

# 3-D PRINTING YOUR WAY DOWN THE GARDEN PATH: 3-D PRINTERS, THE COPYRIGHTIZATION OF PATENTS, AND A METHOD FOR MANUFACTURERS TO AVOID THE ENTERTAINMENT INDUSTRY’S FATE

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*What happens when a home user can scan and print a physical item, or download plans to print a physical item from the Internet, as easily as he or she can rip and share a song or movie? With home 3-D printers on the horizon, the question will begin to ring louder. Manufacturers of tangible goods should heed lessons learned about infringement of music, movies and books when these 3-D printers arrive in homes across the country. A key lesson learned from peer-to-peer file sharing of digital content is that once a technological monopoly (being the only one who can efficiently produce an item) on a protected item falls, the legal monopoly of intellectual property law is insufficient to protect property rights. Once efficient and inexpensive 3-D printers arrive, businesses can (1) shift to a market or bifurcated model in pricing goods, (2) seek to persuade people not to misuse intellectual property for moral reasons, (3) seek to use the judicial and legislative systems to (temporarily) slow sharing of protected designs, or (4) fade away. This article argues that the third solution (using the courts and legislatures to protect the legal monopoly once the technological monopoly is lost) sets a price on violations while removing any moral disincentive, and that only a combination of the first two methods—moral persuasion and market model pricing—will in fact protect tangible goods manufacturers from catastrophic losses.*

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“3-D printing...has the potential to revolutionize the way we make almost everything.”

- President Barack Obama, 2013 STATE OF THE UNION (Feb. 12, 2013)

## INTRODUCTION

In the next few years, three-dimensional printers, long a whisper of futurists and fantasy of technology columnists,<sup>1</sup> will begin showing up in homes all over the country. Over the course of time, they may become as ubiquitous as paper printers. The constructive possibilities for such printers are endless: fixing broken toys and home goods, modeling out rooms and additions, designing personalized jewelry for loved ones, and possibilities beyond this author's imagination.<sup>2</sup> But concomitant with such advances for individuals is a risk for manufacturers: once individuals can "print" physical goods at home, perhaps with designs they acquire online, will they still purchase physical goods in stores? As the technology improves, and 3-D printers become capable of printing multiple types of media (plastic and metal, for instance), in multiple colors and with spaces and design elements built in, then such at-home manufacturing will inevitably compete with mass manufactured goods.

While such possibilities may seem far off, it is wise to consider the policy and economic implications long before desktop 3-D printing becomes ubiquitous, so that manufacturing industries and policy makers can plan for the significant economic disruptiveness (although not necessarily destructiveness) of such a shift in technologies. It is this author's hope that advanced planning and consideration of this issue will allow industry, consumers and policy makers to avoid the inevitable gnashing of teeth and making of accusations that seems to accompany major technological advances with disruptive potential.

### *A. A Brief History of Reacting to Technological Change*

Such reactions to disruptive technology are not as new as modern intellectual property discourse seems to believe. In the late 1700's, as America was developing as a nascent post-revolution country, across the "pond," socks and other woolen garments were made in a labor-intensive method by individual cottage workers.<sup>3</sup> The socks were of low quality, itchy, and expensive; the methods of crafting them wildly inefficient. The development of the stocking frame loom

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<sup>1</sup> See CHRIS ANDERSON, *MAKERS: THE NEW INDUSTRIAL REVOLUTION* 8–9, 58–59 (2012); Clive Thompson, *We Need a Fixer (Not Just a Maker) Movement*, *WIRED* (June 18, 2013, 6:30 AM), [http://www.wired.com/2013/06/qq\\_thompson/](http://www.wired.com/2013/06/qq_thompson/).

<sup>2</sup> For a well-written discussion of the technical elements of 3-D printing, potential market plans for utilizing the technology, and some of the potential technological and economic difficulties, see ANDERSON, *supra* note 1, at 89–98.

<sup>3</sup> ANDY KESSLER, *HOW WE GOT HERE* 29-30 (2004); ANDERSON, *supra* note 1, at 48–51.

by, among others, Richard Arkwright, promised to change all that.<sup>4</sup> With much less effort, socks could be weaved to be uniform, less itchy, and much less expensive. With funding from Jedediah Strutt, Arkwright built a water frame on the River Derwent that could produce socks and other garments in a more efficient and cost-effective manner than local cottage workers.<sup>5</sup> Fearing (correctly) that such progress would cause him to lose his craft, the story is told that Ned Ludd, a weaver from Anstey, England, led a mob that destroyed several stocking frame looms.<sup>6</sup> In the years that followed, similar “luddites” would attempt to damage machines and thus slow down technological progress. Suffice it to say luddites do not succeed.

In Ludd’s time and since, initial attempts to squash technological change were slowly overcome by the sheer efficient forces of creative destruction.<sup>7</sup> Industries in the business of developing intellectual property, subject to the protections of copyright law, have devoted significant time and treasure to stopping or slowing the advance of technologies that make it easier to lawfully and (perhaps more often) unlawfully share copyrighted material.<sup>8</sup> They often found themselves complaining bitterly about a new technology and its harm to artists and creators, the industry, and society.<sup>9</sup> Ultimately, technology moves on and, in a line oft stated by attorneys, you can’t put the proverbial toothpaste back in the tube.

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<sup>4</sup> KESSLER, *supra* note 3, at 30–31.

<sup>5</sup> *Id.* at 31.

<sup>6</sup> *Id.* Although Kessler’s book tells the story as fact, others believe that the story of Ned Ludd is apocryphal. In the following years, those who were attempting to slow technology by destroying machines paid homage to Ludd as luddites. Whether the story is factual or apocryphal, the point is the same—for many, many years, those who stand to lose business through the creative destruction caused by new technology will often take action to block that technology, even temporarily. Sometimes that effort is through violence, sometimes through legislative action and lobbying, and sometimes through the judicial process.

<sup>7</sup> Economist Joseph Schumpeter coined the term “creative destruction” to define the process of new industries destroying old ones as they grow which, despite the destruction of the older, and often very important, industries, is actually a long-term gain for the economy and society as a whole. JOSEPH SCHUMPETER, *CAPITALISM, SOCIALISM, AND DEMOCRACY* (1942).

<sup>8</sup> Copyright scholar William Patry discusses the artificial scarcity created by gatekeepers defined by intellectual property law, such scarcity creating monopoly value for those who own the intellectual property rights. WILLIAM PATRY, *HOW TO FIX COPYRIGHT*, 2–3, 38–41 (2011).

<sup>9</sup> See Mark A. Lemley, *Is the Sky Falling on the Content Industries*, 9 J. ON TELECOMM. & HIGH TECH. L. 125, 125–32 (2011); Donald P. Harris, *The New Prohibition: A Look at the Copyright Wars Through the Lens of Alcohol Prohibition*, 80 TENN. L. REV. 101, 157 (2012); Peter J. Alexander, *Peer-to-Peer File Sharing: The Case of the Music Recording Industry*, 20 REV. INDUS. ORG. 151, 154 (2002); Peter S. Menell, *Envisioning Copyright Law’s Digital Future*, 46 N.Y.L. SCH. L. REV. 63, 99, 101–03 (2003). The articles lay out how the dire predictions of waste laid to whole industries by dint of new technologies never came to pass.

Efforts to stem the advancement of technologies disruptive to intellectual property ownership have historically served only to delay the inevitable and create bad blood between producers and consumers.

There is another path. As we approach a time where the ability to copy and reproduce many physical goods will be subject to the same technological change that has impacted production of pure intellectual property, producers, consumers and policy makers can consider the past examples cited above and the economic factors discussed in this article to determine whether there is a smarter path forward. Thoughtful planning and honest pricing can allow new technologies to develop while preserving the health of businesses that produce tangible goods.

This article will discuss the history and purpose of copyright and patent law, tracing the history of technology used to copy creative works and the decision by copyright owners to transition from pursuit of commercial disseminators of copyrighted material to one where they filed lawsuits against consumers who shared protected intellectual property. It will then analyze this decision's impact on the attitudes of consumers once the fine for violations was internalized as a price, how these litigation and legislative strategies failed to prevent intellectual property sharing, and economic rules of monopolies versus companies that must compete on price and quality. It concludes by drawing lessons from these histories to chart a course forward for producers of tangible goods to avoid future devastating divisiveness between producers and their consumers in the era of ubiquitous 3-D printing.

## I

### **COPYRIGHT AND PATENT LAW EXIST TO ADVANCE SOCIETY, NOT TO PROTECT ARTISTS**

While many believe,<sup>10</sup> and content creators argue vehemently,<sup>11</sup> that copyright and patent protections were created to protect artists and inventors and allow them to fully exploit their work for fame and fortune, a plain reading of the Constitution leads to a different conclusion. Article I, Section 8 of the Constitution empowers Congress to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”<sup>12</sup> Courts have traditionally interpreted this clause to mean that the Framers intended primarily to advance knowledge for the

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<sup>10</sup> N. GREGORY MANKIW, *PRINCIPLES OF MICROECONOMICS*, 313 (2009).

<sup>11</sup> PATRY, *supra* note 8, at 8–41.

<sup>12</sup> U.S. CONST. art. I § 8.

public interest, not simply protect artists and inventors.<sup>13</sup> The Supreme Court wrote that “[t]he copyright law, like the patent statutes, makes reward to the owner a secondary consideration”<sup>14</sup> since “[t]he primary objective of copyright is not to reward the labors of authors.”<sup>15</sup> In granting to authors and creators a legal monopoly to copy and reproduce their works, the Supreme Court wrote that, “[t]he monopoly privileges that Congress may authorize are neither unlimited nor primarily designed to provide a special private benefit. Rather, the limited grant is a means by which an important public purpose may be achieved.”<sup>16</sup>

That being said, copyright and patent law do involve a balance between the public good and the rights of authors and creators, allowing time to recoup some type of profit, so as to induce this creation.<sup>17</sup> Patents provide a protection to allow for profit making on an invention, since “the costs of duplicating a major new product are only about one-half of the original innovator’s research and development cost, and timely duplication of a major, patented new product is reported to be impossible in only a few industries.”<sup>18</sup> Ultimately, the Framers intended for the law to promote creation for the public good, not for a creator’s unlimited right to earn profit.

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<sup>13</sup> The author is grateful here to the American Council on Education and the briefs of its General Counsel Ada Meloy in the cases of *Cambridge University Press v. Becker* and *The Authors Guild, Inc. v. Hathitrust* which the author came upon in the course of research and which do an excellent job of collecting cases and analysis on the framework of Constitutional intellectual property law. See Brief for the Higher Education Associations as Amicus Curiae, *Authors Guild, Inc. v. Hathitrust*, 2013 WL 603193 (S.D.N.Y. 2013), *on appeal*; Brief for American Council on Education et al. as Amicus Curiae, *Cambridge University Press v. Becker*, 863 F.Supp.2d 1190 (N.D.Ga. 2013), *on appeal*. For an exploration of the benefits of sharing information in patents with society (as opposed to keeping the idea entirely secret) so that others can build on that idea, and the application of this ideal to the open-source movement, see ANDERSON, *supra* note 1, at 108–10.

<sup>14</sup> *United States v. Paramount Pictures, Inc.*, 334 U.S. 131, 158 (1948).

<sup>15</sup> *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349 (1991).

<sup>16</sup> *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984).

<sup>17</sup> *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975). It is noted that there are other strong factors affecting creation outside of pecuniary gain, namely the approval of others for a useful invention or artistic work, fame, the need to create, the satisfaction of desired social norms, and the ability to influence. Studies have shown that these non-financial factors often outweigh the financial incentive to create or invent. See William Hubbard, *Inventing Norms*, 44 CONN. L. REV. 369, 373–75, 378–88, 400–02 (2011).

<sup>18</sup> WILLIAM BOYES & MICHAEL MELVIN, *MICROECONOMICS* 286 (2002).

## II

### THREE TYPES OF MONOPOLIES PROTECT FROM COPYING

Producers of tangible and intellectual goods enjoy three types of monopoly. The first is a technological monopoly. If, practically speaking, the cost of producing a good at home is higher than purchasing that same good at a store, few rational people will choose to pay extra money and run afoul of legal and moral penalties to manufacture the good at home.<sup>19</sup> The second is a legal monopoly created by intellectual property law. Awarding certain limited rights to authors and inventors legally excludes others from also creating the same works (with limited exceptions). The final leg of the triad is the moral monopoly. When consumers believe they are inappropriately borrowing or even outright stealing physical or intellectual property, they will often feel a moral-based guilt in doing so.<sup>20</sup> Whether internally or externally based,<sup>21</sup> rooted in religion or created via societal ideals, the idea that one *should* not steal can be an important factor in preserving a monopoly for creators of tangible and intellectual goods.

## III

### INTELLECTUAL PROPERTY'S LOST TECHNOLOGICAL MONOPOLY EXPOSES A WEAK LEGAL MONOPOLY

For most of this nation's history, creators of mass market intellectual property maintained a technological monopoly that allowed them to be essentially the sole creator and manufacturer of media upon which one could read, watch, or listen to books, music, films and other creative works. For most Americans, it was far cheaper to purchase a creative work at almost any offered price than it would be

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<sup>19</sup> Calling it a technological monopoly is not to say that it is not technologically possible to copy an item, but to say that the economics of doing so provides practical protection as few would choose to make such a copy.

<sup>20</sup> Individuals like to look at themselves as moral and honest, and feel a "warm glow" from pro-social activities. This self-identity as an honest person is as important as a good reputation to others. Stephan Meier, *A Survey of Economic Theories and Field Evidence on Pro-Social Behavior*, in *ECONOMICS AND PSYCHOLOGY: A PROMISING NEW CROSS-DISCIPLINARY FIELD* 54-55, 60-61 (Bruno S. Frey & Alois Stutzer eds., 2007); *see also* Bruno S. Frey & Reto Jegen, *Motivation Crowding Theory*, 15 *J. ECON. SURVEYS* 589-591 (2001); *see generally* Uri Gneezy, Stephan Meier, and Pedro Rey-Biel, *When and Why Incentives (Don't) Work to Modify Behavior*, 25 *J. ECON. PERSP.* 191, 194 (2011).

<sup>21</sup> Individuals' identities as a pro-social or anti-social person can derive from their own actions and perceptions of those actions, the actions and perceptions of others, the way they view the actions of others, and their background, schooling and type of employment. George A. Akerlof & Rachel E. Kranton, *Economics and Identity*, 115 *Q.J. ECON.* 717, 720-27 (2000).

to create it at home. That is to say, it was cheaper to purchase the Beatles' "White Album"<sup>22</sup> from a record store than to obtain a press and forge the record for yourself.<sup>23</sup> In fact, the technological monopoly on music provided by the label owning the master off of which all clear copies could be made was so strong that Congress did not even add copyright protection to sound recordings until three years *after* said album debuted.<sup>24</sup> It was cheaper to purchase "1984"<sup>25</sup> at a bookstore than to buy a printing press and make yourself a copy.<sup>26</sup> There was commercial-level copyright infringement of books and records,<sup>27</sup> but rarely among consumers.<sup>28</sup>

So long as creators and publishers of creative works maintained a technological monopoly, it was easy to maintain the legal and moral monopolies as well. Since one could not practicably manufacture their own version of "For Whom the Bell Tolls"<sup>29</sup> even if they wanted to, it was easy for consumers to say they respected intellectual property law and would not take what they did not own. That is to say, practically speaking one *couldn't* violate the legal and moral monopolies even if he or she wanted to, and so there was no need to even imagine the implications of doing so. The technological monopoly was sufficient and virtually all encompassing.

#### A. *A History of Sharing Copyrighted Content*

Though some trace the "beginning of the end" of the technological monopoly on copyrighted content to the deployment of Napster in 1999, the end actually began much earlier, with the advent of audio and video tape and the technology to dub audio and video at home.<sup>30</sup> For the first time, users at home could capture songs from the radio and video from television, and could copy works they owned or obtained and sell or give away those copies. Yet this

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<sup>22</sup> THE BEATLES, *THE BEATLES (THE WHITE ALBUM)* (EMI 1968).

<sup>23</sup> Krzysztof Bebenek, *Strong Wills, Weak Locks: Consumer Expectations and the DMCA Anticircumvention Regime*, 26 BERKELEY TECH. L. J. 1457, 1470–71 (2011).

<sup>24</sup> Sound Recording Act of 1971, P.L. 92-140 (1971); Menell, *supra* note 10, at 105–06, 131–32.

<sup>25</sup> GEORGE ORWELL, *NINETEEN EIGHTY-FOUR: A NOVEL* (1949).

<sup>26</sup> Menell, *supra* note 9, at 105–06.

<sup>27</sup> Danwill David Schwender, *Reducing Unauthorized Digital Downloading of Music By Obtaining Voluntary Compliance with Copyright Law Through the Removal of Corporate Power in the Recording Industry*, 34 T. JEFFERSON L. REV. 225, 235–36 (2012).

<sup>28</sup> See Menell, *supra* note 9, at 66.

<sup>29</sup> ERNEST HEMINGWAY, *FOR WHOM THE BELL TOLLS* (1940).

<sup>30</sup> Schwender, *supra* note 27, at 235–37.



technology did not tumble the walls of intellectual property law, at least in part because copies usually had poor (and increasingly diminishing) quality,<sup>31</sup> it was time and work-intensive (copying required physical effort and was not instantaneous), required purchase of blank media, and there was no economic reward to be reaped by selling or giving away such tapes (mix tapes for teenage lovers notwithstanding). Such copies were scattered, of poor quality such that they were not a true replacement good and, while cheaper, were not so cheap as to truly disturb profits. While cracks in the walls of copyright law appeared, most users purchased creative works the “old-fashioned way,” in bookstores and record shops.

Intellectual property owners historically used litigation and legislation passed by Congress to go after commercial and large scale reproducers of material protected by copyright law,<sup>32</sup> while rarely bringing suit or seeking redress against consumers or end users of illegally copied materials.<sup>33</sup>

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<sup>31</sup> Menell, *supra* note 9, at 105–06.

<sup>32</sup> Prior to the Internet, it was incredibly burdensome and expensive to go after end users, not to mention the difficulty locating infringement of copyrighted works. It was far more efficient to seek redress from major copiers of works farther up the economic food chain. Intellectual property scholar Jane Ginsburg opined that,

Copyright owners have traditionally avoided targeting end users of copyrighted works. This is in part because pursuing the ultimate consumer is costly and unpopular. But the primary reason has been because end users did not copy works of authorship—or if they did copy, the reproduction was insignificant and rarely the subject of widespread further dissemination. Rather, the entities creating and disseminating copies (or public performances or displays) were intermediaries between the creators and the consumers: for example, publishers, motion picture producers, and producers of phonograms. Infringements, rather than being spread throughout the user population, were concentrated higher up the chain of distribution of works. Pursuing the intermediary therefore offered the most effective way to enforce copyright interests. By contrast, in cyberspace individuals will often commit the unauthorized acts, both for private consumption and for further dissemination to other individuals.

Jane C. Ginsburg, *Putting Cars on the “Information Superhighway”: Authors, Exploiters, and Copyright in Cyberspace*, 95 COLUM. L. REV. 1466, 1488 (1995); *see also* Ben Depoorter & Sven Vanneste, *Norms and Enforcement: The Case Against Copyright Litigation*, 84 OR. L. REV. 1127, 1131–32 (2005).

<sup>33</sup> Bebenek, *supra* note 23, at 1470–71; Ben Depoorter and Robert Kirk Walker, *Copyright False Positives*, 89 NOTRE DAME L. REV. 319, 327, 339 (2013); Ben Depoorter, Francesco Parisi & Sven Vanneste, *Problems with the Enforcement of Copyright Law: Is There a Social Norm*

*B. Napster Shepherds in an Era of Digital Frictionless Sharing*

In 1999, Sean Fanning, a student at Northeastern University in Boston, released Napster onto the web.<sup>34</sup> While Napster was not the first forum used to share music through the MP3 format,<sup>35</sup> it quickly became the most popular to date.<sup>36</sup> For the first time in history, the technological monopoly on creation of perfect digital copies<sup>37</sup> of protected work fell; it was not just cheaper, but essentially free, to quickly create a precise duplicate of a creative work, and to share that work with friends or strangers in the next room, a nearby residence hall, or a continent away.

While initially much of the illegal sharing of copyrighted content took place at colleges and universities with high-speed Internet connections, in short order, as more homes traded in their dial-up connections for high-speed Internet, the practice became more widespread in society.<sup>38</sup> Further, while the initial impact of file sharing was on music files, movie and television producers felt the sting of digital piracy as more homes signed up for DSL or cable broadband and the transfer time for large files significantly decreased.<sup>39</sup>

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*Backlash?*, 12 INT. J. ECON. BUS., 361 (2005); Ben Depoorter, Alain Van Hiel & Sven Vanneste, *Copyright Backlash*, 84 S. CAL. L. REV. 1251, 1264 (2011); Menell, *supra* note 9, at 159; Schwender, *supra* note 27, at 264.

<sup>34</sup> STEVE KNOPPER, APPETITE FOR SELF-DESTRUCTION 113–49 (2009); KAL RAUSTIALA AND CHRISTOPHER SPRIGMAN, THE KNOCKOFF ECONOMY 216–18 (2012).

<sup>35</sup> MP3 is short for “Motion Picture Experts Group-Layer 3,” a powerful method to compress audio while maintaining most of the sound. Alexander, *supra* note 9, at 153; KNOPPER, *supra* note 34, at 115–21.

<sup>36</sup> Napster’s adoption was the fastest software adoption ever to that point. Alejandro Zentner, *Measuring the Effect of File Sharing on Music Purchases*, 49 J.L. & ECON. 63 (2006).

<sup>37</sup> PATRY, *supra* note 8, at 39; Menell, *supra* note 9 at 114–17.

<sup>38</sup> Within five years of Napster’s release, the numbers of downloaders were more spread across the population with 27% of Americans between 30 and 49 and 12% of Americans over 55 reporting that they engaged in file sharing. Yuval Feldman & Janice Nadler, *The Law and Norms of File Sharing*, 43 San Diego L. Rev. 577, 582–83 (2006). “Internet penetration...increased from 16 percent in 1997 to 47 percent in 2000. And broadband connection...stood in early 2003 at 40 percent of connected households.” Rafael Rob & Joel Waldfogel, *Piracy on the High C’s: Music Downloading, Sales Displacement, and Social Welfare in a Sample of College Students*, 49 J.L. & ECON. 29, 32–33 (2006). See Joseph Storch & Heidi Wachs, *A Legal Matter: Peer-To-Peer File Sharing, The Digital Millennium Copyright Act, and the Higher Education Opportunity Act: How Congress and the Entertainment Industry Missed an Opportunity to Stem Copyright Infringement*, 74 ALB. L. REV. 313, 345–46 (2011).

<sup>39</sup> See Storch & Wachs, *supra* note 38, at 345–46.

Around the same time, the technological monopoly fell for textbook makers. From time immemorial, college and university students have purchased required and optional textbooks to accompany their courses. During this period, the price of textbooks was increasing significantly,<sup>40</sup> alongside other rising college costs.

Prior to the significant cost reductions of printers and scanners, textbook companies had a technological monopoly. Students could either purchase the book from the college bookstore or another retail environment, or not acquire the books at all. Much to the chagrin of publishers, students developed a thriving formal and informal market for used textbooks, firmly permitted under the First Sale doctrine.<sup>41</sup> Publishers fought these markets with frequent new editions, lowering the value of older (even recent) editions,<sup>42</sup> by including floppy discs, CD-ROMs, DVDs, or one-time-use Internet codes alongside the books for access to additional content, and later by licensing use or rental of some textbooks, rather than outright sale. Although many classes require use of only a small portion of a larger book, publishers sell textbooks whole.<sup>43</sup>

In *Kirtsaeng v. John Wiley & Sons, Inc.*<sup>44</sup> Kirtsaeng, a student at Cornell University and the University of Southern California, realized he could exploit a market inefficiency—although the textbooks for sale in Ithaca or Los Angeles cost

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<sup>40</sup> According to a Government Accountability Office survey, textbook prices increased by 82 percent in the 10 years between 2003 and 2013. Danya Perez-Hernandez, *Open Textbooks Could Help Students Financially and Academically*, THE CHRONICLE OF HIGHER EDUCATION (Jan. 28, 2014), <http://chronicle.com/blogs/wiredcampus/open-textbooks-could-help-students-financially-and-academically-researchers-say/49839>.

<sup>41</sup> The First Sale Doctrine is an aspect of copyright law that provides non-owners of a right with the opportunity to sell (and not retain) a copyrighted work that they own. An owner of a tangible copy of a work does not hold a copyright in that work, but he or she may sell or give away that copy of the work and not violate the law. The First Sale Doctrine does not, however, allow the owner of a single legal copy of a tangible work to make a subsequent copy of that work and give away the copy. To do so violates the copyright owner's exclusive rights to make copies. Used bookstores, used textbooks, and garage sale transfers of old VHS tapes are all completely legal under the First Sale Doctrine. The Doctrine does not cover photocopies, or files shared using P2P software, as the sharer retains a copy.

<sup>42</sup> Molly Redden, *7 in 10 Students Have Skipped Buying a Textbook Because of Its Cost, Survey Finds*, THE CHRONICLE OF HIGHER EDUCATION (Aug. 23, 2011), <https://chronicle.com/article/7-in-10-Students-Have-Skipped/128785/>; see also *Make Textbooks Affordable*, STUDENT PIRGS, <http://www.studentpirgs.org/campaigns/sp/make-textbooks-affordable> (last visited Apr. 9, 2014).

<sup>43</sup> Joseph Storch, *Needed: A Single Source for Textbooks*, THE CHRONICLE OF HIGHER EDUCATION (Feb. 6, 2009), <http://chronicle.com/article/Needed-A-Single-Electronic/30496>.

<sup>44</sup> *Kirtsaeng v. John Wiley & Sons, Inc.*, 133 S. Ct. 1351 (2013).

a great deal, the same content was available in his home country in international editions of these textbooks, at a steep discount, reflecting different prices that the same publisher charges in different countries.<sup>45</sup> Kirtsaeng's attempt at international arbitrage was met with hostility by the textbook publishers who filed a suit for violation of their copyright in these works.<sup>46</sup> The Supreme Court ruled in Kirtsaeng's favor, allowing first sale to apply even for textbooks purchased overseas.<sup>47</sup>

While the *Kirtsaeng* case describes somewhat extreme steps taken to obtain textbooks at a lower price, other college students took a simpler route. While many chose to go without required textbooks due to their cost,<sup>48</sup> with the advent of low cost scanners and printers (which sometimes were included with purchased computers at no additional cost), students could simply break the binding of a book, put the pages through a scanner, and share or print additional copies.<sup>49</sup> In that

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<sup>45</sup> The publishing companies engage in price discrimination based on geography, offering the same content at different prices to audiences with different willingness to pay. The publisher cannot actually charge different prices to different individuals based on their wealth and interest in the book, so it engages in third degree price discrimination by charging different rates in different countries. *See supra* text accompanying notes 281 & 282 for a discussion of third degree price discrimination. Wiley would include a statement in the international editions of its textbooks that they may not be removed from certain countries without permission and that to do so violates the law. *Kirtsaeng*, 133 S. Ct. at 1356.

<sup>46</sup> The District Court and the Second Circuit ruled in opposite directions and the Supreme Court reviewed the case. The case hinged on the Supreme Court's interpretation of the "First Sale Doctrine."

<sup>47</sup> *Kirtsaeng*, 133 S. Ct. at 1358. The Court looked at the phrase "lawfully made under this title" of the first sale doctrine and determined that lawfully made did not exclude works that are made outside of the United States. The Court found that the language of 17 U.S.C. §109(a), when read in the context of the common law development of the first sale doctrine, favored a reading that was non-geographical, for reasons both linguistic and practical. *Id.* at 1358–64. Read in the way that Wiley desired, the Court believed that the statute would significantly impinge on scholarship and research as well as the used market for books and other creative works. *Id.* at 1364–1367.

<sup>48</sup> Hernandez, *supra* note 40; Marc Parry, *Students Get Savvier About Textbook Buying*, THE CHRONICLE OF HIGHER EDUCATION (Jan. 37, 2013), [http://chronicle.com/article/Students-Get-Savvier-About/136827/?cid=wc&utm\\_source=wc&utm\\_medium=en](http://chronicle.com/article/Students-Get-Savvier-About/136827/?cid=wc&utm_source=wc&utm_medium=en).

<sup>49</sup> Randall Stross, *First It Was Song Downloads. Now It's Organic Chemistry*, N.Y. TIMES (July 27, 2008), [http://www.nytimes.com/2008/07/27/technology/27digi.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2008/07/27/technology/27digi.html?pagewanted=all&_r=0); John Timmer, *Campus Copyright Battle Moves to Textbook Torrents*, ARS TECHNICA (July 1, 2008), <http://arstechnica.com/tech-policy/2008/07/campus-copyright-battle-moves-to-textbook-torrents/>. The Huffington Post even posted a "how to guide" for students who wish to scan and

way, multiple students could split the initial expensive cost of a textbook. Even though their copy would not be as nicely bound, many cost-conscious students felt such a sacrifice was acceptable if it meant significantly cutting the cost of textbooks. As with the music and movie industries, once the technological impediments to reproduction of textbooks fell, the only monopolies protecting such works were the legal and moral monopolies. Students, who had watched the prices of textbooks increase significantly,<sup>50</sup> even as they were forced out of the used market by rapid arrivals of new editions, may have felt fewer moral pangs in copying these books. Once that moral monopoly fell, the legal monopoly of copyright law was not sufficiently strong to prevent students from copying and sharing textbooks.

### *C. Similarities and Differences of Copyright and Patent Law*

Just as copyright law provides a legal monopoly for expressions created and placed in a tangible medium, so too patent law provides protection for new, non-obvious, and useful methods and manufactures. Both regimes create legal monopolies wherein the owner of the creation can determine if, how, when and where the item is distributed as well as the price (if any) charged to access the item.

This next section deals with what may be called the “copyrightization” of patent law. Patent law and copyright can be thought of to have traditionally protected different aspects of intellectual property law, the embodiment of an idea and the expression of an idea.<sup>51</sup> When an author obtains a copyright in a work, she or he isn’t protecting the physical embodiment of a book or a record in the store, but the expression of the creative content that is incorporated into that physical

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share textbooks. Luke Turcotte, *How to Digitize Your Textbooks*, THE HUFFINGTON POST (Sep. 19, 2010), [http://www.huffingtonpost.com/hack-college/how-to-digitize-your-text\\_b\\_730879.html](http://www.huffingtonpost.com/hack-college/how-to-digitize-your-text_b_730879.html).

<sup>50</sup> See Sabri Ben-Achour, *Rise of the Digital College Textbook*, MARKETPLACE (Feb. 26, 2014), <http://www.marketplace.org/topics/business/education/rise-digital-college-textbook> (“Publishers dealt with the fact that they only make money the first year a new textbook edition is out by raising prices. Students then bought fewer textbooks. Then, publishers raised prices again. ‘Some prices are astronomical,’ says [Columbia Economics Professor] Mishkin. ‘My book sells for \$225. That’s just a lot of money.’”).

<sup>51</sup> Richard Watt describes the distinction using a clear phrase, writing that “[p]atents protect application of ideas, and copyrights protect expression of ideas.” Richard Watt, *A Unifying Theory of Copyrights and Patents*, 12 INT. J. ECON. BUS. 389–02, 390 (Nov. 2005).

book or record, such as the plot, character development and dialog.<sup>52</sup> Conversely, a patent could be obtained on a new type of book format<sup>53</sup> or a new method of displaying text in a book (such as using backlight liquid crystal display), regardless of the content expressed in that book. With 3-D printing, however, the lines between the two forms of intellectual property protection begin to blur.

Unlike writings, songs, movies and other works of creativity fixed in a tangible medium, the core of what is protected by copyright law,<sup>54</sup> the design of a tangible product does not have such protection. Small aspects of a physical product may be protected by copyright, such as the writing on the product or its packaging, or software that makes the product run. The name, symbols, logos and slogans of a product may be protected by trademark law.<sup>55</sup> Design patents protect new and non-obvious non-functional aspects of a physical product. Additionally, in some cases, the unique and well-known shape of a product itself may take on protections under the trade dress aspects of trademark law.<sup>56</sup>

But the design and functionality of an item are aspects intended to be protected by patent law.<sup>57</sup> In fact, in today's technological landscape, a single product may have components protected by various patents, expiring at different times, and also protection for the product as a whole.<sup>58</sup> Patent applications are expensive, complicated, and time consuming to create, file and prosecute to issuance, and although patent lawsuits alleging infringement are common, those alleging direct copying are not common.<sup>59</sup> Patent law does not have an

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<sup>52</sup> The wording of the statute, discussing reproductions in "copies" or "phonorecords" as in 17 U.S.C. § 106 can cause confusion, but the purpose of copyright isn't to protect the physical medium itself, but the content therein.

<sup>53</sup> For instance, an e-reader such as the Amazon Kindle.

<sup>54</sup> 17 U.S.C. § 101 (2006).

<sup>55</sup> 15 U.S.C. § 1127 (2006).

<sup>56</sup> 15 U.S.C. § 1125(a) (2006).

<sup>57</sup> The patent law makes it a violation of the law if one, "without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent." 35 U.S.C. § 271 (2006).

<sup>58</sup> Ben Depoorter, *The Several Lives of Mickey Mouse: The Expanding Boundaries of Intellectual Property Law*, 9 VA. J.L. & TECH. 4, 42 (2004).

<sup>59</sup> See generally Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421 (2009).

administrative process as copyright does following the passage of the Digital Millennium Copyright Act (DMCA).<sup>60</sup>

#### IV

#### USING THE LEGAL SYSTEM TO ENFORCE COPYRIGHT BACKFIRED AND SET A PRICE ON VIOLATIONS

When Napster and other file sharing technologies were released and experienced significant uptake, especially in the beginning by college students, the members of the Recording Industry Association of America chose to act in a way that was acceptable under the law but, for the reasons detailed below, was a fundamental error in business judgment. By suing college students and others across the country, the industry certainly brought attention to the issue of file sharing of copyrighted work without consent, but it did so in a way that turned copyright violation from a moral issue into a market issue. Without intending to do so, the industry set a price on violating copyright law, and the price it set was lower than the cost of purchasing material legally.

It should be noted that the intention of this article is not to vilify the leadership or members of entertainment industry organizations<sup>61</sup> who made these choices when they came upon forces that were fundamentally changing their business model, and not (in their view) in a positive way. The organizations did not, at that time, have the benefit of the hindsight used in the analysis here, and it would be unfair to expect them to have had that insight at such a turbulent time. Behavioral economists have two theories that amply explain the reaction of entertainment industry members to the distribution of their intellectual property via peer-to-peer protocol: the status quo bias and the endowment effect.

The status quo bias explains a phenomenon wherein individuals have a significantly exaggerated preference for the status quo, even if changes they are offered would be beneficial. To adopt a change, therefore, the units of gain in the change must be significantly higher than the units of gain by simply leaving things

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<sup>60</sup> U.S. CONST. art. I § 8; 35 U.S.C. § 35 (2006) *et seq.*; *see especially* 35 U.S.C. § 271 (2006).

<sup>61</sup> Through other research projects, this author has come to know decision makers in the entertainment industry organizations who, among others, made the decision to use the legislative process to expand the rights of copyright holders and increase the penalties for violation of the copyright law and/or who made the decision to pursue civil lawsuits against peer-to-peer file sharers. Many in the anti-copyright movement discussed below, or in the “copyleft” tar such individuals with a broad brush as evil or anti-consumer, but this author believes that charge is wrong and oversimplified.

the way they are.<sup>62</sup> Napster came out at a time that the recording industry was enjoying record profits from compact disc sales.<sup>63</sup> Napster and other peer-to-peer services represented a fundamental shift in the method of providing content to consumers, and it was not immediately apparent to industry leadership how they could monetize this system in as robust a manner as their current sales. Now, with the benefit of hindsight, we can point out steps the industry should have taken: purchasing Napster,<sup>64</sup> launching their own robust competitors, or agreeing to an iTunes style sales format at an earlier stage. They did not, as it is very hard to move away from a success into the wild west of a new system.

In a manner similar to the status quo bias, the endowment effect occurs when individuals are unwilling to part with an asset they have invested in, even when it is taking a loss. People will hold onto stocks or homes that are losing money, hoping that they return to positive territory, and will hold them all the way down to zero or very low valuations, rather than selling at a loss.<sup>65</sup> For the recording industry, and slightly later, the movie and television industries, their reference point for the revenue and profit earned by distributing entertainment content was set during a very successful decade for sales.<sup>66</sup> Even as the value of these assets decreased when fewer and fewer consumers purchased content in traditional retail environments, with sliding sales taking profits alongside, it was very difficult for the entertainment industry companies to cut their perceived losses and switch to another method. Just as we are loath to sell a losing stock, hoping that it will come back into positive territory so we can sell it at a profit, so too, industry representatives wished strongly for a return to the heyday of the late 1990's, and may have assumed that a vigorous campaign of legislative lobbying and lawsuits would return them to these profits. There is disagreement among researchers as to whether or not Napster and other digital sharing have hurt overall

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<sup>62</sup> See Colin F. Camerer, *Prospect Theory in the Wild: Evidence from the Field*, in COLIN CAMERER ET AL. EDS., *ADVANCES IN BEHAVIORAL ECONOMICS* 154 (2003).

<sup>63</sup> KNOPPER, *supra* note 34, at 40–65, 81–104; RAUSTIALA, *supra* note 34 at 215–16.

<sup>64</sup> Record company negotiations to purchase Napster and turn it in to a legal service, ongoing alongside the lawsuits, did not result in a sale until it was too late to create a useful model. See KNOPPER, *supra* note 34 at 138–48; See also Menell, *supra* note 9, at 171 (entertainment industry failure to develop new online business models); RAUSTIALA, *supra* note 34, at 218–19 (arguing that the major labels should have purchased Napster and built on the Napster model).

<sup>65</sup> See Camerer, *supra* note 62, at 148–51; Daniel Kahneman & Amos Tversky, *Choices, Values, and Frames*, 39 AM. PSYCHOLOGIST 341, 348 (1984).

<sup>66</sup> See KNOPPER, *supra* note 34, at 40–65, 81–104; RAUSTIALA, *supra* note 34, at 214–16.



content sales in the long run.<sup>67</sup> Ultimately, although sales of physical copies of content continued their decline, sales of digital content have risen significantly and less than a decade after Napster's debut all music sales hit its highest level ever, 70% of which were legal digital downloads.<sup>68</sup>

While it is not helpful to cast blame and aspersions backwards, when the same choices arise for physical goods manufacturers, they will likely possess the same status quo bias and endowment effect that the entertainment industry possesses. The purpose here is to note that we are quickly approaching an inflection point in the ability to reproduce physical items, and to chart a different path wherein those manufacturers can still find success, albeit only if they overcome these natural biases. The latter sections of this article lay out choices the industry can make that will significantly impact its relationship with its customers and its economic path forward.

## V

### MORALS TO MARKETS: A FINE IS A PRICE

To some renown, the music industry unwittingly turned the act of piracy from a moral issue to a market issue by suing college students accused of sharing music in violation of the copyright law and quickly settling those claims. Once the lawsuits turned exchange of copyrighted files over peer-to-peer networks from a moral issue to a market issue, the question was not right or wrong, but simply what is the price? If the price of legal options was higher than the price of violative options, then a market actor would take the economically appropriate route—access content even if it violates the copyright law.

In a seminal study of behavior and pricing, Uri Gneezy and Aldo Rustichini took on the classical economics theory that assessing a price will always lower demand.<sup>69</sup> More specifically, the authors wanted to look at the classical deterrence

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<sup>67</sup> Menell, *supra* note 9 at 101–03; Alexander, *supra* note 9 at 155–57; Rob and Waldfogel, *supra* note 38, at 29–33, 53–60 (showing through survey analysis that “one downloaded album reduces music purchases by roughly one-fifth of an album,” finding that respondents downloaded music that they valued less than the music they purchased, and finding that “downloading reduces per capita expenditures by individuals . . . from \$126 to \$101 per capita”); Zentner, *supra* note 36, at 66, 85–86 (finding that downloads reduce the probability that a user will purchase music by 30 percent).

<sup>68</sup> Lemley, *supra* note 9, at 131, *citing* Ken Barnes, *Music Sales Boom, but Albums Fizzle*, USA TODAY, Jan. 2, 2009, at 6D.

<sup>69</sup> Uri Gneezy & Aldo Rustichini, *A Fine is a Price*, 29 J. LEGAL STUD. 1 (2000). Further, the “standard theory of optimal deterrence argues that when the probability of detecting norm

theory, which says that punishment deters “future crimes on the assumption that a higher expected punishment produces lower levels of criminal behavior.”<sup>70</sup> Stated otherwise, “the higher the cost of committing crimes, all else being equal, the lower will be the crime rate.”<sup>71</sup> The authors studied private daycare facilities in Israel that did not charge parents an additional fee for retrieving their children late, but such late retrievals required that an uncompensated teacher stay late to care for the child, and thus caused a guilty feeling among tardy parents.<sup>72</sup> They looked at 10 private facilities, observing them for a period with no treatment to count the number of parents who retrieved a child late.<sup>73</sup> The authors then added a treatment to six randomly chosen centers; a small fine imposed for parents who retrieve a child late, while four centers remained static as controls.<sup>74</sup> The fine was not steep or devastating,<sup>75</sup> 10 New Israel Shekels (NIS)<sup>76</sup> for those at least 10 minutes late, and was assessed per child retrieved late (without regard to how late the parents arrived).<sup>77</sup> The fine was posted on a board that could be seen by all parents<sup>78</sup> and was added to monthly tuition charges paid to the principal, not to the teachers who remained late.<sup>79</sup> Then, after several weeks of treatment, the fine was removed with no further explanation as to why it was removed.<sup>80</sup>

Classic deterrence theory would postulate that with the assessment of a fine, the incidence of late retrieval would decrease, and then return to its stasis after the fine was removed. But that is not what occurred. Instead, while the incidents of late retrieval in the control group remained constant, in the treatment group, the

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violators is low, the severity of the punishment should be high.” Erte Xiao, *Profit-Seeking Punishment Corrupts Norm Obedience*, 77 GAMES & ECON. BEHAV. 321, 322 (2013).

<sup>70</sup> Gneezy & Rustichini, *supra* note 69, at 2.

<sup>71</sup> Chung-cheng Lin & C.C. Yang, *Fine Enough or Don't Fine at All*, 59 J. BEHAV. & ORG. 195 (2006).

<sup>72</sup> Gneezy & Rustichini, *supra* note 69.

<sup>73</sup> *Id.* at 3–4.

<sup>74</sup> *Id.* at 2–4.

<sup>75</sup> The authors add some useful comparisons to show the relative pain caused by such a fine. The authors called the fine “relatively small but not insignificant” and, as a comparison, wrote that at the time of the article, “the fine for illegal parking is NIS 75; the fine for driving through a red light is NIS 1,000 plus penalties; the fine for not collecting the droppings of a dog is NIS 360 . . . . [A] baby-sitter earns between NIS 15 and NIS 20 per hour[, and t]he average gross salary per month in Israel at the time of the study was NIS 5,595 . . . .” *Id.* at 5.

<sup>76</sup> Depending on exchange rates, 10 NIS ranges between two and three U.S. dollars.

<sup>77</sup> Gneezy & Rustichini, *supra* note 69, at 4–5.

<sup>78</sup> *Id.*

<sup>79</sup> *Id.* at 5.

<sup>80</sup> *Id.*

“number of occurrences of delay increased steadily in the first 3–4 weeks after the introduction of the fine . . . [and] finally settled, at a level that was higher, and almost twice as large as the initial one.”<sup>81</sup> Just as interesting, when the fine was later removed, the incidents of late retrieval did not return to its initial levels, but remained stable at the higher level attained when the fine was imposed.<sup>82</sup>

There are several possible explanations for this phenomenon, which cuts against everything we learn in classical deterrence theory.<sup>83</sup> One explanation is that in the initial weeks, parents felt an unstated push to keep late retrievals rare, since there is an incomplete contract in place—they do not know what will happen if they retrieve their child late too many times. Once the fine is imposed, however, the consequence for late retrieval is certain, albeit worse than the unstated. The parent can make a cost/benefit decision whether to arrive late.<sup>84</sup> In such an explanation, once the fine is removed, the parents still see the fine as the worst possible outcome, and still behave in this manner.<sup>85</sup>

A highly theoretical explanation posed in a later paper on the topic is that “there is a unique social norm . . . that prescribes that individuals should be on time and not late. The introduction of a monetary fine for parents who come late is deemed to reduce the psychological cost arising from the violation of the social norm,<sup>86</sup> and this, in turn, erodes the bite or effectiveness of the social norm against delinquency.”<sup>87</sup> That erosion, therefore, explains why parents increasingly arrive late and why lateness is sustained after the fine is removed.<sup>88</sup>

The more compelling explanation, however, is that of a change in social norms from a nonmarket activity (here referred to as moral activity) to a market activity. Gneezy and Rustichini posit that the “introduction of the fine may have changed the perception of the two relevant acts: the parents coming late and the

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<sup>81</sup> *Id.* at 7.

<sup>82</sup> *Id.* at 8.

<sup>83</sup> Frey & Jegen, *supra* note 20, at 590–91.

<sup>84</sup> In that explanation, the social norms are the same, “but parents have now reason to believe that a fine is the worst that can happen.” Gneezy & Rustichini, *supra* note 69, at 10.

<sup>85</sup> *Id.* at 11.

<sup>86</sup> A social norm is defined as “a behavioral regularity; that is . . . based on a socially shared belief of how one ought to behave; which triggers . . . the enforcement of the prescribed behavior by informal social sanctions.” Ernst Fehr & Simon Gächter, *Fairness and Retaliation: The Economics of Reciprocity*, 14 J. ECON. PERSP. 159, 166 (2000).

<sup>87</sup> Lin & Yang, *supra* note 71, at 197.

<sup>88</sup> *Id.*

teachers taking care of the children after closing time.”<sup>89</sup> Prior to the addition of the small fine, parents “may have interpreted the action of the teachers . . . as a generous, nonmarket activity” where the teacher is kindly staying late and the parent should not take advantage of that generosity of spirit.<sup>90</sup> The fine changes it from a moral question of not taking advantage of a generous teacher to a simple market transaction. The authors argue that the parents feel justified in late retrievals, reasoning that the “teacher is taking care of the child in much the same way as she did earlier in the day. In fact this activity has a price . . . [and] I can buy this service as much as needed.”<sup>91</sup> While the authors acknowledge that the fee assessed was a minor fee, and believe it “true that a ‘large enough’ fee would eventually reduce the behavior,”<sup>92</sup> they theorize that “[w]hen help is offered for no compensation in a moment of need, accept it with restraint. When a service is offered for a price, buy as much as you find convenient.”<sup>93</sup> This is where they draw their conclusion that “a fine is a price.”

Yet even after the fine was removed, parents still retrieved children late. This is because even with the fine removed, the activity remains one of market terms or, as the authors refer to it, “[o]nce a commodity, always a commodity.”<sup>94</sup> In the third period, the activity of late retrieval simply switched from a commodity with a low price to a commodity with a zero price.<sup>95</sup>

This is not the only study to find changes in behavior when an action switches from a moral activity to a market activity. Called “motivation crowding,” the effect occurs when external financial incentives or punishments undermine or strengthen an individual’s internal motivations to act in a certain way.<sup>96</sup> That is to say, external factors such as financial payment or cost will “crowd out” the individual’s natural internal compass. Citizen’s willingness to have a “hazardous waste treatment plant in their local neighborhood *decreased* if monetary

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<sup>89</sup> Gneezy & Rustichini, *supra* note 69, at 13.

<sup>90</sup> *Id.* at 13–14.

<sup>91</sup> *Id.* at 14.

<sup>92</sup> *Id.* at 15.

<sup>93</sup> *Id.* at 14.

<sup>94</sup> *Id.* at 14, 16; *see also* Lin & Yang, *supra* note 71, at 196.

<sup>95</sup> Gneezy & Rustichini, *supra* note 69, at 14.

<sup>96</sup> Frey & Jegen, *supra* note 20, at 589–95; Kristina Shampanier, Nina Mazar and Dan Ariely, *Zero as a Special Price: The True Value of Free Products*, 26 *MARKETING SCIENCE* 742, 743 (2007).

compensation was offered,”<sup>97</sup> paying for blood donations reduces willingness to donate blood,<sup>98</sup> and many Norwegian club members who volunteer annually for community service said they would participate *less* if offered a fee.<sup>99</sup> Intrinsic motivations to pay taxes based on “civic virtue” can be crowded out by extrinsic threats of penalties for noncompliance, and increasing the penalties for tax evasion may crowd out that intrinsic motivation as “people feel they pay their taxes because they have to, rather than because they want to.”<sup>100</sup> One reason that financial or other extrinsic rewards can “crowd out” natural motivation to undergo a task is that an individual’s self-view becomes murky as to whether they are undertaking an “activity to ‘do good’ or to ‘do well.’”<sup>101</sup>

## VI

### PEER-TO-PEER FILE SHARING: A LAWSUIT SETTLEMENT SETS A PRICE

With the advent of peer-to-peer file sharing of copyrighted material, the entertainment industry, which historically had filed suits against commercial and large scale copyright infringers,<sup>102</sup> and which did so in this domain with a series of lawsuits filed against Napster and other peer-to-peer file sharing software providers,<sup>103</sup> for the first time set its sights on consumers of unlicensed copyrighted content, thousands of college students and others who uploaded unlicensed

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<sup>97</sup> Kjell Arne Brekke, Snorre Kverndokk and Karine Nyborg, *An Economic Model of Moral Motivation*, 87 J. PUB. ECON. 1967, 1968 (2003) (emphasis supplied).

<sup>98</sup> Frey & Jegen, *supra* note 20, at 589.

<sup>99</sup> Brekke, Kverndokk and Nyborg, *supra* note 97, at 1968, 1981.

<sup>100</sup> Joel Slemrod, *Cheating Ourselves: The Economics of Tax Evasion*, 21 J. ECON. PERSP. 25, 39 (2007).

<sup>101</sup> Gneezy, Meier, and Rey-Biel, *supra* note 20, at 201–02; Meier, *supra* note 20, at 68–71.

<sup>102</sup> Depoorter, Parisi and Vanneste, *supra* note 33, at 361; Depoorter and Vanneste, *supra* note 32, at 1131–1132.

<sup>103</sup> For analysis of the various cases, including those against MP3.com, Aimster, Grokster, and others, see Storch & Wachs, *supra* note 38, at 316–19; Menell, *supra* note 9, at 143–152; Depoorter, Van Hiel and Vanneste, *supra* note 33, at 1258–59; Irina D. Manta, *The Puzzle of Criminal Sanctions for Intellectual Property Infringement*, 24 HARV. J.L. & TECH. 469, 502–03 (2011); Harris, *supra* note 9, at 129–30; Ben Depoorter, *Technology and Uncertainty: The Shaping Effect on Copyright Law*, 157 U. PA. L. REV. 1831, 1832–33 (2009).

material using peer-to-peer protocols.<sup>104</sup> Yet, even with the threat of lawsuits, downloading activity increased.<sup>105</sup>

For young people at that time, the price of accessing a single song was very high, at least as measured in how long one had to work at minimum wage to obtain that song legally. In 1998, at the advent of Napster, compact discs were sold for \$12, \$15, or even \$20 each, and only a few songs were available as singles for individual purchase.<sup>106</sup> In order to listen to a single song, someone making the minimum wage of \$5.15 per hour in 1998<sup>107</sup> had to work four hours. Today, by contrast, single songs can be purchased legally on a variety of sites, including iTunes, Amazon, and Wal-Mart for an amount that hovers between one dollar and two dollars (and sometimes less), while the minimum wage is \$7.25.<sup>108</sup> Today, one need work mere minutes to earn enough income to cover the price of legally purchasing a song.

The first truly accessible, global legal option for obtaining copyrighted material did not arrive until the release of Apple's iTunes in 2001.<sup>109</sup> In this three year window preceding the availability of legal downloading options, consumers were presented with a binary choice—they could purchase music and other content in the older compact disc or tape format from stores or other retail outlets at a price that had a serious cost in terms of hours worked to obtain the content,<sup>110</sup> or they could access the same content, in the newer and more portable MP3 format and with no out-of-pocket cost, but in a manner that violated copyright law.<sup>111</sup>

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<sup>104</sup> See Storch & Wachs, *supra* note 38, at 319–23; Depoorter & Vanneste, *supra* note 32, at 1132–34; Depoorter, Parisi and Vanneste, *supra* note 33, at 361; Depoorter, Van Hiel and Vanneste, *supra* note 33, at 1259–63; Schwender, *supra* note 27, at 249–51.

<sup>105</sup> Depoorter & Vanneste, *supra* note 32, at 1134; Depoorter, Parisi and Vanneste, *supra* note 33, at 361; Depoorter, *Technology and Uncertainty*, *supra* note 103, at 1833, 157 U. PA. L. REV. 1831, 1833 (2009); Harris, *supra* note 9, at 145–47.

<sup>106</sup> KNOPPER, *supra* note 34, at 81, 105–107; RAUSTIALA, *supra* note 34 at 229–30.

<sup>107</sup> Changes in Basic Minimum Wages in Non-Farm Employment Under State Law: Selected Years 1968 to 2010, U.S. DEPT. LAB., <http://www.dol.gov/whd/state/stateMinWageHis.htm>.

<sup>108</sup> *Id.*

<sup>109</sup> Apple Introduces iTunes—World's Best and Easiest to Use Jukebox Software, APPLE (Jan. 9, 2001), <http://www.apple.com/pr/library/2001/jan/09itunes.html>.

<sup>110</sup> This led to a sense of anger at the recording companies, especially when tied with the perception that dollars spent went to the recording companies, not the artists. See Feldman & Nadler, *supra* note 38, at 587.

<sup>111</sup> In a section entitled “The Fallacy of Enforcement,” Patry argues that if demand is created to access an item in an online environment, the best way to prevent access of that content through unauthorized means is to “flood the market with authorized goods.” If they are unable to

All consumers wish to be treated fairly in their transactions,<sup>112</sup> and, despite industry statements to the contrary, do not act out of pure self-interest, do not “free ride” as often as they are accused, and will usually act in a pro-social manner.<sup>113</sup> Interpretations of fairness disdain transactions where one party seems to be gouging the other party, especially when compared to the reference price at which one believes they ought to pay.<sup>114</sup> When those meting out a punishment “can make profit by punishing, neither those who observe the punishment nor the punishment recipients view punishment as expressing social norms.”<sup>115</sup>

For college students, as Napster and its progeny spread, with no comparable legal offering from the recording industry, the reference price for a single song switched from that required by purchasing a compact disc to, essentially, free. To purchase during that wave was to pay more than the reference price (which millions still did). As the price of legal music rose, however, fewer were willing to pay the even higher prices for legal access when the same content was available free, even if it violated the copyright law.<sup>116</sup> Even worse than simply eschewing legal purchases for accessing content through Napster and other peer-to-peer protocol, economists have found that those who feel they are being mistreated or gouged in a transaction are more willing to punish that unfairness.<sup>117</sup> In fact, feelings of reciprocal punishment for perceived negative behavior are even stronger than feelings of reciprocal reward for perceived positive behavior.<sup>118</sup>

The external monetary motivation of the industry lawsuits crowded out the internal incentive to act in an honest way and pay for the content one acquires.<sup>119</sup> “Civic virtue (a particular manifestation of intrinsic motivation)...bolstered if the public laws convey the notion that citizens are to be trusted,”<sup>120</sup> was undermined by

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access content legally, at least some consumers will still seek to access that content in any way they are able, including through methods outside of what is allowed under intellectual property law. PATRY, *supra* note 8, at 256–62.

<sup>112</sup> Daniel Kahneman, Jack L. Knetsch and Richard Thaler, *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, 76 AM. ECON. REV. 728 (1986).

<sup>113</sup> Meier, *supra* note 20, at 51.

<sup>114</sup> Kahneman, Knetsch and Thaler, *supra* note 112, at 729–33.

<sup>115</sup> Xiao, *supra* note 69, at 323. That is to say, the impact of punishment is “significantly diminished...when the punishment becomes a source of revenue for enforcers.” *Id.*, at 332.

<sup>116</sup> Storch & Wachs, *supra* note 38, at 349.

<sup>117</sup> Kahneman, Knetsch & Thaler, *supra* note 112 at 736–37; Meier, *supra* note 20, at 56–57; Xiao, *supra* note 69, at 332.

<sup>118</sup> Fehr & Gächter, *supra* note 86, at 162–63.

<sup>119</sup> See Frey & Jegen, *supra* note 20, at 590.

<sup>120</sup> *Id.* at 604–05.

the industry's actions in pursuing lawsuits against individuals. Conversely, when citizens feel that they are not trusted, they react by breaking the law if they expect the cost of doing so to be low.<sup>121</sup> In a study, students who already shared files reported that heavy sanctions led them to believe their behavior was *more* ethical than moderate sanctions did.<sup>122</sup>

Individuals are less likely to steal actual cash than they are to engage in theft of credit or cash value that is not itself hard currency.<sup>123</sup> So, too, those who would never steal a compact disc from a store may be more willing to engage in file sharing of copyrighted content since there is some separation from the physical good or cash value. It is likely that the anonymous nature of file sharing along with its separation from cash transactions may have diffused the moral guard against taking what one does not own.

#### *A. Incentives to Settle for Plaintiffs and Defendants*

It is expensive to defend oneself in a copyright infringement case. The Copyright Act uses strict liability, meaning intention to violate is not relevant.<sup>124</sup> According to an American Intellectual Property Association report, defending a copyright claim for an amount in controversy below one million dollars “costs on average \$303,000 through the end of discovery, and \$521,000 through trial”<sup>125</sup> in

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<sup>121</sup> *Id.*

<sup>122</sup> Depoorter & Vanneste, *supra* note 32, at 1152–54.

<sup>123</sup> College students will take cans of Coke left in refrigerators, but will not take dollar bills left alongside, and are less willing to cheat on a standardized problem set if the reward is cash even over a token that can *immediately* be exchanged for cash. DAN ARIELY, *THE (HONEST) TRUTH ABOUT DISHONESTY* 32–34, 84 (2012).

<sup>124</sup> 17 U.S.C. § 501(a) (2012). Ciolino and Donelon wrote that,

Federal copyright law sets forth a seemingly straightforward standard for copyright infringement: ‘[a]nyone who violates any of the exclusive rights of the copyright owner is liable for copyright infringement.’ By branding as an infringer ‘anyone’ who infringes a copyright, the Copyright Act casts a wide net that ensnares infringers of all different stripes. Indeed, the Act treats all infringers alike—from the most innocent to the most nefarious. In copyright’s strict liability scheme, the infringer’s faultlessness or culpability is of anomalously little relevance.

Dane Ciolino & Erin Donelon, *Questioning Strict Liability in Copyright*, 54 RUTGERS L. REV. 351, 351 (2002); *see also* Steven Hetcher, *The Immorality of Strict Liability in Copyright*, 17 MARQ. INTELL. PROP. L. REV. 1 (2013).

<sup>125</sup> Depoorter & Walker, *supra* note 33, at 343.



addition to the significant statutory violations which can be awarded in lieu of actual damages.<sup>126</sup> This provides a strong incentive for defendants to settle.<sup>127</sup> But there are also strong reasons for plaintiffs to settle these claims. The cost to litigate is expensive, and consumer defendants who are found liable may be essentially judgment proof. In two notable cases that did go to trial, juries assessed verdicts in the hundreds of thousands or millions of dollars against single mother Jammie Thomas-Rasset and Boston University student Joel Tenenbaum.<sup>128</sup> The cases have gone through many appeals and proceedings, but despite all the legal expenses,<sup>129</sup> it does not appear that the recording industries have collected a penny. Further, there was a general public feeling in response to these hefty awards that the amounts were “disproportionate and excessive.”<sup>130</sup> Rather than striking fear into the heart of potential copyright infringers, the high awards led to a backlash against the industry. Settlement for plaintiffs gives surety as to the amount they will expend compared to the revenue they will bring in.

Although the civil statutory penalties for violation of the copyright law are set at \$750 to \$150,000 per infringement,<sup>131</sup> with \$30,000 to \$150,000 the penalties for willful infringement<sup>132</sup> (alongside the potential for criminal copyright penalties),<sup>133</sup> the industry chose to give potential defendants<sup>134</sup> (quite often college and university students) the opportunity to settle the claims against them for a fee

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<sup>126</sup> Statutory damages range from \$750 to \$150,000. 17 U.S.C. § 504 (2012).

<sup>127</sup> Depoorter & Walker, *supra* note 33, at 355–57.

<sup>128</sup> *See Sony BMG Music Entm’t v. Tenenbaum*, No. 07cv11446-NG, 2009 U.S. Dist. LEXIS 115734 (D. Mass. Dec. 7, 2009); *Capitol Records, Inc. v. Thomas-Rasset*, No. 06-CV-01497 (MJD/LIB), 2009 WL 2030495 (D. Minn. June 18, 2009); Storch & Wachs, *supra* note 38, at 320, 321–23; Harris, *supra* note 9, at 137–38; *See also* David Kravets, *Jury in RIAA Trial Slaps \$2 Million Fine on Jammie Thomas*, WIRED (June 18, 2009, 6:57 PM), <http://www.wired.com/2009/06/riaa-jury-slaps-2-million-fine-on-jammie-thomas>; David Kravets, *RIAA Jury Finds Minnesota Woman Liable for Piracy, Awards \$222,000*, WIRED (Oct. 4, 2007, 2:34 PM), <http://www.wired.com/2007/10/riaa-jury-finds/>.

<sup>129</sup> *See infra* note 171.

<sup>130</sup> Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1265.

<sup>131</sup> 17 U.S.C. § 504 (2012).

<sup>132</sup> *Id.*

<sup>133</sup> Unlike for patent infringement, the United States Code includes potential criminal sanctions for copyright violations. Manta, *supra* note 103, at 470–85, 488 (recounting the history, increasing severity, and utilization of criminal sanctions for copyright violations).

<sup>134</sup> Service of these letters on college campuses (and through them college students) often occurred prior to serving students with notice of actual live litigation, which is why the letters were called pre-litigation settlement letters. *See* Storch & Wachs, *supra* note 38.

of \$3,000 to \$4,000.<sup>135</sup> As a further incentive to settle, plaintiffs reportedly doubled the settlement costs for those who delayed in responding or actively challenged the claim against them.<sup>136</sup> Alongside subpoenas that sought the identity of individuals who shared files at the Internet protocol (IP) address observed by an industry contractor's software, legal representatives for the industry plaintiffs would send colleges and universities pre-litigation settlement letters.<sup>137</sup> Plaintiffs would request that the institutions forward these letters to the individuals who matched the IP addresses caught sharing files. Nothing in the copyright law compelled institutions to so share these settlement offers, but many institutions, afraid that their students could face financial ruin if a jury assessed the statutory penalties against them, and perhaps considering the blowback when such defendants learned they could have, theoretically,<sup>138</sup> bought off their troubles for a fraction of the cost, chose to share the letters with the accused students.<sup>139</sup>

Recipients of the letters could go to a Web site, enter a specified code, and settle claims against them for a designated fee.<sup>140</sup> College students (or their parents) were even given the option of paying by credit card. While reportedly over 20,000 settled their cases,<sup>141</sup> there are no precise public statistics of how many settled claims in this matter or who they were. The process and cost associated with settlement certainly became known to the settlers, their friends, and other students through social media, the popular press, and word-of-mouth.

Just as in the daycare study, the cost of the fine was, on average, small. Further, just as the daycare fines were paid to the principal, not to the teacher who stayed late, the settlement fines were paid to record companies, and there was a perception among students that the funds were not returned to the artists who

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<sup>135</sup> Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1260; Harris, *supra* note 9, at 137–38.

<sup>136</sup> Nate Anderson, *RIAA Doubles Settlement Cost for Students Fighting Subpoenas*, ARS TECHNICA (June 12, 2008), <http://arstechnica.com/tech-policy/news/2008/06/riaa-doubles-settlement-cost-for-students-fighting-subpoenas>.

<sup>137</sup> See Storch & Wachs, *supra* note 38, at 320, 326–29.

<sup>138</sup> While it would make future litigation less likely for the specific violation referenced in the claim, the letter was specific that settlement did not bar the industry from future legal action for this or other copyright violations.

<sup>139</sup> See *id.*

<sup>140</sup> See Mitch Bainwol & Cary Sherman, *Explaining the Crackdown on Student Downloading*, INSIDE HIGHER ED (Mar. 15, 2007), <http://www.insidehighered.com/views/2007/03/15/sherman>; Storch & Wachs, *supra* note 38, at 320–21; Bobby Cummings, *RIAA Offers Settlements to College Students for File Sharing*, N.Y. TIMES, Mar. 2, 2007.

<sup>141</sup> Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1254–55.

created the works.<sup>142</sup> Even though the recording industry stopped filing new lawsuits in December of 2008,<sup>143</sup> the price had been set as it was in the daycare study, and the transaction had been permanently transitioned from a moral activity to a market activity.

While the industry probably could not have predicted it, the lawsuit campaign was not a classical economics disincentive to action, but merely the setting of a price. That price was lower than the cost of purchasing content legally, and consumers acted accordingly.

*B. With the Market Price Set, Prospect Theory Predicts Risk Taking in Avoiding Loss*

In a paper that led to the Nobel Prize in Economics, Daniel Kahneman and the late Amos Tversky laid out a theory of assessing and engaging in risk when in positions of losses and gains.<sup>144</sup> Prospect theory was a deviation from the long-taught expected utility theory and explained how people *actually* behave in cases of prospects (or gambles).<sup>145</sup> The economists found that survey answers violated expected utility theory—people overweight outcomes they consider certain relative to outcomes they consider probable<sup>146</sup> and “discard events of extremely low probability.”<sup>147</sup> Individuals do not, in fact, weigh all outcomes and then choose without emotion. How questions are framed (as a positive or a negative)

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<sup>142</sup> David Kravets, *File Sharing Lawsuits at a Crossroads, After 5 Years of RIAA Litigation*, WIRED (Sep. 4, 2008), <http://www.wired.com/threatlevel/2008/09/proving-file-sh/>; Peter Lauria, *Infringement!*, N.Y. POST (Feb. 27, 2008), <http://nypost.com/2008/02/27/infringement/> (describing efforts by artists to obtain some of the lawsuit settlement money); J.R. Raphael, *RIAA's New Piracy Plan Poses a New Set of Problems*, WASHINGTON POST (Dec. 20, 2008), <http://www.washingtonpost.com/wp-dyn/content/article/2008/12/19/AR2008121902930.html>; Schwender, *supra* note 27, at 234 (noting perception of peer-to-peer file sharing users that musicians are not profiting from record sales).

<sup>143</sup> Sarah McBride & Ethan Smith, *Music Industry to Abandon Mass Suits*, WALL ST. J. (Dec. 19, 2008), <http://online.wsj.com/article/SB122966038836021137.html>; Storch & Wachs, *supra* note 38, at 321; Jonathan M. Barnett, *What's So Bad About Stealing*, 4 J. TORT L. 1, 3 (2011).

<sup>144</sup> Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263 (1979).

<sup>145</sup> This theory assumes that rational individuals faced with a choice calculate the expected utility of each choice and then choose the one with highest utility, without emotion, and that such analyses are not impacted by other factors.

<sup>146</sup> Kahneman & Tversky, *Prospect Theory*, *supra* note 144, at 265.

<sup>147</sup> *Id.* at 282-83, 285. See also Kahneman & Tversky, *Choices*, *supra* note 65, at 341, 345 (1984).

significantly impacts how individuals make choices<sup>148</sup> and individuals treat losses of an amount as more painful than a gain of the same amount is pleasurable.<sup>149</sup> When they are in a position of accruing gains, people are risk averse; when they are in a position of suffering loss, people are risk seeking.<sup>150</sup> Given choice between two prospects, both of which are negative, people are willing to take on larger risk to avoid a more painful prospect over a less painful, but more certain, prospect; those same individuals are unwilling to take those risks in choosing between positive prospects.<sup>151</sup>

With the price of violating the copyright law set in popular culture at \$3,000 to \$4,000 dollars, with an *extremely* rare judgment for a large amount of money, individual users could make an actual or implicit cost/benefit analysis for engaging in violations of the copyright law that left morality and legality out of the equation.<sup>152</sup> They would accurately assess a small likelihood of being caught.<sup>153</sup> Purely based on probability, an individual could assess his or her subjective analysis of the likelihood they would be caught and multiply it by the published rate for being so caught. Such individuals, often young people, may have an

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<sup>148</sup> Kahneman & Tversky, *Prospect Theory*, *supra* note 144, at 273; Kahneman & Tversky, *Choices*, *supra* note 65, at 343–44, 346, 349.

<sup>149</sup> Kahneman & Tversky, *Prospect Theory*, *supra* note 144, at 279.

<sup>150</sup> *Id.* at 268; Kahneman & Tversky, *Choices*, *supra* note 65, at 342–43.

<sup>151</sup> Kahneman & Tversky, *Prospect Theory*, *supra* note 144, at 268–69; Kahneman & Tversky, *Choices*, *supra* note 65, at 342–43.

<sup>152</sup> Depoorter & Vanneste, *supra* note 32, at 1136–37. Similarly, in tax compliance,

taxpayers decide whether and how much to evade taxes in the same way they would approach any risky decision or gamble—by maximizing expected utility—and are influenced by possible legal penalties in just the same way they are influenced by any other contingent cost. Optimal tax evasion depends on the chance of getting caught and penalized, the size of the penalty for evasion, and the individual's degree of risk aversion.

Slemrod, *supra* note 100, at 35–36.

<sup>153</sup> Depoorter & Vanneste, *supra* note 32, at 1127–28; Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1255. In a study of willingness to cheat on standardized problem sets and everyday market interactions, Dan Ariely found that those who cheated did so equally, regardless of whether the experiment administrator was visibly blind (and could not detect the cheating) or not, suggesting that in cheating, probability of being caught is not a substantial influence on whether to act. ARIELY, *supra* note 123, at 21–27.

overdeveloped sense of invulnerability, which may have further lessened their perceived chance of being caught.<sup>154</sup>

When Napster came out, the choice to access a single song was binary—either purchase a compact disc in a store at significant cost, or acquire the song illegally over peer-to-peer file sharing, but with no out-of-pocket cost. That retail cost was certain. The cost of a lawsuit or settlement for peer-to-peer file sharing, incredibly small, would, according to prospect theory, be disregarded. From an economics standpoint (in this new market activity), the choice is clear. Even years later when iTunes arrived, it was still a choice between a gamble of a potential fine that is so small and unlikely that it might be disregarded entirely, and a sure ninety-nine cent cost for a song.

For instance, even acknowledging that individuals have difficulty with precision in making small calculations,<sup>155</sup> if a student at a college of 20,000 students saw an e-mail from the technology office saying that five students were caught illegally uploading files and had to pay settlements/fines of \$3,000 each, they could do a little subconscious math<sup>156</sup> to determine their average chance of being caught is roughly .00025, or too small to even measure. Due to coherent arbitrariness in our assessments, while we are able to perceive changes in valuations or comparisons between two choices of value or risk in an orderly manner, we are very poor assessors of chance of an event occurring or value of an item without available anchors to help us make that assessment.<sup>157</sup> If one multiplied that very small chance of being caught against the cost of settling a claim with the industry, they would result in a fee of seventy five cents,<sup>158</sup> less even than the cost of purchasing the same song on iTunes, when that service arrived in 2001.

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<sup>154</sup> See generally Patrick L. Hill et al., *Subjective Invulnerability, Risk Behavior, and Adjustment in Early Adolescence*, 32 J. EARLY ADOLESCENCE 489 (2012); Anthony P. Kontos, *Perceived Risk, Risk Taking, Estimation of Ability and Injury Among Adolescent Sport Participants*, 29 J. PEDIATR. PSYCHOL. 447 (2004).

<sup>155</sup> See Kahneman & Tversky, *Prospect Theory*, *supra* note 144, at 282–83, 285; Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124 (1974).

<sup>156</sup>  $5/20,000 = 0.00025$ .

<sup>157</sup> See generally Dan Ariely, George Lowenstein & Drazen Prelec, “Coherent Arbitrariness”: *Stable Demand Curves without Stable Preferences*, 118 Q. J. ECON., 73, 74 (2003). That is to say, initial valuations of a wide range of items and experiences are arbitrary, even for those with experience in an area; relative valuations of a similar item or a change to the initial item after learning the initial valuation are more orderly.

<sup>158</sup>  $0.00025 \times \$3,000 = \$0.75$ .

As stated earlier, however, students may have looked at that news announcement and concluded that those caught file sharing were not smart enough to do so without being caught. In such a case, they may have concluded that the chance of being caught approached zero, making the calculated potential cost of a \$3,000 penalty also close to zero. For such individuals, with the legal and moral questions already cast aside by the published price on violating the rules and the technological problems solved by peer-to-peer technologies that allowed for easy and increasingly anonymous sharing of files, even the economic disincentive would not have been present. Like the Israeli daycare parents, a fine was assessed and then, in all practicality, removed. The result was an activity that was classified by users as market, but with no out-of-pocket cost associated with the activity. Further, when the penalty calculation is comparatively small, and the perceived chance of being caught is exceptionally low, individuals may take pride in avoiding being caught, and look down on those caught.

Those who study accidents and road mileage could probably, given enough data, pinpoint the financial cost to the economy and society of each mile driven over the speed limit. By measuring the increased risk of an accident for each mile-per-hour over the speed limit, multiplying that by the average cost of such an accident, and by the estimate that speeding is involved in about one third of all accidents,<sup>159</sup> we can arrive at a projected cost for each mile driven over the speed limit, X. We can then add X to a calculation of the average final cost of a speeding ticket (after plea bargaining), multiplied by the percentage chance that the marginal additional mile would cause a police officer to pull into traffic to pull a driver over, Y and come up with Z, an average cost for each mile-per-hour over the speed limit that one drives. That number, however, would be so small as to be incalculable and, thus, in all practicality, irrelevant for most people.

Drivers do not do this calculation.<sup>160</sup> They do not consider the long-term moral cost or the potential economic damages of speeding when they depress the accelerator. Instead, drivers operate based upon recent road conditions and experience with the police. When a driver sees a police car on the side of the road, he or she slows down. As the police car fades into the rearview mirror, the speedometer slowly creeps up again.<sup>161</sup> When drivers are pulled over, that

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<sup>159</sup> See e.g. *Traffic Safety Facts*, U.S. DEPT. OF TRANSP. (May 2012), <http://www-nrd.nhtsa.dot.gov/Pubs/811397.pdf>.

<sup>160</sup> See Feldman & Nadler, *supra* note 38, at 579.

<sup>161</sup> Indeed this is consistent with economists' studies of coherent arbitrariness in criminal deterrence. While an individual has great difficulty determining their probability of being caught committing a certain crime, when there is a change in enforcement, that change has a short-term

ignominious feeling that creeps over one as a police officer slowly approaches the vehicle is not a feeling of shame over violating the law, or a feeling of immorality at having, through increased speed, needlessly risked the lives and well-being of themselves, their passengers and their fellow travelers. Rather it is simply a worry over how much this ticket will cost and whether accompanying points will result in raised insurance premiums. By establishing a regime of fines for speeding, and robust plea bargaining for lesser financial penalties, municipalities converted a moral matter to a market transaction; in setting a price on speeding, societies changed the calculus from a concern about violating the law or a set of moral standards to a simple economic calculation.

In addition to the lawsuit campaign turning a moral activity into an economic activity by setting a price on violating copyright law through peer-to-peer file sharing, researchers found that the sanctions could raise significant anti-copyright feelings<sup>162</sup> among the group of consumers who are both likely to purchase the products legally and likely to engage in peer-to-peer file sharing. Specifically, the stronger the sanction and likelihood of the sanction coming to pass, the higher the aversion to the policy of enforcement,<sup>163</sup> and the higher the expectation for continued downloading,<sup>164</sup> especially when compared with the lower anti-copyright impact of moderate sanctions. When technological changes offer those faced with sanctions the opportunity to resume downloading with less fear of sanction, those who faced the most severe sanctions indicate they would

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deterrent effect, but little or no measurable long-term impact in reducing crime. In the same way, passing a police car has a short-term deterrent effect, but as the car fades, the determined probability of being caught speeding fades back to its stasis level. *See* Ariely, Lowenstein & Prelec, *supra* note 157, at 100–01.

<sup>162</sup> Depoorter & Vanneste, *supra* note 32, at 1127, 1129, 1140–41; Harris, *supra* note 9, at 142–43.

<sup>163</sup> The Supreme Court wrote that, the “very breadth of the software’s use may well draw the public directly into the debate over copyright policy.... and the indications are that the ease of copying songs or movies using software like Grokster’s and Napster’s is fostering disdain for copyright protection” *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.*, 545 U.S. 913, 929 (2005); *see also* Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1272–82, 1284; Depoorter & Vanneste, *supra* note 32, at 1149.

<sup>164</sup> Depoorter & Vanneste, *supra* note 32, at 1146, 48.

download *more* than those who faced moderate sanctions.<sup>165</sup> The fact that only a few were sanctioned lead to a sense that they were “singled out” for punishment.<sup>166</sup>

While they probably could not have predicted it at the time, and may still believe that the lawsuits had a positive impact,<sup>167</sup> ultimately, the lawsuit campaign against consumers by the Recording Industry Association of America and later the Motion Picture Association of America,<sup>168</sup> failed to decrease file sharing,<sup>169</sup> bring in new revenue for artists or bring positive attention to the record companies.<sup>170</sup>

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<sup>165</sup> Depoorter, Van Hiel & Vanneste, *supra* note 33 at 1272–82, 1284; Depoorter and Vanneste, *supra* note 32 at 1154–56.

<sup>166</sup> “[I]f the rate of apprehension is low, elevated sanctions become more salient because they may create the perception that a few individuals are being singled out.” Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1287. Professor Harris writes similarly:

Judging from the lawsuits filed by the RIAA, the majority of which were against college students, enforcement against filesharing may also cut across class or culture lines, which would undermine views on the legitimacy of filesharing laws.... selective enforcement doomed this regulatory scheme.... while millions of individuals engaged in unauthorized filesharing, the RIAA brought suit against a small proportion of these individuals. There is an anti-democratic and anti-rule-of-law feel to a legal regime in which some individuals are harshly punished for behavior that most individuals engage in with impunity.

Harris, *supra* note 9, at 138. *See also* Schwender, *supra* note 27, at 281–82.

<sup>167</sup> In announcing that the Recording Industry Association of America was ending its litigation campaign against end users, Mitch Bainwol, the Chair of the RIAA stated that although they were trying a new approach, the litigation had succeeded in raising public awareness of illegal file sharing and added that he believed online copyright infringement would have been worse without the lawsuit campaign. McBride & Smith, *supra* note 143. *See also* Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1271 (addressing the industry’s belief in the effectiveness of the lawsuits against end users); Schwender, *supra* note 27, at 251–52 (discussing RIAA publications that claimed the lawsuit campaign more than doubled awareness of copyright law and that the lawsuits led to the large increase in digital sales of music); Zentner, *supra* note 36, at 71, 87–88.

<sup>168</sup> Depoorter & Vanneste, *supra* note 32, at 1133–34.

<sup>169</sup> Harris, *supra* note 9, at 104; Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1263; Schwender, *supra* note 27, at 271–72.

<sup>170</sup> *See* PATRY, *supra* note 8, at 179; Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1290; Feldman & Nadler, *supra* note 38, at 589–90. One activist noted that the lawsuits cost tens of millions in legal and investigative fees annually to recover a few hundred thousand dollars in settlements each year. Ray Beckerman, *Ha ha ha ha ha. RIAA Paid Its Lawyers More Than \$16,000,000 in 2008 to Recover Only \$391,000!!!*, RECORDING INDUSTRY VS THE PEOPLE (July



Just as the driver speeds up as the police car fades into the background, users of peer-to-peer file sharing services, cognizant that a price has been set upon their illegal actions, may become more tempted to violate the law as the memory of those who were punished fades into the past. While a user of a peer-to-peer file sharing service may think twice about opening the program in the hours or even days after a report of a major fine assessed against a fellow user, as memory of that fine fades into the distance, the economic calculus will shift, the perceived penalty will decline and, with no moral or legal hesitancy remaining, the user will choose to share the files if the economic advantage seems to outweigh the cost.

## VII

### USING THE LEGISLATIVE SYSTEM TO CRACK DOWN ON COPYRIGHT VIOLATIONS

Another tactic used by the entertainment industry to attempt to stem the tide of peer-to-peer sharing of copyrighted material was to seek assistance from Congress and various state legislatures. While it would be fair to say that Congress was eager to respond to the lobbying entrees of the industry,<sup>171</sup> and quick to pass

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13, 2010), <http://recordingindustryvspeople.blogspot.com/2010/07/ha-ha-ha-ha-ha-riaa-paid-its-lawyers.html>.

<sup>171</sup> Harris, *supra* note 9, at 130–33. Further, Patry tells an interesting history of the 1999 amendment to the work for hire element of the copyright law. The work for hire doctrine allows companies, employers or other principals to hire a creator or artist as an agent, pay the creator for the work, but maintain in the principal all copyright rights. The agent gets a payment, but retains no rights. This is handy for companies that seek to have photographers take pictures for marketing copy, or hire artwork creators for advertising campaigns. In 1999, Congress amended the law to add sound recordings as a work for hire category. This particular amendment to the copyright law was not to address end users accessing content outside of copyright, but to change the relationship between musical artists and performers and the recording companies who signed them to record deals (and not in a way that benefited the artists). Patry comments on the law as follows:

The purpose of the 1999 amendments was to deny performers and their estates the right to terminate old contracts. This denial would occur because if performers were considered to be employees of the record label, they would not have any copyright interest at all: the right to terminate old contracts is limited to authors. The seriousness of this effort to strip performers of status as authors is seen in a recent court decision holding that classic albums by Bob Marley were works for hire of Island Records and thus owned 100 percent by the label. According to the court, Marley was a mere employee of Island Records, acting under the label's supervision and direction, and possessing no authorship interest at all. To believe this is to believe pigs can fly.

civil<sup>172</sup> and criminal laws,<sup>173</sup> often drafted by industry representatives,<sup>174</sup> and meant to impede improper sharing of copyrighted material,<sup>175</sup> it is not clear that such lobbying and legislation served the industry's long-term interests. Some would argue that the legislative results, and the one-sided manner in which they came about, caused consumers to question whether Congress was acting as a fair dealer. In some cases, it led to open revolt against further legislation. Some scholars and consumers take the view that in recent decades, copyright moved away from its traditional role as a cradle of creativity to a regime of protecting producers and distributors at the expense of creators and consumers.<sup>176</sup>

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PATRY, *supra* note 8, at 171–72, *citing* Fifty-Six Hope Road Music Ltd. V. UMG Recordings, Inc., 2010 WL 3564258 (S.D.N.Y. Sep. 10, 2010). Artists and performers were very upset at the change, which could cost them significantly in long-term ownership and control of their music, and which was passed by Congress without debate, hearings or markup. In fact, Patry reports, the amendment

was snuck through at the request of the Recording Industry Association of America (RIAA)... placed in an unrelated bill on satellite retransmission of copyrighted works, at the very end of the Congress, without a bill having been introduced, and without hearings. The House Judiciary Committee staffer who snuck the provision in was shortly thereafter hired by [the] RIAA for a very well-paying position.

PATRY, *supra* note 8, at 172; *see also* Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1290.

<sup>172</sup> Depoorter, *Several Lives*, *supra* note 58, at 35-37; Schwender, *supra* note 27, at 238-39; *see also* Menell, *supra* note 9, at 129–38 (comprehensively tracing the modern history of copyright law expansions); Storch & Wachs, *supra* note 38, at 347–50 (discussing the process of passage of legislation requiring colleges to take actions to protect against file sharing).

<sup>173</sup> Manta, *supra* note 103, at 511–12; Menell, *supra* note 9, at 133, 161–62.

<sup>174</sup> Harris, *supra* note 9, at 132, 144 (analyzing changes to copyright law and noting that “[m]embers of Congress openly recognized their lack of expertise in copyright and as a result, delegated to industry representatives the task of drafting substantive statutory provisions”); Schwender, *supra* note 27, at 280–81.

<sup>175</sup> A study by Richard Posner and William Landes found that there has been more legislative activity in the realm of copyright law, than any other aspect of intellectual property. Depoorter, *Technology and Uncertainty*, *supra* note 103, at 1856-57, *citing* WILLIAM M. LANDES & RICHARD A. POSNER, *THE POLITICAL ECONOMY OF INTELLECTUAL PROPERTY LAW* 2–3 (2004). *See also* Harris, *supra* note 9, at 104–05; Further, “[m]ore pages of copyright law have been added to the U.S. Code [in the 1990’s] than in the prior 200 years of the republic.” Menell, *supra* note 9, at 65.

<sup>176</sup> *See* PATRY, *supra* note 8, at 8–41; Depoorter, *Several Lives*, *supra* note 58, at 16; Depoorter & Walker, *supra* note 33, at 346.

*A. Interest Group Politics Historically Carried the Day on Intellectual Property Changes*

The response to peer-to-peer file sharing by content producers and distributors is a classic example of special interest group politics.<sup>177</sup> While opposition to changes in copyright law is diffused,<sup>178</sup> and may be held slightly by a large population, a small group with passionate beliefs in favor of stricter laws, especially a group with access to campaign donations,<sup>179</sup> a story that impresses Congress,<sup>180</sup> and celebrity testimony, can carry the day.<sup>181</sup>

To accomplish their goals, intellectual property owners used impassioned testimony, including from famous celebrities, artists and musicians, and also used statistics and reports to prove their points to members of Congress. Unfortunately, not all of the statistics used in defense of stricter civil and criminal penalties for violations of copyright law have been completely accurate—conclusions have been overstated<sup>182</sup> and data has been based upon guesses or press releases.<sup>183</sup> The statistics and reports worked, however, and were accepted by Congress with little questioning or dissent.<sup>184</sup>

While for decades these tactics worked with little or no opposition, the feeling by the electorate and consumers that industry can enact any law it likes regardless of the consequences has a dispiriting impact on their views of that industry.<sup>185</sup> Citizens are willing to comply with laws they view as legitimate and

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<sup>177</sup> See CHARLES WHEELAN, *NAKED ECONOMICS* 72–73, 137–48 (2002); see generally LAWRENCE LESSIG, *REMIX: MAKING ART AND COMMERCE THRIVE IN THE HYBRID ECONOMY* (2008); PATRY, *supra* note 8; See also Depoorter, *Several Lives*, *supra* note 58 at 18; Depoorter, *Technology and Uncertainty*, *supra* note 103, at 1857–59; Aaron Burstein, Will Thomas DeVries, & Peter S. Menell, *The Rise of Internet Interest Group Politics*, 19 *BERKELEY TECH L. J.* 1, 6–7 (2004); Harris, *supra* note 9, at 134–35.

<sup>178</sup> The average citizen may have opinions about intellectual property, even strongly held ones, but when they go into the voting booth in elections, other issues often come to the fore. PATRY, *supra* note 8, at 138.

<sup>179</sup> Depoorter, *Several Lives*, *supra* note 58, at 19; Harris, *supra* note 9, at 134–35.

<sup>180</sup> PATRY, *supra* note 8, at 13–41, 137–38.

<sup>181</sup> See Depoorter, *Several Lives*, *supra* note 58, at 18.

<sup>182</sup> *Id.* at 37–38.

<sup>183</sup> PATRY, *supra* note 8, at 62–63, 137–38; Kenneth C. Green, *Views: The Movie Industry's 200% Error*, *INSIDE HIGHER ED* (Jan. 29, 2008), <http://www.insidehighered.com/views/2008/01/29/green>.

<sup>184</sup> PATRY, *supra* note 8, at 63, 137–38.

<sup>185</sup> Depoorter & Walker, *supra* note 33, at 346; Bebenek, *supra* note 23, at 1458; Harris, *supra* note 9, at 138.

aligned with their values,<sup>186</sup> even if they disagree with the law<sup>187</sup> or compliance goes against their self-interest, and such feelings of legitimacy are a better predictor of compliance than are deterrent actions.<sup>188</sup> Of the two methods that are used to shape behavior, incentives and deterrence,<sup>189</sup> “coercion rarely succeeds in forcing compliance with laws that significantly depart from shared societal values”<sup>190</sup> and can even cause a backlash against such laws.<sup>191</sup> Further, on top of the perceived fairness of the laws themselves, citizens “perceptions of how they are treated by the authorities strongly affect their evaluation of authorities and laws, and their willingness to cooperate with them.”<sup>192</sup>

Legislative dominance by a small interested group, seeking legislation that others would not consider pro-social, has led some to develop an intense anti-

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<sup>186</sup> PATRY, *supra* note 8, at 164–72; Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1267–72; Harris, *supra* note 9, at 105–06; Schwender, *supra* note 27, at 232–33; Depoorter & Vanneste, *supra* note 32, at 1131–40.

<sup>187</sup> PATRY, *supra* note 8, at 166.

<sup>188</sup> See Depoorter, Parisi & Vanneste, *supra* note 33, at 362–63; Daniel Houser et al., *When Punishment Fails: Research on Sanctions, Intentions and Non-Cooperation*, 62 GAMES & ECON. BEHAV. 509, 512, 522–23 (2008).

<sup>189</sup> See PATRY, *supra* note 8 at 164–72 (citing TOM TYLER, *WHY PEOPLE OBEY THE LAW* (1990, 2006) and Tom Tyler, *Compliance with Intellectual Property Law: A Psychological Perspective*, 29 N.Y.U. J. INT’L L. & POL. 219 (1997)); see generally Harris, *supra* note 9, at 121–26.

<sup>190</sup> PATRY, *supra* note 8, at 165. Patry believes that the current copyright legal regime fits this bill and concentrates on coercion to address behavior, even when those whose behavior is modified do not always agree with the copyright law in question.

<sup>191</sup> Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1257; see also Clive Thompson, *Technology Wants to Be Free*, WIRED, Dec. 2013, at 66–68 (describing popular efforts to change the law regarding phone unlocking and the movement’s impact on the White House and Congress).

<sup>192</sup> Frey & Jegen, *supra* note 20, at 606; see also Depoorter, Van Hiel & Vanneste, *supra* note 33 at 1256 (“If individuals perceive enforcement as excessive, this may reinforce or even strengthen a belief that the legal regime is not legitimate or that a legal rule is unjust”); Slemrod, *supra* note 100 at 39 (“tax evaluation decisions may depend on perceptions of the fairness of the tax system. If, the argument goes, perceived tax equity strengthens the social norm against evasion, then evasion becomes more costly in terms of bad conscience [if not caught] or bad reputation [if caught]”).

copyright culture,<sup>193</sup> or at least to question the legitimacy of heavy-handed punishment of file sharing.<sup>194</sup>

*B. Diffuse Opposition Solidifies and Strengthens Through the Internet and Social Media*

The Internet has had an interesting impact on interest group politics. In addition to the impact of traditional news and interest groups on the Internet, individuals have organized themselves into new and more finely grained interest groups that can challenge traditional organizations.<sup>195</sup> Those interest groups did not limit their discourse and activity to the online environment; they also and to great effect pursued “their interests in traditional regulatory forums.”<sup>196</sup>

Unlike the run up to the Digital Millennium Copyright Act (DMCA) and other copyright laws, the response to two pieces of legislation meant to add additional protections against online copying of protected material as well as physical counterfeiting of goods was vigorous and well organized. The House version, the Stop Online Piracy Act (SOPA)<sup>197</sup> and the Senate version, the Protect IP Act (PIPA)<sup>198</sup> had differences, but at base they both sought to provide the Federal government and intellectual property holders with the ability to administratively shut down Web sites and online purveyors of products infringing intellectual property protections. The proposed laws gathered momentum and co-sponsors, with significant support<sup>199</sup> and lobbying from the entertainment industry.<sup>200</sup>

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<sup>193</sup> Depoorter, *Technology and Uncertainty*, *supra* note 103, at 1853–54; Depoorter, Parisi & Vanneste, *supra* note 33, at 367. For international survey results on the backlash against copyright enforcement, see PATRY, *supra* note 8, at 173–76.

<sup>194</sup> Depoorter, Parisi & Vanneste, *supra* note 33, at 362–63; Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1264–72.

<sup>195</sup> See NICCO MELE, *THE END OF BIG: HOW THE INTERNET MAKES DAVID THE NEW GOLIATH* (2013).

<sup>196</sup> Burststein, DeVries & Menell, *supra* note 177, at 6–7.

<sup>197</sup> Stop Online Piracy Act, H.R. 3261, 112th Cong. (2011).

<sup>198</sup> Preventing Real Online Threats to Economic Creativity and Theft of Intellectual Property Act of 2011, PROTECT IP Act of 2011, S.B. 968 (2011).

<sup>199</sup> See Greg Sandoval, *Hollywood's SOPA Testimony Links Job Loss to Piracy*, CNET (Nov. 16, 2011), [http://news.cnet.com/8301-31001\\_3-57325783-261/hollywoods-sopa-testimony-links-job-loss-to-piracy/](http://news.cnet.com/8301-31001_3-57325783-261/hollywoods-sopa-testimony-links-job-loss-to-piracy/).

<sup>200</sup> See Stephen Totilo, *Gaming Industry Spent As Much As \$190,000 Pushing for Senate Version of SOPA Last Spring and Summer*, KOTAKU (Jan. 16, 2012), <http://kotaku.com/5876493/gaming-industry-spent-as-much-as-190000-pushing-for-senate-version-of-sopa-last-spring-and->

But industry's push for the relief sought in SOPA and PIPA was unsuccessful. Technology companies that opposed the legislation, who are themselves quite a powerful lobby,<sup>201</sup> joined with advocacy groups and ordinary citizens,<sup>202</sup> to vigorously oppose the legislation. Scholars breathlessly (and perhaps with some stretching) claimed the bill would violate everything from the First Amendment<sup>203</sup> to human rights,<sup>204</sup> and thousands of Web sites, including Wikipedia,<sup>205</sup> Google,<sup>206</sup> and Facebook<sup>207</sup> either were blacked out<sup>208</sup> or included messages of opposition to the bills. While individual consumers and organizations

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summer; Ben Dimiero, *How Much Did Media Companies Spend Lobbying On SOPA And PIPA?*, MEDIA MATTERS (Feb. 3, 2012), <http://mediamatters.org/blog/2012/02/03/how-much-did-media-companies-spend-lobbying-on/184807>; David Goldman, *Millions in SOPA Lobbying Bucks Gone to Waste*, CNN MONEY (Jan. 27, 2012), [http://money.cnn.com/2012/01/27/technology/sopa\\_pipa\\_lobby/](http://money.cnn.com/2012/01/27/technology/sopa_pipa_lobby/).

<sup>201</sup> Depoorter, *Several Lives*, *supra* note 58, at 19. Professor Jonathan Barnett postulates that “firms that sell goods and services that facilitate the uncompensated use of creative goods—hardware manufacturers or internet intermediaries (e.g. Google/YouTube)—promote and endorse” norms that he considers “inverted” in that they “immunize or even encourage and glamorize borrowing practices.” Their reason, he argues, “is simple: increased opportunities for theft lower the price of content available to users and increase demand for the theft technologies by which to obtain, consume and disseminate that content.” Barnett, *supra* note 143, at 24–25, 28; Burstein, DeVries, & Menell, *supra* note 177, at 14–15. For an interesting analysis of the difficult disagreements between technology firms and IP producers, see Menell, *supra* note 9, at 164–168, 195.

<sup>202</sup> Edward J. Black, *Internet Users, Free Speech Experts, Petition Against SOPA*, HUFF. POST (Dec. 13, 2011), [http://www.huffingtonpost.com/edward-j-black/stop-online-piracy-act-vote\\_b\\_1145949.html](http://www.huffingtonpost.com/edward-j-black/stop-online-piracy-act-vote_b_1145949.html).

<sup>203</sup> [file://localhost/David Carr, The Danger of an Attack on Piracy Online](file://localhost/David%20Carr,%20The%20Danger%20of%20an%20Attack%20on%20Piracy%20Online,%20N.Y.%20Times%20(Jan.%201,%202012),%20http://www.nytimes.com:2012:01:02:business:media:the-danger-of-an-attack-on-piracy-online.html), N.Y. Times (Jan. 1, 2012), <http://www.nytimes.com:2012:01:02:business:media:the-danger-of-an-attack-on-piracy-online.html>.

<sup>204</sup> Trevor Timm, *Proposed Copyright Bill Threatens Whistleblowing and Human Rights*, ELECTRONIC FRONTIER FOUNDATION (Nov. 2, 2011), <https://www.eff.org/deeplinks/2011/11/proposed-copyright-bill-threatens-whistleblowing-and-human-rights>.

<sup>205</sup> *Wikipedia SOPA Initiative* (Feb. 24, 2012), [http://en.wikipedia.org/wiki/Wikipedia:SOPA\\_initiative/Learn\\_more](http://en.wikipedia.org/wiki/Wikipedia:SOPA_initiative/Learn_more).

<sup>206</sup> Ryan Germick, *SOPA/PIPA Image Blackout* (Jan. 18, 2012), <http://www.google.com/doodles/sopa-pipa>.

<sup>207</sup> Brett Molina, *Facebook CEO speaks out against SOPA, PIPA*, USA TODAY (Jan. 18, 2012), <http://content.usatoday.com/communities/technologylive/post/2012/01/facebook-ceo-speaks-out-against-sopa-pipa/1-.UzuQaq1dVwM>.

<sup>208</sup> The blackouts were an interesting form of corporate protest that represented the Internet companies' belief that the Acts would stifle their ability to do business and, perhaps moreso, empower private corporations to squelch Internet speech that might be protected, alongside actions that violate the law.

interested in the issue may have little or no clout alone, when aggregated through the organizing power of the Internet and social media, their opinions cause Congress to take notice.<sup>209</sup> Members of Congress withdrew support,<sup>210</sup> and neither SOPA, nor PIPA, came up for a vote.

## VIII

### MORE PEOPLE VIOLATING COPYRIGHT LAW LEADS MORE PEOPLE TO VIOLATE COPYRIGHT LAW

Another tack that industry representatives took (understandably) in trying to raise the profile of the problem of peer-to-peer file sharing was to state (and sometimes overstate)<sup>211</sup> the percentage of people, particularly college-aged, who shared music and movie files in violation of copyright law.

The “principle of social proof” states that “we determine what is correct by finding out what other people think is correct.”<sup>212</sup> An individual’s relationship to their reference group is important in setting their course of actions. The perceived prevalence of tax evasion leads people to evade their taxes,<sup>213</sup> violating the law

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<sup>209</sup> Jenna Wortham, *With Twitter, Blackouts and Demonstrations, Web Flexes Its Muscle*, N.Y. TIMES (Jan. 18, 2012), <http://www.nytimes.com/2012/01/19/technology/protests-of-antipiracy-bills-unite-web.html?pagewanted=all>; Depoorter, *Several Lives*, *supra* note 58, at 19; Depoorter, *Technology and Uncertainty*, *supra* note 103, at 1865–66; Barnett, *supra* note 143, at 26–27.

<sup>210</sup> Timothy B. Lee, *Under Voter Pressure, Members of Congress Backpedal (Hard) on SOPA*, ARSTECHNICA (Jan. 13, 2012), <http://arstechnica.com/tech-policy/2012/01/under-voter-pressure-members-of-congress-backpedal-on-sopa/>; Grant Gross, *SOPA Author to Remove ISP Blocking Provision*, COMPUTER WORLD (Jan. 13, 2012), [http://www.computerworld.com/s/article/9223444/SOPA\\_author\\_to\\_remove\\_ISP\\_blocking\\_provision](http://www.computerworld.com/s/article/9223444/SOPA_author_to_remove_ISP_blocking_provision).

<sup>211</sup> PATRY, *supra* note 8, at 62–63, 137–138; Green, *supra* note 183.

<sup>212</sup> ROBERT B. CIALDINI, *INFLUENCE: SCIENCE AND PRACTICE* 99 (5<sup>th</sup> ed. 2009). Visitors to a forest where the disappearance of petrified wood threatens the future of the forest stole five times *more* wood when a sign used social proof by recounting that many past visitors had stolen petrified wood (thus harming the park) than when a simple sign asked visitors to please not remove petrified wood; in fact, the social proof sign resulted in more stolen wood than no sign at all. NOAH J. GOLDSTEIN, STEVE J. MARTIN & ROBERT B. CIALDINI, *YES!: 50 SCIENTIFICALLY PROVEN WAYS TO BE PERSUASIVE* 20–25 (2008).

<sup>213</sup> Fehr & Gächter, *supra* note 86, at 167; Lin and Yang, *supra* note 71, at 196, (citing S.M. Sheffrin and R.K. Triest, *Can Brute Deterrence Backfire? Perceptions and Attitudes in Taxpayer Compliance*, in ALAN J. AUERBACH ET AL. ED., *WHY PEOPLE PAY TAXES: TAX COMPLIANCE AND ENFORCEMENT* (1992); Meier, *supra* note 20, at 58–60; Frey and Jegen, *supra* note 20, at 589, 605–06; Depoorter, *Technology and Uncertainty*, *supra* note 103, at 1852. Notably, tax evasion is heterogeneous, meaning that “within any group defined by income, age, or other demographic

when they believe that “everyone is doing so.” Further, threats of significant punishment may lead individuals to feel that such punishment must mean law breaking is more widespread than it is.<sup>214</sup>

Similarly, when the entertainment industry publicized and asked Congress to require that colleges and universities publicize information about file sharing and the prevalence of such actions, rather than reducing the number of file sharers or causing potential sharers to think twice, it may have left users feeling that they are not alone, “everyone is doing it,”<sup>215</sup> and therefore, the harm would be diminished.<sup>216</sup> In fact, students sampled in a 2004 study believed file sharing to be widespread.<sup>217</sup> “The greater the number of people who find any idea correct, the more a given individual will perceive the idea to be correct.”<sup>218</sup> Scholar Robert Cialdini tells the story of how, after the invention of the super market shopping cart, no one would use the cart until the proprietor hired actors to walk around with carts; seeing others use the carts led people to use the carts themselves, until the actors were no longer needed.<sup>219</sup> Similarly, with peer-to-peer file sharing, as consumers saw others using the technology, and especially when the industry, through its lawsuit campaign, turned the activity from a moral question to a market question, those who saw their friends use the technology with no consequences

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category, there are some who evade, some who do not, and even some who overstate tax liability.” Slemrod, *supra* note 100, at 30–31. Tax evasion is spread across the populace, but perceptions may not be equal to that actual distribution. Even more interesting is the observation that based on the extremely low chance of being audited, and the general tolerance for risk among the citizenry, tax evasion is significantly *lower* than it would be calculated to be. Slemrod, *supra* note 100, at 38–39. This may reflect intrinsic motivation to pay taxes that is outside of the extrinsic impact of potential penalties.

<sup>214</sup> Feldman & Nadler, *supra* note 38, at 593.

<sup>215</sup> Social norms have a significant impact on behavior. Knowing and believing the feelings and beliefs of others can have positive or negative social impacts and encourage or discourage appropriate behavior. Fehr & Gächter, *supra* note 86, at 167–168. In a study, researchers found that litigation did not deter file sharing as, “[i]n general, students believe that others will continue to download regardless of the enforcement policy . . . [they believe that as to other students from whom they may take social cues] nothing will stop their peers from downloading. Depoorter, Parisi & Vanneste, *supra* note 33, at 367; Schwender, *supra* note 27, at 265.

<sup>216</sup> See generally Depoorter, Parisi & Vanneste, *supra* note 33, at 363.

<sup>217</sup> Feldman and Nadler, *supra* note 38, at 611.

<sup>218</sup> CIALDINI, *supra* note 212, at 108–09.

<sup>219</sup> *Id.* at 109–10 (2009).



saw it as more and more normalized.<sup>220</sup> In turn, they would then model this behavior for other friends and family members, as the practice spread.<sup>221</sup>

As users become more comfortable with an action, newly possible with the fall of a technological monopoly, thinking that such an action, even if ostensibly illegal, is the moral norm, combined with an extremely low legal cost to taking such an action in the cost-benefit analysis, will result in diminished moral resistance. This is especially the case since people are “inclined to construe facts in ways that align with their own preconceptions.”<sup>222</sup> The impact of social norms on such decision making is, in many cases, a stronger “determinant[] of behavior than formal sanctions.”<sup>223</sup> In such a case, all three legs of the intellectual property monopoly as deterrence triangle—technological, legal and moral—fall and there is little friction against taking such an action. While each individual action has but a minor effect on the market as a whole, the collective action engendered by such reasoning can be devastating to companies or industries that previously maintained a rock-solid grasp on all three monopolies.

## IX

### A TECHNOLOGICAL PROBLEM WITH A TECHNOLOGICAL SOLUTION?

The mass-market entertainment industry has generally viewed the issue of peer-to-peer file sharing of copyrighted content as a technological problem that could be ameliorated with legal and technological solutions.<sup>224</sup> The industry has, at times, worked with colleges and universities,<sup>225</sup> commercial Internet service providers,<sup>226</sup> and the Federal government in an attempt to limit file sharing via

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<sup>220</sup> See ARIELY, *supra* note 123, at 195–210 (discussing the influence of peers on willingness to cheat).

<sup>221</sup> Ironically, a great example of social proof arose in the nineteenth century when opera singers and managers would hire outsourced employees to applaud appreciatively at shows, in the hope that paying customers would join in on the cheerful response. As the practice grew and branched out, opera singers and managers could request specialty cheering, such as an audience member who could weep on cue, someone who would yell “encore,” and even a specialist who possessed an infectious laugh. CIALDINI, *supra* note 212, at 132.

<sup>222</sup> Depoorter, *Technology and Uncertainty*, *supra* note 103, at 1851.

<sup>223</sup> Depoorter & Vanneste, *supra* note 32, at 1139.

<sup>224</sup> Bainwol & Sherman, *supra* note 140.

<sup>225</sup> See generally Storch & Wachs, *supra* note 38; Depoorter, Van Hiel & Vanneste, *supra* note 33, at 1260.

<sup>226</sup> Joan Cheverie, *Copyright Alert System Goes Into Effect*, EDUCAUSE (Feb. 26, 2013), <http://www.educause.edu/blogs/cheverij/copyright-alert-system-goes-effect>; Anne Flaherty,

technological means. Yet experience shows that, like the carnival game whack-a-mole, each time a source of improperly shared content is removed from the Internet, several rise in its place.<sup>227</sup> Blocking technology can be overcome through encryption of files; new technology to decrypt such files then begets even more advanced encryption technology. Attempts at technological solutions thus result in an arms race between industry and file sharers.<sup>228</sup>

Even worse, the industry can only seek to disrupt copyright violations that it can see and that it has jurisdiction over. But it does not have practical jurisdiction over all users (even if it has legal jurisdiction):

- Users who are overseas in countries with lax intellectual property laws still have access to the same content and can often share files in the same manner as if they were stateside.
- Anonymizing software can hide or spoof an IP address, making it difficult to determine location and identity.
- It is exceedingly difficult to capture downloading of files. Almost all of the transfers that the industry found and acted upon have been uploads or sharing of files on peer-to-peer or bit torrent protocols.
- There are many sites available wherein individuals can access content over streaming protocols such as YouTube, equally in violation of the spirit and likely the letter of copyright laws, but in such situations, industry is unable to stop the streaming, and it is unclear whether it could prove the necessary factors to act against those who stream. Even if it could, the industry would ignite a firestorm of controversy if it chose to do so.

What that industry has not come to realize, and what the physical goods industries may want to pay attention to, is that the issue of sharing files in violation of intellectual property laws is not a legal<sup>229</sup> or technological issue; it is a behavioral issue and an opportunity for a change in business practices. As long as

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*Music, Movie Industry to Warn Copyright Infringers*, LAW TECHNOLOGY NEWS (Mar. 12, 2013), <http://www.lawtechnologynews.com/id=1202591859334>.

<sup>227</sup> Lemley, *supra* note 9, at 132; Depoorter, Van Hiel & Vanneste, *supra* note 33 at 1258–59; Alexander, *supra* note 9, at 157–58.

<sup>228</sup> Depoorter, *Technology and Uncertainty*, *supra* note 103, at 1855; Depoorter, *Several Lives*, *supra* note 58, at 30–31.

<sup>229</sup> PATRY, *supra* note 8, at 141–45.

the behavioral aspects are minimized in favor of a rush to newer technology to block the latest iteration of sharing or streaming files, little or no progress will be made towards shifting to a culture of respect for intellectual property.

As argued above, when the technological monopoly for an intellectual or tangible good falls, the legal monopoly is insufficient to alone protect the monopoly. This is not a new concept, but has simply been placed in more stark relief by the almost unlimited power of an individual to improperly share a piece of someone else's intellectual property with users the world over. Never before the last decade-and-a-half has the rate of intellectual property law violations been so severe, but this is a difference of degree, not of kind, with historical practice.

Technological solutions lack the discerning judgment of a human, especially in cases of license or fair use of material, and so lead to false positive claims of infringement. False positives occur when technological searches for intellectual property violations find not only actual violations, but also actions that software believes are violative, but are actually legal.<sup>230</sup> This could be because the use is licensed,<sup>231</sup> or is fair use (for instance a transformative use, parody, or an educational fair use<sup>232</sup>), or is otherwise not a violation of copyright law.<sup>233</sup> False

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<sup>230</sup> Depoorter & Walker, *supra* note 33, at 320–21.

<sup>231</sup> Depoorter & Walker tell the story of the “Hugo Awards” ceremony, an awards ceremony to honor achievement in science fiction. The awards ceremony was streamed on Ustream.com, and was playing licensed clips and programming for nominated television shows. During author Neil Gaiman's acceptance speech for his award for *Doctor Who*, an automated software robot disrupted the stream and took the awards ceremony off the air. This was an automatic takedown of specifically licensed and authorized use of clips, which may have been fair use even if not specifically licensed, resulting in removing the official stream of the award ceremony, which was the only live broadcast of the awards. Depoorter & Walker, *supra* note 33, at 334–35.

<sup>232</sup> After an Australian record label threatened to sue copyright scholar Lawrence Lessig over amateur dance videos set to a clip from the Phoenix song *Lisztomania* that Lessig used in an online lecture, and sought to have YouTube remove the clip, Professor Lessig decided instead to sue the record label. Nick DeSantis, *Harvard Professor's Online Lecture Prompts Fight With Record Company*, CHRONICLE OF HIGHER EDUCATION (Aug. 27, 2013), <http://chronicle.com/blogs/ticker/harvard-professors-online-lecture-prompts-fight-with-record-company/65261>. According to a declaration the record label filed in court, they had a single employee use YouTube's automatic content takedown process and, when Lessig challenged that takedown claiming fair use, that same employee threatened to sue Lessig, apparently without ever actually reviewing the lecture video in question. Corynne McSherry, *Lawrence Lessig Settles Fair Use Lawsuit Over Phoenix Music Snippets*, ELECTRONIC FRONTIER FOUNDATION (Feb. 27, 2014), <https://www.eff.org/press/releases/lawrence-lessig-settles-fair-use-lawsuit-over-phoenix-music-snippets>. Perhaps feeling that it picked a fight with the wrong defendant, a renowned copyright scholar who obtained the assistance of the law firm Jones Day and the

positives are an inevitable side effect of automatic search and enforcement technologies,<sup>234</sup> such as those used to search for music, movie, and literature copyright violations, with automatic cease and desist letters or DMCA takedown notices issued alongside.<sup>235</sup> Such false positives enact a significant cost on society, as they dissuade individuals from engaging in proper use, potentially chilling creativity,<sup>236</sup> and are expensive and complicated to fight,<sup>237</sup> even for those making absolutely legitimate and lawful use of content.<sup>238</sup>

Like the lawsuits against consumers and aggressive legislative actions to strengthen copyright violation penalties, false positives “imperil the legitimate property interests of rights holders by diminishing public respect for, and adherence to, copyright law.”<sup>239</sup>

Inasmuch as sharing files in violation of the copyright law is primarily a behavioral and economic problem, not a technological one, it can only be resolved through behavioral and economic solutions. Just as automated processes resulted in false positives in copyright notifications and takedowns, the same or similar automated processes may catch and deter legal use and sharing of 3-D printing files. As 3-D printing becomes more prevalent, manufacturers of tangible goods should be extremely cautious before using automated processes to discover and take action against patent violators, lest the false positives squelch appropriate use and make enemies of potential and actual consumers of their products.

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Electronic Frontier Foundation, the label settled, agreeing that the lecture made fair use of the song and pledging to amend its policies so that human review is required prior to issuing a takedown. *Id.*

<sup>233</sup> Depoorter & Walker, *supra* note 33, at 320–21; Depoorter, *Several Lives*, *supra* note 58, at 30–31. For detailed answers to frequently asked questions about the DMCA and content removal, see Joseph Storch, Heidi Wachs & Kent Wada, *FAQ for DMCA Designated Agents at Higher Education Institutions*, EDUCAUSE INSTITUTE OF COMPUTER POLICY AND LAW (Apr. 2011), <http://www.educause.edu/icpl/dmcafaq>.

<sup>234</sup> For a substantive criticism of the role of automatic algorithms and problems that ensue when algorithms replace important human decision making, see EVGENY MOROZOV, *TO SAVE EVERYTHING, CLICK HERE* 140–80 (2013).

<sup>235</sup> Depoorter & Walker, *supra* note 33, at 320–23, 326–27.

<sup>236</sup> Depoorter & Vanneste, *supra* note 32, at 1148; Depoorter, *Technology and Uncertainty*, *supra* note 103, at 1859–60; Manta, *supra* note 103, at 502–16; Harris, *supra* note 9, at 127.

<sup>237</sup> Depoorter & Walker, *supra* note 33, at 338.

<sup>238</sup> *Id.* at 320–22.

<sup>239</sup> *Id.* at 327.

## X

## PRICING MONOPOLY AND MARKET GOODS

Prior to the loss of a technological monopoly, a manufacturer can feel secure using monopoly pricing methods to distribute their product. Once the technological monopoly falls, however, to retain sales, manufacturers should switch to an imperfect market pricing model<sup>240</sup> for their product. To the extent that 3-D printers can make a precise copy of their product, manufacturers can utilize a bifurcated sales model wherein they charge one price to purchase the item in a retail environment, and charge a much lower price to access a computer application that can be used to print a precise version of the same product on a home 3-D printer.

Classical economists recognized monopolies as less efficient than market systems and of having the effect of keeping the market under stocked with desired goods.<sup>241</sup> Monopolies occur when either one company provides all of a certain good or, as more relevant here, where there are no close substitutes to a good. Economists identify three classes of “barriers to entry” that help to facilitate control of a market by one firm or a small number of firms. Those barriers include “natural barriers, such as economies of scale;<sup>242</sup> actions on the part of firms that create barriers to entry;<sup>243</sup> [and] governmentally created barriers.”<sup>244</sup> These classic

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<sup>240</sup> File sharing in violation of intellectual property law will not actually change the system to a perfect market system where the price charged will be where supply meets demand, as the legal producer of the good will always maintain *some* advantages over violative producers, notably the moral imperative to purchase legal items, the knowledge that an item purchased legally is safer and more reliable than one otherwise obtained, the fact that not every consumer has access to the technology to retrieve copies, and the goodwill from the legal producers’ marketing efforts. Therefore, this article refers to the system as an imperfect market pricing model. A similar shift occurs when a product, such as a drug or medical device, protected by patent loses that protection. Others enter the marketplace and the model shifts from monopoly to market, albeit with significant advantages for the original manufacturer. MANKIW, *supra* note 10, at 345–61.

<sup>241</sup> THOMAS SOWELL, ON CLASSICAL ECONOMICS 13-14 (2006); BOYES AND MELVIN, *supra* note 18, at 249.

<sup>242</sup> For instance, utilities often have economy of scale advantages in addition to government-authorized monopolies. While not impossible, even if a company receives permission to operate in an area, it is extremely expensive to lay cable or phone wiring in an area to offer service.

<sup>243</sup> For instance, Coca-Cola expends significant effort to keep the exact formula for its flagship soda a secret. Leon Stafford, *Coke Hides Its Secret Formula in Plain Sight in World of Coca-Cola Move*, ATLANTA JOURNAL-CONSTITUTION (Dec. 8, 2011), <http://www.ajc.com/news/business/coke-hides-its-secret-formula-in-plain-sight-in-wo/nQPMm/>; Ira Glass et al., *Original Recipe*, THIS AMERICAN LIFE (Feb. 11, 2011), <http://www.thisamericanlife.org/radio-archives/episode/427/original-recipe/recipe>.

<sup>244</sup> BOYES & MELVIN, *supra* note 18, at 237.

barriers match up well with the monopolies discussed earlier. The governmentally created barriers are principally the constitutional and other legal protections of copyright and patent, and the natural barriers include the inability to technically replicate an item for a price that compares to the retail cost of manufactured goods. As stated, this article is not discussing pure monopolies (such as a local utility company), but monopolistic competition markets wherein various companies make similar products that are not perfect replacements,<sup>245</sup> but each individual product within the class maintains monopolistic protections due to governmental barrier, such as afforded by copyright and patent law.

The advantage of a monopoly is the ability to use monopoly pricing, which, short of regulation, is almost always more profitable than market pricing. While the price cannot be set so high as to scare off customers, a monopoly firm can charge up to the price allowed by the demand curve of individuals seeking that good.<sup>246</sup> The consumer surplus that exists in a perfect market intersection of the demand and supply curve is reduced significantly in a monopoly, as much of the consumer surplus is transferred to the monopoly producer surplus,<sup>247</sup> and the amount not transferred to the producer surplus is simply deadweight loss.<sup>248</sup> The benefit to consumers of this good relative to the price paid, therefore, is significantly reduced in a monopoly regime.

The price of production may also be less than perfectly efficient. Whether a firm has a natural monopoly, or one that results from governmental protections (such as copyright or patent law protection), since that firm does not have to worry about competition and keeping costs low, it will often produce in a less efficient manner.<sup>249</sup> Economists call this “x-inefficiency.”<sup>250</sup> This results in higher cost to consumers (and less consumer surplus), but without the concomitant rise in producer surplus that would occur without the inefficiency. At the same time, economists believe that such producers are less innovative, and less likely to develop new technologies and means to make current products at lower cost.<sup>251</sup>

One of the mistakes that the recording industry made when Napster and other file sharing sites allowed users to share copyrighted content without paying

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<sup>245</sup> MANKIW, *supra* note 10, at 345–61.

<sup>246</sup> *See generally* BOYES & MELVIN, *supra* note 18, at 245.

<sup>247</sup> *Id.* at 249–50.

<sup>248</sup> *Id.* at 251.

<sup>249</sup> *Id.* at 252.

<sup>250</sup> *Id.* at 252.

<sup>251</sup> *Id.* at 252–53.

was to raise their prices to compensate for the loss.<sup>252</sup> This may have temporarily stabilized profits, but ignored the demand curve and resulted in a regime where individuals who would have legally paid price X were unwilling to pay a rate higher than X, and either went without or acquired the content illegally.<sup>253</sup> This, of course, led to further increases in prices to stabilize profits, and further flight from the legal content market, forming a sort of death spiral (or at least a grievous injury spiral) for the entertainment companies.

The entertainment industry would have been better served by addressing the market factors and switching themselves psychologically from a monopoly system to an imperfect market system. As discussed below, producers of tangible goods, when inevitably faced with some of the same concerns, should strike a different path.

## XI

### TAKING THE LESSONS OF THE RECORDING INDUSTRY TO HEART FOR TANGIBLE GOODS

Like copyright law violations prior to the late 1990's, patent law has traditionally been battled out in litigation between large corporations, or between an inventor and another firm that infringed the patent in manufacturing a product, but not against end users or consumers who use infringing products.<sup>254</sup> That began to change in recent years as companies that (sometimes dubiously) hold patents for technologies used by millions every day, sent letters requesting settlements to end users and consumers.

For manufacturers and end users of 3-D printers, the question of patent infringement becomes increasingly complicated. In order for a patentee to recover they must prove that the defendant either directly or indirectly infringed the claims

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<sup>252</sup> See Storch & Wachs, *supra* note 38, at 348-49, citing Ashlee Vance, *Music Sales Rise Despite RIAA's Best Efforts*, REG. (U.K.) (Oct. 21, 2004) [http://www.theregister.co.uk/2004/10/21/riaa\\_mid2004\\_salesshock/](http://www.theregister.co.uk/2004/10/21/riaa_mid2004_salesshock/).

<sup>253</sup> See Storch & Wachs, *supra* note 38, at 349.

<sup>254</sup> For example, Apple and Samsung have spent millions of dollars in legal fees litigating patent disputes over the iPhone and Galaxy cell phones. See Dimitra Kessenides, *When Apple and Samsung Fight, the Lawyers Win*, BLOOMBERG BUSINESSWEEK (Dec. 9, 2013) <http://www.businessweek.com/articles/2013-12-09/apple-samsung-patent-wars-mean-millions-for-lawyers>. While each company has sued and countersued the other, neither has sued customers using their rival's phone, even though it is those customers who are directly infringing the patent.

of the patent.<sup>255</sup> The most obvious vulnerability for end users comes from a patentee's claim of direct infringement. Conversely, while manufacturers of 3-D printers likely avoid the question of direct infringement entirely, they remain vulnerable to attacks on indirect infringement grounds.<sup>256</sup> Within the realm of indirect infringement, the patentee can show that the defendant engaged in either induced infringement or contributory infringement.<sup>257</sup>

Turning first to the question of end users, a patentee can bring a suit for direct infringement against any person that "makes, uses, offers to sell, or sells any patented invention within the United States" without the authority of the patentee.<sup>258</sup> The most obvious liability for end users of 3-D printers comes from the "makes" and "uses" prongs, given the functionality of most 3-D printers.<sup>259</sup> In its current form, patent law provides no exception for individual end users and, unlike copyright law, does not allow for a fair use defense by the infringer.<sup>260</sup>

Turning to the manufacturer side, contributory infringement occurs when a party sells or offers to sell "a component of a patented machine . . . constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article . . . suitable for substantial noninfringing use."<sup>261</sup> According to the Federal Circuit, a finding of contributory infringement requires the patentee to show, by substantial evidence: direct infringement; accused infringer's knowledge of the patent; that the component has no substantial noninfringing uses; and that the component is a material part of the invention.<sup>262</sup> Under a theory of contributory infringement, a patentee could claim that a 3-D printer manufacturer sells the printer while knowing that the end user will use the 3-D printer to make, use, or sell a patented

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<sup>255</sup> Infringement is also possible through the doctrine of equivalents, but that doctrine is of limited utility in this context. *See generally* Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co., 520 U.S. 17, 24 (1997).

<sup>256</sup> As explained below, one must "make[], use, offer[] to sell, or sell" a patented invention in order to face liability for direct infringement under 35 U.S.C. 271(a).

<sup>257</sup> 35 U.S.C. § 271(b) & (c).

<sup>258</sup> 35 U.S.C. § 271(a).

<sup>259</sup> While it is certainly possible that an end user might choose to sell his or her 3-D printed patented creations this is a smaller subset of the overall users of 3-D printers and therefore less likely to face liability.

<sup>260</sup> However, patent law does allow an infringer to raise defenses of "noninfringement," "experimental use," and "repair" to name a few.

<sup>261</sup> 35 U.S.C. § 271(c) (2006).

<sup>262</sup> *Fujitsu Inc. v. Netgear Inc.*, 620 F.3d 1321, 1326 (Fed. Cir. 2010).



device.<sup>263</sup> While contributory infringement is likely not the optimal litigation strategy for patentees, given the requirement that the device shall have no substantial noninfringing uses, the issue has yet to be conclusively addressed.

Induced infringement occurs when a manufacturer “actively and knowingly aid[s] and abet[s] another’s direct infringement.”<sup>264</sup> These cases most commonly arise when a manufacturer creates a product that infringes an existing patent, and then instructs the end user on how to infringe the patent. For example, in *Global-Tech Appliances v. SEB S.A.*, Global-Tech, through its subsidiary, copied a patented deep fryer, manufactured infringing copies, and then sold them to third-party distributors in the U.S.<sup>265</sup> While that case turned on 35 U.S.C. § 271(b)’s scienter requirement, the underlying factual background offers insight into how manufacturers can induce unknowing users to infringe a valid patent.<sup>266</sup> Traditionally, patentees have favored induced and contributory infringement as a way to target deep pocket defendants. Such suits also avoid negative media coverage of suing average citizens who unwittingly use a patented device or method. However, that trend has changed in recent years, as so-called patent trolls have targeted easily intimidated end users.

The term patent troll<sup>267</sup> is often applied to inventors who do not manufacture a product but seek to prosecute their patent. That term is sometimes unfairly used against small inventors who obtain a patent and later approach a company that is clearly infringing on that patent, only to be told by the company that it will cost millions to sue the company for infringement and that the company will stretch the

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<sup>263</sup> See Davis Doherty, *Downloading Infringement: Patent Law As A Roadblock to the 3d Printing Revolution*, 26 HARV. J.L. & TECH. 353, 361 (2012).

<sup>264</sup> 35 U.S.C. § 271(b). Induced infringement is not limited to manufacturers but rather can also apply to instances where a party instructs its users on how to infringe a patent. See *C.R. Bard, Inc. v. Advanced Cardiovascular Sys., Inc.*, 911 F.2d 670, 675 (Fed. Cir. 1990).

<sup>265</sup> *Global-Tech Appliances, Inc. v. SEB S.A.*, 131 S.Ct. 2060, 2064 (2011).

<sup>266</sup> See *id.*

<sup>267</sup> See Randall R. Radar et al., *Make Patent Trolls Pay in Court*, N.Y. TIMES, June 4, 2013, at A25, available at <http://www.nytimes.com/2013/06/05/opinion/make-patent-trolls-pay-in-court.html>. Patents are not the only area where individuals and corporations will rent seek for revenue without actually seeking to protect rights. There are also owners of valid copyrights in works that bring enforcement actions not to protect their rights or recoup damages, but simply as a primary or secondary revenue stream. Depoorter and Walker, *supra* note 33, at 344–45, citing James DeBriyn, *Shedding Light on Copyright Trolls: An Analysis of Mass Copyright Litigation in the Age of Statutory Damages*, 19 UCLA ENT. L. REV. 79, 79 (2012). Xiao’s study shows that the “expression function [of punishment or a fine] is significantly diminished...when the punishment becomes a source of revenue for enforcers.” Xiao, *supra* note 69, at 332.

litigation out for years.<sup>268</sup> Often such claims will be against a company that manufactures a product that violates the patent, under a doctrine known as inducement to infringe. Inducement to infringe allows a patent holder to sue the manufacturer and avoid pursuit of the end users who are actually using the product in violation of the patent. While those inventors have valid inducement claims against these large corporations, other companies are taking the unfortunate route of pursuing for direct infringement the end users who (unknowingly) purchased a product that violates a patent.

In 1996, a company called Personal Audio applied for a patent on a concept that is similar to what today is known as podcasting.<sup>269</sup> The priority date patent predated actual podcasting, and even predates iTunes and the iPod. While the company never created a device for podcasting, they have recently sent letters to for-profit podcasters asking for a settlement fee to avoid litigation.<sup>270</sup> The letters do not specify a price but are an invitation to begin negotiations to avoid litigation.<sup>271</sup> Ultimately, Personal Audio's patent represents an emblematic case for patent trolls. The patent is incredibly broad, holds a priority date long before the patented invention had actually been put into practice, and attacks an already developed industry.

Perhaps even more interestingly, Innovative Wireless Solutions sued Starbucks, Marriott, and other hotel and restaurant chains for allowing patrons to

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<sup>268</sup> One example is Robert Kearns, an engineer who was blind in one eye and severely bothered by the constant back and forth of windshield wipers. He invented an intermittent windshield wiper, took out a patent, and built a factory to fulfill orders from the car manufacturers. Those manufacturers broke off contact and simply developed their own intermittent windshield wipers. Kearns engaged in costly litigation (financially and emotionally) with deep pocketed car companies and eventually won or settled for millions of dollars from Ford and Chrysler. *See* Anderson, *supra* note 1, at 120–22.

<sup>269</sup> U.S. Patent No. 8,112,504 (filed Mar. 4, 2009). In fact, the '504 patent issued from a divisional application and therefore retained the priority date of the original application, filed in 1996. *Cf.* MPEP (9th ed. Rev. Mar. 2014) § 201.06; MPEP (8<sup>th</sup> ed. Rev. Aug. 2012) § 201.11. The invention contained in the '504 patent was originally claimed in the 1996 patent application but the patent examiner declared a division because the patent application contained more than one patentable invention.

<sup>270</sup> Ira Glass et al., *When Patents Attack... Part Two!*, THIS AMERICAN LIFE, (last visited March 30, 2014), <http://www.thisamericanlife.org/radio-archives/episode/496/when-patents-attack-part-two>.

<sup>271</sup> *See id.* However, Personal Audio has initiated several suits against prominent podcasters in the Eastern District of Texas alleging infringement of the '504 patent. *See* Complaint, Pers. Audio, L.L.C. v. Ace Broad. Network, L.L.C., No. 2:13-cv-00014 (E.D. Tex. Jan. 1, 2013).

use wireless Internet at their locations, allegedly infringing a series of patents protecting “information network access apparatus and methods for communicating information packets via telephone lines.”<sup>272</sup> These are not manufacturers infringing in their manufacturing of a product, but end users utilizing a common product in the marketplace.<sup>273</sup> Pursuing end users for direct infringement allows patent holders to avoid the deep pockets and sterling defense teams of the corporations that induce infringement, but it comes at the cost of making enemies out of the end users who purchase and use common products.

While the market for intellectual property is large and valuable, the market for physical goods is much larger and more valuable.<sup>274</sup> On the legislative front, it is certainly within the zone of imagination for manufacturers to push for an expansion of individual patent violation definitions, similar to the expansions that the entertainment industry sought and achieved in copyright law, or to push for administrative programs similar to the DMCA or increased penalties for individual patent violations.

To date, the market for tangible goods has not yet followed the path of the market for more virtual forms of intellectual property. It is cheaper for an individual to buy essentially any toaster sold in any store whether brick-and-mortar or online, than to manufacture a toaster.<sup>275</sup> The same goes for sneakers, beer bottles, staplers, and almost any other tangible good we can think of.

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<sup>272</sup> David McAfee, *Starbucks, Marriot Sued in WiFi Hotspot Patent Blitz*, LAW360 (Apr. 24, 2013, 5:14 PM), <http://www.law360.com/articles/435737/starbucks-marriott-sued-in-wifi-hotspot-patent-blitz>.

<sup>273</sup> To its credit, the White House has taken notice of these types of patent lawsuits, and included protecting “off-the-shelf use by consumers and businesses” of such products in its White House Task Force on High-Tech Patent Issues. EXEC. OFFICE OF THE PRESIDENT, PATENT ASSERTION AND U.S. INNOVATION 5-7 (2013). Attorneys general have also joined in the effort. See Erin E. Harrison, *GCs and AGs Join Hands to Tackle Patent Litigation*, INSIDE COUNSEL, Jan. 2014.

<sup>274</sup> See ANDERSON, *supra* note 1, at 9 (comparing a \$20 trillion dollar digital economy with a \$130 trillion dollar economy of “real stuff”).

<sup>275</sup> In fact, author Thomas Thwaites spent about nine months and quite a bit of money attempting to build from scratch a toaster that would cost about \$6.00 (US) in an English retail store. Although his tale is interesting, and certainly entertaining, readers of his book would probably surmise that it is not, currently, less expensive to manufacture one’s own toaster than it is to purchase one. See THOMAS THWAITES, *THE TOASTER PROJECT: OR A HEROIC ATTEMPT TO BUILD A SIMPLE ELECTRIC APPLIANCE FROM SCRATCH* (2011).

There have always been, and continue to be, craftspeople who can create tangible goods of the same or better quality than those available in the mass market, but such craftspeople usually do not threaten the technological monopoly of mass manufacturers, regardless of whether they infringe on the mass marketers' patent rights.

The copyrightization of patent law arrives when these physical goods are reduced to the same ones and zeros of computer code that have vexed intellectual property producers for the last decade and a half when, like an MP3 music file or a copied textbook, a consumer can easily and cheaply scan and print a physical item. Traditionally, music lovers would purchase a record, tape, or compact disc whose form patent law could protect and whose content was protected by copyright law. Once users started to share digital files of those same songs (and other content), there was no need to utilize those patent-protected media and the only question was whether and how this ran afoul of copyright law. In a future day when one can print the parts of a toaster (or even eventually an entire working toaster) on a 3-D printer, the toaster, as it was, will be reduced to simple ones and zeros just like a song, and patent protections look and act more like copyright protections. While the muddying of waters between copyright and patent may not be such a new idea,<sup>276</sup> the arrival of 3-D printers will bring the concept to the fore and represent a major shift in the protection regimes for intellectual property.

Now that 3-D printers are likely entering a period of rapid decrease in price paralleled by increase in quality, it is time to consider the future of tangible goods, the technological, legal and moral monopolies that protect those who design and manufacture these goods, and whether the market for tangible goods will follow the market for intangible intellectual property.

It is probably just as difficult for a sneaker or hair dryer manufacturer to imagine that their market share will be diminished by individuals printing such items at home, as it would have been for a record company twenty years ago to imagine that a score of years in the future, individuals could choose to purchase music on a compact disc, or as a digital download without ever visiting a music store, or could simply make an exact copy of a song file owned by a friend or a confederate anywhere on earth.

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<sup>276</sup> See Watt, *supra* note 51, at 389–402, 391 (“[the need for new definitions outside of the clear separation of copyright and patent] is not a recent development. As early as 1930 Justice Learned Hand stated ‘Nobody has ever been able to fix that boundary [between ‘ideas’ and ‘expression’] and nobody ever can,’” citing *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930)).

The biggest, and arguably most permanent, error that the tangible goods industries can make when addressing those who share patented designs with others who can print them on 3-D printers, would be to treat this as a legal problem rather than a market or business problem,<sup>277</sup> and to use the civil litigation and legislative process to seek redress. To use litigation against consumers is to risk simply establishing a price for violations of intellectual property law in 3-D printers. Just as with entertainment and literature, those few who are sued and are not otherwise judgment proof will have to pay dearly, or will settle for reasonable albeit large sums. The danger is not with them, it is with those who learn of them. They will either camouflage their sharing of such designs, or calculate their likelihood of being caught (and therein the practical average price for violating the law).

For example, consider an item that costs \$100 at a retail store but can be printed for \$10 in material. If the home printer estimates he or she has a one percent chance of being caught and sued, and if such a suit results in a \$2,000 settlement, it makes economic sense to violate the law and print the item at home with a purloined design. Printing at home in this scenario averages out to a \$30 real cost<sup>278</sup> over many tens of thousands of users, while the retail price is more than three times as much. Lest the reader believe that the solution therefore is to raise the penalty so high that it causes users to recalculate this decision, research shows that when “enforcement reaches levels that are perceived as normatively excessive, this can have the inadvertent effect of moving behavior in the opposite direction from that intended by the law.”<sup>279</sup> A fine or price that works to deter at one level, may not work better, or even as well, at a higher level.<sup>280</sup> Such tactics will only lead to the poor relationship with consumers that the entertainment industry faced, and to a higher value on anonymizing and other masking software that can protect uploaders and downloaders from being caught. A higher price is still a price, and when we move from a moral relationship to a market relationship, the parties will still behave in the manner appropriate to that relationship.

One solution is to bifurcate the pricing structure. One of the mistakes the entertainment industry made when Napster debuted (and was then shut down by

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<sup>277</sup> PATRY, *supra* note 8, at 141–42.

<sup>278</sup>  $\$2,000 \times 0.01 = \$20$  plus \$10 in material = \$30 total averaged cost.

<sup>279</sup> As detailed earlier, legitimacy of a legal regime is crucial to having citizens follow the rules set by the regime. Excessive penalties above the normative opinion of fairness for a violation can lessen the legitimacy of any legal regime. Depoorter, Van Hiel and Vanneste, *supra* note 33, at 1255–56, 1270.

<sup>280</sup> PATRY, *supra* note 8, at 173–76.

court order, with various other peer-to-peer protocols rising in its wake) was to lag in filling the vacuum. If the industry had immediately launched an easy to use and search method for obtaining MP3 files, users may have flocked to it. Instead, as detailed earlier, years passed with poor, restrictive services and half measures before Apple in 2001 corralled the industry to offer songs through iTunes. Manufacturers of tangible goods should embrace the opportunity 3-D printing provides to offer print at home designs that are equivalent to items available in stores, but at much lower prices. While the release online of a product design which allows a product to be successfully printed at home on a 3-D printer spells the end of monopoly pricing for that product, it does not mean that all economic benefit to the rights holder is lost.

Many industries engage in third degree price discrimination<sup>281</sup> wherein different groups of purchasers are identified and different prices are charged to the members of each group. Examples include student or senior citizen discounts (all members of one group pay a lower price than others) and different airline ticket prices charged to tourists and business travelers.<sup>282</sup> Manufacturers can use these time tested price discrimination techniques to advance a bifurcated pricing scheme wherein one price is charged in stores, and a different price is charged for access to an application or Web service allowing consumers to print the product at home. The higher price (although not as high as in monopoly pricing regimes) in stores can justify the overhead, transportation, and sales costs of maintaining the product in a retail environment. The significantly lower print at home price reflects cost savings in creation, shipping, storage and sale. In fact, home printing may increase sales by making retail products available to those living far from stores. Companies can sell licenses to digital files for printing individually or can adopt a Netflix style model where users can subscribe to unlimited access to a brand's designs.<sup>283</sup> Take as an example Lego bricks. Lego currently holds no patent on its standard bricks and blocks<sup>284</sup> Small companies and hobbyists use 3-D printers to fabricate Lego

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<sup>281</sup> For an explanation of price discrimination, see MANKIW, *supra* note 10, at 326–31.

<sup>282</sup> Airlines will sell tickets for less money to price conscious tourists than to expense-account utilizing business persons. They do this by discounting early purchases and those who stay over on a Saturday night (which are attractive to tourists), while charging more for last-minute purchases and short stays (which is acceptable to businesspeople). By doing so, airlines can separate the two groups and charge group members different prices.

<sup>283</sup> For a description of Netflix and other subscription models used by the entertainment industry, see RAUSTIALA, *supra* note 34, at 229–32.

<sup>284</sup> DAVID C. ROBERTSON AND BILL BREEN, BRICK BY BRICK: HOW LEGO REWROTE THE RULES OF INNOVATION AND CONQUERED THE GLOBAL TOY INDUSTRY 6–7, 42 (2013); See also Jamie Condliffe, *Lego Was First Patented 55 Years Ago Today*, GIZMODO (Jan. 28, 2013, 5:24

style pieces and accessories that Lego will not manufacture, either because they will not sell well or, as in the case of modern weaponry, due to company policy.<sup>285</sup> Lego maintains an online service, called the Lego Digital Designer CAD program, wherein users can upload custom designs that Lego manufactures and ships to the user, just like any other Lego set.<sup>286</sup> It is not hard to imagine a world where Lego and similar companies extend these programs to allow users to print at home on 3-D printers. These items can carry the trademarks of the company, be accessible, searchable and customizable, and have appropriate safety and reliability built into the designs.<sup>287</sup> Lego may be able to further price discriminate by charging one price in stores, a second price to print an individual design, and a third price to subscribe to unlimited printing of Lego designs. Bifurcated pricing opens up new possibilities, and breaks the cycle<sup>288</sup> of binary choice for consumers between purchasing legal, but expensive goods in stores and obtaining illegal, but free, goods in instantaneous digital form.<sup>289</sup>

Although the entertainment industry makes a credible complaint that “it is impossible to compete with free,” there have actually been several documented cases of artists who *have* successfully competed with those who offered their work for free in violation of copyright law.<sup>290</sup> Of course, individual examples are

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AM), <http://gizmodo.com/5979430/lego-was-first-patented-55-years-ago-today> (noting that LEGO bricks were patented over 55 years ago on January 28, 1958, patents which have, therefore, long expired).

<sup>285</sup> See ANDERSON, *supra* note 1, at 192–96. Lego as a company policy will sell futuristic and fantastical weapons, and ancient weapons such as swords, but will not sell modern guns, grenades or other weapons.

<sup>286</sup> *Id.* at 214.

<sup>287</sup> Lego does not pursue hobbyists who create Lego accessories “as long as they don’t violate Lego’s trademarks and include cautions about keeping pointy or easy-to-swallow toys away from young children. Indeed, Lego has even issued informal guidance on using the best plastics that are non-toxic and including holes in parts that could be a choking hazard, to allow for air passage.” *Id.* at 194. The company could extend such protections to the items that users can print on home 3-D printers.

<sup>288</sup> See text accompanying footnotes 89–101, 112–115, and 119–123, *supra*.

<sup>289</sup> If there is demand for an item, but there are no legal alternatives available, at least some consumers will seek to satiate that however they can, even if it is outside of what is allowed by law. See PATRY, *supra* note 8, at 256–62.

<sup>290</sup> Examples cited by Patry include science fiction author Neil Gaiman whose sales rose as his work was pirated, and comedy group Monty Python which released all of their work at no cost on YouTube with a “click to buy” button for fans to purchase content. He tells the story of a period when NBC content was not available legally on iTunes for purchase correlating with a significant rise in torrent sharing of that same content. PATRY, *supra* note 8, at 157–61. The

insufficient to declare a trend.<sup>291</sup> Yet there are studies showing that the availability of content for purchase can decrease file sharing, and the unavailability of legal content for purchase can result in increased peer-to-peer sharing, in violation of copyright law.<sup>292</sup> If given the opportunity, rational consumers will purchase digital content that is appropriately priced, free of viruses, and of high quality. With physical products, consumers will consider printable designs that they know will work and are virus free, if those designs are priced appropriately.

*A. Manufacturers Can Hang Together, or Hang Separately*

It should be noted that users may be inclined to paint industries with a broad brush. In the music industry lawsuits, although suits only derived from a limited number of entertainment companies, many users adopted a “plague [on both your] houses”<sup>293</sup> attitude that led to economic damage for companies that participated in the lawsuits, as well as those who did not.<sup>294</sup> Producers of tangible goods should likewise understand that a series of lawsuits filed by one or a few manufacturers in a class may lead to an “us versus them” feeling against all members of a product class, and a concomitant loss of sales both for those producers who file suits, and those who do not. Much as the designs must be priced appropriately, pursuit of serial infringers must be judicious and considered. However, to paraphrase

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bands Radiohead and Nine Inch Nails (admittedly, already famous and successful artists) created sensations and brought in revenue by releasing albums free to the Internet and/or peer-to-peer file sharing protocols, relying on donations or other digital downloading opportunities. *See generally* Lemley, *supra* note 9, at 125, 127, 134; Schwender, *supra* note 27, at 296-297. The band Dispatch even used Napster itself to release tracks, growing its audience to where it was playing large concert arenas. KNOPPER, *supra* note 34, at 133-34. Raustiala and Sprigman provide additional examples of artists such as Colbie Caillat who built successful and lucrative careers by giving their music away. RAUSTIALA, *supra* note 34, at 222-27, 230-32.

<sup>291</sup> Chris Anderson devoted an entire text to examples of ways to successfully compete with free or to co-opt free products for significant gain. CHRIS ANDERSON, *FREE: THE FUTURE OF A RADICAL PRICE* (2009).

<sup>292</sup> Danaher et al., *Understanding Media Markets in the Digital Age: Economics and Methodology*, NBER WORKING PAPER SERIES 1-2, 6-22 (2013), <http://www.nber.org/papers/w19634>. Specifically, the authors found that when NBC Universal content was removed from the iTunes store due to a contract dispute, illegal file sharing of that content increased 11%; when ABC content was added to Hulu, there was an approximately 20% drop in illegal file sharing of that content; and when cyberlocker Megaupload.com was shut down, revenue from legally accessed digital movies increased by 6-10%.

<sup>293</sup> William Shakespeare, *Romeo and Juliet* act 3, sc. 1.

<sup>294</sup> Patry, *supra* note 8, at 160.



Benjamin Franklin, in adopting the regime ascribed here, if all manufacturers do not hang together, they will all hang separately.<sup>295</sup>

## XII

### A MORAL SOLUTION WHEN TECHNOLOGICAL AND LEGAL MONOPOLIES FAIL

Whether it is months, years or decades down the line, at some point for almost all physical goods, the technological monopoly will be broken by inexpensive 3-D printers that will allow individuals to easily print the item at home. At first, printing such an item at home will be more expensive than purchasing it in stores and may be mainly the province of hobbyists and early adopters. Eventually, however, the price and ease of access of printing that particular item will fall so that it will be on par with, and then may fall below, the price of purchasing the item in a store.

There is good news, however, that may help makers of physical goods avoid the (at best uncertain and at worst financially crippling) fate of the music and movie industries. When the technological monopoly falls, it is unwise to try to salvage market share by exploiting the legal system to uphold the legal monopoly. Companies should instead adjust the price of their goods to aggressively compete against the cost of power, time and raw material needed to print the item at home. Concurrently, companies should aggressively work to ensure that users have a positive view of the firm, since the moral monopoly will be the lone standing reason for individuals to choose to purchase goods in the traditional manner.

Different companies will hit this mark at different times. Single medium items with no moving parts (as in the Lego bricks referenced earlier) will be the first and easiest to manufacture at home. Complex goods that use multiple materials, complex structure, moving parts, and skilled soldering of electronics will take much longer to develop at home printable alternatives. Once each product passes the point where it becomes as possible to manufacture that class of good at home as in the factory, the question will shift from a physical question to one that is solely about the intellectual property aspects of the good. Such intellectual property designs of goods can ostensibly be shared via peer-to-peer or bit torrent protocols just as easily as one can now share songs, books, or movies.

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<sup>295</sup> “We must all hang together, or assuredly we shall all hang separately.” Benjamin Franklin, at the signing of the Declaration of Independence, July 4, 1776. John Bartlett, *Familiar Quotations* 361 (10<sup>th</sup> ed. 1919) available at <http://www.bartleby.com/100/245.21.html>.

Once the technological monopoly falls, the accompanying legal monopoly provides little relief (and can actually be a hindrance) in protecting market share, and makers of tangible goods will have to depend on moral values to maintain their business. For consumers to feel a moral reason for continuing to purchase from the traditional manufacturer, the manufacturers will have to engage in business practices that consumers find laudatory, lest they feel it is actually in their best interests to print at home in defiance of intellectual property law, and starve the company of business.

For instance, reports of mistreatment of workers in factories currently lead to boycotts or negative articles, Facebook pages calling for change, or word-of-mouth discussions,<sup>296</sup> but if a consumer wants the specific phone, shirts or pair of sneakers made only or primarily by that company, they do not have a choice to acquire it elsewhere. That is to say, consumers who disapprove of a company now have a binary choice: stand on principal and eschew the good, or hold your nose while purchasing the item. In a world of 3-D printers, as the technology advances to make printing of more and more items possible in the home, consumers will be left with a third choice, one they may find highly desirable. If the consumer wants to have a certain physical good, but does not want to support a corporation because of an actual or perceived view that the company abuses workers or the environment, gouges shoppers on prices for the product, or otherwise acts in an anti-social manner, the consumer may choose to print that item at home. Further, they may even justify violating intellectual property laws in improperly obtaining the design to print at home, if they believe that doing so is striking a blow against a company whose actions they detest. Therefore, the reputations of such companies can play a greater role in whether consumers will choose to purchase items in the traditional

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<sup>296</sup> See, e.g., Simon Birch, *How Activism Forced Nike to Change Its Ethical Game*, THE GUARDIAN GREEN LIVING BLOG (July 6, 2012), <http://www.theguardian.com/environment/green-living-blog/2012/jul/06/activism-nike>; Max Nisen, *How Nike Solved Its Sweatshop Problem*, BUS. INSIDER (May 9, 2013, 10:00 PM), <http://www.businessinsider.com/how-nike-solved-its-sweatshop-problem-2013-5>; Jennifer Lin, *Students Target Gap Stores: Protesters on College Campuses Decry Working Conditions Overseas. Gap Says It Combats Sweatshops*, PHILLY.COM (Nov. 12, 1999), [http://articles.philly.com/1999-11-12/business/25494387\\_1\\_sweatshop-gap-saipan](http://articles.philly.com/1999-11-12/business/25494387_1_sweatshop-gap-saipan); Press Release, ILRF, *Workers' Rights Groups to Protest at Gap Shareholder Meeting* (May 20, 2013), <http://laborrights.org/releases/workers'-rights-groups-protest-gap-shareholder-meeting>; PR Newswire, *To Demand Gap and Walmart Join Fire and Safety Agreement Signed by 50 Apparel Companies, Labor Rights Groups Protests at Retailers in Over 30 Cities Saturday*, MARKETWATCH (June 26, 2013), <http://www.marketwatch.com/story/to-demand-gap-walmart-join-fire-and-safety-agreement-signed-by-50-apparel-companies-labor-rights-groups-protest-at-retailers-in-over-30-cities-saturday-2013-06-26>.

fashion, through bifurcated print at home offerings, or will instead improperly obtain the design to items and print those items at home with no remuneration to manufacturers and inventors.

With the increasing use of social media and the ability of even small journalistic groups and private citizens to become modern muckrakers, it will become incumbent on firms to act pro-socially. Users will often be able to tell the difference between real moral imperative and whitewashing of moral imperative. This transparency may lead to improvements in corporate culture. The company in question may sacrifice a lot of hard-earned goodwill if users learn of illegal working conditions or unethical conduct. In order to prevail on customers to keep the company in high regard, and to keep purchasing the economically appropriately priced goods so as to keep the workers employed and the company doing good work, the company will have to walk the walk of corporate responsibility, and not simply talk the talk. Frankly, this may not just be good for the bottom line, but may represent a new and positive era in the relationships between consumers and producers, workers and employers.

### XIII AN ALTERNATIVE THESIS<sup>297</sup>

There is, of course, a possibility that widespread use of 3-D printers will remain the stuff of science fiction. When photo printers became available with the advent of digital photography, many happy consumers snapped them up,<sup>298</sup> only to find that the photos printed on a home photo printer were never quite the quality of those published at commercial facilities. Further, having to keep purchasing ink and paper, combined with the utility efficiency and declining prices of brick-and-mortar and online photo printers, meant that printing slightly lower quality photos at home was not exactly less expensive either. Sales of home printers fell.<sup>299</sup>

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<sup>297</sup> This thesis was initially postulated by the author's friend Reuben Ingber, a technologist, Web designer, and podcaster who blogs at <http://reubeningber.com/>.

<sup>298</sup> See James Bandler, *A New Picture*, WALL ST. J. (May 19, 2003, 12:01 AM), <http://online.wsj.com/news/articles/SB105293562153220600>.

<sup>299</sup> See Steve Johnson, *Hewlett-Packard Stirs More Concern With Decline in Printing*, SAN JOSE MERCURY NEWS (Dec. 12, 2009, 4:48 PM), [http://www.mercurynews.com/ci\\_22147261/hewlett-packard-stirs-more-concerns-decline-printing](http://www.mercurynews.com/ci_22147261/hewlett-packard-stirs-more-concerns-decline-printing); Melissa Riofrio, *Lexmark Exits the Inkjet Market: Are Printers Doomed?*, PCWORLD (Aug. 28, 2012, 8:32 PM), [http://www.pcworld.com/article/261564/lexmark\\_exits\\_the\\_inkjet\\_market\\_are\\_printers\\_doomed\\_.html](http://www.pcworld.com/article/261564/lexmark_exits_the_inkjet_market_are_printers_doomed_.html).

The same may happen with 3-D printers. It is possible that these may remain in the domain of hobbyists and, while they may eventually print consumer goods at low cost, they may never be quite as good as those manufactured by traditional producers. If so, the creators of tangible goods will have dodged a significant bullet. Yet one of the things that aided retail and Internet photo printers with preserving market share after widespread sales of lower quality home photo printers was their significant reduction in price with accompanying increase in quality, options for printing, and speed from order to delivery<sup>300</sup> (at many retail businesses,<sup>301</sup> consumers can print high quality photos at low cost just seconds after inputting data, and online services offer extensive customization options at lower prices<sup>302</sup>).

To that end, market rules will still apply to tangible goods when 3-D printers arrive in homes. Depending on quality of manufacturing the 3-D printers, the devices may produce products that are the same quality as manufactured goods, or they may be of slightly lower quality. If they are, a price comparison to manufactured goods will still be important, as many users would accept a deeply discounted inferior product to the precisely manufactured, but more expensive, product available from manufacturers. After all, home photo printers may not be of the same quality as commercial photo printers, but they are still available for sale at electronics and home goods stores.<sup>303</sup> Of course, the history of home printers has

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<sup>300</sup> See Karen M. Cheung, *Digital Camera Market Expected to Rise, While Printer Market Falls*, REVIEWED.COM (June 29, 2006), <http://cameras.reviewed.com/news/digital-camera-market-expected-to-rise-while-printer-market-may-fall>.

<sup>301</sup> See Press Release, CVS, CVS/pharmacy Adds Camera-Phone Photo Printing (Apr. 28, 2005), available at <http://info.cvscaremark.com/newsroom/press-releases/cvsparmacy-adds-camera-phone-photo-printing>; Press Release, CVS, CVS/pharmacy Photo Takes Convenience to the Next Level With Express Pick Up (Oct. 22, 2010), available at <http://info.cvscaremark.com/newsroom/press-releases/cvsparmacy-photo-takes-convenience-next-level-express-pick>; Press Release, CVS, Accessing Smartphone Images is Easier Than Ever With a New Image Uploading Option at CVS/pharmacy Photo Centers (Nov. 14, 2012), available at <http://info.cvscaremark.com/newsroom/press-releases/accessing-smartphone-images-easier-ever-new-image-uploading-option>.

<sup>302</sup> See Lamont Wood, *Is the Market for Personal Printers Dying?*, COMPUTERWORLD (July 31, 2012, 6:00 AM), [http://www.computerworld.com/s/article/9229651/Is\\_the\\_market\\_for\\_personal\\_printers\\_dying\\_](http://www.computerworld.com/s/article/9229651/Is_the_market_for_personal_printers_dying_).

<sup>303</sup> See, e.g., Photo Printers, Best Buy, <http://www.bestbuy.com/site/all-printers/photo-quality-printers/abcat0511006.c?id=abcat0511006> (last visited Mar. 30, 2014).

not yet run its course.<sup>304</sup> It may be that the quality versus price for these printers simply has not yet made it worth the cost. As the quality continues to increase and the price continues to decrease, depending upon the market offerings of retail stores for print-on-demand photos, there may yet come a time when it is cheaper and more efficient to print photos at home, and where the quality of such photos rivals those printed in a retail store.

### CONCLUSION

Creators of tangible goods would do well to study lessons learned by the entertainment industry, and the difficulties it faced with consumers reacting to the litigation and legislative strategies utilized to fight copyright violations through peer-to-peer protocols. When the inevitable occurs and individuals begin to use 3-D printers to fabricate items protected by patent, manufacturers should not engage in a litigation strategy of suing individual consumers or a legislative strategy of seeking to increase fines or criminal penalties for such violations.

Rather, the path forward is through good business practices and engagement with consumers. Manufacturers should acknowledge their loss of a technical monopoly, and the concomitant loss of legal monopoly protection that practically accompanies such a paradigm shift. In acknowledging this change, manufacturers should adjust retail prices of affected goods so as to compete with home 3-D printers, and should bifurcate their offerings into more expensive retail items offered in stores, and less expensive digital applications that allow consumers to pay a reasonable cost to print the item at home, safely and accurately. This way consumers will not resort to seeking zero cost plans to print these items through peer-to-peer protocols. Competing in the market is the way to retain market share. Lobbying and lawsuits is the way to manufacture divisiveness with the very consumers that purchase these items. “Those who cannot [learn from] the past are condemned to repeat it.”<sup>305</sup> Manufacturers of tangible goods should learn the lessons detailed above, so as not to repeat the mistakes.

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<sup>304</sup> See, e.g., Carlo Sicoli, *Why Printing Photos Could Be Digital's – and Kodak's- Future*, THE RICHEST (Feb. 7, 2014), <http://www.therichest.com/business/companies-business/is-photo-printing-obsolete-or-an-opportunity/>.

<sup>305</sup> George Santayana, *The Life of Reason: Or, The Phases of Human Progress*, Vol. 1, 284 (1906).