

Chapter 7. The Devil in Disney

Patents threaten our economic prosperity. Copyright is less socially damaging than patents. Enriching without reason a few actors, singers or book writers is not as bad as letting millions of people die because some monopolist is not producing enough anti-AIDS pills. The copyright industry itself is also economically insignificant. The entire motion picture and sound recording industry has fewer employees than the IBM Corporation. If we consider all employment in copyright connected industries, we find that industries such as fabricated metal production and transportation equipment manufacturing employ substantially more workers – the “copyright” industry is about on par with the furniture industry in economic importance.

Yet, in a classic case of the tale wagging the dog, the copyright industry manages to threaten our freedom and culture. Copyrights are at least as inefficient, insulting, and unjust as patents are. They are as inefficient as patents, because it is painfully obvious from both theory, historical facts and current data, that we would not lose one iota of artistic and cultural productions if copyright were completely and instantaneously abolished. They are more insulting than patents because the repeated retroactive extensions of copyright terms pushed by the Disney Corporation make a mockery, or a Mickey Mouse if you like, of the U.S. Constitution’s allowance of a “limited Times” for patents and copyrights. They are as unjust as patents because the wealth of copyright protected media stars cries in the face of the embarrassing quality of their products and their phony support for such just causes as fighting pharmaceutical monopolies over AIDS drugs.

Everlasting Copyright

When we left the U.S. publishing industry it was a thriving competitive environment. As is so often the case, the story has a sad continuation when the original innovators grow into fat stagnant monopolists.

A critical shift in the political balance occurred in the 1880s as the older American publishing houses on the east coast began to see their profits eroding in the face of a new generation of mass penny-press publishers, expanding especially in the midwestern states, who undercut their costs and reached yet wider markets. In the face of this challenge

the older houses reshaped their business strategies and their arguments about intellectual property. They now realized that they would be better positioned than the new generation of publishers to sign exclusive copyright agreements with foreign authors that would be enforceable within the United States. The signing of the Berne Convention in Europe in 1886 added further momentum to a shift in the views of major publishing houses like Harper's and Scribner, who recognized the advantage of the movement for American adherence to some form of international agreement, at least with England. American theologians, including the Reverend Isaac Funk, now denounced the "national sin of literary piracy" (which had allowed him to make his fortune on his pirated "Life of Jesus") as a violation of the seventh commandment. And their voices resounded on the floor of Congress. Although Congress refused to sign the Berne Convention on the grounds that American law did not recognize authors' natural rights, in 1891 an international agreement with England for reciprocal copyright protection was finally signed by Congress.

This was the beginning of the everlasting expansion and increase in copyright. The monopolists put further screws to the public with another major revision of the U.S. Copyright Act in 1909. This broadened the scope of categories protected to include all works of authorship, and an extension of term of protection to twenty-eight years with a possible renewal of twenty-eight. Today the length of copyright term is 95 years for works for hire, and the life of the author plus 70 years otherwise. In addition to these enormous increases in the length of copyright term, media lobbyists have succeeded in recent years in enormously increasing the penalties for copyright violations, now a criminal, as well as civil, offense. Additional laws are being pushed, ranging from mandating hardware protection in general purpose computing equipment – something we will describe as a policy blunder – to allowing large media corporations to hack into computers without legal liability – which could better be described as criminal insanity.

We might well begin by asking how well the 1909 revision of copyright worked. Did it increase the rate at which books and other copyrightable new products were produced in the U.S.? Apparently not. Even abstracting from the general increase in literacy over the century and the enlargement in the number of items that are copyrightable (do not forget that, for example, software

products are now copyrighted) the increase in the registrations/population ratio is miniscule in the forty years following the 1909 Copyright Act.

<i>Year</i>	<i>registrations/population</i>
<i>1900</i>	0.13%
<i>1925</i>	0.14%
<i>1950</i>	0.14%

Is this exceptional? No, it is not. We reported earlier the findings of F. Scherer on eighteenth and nineteenth century classical music, showing that the adoption of copyright did not increase and probably reduced the output of classical music composers. Later in this chapter we report more copyright data for the second half of the last century in the USA, and they display the same trendless pattern. More generally, and more plainly, recall that seven years ago the Sonny Bono Copyright Extension Act increased copyright terms of a hefty 40% in one quick legislative shot. Now, consider any normal economic activity, say: the amount of effort you put in your daily work; try thinking of what would happen if the monetary payoff from your effort went up of 40% overnight. Our bet is that you would put a lot more effort in your work, and your company would witness a “productivity explosion” taking place at your desk. Did any one notice an explosion of artistic and cultural creations in the USA, during the last seven years? Did artists, writers and musicians begin to migrate in flocks from everywhere else in the world to the USA, to reap the fantastic benefits of the Bono Copyright Extension? Strangely, if this amazing development took place, both the mainstream and underground media seemed to have missed it.

The Economics of Music

The Recording Industry Association of American (RIAA) produces propaganda ranging from white papers to videos arguing that technological change makes it necessary for the government to intervene to prevent the “piracy” that is killing the industry. Certainly musicians should profit from their creations. But in the current system, does the money from the copyright monopoly go to the musicians, or to the seven major producers who act as middle man and gatekeeper? Courtney Love, a musician, reports the following

This story is about a bidding-war band that gets a huge deal with a 20 percent royalty rate and a million-dollar advance.

(No bidding-war band ever got a 20 percent royalty, but whatever.) ... They spend half a million to record their album. That leaves the band with \$500,000. They pay \$100,000 to their manager for 20 percent commission. They pay \$25,000 each to their lawyer and business manager. That leaves \$350,000 for the four band members to split. After \$170,000 in taxes, there's \$180,000 left. That comes out to \$45,000 per person. That's \$45,000 to live on for a year until the record gets released. The record is a big hit and sells a million copies. So, this band releases two singles and makes two videos. The two videos cost a million dollars to make and 50 percent of the video production costs are recouped out of the band's royalties. The band gets \$200,000 in tour support, which is 100 percent recoupable. The record company spends \$300,000 on independent radio promotion ... which are charged to the band. Since the original million-dollar advance is also recoupable, the band owes \$2 million to the record company. If all of the million records are sold at full price with no discounts or record clubs, the band earns \$2 million in royalties, since their 20 percent royalty works out to \$2 a record. ...

This observation is important. With modern Internet distribution and laptop computer “recording studios” the cost of producing music is quite small – in this case the “successful” professional musicians are earning only about \$45K per year. When creative effort takes place and yet is poorly rewarded the case for intellectual monopoly is weak. Indeed, with modern computers there are a great many creative innovators – lacking perhaps the physical skills and training to play an instrument – or even to read sheet music – who could modify, edit and create great new music on their home computers at trivial cost. The greatest bar to this outpouring of wonderful new innovative music...if you haven't guessed already...is the copyright system itself. We can't create great new music by modifying wonderful old music because all the wonderful old music is under copyright at least until the 22nd century. If we were to abolish copyright today we are confident that the most important effect would be a vast increase in the quantity and quality of music available.

Examples of individual creativity abound. An astounding example of the impact of copyright law on individual creativity is the story of *Tarnation*.

Tarnation, a powerful autobiographical documentary by director Jonathan Caouette, has been one of the surprise hits of the Cannes Film Festival - despite costing just \$218 (£124) to make. After Tarnation screened for the second time in Cannes, Caouette - its director, editor and main character - stood up. [...] A Texan child whose mother was in shock therapy, Caouette, 31, was abused in foster care and saw his mother's condition worsen as a result of her "treatment." He began filming himself and his family aged 11, and created movie fantasies as an escape. For Tarnation, he has spliced his home movie footage together to create a moving and uncomfortable self-portrait. And using a home computer with basic editing software, Caouette did it all for a fraction of the price of a Hollywood blockbuster like Troy. [...] As for the budget, which has attracted as much attention as the subject matter, Caouette said he had added up how much he spent on video tapes - plus a set of angel wings - over the years. But the total spent will rise to about \$400,000 (£230,000), he said, once rights for music and video clips he used to illustrate a mood or era have been paid for.

Yes, you read this right. If he did not have to pay the copyright royalties for the short clips he used, Caouette's movie would have cost a thousand times less.

This brings us to what the RIAA and the debate over "intellectual property" is all about. It is not about the right to the fruits of one's own labor. It is not about the incentive to create, innovate or improve. It is about the "right" to preserve an existing way of doing business. In this we agree with Robert Heinlein's fictitious judge:

There has grown up in the minds of certain groups in this country the notion that because a man or corporation has made a profit out of the public for a number of years, the government and the courts are charged with the duty of guaranteeing such profit in the future, even in the face of changing circumstances and contrary to public interest. This strange doctrine is not supported by statute or common law. Neither individuals nor corporations have any right to come into court and ask that the clock of history be stopped, or turned back.

Not only is the business model that copyright has created inefficient and unjust, it is also corrupt. Naturally, every industry has its scandals, and competitive firms are not necessarily run by

angels. The fact is, though, that monopoly power breeds bad habits, and nowhere more than in the music industry has corruption become essential and endemic. You have probably heard of “Payola”, a contraction of the words “pay” and “Victrola.” It refers to the traditional payment of cash or gifts in exchange for airplay of music selections on the radio. The first Payola case to be brought to court dates back to May 1960, when disk jockey Alan Freed was indicted for accepting \$2,500 to play some tunes; he was fined and released. Forty-five years later, it is no longer a matter of small time radio disk jockeys and symbolic fines. On July 26, 2005, New York Attorney General Eliot Spitzer indicted Sony BMG of bribing radio stations on a large and systematic scale to play the tunes Sony BMG wants to promote. Sony BMG, apparently, has agreed to pay a ten million dollar settlement. How does “corporate monopolist payola” work? Here is a description, posted on the web quite a while before Spitzer’s indictment of Sony BMG.

There are ways around the laws. The newest one is to make a song an ad. Here is an example. The D.J. announces something like “Here is Avril Lavigne's Don't Tell Me, presented by Arista Records.” That announcement makes the paid-for song an advertisement, and technically not a violation of any laws against payola. During just one week in May, WQZQ FM in Nashville played that song 109 times. On a single Sunday, WQZQ played that song 18 times, with as few as 11 minutes between airings of it. Garrett Michaels, program director of San Diego rock station KBZT has said, “Basically, the radio station isn't playing a song because they believe in it. They're playing it because they're being paid.” This is payola plain and simple. According to an article by Jeff Leeds of the Los Angeles Times, all five major record corporations have at least dabbled in the sales programs, industry sources said, with some reportedly paying as much as \$60,000 in advertising fees to promote a single song. [...] Nothing has really changed. If you want your song played on the radio, you better cough up dough, and a lot of it. Once you stop paying, your song will be dropped from play lists. [...] It is yet another corrupt practice of the recording and radio industries that we are angry about. It exploits artists and shortchanges fans, but more than that, it is a waste, especially when there is another method of promotion that works just as well, if not better, and is free: File trading networks. To paraphrase today's youth: radio is old and busted, file trading is the new hotness.

The Digital Millenium Copyright Act

The latest outrage of the large media corporations has been the Digital Millenium Copyright Act of 1998 (DMCA). This resulted from a heavy lobbying effort in which these large corporations claimed as usual that they must run twice as fast just to stand still – and in particular that digital media – from which they earned no revenue at all 20 years earlier – are uniquely prone to piracy.

The most offensive feature of the DMCA is section 1201, the anti-circumvention provision. This makes it a criminal offense to reverse engineer or decrypt copyrighted material, or to distribute tools that make it possible to do so. On July 27, 2001, Russian cryptographer Dmitri Sklyarov had the dubious honor of being the first person imprisoned under the DMCA. Arrested while giving a seminar publicizing cryptographical weaknesses in Adobe's Acrobat Ebook format, Sklyarov was eventually acquitted on December 17, 2002.

The DMCA has had a chilling effect on both freedom of speech, and on cryptographical research. The Electronic Frontier Foundation (EFF) reports on the case of Edward Felten and his Princeton team of researchers

In September 2000, a multi-industry group known as the Secure Digital Music Initiative (SDMI) issued a public challenge encouraging skilled technologists to try to defeat certain watermarking technologies intended to protect digital music. Princeton Professor Edward Felten and a team of researchers at Princeton, Rice, and Xerox took up the challenge and succeeded in removing the watermarks.

When the team tried to present their results at an academic conference, however, SDMI representatives threatened the researchers with liability under the DMCA. The threat letter was also delivered to the researchers employers and the conference organizers. After extensive discussions with counsel, the researchers grudgingly withdrew their paper from the conference. The threat was ultimately withdrawn and a portion of the research was published at a subsequent conference, but only after the researchers filed a lawsuit.

After enduring this experience, at least one of the researchers involved has decided to forgo further research efforts in this field.

The EFF goes on to catalog a variety of abusive DMCA threats, largely by corporations eager to avoid having their dirty laundry aired in public, against various private individuals and organizations. One common use of the DMCA is to threaten researchers who reveal security flaws in products. Another notable use is that of the inkjet printer makers, who use the DMCA to threaten rivals making compatible replacement cartridges.

The second obnoxious feature of the DMCA is the “takedown” notice. The DMCA creates a safe harbor for Internet Service Providers (ISPs) whose customers post copyrighted material. To qualify for this safe harbor provision, however, the ISPs must comply with “takedown” notices – basically claims from individuals who purport to hold a copyright over the offending material. Needless to say, such a provision may easily be abused, and has a chilling effect on free speech. The best illustration is the recent case of Diebold. Diebold makes computerized voting machines, now used in various local, state and national elections. Unfortunately, it appears from internal corporate documents that these machines are highly insecure and may easily be hacked. Those documents were leaked, and posted at various sites on the Internet. Rather than acknowledge or fix the security problem, Diebold elected to send “takedown” notices in an effort to have the embarrassing “copyrighted” material removed from the Internet. Something more central to political discourse than the susceptibility of voting machines to fraud is hard to imagine. To allow this speech to be repressed in the name of “copyright” is frightening.

The DMCA also allows large media corporations to issue subpoenas with only cursory oversight by a court clerk. These subpoenas have been used to identify individuals who are alleged to make copyrighted material available on P2P networks, and are the basis for various lawsuits currently being brought by the RIAA against various 13 years olds and their families. Needless to say, this type of subpoena power is also easily abused: one pornography site has used the subpoena provision in an effort to learn the identity of its customers so that it could blackmail them.

Finally, there is *Grokster* case. A number of entertainment companies, lead by MGM, have brought a lawsuit against the makers of a large array of software products. Most important among them is Grokster, whose P2P software is widely used for all kind of file sharing, including obviously the sharing of music and video files. MGM and its co-conspirators argue that because the software used by Grokster is used to do something unlawful, Grokster

should be directly held liable for such usage. Imagine how this would work in the automobile industry. Ford makes cars, cars are sometime used to rob banks, and a lot more often to drive while drunk or intoxicated. Because both these, and other activities carried out using cars, are unlawful, Ford Motor Co. should be liable for such crimes. In its rulings the courts have placed a great deal of weight on intent – do the makers of P2P software intend to encourage illegal usage? Of course, we can raise the same issue with respect to automobiles. In the U.S. the highest speed limit is 75 miles per hour. Apparently, the only reason to build cars that can go faster than that must be to break the law. So, should automobile makers suffer the penalties every time that speed limit is violated? It is extremely dangerous to innovation and prosperity to hold the distributor of a multi-purpose tool liable for the infringements that may be committed by end-users of the tool.

Until March 2005, MGM and its co-Torquemadas had not had much luck with our court system; then, unfortunately, our pro-monopoly Supreme Court was brought into the picture, and things are now looking somewhat different. We quote from Wikipedia, which briefly and clearly summarizes the facts

In April 2003, Los Angeles federal court judge, Stephen Wilson, ruled in favour of Grokster and Streamcast [...] against the Recording Industry Association of America and the Motion Picture Industry and held that their file sharing software was not illegal. On 20 August 2003, the decision was appealed by the RIAA and the MPPA. On 17 August 2004, the United States Court of Appeals for the Ninth Circuit issued a partial ruling supporting Grokster, holding “This appeal presents the question of whether distributors of peer-to-peer file-sharing computer networking software may be held contributorily or vicariously liable for copyright infringements by users. Under the circumstances presented by this case, we conclude that the defendants are not liable for contributory and vicarious copyright infringement and affirm the district court's partial grant of summary judgment.’

In December 2004, the Supreme Court agreed to hear the case. [...] Oral arguments were held for MGM v. Grokster on 29 March 2005, and in June 2005, the Court unanimously held that Grokster could indeed be sued for infringement for their activities prior to the date of this judgement.

Notice, and it is not a minor detail, that the Supreme Court has ruled that Grokster could be sued, not that it is to be held liable for the use

of its software. The legal details of the ruling are, in this case, quite relevant and interpreting, as someone did, the Supreme Court ruling as a final sentence against innovative software producers and in favor of the big monopolies is going a bit too far. More precisely, both sides were asking for a summary decision. MGM and friends wanted the Supreme Court to say that peer-to-peer applications were not protected by its previous decision in the Sony Betamax case. Grokster and the other P2P producers, on the other hand, were asking for a summary judgement saying that, because there are files available to share legally the software producing companies cannot possibly be liable for illegal use of their legally distributed products. To us, as you may expect, the latter is the only position that makes sense; but that is another story. The Supreme Court did not satisfy either request, and ruled instead that

We hold that one who distributes a device with the object of promoting its use to infringe copyright, as shown by clear expression or other affirmative steps taken to foster infringement, is liable for the resulting acts of infringement by third parties.

Meaning, if you can prove, in a lower court, that Grokster and the other software producers are intentionally distributing their products to foster infringements of the law, then they are liable.

When you put it this way, the Supreme Court ruling sounds reasonable and balanced. Unfortunately the law never works that way. Mark Cuban – a media entrepreneur and owner of the Dallas Mavericks basketball team summarizes the problem

It won't be a good day when high school entrepreneurs have to get a fairness opinion from a technology oriented law firm to confirm that big music or movie studios won't sue you because they can come up with an angle that makes a judge believe the technology might impact the music business. It will be a sad day when American corporations start to hold their US digital innovations and inventions overseas to protect them from the RIAA, moving important jobs overseas with them. [...] It doesn't matter that the RIAA has been wrong about innovations and the perceived threat to their industry, EVERY SINGLE TIME. It just matters that they can spend more then everyone else on lawyers. That's not the way it should be. So, the real reason of this blog. To let everyone know that the EFF and others came to me and asked if I would finance the legal effort against MGM. I said yes. I would provide them the money

they need. So now the truth has been told. This isn't the big content companies against the technology companies. This is the big content companies, against me — Mark Cuban and my little content company. It's about our ability to use future innovations to compete vs their ability to use the courts to shut down our ability to compete. It's that simple.

Freedom of Expression

The DMCA is not just a threat to economic prosperity and creativity, it is also a threat to our freedom. This sounds all so cliché and exaggerated – a kind of “very leftist college kids” over-reactive propaganda. In keeping with this tone here is a college story about how the DMCA helps teach our future generations about the first amendment.

Last fall, a group of civic-minded students at Swarthmore [... came] into possession of some 15,000 e-mail messages and memos – presumably leaked or stolen – from Diebold Election Systems, the largest maker of electronic voting machines in the country. The memos featured Diebold employees' candid discussion of flaws in the company's software and warnings that the computer network was poorly protected from hackers. In light of the chaotic 2000 presidential election, the Swarthmore students decided that this information shouldn't be kept from the public. Like aspiring Daniel Ellsbergs with their would-be Pentagon Papers, they posted the files on the Internet, declaring the act a form of electronic whistle-blowing. Unfortunately for the students, their actions ran afoul of the 1998 Digital Millennium Copyright Act (D.M.C.A.), [...] Under the law, if an aggrieved party (Diebold, say) threatens to sue an Internet service provider over the content of a subscriber's Web site, the provider can avoid liability simply by removing the offending material. Since the mere threat of a lawsuit is usually enough to scare most providers into submission, the law effectively gives private parties veto power over much of the information published online -- as the Swarthmore students would soon learn.

Not long after the students posted the memos, Diebold sent letters to Swarthmore charging the students with copyright infringement and demanding that the material be removed from the students' Web page, which was hosted on the college's server. Swarthmore complied. [...]

Well, the story did not end there, nor did it end that badly. The controversy went on for a while. The Swarthmore students held their ground and bravely fought against both Diebold and Swarthmore. They managed to create enough negative publicity for Diebold, and for their oh so progressive liberal arts college, that Diebold eventually had to back down and promise not to sue for copyright infringement. Eventually the memos went back on the net.

All's well what ends well? When the wise man points at the moon, the idiot looks at the finger.

Copyright Extension

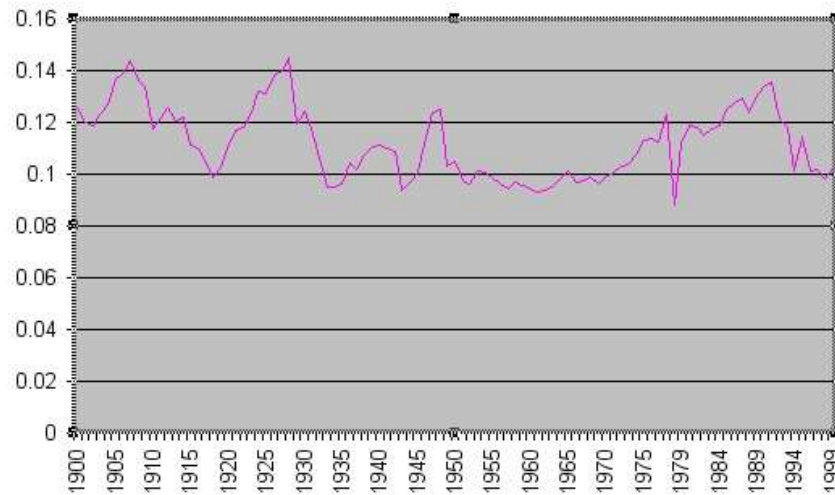
While vigorously defending their “property” the big media corporations are busily grabbing yours. The biggest land grab in history is the Sonny Bono Copyright Term Extension Act of 1998 (CTEA). This remarkable piece of legislation not only extended the term of copyright by 20 years for new works but also retroactively to existing works. Since both economic logic and the U.S. Constitution encourage copyright only to the extent it promotes the production of literary and other copyrightable works, the stupidity of this is pretty self-explanatory. Extending the length of copyright for works that are already produced can scarcely make them more likely to be produced. The goal of this legislation is, of course, not to increase creativity. What it means is that all the books, music, and movies that you purchased with your hard earned money, and which you would have owned outright when the copyright expired, have instead been grabbed by the big media corporations. While serving no good economic purpose, for someone whose copyright is about to expire, a term extension is a nice Christmas bonus.

Even for new works, this copyright extension provides practically no additional incentive. Because the copyright term was already quite long, the future benefits to authors from an extension in the distant future is quite small. As a number of prominent economists explained

The twenty years of copyright term added by the CTEA provide a flow of additional benefits that is very far into the future, and hence very small in present value. To illustrate, suppose that an author writes a book and lives for thirty more years. In this case, under the pre-CTEA copyright regime, the author or his assignee would receive royalties for eighty years. If the interest rate is 7%, each dollar of royalties from year eighty has a present value of \$0.0045. Under the CTEA, this same author will receive royalties for

one hundred years. Each dollar of royalties from year one hundred has a present value of \$0.0012. In this example, the present value of total additional revenues under the CTEA can be calculated by adding up the present values of revenues from year eighty-one through year one hundred. Suppose that the work produces a constant stream of revenues, and assume once again that the interest rate is 7%. In this case, the present value of the total return from years eighty-one to one hundred is 0.33% of the present value from years one to eighty. Put differently, under these assumptions, the additional compensation provided by the CTEA amounts to a 0.33% increase in present-value payments to the author, compared to compensation without the twenty-year term extension.

But why stop at the theory? Beginning in 1919, the length of copyright has been continually extended. At the turn of the century it was 28 years and could be extended for another 14. Prior to the Sonny Bono/Mickey Mouse Act of 1998 it was 75 years for works for hire, and the life of the author plus 50 years otherwise. So the length of copyright term roughly doubled during the course of the century. (Today it is 95 years for works for hire, and the life of the author plus 70 years otherwise.) If this approximate doubling of the length of copyright encouraged the production of additional literary works, we would expect that the per capita number of literary works registered would have gone up. Below is a graph of the number of literary copyrights per capita registered in the United States in the last century. Apparently the theory works. As predicted, the various copyright extensions have not led to an increase in the output of literary work.



The U.S. Constitution allows copyright only for limited times, and then only to promote the progress of science and the useful arts, and the retroactive extension clearly violates both of these provisions. After the copyright extension act was passed, it was challenged in court on these constitutional grounds. Surprisingly to some, justices who have argued that they take the literal meaning of the constitution seriously ruled that an unlimited time is in fact a limited time. During the lawsuit, interesting information about the social cost of the copyright extension emerged.

Some numbers will put this change in context. Between 1923 and 1942, there were approximately 3,350,000 copyright registrations. Approximately 425,000 (13%) of these were renewed. The Congressional Research Service (CRS) estimated that of these, only 18%, or approximately 77,000 copyrights, would constitute surviving works that continue to earn a royalty. The annual royalties for one segment of those surviving works, books, music, and film ... will be, CRS estimates, approximately \$317,000,000 because of CTEA, the public will both have to pay an additional \$317 million annually in royalties for the approximately 50,000 surviving works, and be denied the benefits of those and 375,000 other creative works passing into the public domain in the first 20 years alone. (Today, the proportions would be far more significant, since there is no renewal requirement that moves over 85% of the works copyrighted into the

public domain. Under current law, 3.35 million works would be blocked to protect 77,000.)

Most of the arguments for retroactive copyright extension during the course of the Congressional hearings were along the lines that mentally limited offspring of great artists, such as Gershwin, were incapable of earning a living except by hawking the works of their great predecessor. The only intellectual argument offered was that works under copyright will be more widely available than those that are not. From a theoretical point of view this is a strange argument, since monopolies do not profit by making things more widely available.

But again, we see no reason to limit ourselves to the theory. Edgar Rice Burroughs, the well-known author of *Tarzan* wrote a number of lesser known pulp fiction series. Depending on the dates, some are still under copyright, some not, so we can determine which are more widely available. The data below was gathered September 3, 2002; it shows pretty clearly that a work being out of copyright means it is more widely available, and in many more forms.

Mars Series Out of copyright	Mars Series Under copyright	Venus Series Under copyright
#1 Princess of Mars (1917) available on Amazon 5 star user rating electronic version original magazine version illustrated html version	#6 Master Mind of Mars (1928) out of print	#1 Pirates of Venus (1934) available on Amazon 5 star user rating
#2 Gods of Mars (1918) available on Amazon 4 star user rating electronic version original magazine version illustrated html version	#7 Fighting Man of Mars (1930) out of print	#2 Lost on Venus (1935) out of print
#3 The Warlord of Mars (1919) available on Amazon 5 star user rating electronic version original magazine version illustrated html version	#8 Swords of Mars (1936) out of print	#3 Carson of Venus (1939) out of print

#4 Thuvia, Maid of Mars (1920) available on Amazon 4 star user rating electronic version	#9 Synthetic Men of Mars (1940) out of print	#4 Escape on Venus (1946) out of print
#5 Chessmen of Mars (1922) available on Amazon 5 star user rating electronic version	#10 Llana of Gathol (1948) out of print	#5 Wizard of Venus (1963) out of print

From Policy Error to Policy Blunder: Mandating Encryption

Some policies, such as the retroactive extension of copyright, are bad policies, because the social cost exceeds corresponding benefit. Other policies have potential benefits that are orders of magnitude smaller than their potential costs. We would describe these types of policies as not merely bad policies, but as policy blunders. Simply put, in the face of uncertainty, it is important that the potential losses from being wrong bear some sensible relationship to the potential gains from being right; when they do not then you are not taking the chances of making a policy mistake, you are taking your chances at a real policy blunder.

The various proposals that the government should require computer manufacturers to install a special chip to prevent the “piracy” of copyrighted material constitute a major policy blunder. Such a chip is sometimes called a “Fritz chip” in honor of Fritz Hollings, the Democratic Senator from North Carolina (some would say Disney), who repeatedly introduced legislation to this effect. It turns out that threatening the entire computing industry to possibly protect digital music and movies cannot be a good idea. It is, as we said, a policy blunder.

A flavor of these efforts is given by the preamble to one of the recent bills, known as the CBDTPA

A BILL To regulate interstate commerce in certain devices by providing for private sector development of technological protection measures to be implemented and enforced by Federal regulations to protect digital content and promote broadband as well as the transition to digital television, and for other purposes.

Talk about the tail wagging the dog: the entire computer industry is apparently to be threatened for the important purpose of promoting broadband TV. At least the BILL makes no bones about what it is about: as consumers are unwilling to pay for the devices needed to play media content in a form in which the content providers wish to supply it, the BILL will simply force them to do so. The key point is that these devices may not work as advertised – or worse yet may malfunction and cause computers to lose data. The loss from such a malfunction bears no sensible relationship to the value of copyrighted content that is being “protected.”

There are many foolish details in the various bills proposed so far, which will no doubt be replicated in yet further efforts at legislation. Although we do not believe that current copyright legislation, especially the length of term, makes sense, even if we did, would it make sense to mandate by law copy protection on general purpose computing devices?

Tape recorders and DVD players single purpose devices designed to play media content. Any harm done through copy protection is largely limited to the value of the material that is supposed to be protected. That is, the harm of DVD players that don't work is limited to the economic value of DVDs. By way of contrast, if general purpose computing devices fail to operate properly on account of copy protection, the harm is potentially equal at least to the economic value of computers and the data they store – a value that greatly exceeds the value of the material that is supposed to be protected.

To get some idea of the importance of the “intellectual property” versus the computer industry, some numbers. According to the RIAA, the value of all CD's, live presentations, music videos, and DVDs in 1998 in the U.S. was \$13.72 billion. According to the SOI, in 1998 the business receipts of the computer and electronic product manufacturing including both hardware and software was \$560.27 billion. In other words, the computer industry has an economic value over 40 times as large as that of the “copyright” industry. Indeed, IBM's sales in 2000 alone were \$88 billion – over six times the size of the entire U.S. “copyright” market.

Notice, however, that while music market revenues are a reasonable indication of the value of music players, the potential loss of data from malfunctioning computers can greatly exceed the revenues of the industry. A recorded CD containing some music can hardly contain other materials and its economic value is therefore equal to the value of the music it contains. A PC, not to speak of a business mainframe, stores the product of hundreds, or even tens of

thousands, of valuable hours of work – personal records, programs, business accounts, personal software and on and on. If a PC stops functioning, say because its hard disk is wiped out by some malfunctioning copy protection device, the value of those thousands of hours of work is gone. Think of a mainframe for some large business company becoming dysfunctional even for a few hours or days. Millions of dollars of valuable services would be lost. It is this kind of comparison which should be kept in mind. Forcing the installation of copy protection devices on all our computers would force each of us, consumers and businesses alike, to live with the continuous threat of such gigantic loss. The music and movie industries, whose monopolistic interests the proposed piece of legislation aims to protect, are most certainly not willing or able to compensate us in case of such a disaster.

Let us examine the idea of copy protection, also known as “Digital Rights Management” or DRM in more detail. There are two distinct types of copy protection schemes. One type of scheme is “advisory” in the sense that media is simply labeled as protected, and “authorized” players refuse to copy material that is protected. The Serial Copy Management (SCM) system mandated by law for digital audio tapes is an example of such a scheme, as is the more recent “broadcast flag” for television. “Advisory” schemes are easy to implement, but they are ineffective if not mandated by law, since there is no reason to buy software or hardware that respects the advice.

The second type of scheme encrypts content, and only software that knows the relevant algorithms and keys can unlock the encryption. An example of such a scheme is DVD encryption. Until the scheme was cracked, it was impossible to play a DVD without an authorized player. Encryption schemes do not require legal enforcement to be effective: media companies simply need to provide material in a format that cannot be played without a player that they authorize. Encrypted material can also be linked to a particular computer or device. This is the case with Windows XP, for example. So even trading encrypted material can be foiled by a carefully designed scheme. Notice also that under the Digital Millennium Copyright Act (DMCA) it is already illegal to crack these schemes.

Encryption schemes are widely used for video game players. They require special software which resides only on consoles (produced and commercialized by the same company which manufactures the games) in order to be played. When you buy one such game you are aware that, without access to the specific

additional tool, you will not be able to play it. The market for video games works well without any mandatory legislation. Those consumers that like video games enough to pay also for the console buy the latter, those that do not, do not. Some people buy a video game without owning a console or planning to buy one. Evidently they rely on the kindness of acquaintances and friends to play the games on their borrowed machines. Should the federal government step into this market and mandate that anyone who buys a video game should also purchase the player to play it? This sounds insane, as we are all used to the current arrangement and understand it works quite well. Obviously there is no end to such insane possibilities for government regulation. For example – DATs are not selling very well – why doesn't the federal government pass a law specifying that everyone that buys a CD player must also buy a DAT recorder?

A key fact about legally mandating a copy protection scheme is that it requires everyone to bear the cost, regardless of whether they would choose to do so or not. For example, businesses use a substantial fraction of all general purpose computers, including all mainframes and supercomputers. It is hard to imagine many businesses would voluntarily purchase expensive and unreliable devices for their computers so that employees could spend their time at work watching copyrighted movies. Clearly it is economic nonsense to require them to do so.

Encryption schemes are pervasive and extremely common, despite not being mandated by law. In fact, some of them are so familiar to us we do not even realize we are using them. So, for example, most rock bands sing in English and people in countries in which English is not the mother tongue have to learn English, at some cost, if they want to appreciate the lyrics. Nevertheless, the French government, for example, does not legislate that French consumers purchasing music with English lyrics should also pass a mandatory TOEFL test. They are intelligent enough to understand that, if their citizens are happy just listening to the music and mumbling some distorted English word, then they should be permitted to do so.

Academic economists, such as the authors of this book, are also producers of copyrighted materials and have, in fact, adopted an encryption scheme. We write our research articles in jargon, using a large amount of mathematical symbols and formulas. This encryption is very effective: the content of our research is accessible only to people that are willing to invest enough resources to acquire the skills needed to break the mathematical code. As a matter of

fact, those skills can be acquired (in general) only by purchasing the services of academic economists, that is by enrolling in and successfully completing, a Ph.D. program in economics. Certainly, we would be most happy if the federal government decided to make a Ph.D. in Economics mandatory for anybody who purchases an economic book or journal or, (why not?) downloads a paper from an academic site. Nevertheless, we very much doubt this would be in the national interest. Unfortunately, the American Economic Association is not, yet, as powerful a lobby as the music and video industries, so it is unlikely that some benevolent congressman will ever propose such a doubtful piece of legislation.

Despite the fact that encryption schemes work well without legal protection, the monopolist naturally prefers the scheme be legally mandated. Otherwise profits are reduced by the cost of the device. However: the cost of the device is part of the social cost of producing music and movies. By assumption, without the device the music will not be produced. Hence, by making the purchase of the device mandatory, we actually subsidize the monopolist by taxing the consumers. The latter must pay for the cost of the device, and still pay the monopolist the full value of the music they then purchase. The mandatory device results in a transfer to the monopolist from the consumers. This is the redistributive effect. This redistribution, by altering the price at which the monopolist can sell the music, also induces an economic inefficiency: music is now “overpriced” and the monopolist has an incentive for overproducing it.

Overproducing a few songs and over rewarding a monopolist by subsidizing the cost of an encryption device may seem like a small matter. However the social cost of mandating a device is not merely the fact that too many songs are produced. More seriously, consumers for whom it is not socially optimal to purchase the device are forced to bear the cost of the device. This social cost may be very large: in the case of mandating protection for general purpose computing devices, we would think of this as including the entire business market for computers. By way of contrast, the social benefit is fixed regardless of the social cost of mandating the device. Because the potential benefit (protecting the “copyright” industry) is quite small relative to the potential cost (destroying the 40 times larger IT industry), we would describe a legally mandating a content protection scheme as not merely a policy mistake, but as a policy blunder.

Even encryption schemes can be cracked. An example is the DVD encryption, which was cracked when an authorized but

carelessly written piece of software revealed the encryption keys. It is also the case that the encryption schemes used by video game players have been widely cracked. Sometimes hardware add-on devices – the so-called “mod-chips” are used to physically undo the encryption. In other cases software flaws are exploited to hack into the device. This points out two important facts: first no encryption works perfectly forever. Second, the video games are produced and sold profitably despite the fact that the encryption is eventually cracked. No matter how much the video game manufacturers may dislike it, their business is scarcely threatened by the “mod-chips.”

Should encryption schemes be legally protected as with the DMCA? The substantial costs of the DMCA and the fact that occasional cracking of encryption scarcely poses a threat to the copyright industry argues it should not. Worse, the only really effective legal protection against cracking encryption schemes is a draconian legal mandate that prevents software from even examining encrypted material without authorization.

How would it be possible to prevent unauthorized software from even looking at encrypted material, given that it is transmitted over the Internet and stored on hard disks? It would not be easy, obviously. At a minimum, it would require a complete rewriting of operating systems, and it would require computers that would only load “authorized” operating systems. The reason is that the operating system would have to check every program loaded, and make sure that the program is authorized to see encrypted data. The Microsoft x-box uses such a scheme. The difficulty of implementing such a scheme can be seen in the fact that the scheme Microsoft implemented in their x-box hardware has in fact been successfully cracked and has a number of known security flaws. The simple fact is that although people prefer not to have their computer broken into by hackers, and attacked by viruses, no one has yet produced an operating system immune to attack. No less a government agency than the NSA is working on a secure system. The level of success attained may be judged by the fact that they are now proposing to set up a new network not connected to the internet at all, solely for the use of secure government transactions.

So if hardware and software together with the eager cooperation of the computer user have proven inadequate to protect content that the owner wants protected: what chance has a media company of protecting content on someone else’s computer that the computer owner does not want protected? Indeed, this goes to the technical weakness of all copy protection schemes – at some point the purchaser will want to see the music or watch the video. What

human being can hear or see, technology can record. So what is to be next? Mandatory copy protection for microphones? If a microphone detects a special “copyright watermark” will it refuse to record the offending material? So we can’t make home movies if our neighbor is playing loud copyrighted music next door...

There are other problems worth noting. For example government agencies ranging from intelligence agencies to the police will have to have the capability of cracking codes. It is foolish to think that these agencies are immune to corruption. More generally, security must protect against the weakest link. The weakest link in many copy protection schemes is the human one: it is all too easy to bribe someone to bypass the protection; this has been the major source of newly released (or unreleased) movies leaking onto the Internet. Human error is a problem more broadly. Software can fail in its intended purpose. The DVD encryption scheme was cracked because of human error in the writing of software. The x-box was cracked because of a bug in a game authorized and certified by Microsoft.

Finally, it is extremely likely that a legally mandated system would be abused. So far large corporations have exhibited little regard for such concerns as consumer privacy, and have accidentally given up such minor bits of information as people's credit card numbers and social security numbers.

Rent Seeking and Taxes

Intellectual monopolists have many tricks to get the government and public to pay their bills. In case you are still capable of being astounded by the greed and chutzpah of the media industry, we submit the following. Canada levies a tax on blank media such as CD-R's and CD-RWs, using the proceeds of the tax to pay copyright holders for the presumed copying of their material onto these media. On January 1, 2001, the Canadian Copyright Board increased the tax from 5.2 cents to 21 cents per disk. Brian Cheter, a spokesperson for the Board in Toronto, described the new tariff as a valuable measure that protects artists. He described it as a pre-emptive measure to recoup losses from “piracy” and the peer-to-peer exchange of music. Notice the perversity: you tax a general purpose item such as CDs that has many functions beside storing copying music in order to “enforce” some monopoly rents. Since the disks purchased in bulk only cost about 60 cents each (without the tax), the tax is pretty hefty. And now the chutzpah: the music producers are trying to prevent downloading of music in Canada,

even as they collect the revenue from the tax designed to compensate them for this “piracy.”

Notes

According to the 1997 Economic Census, the “Motion picture & sound recording industries” which includes not only motion picture and television production – but also music and sound recording - employs 275,981 paid employees. By way of contrast, IBM alone employs over 300,000 people. The publishing industry is quite a bit larger with 1,006,214 paid employees – but many of these (403,355) are in newspaper publishing – which receives practically no protection from copyright. If we use the MPAA’s exaggerated estimate that the motion picture industry employs 580,000 and add in the entire publishing industry, we get 1,586,214 employees. Looking at manufacturing we find that the fabricated metal product manufacturing, computer and electronic product manufacturing, and transportation equipment manufacturing industries all employ more workers. Looking more realistically at the industries that benefit from copyright, we add the 275,981 workers in motion picture and sound recording to the 336,479 publishing workers that do not work for newspapers or publish software to get an estimate of 612,460 workers – this is a tiny fraction of the U.S. workforce, and about the same number of workers employed, for example, in the furniture industry.

The historical quotation describing how the American publishing industry stopped being competitive is from Surowiecki [2003]. The information, and the quotation, about the movie “Tarnation” were gathered online from BBC News, Tuesday 18 May, 2004, the article was by Ian Youngs, BBC News Online correspondent in Cannes

Mark Cuban’s views on the Grokster case, from which we quoted, can be found at www.blogmaverick.com/entry/1234000230037801/, while the Swarthmore’s students learning of the impact of the DMCA on the first amendment is drawn from Boynton [2004].

Information about the Diamond Rio lawsuit can be found at www.wired.com/news/business/0,1367,16586,00.html; for information about Napster go to grammy.aol.com/features/0130_naptimeline.html. The 40 million current users figure is from www.usatoday.com/tech/webguide/internetlife/2002-10-14-p2p-swapping_x.htm.

The quotation from Courtney Love is from her speech at Digital Hollywood online entertainment conference in New York on

May 16, 2000, published by Salon.com and retrievable at dir.salon.com/story/tech/feature/2000/06/14/love/index.xml.

Much of the discussion of the DMCA is drawn from the Electronic Frontier Foundation [2003]. The quotation explaining the limited incentive effect of a 20-year copyright extension is from the Akerloff et al [2002].

The copyright data is from the annual registrations reported in www.copyright.gov/reports/annual/2000/appendices.pdf. Since 1909, non-literary works were also covered by copyright. However, the next appendix in the same source gives a breakdown of copyrighted works by category for the year 2000 at which time literary works are 46.3% of the total. Assuming that the number of non-literary works increased linearly at a fraction of the total from 1909 to 2000 should provide a high degree of accuracy in the early and late parts of the century, and a decent estimate in the intervening mid-century. In 1976 the starting date of the fiscal year was changed. Hence the 4 month long fiscal “year” 1976 consists of a weighted average of 1976 and 1977, with weights 1.0 and 0.67. The strange decrease in registrations in 1976 is due to switching the starting date of the fiscal year; the downward spike represents a “year” that is only 4 months long. Population data is from www.census.gov/population/estimates/nation/popclockest.txt

Sales data on recorded music and DVDs is from www.riaa.com/pdf/md_riaa10yr.pdf. At one time the RIAA regularly published a useful account of industry data. Since becoming obsessed with piracy, they no longer do so, apparently fearing that it might undercut their propaganda. George Ziemann has decided he is not going to let their propaganda unchecked and properly debunked. At www.azoz.com you can find abundant, and economically excellent, analysis of the RIAA sales, pricing, and revenue figures, separating the 99% propaganda from the 1% of facts.

The quotation in *Eldred vs. Ashcroft* is from eon.law.harvard.edu/openlaw/eldredvashcroft/cert-petition.html.