURNAL* 41-57 (1929).

⁶⁷ Martin, *supra* n. 10; Shy, *supra* n. 43, at p. 149.

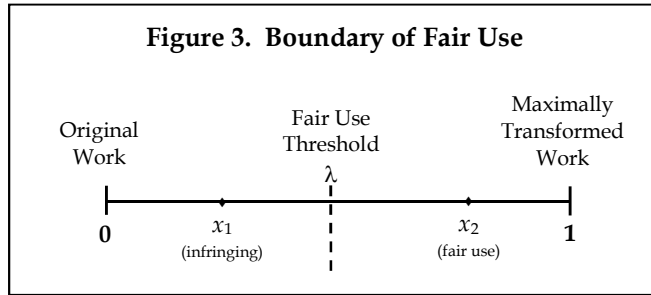
preference for various works is fully described by their position on the interval in relation to the position of the original or modified work.⁶⁸ Distance in this model reflects how far away a particular work is from the preferences of consumers located at any given point. The difference (distance) between a consumer's ideal preference (location) and the location of the work can be taken to represent either a loss in benefit suffered by the consumer due to the "mismatch", or a cost imposed on the consumer necessitated by the mismatch (e.g., travel/shipping cost, or costs needed to conform the work to the ideal preference). To see this, consider Figure 2. Say that the original work is offered at a price of p . For a consumer located at the origin, the original work can be acquired by paying p , since he incurs no additional mismatch cost. A consumer located at point x_1 , however, must not only pay p but also incur the cost of traveling from x_1 to 0. (We have normalized the cost of travel to 1.0 for convenience.) Thus, the "full price" of a good at the origin for a consumer located at x_1 is $p + x_1$. Likewise, the original work has a price of $p + x_2$ to a consumer located at point x_2 . Finally, a consumer located at the extreme (point 1.0) pays the full price $p + 1$ for the original work. In this setup, the relative price of the original work rises the further away the consumer is located from the original work. Demand curves slope downward, so the higher effective price ($p + x$) reduces the consumption of the original work by consumers that are located further away from the origin.

We now consider the effect of the existence of a secondary work on the demand for the original work. This effect will depend, inter alia, on the location of the secondary work. In particular, the nature of demand implies that a secondary work located "close" to the original has the potential to greatly reduce sales of the original work, depending on the prices charged. This is analyzed below.

⁶⁸ Any given consumer may have preferences for both types of works; we suspect many of the same people enjoyed Michael Jackson's hit "Beat It" as well as Weird Al Yankovic's parody of that song "Eat It." Clearly, Weird Al appropriated much of Jackson's earlier work, but these two songs were not economic substitutes (more likely complements).



If a secondary work is located at or near the origin, then the degree of transformation is small and the greater is the risk this secondary work “supersede[s] the objects” of the original and “serves as a market replacement for it, making it likely that cognizable market harm to the original will occur.”⁶⁹ Thus, the closer to zero a secondary work, the more it looks like infringement and the less likely it should qualify as fair use.



Fair use policy, in this setting, aims to specify a minimum level of “transformativeness” that qualifies a work as fair use rather than infringement. In our model, this threshold (labeled λ) lies between 0 and 1. The parameter $\lambda \in [0, 1]$ can therefore be interpreted as the strength of fair use legal restrictions, or the minimum degree of transformativeness required to qualify as fair use. Secondary works located to the right of λ are fair use, while locations to the left of (or smaller than) λ are infringing. In Figure 3 we have located λ (arbitrarily) at 0.5. As a result, a secondary work located at x_1 is infringing, but a secondary work at x_2 is sufficiently transformative to qualify as fair use. The public policy

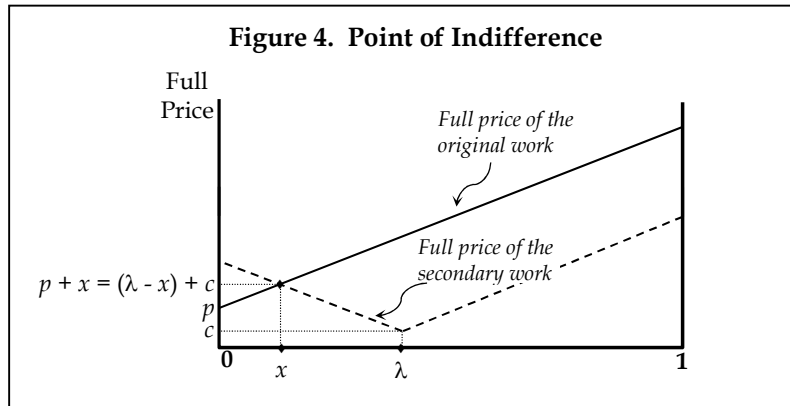
⁶⁹ *Campbell v. Acuff-Rose*, *supra* n. 2, 510 U.S. at 591.

question, then, becomes one of determining the proper and efficient location for λ , subject to an initial determination that the secondary work or purpose falls within a class of works or purposes that would satisfy the intent of Section 107.

A. Optimal Fair Use

The optimal location for λ may now be formally analyzed. We do this using a simple two-stage game, which is a common way of analyzing strategic behavior in economic theory. In Stage 1, an author or artist chooses whether or not to make an investment in the production of an original work. Let the artist's opportunity cost of this investment, including a risk-adjusted return, be denoted by A . If the investment is made in Stage 1, then in Stage 2 other artists can legally make fair use of the original, but only if the secondary artist "sufficiently transforms" the original work. Otherwise, the use is infringing and prohibited, and the violator may be subject to legal penalty. As is typical, the model is solved backwards, since the original artist's decision depends on expectations about the exploitation of her work in the second stage. All decisions *within* each stage are regarded as simultaneous.

For simplicity, we assume (for now) original and secondary works have a marginal distribution cost of c per unit. Fixed costs of the secondary work are zero, so entry is free. (We will relax both of these assumptions later.) Given free entry, the competitive market for modifications will drive the price of a secondary work to marginal cost and the sub-interval $[\lambda, 1]$ will be filled with secondary works whose type and degree of transformation qualify as fair use. Clearly, all consumers in this sub-interval will be "purchasing" the secondary works, but a subset of the interval $[0, \lambda]$ will also purchase a secondary work depending on the price charged by the artist for the original work.



If p denotes the price of the original work, then the point of indifference (x) will solve the equation:

$$x + p = (\lambda - x) + c \quad (1)$$

As illustrated in Figure 4, a consumer located at x will be indifferent between consuming the original or the secondary work (located at point λ , given free entry) when the full price of the original work ($x + p$; distance plus price) is equal to the full price of the secondary work ($\lambda - x + c$; distance plus price, where price equals marginal distribution cost c under our assumptions). Solving for x yields:

$$x = \frac{1}{2}[\lambda - (p - c)]. \quad (2)$$

Consumers located on the interval $[0, x]$, between the origin and the point of indifference, would purchase the original work.

Let S denote the size of the market, so there is a consumer density of S at each point on the unit interval. Thus, S serves as a simple and convenient measure of the size or potential economic value of the market. Both the original work and the legal secondary works are available to the market.

Besides sales of the original work and legal secondary works, the practical realities of markets for intellectual property highlight the existence of a third sort of property for sale in the market: *pirated copies*. These products differ in character and legal status from fair use applications. However, for the originator, the consequence of illegal copies is just a loss of income. In order to incorporate this effect simply in our exposition, we assume there are illegal copies available, thus draining a fraction τ of consumers from the legal market. The demand curve for the original work is therefore given as:

$$q = \frac{1}{2}(1 - \tau)S[\lambda - (p - c)], \quad (3)$$

where we see that τ is a leakage due to illegal copying, an effect very similar to a tax, effectively shrinking the market's size.

Given this, we can apply a conventional analysis to determine the price that the original property owner would charge for copies of the good. The price for the original work would be set to maximize net revenue:

$$R = \max_p \left\{ \frac{1}{2}(1 - \tau)S(p - c)[\lambda - (p - c)] \right\}. \quad (4)$$

The net-revenue-maximizing markup over marginal cost is given as:

$$(p^* - c) = \frac{1}{2}\lambda \quad (5)$$

where the star superscript indicates an optimal value. This implies the maximized net revenue is:

$$R = \frac{1}{8}(1 - \tau)S\lambda^2. \quad (6)$$

From Expressions (5) and (6) we see that the strength of the fair use protections is critical in determining the markup (Exp. 5) and revenue (Exp. 6) for the original work. Requiring greater degrees of transformation to qualify as fair use raises the price-cost margin on the original work and increases net revenues.⁷⁰

But the best copyright policy for society is that which provides the greatest surplus to society, while recognizing the right of the creator to exploit her property as she sees fit. In order for surplus to arise from the original property, the creator must be given sufficient incentive to create it. Without this incentive, all other issues become moot. Giving the creator excessive protection, while satisfying the need to get the original work produced, does not maximize the benefits to society because of the pricing policy of the original property owner. To determine the optimal level of fair use, then, we assume the policymaker (or judge) is interested in maximizing consumer welfare and would thus choose the level of λ just sufficient to cover the opportunity cost of producing the original work (including a risk-adjusted return) in the first stage.⁷¹ Thus, the optimal strength of fair use – or the minimum level of transformation – is given by:

$$\lambda^* = \sqrt{\frac{8A}{(1 - \tau)S}}. \quad (7)$$

Expression (7) shows that the optimal level of transformativeness – the strength of fair use – is determined by the cost of creation (A), the size of the market (S),

⁷⁰ The markup above marginal distribution cost does not imply undue market power since the markup must be sufficiently large to cover the cost of creation (A). See, e.g., R.D. Cairnes, *Toward Measuring Monopoly Power*, 11 REVIEW OF INDUSTRIAL ORGANIZATION 125-133 (1996); Landes and R.A. Posner, *supra* n. 8; D.L. Kaserman and J.W. Mayo, GOVERNMENT AND BUSINESS: THE ECONOMICS OF ANITRUST AND REGULATION (1995) at pp. 101-2; D.W. Carlton and J.M. Perloff, MODERN INDUSTRIAL ORGANIZATION (2000) at Appendix 8B; J. Tirole, THEORY OF INDUSTRIAL ORGANIZATION (1995) at p. 219.

⁷¹ Similarly, we may consider this work to sit at the margin of works society's wishes to be produced given its benefits and opportunity cost.

and the extent of leakages such as piracy. This expression points to a number of policy-relevant prescriptions.

1. *Optimal Fair Use, Piracy and other Leakages*

The optimal level of λ is an increasing function of the leakage rate τ . With today's low cost copying and thus extremely high rates of piracy, the degree of transformation required to qualify for fair use should be rising, not falling. That is, *secondary uses should face stricter scrutiny under fair use as technology improves*. Note also that τ may represent not just piracy, but can also be thought to include the costs of enforcing rights, such as the use of time or services to seek out infringing uses, the opportunity cost of sending takedown requests, and other costly activities to protect against unauthorized copying and use of one's intellectual property. Every cost imposed on the creator by the copyright system represents a reduction in the income expected from creation, and thus a lessening of the incentive to create the property in the first place. The fact that some leakages are legal (fair use), while others might be grossly illegal (piracy), does not mean that their effects on the decision to create differ.

Leakages are likely to vary by type of original work. For instance, piracy appears to have a larger effect on the music and movie industries than it has on scientific publications. When judges consider fair use on a case-by-cases basis, our theory suggests they should consider the degree of piracy for the work (or type of work), raising the bar on fair use when piracy is a serious problem. This increase in λ will affect only those secondary works close to the original λ , while secondary works that have little to no effect on the market for the original work (e.g., comment and criticism) are well clear of new boundary. Practically, such consideration might fall under factor two (the nature of the copyrighted work) since works vary in the degree and relevance of piracy. Of course, factor four is always in play (and the basis of our theoretical model).

In contrast to advocacy for more flexible fair use policies, absent some effort to effectively improve copyright enforcement, our economic theory suggests that fair use should be *less* flexible in the digital world. Or, put another way, *if fair use is made more flexible, then copyright law should simultaneously make piracy (and other nefarious forms of infringement) more difficult*, perhaps by increasing enforcement levels, increasing penalties for infringement, or implementing more aggressive policing of websites and web functionalities that facilitate infringement. Such policies must be demonstrably effective, however, and not merely cosmetic.

2. *Optimal Fair Use and the Cost of Creation*

Expression (7) also shows that it should be harder for secondary uses to qualify as fair use when the cost of creation for the original work (A) is high. The reason is obvious: the higher the cost of the original work, the more protection is needed in order to meet the revenue requirement. This prescription can be applied on a case-by-case basis, or may even be used to establish varying fair use standards for different types of works. For instance, a major motion picture costs many times more than a typical musical recording or a book. Perhaps appropriations of or from motion pictures should be considered under stricter fair use standards and thereby prohibit secondary works deemed to have a more substantial (even if small) effect on the market for the original work.

It may also make sense for judges to consider the cost of producing the original work in their assessment of fair use under factor two: the nature of the copyrighted work. Appropriations from original works created at very high costs would be held to a higher standard than the exploitation of works created at low cost.

3. *Optimal Fair Use and Market Size*

When an original work targets a large market (a big S), it is easier to secure the revenues sufficient to cover the opportunity cost of creation, other things constant. Thus, fair use can be more relaxed when the market for the original work is large. In general, we would expect that the opportunity cost of creation (A) would reflect the market potential, so S and A are expected to be correlated and, to some extent, offsetting concerns. It is not unrealistic, however, to imagine an artist taking on the risk of a large investment to serve somewhat narrow interests. In any case, in making their determinations, judges should consider the market size of the original work in their assessment of fair use, perhaps again under factor two (the nature of the copyrighted work) and factor four (the impact on the market).

B. *Extensions*

More can be learned about fair use in the digital economy by relaxing a few of the assumptions made in the analysis above. For instance, we assumed that the marginal distribution cost of the original and secondary work were identical. Historically, given scale economies, we would expect that the original work would have a lower marginal distribution cost than would secondary works. In a digital world, however, any such cost advantage would be diminished if present at all. To see the effect on the optimal degree of transformation, let the

marginal distribution cost of the secondary work be $c + \alpha$, where α is a cost disadvantage ($\alpha > 0$) or advantage ($\alpha < 0$) for the secondary work.

We also normalized “transportation cost” (sometimes termed “mismatch cost” in the economics literature) to 1. Instead, we may assume that there is a price of distance, d . The higher the price of distance (in a sense of “taste,” since most of these goods are delivered by electronic means), the less nearby works compete with each other. Or, put another way, the larger is d , the less price sensitive consumers are to the price of rival goods. In this model, a secondary work competes less with the original when it is either far away from the origin (where the original work is located), or when it is close and travel costs are high (d is large).⁷²

In light of these two modifications to the original model, the point of indifference which defines the effective demand curve for the original work becomes

$$dx + p = d(\lambda - x) + c + \alpha, \quad (8)$$

and the creator’s optimal price-cost margin is

$$(p^* - c) = \frac{1}{2}(d\lambda + \alpha), \quad (9)$$

and the maximized net revenue is

$$R = \frac{1}{8d}(1 - \tau)S(d\lambda + \alpha)^2. \quad (10)$$

⁷² A possible interpretation of a high d is when an entire work is appropriated, thus being very close to the original work, but used for a transformative purpose that is determined to pose little threat to the market for that original. See, e.g., *Authors Guild v. Google*, *supra* n. 12, 804 F.3d at 223-24 (“Even if the purpose of the copying is for a valuably transformative purpose, such copying might nonetheless harm the value of the copyrighted original if done in a manner that results in widespread revelation of sufficiently significant portions of the original as to make available a significantly competing substitute. *** There are surely instances in which a searcher’s need for access to a text will be satisfied by the snippet view, resulting in either the loss of a sale to that searcher, or reduction of demand on libraries for that title, which might have resulted in libraries purchasing additional copies. But the possibility, or even the probability or certainty, of some loss of sales does not suffice to make the copy an effectively competing substitute that would tilt the weighty fourth factor in favor of the rights holder in the original. There must be a meaningful or significant effect ‘upon the potential market for or value of the copyrighted work’”) (citations omitted).

Solving the social planner's objective function once more, the optimal level of transformation to define the fair use boundary is:

$$\lambda^* = \frac{1}{d} \left(\sqrt{\frac{8dA}{(1-\tau)S}} - \alpha \right). \quad (11)$$

The implications of this new condition are intuitive. As d rises, consumer tastes are narrower and nearby locations are less attractive and thus less competitive. Expression (9) is perhaps more informative than Expression (11), showing that for a fixed λ , a larger d increases the pricing power of the original artist thereby facilitating cost recovery. Consequently, a secondary work can locate closer to the original without doing much harm to the original good's market. But, nearby consumers are less interested in purchasing the original good because it does not suit their tastes, thereby shrinking the market for the original good. Changes in d have two conflicting effects on λ^* —one positive and one negative. The transformation effect is dominant; increases in d reduce λ^* . Practically, the size of d may be inferred by considering the pricing power over the original work; if pricing power is expected to be high (say, due to a strong consumer commitment to a "brand"), then λ can be relaxed.

In the past, the high cost of copying, modifying, and distribution relative to the original work (measured by α) has provided somewhat of a natural (albeit imperfect) protection against widespread infringement and piracy. Today, digitization permits copyrighted works to be copied, modified and distributed at almost zero cost. Any cost advantage of the original artist is likely now all but gone for many kinds of intellectual property. In fact, the marginal distribution cost of the original artist may be higher, since she must deal with contracting, rights enforcement, and other concerns like quality and consumer experience. Expression (11) shows that as the marginal cost of distributing the secondary work falls, the optimal level of transformation required for fair use (λ) increases. Lower distribution costs of the secondary work prescribe a stricter fair use regime. This result echoes our earlier finding regarding the effect of copy cost c .

This result is important to the debate over copyright and fair use reform. Efforts to increase the applicability of fair use are in part motivated by the low costs of modifying original works (e.g., mashups and sampling) and distributing secondary works.⁷³ In contrast, our theory suggests that the declines in

⁷³ Lessig (2004), *supra* n. 19; Lessig (2008), *supra* n. 7; P.S. Menell, *Adapting Copyright for the Mashup Generation*, 164 UNIVERSITY OF PENNSYLVANIA LAW REVIEW 441-512 (2016).

distribution costs should require a higher level of transformation to qualify as fair use.

C. *Fixed Cost in Secondary Works*

If we permit the secondary works to have a fixed opportunity cost, then the secondary works will be fewer and the space between them greater.⁷⁴ This allows for a positive price-cost margin on the secondary works. The primary effect on the original work, as with the secondary works, is to raise the price of the original work. A higher margin on the original work eases cost recovery, so a high fixed cost of transformation will lower λ . Since technology has arguably reduced the fixed cost of transformation (thus leading to more transformative works), our theory prescribes an increase in λ , which says that the degree of transformation should rise in the digital age. This result is contrary to the standard claim, such as that made by Lawrence Lessig among others, that fair use should be made more flexible given the reduction in the cost of transformation.⁷⁵ Also note that assuming zero fixed cost for secondary works has no impact, at least directionally, on the comparative statics discussed above.

IV. Policy Recommendations

Our economic analysis offers guidance for both legislative reform and the judicial analysis of fair use. Legislative reforms are being considered across the globe, as evidenced by recent changes in Singapore's copyright law expanding the application of fair use and strengthening protections by including statutory damages and extending term.⁷⁶ Laws differ meaningfully across nations, but our analysis supports a number of general policy prescriptions.

A. *Legislative Reform of Copyright and Fair Use*

Technological advances have greatly reduced the cost of copying, modifying, mashing up, remixing, and distributing creative works. Some advocates claim that these changes prescribe a relaxation of fair use policies to facilitate the creation of secondary works. Economic theory, rooted in the goal of copyright, suggests otherwise. First, digital technology increases piracy and increases the

⁷⁴ If the fixed costs of the secondary work are infinite, then the original work is an uncontested monopoly.

⁷⁵ Lessig (2008), *supra* n. 7.

⁷⁶ Copyright Act (Singapore), Revised Edition 2006 (available at: <http://statutes.agc.gov.sg>).

cost of rights enforcement, which prescribes a tightening rather than loosening of fair use policies. If policymakers do want to ease up on fair use policies to encourage secondary works, then the legal reform must include measures to reduce digital piracy and to address platforms and technologies that are widely used to distribute unlawful copies (e.g., YouTube).

Second, technology appears to have lowered, on average, the fixed cost of transformation, a change that also points to stricter standards on fair use. Contrariwise, technology that lowers the cost of creating original works would support more flexible fair use policies, but technology's effect on costs is likely to vary by the type of creative work and quality improvements may keep cost reductions at bay.

B. *Judicial Analysis of Fair Use*

Though there are some discernable patterns in judicial decisions—as demonstrated by Beebe, Sag, and others—the application of the four factors by judges has been, over time, somewhat of a model of inconsistency, though *Campbell* appears to have reduced the variance. Given the case-by-case nature of fair use disputes and the Priest-Klein Selection Hypothesis, the varied nature of the decisions is not all that surprising. One potential reason for the variability in the application of the factors is a lack of coherent, rational framework in which the factors can be interpreted and applied. We believe our analysis is informative in that regard.

As is commonly understood today, fair use requires the transformation of the original work so that the secondary work or purpose neither “supersedes the objects of the original creation” nor “usurps the market for the original work.”⁷⁷ But, as we discussed earlier, fair use is not merely about transformation (or product differentiation, as we have modeled it). A fair use must transform an original work in a way that provides a significant and independent public value. For instance, fair use can be and is justified by First Amendment/free speech concerns. Also, secondary works in the fields of science, research, and teaching are likewise viewed as transformations falling under fair use. As Michael Murray argues, fair use encourages contributions to “public interest activities such as education, research, archiving, news reporting, and comment and criticism of existing works. Transformation requires the copier to fulfill these

⁷⁷ *Blanch v. Koons*, 467 F.3d 244, 253, 258 (2d Cir. 2006).

objectives.”⁷⁸ One advantage of fair dealing over fair use is that the types of works qualifying for the exception are specifically enumerated, reducing uncertainty for both original and secondary authors and artists and also facilitating clarity in judicial deliberations.

As we see it, a court’s review of a fair use dispute involves a two-step process guided (at least in the U.S.) by the four factors. (The copyright laws of different nations almost always include comparable factors, and we suspect the theoretical analysis can easily accommodate any differences). First, under the first factor, a court must determine whether the “purpose of the character of the use,” irrespective of the extent of transformation, satisfies the public interest intent of Section 107. The first factor is, therefore, a threshold question. If the work does not “fulfill these objectives,” then further analysis is not required.⁷⁹ For instance, if a secondary work was clearly a derivative (say, a translation of a book), then there is little reason to consider the other factors.⁸⁰

Once the secondary work is determined to satisfy this threshold question, then a court must then ask whether the work is sufficiently transformative in that it does not “usurp the market” for the original work.⁸¹ Here is where our model

⁷⁸ Murray, *supra* n. 9 at p. 261 (“the function and purpose of the original works must be changed in the second works in a manner that fulfills fair use objectives that promote the progress of the arts and the creation of new, original expression that benefits the public, namely through research, comment and criticism, educational, archival, or historical-fact uses.”).

⁷⁹ See, e.g., *Murphy v. Millennium Radio Group*, 650 F.3d 295 (3rd Cir. 2011) (denying fair use defense due to lack of transformative nature of infringement).

⁸⁰ Candidates may include *Penguin Group. (USA), Inc. v. American Buddha*, No. 4:13-cv-02075-JGZ (D. Ariz. May 11, 2015) (2015 WL 11170727) (Because defendant’s use “supplants or supersedes” plaintiff’s original copyrighted Works, it is likely to cause a substantially adverse impact on the potential market of the original); *Society of the Holy Transfiguration Monastery, Inc. v. Gregory*, 689 F.3d 29 (1st Cir. 2012), *cert. denied sub nom.*, 133 S.Ct. 1315 (2013) (“Plaintiff’s translations of ancient texts (which the Defendant does not contest were expensive to create) would have been toiled over, with no possible market in which to reap the fruits of its labor.”); *Merkos L’Inyonei Chinuch, Inc. v. Otsar Sifrei Lubavitch, Inc.*, 312 F.3d 94 (2^d Cir. 2002); *Princeton Univ. Press v. Mich. Document Servs., Inc.*, 99 F.3d 1381 (6th Cir. 1996), *cert. denied sub nom.*, 117 S.Ct. 1336 (1997) (court was not persuaded that the creation of new works of scholarship would be stimulated by depriving publishers of the revenue stream derived from the sale of permissions; on the contrary, court found that the destruction of revenue stream “can only have a deleterious effect upon the incentive to publish academic writings.”)

⁸¹ The assessment of fair dealing typically follows this same pattern. The Australian Law Reform Commission, for instance, outlines the process under Australian Copyright Law as follows: “Determining whether a use comes within the bounds of a fair dealing exception is a two-step process. First, the use must be for one of the specific purposes provided for in the Copyright Act.

(Footnote Continued. . . .)

is most informative. The second, third, and fourth factors are relevant to this second stage of scrutiny. The main question goes to the fourth factor: the effect of the use upon the potential market for the copyrighted work. The second and third factors are “inputs” to the fourth factor.

Our model suggests that the court’s typical assessment of factor two—the nature of the original work—is too narrow. Legal analysis regarding the nature of the work has often focused on whether the original work is published or not, commercial or not, fictional or not, and so on. A review of cases suggests that the determination of this factor is not systematically related to the court’s ruling.⁸² In *Campbell*, the Supreme Court observed, “[t]his factor calls for recognition that some works are closer to the core of intended copyright protection than others, with the consequence that fair use is more difficult to establish when the former works are copied.”⁸³ In that decision, the Court determined that the “Orbison original’s creative expression for public dissemination falls within the core of the copyright’s protective purposes,” and also that this fact “is not much help in this case [] since parodies almost invariably copy publicly known, expressive works.”⁸⁴ Certainly, whether or not the specific appropriations of or from the original work are copyrightable is important, but part of the reason the second factor “is not much help” is that this interpretation of the second factor is too narrow. As our model indicates, the optimal level of fair use (λ) is determined by a number of characteristics of the original work, including the cost of its creation, the size of the market targeted by the work, the impact of piracy on the work (or general class of work), and so forth. How strictly fair use is interpreted depends not only on the nature of the secondary work and whether the original contains copyrightable material, but also on the economic character of the original work and the marketplace realities for copyrighted material.⁸⁵

Secondly, the use must be fair. Whether a particular use is fair will depend on the circumstances of the case.” See <https://www.alrc.gov.au/publications/7-fair-dealing/current-law>.

⁸² See, e.g., Beebe, *supra* n. 20 and Sag, *supra* n. 9.

⁸³ *Campbell v. Acuff-Rose*, *supra* n. 2, 510 U.S. at 586.

⁸⁴ *Id.*

⁸⁵ See, e.g., *Feist v. Rural Telephone Service Co*, 499 U.S. 340 (1991) (Plaintiff’s white pages directory is not entitled to copyright and therefore defendant’s use of them does not constitute infringement); see also Sag, *supra* n. 9 at p. 62 (“in principle, the more creative the original work is, the more justification is required to establish a claim of fair use”).

The relevance of the third factor—the amount and substantiality of the appropriation—is fairly apparent in our economic framework. The more the secondary work draws from and reproduces the original, the more likely it is a substitute for the original.⁸⁶ Importantly, copying an entire work is not forbidden in the United States, as the court determined in *Graham Archives*, *Hathitrust*, and *Google*, but the entire copy must be transformed in such a way as to serve a different *purpose* and not harm the economic prospects for the original work.⁸⁷

V. Conclusion

Exceptions and limitations are a vital aspect of copyright law, and all parties have a long-run interest in insuring that fair use rules are properly and predictably applied. Fair use will, in some cases, serve social interests which the creators of original property cannot reasonably be expected to further. However, the purpose of copyright itself is to provide adequate incentives for the creation of new works, and any policy which curtails such incentives will necessarily risk a simultaneous curtailment of invention and all that it implies. Although illegal piracy of protected property is roundly condemned both in the law and by economists, the economic complexities of the fair use problem can obscure the importance of the most basic issue at hand: although fair use can create value for consumers, and can serve other social purposes, it may also reduce income to the rights holders. As with piracy, fair use is a leakage from the income accruing to creators. Whatever values fair use may offer are entirely contingent on the existence of the original work. Thus, the courts and society must evaluate fair use rules with a close eye towards their effects on the incentives of creators. Fair use affects these incentives to different degrees, depending on the nature of the original work, including its costs and potential markets. This in turn implies that the evaluation of fair use should incorporate these characteristics.

The economic analyses presented here provide a straightforward guide in this process. To some extent, one can interpret aspects of the judicial treatment of fair use in the legal record as reflecting some of these factors, though not in a formal way. The four factors, which have informed judicial rulings, combined

⁸⁶ In some instances, entire copies are made but the purpose of the use is deemed transformative. See, e.g., *Sony*, *supra* n. 4, 464 U.S. 449–450 (citation omitted) (“the fact that the entire work is reproduced does not have its ordinary effect of militating against a finding of fair use”).

⁸⁷ *Authors Guild v. Google*, *supra* n. 12, 804 F.3rd at 229 (“The purpose of the copying is highly transformative...”)

with the notion of “transformation,” can be understood from the economic perspective as an attempt to incorporate the natures of the original and secondary works in the jurisprudence. We interpret transformation “spatially,” as the creation of a good which resembles the original to some degree, but involves a degree of differentiation which makes it a “new work.” For some buyers, this new work may be preferable to the original. Thus, one may assume that it should be legally available. This conclusion, though, is only partially accurate: the fair use product potentially reduces the demand for the original work. After the original work is created, this is not itself a concern in a parochial sense. But the entire purpose of copyright is in the creation of new works, and the social consequences of the fair use rules must be seen in this light as well. To some degree, the courts have accepted this concept, and factor four is particularly emphasized in the case law.

The most important point made by our analysis is this: changes in the environment under which fair use occurs, particularly with respect to the costs of copying protected property, will necessarily change the best level of fair use exception. Because these costs have fallen dramatically in recent years, the optimal fair use policy—which emphatically does not seek to enrich creators beyond that level needed to assure creation—should be *tightened*, not made weaker, a result at odds with much of the pro-fair use advocacy. This is so because fair use can reduce the market potential of the original property. Over time, such reductions will slow the flow of new works, to the detriment of creators, consumers, fair users, and society at large. Technology has also changed the cost of original creation, and such effects must be considered in relation to the many other influences on intellectual property in the digital age.