

Intellectual Property Disputes in Cyberspace

LEARNING OBJECTIVES

Upon completing this chapter, you will successfully be able to:

- Define what is meant by *intellectual property* (IP) and explain the relevant ways in which IP is both similar to and different from tangible property,
- Explain what copyright laws entail and describe the evolution of copyright law as it applies to digital media,
- Explain the key features that differentiate three distinct forms of protection for IP: patents, trademarks, and trade secrets,
- Understand the challenges that jurisdictional issues pose for enforcing IP laws at the international level,
- Describe the philosophical foundations for three kinds of theories used to justify IP rights,
- Articulate the key differences between the Free Software Foundation and Open Source Initiative,
- Explain what is meant by the “common good” approach to IP and describe how it offers an alternative framework for analyzing the current IP debate,
- Assess key issues underlying three controversial IP-related legislative proposals: Protect Intellectual Property Act (PIPA), Stop Online Piracy Act (SOPA), and Research Works Act (RWA).

Perhaps no single issue in the digital era has been more contentious than intellectual property rights affecting cybertechnology. The following scenario briefly illustrates how contentious, as well as how confusing, that issue has become in the context of digital music.

► SCENARIO 8-1: Streaming Music Online

Online music streaming services have become popular with many Internet users. Spotify, one of the fastest growing streaming services, has (as of January 2015) approximately 60 million users with 15 million paid subscribers or “premium members.” While many recording artists have entered into contractual agreements with one or more streaming services, some well-known artists (including Beyoncé) have not. In November 2014, Taylor Swift publicly announced that she would not allow her newly released album *1989* to be streamed on Spotify and that she also planned to remove all of her earlier music from that online service. Swift’s announcement generated considerable debate about current policies affecting

online music streaming services in general and Spotify in particular. At the heart of the controversy is the question of whether the royalty structure used by Spotify and similar streaming services is fair to recording artists.

Swift defended her decision to break with Spotify by claiming that “music should not be free.” She argued that “music is art, and art is important and rare,” and since “important, rare things are valuable,” those things “should be paid for.”¹ However, some critics have responded by pointing out that (i) the music on streaming services is not completely free and (ii) recording artists receive payment for their streamed music in the form of royalties which are typically based on the number of times their music is streamed. But some recording artists, including Swift, have complained that the income they receive from Spotify and similar services pales in comparison to the amount of money they collect when their music is purchased either as an MP3 download, from a service like iTunes or Amazon, or as a CD. In response to these complaints, Spotify pointed out that its streaming service has paid out approximately 70% of its total revenue (estimated to reach \$1 billion by early 2015) to rights holders, which is income that these recording artists and record labels otherwise would not enjoy.² ■

Arguably, intellectual-property-rights battles involving digital music have evolved considerably since the media coverage of the original Napster controversy in the late 1990s. Many illicit music-sharing Web sites have since been shut down, due in large part to the aggressive stance taken by the Recording Industry Association of America (RIAA). As a result, it has become less easy for users to “pirate,” or illegally download, copyrighted music. Online music stores have also made it possible for users to purchase (i.e., legally download) individual songs without having to purchase an entire CD—a requirement that had annoyed many music fans in the days of pre-MP3-formatted music. Overall, stricter enforcement of copyright laws has also seemed to favor musicians and their recording labels; so, arguably, consumer trends with respect to purchasing habits in the music industry have tilted in favor of the interests of the RIAA.

As Scenario 8–1 also illustrates, however, online streaming services have recently opened up a new challenge for the music industry. While some recording artists claim that their income from music sales has diminished significantly because of streaming, Spotify has responded by arguing that its service provides users with an alternative to piracy. The claims made on both sides of this debate are controversial and they need to be examined in more detail. We do this in Section 8.2.4, where we examine a wide range of issues affecting copyright laws in the context of digital music. The purpose of Scenario 8–1 was simply to get us to begin thinking about some of the controversies surrounding copyright-and-access issues with respect to one form of digital intellectual property (IP).

In this chapter, we will see that disputes about IP rights involving cybertechnology range from claims pertaining to ownership of software programs to arguments about who has the right to distribute (or even make available for use) other forms of proprietary information on the Internet, including movies and books. We will also see that decisions affecting who should have ownership rights to, and thus control over, digitized information will ultimately determine who can and cannot access that form of information. Before examining specific issues, however, we first need to understand the concept of IP.³

► 8.1 WHAT IS INTELLECTUAL PROPERTY?

An adequate analysis of *intellectual property* issues requires that we first have an understanding of the concept of property in general. Like privacy, property is a complex notion that is not easy to define. Yet, as legal scholars and philosophers have pointed out, property laws and norms play a fundamental role in shaping a society and in preserving its legal order; that is, laws and norms involving property rights establish relationships between individuals, different sorts of things or objects, and the state. When discussing issues involving property, we tend to think of tangible items. Originally, property referred to land; however, it now also includes

various kinds of objects that an individual can own, such as an automobile, a wardrobe of clothing, or a DVD collection.

However, many legal theorists and philosophers suggest that property should not be understood simply in terms of objects or things that can be owned but rather as a *relationship between individuals in reference to things*.⁴ Hence, in this relational view of property, three elements need to be considered: (i) some individual (X), (ii) some thing or object (Y), and (iii) X 's relation to other individuals (A, B, C , etc.) in reference to Y . In this sense, X (as the owner of property Y) can control Y relative to persons A, B, C , etc. So if Tom owns a Dell laptop computer, then he can control who has access to his computer and how it is used; for example, Tom has the right to exclude Mary from using the laptop computer, or, as its owner, he can grant her unlimited access to it. Ownership claims involving “intellectual objects” are similar in certain respects but are also less straightforward, in other respects, to claims involving the ownership of tangible objects.

8.1.1 Intellectual Objects

Some philosophers use the expression *intellectual objects* when referring to forms of IP.⁵ Unlike physical property, IP consists of objects that are not tangible. These nontangible, or intellectual, objects represent literary/creative works and inventions, which are the manifestations or expressions of ideas. Unlike tangible objects, which are exclusionary in nature, intellectual objects (e.g., software programs) are *nonexclusionary*: Consider once again Tom's laptop computer, which is a physical object. If Tom is its sole owner, then Mary cannot own it, and vice versa. Tom's laptop is an example of an exclusionary object. Next, consider a word processing program that resides in Tom's computer. If Tom makes a copy of that program for Mary, then both Mary and Tom have copies of it. Thus, the word processing program is nonexclusionary.

Note that scarcity (which often causes competition and rivalry when applied to physical objects) need not exist in the case of intellectual objects, which can be easily reproduced. Note also that there are practical limitations to the number of physical objects one can own, and there are natural and political limitations to the amount of land that can be owned; however, countless digital copies of a software program can be produced and each at a relatively low cost.

Another feature that distinguishes intellectual objects from physical objects has to do with exactly what it is that one can lay legal claim to. One cannot own an idea in the same sense that one can own a physical object; ideas themselves are not the kinds of things for which governments are willing to grant ownership rights to individuals. As Moore (2008) points out, ownership rights do not apply to an intellectual object as an “abstract physical entity” but rather to “physical manifestations or expressions” of that object. In other words, legal protection is given only to the tangible *expression* of an idea that is creative or original. And as Moore and Himma (2014) note, IP laws grant the owner of the creative work the right to control and to produce physical manifestations of that work.

For a literary or artistic idea to be protected, it must be expressed (or “fixed”) in some tangible medium such as a physical book or a sheet of paper containing a musical score. If the idea is functional in nature, such as an invention, it must be expressed as a machine or a process. Whereas authors are granted copyright protections for expressions of their literary ideas, inventors are given an incentive, in the form of a patent protection, for expressions of their functional ideas. Copyright law and patent law, along with other legal schemes for protecting IP, are discussed in detail in Sections 8.2 and 8.3.

8.1.2 Why Protect Intellectual Objects?

What is our basis for saying that IP, or for that matter any kind of property, ought to be protected? One answer lies in our current system of laws. Of course, we could then further ask: On what philosophical grounds are our laws themselves based? In Section 8.5, we will see that in

Anglo-American law, the philosophical justification for granting property rights for intellectual objects is generally grounded in either (one or both) of two very different kinds of theories about property. One theory is based on the rationale that a property right is a type of “natural right” that one has to the ownership of an intellectual object because of the *labor* he or she has expended in producing a creative work or a practical invention. The other theory is based on the notion that property rights themselves are not natural rights but rather social constructs designed to encourage creators and inventors to better serve society in general by bringing forth their creative works and practical inventions into the marketplace. To encourage authors and inventors, *utilitarians* believe that it is necessary to grant them property rights in the form of limited monopolies that can result in financial advantages for them.

In many continental European countries, neither individual labor nor social utility is used as a justification for granting IP rights and corresponding protections. Instead, creative works and inventions are viewed as expressions of the *personalities* of their creators and inventors, who should, it is argued, have the right to determine how their works are displayed and distributed. This view is sometimes referred to as the personality theory of IP. In Section 8.5, where we examine the labor, utilitarian, and personality theories of property in detail, we will also see that some critics reject the notion that IP property rights should be extended to computer software.

Philosophers and legal theorists point out that the introduction of computer software has created questions regarding IP laws for which there are no easy answers. Innovations in computer hardware, on the contrary, have clearly qualified for patent protection, and in this sense, computer hardware inventions are no different than other kinds of inventions involving physical objects. But questions about whether and how software, as a kind of intellectual object, should be protected have been vehemently debated in the courts.

8.1.3 Software as Intellectual Property

Is computer software a special kind of intellectual object that deserves both copyright and patent protection? Software, which consists of lines of programming code (or codified thought), is not exactly expressed, or “fixed,” in a tangible medium as literary works are. To complicate matters, a program’s code takes many forms: source code, object code, and the final executable code. Because of conceptual muddles and confusions surrounding the nature of programming code, computer programs were not, initially, eligible for either copyright or patent protection. Eventually, however, they were granted both forms of legal protection. Although software programs seem to be like inventions that could be patented, they also resemble algorithms, which, like mathematical ideas or “mental steps,” are not typically eligible for patent protection.

Initially, software was not conceived of as a distinct commodity, since computer corporations tended to bundle together their software and hardware offerings as part of a single package. But Grodzinsky, Miller, and Wolf (2004) note that in the late 1960s, IBM adopted a new marketing policy that separated software (and services) from hardware, which also suggested the need for “closed-source software” so that its programming division could be profitable. Grodzinsky et al. also note that the practice of separating these components became further entrenched when IBM contracted with Intel and Microsoft to develop the personal computer in 1981. However, in the early 1970s, AT&T Bell Laboratories in New Jersey decided to make the source code for one of its software products “open” or freely accessible. AT&T gave away the source code and licenses for its Unix operating system to universities.⁶ So two very different strategies emerged in the 1970s with respect to whether software code should be protected as proprietary information.

As late as the 1970s and early 1980s, software programs and software code were often freely exchanged among computer enthusiasts without concern for copyright law. I worked in the software industry in the early 1980s, and I recall incidents where software developers freely exchanged with each other copies of programs on which they were working: A software developer

might lend a fellow developer a copy of a database program in return for a copy of a word processing program. (As we will see in our discussion of the Free Software Movement and the Open Source Initiative in Section 8.6, some programmers believe that these kinds of exchanges actually improved the quality of the software products that eventually went to market.) By the mid-1980s, the cavalier attitude that once surrounded the exchange of software programs had changed considerably, and by the 1990s, software companies carefully guarded their proprietary software, sometimes to the point of encouraging law enforcement officials to raid private homes where they suspected that unauthorized software was being used.

Some people believe that a distinction should be drawn between an individual's unauthorized copying of a friend's software program for personal use and the pirating of software in a systematic way for profit by corporations and criminals. The economic impact of systematic software piracy by organizations is far more significant than the impact of a few individuals copying their friends' programs. From a moral point of view, however, if unauthorized copying of proprietary software is wrong, then it is just as wrong for individuals as it is for organizations interested in profiting from it.

8.1.4 Evaluating a Popular Argument Used by the Software Industry to Show Why It Is Morally Wrong to Copy Proprietary Software

Why, exactly, is the unauthorized copying of proprietary software morally wrong? Many in the software industry have made the following kind of argument:

PREMISE 1. Stealing a tangible object is morally wrong.

PREMISE 2. Making an unauthorized copy of a proprietary software program is identical to stealing a tangible object.

CONCLUSION. Making an unauthorized copy of a proprietary software program is morally wrong.

If we apply the rules for logical validity that we examined in Chapter 3, we see that this argument is valid because of its logical form—in other words, if Premises 1 and 2 are both assumed to be true, the conclusion cannot be false. Even though the argument's form is valid, however, we could still show the argument to be unsound if either or both of the premises are false. (You may want to review the rules for valid and sound arguments in Chapter 3.)

Premise 1 is fairly straightforward, and few would question its truth. But Premise 2 is more controversial and thus we can question whether it is empirically true. For example, is duplicating a software program *identical* to stealing a physical item? We noted that intellectual objects, such as software programs, are nonexclusionary, which means that my having a copy of Program X does not exclude you from also having a copy of that program, and vice versa. The computer hardware on which that software program runs—for example, my laptop computer—is exclusionary in the sense that if I own it, you do not, and vice versa. So, the act of your making an unauthorized copy of the proprietary software program that resides on my laptop computer is *not* identical to your stealing my (physical) computer, in at least one important sense. Because the truth of Premise 2 is questionable, we cannot infer that the above argument (in its present form) is sound.

Even if the original argument turns out to be unsound, however, it does not follow that its conclusion is false. Note that the conclusion—"making unauthorized copies of a proprietary software program is morally wrong"—could be true for reasons other than those stated in the

original argument's premises. In fact, there could be several reasons why the conclusion can be true, despite the fact that the second premise may be false. For example, even if duplicating software is not identical to stealing physical property, we can show that it may cause harm. Consider that copying the proprietary software program, like the theft of someone's physical property, deprives the property owner of the legitimate use of his or her property. If someone steals my laptop, he or she deprives me of my right to use a device that I own; similarly, when someone makes an unauthorized copy of a proprietary program that I own (as the copyright holder), he or she deprives me of income to which I am entitled. Spinello (2008) argues that unauthorized copying is harmful because it is a misuse, misappropriation, or "unfair taking" of another person's property against the property owner's will.

But some still might object by claiming that while an individual programmer, who is self-employed, may be harmed by the unauthorized copying of his program, most proprietary software programs are owned by wealthy corporations; for instance, they might argue that Microsoft is so well-off that it will not suffer if it loses the revenue from a few sales of its Word program. However, you can probably see the danger that might result if everyone used this line of reasoning. (Recall our discussion of the Slippery Slope Fallacy in Chapter 3.) Thus, the unauthorized copying of software can be shown to be morally wrong, independent of whether it has a negative financial impact for the company that has ownership rights to the program.

Many nations have enacted specific laws and statutes to protect the rights and interests of the "owners" of computer software programs and applications (as forms of IP). We examine four different types of schemes for protecting IP rights: copyright law, patents, trademarks, and trade secrets. We begin, however, with a detailed analysis of copyright law.

► 8.2 COPYRIGHT LAW AND DIGITAL MEDIA

Arguably, elements of contemporary IP frameworks in general, and copyright law in particular, can be traced back to ancient Greece and the Roman era (Moore and Himma 2014). However, legal scholars and philosophers in the Anglo-American sphere now tend to focus more specifically on historical developments in copyright law that arose in response to the widespread publishing of pamphlets made possible by the printing press. Two elements undergird this phenomenon. On the one hand, the British monarchy wanted to control the spread of "subversive" and "heretical" works that were being printed. On the other hand, authors had a vested interest in protecting their works from unauthorized reproduction. The Statute of Anne, enacted in England in 1710, was the first law to give protection to authors for works attributed to them. The American colonies followed British law regarding copyright; the Framers later included these ideas in Article 1, Section 8, of the U.S. Constitution:

The congress shall have the power . . . to promote the Progress of Science and the useful Arts, by securing for limited Times to authors and inventors the exclusive Rights to their respective Writings and Discoveries.

8.2.1 The Evolution of Copyright Law in the United States

The first copyright law in the United States, enacted in 1790, applied primarily to books, maps, and charts. As newer forms of media were developed, it was extended to include photography, movies, and audio recordings. In 1909, the copyright law was amended to include any form that could be seen and read visually by humans; this modification was motivated by a new technology (viz., the player piano) in which a song could be copied onto a perforated roll. Since the musical copy could not be read from the piano roll visually (by humans), the copy was not considered a violation of the song's copyright. The "machine readable" vs. "human readable"

distinction has implications for decisions as to whether software programs qualify for copyright protection: Although a program's source code can be read by humans, its executable code, which runs on a computer, cannot. Beginning in the 1960s, however, the computer industry argued that software programs, or at least parts of those programs, should be eligible for copyright protection.

The Copyright Act was amended in 1980 to address the status of software programs, and the concept of a literary work was extended to include programs, computers, and "databases that exhibit authorship." The amendment defined a computer program as "a set of statements or instructions to be used directly in a computer in order to bring about certain results." To obtain copyright protection for a computer program, however, its author had to show that the program contained an original expression (or arrangement) of ideas and not simply the ideas themselves.⁷

In 1998, two important amendments were made to the Copyright Act: the Sonny Bono Copyright Term Extension Act (SBCTEA) and the Digital Millennium Copyright Act (DMCA). The SBCTEA extended the length of copyright protection from the life of the author plus 50 years to the life of the author plus 70 years. Protection for works of hire produced before 1978 were extended from 75 to 95 years. (When an author receives payment from someone—e.g., an individual, corporation, or organization—to produce a creative or artistic work, it can be considered a work of hire.) Critics of the SBCTEA noted that the law was passed just in time to keep Mickey Mouse from entering the public domain, and they also pointed out that the Disney Corporation lobbied very hard for the passage of this act.

The DMCA has also been severely criticized—not because it extends the amount of time that a copyrighted work is protected but because of the manner in which copyrights are extended. For example, Henderson, Spinello, and Lipinski (2007) point out that DMCA's critics identify three areas of controversy that need to be addressed: its "chilling effect" on *fair use* (defined in Section 8.2.2), its suppression of *innovation*, and its *overreach*. (We examine each of these points in later sections of this chapter.) Many critics also believe that these controversies are, in turn, closely linked to DMCA's highly controversial anticircumvention clause, which prohibits the development of any software or hardware technology that *circumvents* (or devises a technological work-around) to copyrighted digital media.

DMCA laws have also been passed at the individual state level in the U.S. These laws, sometimes called "Super-DMCA" or "S-DMCA," have been very controversial because some are interpreted as exceeding the conditions specified in the federal DMCA. Critics, including the Electronic Frontier Foundation (EFF), argue that the Motion Picture Association of America (MPAA) has been pressing states to pass S-DMCA-type legislation that is aimed at criminalizing the possession of what the MPAA calls "unlawful communication and access devices." EFF also argues that this legislation would constitute "an unprecedented attack on the rights of technologists, hobbyists, tinkerers and the public at large."⁸

8.2.2 The Fair-Use and First-Sale Provisions of Copyright Law

Two important provisions have been developed to balance the exclusive controls given to copyright holders against the broader interests of society: *fair use* and *first sale*. The fair-use principle enables authors and publishers to make limited use of another person's copyrighted work for the following purposes: comment, criticism, news, reporting, research, scholarship, and teaching. This principle is important to the computer industry in particular and to engineering in general because it also supports the practice of "reverse engineering," which allows someone to buy a product for the purpose of taking it apart to see how it works.

Another important scheme for balancing the otherwise exclusive controls of copyright law is the first-sale provision, which applies once the original work has been sold for the first time. At this point, the original copyright holder loses his or her rights to the previously

protected work. For example, once you purchase a copy of a (physical) book, you are free to give away, resell, or even destroy your copy. However, we will see why it is not clear that one can easily give away media in digital format that is licensed for use but not, strictly speaking, owned by a user.

Critics believe that the fair-use provision of copyright law has been significantly threatened by both SBCTEA and DMCA. Some believe that SBCTEA threatens fair use because it has delayed many proprietary works from entering the public domain and thus being freely available for general use. Critics argue that the DMCA has also had serious implications for the fair-use principle, mainly because its anticircumvention clause makes it illegal to reverse engineer a competitor's (digital) product. Innovators and competitors have depended on the use of reverse engineering, which has traditionally been protected by the Copyright Act's fair-use principle.

The DMCA also has implications for the first-sale provision because works formatted in digital media are often licensed by a user rather than purchased and owned by a consumer. For example, contrast an e-book with a physical (i.e., "paper and glue") book, where one can do whatever one wishes after purchasing it. Consider that after purchasing a physical book, one can resell that book, in compliance with the first-sale provision of copyright law. One can also give the book to a friend, or one can even destroy the copy of the book if so inclined. The same is not true, however, of e-books, because the digitized information contained in those books cannot be subsequently exchanged without permission of the copyright holder. Note, for example, that if you own a Kindle (or some competitor to this e-book reader) and you purchase an e-book, you have the legal right to read that book on your device but not necessarily to share the book with a friend in the same way that you could a physical book.

8.2.3 Software Piracy as Copyright Infringement

With the proliferation of personal computers in the 1980s, many users discovered how easy it was to duplicate software; but as we saw in Chapter 1, there was some legitimate confusion during that period as to whether it was legal to make a copy of someone else's software program. So, a "policy vacuum" (to use James Moor's terminology) existed with respect to copying proprietary software for personal use. This "vacuum" arose, in large part, because of certain confusions or (what Moor calls) "conceptual muddles" in our understanding of software.⁹ Earlier in this chapter, we noted that in the 1970s and early 1980s, software developers sometimes shared and exchanged programs with one another, and that by the late 1980s, many software companies had become extremely zealous when it came to protecting their proprietary software.

Software manufacturers, who claim to have lost millions of dollars of potential revenue because of software piracy, seem justified in their concerns regarding the pirating of proprietary software by individuals and organizations, both nationally and globally. However, some critics have argued that claims made by American software manufacturers about their loss of revenue due to the use of pirated software in developing countries are either greatly exaggerated or altogether bogus. They point out that many people and organizations in those countries could not afford to pay the prices set by American software companies for their products; so, the companies have not necessarily lost any (real) revenues, because their (expensive, by international standards) software would not have sold on the open market in most developing countries.

Software companies also worry about revenues lost in developed nations, including the United States, due to the illegal copying of software. Corporations such as Microsoft have been far more concerned with piracy as a form of organized crime, both domestically and internationally, than they have been about individuals making occasional unauthorized copies of their proprietary software. From a financial point of view, it would seem to make perfectly

good sense for Microsoft to allow some illicit copying of its software by individuals rather than spend money to pursue their arrest and prosecution. However, many corporations have been quite willing to pursue those who engage in software piracy for commercial gain. And corporations have been especially concerned about the ways that their proprietary information can be pirated over a computer network. As we saw in Chapter 7, cyberpiracy applies to more than the mere unauthorized copying of software; it also covers the unauthorized distribution (or facilitation of the distribution) of digital information on a computer network. The software industry confronted this phenomenon for the first time in 1994 in an incident involving Robert LaMacchia, then a student at MIT.

LaMacchia operated an online forum at MIT called *Cynosure*, which resided on an anonymous server in Finland. He invited users to upload and download (for free) copyrighted software to and from Cynosure. LaMacchia was arrested on charges that he had pirated software, but since he did not make unauthorized copies of the proprietary software, and since he did not receive a fee for his services, law enforcement authorities had a difficult time bringing piracy charges against him. In fact, they had a difficult time finding any clear criminal grounds for prosecuting LaMacchia at that time. For example, there were no explicit provisions in the 1986 Computer Fraud and Abuse Act (see Chapter 7) under which he could be prosecuted. Eventually, federal authorities decided to bring charges against him by appealing to the Wire Fraud Act, a federal statute. Charges against LaMacchia were eventually dropped, however, and the indictment was officially struck down by a district judge who ruled that any criminal copyright charge must be brought under copyright laws and not under general federal criminal laws.¹⁰

The software industry followed the case closely and, not surprisingly, was disappointed with the outcome. It had hoped that a conviction in the LaMacchia case would set a clear precedent. In the aftermath of this incident, however, the 1986 Computer Fraud and Abuse Act was amended to broaden the scope of criminal behavior that could be prosecuted under it, and the No Electronic Theft (NET) Act was passed in 1997, criminalizing the “dissemination” of copyrighted information by electronic means. While many agree with the spirit of the NET Act, some also believe that it went too far. Prior to the NET Act, a person had to “infringe a copyright willfully” and for “purposes of commercial or financial gain” in order to be punished under the criminal provisions of the Copyright Act. The NET Act, however, has made criminal the reproduction or distribution, including by electronic means, of one or more copyrighted works, which have a total retail value of more than \$1,000.¹¹

Grosso (2000) has argued that the meaning of copyright infringement was “expanded” under the Net Act. He points out that a copyright infringement can now occur either in fixation (in print or paper) or in virtual space, that is, by means of a mere electronic distribution, regardless of whether the copyrighted work is ever printed on paper or downloaded on to a disk, etc. According to the NET Act, merely viewing a copyrighted work posted on the Internet can be interpreted as a criminal violation of copyright. One possible interpretation is that “fixation” occurs in online viewing, because a temporary copy is “fixed” in the memory (i.e., in RAM) of the host computer, no matter how briefly the information is stored there.

8.2.4 Napster and the Ongoing Battles over Sharing Digital Music

Many of the controversial issues underlying the LaMacchia incident foreshadowed those in the highly publicized Napster case. Although Napster did not traffic in proprietary software, it did facilitate the distribution of another kind of proprietary digital information: music in the form of MP3 files. Through its online service, Napster’s users exchanged copyrighted music files with one another. In December 1999, the RIAA sued the Napster Web site for illegally distributing copyrighted music on the Internet. Napster responded by arguing that its activities were perfectly legal under the fair-use provision of copyright law. However, the courts ultimately

ruled against Napster.¹² Although the original Napster site ceased operations, it later reopened as a pay-per-song Web site, similar to iTunes, in cooperation with the RIAA.

The Napster controversy was just the beginning of an ongoing battle involving the recording industry and file-sharing sites over the unauthorized exchange of proprietary music online. Internet music providers such as Morpheus, KaZaA, and LimeWire have also supported the online exchange of MP3 files containing copyrighted music. Initially, they were able to avoid the plight of Napster, which used a centralized distribution point consisting of a centralized server, index, and registry of names in the file-exchange process. The later file-sharing services used either decentralized or “supernode” systems, based on peer-to-peer (P2P) technologies developed by Gnutella. As P2P file-sharing sites have evolved, they have become increasingly decentralized.

Spinello (2008) notes that the methods for indexing the files that are exchanged in P2P systems comprise three categories: a centralized indexing system (such as in the original Napster site), a decentralized indexing system, and a supernode system (where a group of computers can act as indexing servers). Another P2P protocol is Bit Torrent, which enables large files, such as entire music CDs, to be exchanged more efficiently through a system of networked computers designated as “peers” and “seeds.” Whereas KaZaA used the supernode system, the Pirate Bay service used the Bit Torrent protocol. (We briefly examined the outcome of the trial involving the Pirate Bay site in Chapter 7.)

The recording industry, in its effort to crack down on illicit file sharing, has not been deterred by the fact that later P2P systems were able to avoid the legal pitfalls surrounding the centralized indexing method used by Napster. Alternatively, the RIAA employed some new strategies and techniques in the ongoing battle with file-sharing sites. For example, it began to track down individuals that it suspected of exchanging proprietary music online. In 2003, the RIAA issued court subpoenas to Internet service providers (ISPs) such as Comcast and Verizon, as well as to major universities, for the names of users who it suspected of downloading and exchanging large volumes of copyrighted music via those online services. While many ISPs and universities complied with the recording industry’s request, Verizon challenged the RIAA in court on the grounds that complying with such requests violated the privacy rights of their subscribers (*Verizon v. RIAA*, 2003). Since that time, most universities have developed strict policies that prohibit the use of their networks to exchange copyrighted music; some have even disabled their P2P file-sharing systems altogether.¹³

The recording industry has also taken other tacks in its efforts to deter the unauthorized sharing of copyrighted music files online. For example, one way it fought back was by uploading “corrupted” music files onto the popular P2P sites, so that users downloading these files would be discouraged from using those sites again. And in what could be viewed as an even more aggressive attempt to prevent students from freely downloading copyrighted music on university campuses, the RIAA tried to influence legislation in 2007 that would tie the unauthorized downloading of files by college students to a loss of financial aid.¹⁴

Music Streaming Services

The ongoing controversies involving digital music have recently expanded to include the current dispute between some prominent recording artists and online services that *stream* copyrighted music to users. (Recall our brief description of this controversy in Scenario 8–1, which you may wish to revisit at this point.) Some critics of streaming services believe that these online services both (i) contribute to piracy and (ii) are responsible for the decline of CD sales. One very popular streaming service—Spotify—has rejected both claims. With respect to (i), Spotify has argued that its service provides members with an alternative to piracy (while, at the same time, providing revenue to recording artists that they otherwise would not receive). Regarding (ii), Spotify points out that its members reported (in a survey conducted by Spotify) that they had paid either very little or nothing for music before joining that streaming service.

So, Spotify claims that if the sale of CDs had fallen, it is not because of its service; thus, it cannot be held responsible for any decline in sales.¹⁵

Is Spotify's argument in this dispute plausible? In its defense, the streaming service cites some 2014 statistics showing that the average American spends approximately \$17 per year on music. So, Spotify believes that its service has not significantly affected the overall amount of money that its average listener would otherwise spend on music. Spotify also points out that it offers a two-tier level of membership: a premium level for users willing to pay \$9.99 per month and one that is completely free for users who are willing to listen to advertisements (both of which generate the income used to pay royalties to recording artists). As we saw in Scenario 8-1, Spotify claims that it has paid approximately 70% of its revenue (estimated to reach \$1 billion by early 2015) to rights holders. However, Doctorow (2014) points out that it is the record labels, not the recording artists, who have benefited from the royalties paid by streaming services, the bulk of which "stay in the pockets of the labels."¹⁶

Perhaps a more important point that Spotify could use in its defense, at least from a legal perspective, is that the streaming service has explicit contractual agreements with the recording artists and record labels featured on its service. In this sense, Spotify and similar streaming services (like Pandora) are very different from the various P2P music-sharing sites in the past, which enabled users to download unauthorized copies of proprietary recordings in violation of copyright law.

While many recording artists have agreed to Spotify's terms, others have refused to grant Spotify the right to have their songs played or have subsequently changed their mind and had their music removed. As we saw in Scenario 8-1, for example, Taylor Swift did not allow her (2014) album *1989* to be aired on Spotify and she has since removed all of her earlier music from that streaming service as well. Swift believes that Spotify's policies are "unfair" to recording artists because they significantly decrease the amount of income those artists would receive if Spotify's users instead purchased music in the form of CDs and MP3s.

Are Spotify's practices unfair, as Swift claims, and for the reasons she suggests? First, we should note that Spotify is a service whose practices are in strict compliance with copyright law. So unlike "pirate" music sites, beginning with Napster and evolving to the present day, Spotify has legal contracts with recording artists and record labels; these contracts also include a royalty structure to which both parties agree. However, Swift is correct in claiming that recording artists—at least some of them—stand to gain far more royalty income by "going the song-for-purchase route" than from the royalties offered by Spotify. For example, recording artists who are currently in their prime, such as Swift and Beyoncé, may be significantly affected by the amount of royalty income they can potentially lose.

Nevertheless, we can ask whether all, or even most, recording artists are negatively affected in the same way as Swift apparently is by Spotify's policies, as well as those of other major streaming services. As defenders of these services point out, some solo artists and bands who may be starting out in their careers can gain more exposure through services like Spotify than they otherwise would. Also, recording artists who are past the primes of their careers can benefit from still having their songs aired to Spotify users. So, Swift's claim that Spotify is "unfair" to (all) recording artists does not seem to be completely accurate, since many artists do indeed stand to gain from exposure to their music via this online service.

It would also seem that the debate over access to digital music has moved well beyond the earlier Napster-era questions pertaining to illegal downloading. For example, that debate now includes questions about legitimate modes of freely accessing/listening to copyrighted music via a process that financially rewards musicians and the recording industry. This ongoing battle over digital music also illustrates the complex nature of copyright law with its (traditional) exclusive-rights provisions vis-à-vis the interests of "fair use" and greater online access to digital music (and other forms of creative content) by the public.

The Movie Industry's Response to Unauthorized Access/Distribution

The debate over sharing copyrighted material in digital form has not been limited to proprietary software and copyrighted music. The motion picture industry has also been significantly affected because of the ease with which copyrighted movies can be illegally downloaded and freely exchanged in (P2P) file-sharing systems. In 2003, Metro-Goldwyn-Mayer (MGM) Studios Inc. (along with several music and motion picture studios) sued Grokster (and Morpheus, which was owned by Streamcast) for “contributory copyright infringement” through its file-sharing service (*MGM v. Grokster*).

MGM claimed that over 90% of the material exchanged on Grokster was copyrighted material and that the P2P service was legally liable for the copyright infringement. However, a district court disagreed with MGM, ruling that Grokster could not be held liable for the distribution of copyrighted material. The court reasoned that Grokster both (i) lacked sufficient knowledge of the infringement and (ii) did not “materially contribute” to it.¹⁷ MGM then appealed to the U.S. Supreme Court, which disagreed with the lower court’s ruling.

The Supreme Court justices deliberated over two key principles that seemed to be in conflict in the Grokster case—namely, the need to (i) “protect new technologies” (such as P2P networks) and (ii) provide “remedies against copyright infringement.” The justices unanimously agreed that using Grokster’s service for exchanging copyrighted material was illegal.¹⁸ Although the Court found Grokster liable for “inducing” copyright infringement through its practices, such as advertising, it did not rule that P2P technology itself violated copyright law. So, some legal analysts such as Samuelson (2005) believe that MGM did not get the victory in court that it sought, even though Grokster was forced to pay \$50 million to the music and recording industries.

We conclude our discussion of digital copyright controversies—or the “copyright,” as Doctorow (2014) describes this “multifaceted political struggle” involving copyright and the Internet—by once again noting how rapidly the issues have evolved from concerns about pirating proprietary software to worries about the unauthorized downloading and sharing of music and movies in digital format. Many believe that the next phase in the ongoing battle involving digital copyright will significantly impact the publishing industry—that is, in light of the financial impact resulting from the unauthorized downloading and sharing of e-books and e-journals. However, we will not examine specific copyright issues affecting digital publications, since many of the piracy-related challenges currently facing the publishing industry are similar in kind to those already experienced by the software, music, and movie industries, which we have examined in this section.

► 8.3 PATENTS, TRADEMARKS, AND TRADE SECRETS

We noted earlier that in addition to copyright law, three alternative legal frameworks have been devised to protect IP: patents, trademarks, and trade secrets. We examine examples of each form of protection with respect to how each can be applied to cybertechnology.

8.3.1 Patent Protections

A patent is a form of legal protection given to individuals who create an invention or process. Unlike copyright protection, patents offer a 20-year exclusive monopoly over an expression or implementation of a protected work. Patent protection can be applied to inventions and discoveries that include “utilitarian or functional” devices such as machines and “articles of manufacture.” Patent law requires that inventions satisfy three conditions: usefulness, novelty, and nonobviousness.

First, an invention must have a certain *usefulness*, or utility, in order to be awarded a patent; inventing a machine or process that does nothing “useful” would not merit its inventor a patent. Also, the invention must be *novel*, or new, in order to qualify for a patent. One cannot simply modify an existing invention and expect to be granted a patent for it; the modification would have to be significant enough to make a qualified difference. Finally, the invention or process must be *nonobvious*.¹⁹ For example, it is possible that no one has yet recorded directions for how to travel from Buffalo, New York, to Cleveland, Ohio, through Pittsburgh, Pennsylvania, but describing the route would not satisfy the condition of nonobviousness.

Although computer hardware inventions clearly satisfied the requirements of patent law, this was not initially the case with computer software. Snapper (1995) points out that in the 1960s, most of the discussion involving the protection of software focused on patents. He also notes that in a series of decisions beginning with *Gottschalk v. Benson* (1972), the U.S. Patent Office and the courts established a strong opposition to patenting software. Benson had applied for a patent for an algorithm that translated the representation of numbers from base 10 to base 2; this algorithm was an important feature of all software programs. So, some critics worried that if Benson were granted a patent for his algorithm, he would be able to control almost every computer in use for a number of years.²⁰

However, Benson was denied the patent because his algorithm was viewed as an abstract process or mathematical formula that could be performed by a series of mental steps with the aid of pencil and paper (Snapper 1995). But the goal of obtaining patents for computer programs did not end with Benson. And in 1981, the U.S. Supreme Court ruled in what many now consider a landmark case for patents affecting computer software: *Diamond v. Diehr* (1981).

In that pivotal case, the Supreme Court decided 5–4 that a patent could be awarded for a computer program under certain conditions; in this instance, the program assisted in converting rubber into tires. Critics note that on the one hand, Diehr had developed a new process that physically transformed raw rubber into rubber tires; on the other hand, however, Diehr had only a new computer program, since every other part of the machinery used in the conversion process consisted of traditional technology. Initially, Diehr’s request for a patent was denied by Diamond, the director of the Patent Office. But Diehr appealed, and his case was eventually heard and upheld by the Supreme Court. However, in their ruling, the justices also continued to affirm the view that computer algorithms themselves are not patentable. They pointed out that the patent awarded to Diehr was not for the computer program per se but for the “rubber tire transformation process” as a whole.²¹

Since the Diehr case, numerous patents have been granted to computer programs and software applications. Some fear that patent protection has now gone too far. Aharonian (2001) points out that between 1990 and 1999, the number of patents increased from 1,300 to 22,500; and between 1993 and 1999, the number of patents issued increased 10-fold. He also points out that between 1979 and 1999, more than 700,000 patents were issued for electronics inventions, including software products. And it is estimated that since 1994, more than 100,000 additional patents for “computer-implemented inventions” have been granted by the U.S. Patent Office.²²

8.3.2 Trademarks

A trademark is a word, name, phrase, or symbol that identifies a product or service. In 1946, the Lanham Act, also referred to as the Trademark Act, was passed to provide protection for registered trademarks.²³ To qualify for a trademark, the “mark” is supposed to be distinctive. Consider, for example, the distinctive apple that has come to symbolize Apple computers and devices. But not all trademarks have necessarily been distinctive in ways that one might assume to be relevant. As Halbert (1999) notes, for example, the trademark “uh-huh,” which is not very “distinctive,” was granted to Pepsi-Cola. Because of decisions such as this, critics have argued that trademark protections are being expanded in ways that are inappropriate.

Consider the following example, which may support the view that some entrepreneurs have tried to expand the scope of trademark protection inappropriately. In the 1990s, America Online (AOL) applied for trademarks for its expressions “You’ve Got Mail,” “Buddy List,” and “IM” (Instant Messenger). If AOL had been allowed to own these trademarks, other ISPs that used these or very similar expressions could have been sued for infringing on AOL’s registered trademarks. So, in 2000, AT&T decided to challenge AOL. In this case, the court ruled that the expressions were not unique to AOL.²⁴

8.3.3 Trade Secrets

A *trade secret* consists of information that is highly valuable and considered crucial in the operation of a business or other enterprise. The “secret” is accessible to only a few select individuals within the organization. Trade secrets can be used to protect formulas (such as the one used by Coca-Cola) and blueprints for future projects. They can also protect chemical compounds and processes used in manufacturing. Owners of a trade secret have exclusive rights to make use of it, but they have this right only as long as the secret is maintained.²⁵

One problem with protecting trade secrets is that trade secret law is difficult to enforce at the international level. Not only have corporate spies in the United States tried to steal secrets from their corporate rivals, but there is evidence to suggest that international industrial espionage has become a growing industry. The Trade Relationship Aspects of Intellectual Property Standards (TRIPS) agreement, which was part of the World Intellectual Property Organization (WIPO) agreements, includes a provision for protecting trade secrets at the international level; specifically, Article 39 of the TRIPS agreement protects trade secrets by stating explicitly that disclosure of trade secrets comes within the meaning of unfair competition in the global community.²⁶ (Both WIPO and TRIPS are described in detail in Section 8.4.)

Of course, protecting trade secrets is not something that is peculiar to the high-tech industry. However, because of the considerable amount of research and development conducted in that industry and the fortunes that can be made from computer-based products, it is highly vulnerable to trade secret violations.

► 8.4 JURISDICTIONAL ISSUES INVOLVING INTELLECTUAL PROPERTY LAWS

The specific IP laws described in this chapter apply mostly to the United States even though their implications are global. Some international treaties pertaining to IP have also been signed; for example, the TRIPS agreement has implemented requirements from the Berne Convention for the Protection of Literary and Artistic Works.²⁷ This agreement is recognized by signatories to WIPO.²⁸

International IP laws have been very difficult to enforce globally, in large part because of jurisdictional issues. In recent years, however, there has been considerable international cooperation in prosecuting digital piracy cases across jurisdictional lines. For example, in 2009, the owners and operators of the internationally controversial (Sweden-based) Pirate Bay site, who were found guilty of “unlawful transfer” of copyrighted material, received both fines and jail sentences.²⁹

In some countries, including the United States, copyright laws affecting IP have also been enacted at the state level. These laws, which often vary from state to state, can apply to the sale of goods, as well as to contracts involved in those sales. With regard to sales and contracts involving computers and electronic devices, two pieces of legislation have aimed at establishing uniformity across states: the Uniform Computer and Information Transactions

TABLE 8-1 Acronyms Corresponding to Intellectual Property Laws and Agreements

DMCA	Digital Millennium Copyright Act
NET Act	No Electronic Theft Act
SBCTEA	Sonny Bono Copyright Term Extension Act
S-DMCA	Super-DMCA (DMCA legislation passed at the state level in the United States)
TRIPS	Trade Relationship Aspects of Intellectual Property Standards
UCITA	Uniform Computer and Information Transactions Act
UETA	Uniform Electronic Transactions Act
WIPO	World Intellectual Property Organization

Act (UCITA) and the Uniform Electronic Transactions Act (UETA).³⁰ Whereas UETA applies to electronic contracts in general, UCITA is designed to govern transactions, including contracts, involving the development, sale, licensing, maintenance, and support of computer software. It would also extend to all shrink-wrap licenses and “click-wrap” agreements (Girasa 2002). So far, UCITA has been enacted into law in the states of Virginia and Maryland.

In our discussion of various schemes for protecting IP, we used several acronyms and abbreviations to describe and refer to national and international policies, treaties, and statutes. Table 8-1 contains a list of those acronyms.

► 8.5 PHILOSOPHICAL FOUNDATIONS FOR INTELLECTUAL PROPERTY RIGHTS

Even though some philosophers and political theorists have opposed the notion of private property rights, we will assume that property ownership is justifiable. We should note that some believe that property ownership rights make sense in the physical realm but are skeptical that property rights can be extended to intellectual objects in cyberspace. We will examine arguments for this position in Section 8.6. Earlier, in Section 8.1.2, we alluded to three philosophical theories—labor, utilitarian, and personality theories—that have been used to justify property rights. We next examine each of those theories in greater detail.³¹

8.5.1 The Labor Theory of Property

The labor theory of property traces its origins to seventeenth-century philosopher John Locke. In his *Second Treatise on Civil Government*, Locke argues that when a person “mixes” his or her labor with the land, that person is entitled to the fruit of his or her labor. So if a person tills and plants crops on a section of land that is not already owned by another—an act which, Locke notes, requires considerable toil—that person has a right to claim ownership of the crops. Analogously, if a person cuts down a tree in the woods and saws it into several pieces, then the person is entitled to the pieces of wood that result from his or her labor. Hence, for Locke, a person’s right to property is closely tied to that person’s labor.

Locke also includes an important qualification with respect to the appropriation of property, which has come to be known as the “Lockean proviso.” The proviso states that when someone either encloses a section of land from the commons or appropriates objects from it, “enough and as good” must be left for others. So, in Locke’s account of property, a person has neither the right to cut down all of the trees in a “commons” nor the right to take the last tree. Even with this qualification, however, some argue that Locke’s theory fails to provide an adequate account of property rights.

Locke's property theory has been attacked on several fronts. For example, some critics argue that even if Locke's labor theory makes sense for physical property, it does not follow that it can be extended to IP. Noting that Locke associates labor with arduous physical work, these critics point out that the production of intellectual objects does not necessarily require the same kind of onerous toil (or "sweat of the brow") that goes into producing tangible goods. But we can see how an author might claim a right to the ownership of intellectual objects generated by his or her labor, because writing a book, a poem, or a software program can often require a fair amount of mental toil.

Other critics of Locke's property theory point out that intellectual objects are nonexclusionary in nature (as we saw in Section 8.1.2) and thus are not scarce. From this, they go on to infer that there is no need to grant property rights for those objects in a way that would be strictly analogous to rights involving physical property.

Others dispute Locke's claim that a property right is a *natural right*. They ask, What evidence is there for Locke's assertion that an individual's right to own property is a natural right, as opposed to an artificial (or man-made) right? Also, Locke's theory of property presupposes that persons making property claims "own their own bodies." If the right to own property is indeed a natural right, then it should apply to all persons, but consider the example of slavery, a relevant issue in Locke's time. Slaves do not legally own their bodies and it would seem to follow, on Locke's reasoning, that they have no claim to the fruits of their labor—that is, they do not have property rights. So property rights, according to Locke's labor theory, do not apply equally to all people; if they did, Native Americans who mixed their labor with the soil should have been granted property rights to their land in North and South America. It is not clear how Locke can claim that property ownership is a natural right and yet at the same time imply that such a right could possibly be denied to some individuals who happen to be slaves or Native Americans.

Despite these objections, however, some believe that Locke's property theory can be used to justify the protection of intellectual objects.³² We next consider a scenario in which an appeal for copyright protection is made on the basis of the labor theory of property.

► SCENARIO 8-2: DEF Corporation vs. XYZ Inc.

DEF Corporation, a software company with 80 employees, has spent the last year developing a sophisticated database program that it is about to release. Thirty software developers have been employed full time on this project, and each software developer worked an average of 60 hours per week. The company expects that it will take more than one year to recoup the investment of labor and time put into this project. DEF applies for a copyright for its product.

XYZ Inc., which also produces database software, files a suit against DEF Corporation for allegedly infringing on its copyright: XYZ claims that DEF has copied a feature used in the interface in one of XYZ's software products. DEF objects by arguing that the feature is, in fact, not original and thus XYZ Inc. should not be eligible for copyright protection. More importantly, DEF further argues that it has invested considerable labor and "sweat" in its database program, so it should be rewarded for its hard work. ■

Does DEF's claim make sense in light of the labor theory of property? Is the labor expended on a particular project, in itself, sufficient to make the case for copyright protection? According to Locke's labor theory, DEF would seem to have a reasonable case, but XYZ sees the matter very differently. Do you agree with DEF's position or with the case made by XYZ?

8.5.2 The Utilitarian Theory of Property

Critics of the labor theory argue that a rationale for granting property rights should not be confused with an individual's labor or with a natural right; rather, property rights are better understood as artificial rights or conventions devised by the state to achieve certain practical

ends. According to the utilitarian theory, granting property rights will maximize the good for the greatest number of people in a given society. (Recall our Chapter 2 discussion of utilitarianism and Jeremy Bentham's and John Stuart Mill's arguments for it.) Arguably, utilitarian theory was used by the framers of the U.S. Constitution to justify the granting of property rights for intellectual objects (creative works and inventions) to individuals. The Founders seemed to assume that incentives in the form of copyrights and patents would motivate individuals to bring out their creative products and that, as a result, American society in general would benefit.

An advantage of the utilitarian theory is that it does not need to appeal to the abstract principle of a natural right to justify the granting of property rights to creators and inventors of intellectual objects. However, utilitarians have their critics as well. In Chapter 2, we saw some shortcomings of utilitarian theory with respect to protecting the interests of individuals who fall outside the scope of the greatest number (or majority) in a given society. Also, utilitarians tend to appeal to an economic/financial incentive as a necessary motivation for bringing creative works into the marketplace. For these reasons, many critics find the utilitarian rationale for granting property rights to be inadequate. The following scenario considers some incentives one might have for bringing forth a creative work based on the utilitarian argument for property rights.

► **SCENARIO 8-3:** Sam's e-Book Reader Add-on Device

Sam is a very talented and creative person, but he is not terribly industrious when it comes to following through with his ideas. He has an idea for an add-on device that would enable a popular e-book reader to store and play music (MP3 files) on the e-reader. Many of Sam's friends are interested in his idea, and some have strongly encouraged him to develop this device so that they can use it on their e-book readers. But Sam remains unconvinced and unmotivated. Then Sam's friend, Pat, tells him that an acquaintance of hers patented an analogous invention and has since earned several thousand dollars. Pat tries to persuade Sam that not only would his invention benefit his friends but also that he would stand to gain financially if he patents the product and it is successful. After considering Pat's advice, Sam decides to work on his invention and apply for a patent for it. ■

Was a utilitarian incentive (i.e., in the form of a financial benefit) necessary to get Sam to follow through on his invention? Would he have brought his invention into the marketplace if there were not a financial enticement? Do people only produce creative works because of financial rewards they might receive? On the one hand, it would seem that financial incentives could motivate some individuals, such as Sam, to produce a creative work that benefits society in general. However, it is not clear that all great authors or composers have written literary works (such as novels or poems) or have composed musical works (such as symphonies or songs) solely because of the prospects of becoming wealthy. It is possible, for example, that some gifted composers wrote music for the sheer enjoyment it brought them as creators of one or more artistic works. So there may be factors other than financial incentives that influence creators to bring forth their works.

8.5.3 The Personality Theory of Property

Critics of the labor and utilitarian theories believe that any theory that links the granting of property rights to either (i) an individual's onerous labor or (ii) the notion of social utility misses an important point about the nature of the creative work involved in the production of intellectual objects. Both the labor and utilitarian theories appeal to criteria external to the individual himself/herself as the rationale for granting a property right. Note that in each case, the criterion is a reward that is directly monetary in the case of utilitarian theory and indirectly monetary in

the case of labor theory. Both theories assume an extrinsic criterion—that is, either one’s labor or some economic incentive—for justifying property rights; neither considers the possibility that an internal criterion could justify these rights. In this sense, both theories underestimate the role of the persona or *personality* of the creator of the intellectual work. According to the personality theory of property, the intellectual object is an extension of the creator’s personality (i.e., the person’s being or soul). And it is because of this relationship between the intellectual object and the creator’s personality that advocates of the personality theory believe that creative works deserve legal protection. As Moore and Himma (2014) also note, the personality theory of property distinguishes the “personal rights of creators” from “their economic rights.”

The personality theory traces its origins to the writings of G. W. F. Hegel, a nineteenth-century philosopher, and it has served as a foundational element in IP laws enacted by nations in continental Europe. In France, the personality account of property is sometimes referred to as the “moral rights” (*droits morales*) theory of property. The personality theory provides an interesting interpretation of *why* an author should have control over the ways in which his or her work can be displayed and distributed. To ensure this control, personality theorists suggest that authors should be given protection for their artistic work even if they have no legal claim to any monetary reward associated with it.

Consider a case in which the personality theory of property might apply—namely, the use of a Beatles’ song in commercial advertisement. In mid-1987, the Nike Corporation aired a television commercial for its sneakers that featured the song “Revolution,” composed by John Lennon in the late 1960s (when he was a member of the Beatles). Lennon was murdered in 1980, so when the Nike ad aired on commercial television, he could neither approve nor disapprove of how his song was being used. Many of Lennon’s fans, however, were outraged that a song penned by Lennon to address the serious political and social concerns of the turbulent 1960s could be used so frivolously in a TV commercial. Critics argued that Lennon would not have approved of his song being used in this manner. However, even if Lennon had been alive, he may not have had any legal recourse when the TV commercial aired, because the entire Lennon–McCartney corpus of songs was purchased by Michael Jackson prior to 1987; Michael Jackson owned the copyright to “Revolution.”³³

By appealing to the personality theory, however, the case could be made that Lennon—or in this instance, his widow—should have some say in how his song was represented in a commercial forum. Next, consider a hypothetical scenario in which we can also apply the personality theory of property.

► SCENARIO 8-4: Angela’s B++ Programming Tool

Angela, a CS graduate student who has been struggling to make ends meet, has developed a new programming tool, called B++. This software application, which employs the notion of a “reduced instruction set” technique, can be used in conjunction with the standard C++ programming language to execute certain tasks more quickly than the C++ instruction set. Angela has recently published an article that describes, in detail, the reduced set of instructions, how they work, and why she was motivated to develop B++. She was delighted to have her article published in the prestigious journal *CyberTechnology*. As part of the conditions for publication, however, Angela had to agree to sign over the copyright for her article to CyberPress (the publisher of *CyberTechnology*). ■

Angela is then informed that a textbook publisher, CyberTextbooks Inc., wishes to include a portion of her article in a textbook. As the copyright holder for Angela’s article, CyberPress is legally authorized to allow CyberTextbooks to reprint all or selected portions of her article. Suppose, however, that Angela protests that mere excerpts from her article neither truly convey the important features of her programming tool nor explain how it works. She further argues that the article is an extension of her persona and that only in total does the article reveal her creative talents as a programmer.

TABLE 8-2 Three Philosophical Theories of Property

Labor theory	Argues that a property right is a natural right and that property rights can be justified by the labor, or toil, that one invests in cultivating land or in creating a work of art
Utilitarian theory	Argues that property rights are not natural rights but rather artificial rights created by the state. Property rights are granted to individuals and to corporations because they result in greater overall social utility
Personality theory	Argues that a property right is a moral right and that property rights are justified not because of labor or social utility but because creative works express the personalities of the authors who create them

Does Angela have a legitimate objection in this case? Should she, the original author of the article and the creator of the new programming tool, have the right to prevent her article from being published in abridged form? Can her argument, based on the notion of IP as an expression of one’s personality, be defended on moral grounds? Because she signed over the copyright for her article to CyberPress, she has no legal grounds for objecting to how that article is subsequently used. However, on moral grounds, she could claim that the publication of her abridged article does not fairly present her creative work.

Table 8-2 summarizes the three philosophical theories of property.

► 8.6 THE “FREE SOFTWARE” AND “OPEN SOURCE” MOVEMENTS

We have examined three traditional theories that have been used to justify the protection of IP from a philosophical perspective. In the introduction to Section 8.5, however, we also noted that some have argued for the view that no formal legal protection should be given to IP even if we do grant such protection to physical property. One of the best known, and perhaps most controversial, arguments for why conventional IP rights should not be granted to computer software has been made by Stallman (2004), who views software ownership as a form of “hoarding” that disregards the general welfare of society. As an alternative scheme, Stallman proposes that programmers work together to make software freely available for humankind rather than supporting efforts to restrict its use.

Although Stallman has been a staunch advocate for the view that software should be free, we should note that he intends “free” to refer to liberty, not to price (or “free” as in free speech vs. free beer). Grodzinsky, Miller, and Wolf (2004) suggest that Stallman’s position on why software should be free may have been influenced by the culture of the 1970s at the Massachusetts Institute of Technology, where a program’s source code could be freely exchanged. As we saw in Section 8.3, however, that practice began to change in the late 1970s and early 1980s. Also during that period, the burgeoning computer industry hired many of the best software developers and programmers from academic computing labs, and some of those individuals took the software they developed with them. As a result, some of that software eventually became proprietary. In response to these trends, Stallman began his Gnu’s Not Unix (GNU) project in 1984. GNU’s goal was to develop an entire Unix-like operating system, complete with system utilities, that was “open” and freely accessible.

8.6.1 GNU and the Free Software Foundation

As stronger IP rights began to be granted to software “owners” in the early 1980s and as more and more software became proprietary, some programmers were concerned about whether they would be able to exchange software programs with each other in the future. They also

worried that someone other than themselves would “own” their creative works. In 1985, the Free Software Foundation (FSF) was formed in response to these concerns, as well as to support Stallman’s GNU project.

According to FSF, four “freedoms” are essential for free software. These include *freedom to*:

1. Run the program, for any purpose
2. Study how the program works and adapt it for your needs
3. Redistribute copies so you can help your neighbor
4. Improve the program and release your improvements to the public so that the whole community benefits³⁴

The software that is produced by programmers adhering to “free software” requirements (freely downloadable from www.fsf.org/) is typically accompanied by a licensing agreement that is designed to keep it freely available to other users “downstream,” who can continue to modify the source code. This agreement is spelled out in the GNU General Public License (GPL). The kind of protection granted by this license is also known as *copyleft*. (“Copyleft” refers to a group of licenses that currently apply to documents, music, and art, as well as software.) Whereas copyright law is seen by FSF’s proponents as a way to restrict the right to make and redistribute copies of a particular work, a copyleft license included in GPL uses an alternative scheme that “subverts” the traditional copyright mechanism in order to ensure that every person who receives a copy, or derived version of a work, can use, modify, and also redistribute both the work and the derived version of the work. All derivative works of GPL software must also be licensed under GPL. In this way, the four freedoms of FSF are propagated in the future software developed under this agreement.³⁵

By the early 1990s, the GNU project had produced many important software development tools in compliance with FSF guidelines and the specifications for Unix-like source code. Throughout the 1980s, however, there was some confusion as to just what “Unix” meant, since several versions of that operating system existed—some at universities such as Berkeley and others in the private sector such as AT&T Bell Laboratories where Unix was originally developed. This resulted in lawsuits and counter lawsuits regarding which sections of Unix software source code could be freely distributed and which sections were proprietary. The legal problems created some difficulties for Stallman and the GNU project because GNU still lacked the core of its (Unix-like) operating system—that is, the kernel. However, this issue was finally resolved in the early 1990s, when Linus Torvalds developed the kernel for a Unix-like operating system that he called Linux. At this point, GNU realized its goal of having a complete, functional operating system with all of the source code freely available for inspection, modification, and improvement.³⁶ The GNU project and FSF significantly influenced another related software development initiative known as the open source software (OSS) movement.

8.6.2 The “Open Source Software” Movement: OSS vs. FSF

OSS, which began in 1988, shares many of the same goals as FSF—most notably, the ability of a software user to look at, understand, modify, and redistribute the source code for that software. Like FSF, OSS requires that its source code be freely available. So, both movements are similar with respect to their requirements for the free use of their source code in the software development process. And some authors, including Chopra and Dexter (2009), use the expression “FOSS” to describe “free and open source software.” However, as Raymond (2004) notes, there are significant differences in the “attitudes” or philosophies of these two groups. Whereas FSF continues to focus on promoting its philosophical position that software should be free, OSS has concentrated its efforts more on promoting the open-source model as an alternative methodology to “closed-source” development for software. OSS and FSF also differ with

respect to requirements for how the software is used “downstream.” For example, FSF requires that all derivative pieces of software be subject to the original requirements and thus remain “open” and nonproprietary. OSS, on the contrary, is more flexible with respect to its derivative software. Unlike FSF, which requires that users strictly adhere to its GPL license in all derivative uses of its software, OSS supports less restrictive licenses such as Berkeley’s Software Distribution (BSD) and Netscape’s Mozilla Public License (MPL). These licenses are considered more “lenient” than GPL because they permit programmers to alter the OSS and to release it as a proprietary product.³⁷

Another difference between OSS and FSF can be found in their attitudes toward the business community. The former is less anticommercial than the latter. In fact, many in the open-source community interact comfortably with members of the business community. Because of its success in the software world, OSS now poses a significant threat to companies that produce proprietary software, such as Microsoft Corp. In addition to the Linux operating system, other well-known open-source products include the Apache Web server and the Perl programming language. Whereas Torvalds believes that OSS and commercial software can coexist, Stallman does not believe that this is possible in the long run because of the profit incentives that drive investors in the commercial sector. Stallman also condemns the business community’s practice of producing proprietary or “closed” code as unethical, and he claims that signing a typical software licensing agreement is like “betraying your neighbor.” Spinello (2003) notes that some of Stallman’s followers have gone so far as to suggest that FSF is “morally superior” to proprietary software. However, we will not pursue that debate here. Instead, a more important question for our purposes is how the OSS and FSF movements can help us to think about an issue at the heart of the contemporary IP debate: Is the free flow of information still possible in a digital world?

As we saw in Chapter 6, some of Stallman’s followers subscribe to the mantra *information wants to be free*. We should not assume that Stallman himself holds this view with respect to all information, however, because he focuses his arguments specifically on why computer software should be free. One point that Stallman makes in his discussion of software is particularly useful in helping us think about issues involving the concept of information (in general) vis-à-vis IP from a radically different perspective—namely, information is something that humans desire to *share* with one another. Although this insight undergirds Stallman’s view that software should be free, we do not need to embrace his position on software to appreciate the force of Stallman’s insight with respect to the broader notion of information. In order to be shared, information must be communicated; so elaborate IP structures and mechanisms that prohibit, or even discourage, the communication of information would seem to undermine its very purpose as something to be shared.

► 8.7 THE “COMMON GOOD” APPROACH: AN ALTERNATIVE FRAMEWORK FOR ANALYZING THE INTELLECTUAL PROPERTY DEBATE

In the preceding section, we focused our discussion on the question of whether software should be unrestricted and thus freely available to distribute and modify in conformance with certain “open” or “free” licensing agreements, as opposed to being legally protected by strict copyright and patent laws. Although our discussion centered on computer software, in particular, we saw that a more general question that arises is whether the free flow of information itself, in digital form, should be restricted. While not everyone may agree with the claim that software should be free, we noted that some have found Stallman’s insight about the nature and purpose of *information* (i.e., as something that humans naturally want to share and communicate) to be compelling.

Some authors writing on the topic of IP have noted that Stallman's insights are compatible with key elements in virtue ethics, which we discussed in Chapter 2. McFarland (2004, 2005), who suggests that we can draw from principles in virtue ethics in understanding and analyzing issues involving IP, appeals to Stallman's insight that the essential purpose of information is to be shared. McFarland also notes how this insight supports the "common good" view of IP.

McFarland's notion of a "common good" approach to computer ethics draws from insights in Aristotle's *Nicomachean Ethics*. In Chapter 2, we saw that some key elements of Aristotle's theory serve as the cornerstone for virtue ethics; but how can this view provide a framework for discussing IP issues? McFarland suggests the following strategy. First, he points out that Aristotle believed that every object had a nature, end, or purpose, which he called its *good*. Following Aristotle's method of inquiry, McFarland suggests that we begin any philosophical investigation by asking what the good, or purpose, of an object *is*. So, in our investigation of information as an intellectual object, we should aim at understanding its ultimate purpose.

Although information can certainly be understood as a form of self-expression (as the personality theory rightly suggests) and as a product that performs some useful functions (as utilitarians correctly suggest), it also has an even more fundamental purpose than personal expression and utility. Information, McFarland argues, is ultimately about communication; hence, the nature and purpose of IP in the form of information is communication, and thus an adequate account of the purpose of information (as something to be communicated) must take that into consideration.

McFarland believes that traditional concepts of property often overlook the ethically significant relationships that some kinds of property have with the rest of the society. The three traditional theories of property that we examined in Section 8.6 focus on criteria such as an individual's (or a corporation's) labor, social utility (cost benefit), or the author's personality. But they fail to consider that the purpose of information is something whose essential nature is to be shared and communicated. Hence, McFarland believes that a "common good" analysis of property, which examines the nature of information in terms of a broader social context, can provide us with an attractive alternative to the traditional property theories.

How is a common-good approach to IP issues, which takes into account the overall good of society, different from a utilitarian theory? We noted earlier that a utilitarian system's primary concern is with maximizing the good for the majority, but utilitarianism does not always take individual rights into consideration in producing the greatest good for the greatest number. McFarland points out that a utilitarian analysis based solely on cost-benefit criteria might suggest that it is desirable to publish a person's private diary because many people would enjoy reading it. Although the benefit to the overall majority would outweigh any embarrassment to the individual writer of the diary, such a practice is not morally correct, because it violates the basic right of humans to be respected.

McFarland also points out that if we begin our analysis of IP issues simply by analyzing the notion of property itself, then the central point of debate tends to be about ownership and control; this is indeed how property issues are typically conceived and debated. McFarland believes that if we are willing to step outside that conventional framework, we can get a more complete view of the important societal role that information plays in IP debate. In doing this, we gain the insight that an adequate theory of information must take into account its *social nature*, an important feature that we tend to overlook when we think of information only in terms of rights and property.

Before proceeding any further, it is important to ask, What do we mean by "information" in the context of our common-good approach to IP disputes? We should note that there are both technical and colloquial (or everyday) senses of "information." While many highly technical definitions of "information" have been proposed by scholars in the field of information science (especially since the 1950s), our concern in this chapter is with the term's colloquial

use and meaning. Capurro and Hjørland (2003) point out that “the concept of information as we use it in everyday English, in the sense *knowledge communicated*, plays a central role in contemporary society” (Italics Capurro and Hjørland). We limit our analysis to this sense of “information” (i.e., in the broad context of “knowledge communicated”), which includes academic, literary, scientific, health, and general information that either already is or eventually should be in the “public domain.” It is this sense of “information” that Capurro, Hjørland, McFarland, and others believe plays a very important social role.

8.7.1 Information Wants to be Shared vs. Information Wants to be Free

Arguably, a new (guiding) principle can be derived from the insights of Stallman and McFarland: *Information wants to be shared*.³⁸ Note, however, that this principle is very different from the claim “information wants to be free.” We do not need to embrace the latter in order to defend the former. As we saw in Chapter 6, the view that all information should be free is not only naïve but is also conceptually flawed. For example, Spafford (2007) has described some of the undesirable consequences that such a principle would have for individual privacy if all personal information were freely accessible. Also, Himma (2005) has shown why the view that information should be free is problematic as a “normative principle” since it is not clear who, exactly, should be responsible for making it free. For example, is the government or the state obligated to make this information freely available to its citizens?

Doctorow (2014) argues that, strictly speaking, “information doesn’t want to be free—people do.” He further claims that because information is an “abstraction,” it does not (and cannot) “want” anything. But even if information were capable of having “wants,” or broader “desires,” Doctorow notes that those desires would be completely “irrelevant to the destiny of the Internet.” Arguably, Doctorow’s insight is not so much in attacking the metaphor used in describing information in terms of various wants/desires (which, admittedly, is somewhat confusing, as others have pointed out as well) but rather noting that people “want to be free”—that is, free in terms of what *they want* “from computers and the internet.”³⁹ However, Doctorow’s insight is also compatible with our “presumptive principle in favor of sharing information”—in spite of the awkward metaphor suggesting the attribution of wants, or any other kinds of sentient desires, to information.

So it is primarily our “presumptive principle” about the nature and status of information as “something that *people freely wish to share and communicate*” that is at the heart of the “information-wants-to-be-shared” strategy that we defend in this chapter (and that we distinguish from the more controversial view that all information should be free). Perhaps it is also important to reiterate that our sense of “information” in this context has to do with “knowledge communicated” (and thus does not necessarily apply to all forms of information).

Not only is our presumptive principle regarding the sharing of information compatible with McFarland’s “common-good” approach to IP, but it is also compatible with positions that others have expressed with regard to the social benefits of being able to share knowledge and information freely. For example, De George (2003) points out that because cybertechnology enables us to share information in ways that were not previously possible, it has also provided us with the opportunity of greater information access at the level of community. Yet he also notes that, paradoxically, by focusing on information as a commodity, the software industry has highlighted its commercial value, and, as a result, policies and schemes have been constructed to control information for commercial purposes rather than to share it freely.

To see the force of De George’s claim, consider that copyright laws, originally intended to cover print media, were designed to encourage the distribution of information. We have seen that these laws have since been extended to cover digital media, inhibiting the

distribution of electronic information. The distribution of digitized information is now being discouraged in some sectors. To illustrate this point, consider the traditional practice of borrowing books from public libraries. Physical books had always been available for an indefinite number of loans for library patrons; that is, there was no limit on how many times a book could circulate. However, the same practice does not hold in the case of all e-books. Consider that in 2011, HarperCollins had a policy that any e-book it published could be checked out of a library a maximum of 26 times before the e-book's license expired. (HarperCollins has since changed its policy in response to protests by librarians and library patrons.) But it is worth noting that some publishers do not even allow their e-books to circulate at all in public libraries. Such practices clearly tend to discourage the sharing of copyrighted information in digital format.

Copyright laws were originally designed to encourage the flow of information in print media, via their fair-use provisions. Yet, for digital media, they have been revised in a way that discourages the flow, and thus the sharing, of electronic information. What implications could this trend have for the future? Consider that the ability to share, not to hoard, information contributed to the development of the World Wide Web. Also consider what might have happened if the inventors of the Internet and the Web had been more entrepreneurial-minded and less concerned with sharing information. Tim Berners-Lee, who invented HTTP (the protocol used on the Web), never bothered to apply for a patent for his invention or for a copyright for his programming code. As a physicist working at CERN (a physics laboratory on the Franco-Swiss border), he desired to develop a common protocol for Internet communication so that scientists could share information more easily with each other.

Note that Berners-Lee's goal in developing the Web was to provide a forum where information could be *shared*. A person whose interests were more entrepreneurial could have sought IP protection for his or her contributions, thereby reducing the amount of information that could be shared. Also consider that Doug Engelbart, who invented the mouse, never applied for patent for his contribution. Yet, virtually every major computer manufacturer, as well as every computer user who has used a graphical interface, has benefited from his seminal contribution to what came to be called the "Windows interface" in computing. Like Berners-Lee, Engelbart was interested in developing a tool that would enable the sharing information, rather than its commodification.

Consider also how the sharing of information has benefited many of those entrepreneurs who now seek to control the flow of information in cyberspace. It has been argued that Microsoft benefited significantly from the work done by Apple Corporation on its graphical user interface (the system of icons that users can point to and click on to accomplish a task). And it is well known that when Steve Jobs was at Apple in the 1970s, he visited Xerox PARC (Palo Alto Research Center), where he discovered that a graphical interface had already been invented by researchers there. So it is reasonably accurate to say that current user interfaces have benefited from the sharing of information along the way. Would it be fair to credit any one company or person with exclusive rights to a graphical user interface? Would doing so not also eliminate, or certainly impede, the possibility of incremental development and innovation? And more importantly, would it not also prevent us from sharing that important information?

Warwick (2004) argues that the original copyright framework, which valued the interests of the people as a whole over the interests of creators of IP, is being "slowly dismantled" to give more weight to the interests of the latter group. And Burk (2003) notes that "over-reaching" in copyright licensing has now begun to be recognized by some courts to "constitute a new form of misuse." In fact, many critics worry that digital information is now becoming less available and that we, as a society, are worse off because of it. Some also fear that if the public domain of ideas continues to shrink, our "information commons" may eventually disappear.

8.7.2 Preserving the Information Commons

What do we mean by *information commons*? One way of understanding this concept is by comparing it to a “physical commons,” a common area that has been set aside and is open to the general public or to residents of a community. Garret Hardin, in his classic account of the “tragedy of the commons,” describes the disappearance of the public space, or commons, that farmers living in a certain community had once enjoyed. In Hardin’s tale, a public plot of land is shared by many farmers but owned by none of them; by sharing the land in a reasonable and mutually agreed manner, the commons benefits all of the farmers. Suppose that they agree collectively that each is allowed to have no more than 10 cows graze on the commons on a given day. Further suppose, however, one day a farmer decides to cheat a little by having 11 or 12 of his cattle graze on the commons, reasoning that having 1 or 2 additional cows graze will not deplete the land’s resources and will also enable him to profit slightly.⁴⁰ If other farmers also use the same rationale, you can see that before long the entire commons would be depleted.

It is very easy to underestimate the importance of the commons, or the public domain. We often take for granted the public parks, public beaches, and public gathering places that have been set aside for general use. Imagine the quality of our lives without them and consider that without proper foresight, planning, and management, our parks could easily have been turned over to entrepreneurs for private development. Imagine, for example, if early city planners in New York City had not had the wisdom to set aside the area of Manhattan called Central Park; yet there was nothing inevitable about this. An entrepreneurial-minded city council might have sold the land to developers and businesses on the grounds that doing so would bring revenue to the city. In the short term, the city might have realized significant financial gain; but that kind of decision would have been very shortsighted, and it would have been economically disadvantageous in the long term. Although Central Park is a tourist attraction that draws many people to New York City, it is not valued simply as a tourist attraction. For example, it is also a gathering place for city residents as well as visitors—a place to hear a concert on a summer evening, have a picnic in the fall, or ice skate in the winter. Imagine if Central Park were to disappear from the New York City landscape.

We have briefly considered some ways in which the physical commons has been threatened, but how is this analogous to the current threat posed to the information commons? Buchanan and Campbell (2005) describe the information commons as

a body of knowledge and information that is available to anyone to use without the need to ask for or receive permission from another, providing any conditions placed on its use are respected.⁴¹

Just as the physical commons in England began to vanish in the seventeenth and eighteenth centuries when property laws passed by Parliament prohibited peasants from fishing and hunting in newly enclosed territories that had previously been accessible to everyone, some now worry that the information commons is now undergoing a similar fate.⁴² Boyle (2006), who describes this trend as the “second enclosure movement,” draws some useful comparisons to the original enclosure movement that resulted in the “fencing off” of much of the “grassy commons of old England.” In the current enclosure movement, of course, it is ideas and information that are being fenced off or enclosed. So, just as there is reason to be concerned about the tragedy of the physical commons, as described by Hardin, there would also seem to be good reasons to worry about what Onsrud (1998) calls “the tragedy of the information commons.” Buchanan and Campbell note that what is especially tragic is that the information commons is now

... being enclosed or even destroyed by a combination of law and technology that is privatizing what had been public and may become public, and locking up and restricting access to ideas and information that have heretofore been shared resources.⁴³

A different way of expressing the concern about what is being lost in this second enclosure movement is offered by Heller (1998) in his description of the “tragedy of the anti-commons”—a phenomenon that occurs whenever resources are *underconsumed* or *underutilized*. As more and more of the information commons is fenced off because of strong IP laws, critics such as Heller fear that fewer and fewer intellectual resources will be available to ordinary individuals and that, as a result, our information resources will be underutilized.

8.7.3 The Fate of the Information Commons: Could the Public Domain of Ideas Eventually Disappear?

Now imagine what it would be like if the public domain of ideas, which we have all enjoyed and benefited from, disappeared. In a book subtitled *The Fate of the Commons in a Connected World*, Lessig (2002) raises some serious concerns about the future of ideas in a medium that is overly regulated and controlled by economic interests. In Section 8.2.2, we saw that the passage of SBCTEA extended copyright protection for rights holders by 20 years. Laws such as this seem to run counter to the notion in which the public domain of ideas has traditionally become populated—that is, intellectual objects are supposed to enter the public domain after a reasonable period of time. As Coy (2007) notes, this factor distinguishes intellectual objects from physical objects, since the latter can always remain proprietary.

Of course, governments could continue to pass laws extending the term limits of copyright law (as in the case of SBCTEA in the United States) to the point where precious few intellectual objects, if any, will enter the public domain in the future. We have already seen how the DMCA, with its controversial anticircumvention clause, also contributes to the erosion, and possible future elimination, of the information commons. We may wish to consider the short-term vs. long-term gains and losses that can result from current trends in information policy. In the near term, corporations and some individuals will profit handsomely from privatization of information policy. In the long term, however, our society may be worse off intellectually, spiritually, and even economically if the short-term goals of privatization are not balanced against the interests of the greater public good.

Imagine if more of the information that we have traditionally shared freely were to disappear from the public domain and enter the world of copyright protection. Suppose, for example, that beginning tomorrow every recipe will be copyrighted and thus not be able to be disseminated without the permission of the new rights holder (i.e., the legal owner of that recipe). We would not even be permitted to use, let alone improve on, a particular recipe without first getting permission from the copyright holder. In the past, chefs could use recipes freely and improve upon them. Would it be fair if those chefs who had previously benefited from the sharing of recipes were all of a sudden awarded exclusive rights to them? And would it be fair if they were awarded the exclusive rights simply because they just happened to be experimenting with food at a time when the legal system favored the privatizing of information for commercial interests? Does it matter that society would be deprived of communicating freely the kind of information it has always had the luxury to share? What would this mean for the public domain of ideas and for ordinary discourse and information exchange? Critics like Boyle (2004) worry that the public domain of information is “disappearing” under the IP system built around the interests of the current stakeholders.

In defending the view that the ultimate purpose of information is something to be shared and communicated, we have made the case that the public domain of ideas should be preserved. Of course, the rights and interests of both software manufacturers and individual creators of literary and artistic works also deserve serious consideration in any debate about IP rights in cyberspace. And we do not need to advocate for the controversial view that all information should be absolutely free to move the debate forward. Indeed, companies and individuals need fair compensation for both their costs and the risks they undertake in developing

their creative products and bringing them to market. The key phrase here, of course, is “fair compensation”; a fair IP system is one that would enable us to achieve a proper balance. In reaching that state of equilibrium, however, we must not lose sight of the fact that information is more than merely a commodity that has commercial value.

If we defend the principle that information wants to be shared (but not totally free), then perhaps it will be possible to frame reasonable IP policies that would both encourage the flow of information in digital form *and* reward fairly the creators of intellectual objects, including software manufacturers. One promising scheme for accomplishing these objectives can be found in the kind of licensing agreements currently issued in the Creative Commons (CC) initiative.

8.7.4 The Creative Commons

The CC, launched in 2001, provides a set of licensing options that help artists and authors give others the freedom and creativity to build upon their creativity. Lessig (2004) points out that such a “creative” scheme for licensing is needed because many people now realize that the current IP rights regime does not make sense in the digital world. We should note that CC does not aim to undermine the principle of copyright. Lessig concedes that copyrights protect important values and are essential to creativity, even in a digital age. He also believes that if the essence of copyright law is to allow creators to have control, then there should be a way to maintain ownership of copyrighted works and still make it possible for the average person to license the use of those works. Lessig notes that, unfortunately, the current version of copyright, which was not written for a world of digital creativity, “restricts more than it inspires.” Traditional copyright regimes tend to promote an “all or nothing” kind of protection scheme with their “exclusive rights” clauses.

Lessig believes that the Internet allows for an “innovation commons” and that the CC licensing schemes help to promote this vision. CC provides options with four levels of permission: attribution, noncommercial, derivative, and share alike. At the level of attribution, others would be permitted to copy, distribute, display, and perform your work (as well as derivative works based upon it), only if they give you credit. The noncommercial option would permit others to copy, distribute, display, and perform your work (as well as derivative works based upon it), only for noncommercial purposes. At the derivative level, you would permit others to copy, distribute, display, and perform only verbatim copies of the work (but not derivative works based upon it). And, finally, the share-alike option permits others to distribute derivative works, but only under a license identical to the license that governs your work (<http://creativecommons.org>). By specifying one or more of these options, you can retain the copyright for your creative work while also allowing others to use it under some circumstances.

Lessig believes that artists, authors, and other creators who use the CC license are, in effect, saying:

We have built upon the work of others. Let others build upon ours.

Building on the notion that every author “stands on the shoulders of giants,” CC’s proponents believe that musicians and artists who use the CC license are, in effect, “standing on the shoulders of peers” and allowing peers to “stand on their shoulders.”

We can see how CC, via its creative and flexible licensing schemes, both encourages the flow of information in digital form and protects the legal rights and interests of artists and authors. Artists and authors can be recognized and rewarded, financially and otherwise, for their creative contributions, yet still share their works (or portions of their works) with others. This, in turn, enables us to realize Lessig’s notion of an “innovation commons” because it allows authors and artists to build upon the works of others. It also contributes to the future of the commons, and it promotes the kind of spirit of cooperation and sharing

among creators that Stallman and the FSF movement advocate for software development (although FSF does not endorse CC's licensing scheme). In promoting these and related goals, CC provides an implementation scheme for the presumptive principle defended in this chapter—namely, “information wants to be shared.” Implementing our presumptive principle through a mechanism such as CC enables us to frame IP policies that avoid the kinds of problems inherent in both:

- a. The claim that information should be absolutely free
- b. Overly strong copyright laws that discourage sharing and innovation and also diminish the information commons.

► 8.8 PIPA, SOPA, AND RWA LEGISLATION: CURRENT BATTLEGROUND IN THE INTELLECTUAL PROPERTY WAR

In the previous sections, we defended a principle that presumes in favor of sharing information, which would help to prevent the information commons from further erosion; however, we did not argue that copyright protection should be altogether eliminated. In Section 8.2, we saw that the intent of the original U.S. Copyright Act (1790) was to “promote the progress of the sciences and useful arts,” thereby *encouraging creative production* for society's benefits, by giving authors exclusive rights over literary and artistic works for a *limited time*. Ng (2011) argues that while this was clearly a “desirable goal” on the part of the Founders, granting exclusive rights to authors can, unfortunately, also “unnecessarily limit society's ability to access works in the public domain” (as we saw in Section 8.7).

We have also seen that authors are not only persons but now include many large corporations; the latter, of course, can profoundly influence lawmakers. Some of these corporations have recently tried to convince the U.S. Congress to pass stronger copyright protection laws. Many critics believe that such laws, if passed, would significantly threaten the flow of information on the Internet. In this section, we briefly examine three relatively recent legislative proposals that could have such an effect: Protect Intellectual Property Act (PIPA), Stop Online Piracy Act (SOPA), and Research Works Act (RWA).

8.8.1 The PIPA and SOPA Battles

In 2011, two controversial pieces of legislation, PIPA and SOPA, were introduced in the U.S. House of Representatives and the U.S. Senate, respectively. Supporters of these legislative proposals included the RIAA, the MPAA, and the American Entertainment Software Association (AESAs). PIPA's and SOPA's supporters argued that stronger laws were needed to enforce copyright protection online and to crack down on pirates, especially those operating from Web sites in countries outside the United States. However, many critics of the proposed legislation argued that the enactment of SOPA and PIPA into law would grant the U.S. government, as well as some major corporations, broad powers that allow them to shut down Web sites that they merely suspect are involved in copyright infringement. Moreover, they would be able to do this without first having to get a court order and go through the traditional process of having either a trial or court hearing.⁴⁴

On January 18, 2012, the date that legislative hearings for these controversial bills were set to begin in the U.S. Congress, a series of coordinated online protests ensued. Many prominent Web sites, including Wikipedia and Google, participated in the protest. Wikipedia had considered temporarily closing its site that day, while Google and many other online supporters elected to remain open but displayed protest signs on their sites. (Many sites “went dark” for the entire day to show their support for the online protest.) It is estimated that as many as

115,000 Web sites joined the protest and that 4.5 million protestors (mostly ordinary users) signed the online petition to denounce PIPA and SOPA.

Following the January 2012 protests, leaders in both houses of Congress decided to postpone voting on the two controversial measures. Although the bills were eventually shelved, they have not been abandoned by their original sponsors in Congress. However, several prominent lawmakers who initially had come out in favor of the controversial legislation have withdrawn their support (at least temporarily). Yet the battle is far from over; in fact, key supporters of the original SOPA and PIPA bills have vowed to introduce alternate versions in the near future. And some critics worry that the Cyber Intelligence Sharing and Protection Act (CISPA), which has been subsequently introduced in Congress, is a “back door” effort to get PIPA- and SOPA-like legislation passed.

8.8.2 RWA and Public Access to Health-Related Information

As in the case of PIPA and SOPA, RWA was also introduced in the U.S. Congress in late 2011. This bill, which was concerned mainly with scientific and academic research that was accessible online, was designed to replace the National Institute of Health (NIH) Public Access Policy. That policy had mandated that any NIH research funded by U.S. tax payers would be freely available online. RWA's critics, who worried that future online access to important health information would be severely restricted, included the American Library Association, the Alliance for Taxpayer Access, the Confederation of Open Access Repositories, and the Scholarly Publishing and Academic Resources Association. However, supporters of the RWA legislation included powerful groups such as the Copyright Alliance and the Association of American Publishers.

Some RWA opponents worried that the proposed legislation, if enacted into law, would not only block the sharing of important health-related information (generated by NIH grants), including the public availability of biomedical research results, but could also significantly restrict the sharing of much scientific and academic information in general. Other critics pointed out that taxpayers had already paid once for this research, via their taxes that funded NIH grants; so people who wish to access this information in the future would effectively be required to pay twice because of the proposed new fees. Opponents have also noted that many large (privately owned) publishing companies, who stood to gain financially, were staunch supporters of RWA. It turned out that one of these companies, Elsevier Press, had contributed money to the political campaign for U.S. Congressman Darrell Issa (a cosponsor of the original RWA legislation). This publishing company became the target of an international boycott, described in the following scenario.

► Scenario 8–5: Elsevier Press and “The Cost of Knowledge” Boycott

Elsevier Press is a prestigious academic publisher, headquartered in the Netherlands. Noted for its quality publications in science and mathematics, Elsevier publishes approximately 2,000 journals and roughly 20,000 books. Some of its journals, such as *The Lancet* and *Cell*, are highly regarded. However, many scientists and mathematicians have been displeased with Elsevier's pricing and policy practices, which they believe restrict access to important information. In 2011, distinguished mathematician Timothy Gowers (of the University of Cambridge) organized a formal boycott of Elsevier Press. As of August 2015, the boycott has collected close to 16,000 signatures from scholars around the world; they have signed a petition pledging not to publish in or review manuscripts for Elsevier. The boycott has come to be called “The Cost of Knowledge.”⁴⁵ ■

The boycotters have two major complaints against Elsevier, claiming that it (1) charges excessive prices for its journals and (2) bundles subscriptions for their publications in a way that lesser journals are included together with valuable ones. Because of (1), some academic

libraries cannot afford to purchase important journals. And because of (2), libraries are required to spend a considerable amount of money to pay for many journals they don't want in order to get a few journals they consider essential. So, those college and university libraries that cannot afford the cost of individual Elsevier journals, or the price of the bundled subscription service established by the publisher, are unable to provide their students and professors with access to some important academic publications.⁴⁶

What many of the signatories of this petition also find troublesome is the business scheme used by Elsevier and other leading academic publishers (such as Springer, Wiley, and Informa, who were also later included in the boycott). These publishers depend on scholars to submit their manuscripts for publication and to serve as (peer) reviewers for submitted manuscripts in determining which ones are eventually accepted for publication. Additionally, scholars also organize and guest-edit special issues (on topical themes) for many of these journals. Yet, these contributing scholars typically receive no payment for either their (authored) publications or their reviewing and guest-editing services. While this is generally not a problem for many professors seeking promotion or tenure at their universities—as their professional service can enhance their academic careers—many scientists argue that their published research (which was both freely submitted by them and funded by taxpayer money) should be more generally available to the public.

However, most scholars have virtually no control over how their published work is either disseminated or restricted, because they are typically required to transfer copyright of their work (as we saw in Chapter 8) to publishers such as Elsevier. This means that the publisher and not the author(s), or the taxpayers who helped fund the research, have total control over the publications. As a result, access to these published works can be limited only to large or well-off universities that can pay the high prices charged by Elsevier and other major publishers.

RWA's critics also worried about the profit incentives that drive major publishers. Whereas scholars enjoy having their published work widely accessible, publishing companies are motivated by the corporate profit model. So, restricting access to scholarly papers can work in the publisher's favor by driving up the cost to ensure greater revenue and profit margins. In 2011, Elsevier's revenues were in excess of 3.2 billion dollars (U.S.) and its profit rate was 36%, which is well above the average of many industries.⁴⁷ Elsevier has defended its profits by pointing to its efficient business model. But critics have responded by noting that those profits were significantly subsidized by "free labor" from scholars and by taxpayers who funded the research. In light of the Elsevier boycott and other protests, RWA's cosponsors—Darrell Issa (R-CA) and Carolyn Maloney (D-NY)—announced that they would not proceed with pushing the bill through the formal legislative process. In early 2012, Elsevier also formally withdrew its support for RWA. The publishing company has since claimed, however, that its decision had nothing to do with the boycott.

The Cost of Knowledge boycott is still in effect (as of August 2015, and, as noted earlier, has acquired nearly 16,000 signatories of prominent scholars in multiple academic disciplines). Despite Elsevier's decision to withdraw its support for RWA, however, one thing seems fairly clear: the dispute about whether academic information should be greatly restricted or freely accessible remains hotly contested. One factor that may also influence the future direction of academic publishing is the recent proliferation of "open-access" journals. Just as OSS is freely available to the computer community (as we saw in Section 8.6), open-access journals are freely available to the academic community, as well as to ordinary users. These journals are still relatively new and have not yet earned the reputation of many of the prestigious journals published by Elsevier and other leading academic publishers. So, some skeptics of open-access publishing fear that the quality of the articles published in these journals may not be as high as those in journals using the traditional model. However, the current trend seems to be favoring a movement toward open access, especially as many of these journals are gaining respect

in the academic community. And if this trend continues, it may help to preserve the information commons and thus make scientific- and health-related information more accessible to the general public.

8.8.3 Intellectual Property Battles in the Near Future

We conclude this section and chapter by noting that current IP disputes over digital information seem to be as contentious as ever. Both sides stand prepared to muster their resources for the future battles that inevitably lie ahead. Copyright owners and corporations will no doubt continue to lobby the U.S. Congress for stronger copyright protections. On the other side, academic and library organizations will likely continue to press hard with their objective of keeping online scientific and academic information freely accessible to students and the general public.

One thing that is clearly at stake in the ongoing IP dispute is the future status of the information commons, which as we saw in Section 8.7 appears to be shrinking. We have seen how difficult it can be to strike a balance that is acceptable to both sides in the dispute about digital IP. However, we have argued that if we employ the presumptive principle defended in this chapter—information wants to be shared—in our future policy debates about IP rights vs. the free flow of information, it may be possible to prevent the information commons from further erosion.

► 8.9 CHAPTER SUMMARY

In this chapter, we have examined disputes involving intellectual-property-right claims affecting digital information. In particular, we considered how current IP laws, especially those involving copyright and patents, can be applied to software and other forms of digital media. We saw that three distinct philosophical theories of property have been used to defend our current schemes of legal protection, and we examined some arguments used in the FSF and OSS movements. We also saw that an alternative framework for analyzing property disputes affecting digital media, based on the “common good” approach, suggests that we need to take into account the fact that information’s essential purpose or nature is to be shared and communicated. Ironically, however, we noted that the latest copyright laws, including the SBCTEA and DMCA, restrict the distribution, and thus the sharing, of information. We defended the view that “information is something that needs to be shared and communicated” as a (presumptive) guiding principle that can inform the contemporary debate about IP rights affecting digitized information. We also saw how the Creative Commons initiative provides a scheme that enables us to implement our presumptive principle in the digital world. Finally, we examined three recent legislative proposals that threaten the future of the information commons.

► REVIEW QUESTIONS

1. What is intellectual property?
2. How is intellectual property different from tangible property?
3. What is meant by the expression “intellectual object”?
4. Describe the difficulties that arose in determining whether computer software (as a kind of intellectual object) should be eligible for the kinds of legal protection (i.e., copyrights and patents) that are typically granted to authors and inventors of creative works.
5. Describe some of the key differences in the four legal schemes designed to protect intellectual property: copyrights, patents, trademarks, and trade secrets.
6. What is the SBCTEA, and why is it controversial?
7. What is the DMCA, and why is it controversial?
8. What is the principle of fair use?