

---

---

## Comments

ADAM J. COHEN\*

### Circumventing Fair Use: How the Digital Millennium Copyright Act Restricts Fair Use and What to Do About It

While federal copyright law has long protected creative works, such protection has never been absolute. Congress did not design copyright law to give authors a monopoly on their works, but rather “[t]o promote the [p]rogress of [s]cience and the useful [a]rts.”<sup>1</sup> In other words, Congress sought to protect intellectual property against misappropriation in order to encourage citizens to make and share their creative works with the public, thereby enriching society. Recognizing this public purpose, one major and long-standing exemption to copyright protection is “fair use,” which entitles the public to use and reproduce copyrighted works for limited purposes without liability for infringement.<sup>2</sup>

To prepare for a century dominated by digital technology, Congress passed the Digital Millennium Copyright Act (“DMCA”) in

---

\* J.D., University of Oregon School of Law, 2009; Systems Editor, *Oregon Law Review*, 2008–09. I would like to thank my wife, Tasha, for her love and support, and Andrew SkinnerLopata for providing expert guidance and reviewing drafts of this Comment at various stages of production.

<sup>1</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>2</sup> 17 U.S.C. § 107 (2006).

1998.<sup>3</sup> The DMCA is a comprehensive statute that contains provisions designed to completely update copyright law for the digital age, some of which have been controversial.<sup>4</sup> One such provision is § 1201, better known as the anti-circumvention provisions (“ACPs”).<sup>5</sup> Many digital works contain technological protection, often some form of code or encryption, which a machine must decrypt in order to access or copy the work.<sup>6</sup> The ACPs impose civil, and in some cases, criminal liability on those who circumvent such protection or distribute technology that does so.<sup>7</sup>

While § 1201 is designed to prevent illegal copying of digital works, it also presents a substantial obstacle to fair use. The very cornerstone of fair use is that copyright holders cannot legally stop it from occurring. Under § 1201, however, copyright holders can prevent fair use by wrapping their works in digital encryption, making it difficult, and sometimes impossible, for the public to exercise fair-use rights without risking legal liability. This Comment argues that the ACPs substantially limit fair use. Because fair use is a long-standing and important defense to copyright infringement, which Congress never intended to limit when it passed the DMCA, the ACPs should not apply to individuals making fair use of copyrighted works or manufacturing and distributing circumvention technology with intent to enable others to do so.

Parts I and II lay out the fundamentals of conventional copyright law and the fair use defense to infringement. Part III explores the changes in copyright law made to accommodate the digital age, namely the DMCA. In the context of this statutory and common-law framework, Part IV explores the conflict between the ACPs and fair use. Part V applies the abstract principles from Part IV via a case study on DVDs. Finally, Part VI offers a proposal to solve the conflict introduced in Part IV: fair use should be a permissible affirmative defense to violations of the ACPs.

---

<sup>3</sup> Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (codified as amended in scattered sections of 17 U.S.C. (2000)).

<sup>4</sup> ROBERT P. MERGES ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 568–69 (4th ed. 2006).

<sup>5</sup> 17 U.S.C. § 1201 (2006).

<sup>6</sup> JIM TAYLOR, *DVD FREQUENTLY ASKED QUESTIONS (AND ANSWERS)* 1.11 (2009), <http://dvddemystified.com/dvdfaq.html#1.11>.

<sup>7</sup> 17 U.S.C. §§ 1201, 1203.

## I

## CONVENTIONAL COPYRIGHT

At the broadest level, copyright originates from the intellectual property clause of the U.S. Constitution, which provides that “Congress shall have Power . . . 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>8</sup> This clause grants Congress the authority to enact copyright legislation and defines the fundamental purpose of copyright: to encourage creative minds to share their ideas with the public by offering them limited protection from misappropriation. In other words, the Framers did not design copyright laws to benefit authors by granting them a monopoly on their work, but rather to enrich and advance society.

Copyright law protects a broad spectrum of works. At the most basic level, copyright differs from other forms of intellectual property in that it protects *expressions* of ideas, not the ideas themselves.<sup>9</sup> The following types of expression are eligible for copyright protection: books and other literary works; musical works and accompanying words; dramatic works and accompanying music; pantomimes and choreographic works; pictorial, graphical, and sculptural works; motion pictures and other audiovisual works; sound recordings; and architectural works.<sup>10</sup>

The critical requirement for receiving protection under any of these categories is that the work must be “fixed in any tangible medium.”<sup>11</sup> This requirement simply means that a work is not protectable unless it is recorded in some manner. Most works easily satisfy this requirement; motion pictures, for example, are fixed once on film or digital media, and a story is fixed once it is written in text. Practically speaking, the fixation requirement only denies copyright protection to works that are “purely evanescent or transient” in nature, such as an improvised and unrecorded speech.<sup>12</sup>

---

<sup>8</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>9</sup> 17 U.S.C. § 102(b) (2006). Other forms of intellectual property, such as trade secrets and patents, protect ideas themselves.

<sup>10</sup> *Id.* § 102(a).

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

<sup>12</sup> H.R. REP. NO. 94-1476, at 52–53 (1976), as reprinted in 1976 U.S.C.C.A.N. 5659, 5665–66.

Like the spectrum of protectable works, a copyright owner has extensive rights, but they are not unlimited. Most importantly, a copyright owner has the exclusive right to reproduce his or her work.<sup>13</sup> In the same vein, the owner may also prevent others from creating new works that are too closely derived from his work.<sup>14</sup> Finally, copyright owners may limit distribution and public performance of their works.<sup>15</sup> Currently, copyright law protects a work for the lifetime of its author plus seventy years, starting when the work is fixed in a tangible medium.<sup>16</sup>

## II

### FAIR USE AS A DEFENSE TO COPYRIGHT INFRINGEMENT

For the registered owner of a valid copyright, a *prima facie* case for infringement has two elements: actual copying and improper appropriation.<sup>17</sup> To meet the first element, the copyright owner must prove that the alleged infringer actually copied from the copyrighted work.<sup>18</sup> This element is required because independent creation—making a work similar to a copyrighted work, but without knowledge thereof—is not infringement.<sup>19</sup> Absent direct proof of actual copying, a copyright owner may prove the first element circumstantially by demonstrating that the defendant had access to the copyrighted work.<sup>20</sup> The second element, improper appropriation, focuses on how similar the allegedly infringing work is to the copyrighted work.<sup>21</sup> Courts use this information to determine whether the copying went “too far,” so as to constitute improper appropriation.<sup>22</sup>

However, even if the copyright owner has proved his *prima facie* case, the defendant may claim, as an affirmative defense, that his

---

<sup>13</sup> 17 U.S.C. § 106(1) (2006).

<sup>14</sup> *Id.* § 106(2).

<sup>15</sup> *Id.* § 106(4)–(6).

<sup>16</sup> *Id.* § 302(a) (2006). Pursuant to 17 U.S.C. § 302(c), this period is longer for commercial works. That statute provides: “In the case of . . . a work made for hire, the copyright endures for a term of 95 years from the year of its first publication, or a term of 120 years from the year of its creation, whichever expires first.”

<sup>17</sup> *See Arnstein v. Porter*, 154 F.2d 464, 468 (2d Cir. 1946).

<sup>18</sup> *See id.*

<sup>19</sup> *See id.*

<sup>20</sup> *Id.* at 468–69.

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

actions constituted fair use.<sup>23</sup> Originally a judicial doctrine,<sup>24</sup> fair use is now codified in copyright law and provides a limited exception to liability for otherwise infringing acts.<sup>25</sup>

Courts examine and then weigh four primary factors when assessing whether an activity constitutes fair use.<sup>26</sup> No single factor is determinative, nor is the list exclusive,<sup>27</sup> as fair use is an “equitable rule of reason” to be applied in light of the overall purposes of the Copyright Act.<sup>28</sup> Also, although the four factors are expressly codified, the actual meaning of each factor is subject to interpretation, and consequently, judicial analysis of the fair use defense notoriously varies from case to case.<sup>29</sup>

Under the first factor, courts consider the “purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes.”<sup>30</sup> Here, courts primarily look to see whether the defendant is benefiting financially from his actions. For example, making copies of a work for classroom or personal use is far more likely to be found “fair” than is the sale of the copies.<sup>31</sup> Also, when assessing the first factor, courts sometimes consider whether the use is “transformative,” meaning whether it creates a work that is materially different from the copyrighted work.<sup>32</sup> When they consider this factor, courts are more sympathetic to transformative than to nontransformative uses.<sup>33</sup>

Second, courts look at the “nature of the copyrighted work.”<sup>34</sup> Here, the main issue is whether a work is more factual or creative.<sup>35</sup> Factual works are those based primarily on real information or events,

---

<sup>23</sup> See *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 561 (1985).

<sup>24</sup> *Folsom v. Marsh*, 9 F. Cas. 342 (C.C.D. Mass. 1841).

<sup>25</sup> 17 U.S.C. § 107 (2006).

<sup>26</sup> *Id.* § 107(1)–(4).

<sup>27</sup> H.R. REP. NO. 94-1476, at 65 (1976), as reprinted in 1976 U.S.C.C.A.N. 5659, 5679.

<sup>28</sup> *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 448 (1984) (quoting H.R. REP. NO. 94-1476, at 65–66 (1976)).

<sup>29</sup> See, e.g., *id.*; *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913 (2d Cir. 1994); *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569 (1994).

<sup>30</sup> 17 U.S.C. § 107(1).

<sup>31</sup> See *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539 (1985).

<sup>32</sup> See, e.g., *Campbell*, 510 U.S. at 579. Cf. *Sony*, 464 U.S. at 448–51. In *Sony*, the Court did not analyze, nor give any weight to whether or not the use was transformative. See *id.*

<sup>33</sup> See *Campbell*, 510 U.S. at 579.

<sup>34</sup> 17 U.S.C. § 107(2).

<sup>35</sup> *Harper*, 471 U.S. at 563.

such as scientific texts and biographies, while creative works are fictional. Copyright law protects the creative more than the factual, so a defendant accused of duplicating a factual work has a better chance of prevailing on a fair-use defense.<sup>36</sup>

Third, courts look to “the amount and substantiality of the portion [of the copyrighted work] used in relation to the copyrighted work as a whole.”<sup>37</sup> In other words, the greater the portion of the work copied, the weaker the fair-use defense. However, a complete copy of a protected work is not per se infringing, as no one factor is determinative.<sup>38</sup>

Finally, courts look at “the effect of the use upon the potential market for or value of the copyrighted work.”<sup>39</sup> Uses that are more harmful to the marketability of the copyrighted work are less likely to be found fair.<sup>40</sup> For example, an individual who sells an allegedly infringing work in the same market as the copyrighted work is less likely to prevail on a fair-use defense than one whose misappropriated work is not for sale or caters to a market segment that the copyright owner is unlikely to enter.<sup>41</sup> Courts also consider whether the individual arguing for fair use would be likely to purchase an additional copy of the work if he or she could not reproduce it.<sup>42</sup> If so, this factor weighs against fair use because, assuming others also reproduced the work, the copyright holder would lose a substantial volume of sales.<sup>43</sup>

In the abstract, these factors can seem somewhat disjointed, so a brief survey of relevant case law and other examples is helpful to clarify how courts apply them. Perhaps the clearest example of an activity that constitutes fair use is when a student copies part of a work to use in a school project. Using a book as the hypothetical source work, the first factor easily weighs in favor of fair use: the student uses the copy entirely for nonprofit educational purposes. Assuming the book is a novel, the second factor weighs against fair

---

<sup>36</sup> 17 U.S.C. § 102(a). *See generally* Feist Publications, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340 (1991) (denying copyright protection for names, towns, and telephone numbers in a telephone directory due to lack of creativity and originality).

<sup>37</sup> 17 U.S.C. § 107(3).

<sup>38</sup> H.R. REP. NO. 94-1476, at 65 (1976), *as reprinted in* 1976 U.S.C.C.A.N. 5659, 5679.

<sup>39</sup> *Id.* § 107(4).

<sup>40</sup> *See* Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 450–51 (1984).

<sup>41</sup> *See id.*

<sup>42</sup> *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 927–28 (2d Cir. 1994).

<sup>43</sup> *See id.*

use because creative works enjoy stronger protection than factual works. The third factor, “amount and substantiality,” weighs in favor of fair use because an excerpt from a book is only a small part of the whole and is not likely to be substantial unless the book is widely known for only the passage chosen. Finally, the impact on the commercial market for the book is likely nonexistent: if the student could not copy an excerpt, it is not likely that he or she would purchase an additional book from which to physically cut passages in order to avoid reproducing them. In summary, three of the four factors weigh strongly in favor of fair use, so excerpting portions of a book for educational purposes likely is fair use.

Not all examples of fair use are as clear. In *Sony Corp. of America v. Universal City Studios, Inc.*, the Supreme Court addressed, *inter alia*, whether using a VCR to tape television programs, primarily for later viewing, was fair use.<sup>44</sup> Looking at the four factors, the Court first determined that the copies were for private, noncommercial use, which weighed in favor of fair use.<sup>45</sup> In most cases, the nature of the copyrighted work was creative,<sup>46</sup> which would ordinarily weigh in favor of infringement due to the stronger copyright protection afforded to these types of works. However, the Court focused on the fact that television programs are free to the consumer, which neutralized the second factor.<sup>47</sup> When assessing the amount and substantiality of the copied portion relative to the whole work, the Court acknowledged that in most cases VCR owners copied entire programs, which ordinarily would weigh in favor of infringement.<sup>48</sup> However, as with the second factor, the Court focused on the fact that the programs were free, which neutralized the third factor as well.<sup>49</sup> Finally, the Court observed that the copying had minimal impact on the market for television programs because (1) the programs were free in the first place, and (2) most taping was for nonarchival purposes because users typically did not save their recordings and thus had to purchase a copy from the producer if they wanted to watch the program in the distant future.<sup>50</sup>

---

<sup>44</sup> 464 U.S. 417, 442–56 (1984).

<sup>45</sup> *Id.* at 448–49.

<sup>46</sup> *Id.* at 497 (Blackmun, J., dissenting) (citing *New York Times Co. v. Roxbury Data Interface, Inc.*, 434 F. Supp. 217, 221 (D.C.N.J. 1977)).

<sup>47</sup> *Id.*

<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

<sup>50</sup> *Id.* at 450–54.

While *Sony* exemplifies a successful fair-use defense, *American Geophysical Union v. Texaco Inc.*<sup>51</sup> demonstrates the opposite. In *American Geophysical Union*, a Texaco research facility allowed scientists to photocopy journals in the company library so they could have easy access to them to further their research.<sup>52</sup> When the publisher sued for copyright infringement, Texaco claimed fair use.<sup>53</sup> Applying the four factors, the court first concluded that the use was commercial because Texaco made a profit from the researchers' work, which the copies facilitated.<sup>54</sup> Also, as the copies were identical to the originals, the court found them nontransformative, so the first factor weighed against Texaco.<sup>55</sup> Next, the court concluded that the copyrighted works were generally factual, and therefore the second factor weighed in favor of Texaco.<sup>56</sup> The third factor weighed indisputably against Texaco since the scientists copied the articles in their entirety.<sup>57</sup> Finally, the court engaged in a detailed analysis of the fourth factor to conclude that the scientists' activities had a substantial effect upon the potential market or value for the works and, therefore, the final factor weighed against Texaco.<sup>58</sup> In coming to this conclusion, the court noted that, if Texaco were not allowed to make the photocopies, it would likely purchase additional subscriptions or obtain a photocopying license for its existing journals, either of which would increase revenue for the publishers.<sup>59</sup> Because three factors favored the publisher, the court concluded that the activity was not fair use.<sup>60</sup>

To summarize, fair use is best conceptualized as an "equitable rule of reason,"<sup>61</sup> that is "one of copyright law's most important safety valves."<sup>62</sup> Courts apply fair use where a valid *prima facie* case for

---

<sup>51</sup> 60 F.3d 913 (2d Cir. 1994).

<sup>52</sup> *Id.* at 914-16.

<sup>53</sup> *Id.* at 914-15.

<sup>54</sup> *Id.* at 922.

<sup>55</sup> *Id.* at 922-24.

<sup>56</sup> *Id.* at 925.

<sup>57</sup> *Id.* at 925-26.

<sup>58</sup> *Id.* at 926-32.

<sup>59</sup> *Id.*

<sup>60</sup> *Id.* at 931.

<sup>61</sup> *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 448 (1984) (quoting H.R. REP. NO. 94-1476, at 65-66 (1976)).

<sup>62</sup> H.R. REP. NO. 94-1476, at 65 (1976), as reprinted in 1976 U.S.C.C.A.N. 5659, 5678 (describing fair use as "one of the most important and well established limitations on the exclusive right of copyright owners," and noting "[t]he claim that a defendant's acts



infringement exists, but imposing liability on the copier would stifle creative expression or grant too much protection to copyright owners.<sup>63</sup> Fair use is an affirmative defense,<sup>64</sup> which the defendant in an infringement action must plead and bears the burden of proving.<sup>65</sup> Finally, although codified by statute, fair use remains a complex area of copyright law, given that the four factors in § 107 are not an exhaustive list of what courts may consider and are highly subject to judicial interpretation.<sup>66</sup>

### III

#### DIGITAL COPYRIGHT LAW

With the advent of digital technology in the latter part of the twentieth century, copyrighted works advanced beyond the laws then protecting them. Recall that the purpose of copyright is to benefit the public by forging a balance between protecting copyright owners and ensuring that the public gets the benefit of their works.<sup>67</sup> For analog works such as books, pictures, records, videocassettes, and tapes, conventional copyright law achieves this balance well. It is able to do so because analog works contain three intrinsic deterrents to copying that supplement statutory protection.

First, there is an inevitable loss of quality associated with analog reproduction, such that a copy is always worse than the original.<sup>68</sup> While this quality loss alone is a deterrent to the would-be copier, even more important is that quality loss occurs with each generation of copies, so a copy made from a copy is even worse, and so on down the line.<sup>69</sup> Consequently, a single copy cannot start a long chain of reproduction, since the copies quickly will become too poor in quality

---

constituted a fair use rather than an infringement has been raised as a defense in innumerable copyright actions over the years, and there is ample case law recognizing the existence of the doctrine and applying it.”); *MERGES ET AL.*, *supra* note 4, at 506 (noting that fair use “promot[es] cumulative creativity and free expression”).

<sup>63</sup> See H.R. REP. NO. 94-1476, at 65 (1976), as reprinted in 1976 U.S.C.C.A.N. 5659, 5678; *MERGES ET AL.*, *supra* note 4, at 506.

<sup>64</sup> *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 561 (1985).

<sup>65</sup> *BLACK’S LAW DICTIONARY* 451 (8th ed. 2004) (defining affirmative defense as “[a] defendant’s assertion of facts and arguments that, if true, will defeat the plaintiff’s . . . claim, even if all the allegations in the complaint are true”).

<sup>66</sup> *MERGES ET AL.*, *supra* note 4, at 507.

<sup>67</sup> See David Nimmer, *A Riff on Fair Use in the Digital Millennium Copyright Act*, 148 U. PA. L. REV. 673, 683 (2000).

<sup>68</sup> *TOMLINSON HOLMAN, SOUND FOR FILM AND TELEVISION* 52 (2d ed. 2002).

<sup>69</sup> *Id.*

to be desirable. Second, reproducing an analog work can be expensive since one must pay for the tangible materials needed to do so. For example, analog reproduction of a photograph requires the purchase of costly photo paper and color ink. Finally, copies of analog works can only be distributed on physical media. This limitation is better explained by contrast with digital works, as outlined below.

Digital works lack all three intrinsic limitations. Generally, this stark contrast is due to the fact that a work stored digitally is, technically speaking, not the actual work itself, but rather its digital representation. In other words, at the most basic level every digital work is composed of a series of numbers.<sup>70</sup> A computer must translate and depict this representation in order for it to be recognizable as the copyrighted work.<sup>71</sup>

First, unlike analog works, digital works copy perfectly. Because they are stored as computer code, copying them is quite simple: a computer simply replicates the code, which, like the original, must be translated in order to depict the actual work.<sup>72</sup> As a result, a digital copy is “perfect” in that it is equal in quality to the original.<sup>73</sup> For example, a digital picture is a series of ones and zeroes, which, when interpreted by a computer, produce the image on a screen.<sup>74</sup> To make a copy, the computer simply replicates this series of numbers. An identical series produces a perfect copy.<sup>75</sup> Also, unlike analog copies that undergo increasing quality loss with each generation, the quality of copied digital works never degrades,<sup>76</sup> which results in unlimited generations of perfect copies.

Second, digital reproduction is generally inexpensive. The fundamental copying process is a rudimentary task for a computer, and there is no cost at all if the person making the copy wishes to retain it only on the hard drive. Even if the copier transferred the

---

<sup>70</sup> Marshall Brain, *How Analog and Digital Recording Works*, HOWSTUFFWORKS, <http://communication.howstuffworks.com/analog-digital.htm/printable> (last visited July 8, 2009).

<sup>71</sup> *Id.*

<sup>72</sup> Tony Whittingham, *Introduction to Digital Media*, <http://digitalmedia.sydneyinstitute.wikispaces.net/> (last visited July 8, 2009).

<sup>73</sup> *Id.*

<sup>74</sup> *Id.*

<sup>75</sup> *Id.*

<sup>76</sup> *Id.*

work to a more portable medium, such as a recordable CD or DVD, these options are inexpensive as well.

Finally, while digital works *can* be recorded onto tangible media, they can also exist entirely within computers. This fact sets them starkly apart from analog works when one considers how well-connected today's computers are. Thanks to computer networks and the Internet, digital works can travel, quite literally, at the speed of light. Such speed and connectivity, combined with perfect quality reproduction, means that an unlimited number of perfect digital copies can quickly disseminate throughout the world.

Because digital works are exempt from the built-in safeguards of analog media, Congress, facing a new technological era, expressed concern that conventional copyright law would no longer satisfy its constitutional purpose to serve the public good.<sup>77</sup> Specifically, it recognized that infringement and piracy might become so rampant that creators of intellectual property would be hesitant to share their works with the public, thereby upsetting the delicate balance of copyright law.<sup>78</sup> In this frame of mind, Congress passed the DMCA in 1998.<sup>79</sup>

The DMCA has five titles, only the first of which is relevant to this Comment. Known formally as the "World Intellectual Property Organization ["WIPO"] Copyright and Performances and Phonograms Treaties Implementation Act of 1998," Title I of the DMCA is designed to implement two 1996 treaties to which the United States is a signatory: the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty.<sup>80</sup> The three specific provisions in Title I that are relevant to this Comment go by several names in common parlance;<sup>81</sup> however, this Comment refers to them as the Anti-Circumvention Provisions ("ACPs").

---

<sup>77</sup> See Nimmer, *supra* note 67, at 683.

<sup>78</sup> *Id.* at 683–84.

<sup>79</sup> Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (codified as amended in scattered sections of 17 U.S.C. (2000)).

<sup>80</sup> U.S. COPYRIGHT OFFICE, THE DIGITAL MILLENNIUM COPYRIGHT ACT OF 1998: U.S. COPYRIGHT OFFICE SUMMARY 1 (1998), <http://www.copyright.gov/legislation/dmca.pdf> [hereinafter DMCA SUMMARY].

<sup>81</sup> TOMAS A. LIPINSKI, COPYRIGHT LAW AND THE DISTANCE EDUCATION CLASSROOM 44 (2005) (referring to the ACPs as Anti-Circumvention Rules); MERGES ET AL., *supra* note 4, at 569 (referring to the ACPs as Anticircumvention Prohibitions).

Unlike previous revisions to copyright law,<sup>82</sup> the ACPs do not actually give greater legal protection to copyrighted works. Instead, they allow copyright owners to fortify their works with digital security measures and impose legal penalties on persons who bypass such measures.<sup>83</sup> In other words, although the ACPs are formally part of copyright law, they do not directly regulate the right to reproduce or otherwise use copyrighted works.

To fully understand the ACPs, it is necessary to have a working knowledge of several technical terms. The ACPs regulate “circumvention” of technological measures.<sup>84</sup> Circumventing a technological measure means: descrambling a scrambled work, decrypting an encrypted work, or otherwise avoiding, bypassing, removing, deactivating, or impairing a technological security measure, without authorization from the copyright owner.<sup>85</sup>

Each of the three ACPs prohibits a different activity. First, pursuant to § 1201(a)(1), one may not circumvent a technological measure that effectively controls access to a copyrighted work (an “access control”).<sup>86</sup> An access control is a technological measure that, “in the ordinary course of . . . operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work.”<sup>87</sup> For example, a computer program with an activation code or “CD key” that must be entered before the program will run is a work with an access control. A person who uses a rogue program, or hack, to bypass the authentication process has violated § 1201(a)(1).

Second, § 1201(a)(2), proscribes “trafficking in”—that is, manufacturing or distributing—technology or products designed to circumvent access controls.<sup>88</sup> For example, the author or distributor of the hack described in the previous example is in violation of § 1201(a)(2).

Third, § 1201(b)(1) prohibits trafficking in technology or products designed to circumvent a technological measure that “effectively

---

<sup>82</sup> Copyright Act of 1976, Pub. L. No. 94-553, 90 Stat. 2541 (1976). The 1976 revision extended the scope of protected materials and the term of protection.

<sup>83</sup> See 17 U.S.C. § 1201(a)–(b) (2006).

<sup>84</sup> *Id.*

<sup>85</sup> *Id.* § 1201(a)(3)(A).

<sup>86</sup> *Id.* § 1201(a)(1).

<sup>87</sup> *Id.* § 1201(a)(3)(B).

<sup>88</sup> *Id.* § 1201(a)(2).

protects a right of a copyright owner”<sup>89</sup> (a “use control”). This provision differs from the previous two governing access controls in that, while the previous two affect technological measures that completely restrict access to a work, § 1201(b)(1) encompasses technological measures that protect specific rights of the copyright owner, such as copying.<sup>90</sup> An example of a work with a use control is an electronic document that a licensed user may view on his screen, but not save or print, due to a software security feature. A person who writes a program that bypasses this feature and enables copying, violates § 1201(b)(1) because copying is a right of the copyright owner.<sup>91</sup>

To put these three subsections in perspective, § 1201(a)(1) proscribes circumventing access controls, and § 1201(a)(2) prohibits trafficking in technology that circumvents access controls. However, § 1201(b) only bans trafficking in technology that circumvents use controls; as far as the ACPs are concerned, an individual may freely circumvent use controls on his own, provided he does not distribute to others the technology required to do so.<sup>92</sup>

There are several statutory exemptions to the ACPs,<sup>93</sup> only one of which is relevant to the focus of this Comment. Every three years, the Librarian of Congress issues a rule exempting particular classes of works from § 1201(a)(1) if, after research, he or she concludes that users of that work will be “adversely affected” by the inability to engage in legitimate uses due to the circumvention ban.<sup>94</sup> Any exemptions so issued apply only to individual acts of circumventing access controls and have no bearing on trafficking, either in access or use-control-circumvention technology.<sup>95</sup> Currently, there are six exemptions in force until the next rulemaking in 2009.<sup>96</sup> These are

---

<sup>89</sup> *Id.* § 1201(b)(1).

<sup>90</sup> For a comprehensive list of rights exclusive to copyright owners, see *supra* text accompanying notes 8–10.

<sup>91</sup> 17 U.S.C. § 106(1).

<sup>92</sup> It is important to note that there may still be an underlying claim for copyright infringement, even if there is no liability under the ACPs.

<sup>93</sup> 17 U.S.C. § 1201(d), (f)–(j) (establishing additional exemptions for (1) nonprofits/libraries doing research to determine whether to buy legitimate copies of materials, (2) reverse engineering, (3) encryption research, (4) protection of minors, (5) personal privacy, and (6) security testing).

<sup>94</sup> *Id.* § 1201(a)(1)(B)–(E).

<sup>95</sup> See the statute itself, which specifies that the exceptions only apply to § 1201(a)(1).

<sup>96</sup> Exemption to Prohibition Against Circumvention, 37 C.F.R. § 201.40 (2008) (noting that the current exemptions are effective through Oct. 27, 2009).

(1) audiovisual works in a university's library, if circumvented by film professors for classroom use; (2) computer programs on obsolete media; (3) computer programs protected by hardware locks that have been legitimately purchased, but are damaged; (4) electronic books that are only available in formats that disable "screen readers" so that the blind cannot access them; (5) computer programs in cellular phones that deny access necessary to lawfully connect to a wireless network; and (6) sound recordings on CD that jeopardize the security of one's computer, provided the circumvention is performed to investigate or correct the security vulnerability.<sup>97</sup>

Individuals who violate § 1201 can face serious penalties. Section 1203 provides copyright holders with a civil cause of action against circumventors and traffickers.<sup>98</sup> Additionally, § 1204 provides criminal penalties for willful circumvention or trafficking if such acts result in financial gain.<sup>99</sup>

#### IV

#### THE CONFLICT WITH FAIR USE

As written, the ACPs purport to steer clear of fair use. They expressly proclaim: "[n]othing in [§ 1201] . . . shall affect . . . defenses to copyright infringement, including fair use."<sup>100</sup> Also, the fact that the ACPs do not restrict circumvention of *use* controls theoretically caters to fair use by allowing individuals who wish to engage in fair use to bypass such controls without risking liability.<sup>101</sup> Finally, Congress designed the triennial exemption process through the Librarian of Congress as a safety net in case § 1201(a)(1), as applied, unduly limits fair use for a given class of works.<sup>102</sup>

However, despite these three precautions, the ACPs substantially limit fair use in two major ways. The first pertains solely to the § 1201(a)(1) prohibition on individual acts of circumventing access controls. Conceptually, it is simple: an individual who wishes to make fair use of a work protected by an access control must access that work, which in turn, requires circumventing the access control, violating § 1201(a)(1). Since the individual cannot access the work

---

<sup>97</sup> *Id.*

<sup>98</sup> *See* 17 U.S.C. § 1203(a).

<sup>99</sup> *Id.* § 1204.

<sup>100</sup> *Id.* § 1201(c).

<sup>101</sup> DMCA SUMMARY, *supra* note 80, at 4.

<sup>102</sup> *Id.* at 5.

without violating § 1201(a)(1), he cannot engage in fair use without exposing himself to liability.

The second way that the ACPs restrict fair use involves § 1201(b)(1), the anti-trafficking provision for use controls. As noted in Part II, *supra*, fair use typically involves making a partial or complete copy of a copyrighted work. One way in which a use control can protect a work is by preventing copying.<sup>103</sup> Theoretically, an individual may circumvent this use control in order to make fair use of a copyrighted work, because § 1201(b)(1) only bans the act of circumvention with regard to *access* controls. However, in most cases, the individual will be unable to do so unless he was either well-versed in computer programming or if another person has violated § 1201(b)(1) on his behalf.

The reason for this de facto limit on fair use is that few individuals have the skills necessary to circumvent use controls on their own. In most cases, use controls consist of complex software encryption, which only experienced programmers can decrypt.<sup>104</sup> For the average individual, the only realistic option is to obtain circumvention software from a third party, thereby subjecting that party to liability for trafficking pursuant to § 1201(b)(1).

This de facto limit also applies to § 1201(a)(2), the ban on trafficking in *access* control circumvention technology, but only when the Librarian of Congress has exempted the class of work being circumvented from § 1201(a)(1) liability. For example, if an individual with software stored on obsolete, unplayable media ordered a device on the Internet to allow him to transfer that software to newer media, the individual would be exempt from liability for the circumvention itself, but the online merchant could face liability under § 1201(a)(2) for trafficking in access control circumvention technology because the exemptions do not cover traffickers.<sup>105</sup>

Thus, while the ACPs theoretically have special allowances built in to protect fair use, as applied, they actually restrict it quite substantially. Examining the tension between the ACPs and fair use through a case study on DVDs provides further support for this conclusion and demonstrates that the conflict is not just theoretical.

---

<sup>103</sup> See 17 U.S.C. § 106(1)–(2), (4)–(6) (defining the rights of copyright holders).

<sup>104</sup> MERGES ET AL., *supra* note 4, at 570.

<sup>105</sup> See 17 U.S.C. § 1201(a)(1)(B)–(E).

## V

## CASE STUDY: DVDS

Since the mid-1990s, the motion picture industry has been releasing films digitally in DVD format.<sup>106</sup> Formally known as “Digital Versatile Discs,”<sup>107</sup> DVDs have become the most common storage media for commercial films due to their superior image quality and the functionality of previous formats, such as VHS and Betamax.<sup>108</sup> As digital media containing valuable intellectual property, DVDs have also taken full advantage of the ACPs by employing complex technological measures to safeguard their contents from unauthorized access and duplication.<sup>109</sup> However, while these security measures undoubtedly deter piracy, they also provide an excellent example of how the ACPs allow DVD manufacturers to substantially limit, and in some cases eliminate, fair use.

Preliminarily, it is important to note that because DVDs are simply media for storing motion pictures, copyright does not protect the actual discs, just the motion pictures on them. Consequently, for purposes of fair use analysis, a motion picture on DVD is identical to one stored on any other media, and there are numerous fair-use activities that individuals may engage in with respect to motion pictures.

For example, it is likely fair use for an individual to copy an excerpt of a film, whether purchased or borrowed, for use in an academic project or lecture. First, the purpose and character of such use, if for education, is noncommercial. The fact that the copy is nontransformative is of little significance given that the use is overwhelmingly noncommercial, and the U.S. Supreme Court gave no consideration to the transformative question in *Sony*, which also involved copying video.<sup>110</sup> Thus, the first factor (purpose and character) leans toward a finding of fair use. Second, assuming that the film is fictional, it enjoys a higher degree of copyright protection than a factual work, which pushes this factor against fair use. Third,

---

<sup>106</sup> MICROSOFT CORP., MICROSOFT ENCARTA ONLINE ENCYCLOPEDIA, DIGITAL VERSATILE DISC (DVD) (2008), [http://encarta.msn.com/encyclopedia\\_761582825/DVD.html](http://encarta.msn.com/encyclopedia_761582825/DVD.html).

<sup>107</sup> *Id.*

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

<sup>109</sup> TAYLOR, *supra* note 6, at 1.11.

<sup>110</sup> *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 448–51 (1984).



the amount and substantiality of the portion used is only a small excerpt of the work, which weighs in favor of fair use. Finally, the effect of the use on the market for/value of the film is nonexistent. There is no reason that a clip from a film, used for academia or comment, would compete with legitimate sales of the film. Also, a student or teacher would be unlikely to buy a copy of the film if denied permission to make the clips because the use is so limited, and purchasing the whole film would be extravagant. Thus, the fourth factor weighs in favor of fair use. Since three out of the four factors weigh in favor of fair use, copying film clips for academic purposes is likely fair use. Further evidence to support this conclusion is the current Librarian of Congress exemption to § 1201(a)(1) that allows film and media studies professors to copy DVDs in a university's library in order to make compilations of clips for instruction.<sup>111</sup> The commentary to this exemption explicitly notes that the rationale for allowing the exemption was that making compilations of clips of commercial films for instructional purposes is a noninfringing use.<sup>112</sup>

A second activity involving DVDs that is likely fair use is making complete copies of legitimately purchased films for backup (in case of damage to the original) or media-shifting purposes (i.e., copying the film onto a laptop or other portable media player so as to avoid bringing along one's bulky and expensive DVD collection when traveling). Under the first factor, the character and purpose of this use is entirely personal and therefore noncommercial, so it weighs in favor of fair use. For the same reason as the previous example, the nontransformative nature of the copies is of no importance. The second factor weighs against fair use, assuming the motion pictures copied are fictional. Third, the amount and substantiality of the work used is the entire film, which ordinarily weighs against fair use. However, there is precedent for this type of activity that suggests otherwise: in *Sony* the VCR users taped entire programs, but the Court gave less weight to this fact because the works taped were free to the public in the first place. Here, the motion picture being copied is not "free," but the individual making the copy has already purchased it, giving him the same right to use it as if it were broadcast on television: he may freely watch it. Thus, here, as in *Sony*, the third factor shifts toward neutrality. Finally, the effect on the market/value

---

<sup>111</sup> Exemption to Prohibition Against Circumvention, 37 C.F.R. § 201.40 (2008).

<sup>112</sup> Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 71 Fed. Reg. 68,472, 68,473–74 (Nov. 27, 2006) (codified at 37 C.F.R. 201.40).

of the original work is nominal when an individual makes a backup or media-shifting copy of a motion picture. If denied the opportunity to back up his movie collection, an individual is not likely to purchase a second copy of the work; the entire purpose of making a backup is to protect his original investment so as to avoid having to purchase a second copy of the DVD. And while it is possible that an individual denied the right to transfer his films onto a laptop would purchase them again in digital file format, it makes for more economic sense, albeit inconvenient, for that individual to simply bring his DVD collection with him when traveling. Thus, factors one and four weigh strongly in favor of fair use, factor two weighs against it, and factor three is neutral. Therefore, the overall balance suggests that archiving or media shifting a purchased video collection is fair use.

Although the above activities likely constitute fair use, the ACPs effectively criminalize or create civil liability for each of them. Commercial DVDs contain at least one, and often several forms of encryption designed to prevent unauthorized copying.<sup>113</sup> The most common of these schemes is the Content Scramble System (“CSS”), which, for purposes of the ACPs, operates as both an access control *and* a use control.<sup>114</sup> On a DVD with CSS, the data representing the film is encrypted using an algorithm.<sup>115</sup> CSS is an access control because in order to play the disc the user must have a DVD player with properly licensed CSS circuitry, which, today is standard on all DVD equipment, or DVD software with a license to decrypt CSS.<sup>116</sup> If not decrypted, the movie would appear scrambled and unintelligible<sup>117</sup> or would not play at all.<sup>118</sup> CSS is also a use control because one cannot copy an encrypted DVD without accessing its contents, which requires circumventing CSS.<sup>119</sup>

Since CSS is both an access and a use control, it is necessary to analyze the fair use conflict from *both* perspectives. First, from the access control perspective, § 1201(a)(1) bans individual acts of

---

<sup>113</sup> TAYLOR, *supra* note 6, at 1.11.

<sup>114</sup> 321 Studios v. Metro Goldwyn Mayer Studios, Inc., 307 F. Supp. 2d 1085, 1095–97 (N.D. Cal. 2004).

<sup>115</sup> TAYLOR, *supra* note 6, at 1.11.

<sup>116</sup> *Id.*

<sup>117</sup> This phenomenon is observable by playing CSS protected video file directly from its source without decrypting it.

<sup>118</sup> See Universal City Studios, Inc. v. Corley, 273 F.3d 429, 437 (2d. Cir. 2001).

<sup>119</sup> 321 Studios, 307 F. Supp. 2d at 1097. Although it is technically possible to make a copy of a disc without circumventing CSS, that copy would be completely unplayable. *Id.*

circumventing CSS. However, in order to copy all or part of a DVD for academic, archival, or media-shifting purposes, one must access the information on it, which necessitates circumventing CSS. It may be argued that under this logic one must also violate § 1201(a)(1) in order to watch a DVD. However, decrypting CSS with a licensed DVD player is not circumvention because, pursuant to the license, the copyright owner has specifically authorized such decryption.<sup>120</sup> However, decrypting CSS by any other means, such as with a computer program in order to copy the DVD for a fair-use purpose, is prohibited circumvention because there is no such license.

Next, from the use-control perspective, it is not illegal for an individual to circumvent CSS because § 1201(b) does not prohibit individual acts of circumventing use controls.<sup>121</sup> However, circumventing CSS on one's own requires extensive technological and programming skills.<sup>122</sup> For the vast majority of people, the only practical way to do so is to obtain software written by a third party that can break the encryption. The problem with this solution is that the ACPs ban trafficking in such software because it circumvents a use control.<sup>123</sup> Essentially, then, the only way to obtain such a program is for someone else to violate § 1201(b)(2) by writing or distributing it.<sup>124</sup>

While the statutory conflict between the ACPs and fair use of DVDs is clear, courts have done little to resolve it to date. Several courts have addressed the issue of circumventing CSS and, in all instances, have found traffickers of circumvention technology liable for violating the ACPs. These courts refused to give much consideration to the fair-use arguments presented by the defendants.

---

<sup>120</sup> 17 U.S.C. § 1201(a)(3)(A) (2006).

<sup>121</sup> See 17 U.S.C. § 1201(b) (proscribing only trafficking in circumvention technology for use controls, not the act of circumventing use controls).

<sup>122</sup> See *Universal City Studios*, 273 F.3d at 437–39 (describing the complicated procedure Jon Johansen employed to reverse engineer a DVD player and then write a program to decrypt CSS).

<sup>123</sup> See 17 U.S.C. § 1201(b) (proscribing trafficking in circumvention of use controls).

<sup>124</sup> This dilemma also applies to film and media professors who wish to exercise the Librarian of Congress exemption to § 1201(a)(1), which allows them to circumvent access controls on DVDs in their institution's library. However, even though these professors are exempt from the § 1201(a)(1) ban on individual acts of circumvention, unless they are also computer-science professors, the only way they can circumvent the CSS is to obtain software programmed to do so for them. However, under § 1201(a)(2), trafficking in circumvention technology for access controls is not allowed, so, once again a third party must violate the ACPs in order for fair use to be possible.

For example, in *Universal City Studios, Inc. v. Corley*, the Second Circuit considered whether several individuals could post an algorithm for decrypting CSS on their website for others to download and use.<sup>125</sup> Among other arguments, the defendants claimed that the ACPs “eliminate[d] fair use” with respect to DVDs.<sup>126</sup> However, the court strictly followed the ACP statutory language, affirming the district court’s finding that the defendants had violated the ACP trafficking bans.<sup>127</sup> In addressing the defendants’ fair-use argument, the court noted that an injunction does not prohibit fair use, but rather bans “trafficking in a decryption code that enables unauthorized access to copyrighted materials.”<sup>128</sup> To support its ruling, the court noted that there were other methods to make fair use of protected DVDs without circumventing CSS. Specifically, the court suggested that individuals “point[] a camera, a camcorder, or a microphone at a monitor as it displays the DVD movie.”<sup>129</sup> In response to the argument that such a copy would be inferior to the original, both in quality and manipulability, the court replied “[f]air use has never been . . . a guarantee of access to copyrighted material in order to copy it by the fair user’s preferred technique or in the format of the original.”<sup>130</sup>

Similarly, in *321 Studios v. Metro Goldwyn Mayer Studios, Inc.*, a federal district court addressed whether 321 Studios, the manufacturer of “DVD X-Copy,” a program designed to allow users to make backup copies of their DVD collection, had violated the ACPs.<sup>131</sup> The court treated CSS as both a use and an access control<sup>132</sup> and found 321 Studios to be in violation of both trafficking provisions.<sup>133</sup> With regard to the fair use question, the court echoed the *Corley* court regarding alternate methods of fair use and then went one step further, noting that “the downstream uses of [DVD X-Copy] by . . . customers . . . , whether legal or illegal, are not relevant to determining whether 321 [Studios] is violating” the ACPs.<sup>134</sup> With this statement, the

---

<sup>125</sup> 273 F.3d at 429.

<sup>126</sup> *Id.* at 458.

<sup>127</sup> *Id.* at 459–60.

<sup>128</sup> *Id.* at 459.

<sup>129</sup> *Id.*

<sup>130</sup> *Id.*

<sup>131</sup> 307 F. Supp. 2d 1085, 1089–90 (N.D. Cal. 2004).

<sup>132</sup> *Id.* at 1095.

<sup>133</sup> *Id.* at 1104–05.

<sup>134</sup> *Id.* at 1097.

court effectively separated the ACPs from fair use, holding the latter to be irrelevant to a determination of whether or not to hold a trafficker liable.

Notwithstanding the holdings in these two cases, a strict application of the ACPs to CSS-protected DVDs *does* substantially restrict fair use. Both the *321 Studios* and *Corley* courts found that the ACPs do not impermissibly limit fair use. They pointed to the fact that it is still technically possible to make an analog copy of a CSS protected work without circumventing CSS, thereby preserving the right to fair use.<sup>135</sup> While technically it is *possible* to make such a copy, the courts give only passing mention to the real problems with doing so: poor quality of the copy produced, and the impracticality in producing it.

In *Corley*, the court suggested that a user wishing to make fair use of a protected DVD point a camcorder at his monitor as it displays the film. The court noted that the copy produced would not be of the same quality as the original, but that fair use is satisfied because it is a copy nonetheless. However, to say that a copy of a DVD created by pointing a camera at a monitor is “not as perfect or manipulable”<sup>136</sup> as the original is a drastic understatement. As discussed in Part III, *supra*, analog reproduction inherently involves loss of quality, even when performed with precision-duplication systems. For example, copying a VHS tape by playing it in one VCR and then recording the analog feed with another will result in a tape of decreased, but still useable, quality.<sup>137</sup> What the court suggests here is far inferior to even this imperfect system. A video camera pointed at a monitor will produce a copy that is of drastically lower quality than the original due to factors such as background noise, low lighting, low resolution, and, if the monitor used is of the conventional cathode-ray-tube variety, screen flicker.<sup>138</sup> Due to their poor quality, such copies are

---

<sup>135</sup> *Id.* at 1101–02; *Universal City Studios, Inc. v. Corley*, 273 F.3d 429, 459 (2d. Cir. 2001).

<sup>136</sup> *Universal City Studios*, 273 F.3d at 459.

<sup>137</sup> JOHN W.C. VAN BOGART, *MAGNETIC TAPE STORAGE AND HANDLING: A GUIDE FOR LIBRARIES AND ARCHIVES* 2.4 (1995), [http://www.clir.org/pubs/reports/pub54/2what\\_wrong.html](http://www.clir.org/pubs/reports/pub54/2what_wrong.html) (“When an analog tape is copied, the original information signal is actually copied along with any tape noise inherent in the tape and any electronic noise inherent in the recording device. This will be written to a new tape that also has its own level of inherent tape noise.”).

<sup>138</sup> Reasons for these quality reductions include the fact that there is open air space between the camera and the monitor, there may be dirt on the monitor or on the lens, there may be lighting issues or issues with getting the volume right, and, in the case of

likely to be useless for the fair use activities previously described. For example, a non-media studies professor who wished to copy a series of clips for a presentation in a large lecture hall, could not effectively do so if the resulting picture had poor resolution and sound quality. Also, a poor quality archival copy of a DVD would not serve its fundamental purpose: to back up the original.<sup>139</sup>

More importantly, even if a copy produced by the aforementioned method were of suitable quality for the fair uses outlined above, making it simply would be too difficult to be practical. Whereas digital reproduction requires only the click of a mouse,<sup>140</sup> producing a copy by pointing a camera at the screen is much more complicated. To do so, one must first purchase an expensive video camera. Also, one must be skilled about how to calibrate for the proper lighting, including the brightness of the screen and any ambient light in the room. Additionally, one must position the speakers and adjust the volume so as to produce clear sound that does not overload the video camera's microphone. Finally, one must have substantial time to devote to the activity, as the "point and shoot" reproduction method can only be performed in real time, and will require extensive time to set up and calibrate. This time period may be doubled, or even tripled for the user who wishes to transfer the resulting copy onto his computer for travel purposes or onto a DVD to watch on his home television, because either task entails some form of encoding.<sup>141</sup> Finally, if the screen used is a conventional, cathode-ray-tube monitor

---

conventional monitors, the picture may be riddled with flickers. The sound quality is also likely to be reduced given the open air space between the speakers and the microphone.

<sup>139</sup> Further proof that such a copy is of too poor of quality to be useful comes from the fact that the Librarian of Congress felt compelled to issue a special exemption to § 1201(a)(1) for media-studies professors. The legislative commentary to the exemption notes that it was granted because the DVD films are of "higher quality" than copies available in *other formats*. See Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 71 Fed. Reg. 68,472, 68,474 (Nov. 27, 2006) (codified at 37 C.F.R. § 201.40). If a commercially available *other format* is of too poor of quality for classroom instruction, then a copy produced by the point and shoot method advanced by the *Corley* court, which is substantially worse than other commercial formats, is too poor for any useful purpose.

<sup>140</sup> See, e.g., DVDFab.com, <http://www.dvdfab.com/fab-compare.htm> (last visited July 8, 2009) (purporting to "copy all movies, menus and trailers to a DVD with just one click").

<sup>141</sup> Transcoding video from one format to another can take hours to complete, depending on the computer used to do so.

or television,<sup>142</sup> making the copy in the manner the court suggested may be impossible due to screen flicker.<sup>143</sup>

Although the court did not suggest it, *Corley* supporters may argue that there is a better method for reproducing DVDs without circumventing CSS: connecting the analog cable from one's DVD player to a VCR or computer capture card and then recording the feed onto a VHS tape or another DVD. However, while these methods would, in some cases, produce a better copy than the point-and-shoot method from *Corley*, they still suffer serious limitations in quality and practicality. As a result, they are an insufficient solution to the conflict between the ACPs and fair use with respect to DVDs for several reasons.

First, recording the analog feed from a DVD player with a VCR is nearly impossible<sup>144</sup> because DVD players deliberately add a scrambling signal, known as Macrovision, to the outgoing video feed, which adds distortion to VCR-made copies.<sup>145</sup> Recording the analog feed with a video capture card on a computer, to then copy onto a recordable DVD, is a different story. Some capture cards, including those made by at least one prominent graphics-card manufacturer, do not record signals containing Macrovision.<sup>146</sup> Other cards are not susceptible to the Macrovision signal, which makes them able to record the analog feed.<sup>147</sup>

However, this method still is not a remedy to ACP/fair-use conflict because there are so many practical difficulties that fair-use copying of DVDs remains out of reach unless one is quite tech-savvy and has

---

<sup>142</sup> A cathode-ray-tube display, or CRT, is a non-flat panel monitor, which produces the screen image with a cathode ray tube. Marshall Brain, *How Television Works: The Cathode Ray Tube*, HOWSTUFFWORKS, <http://electronics.howstuffworks.com/tv3.htm> (last visited July 8, 2009).

<sup>143</sup> *What Is All the Flickering When I Try to Record a Television Set Picture with a Video Camera?*, HOWSTUFFWORKS, <http://entertainment.howstuffworks.com/question336.htm> (last visited July 8, 2009).

<sup>144</sup> Theoretically, one can purchase hardware products that, when placed in-line, can remove macrovision from a video signal, but these are expensive, add another complicated step to the copying process, and may infringe on the Macrovision patent. *See, e.g.*, Clearpix Media, *Digital Video Stabilizer*, <http://www.checkhere22.com/stabilizer/> (last visited July 8, 2009); *see also* Antti Paarlahti, *Macrovision FAQ*, [http://www.repairfaq.org/filipg/LINK/F\\_MacroVision1.html#MACROVISION\\_004](http://www.repairfaq.org/filipg/LINK/F_MacroVision1.html#MACROVISION_004) (last visited July 8, 2009).

<sup>145</sup> *See* TAYLOR, *supra* note 6, at 1.11.

<sup>146</sup> Jeff Mathurin, *ATI All-in-Wonder Cards and Macrovision*, BILINE.CA, [http://www.biline.ca/ati\\_macrovision.htm](http://www.biline.ca/ati_macrovision.htm) (last visited July 8, 2009).

<sup>147</sup> *Macrovision and How to Defeat It*, <http://www.infocellar.com/DVD/index.htm> (last visited July 8, 2009).

substantial time to devote to the activity. Specifically, to copy a film by the analog capture method, an individual must (1) research and purchase a video capture card that is not susceptible to Macrovision; (2) install that card into the computer, which may require disassembling and reassembling hardware; (3) connect the DVD player to the capture card using the proper cable; (4) calibrate the video and audio capture settings to produce a video file of sufficient quality; (5) capture the video from the DVD player in real time; (6) encode the video into proper DVD format; and (7) record the encoded file onto a DVD. Ultimately, due to the technological skills, labor, and time required to reproduce a DVD in this manner, doing so is simply too impractical when one can accomplish the task digitally in minutes and with relative ease. Also, it produces a copy that is inferior to the original, both because there is inherent quality loss due to the analog feed, and because the manipulability features, such as chapters and menus, will not be part of the copy.<sup>148</sup>

Finally, the DVD industry likely would argue that the conflict between the ACPs and fair use has recently been solved with respect to DVDs by a new feature known as “Digital Copy.” Introduced in 2008,<sup>149</sup> the basic premise of this feature is to allow those who purchase a DVD to transfer a digital movie file (“DMF”) of the film to their computer or compatible portable media device.<sup>150</sup>

A DVD equipped with Digital Copy comes with an additional disc and a unique identification number.<sup>151</sup> After purchasing, the customer loads the additional disc into his or her computer and enters the identification number.<sup>152</sup> This code is authenticated over the Internet with the DVD manufacturer who then issues a license that allows the DMF to be transferred from the disc to the computer, and if desired, to a compatible portable media device.<sup>153</sup> The transferred

---

<sup>148</sup> These features are embedded into the digital code.

<sup>149</sup> Mike Musgrove, “*Digital Copy*”: *New DVDs and Blu-Ray Discs Bundled With iPod-Friendly Files*, WASH. POST: POST I.T., Apr. 18, 2008, [http://voices.washingtonpost.com/posttech/2008/04/digital\\_copy\\_new\\_dvds\\_and\\_blur.html](http://voices.washingtonpost.com/posttech/2008/04/digital_copy_new_dvds_and_blur.html).

<sup>150</sup> *Id.*

<sup>151</sup> Twentieth Century Fox, *Digital Copy: How it Works*, <http://www.foxdigitalcopy.com/> (last visited July 8, 2009).

<sup>152</sup> *Id.*

<sup>153</sup> Lionsgate Entertainment, *Digital Copy for Windows Media*, <http://www.lionsgatedigitalcopy.com/support/howwm.html> (last visited July 8, 2009); Lionsgate Entertainment, *Digital Copy for iTunes*, <http://www.lionsgatedigitalcopy.com/support/howitunes.html> (last visited July 8, 2009).



DMF is an encrypted file that will play only on a device with the downloaded license.<sup>154</sup>

Proponents of Digital Copy may argue that it addresses the fair use concerns of DVD consumers, especially with respect to media shifting, because it provides a quick, easy, and legal means for transferring movies to computers and portable devices.<sup>155</sup> However, while Digital Copy does aid in *some* media shifting, it is rife with limitations that make it inadequate even for this stated purpose. Also Digital Copy does nothing to enable consumers to exercise their fair-use right to make backup copies of their DVDs, or to copy excerpts for educational purposes.

Several limitations of Digital Copy hinder its stated purpose of facilitating media shifting. First, DMFs are not compatible with all platforms or portable media players: they can only be played on the Windows and Macintosh operating systems, using Windows Media Player or iTunes.<sup>156</sup> Consumers who use other operating systems or software must make the switch in order to enjoy the benefits of Digital Copy. As for portable media players, DMFs will only play on certified “PlaysForSure” Windows Media compatible devices,<sup>157</sup> and in some cases, iPods and iPhones.<sup>158</sup> Neither limitation exists for media shifting performed by decrypting CSS. With proper software,

---

<sup>154</sup> Twentieth Century Fox, Digital Copy: Frequently Asked Questions, <http://www.foxdigitalcopy.com/> (last visited July 8, 2009) (stating that Fox Digital Copy uses digital rights management).

<sup>155</sup> Lionsgate Entertainment, What Is a Digital Copy?, <http://www.lionsgatedigitalcopy.com/support/> (last visited July 8, 2009) (stating that a digital copy can be “quickly and legally transferred from . . . [a] DVD to . . . [a] computer and compatible portable device”).

<sup>156</sup> Twentieth Century Fox, Digital Copy: Support: Application Support, <http://www.foxdigitalcopy.com/> (last visited July 8, 2009); Lionsgate Entertainment, Digital Copy Support, <http://www.lionsgatedigitalcopy.com/support/support.html> (last visited July 8, 2009); Disney.com, DisneyFile Digital Copy: Frequently Asked Questions, <http://disney.go.com/disneyvideos/disneyfile/textonly.html> (last visited July 8, 2009).

<sup>157</sup> Twentieth Century Fox, Digital Copy: Frequently Asked Questions, <http://www.foxdigitalcopy.com/> (last visited July 8, 2009) (stating that Fox Digital Copy files are compatible with PlaysForSure devices, but not with iPods, PSP players, or other portable devices).

<sup>158</sup> Lionsgate Entertainment, Digital Copy Support, <http://www.lionsgatedigitalcopy.com/support/support.html> (last visited July 8, 2009) (stating compatibility with iPod and iPhone).

a DVD movie can be converted to any desired file type for use on any operating system or portable device.<sup>159</sup>

Next, DMFs have extremely limited transferability. If a user elects to transfer the Windows Media Player version of the DMF, it can only be played on one computer and one portable device.<sup>160</sup> The digital license issued when a DMF is first transferred to a computer is tied to that machine and the first portable device used, which prevents the DMF from functioning on any others.<sup>161</sup> If a consumer elects to use the iTunes version of the DMF, the license is tied to that person's iTunes account and will only play on up to five computers at a time.<sup>162</sup> Especially for Windows Media Player users, this transferability limitation presents a very real problem given that many people own and/or use multiple computers and devices.

Related to transferability, Digital Copy is of little to no value to second-hand buyers. The unique identification number sold with each Digital-Copy-enabled DVD is only good for one nontransferable license,<sup>163</sup> so unless the first buyer never copied the DMF, the second-hand buyer would have no access to it. Even if the first buyer never transferred the DMF, the second-hand buyer might lose out because unique identification numbers on some DVDs expire one year after the initial release of the DVD.<sup>164</sup> These two limitations can also affect first-time buyers if they purchase a new DVD that has been in stores for more than a year or need to transfer a second copy of the DMF in the event of hard drive failure or other data loss.

Finally, perhaps the biggest limitation of Digital Copy with respect to media shifting is that it is not included with every new release, and it has no application to previously released DVDs. For new releases lacking Digital Copy, the problem is obvious: one cannot use a missing feature. As for movies that predate Digital Copy, although

---

<sup>159</sup> See, e.g., DVDFab.com, <http://www.dvdfab.com/fab-compare.htm> (last visited July 8, 2009). DVDFab allows the user to convert a DVD movie into various formats, compatible with various portable devices, all with no encryption.

<sup>160</sup> Twentieth Century Fox, Digital Copy: Frequently Asked Questions, <http://www.foxdigitalcopy.com/> (last visited July 8, 2009).

<sup>161</sup> Disney.com, Digital Copy: Frequently Asked Questions, <http://disney.go.com/disneyvideos/disneyfile/textonly.html> (last visited July 8, 2009).

<sup>162</sup> See Cory Bohon, iTunes 101: Deauthorize All Computers at Once (Nov. 12, 2008), <http://www.tuaw.com/2008/11/12/itunes-101-deauthorize-all-computers-at-once/>.

<sup>163</sup> Lionsgate Entertainment, Digital Copy Support, <http://www.lionsgatedigitalcopy.com/support/support.html> (last visited July 8, 2009).

<sup>164</sup> Disney.com, Digital Copy: Frequently Asked Questions, <http://disney.go.com/disneyvideos/disneyfile/textonly.html> (last visited July 8, 2009).

DVD manufacturers are re-releasing many older films with the new feature,<sup>165</sup> it does not benefit customers who already have extensive DVD libraries. These customers would have to repurchase all the DVDs they already own in order to be able to exercise a fair-use right that they have already paid for.

Beyond the limitations that prevent Digital Copy from achieving its stated purpose of enabling media shifting, it is also an inadequate solution to the overall conflict between the ACPs and fair use because it does nothing to enable consumers to make backup copies of their DVDs or to create excerpts for educational purposes. As already established, a DMF is an encrypted file that can only be played in Windows Media Player and iTunes. The consequence of this restriction is that other video editing and DVD authoring programs cannot decrypt the file in order to create short clips or convert it to DVD format (the latter is required in order to burn it to a DVD-player compatible disc).<sup>166</sup> Furthermore, even if a DMF could be decrypted, burning it to a DVD would yield a copy with many of the same limitations as the analog-capture method described above: the menus and special features of the DVD would be lost, and the video would not be as high quality as the original.<sup>167</sup>

The bottom line is that the only truly effective way to reproduce DVD movies for fair-use purposes is by circumventing CSS. However, both the ACPs and courts interpreting them proscribe such fair use by imposing liability on those who circumvent and distribute software that can circumvent CSS.

## VI

### MOVING TOWARD A SOLUTION

Although the ACPs interfere with fair use, there is a less-drastic solution than simply striking them down. Indeed, a complete repeal

---

<sup>165</sup> Twentieth Century Fox, Digital Copy: Available Movies, <http://www.foxdigitalcopy.com/> (last visited July 8, 2009).

<sup>166</sup> In order to burn a video file to a DVD, that file must first be converted to an appropriate MPEG-2 DVD format, or it will not play in standard players. Commercial conversion programs such as AVS Video Converter are unable to convert an encrypted file, making DVD authoring impossible.

<sup>167</sup> Twentieth Century Fox, Digital Copy: Support: Minimum System Requirements, <http://www.foxdigitalcopy.com/> (last visited July 8, 2009) (noting that Digital Copy video files are encoded as MPEG-4 or Windows Media enhanced files). Both file formats are compressed, and therefore reduced quality video files. Also, video files playable in iTunes and Windows Media Player do not contain menus and lack access to special features contained on DVDs.

---

---

would be overly harsh, given that Congress had a legitimate concern over digital piracy when it enacted the ACPs. However, Congress never intended for them to cripple the public's ability to make fair use of copyrighted works. The best evidence of this intent comes from the statute itself: "[n]othing in [section 1201] shall affect . . . defenses to copyright infringement, including fair use."<sup>168</sup> Also, as noted in Part IV, *supra*, the purpose of exempting use controls from circumventor liability was to protect fair use. However, as the previous two sections demonstrate, Congress did not achieve the balance it had hoped for because the ACPs substantially restrict fair use.

Instead of repealing the ACPs, courts hearing DMCA cases should employ the following proposal: allow fair use as an affirmative defense to violations of §§ 1201(a)–(b). In other words, those who circumvent access controls should be exempt from liability if they did so to engage in fair use of copyrighted materials. Similarly, those who traffic in technology designed to circumvent access or use controls should not be liable for violating the ACPs if they can prove that they solely intended for their circumvention technology to enable fair use, even if it were also capable enabling infringing use.

Courts should adopt this proposal because it would strike a better balance between protecting fair use and curbing digital piracy. As demonstrated in the preceding sections of this Comment, the ACPs substantially limit fair use despite clear congressional intent to avoid doing so. Adopting the proposal would correct this problem by implementing a "fair use safety valve" to the ACPs, so that copyright owners could not hold liable those who circumvent to engage in fair use, or those who traffic in circumvention technology solely to facilitate fair use. In this way, the proposal would link the ACPs more closely to conventional copyright law, ensuring that the ACPs could only be used to impose liability when there was an underlying copyright violation. At the same time, the proposal would ensure that the ACPs continue to serve their stated purpose of curbing digital copyright infringement because those who circumvent in order to infringe, or traffic with intent other than to facilitate fair use, may still be held liable.

Applying the proposal to the DVD case study outlined in Part V, *supra*, an individual seeking to backup his purchased film collection could use third-party software to circumvent CSS and avoid §

---

<sup>168</sup> 17 U.S.C. § 1201(c) (2006).

1201(a)(1) liability by asserting fair use. Also, if the author of CSS-decrypting software intended solely for consumers to create fair use backup copies with it were sued, he could claim fair use as an affirmative defense if charged with a § 1201(a)(2) or § 1201(b)(1) trafficking violation. However, if the individual circumvented CSS to copy a DVD rented from a local video store, he would still be liable for the § 1201(a)(1) violation, just as he would be liable for copyright infringement, since this activity is not fair use. Similarly, if the author of CSS-decrypting software intended to facilitate infringement, he would be liable for violating both § 1201(a)(2) and § 1201(b)(1), and possibly for contributory copyright infringement.

While no court has adopted the proposal as written, there is judicial support for the underlying idea of linking circumvention liability to actual copyright infringement. In *Chamberlain Group, Inc. v. Skylink Technologies, Inc.*, the Federal Circuit considered whether a garage-door manufacturer that marketed a universal door opener was liable for a § 1201(a)(2) trafficking violation because the opener circumvented an access control on the embedded software in plaintiff's garage door system.<sup>169</sup> The court concluded that, although the defendant sold a device that circumvented an access control, it was not liable because there was no violation of underlying copyright law.<sup>170</sup> Specifically, the court noted that those who used the defendant's universal opener had rightfully purchased plaintiff's garage door system, and copyright law did not bar them from using it as they saw fit.<sup>171</sup> The court then laid out the following standard for § 1201(a)(2) claims:

A plaintiff alleging a violation of § 1201(a)(2) must prove: (1) ownership of a valid *copyright* on a work, (2) effectively controlled by a *technological measure*, which has been circumvented, (3) that third parties can now *access* (4) *without authorization*, in a manner that (5) infringes or facilitates infringing a right *protected* by the Copyright Act, because of a product that (6) the defendant either (i) *designed or produced* primarily for circumvention; (ii) made available despite only *limited commercial significance* other than circumvention; or (iii) *marketed* for use in circumvention of the controlling technological measure. A plaintiff incapable of establishing any one of elements (1) through (5) will have failed to prove a prima facie case.<sup>172</sup>

---

<sup>169</sup> 381 F.3d 1178 (Fed. Cir. 2004).

<sup>170</sup> *Id.* at 1204.

<sup>171</sup> *Id.* at 1202.

<sup>172</sup> *Id.* at 1203.

---

---

Since this list is comprised of elements, a plaintiff must prove all of them in order to escape liability. In *Chamberlain*, the plaintiff was unable to prove element four because the universal opener users had authorization to use their purchased garage door system.<sup>173</sup> The plaintiff also failed to meet element five because the circumvention only enabled use of the software in the garage door system, which in no way infringed upon the manufacturer's copyright.<sup>174</sup>

The *Chamberlain* rule generally supports the proposal outlined above because, unlike *Corley* and *321 Studios*, it ties circumvention to conventional copyright law, requiring that there be a valid claim for copyright infringement before imposing liability for circumvention. Also, while the *Chamberlain* court did not face an issue involving fair use, it suggested that fair use could be a valid defense for someone accused of circumvention: “[w]e leave open the question as to when § 107 [fair use] might serve as an affirmative defense to a prima facie violation of § 1201.”<sup>175</sup>

Taking the court's cue, the proposal provides an answer to this open question by extending the *Chamberlain* principles to fair use. In addition, the proposal goes one step further than *Chamberlain* by narrowing the intent standard for traffickers. Unlike *Chamberlain*, which strictly follows the ACP language imposing liability on traffickers that produce products designed for circumvention, the proposal grants an exemption from liability for such traffickers, as long as they intend for their products to circumvent solely for fair-use purposes. In the context of fair use, this change is justified because, in many cases, making fair use of a work with technological protection *requires* circumvention. As a result, proof that a trafficker distributed circumvention technology with intent to facilitate circumvention does not also prove that the trafficker intended to facilitate infringement; he could have intended solely to facilitate fair use. The proposal's intent standard would prevent such well-intentioned traffickers from being treated the same as those who seek to promote infringement.

Perhaps the most significant counterargument to the proposal is that it would take the wind out of the sails of the ACPs and result in rampant digital piracy. This argument is unfounded because allowing fair use as a defense to circumvention and trafficking claims in no

---

<sup>173</sup> *Id.* at 1204.

<sup>174</sup> *Id.*

<sup>175</sup> *Id.* at 1199 n.14.

---

---

way hinders enforcement of the ACPs. If an individual circumvented an access control to engage in an infringing activity, he still could be held liable for both the ACP violation and copyright infringement. Similarly, if a trafficker distributed circumvention technology for any purpose other than facilitating fair use, he could be held liable for both an ACP violation and possibly for contributory infringement, which is explained in detail, later. Requiring a valid copyright infringement claim before imposing liability under the ACPs simply ensures that the ACPs do only what they were intended to do: prevent copyright infringement without restricting legitimate uses of copyrighted material.

In the same vein, a second counterargument to the proposal is that requiring courts to consider the intent of traffickers would allow them an unwarranted “safe harbor” when the circumvention technology they distribute gets used for copyright infringing purposes. Certainly there is some logic to this argument because it seems reasonable for someone who provides others with the technology to break the law to be held accountable for his actions. However, the other side of the policy argument is that it is unfair to hold a well-intentioned manufacturer liable for the nefarious acts of the consumer. Rather than reinvent the wheel to find the best balance between these two, the proposal simply borrows the well-developed concept of contributory copyright infringement.

Contributory copyright infringement provides, *inter alia*, that one who distributes equipment that facilitates copyright infringement may be held liable if he: (1) knows or has reason to know of the direct infringement,<sup>176</sup> and (2) materially contributes to the infringement.<sup>177</sup> Recently courts have modified the second requirement, and courts now require “inducement,” or intent to facilitate infringement, before they will impose liability.<sup>178</sup> Largely, courts look to how the defendant promoted his or her product to make an inference of its intended uses.<sup>179</sup>

Like contributory infringement, the proposal examines the defendant’s intent by adopting a standard similar to “inducement.” However, to reflect the fact that the ACPs were designed to give copyright holders *additional* abilities to prosecute infringers, it

---

<sup>176</sup> A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1020 (9th Cir. 2001).

<sup>177</sup> *Id.* at 1022.

<sup>178</sup> Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd., 545 U.S. 913, 937 (2005).

<sup>179</sup> *Id.* at 940.

employs a standard of intent more favorable to copyright owners. Recall that the proposal provides for an affirmative defense, meaning the defendant must prove intent to facilitate solely fair use. In contrast, the plaintiff bears the burden of proving the intent associated with inducement in a contributory infringement claim. Under the proposal, the plaintiff has the much easier task of showing only that the defendant has failed to meet his burden.

A final argument is that the proposal is entirely unnecessary because the ACPs already provide a remedy for fair-use conflicts: the triennial Librarian of Congress exemption process outlined in Part III, *supra*. Proponents of this argument would claim that, to seek redress when one's fair-use rights are infringed upon, an individual need merely petition the Librarian of Congress, who would grant an exemption. This argument fails because the exemption process is wholly inadequate for several reasons. First, an exemption granted only applies to the § 1201(a)(1) ban on individual acts of circumvention, not the trafficking bans, which, as demonstrated, also substantially interfere with fair use.<sup>180</sup> Additionally, the Librarian of Congress only grants a handful of exemptions once every three years, so the process is too slow to accommodate all those whose fair-use rights are affected by the ACPs. Finally, obtaining an exemption is no easy feat; even when the request is for a bona fide, fair-use purpose, the Librarian of Congress frequently turns them down. For example, in the most recent rulemaking, the Librarian of Congress expressly denied a request for an exemption to allow circumvention of CSS on DVDs in order to create backup copies, media shift, and view them on incompatible players.<sup>181</sup> Ultimately, Congress may have intended the rulemaking process to assuage interference with fair use, but it is simply inadequate.

#### CONCLUSION

Undeniably, the digital age has presented copyright owners with a new challenge. Digital works can be both copied and shared with ease and in perfect quality. Congress' response to this challenge was the DMCA and its accompanying ACPs, which added an additional layer of protection to digital works. While effective at deterring

---

<sup>180</sup> 17 U.S.C. § 1201(a)(1)(B)–(E) (2006).

<sup>181</sup> Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 71 Fed. Reg. 68,472, 68,478–79 (Nov. 27, 2006) (codified at 37 C.F.R. § 201.40).



infringement, the ACPs as enforced violate congressional intent by severely restricting fair use.

Certainly, this problem could be solved by repealing the ACPs, but doing so would likely overcorrect the problem, leaving copyright owners with inadequate means to protect their digital works from infringement. Instead, a better solution is the proposal outlined in this Comment, which advocates linking circumvention with infringement by allowing fair use as an affirmative defense to violations of §§ 1201(a)–(b). Ultimately, this standard would lead to rulings that both preserve fair use *and* prevent digital copyright infringement. A central theme to copyright law is achieving the balance between protecting works to encourage creativity and ensuring that the public gets the benefit of that innovation. Fair use is a long-standing doctrine and a critical component of this balance. It should not be lost in the digital age.

