THE UNSUSTAINABILITY OF COPYRIGHT

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Submitted in partial fulfillment of the requirements for the degree of

MSc

in *Science and Technology Policy*

Science Policy Research

University of Sussex

August 2003

"Information wants to be free because it has become so cheap to distribute, copy, and recombine -- too cheap to meter. It wants to be expensive because it can be immeasurably valuable to the recipient."

Stewart Brand

The Media Lab: Inventing the Future at M.I.T., p. 202

(New York: Viking Penguin Inc., 1987)

Acknowledgments

I have benefited greatly from the advice and support of several individuals while producing this work. In particular, I am very grateful to my dissertation adviser, Ed Steinmueller, for the advice that he provided throughout the process of writing, as well as for the reading of previous drafts of this paper and providing many essential comments and insights. Many thanks also to Hilde Uytterschaut and Jan Vandewege for their support. Special thanks to April Kuehnhoff for her advice on the drafts of this work and the many indispensable comments. Finally I want to express a word of gratitude for the writings of Ross Anderson, Lawrence Lessig, Jessica Litman and Richard Stallman, and the many other authors referenced in the bibliography. Without them, this work would have been impossible.

Summary

Humans are creators. In order to ensure that as many creative works as possible are available to society at large, a compensation mechanism for creators was instituted in law: copyright. Copyright was intended as a careful balance between the rights of the public, and the desire for compensation of creative authors. It gives authors a temporary monopoly on certain uses of their creative works. Unfortunately, 300 years of copyright evolution have brought us to the point where the law is severely out of touch with reality, and the balance has been lost. New copyright legislation is being introduced in response to the advance of technology, making the gap between reality and the law even bigger. This situation is unsustainable and, as such, an opportunity for constructive reform.

This thesis looks in detail at the current state of copyright, and how it is evolving. It then goes into why copyright law is unsustainable in today's society. Finally two future scenarios are investigated. One assumes no fundamental policy change. The other looks at the reinstitution of copyright registration.

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Abbreviations

ALA	American Library Association
AOL	America Online
BSA	Business Software Alliance
BORA	Break Once Run Anywhere
CD	Compact Disc
CIA	Central Intelligence Agency
CTEA	Copyright Term Extension Act
DVD	Digital Video/Versatile Disc
DVD-A	Digital Video/Versatile Disc - Audio
DMCA	Digital Millennium Copyright Act
EFF	Electronic Frontier Foundation
EUCD	European Union Copyright Directive
FAQ	Frequently Asked Questions
FUD	Fear, Uncertainty and Doubt
GNU	GNU's Not Unix
GNU GPL	GNU General Public License
IFPI	International Federation of the Phonographic Industry
IITF	Information Infrastructure Task Force
IP	Intellectual Property
IPA	International Publishers Association
IPR	Intellectual Property Rights
ISP	Internet Service Provider
MPAA	Motion Pictures Association of America
NET Act	No Electronic Theft Act
P2P	Peer-to-peer
RIAA	Record Industry Association of America
SACD	Super Audio Compact Disc
SME	Small or Medium sized Enterprise
TCG	Trusted Computing Group
TCPA	Trusted Computing Platform Alliance
TRIPS	Trade-Related aspects of Intellectual Property Rights
UN	United Nations
US	United States
USPTO	United States Patent and Trademark Office

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1. Introduction

By nature, humans are creators. We make physical objects based on our ideas, and we attempt to adapt reality to our desires through inventions. We make creative works like poems, photographs and designs for buildings. We write texts, music, plays, and software.

Even though the motivation to create is often not financial, in Western capitalist society there is no such thing as a free lunch. People need money to survive – and hence like to be rewarded for the fruits of their intellectual labor. At the same time these wonderful products of our minds could not be created without other people's works to build on. It is extremely hard to create something truly original, something nobody has ever made before. And even in those rare cases that someone creates something fundamentally original, that person has been influenced by countless other people's work.

The more works available to the public, the better for society. More works mean more choice, more diversity of available material, and more material that is available for future creators to build on.

While some works may be created that prove undesirable – e.g. holocaust denial stories – there are other means than copyright law to deal with those[1]. Moreover, it is often impossible to predict which works would be desirable and which would not, and the desirability of a work may change over time as society evolves.

Hence it would be in society's best interest to make all works as freely accessible as possible – to create as few barriers as possible to the creation of new works. But how can society motivate people to create? If an author cannot earn a living from her writing, she may have to take another job. This would significantly reduce the time that she has available to create new works, and might put someone else out of a job.

Enter copyright. Originally created to ensure control over the spread of writings and ideas, this mechanism to ensure compensation for the creator of a work is one answer to the question of how to motivate creators. Unfortunately, copyright also impedes the free flow of works – it creates a temporary monopoly on certain types of usage of creative works. First established in law just under 300 years ago, it has evolved from a fairly simple law that prohibited the copying of books without permission of the author/publisher into an enormously complex collection of rules that touches almost every aspect of the flow of

1 For instance anti-revisionist legislation passed in many European countries.

information today.

As copyright has grown more extensive, more complex and, indeed, far more restrictive, penalties for infringements have increased considerably. The original legal copyright balance between the rights of the public – access to creative works - and the rights of the authors – a temporary monopoly on certain aspects of the use of a work as financial motivation to create - has seriously tilted in favor of the authors.

In a sense, digital technology has tilted the balance the other way, to the point where making a copy of a work takes seconds and can be done by virtually anyone using equipment that is very commonplace. In recent years, lawmakers have responded to this problem by introducing even more restrictive copyright laws, to the point where even the smallest copyright infringement can now be a criminal offense. This has only made the gap between the code of law and reality bigger and more acute, because the public correctly understands that at the level of individual infractions, copyright is in fact unenforceable.

This situation is unsustainable. Copyright law is continually infringed upon by the public. When unenforceable, disregarded laws like this one are “on the books”, a democratic society risks being reduced to a police state. In such a state, anyone can be arrested at the discretion of public officials, under the pretext of violating copyright law. At the same time, because certain laws are ignored by the population, the legitimacy of the entire legal system is undermined, as well as trust in the elected representatives that created these laws.

Hence this situation is an opportunity for constructive reform. Copyright reform is inevitable and necessary – because the law is severely out of touch with reality, and because human rights are being trampled upon by new copyright laws. The recent changes made to copyright law have only made things worse – it is time the copyright balance is restored. Only then will the 'copyright wars' end.

This thesis first looks in detail at the current state of copyright, and how it is evolving. It then explores why copyright as it exists today is unsustainable. Finally two future scenarios are investigated. One assumes no fundamental policy change, and the other looks at the reinstitution of copyright registration. In an appendix, a number of other proposed alterations and different approaches to copyright law are briefly introduced, as starting points for further study.

Even though copyright legislation is converging in the first world towards the United States (US) model, differences still remain. Thus for simplicity's sake, I will base all my remarks on US copyright law, unless otherwise indicated.

2. Copyright: background and history

Today, copyright is granted automatically to any expression in a tangible medium of “an original work of authorship” (US Copyright Office). Registration is not required, and the work need not be published. Texts, music, sound recordings, photos, films and even architecture are all subject to copyright. Copyright lasts for the life of the author plus 70 years, or exactly 95 years in the case of 'works for hire' – works created by an employee, for which the copyright belongs to the employer. The author of the work receives a number of rights to the work, for instance the (almost) exclusive rights to copying, distributing, public performance and broadcasting of a work.

The US Code defines some exceptions to what copyright law grants authors, under the title 'fair use':

> *[...] the fair use of a copyrighted work [...] for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include -*
>
> *(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;*
> *(2) the nature of the copyrighted work;*
> *(3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and*
> *(4) the effect of the use upon the potential market for or value of the copyrighted work.*

(US Code, Title 17, Chapter 1, Sec. 107). While this definition is quite vague, courts have filled in which kind of activities constitute fair use. Some examples are citing of a work, space-shifting (e.g. making a copy of a cd onto a cassette), time-shifting (e.g. recording a television show for later viewing), parodies, personal archive copies, etc.

It is important to realize that copyright has never permitted rights holders absolute control over their works – nor has it given the public that control (Litman, 2001, p 15-16). Instead, the system is built on the assumption that while it gives rights holders some temporary exclusive rights to exploit their work - to provide them with enough incentive to create the work in the first place - the rest of the use of their work is free (Litman, 2001, p 17).

Copyright has not always been this complex and pervasive. Before the printing press,

books had to be copied by hand, a laborious and expensive process that put natural limits on the number of copies of any work. Only after Gutenberg invented the printing press in 1455 did mass printing of multiple copies become possible. During the following centuries, as printing became more wide spread, the English government became worried about the spread of subversive ideas, and became interested in control on printing and book selling. The precursors to modern copyright laws were not intended to encourage the spread of information, or to create enough incentive for authors to create their works. Rather they allowed control and censorship of what was published (Ploman and Hamilton, 1980, pp 9-10). The 1662 *Licensing Act* specifically gave the *Stationer's Company* (the guild of publishers) the powers to "seize books suspected of being hostile to Church or Government" (Little, 2002).

The first 'modern' copyright law was Great Britain's Statute of Queen Anne of 1709, which permitted authors of published books 14 years of copyright, provided they fulfilled certain conditions, like registration of the work. If the author was still alive when the 14 years expired, the term could be extended for another 14 years. The statute only provided limited powers to the author of a work: once a work was sold, the copyright holder did not have any control over its use anymore (Masciola, 2002). By limiting the duration of copyright and by requiring registration, the statute maintained the "public domain" to which all works belonged before the Statute.

The public domain is the collection of all published works that are not protected by copyright – either because they were never registered or not subject to copyright, or because the copyright on them has expired. They are free for anyone to use in any way, including duplication, distribution, etc.

Copyright legislation has been expanding in scope and length since ever since the Statute of Queen Anne. The biggest steps have been taken worldwide in the last 20 years, with strong support from the US government (David, 1993, p 20). They are addressed below.

2.1 The Digital Millennium Copyright Act and the European Union Copyright Directive

The global market has lead to considerable convergence of copyright legislation worldwide. Copyright laws are being harmonized across the world through treaties like the 1994 Trade-Related aspects of Intellectual Property Rights (TRIPS), and treaties of the World

Intellectual Property Organization (WIPO). The WIPO is one of 16 specialized United Nations (UN) agencies. It has 179 member countries (WIPO Member States), 41 of which have subscribed to the main copyright treaty of 1996 (WIPO Copyright Treaty), and have implemented or will implement them in local law. In addition to those 41 states, the 15 European Union (EU) members – and soon the 10 future members – need to implement the European Union Copyright Directive (EUCD) of 2001 into national law. The EUCD contains certain key aspects of the WIPO's 1996 Copyright Treaty. The Digital Millennium Copyright Act (DMCA) passed in 1998 in the US, also implements these key elements from the 1996 WIPO Copyright Treaty (WCT).

A full discussion of all the aspects of the DMCA and EUCD is beyond the scope of this paper,[2] but one important aspect of the laws is addressed here. The DMCA and EUCD make a radical departure from 200 years of copyright tradition: they introduce the concept of 'access control' to works, and give the rights holders a new exclusive right to control access to their works – without any limit in time – and with only some very narrow exceptions based on the reason for the access to the work (Vaidhyanathan, 2003, p. 174). Such 'access controls' are technological means of restricting access to a work, depending on certain circumstances. Such circumstances could be the use of software that the publisher of the work approved of, or the use of a work before a certain moment in time, or the number of times the work has been used before. Circumventing the 'technological measure that effectively controls access to a work' is a felony, as is the creation, import, distribution or sale of tools for circumvention – even if they have a 'limited commercially significant purpose or use other than to circumvent a technological measure that effectively controls access to a work' (DMCA).

Neither the DMCA nor the EUCD contain exceptions for archiving (in public libraries or elsewhere). There are no exceptions for visually or hearing impaired people that need special access to the works to enjoy them – e.g. the need for a text-to-speech program to have direct access to the words of an electronic book. While neither the EUCD nor the DMCA touch directly on traditional 'fair use' rights in copyright law, they effectively make these rights irrelevant by not providing an exception for 'fair use' to the prohibition on access control

2 For more information on the DMCA, see here:
http://www.gseis.ucla.edu/iclp/dmca1.htm
http://www.eff.org/IP/DMCA/20030102_dmca_unintended_consequences.html
http://www.digitalspeech.org/dmca.shtml
http://www.ala.org/Content/NavigationMenu/Our_Association/Offices/ALA_Washington/Issues2/Copyright1/DMCA__The_Digital_Millenium_Copyright_Act/Default2515.htm
For more on the EUCD, see here:
http://www.ivir.nl/publications/hugenholtz/opinion-EIPR.html
http://www.eurorights.org/eudmca/WhyTheEUCDIsBad.html

circumvention.

The access control mechanisms are designed by or for the rights holders, which means that for the first time in history, they have full control over the use of their works – before *and* after its sale. There is no balance anymore – as Lessig puts it, 'the DMCA is extremism' (PBS Online Newshour, 2003, p 10).

Obviously, this leads to many problems. Rights holders can now charge for *any* access – whether that kind of access used to be a fair use, a free use, or a paying use. Rights holders can, through access controls, legally deny access for purposes that are legitimate – e.g. time-shifting of works. Maybe more importantly, they can block parodies or critical reviews of works, and effectively become censors, thereby threatening freedom of expression.[3] Also, rights holders can now legally deny access to works that are in the public domain – unlike in traditional copyright law, there is no expiration date on the illegality of circumventing access controls (Vaidhyanathan, 2003, p 175).

As Sida Vaidhyanathan notes, this last problem is a violation of the US constitution, that only grants the US Congress the right to institute copyright laws that give a monopoly 'for limited times' (Viadhyanathan, 2003, p 175). There is no EU equivalent of a constitution, but a draft is being worked on. On 'intellectual property', all it says is “Intellectual property shall be protected.” (Draft Treaty establishing a Constitution for Europe, 2003, p 53). It does not limits the powers the EU parliament has to protect 'intellectual property'. It is therefore not unlikely that at some point in the future, (parts of) the DMCA will be repealed in the US on constitutional grounds. Considering what the draft EU constitution looks like, this will not be possible there.

The DMCA and EUCD came about under pressure of those that benefit most from it: the large publishing conglomerates that 'own' large quantities of creative works. The fact that politicians and governments have accepted their arguments and lobbying without criticism on behalf of the public – the other party in the copyright balance – is curious. The main argument from the publisher's side was the proliferation of illegal but high quality copies of works on the Internet, which remains a very real problem. However, lawmakers seem to have forgotten that copyright was never an absolute, eternal right, but rather a balanced, temporary right. Any solution that puts absolute, eternal control over the works in the hands of the rights

3 Freedom of expression is widely guaranteed in international and regional treaties and conventions, e.g. article 19 in the Universal Declaration of Human Rights, as well as nationally, e.g. the first amendment in the United States Constitution. For more on the DMCA and freedom of expression, see for instance:
http://www.virtualrecordings.com/voidwhereprohibited.html
http://www.businessweek.com/technology/content/sep2001/tc20010912_1569.htm

holders starts from the wrong premise. The DMCA and EUCD have done exactly that: they give absolute legal power to technical solutions for access control to information – regardless of whether that information is copyrighted or in the public domain, and regardless of whether the access requested falls within the 'fair use' rights of the people.

2.2 The carriers of copyrighted works

When Gutenberg invented the printing press, he essentially invented a faster and cheaper way to make duplications of written material. The books his invention created were still an inseparable combination of a physical carrier – paper, glue, and ink - and the creative work stored on its pages. This was not very different from before, when monks were copying books by hand. All that changed was the speed and ease of copying. The invention of the fax machine and the photo copier made duplication even easier by removing the previously necessary typesetting step. It was not until the invention of the computer that the creative work itself – the sequence of words, layout, and illustrations – could be entirely separated from the physical carrier without any quality loss. Today, computers allow us to store the entire contents of books in a computer file. As far as the computer is concerned, this file contains nothing but a collection of data, and for the human senses, that data becomes ordered information if the correct software is used to (dis)play it. These 'digital'[4] copies of books can be moved between different physical carrier – say, from a computer hard drive to a data CD – by the simple act of copying them, without loss of quality. The same applies to digital photos, digital music, etc. The fact that creative works can now be copied between physical carriers with very little effort but perfect quality means that effectively, creative works have been reduced to pure expressions of information. They are no longer dependent on any specific physical carrier. Since these works are protected by copyright, copyright is effectively controlling how we deal with information. As Jessica Litman put it, “our copyright policy is becoming our information policy” (2001 p 116). Thus, to understand copyright well, it is necessary to look at the properties of what it covers – expressions of information.

4 Digital data is stored as a sequence of 1's and 0's - bits. Digital data is directly understandable by a computer, since computers calculate in 1's and 0's. Digital is the opposite of analog. Analog data is stored in a continuous way – it is not a clear sequence of values that can be easily discerned, but rather a flow of data. A computer file is an example of digital data, and a sound recording stored on an ordinary cassette tape is analog data.

2.3 The nature of information

Strictly speaking, copyright does not cover facts, data or information. It only covers a "tangible form of expression" of "an original work of authorship" (US Copyright Office). Of course, this original work may contain facts, data or information, but they are as such unprotected, only the expression of the work is protected. Thus, the traditional distinction of copyright is that *expressions of information* are copyrighted, i.e. the specific order of words in a book, while the ideas and information that these words convey are not copyrighted. Unauthorized copying of entire books was not permitted but anyone was freely entitled to share the information that they contained.

This fundamental restriction of copyright is slowly being eroded. In the EU, entirely unoriginal expressions of data collected in databases – e.g. lists of names and phone numbers - are now copyrighted under the 1996 Directive on the Legal Protection of Databases (IPR-Helpdesk, 2003). There have been efforts to introduce similar legislation in the US, but so far these efforts have been unsuccessful (ALA, 2003c).

Information is generally thought of as a public good – if a somewhat *impure* one[5] (Stiglitz, 1999, p 310). Public goods have two main characteristics: they are non-rivalrous, and they are non-exclusive. Non-rivalrousness refers to the zero marginal cost of having one more person benefit from a public good. Once a public map has been put on a street corner, there is no additional cost if one extra person makes use of the map. Once some information has been made public, it does not matter how many people make use of it. There may be some cost associated with publication and distribution, but there is no additional cost for multiple uses once the information has been produced.

Public goods are also non-exclusive – nobody can be excluded from them. Once information is public, it is impossible to exclude someone from it forever. Of course, one can try to keep the information a secret. This is why information is sometimes considered an *impure* public good. If someone has an idea and keeps it to herself, without using it in any way, it would be a secret. Of course the idea would probably not be of much use. But how could that person prevent someone else from having the same idea? And if she uses the idea in one way or another, sooner or later someone is going to deduce it, and the secret will be

5 It is worth noting that Stiglitz actually talks about knowledge. Stiglitz subscribes to the economists view that knowledge is simply received information – knowledge is what one knows after receiving information (Steinmueller, 2003). In Stiglitz' paper, the terms 'knowledge' and 'information' are used interchangeably. Others make a clear distinction between information and knowledge, and place them in a hierarchy with 'data', 'understanding', and 'wisdom' (Bellinger, Castro, Mills, Sharma). Even if the distinction between knowledge and information is made, both have the qualities of imperfect public goods.

lost. Secrecy can, at best, only be a temporary measure – it is virtually impossible to keep a secret forever. Of course, that does not mean that secrets are not useful – keeping a secret for some time can be very worthwhile. That is why trade secret law exists.

2.4 The catch-all 'Intellectual Property'

Copyright is not to be confused with patents, trademarks, and other related areas of law. A more detailed look at these legal constructs follows.

The US legal system has a number of areas that have to do with the fruits of intellectual labor. Typically, three main areas are discerned: copyright law, patent law, and trademark law. While they are often grouped under the name 'Intellectual Property' law, this term is a "catch-all" and quite misleading because these three legal areas are in fact quite different (Stallman, 2002, p 95). Table 1 gives an overview of these differences.

	Copyright law	***Patent law***	***Trademark law***
Subject	"original works of authorship fixed in a tangible medium of expression"; e.g. texts, photos, music, films, ...	novel and non-obvious inventions that fall into patentable categories	words, phrases, symbols
Length	95 years OR Life of author + 70 years (depends on type of work)	20 years from application	as long as it is defended; no limit in time
Acquisition	automatic; free; can be registered for a small fee	expensive, lengthy procedure	through use; can be registered for a fee
Provides	exclusive right to reproduction, distribution, public display or performance, broadcasting – exceptions exist	any use of the invention (absolute monopoly)	exclusive use of these words, phrases and symbols for distinguishing a product or service

Table 1 - Comparing Copyright law, Patent law, and Trademark law

This table reflects the situation in the US. While the EU legislation is very similar, some differences exist, e.g. with regard to what can be patented. The US allows business method and software patents, while the EU does not (yet). Regarding copyright, an important

difference is that databases can be protected by copyright in the EU, which is not (yet) possible in the US. A related area of law is trade secret law. While relevant to the protection of intellectual activity, it is not exactly categorizable as part of 'Intellectual Property' law (David, 1993, p 31).

2.4.1 Trademarks

According to the US Patent and Trademark Office (USPTO), a trademark is "... a word, name, symbol or device which is used in trade with goods to indicate the source of the goods and to distinguish them from the goods of others" (USPTO, 2001). Trademarks, once registered, last forever as long as the trademark is in use for the goods or services described in the registration (USPTO, 2003). But trademarks have to be 'defended' – if the owner is not careful about actively limiting her trademark to her own use, she may loose it (Supnik, 1996).

2.4.2 Patents

To acquire a patent, a carefully drafted patent application needs to be made. In theory, patents are only granted to non-novel and non-obvious inventions.[6] The application needs to pass extensive and often very lengthy examination before the patent is rejected or granted.[7] The application process is a very expensive procedure. Patents include a requirement to publish the details of the invention.[8] That way, the inventor is obliged to share the invention with society – while she gains a 20 year monopoly on its use.

2.4.3 Misnomer

With its non-rivalrous and non-exclusive qualities, it becomes quite obvious that it would be difficult to see information as 'property', which is by definition rivalrous and excludable. And yet, copyright is considered an 'Intellectual Property Right', as are patents and trademarks. Patents apply to inventions – practical implementations of ideas, for which the

6 Patents have been granted on inventions like a "circular transportation facilitation device" - in other words, the wheel (CNN, 2001). This and numerous other obvious and non-novel patents show that the patent office research procedures leave a lot to be desired. This is particularly a problem with business method and software patents.

7 Although there are indications that this examination is not quite as thorough as it should be – see footnote 6.

8 This does not apply to software patents, which do not require source code to be made public (Lessig, 2002, p 213). This obviously defeats the purpose of patents, which are supposed to provide a temporary monopoly in exchange for the publication of all details of the invention, thus helping the advance of society.

term 'property' is even more problematic. How could one 'own' an idea? Trademarks are quite different – they are names, words, phrases, pictures or symbols. Even though generic terms can not be trademarked,[9] the idea that a word or phrase could be someone's 'property' seems strange. Information, ideas, words and symbols are all non-rivalrous and impurely excludable, and hence do not fit in the traditional framework of what is understood as property, with its rivalrous and excludable characteristics.

Despite this, there are good reasons for having patents, copyright, and trademarks – providing an incentive to create, or protecting reputations, for instance. As long as these legal constructs are balanced, there is no problem and society benefits on the whole. But calling them 'intellectual property' seems treacherous: it lures people into thinking of goods with clear non-rivalrous and non-excludable qualities as property. This has serious consequences for the progress of society. As soon as one considers patents and copyright property, it seems only logical to demand that the state protect permanent, absolute ownership of and control over them, just like it does for physical property. That, of course, is completely counterproductive: it leads to monopolies and stifles innovation, which is exactly what copyrights and patents were intended to avoid. Hence I will not use the term 'Intellectual Property', and where it is not possible to do so, I will put it in quotes.

Now that the difference between copyright and related 'intellectual property' legislation has been discussed, it is time to look at some of the terms that are being used when people talk about copyright.

2.5 Redefining terms

An incredible amount of rhetoric is used in the copyright debate. Copyright infringement is commonly called 'piracy'. According to the Oxford English Dictionary, the original definition of piracy is: “The practice or crime of robbery and depredation on the sea or navigable rivers, etc., or by descent from the sea upon the coast, by persons not holding a commission from an established civilized state” (Oxford English Dictionary, 1989, “piracy”). In other words, making an unauthorized copy of a work is directly compared to outlaws bloodily taking over ships.

Infringing on copyright is also often called 'stealing' – e.g. in a television commercial, popular music star Britney Spears said 'would you go into a CD store and steal a CD? It's the

9 This is so in theory at least – in practice words like 'Windows' and 'Outlook' have been trademarked, though there is some dispute about the 'Windows' trademark (Isenberg, 2002)

same thing' (Miyake). On theft, the Oxford English Dictionary says: “The action of a thief; the felonious taking away of the personal goods of another” (Oxford English Dictionary, 1989, “theft”). Now, there is a problem here – how can making a *copy* of a work, and thereby leaving the original intact and unaltered, be a 'taking away of the personal goods of another'?

It is commonly argued that the 'theft', in the case of copyright infringement, is the missed income of whoever owns the copyright on the work. Of course the extent of this missed income is impossible to determine, but while it is highly unlikely that every illegitimate copy equates to a lost sale, some people may not buy a copy because they have access to an unauthorized copy.

Using the word 'theft' to describe copyright infringement is at the very least not accurate, and the term 'piracy' is completely misleading. I believe these terms are biased and overbearing, and hence will not use them. Instead I will refer to copyright infringement.

2.6 Actors

Article 27 of the Universal Declaration of Human Rights illustrates the two opposing sides in this debate:

> *Article 27*
> 1. *Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.*
> 2. *Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.*

(Universal Declaration of Human Rights, 1948) On the one hand, it is in the interest of consumers of information that access to it is as unrestricted as possible. On the other hand, producers of information want to profit financially from their work. This distinction is a bit simplistic – reality is much more complicated. But there is a fundamental contradiction between the rights of the public and the rights of authors.

A number of actors can be identified in this debate. To come to a constructive solution for the copyright problem, it is important to understand who the actors are and what their motivations are. An identification and analysis of the main actors follows.

2.6.1 The public

The public is the least empowered actor in the copyright debate. And yet, the public is the most important actor because of what the US constitution states: "The Congress shall have the power ... to promote the progress of science and useful arts, by securing for a limited time to authors and inventors the exclusive right to their respective writings and discoveries" (Art. I, Sec. 8). This means that copyright exists *because promoting the progress of science and useful arts is important.* As Stallman writes, the US Constitution does not give authors the right to a monopoly on their creations – rather copyright is "an artificial concession made to them for the sake of progress" (2002, p 77). Copyright exists for the sake of progress of society, not to make authors better off.

Before going any further, a short definition is in order. The English language is limited in its dual use of the word 'free'. Spanish and French have distinct words for the two meanings of free: *gratis* for free as in free of cost, and *libre* for free as in freedom (Lessig, 2002, p 12).

Few consumers of information think all information should be *gratis.* People are more than willing to pay a price to acquire information, as long as that price is perceived as fair: that is, people must be convinced they get their money's worth.

The launch of Apple's iTunes Music Store, for instance, is good proof of that. Before its launch on April 28th 2003, there were numerous online music retailers, for instance Pressplay, Musicnet and Rhapsody. With an estimated maximum of 350,000 subscribers, however, they are totally dwarfed by the many millions of people downloading music for free through file-sharing networks (Richtel, 2003). Yet, just over two weeks after the launch of the iTunes Music Store, more than 2 million songs were purchased by its customers, even though the service only has 200,000 songs available, and it is only available to US customers with a Macintosh – less than 5% of all computer owners in the US (BBC, 2003).

How did Apple manage to convince people to pay for something they can also get *gratis*? At first sight it may seem hard to set any price for something that is also available for free, but the example of bottled water quickly makes clear that even in such a case it is possible. People are willing to pay for convenience, easy access, and more particularly in the case of digital music, for a well organized library that allows one to find what one wants quickly, for fast and consistently high quality downloads, and also to be rid from guilt for illegally downloading (Harmon, 2003).

To a certain extent, the other online music retailers offered these advantages over the file sharing networks. So why did the Apple store succeed where they failed? First of all, Apple is

the undisputed king of usability and user-friendliness, and the iTunes store reflects that. Secondly, while it does not offer music *gratis*, the songs are cheaper than other commercial services ($0.99, no monthly fee). But most importantly the user is more or less *libre* to copy, play, and burn them to Compact Disc (CD) as she pleases. There are still restrictions, but compared to the commercial competitors, they are quite limited.

The lesson to be learned from Apple's success is that once information has been purchased, the customer wants to be at liberty – *libre* - to do with it what she desires, much like when buying a physical artifact like a car. Any solution to the copyright problem that does not allow a reasonable degree of freedom for the public is doomed to fail.

2.6.2 Authors

Under copyright law, the author of a work gets the copyright to the work. Whoever creates the work controls the exclusive rights to it that copyright reserves. In reality, however, many authors surrender these copyrights to publishers (Stallman, 2002, p. 78), either temporarily or permanently. They probably would not do this if they had a choice, but they rely on the publishing companies for promotion and distribution of their work. Giving up the copyrights to their work is very often a non-negotiable part of the contract (Bertin, 2000).

For literary works, the copyrightable subject of the work is straightforward: it is the sequence of words as they are written by its author. In the case of music, the situation is more complicated, with copyright both applying to the 'musical work' and any 'sound recordings' of that work. The musical work consists of a melody and possibly any lyrics that go with it. Sound recordings are recorded performances of musical works (Butler, 2003).

For practical reasons, songwriters often assign 'publishing rights' on their works to publishing companies. These companies help with marketing and promotion of the songs, as well as with the paperwork involved in licensing and royalty collection (Butler, 2003b). Typically, the publishing company is rewarded with 50% of the income generated by the song (Mikkelson, 2001 and Butler, 2003b). Under US law, the publishing rights involve rights to record & sell a version of the song ('mechanical licenses'), rights to synchronize music to visual images (i.e. use in films, commercials, etc), rights for selling of prints of sheet music or lyrics, and performance rights (e.g. live concerts or radio broadcasts) (Mikkelson, 2001 and Butler, 2003b).

It is worth noting that the US has a compulsory mechanical license, which allows anyone

to record a version of a song, as long as the rights holders are rewarded with rates as determined by law, and certain other requirements are fulfilled (Butler, 2003b).

Of course, the actual copyright law is much more complicated than this, and various exceptions exist. For instance, the 1998 Copyright Term Extension Act introduced an exception to the performance rights for small business owners (Litman, 2001, p 33). In the US, performing rights only exist for the rights holder of the song, not for the performing artist or the holder of the copyright to the recording, who are not compensated (Butler, 2003b). This situation differs from country to country. In the UK, for instance, as the governments 'intellectual property' website states, “A performer may be entitled to remuneration in respect of broadcasting, public performance and rental of those copies” (Intellectual Property).

While songwriters get a reasonable deal for their work, the performing artist is much worse off. The performer's share in record sale revenue is typically less than 15% - and they do not even see any of that until they have paid back large expenses the record labels make on their behalf (Bertin, 2000). For online music sales, Nancy Einhart determines the artist's share as 12% of the total revenue (Einhart, 2003). While this may be quite a lot of money for the few extremely popular artists, it also means that the vast majority of artists never see a cent of royalties from records sold. They simply do not sell enough records to pay back all the expenses the record labels charge them. Even without considering these differences between artists, the 15-85% division of income in favor of the publishers seems at the very least unfair.

So where do performing artists make their money? The answer is live performances. It is quite ironic that after all the technological changes in music recording, and the vast proliferation of recorded music, only the top 10% best selling musicians make money from the recordings they sell. All others still make their money performing live only (Scott Welch, as quoted in Kafka, 2003).

Other types of copyright protected works like feature films and software are usually created in a more collaborative style of work, mostly as 'work for hire'. Copyrights for these works, too, are often owned by organizations rather than individual people.

In summary, the rights to most valuable copyrighted works are owned by publishing houses, with few exceptions. Authors and artists, in fact, benefit relatively little from the copyrights to their works.

2.6.3 Publishers

It is tempting to assume all publishers and distributors have common goals, and therefore have the same position on copyright legislation. Since they control many copyrights to valuable works, it is in their interest to make those copyrights as valuable as possible, e.g. by pushing for stricter legislation on copyright enforcement, and to hold on to them as long as possible.

For large publishers, this seems to be the case. Representatives of large firms in the film industry (Baue, 2002 and Harmon, 2002) as well as the music industry (Southgate, 1997) have made their desire for stronger 'intellectual property' protection and 'intellectual property rights' (IPRs) enforcement very clear, and have been lobbying governments all over the world to achieve this goal.

But there is evidence that this logic does not apply to small and medium sized enterprises (SMEs) in the publishing industry. Puay Tang and Nick von Tunzelmann argue that SMEs in the electronic publishing industry in the UK are, in fact, not interested in stronger 'intellectual property' rights (2000, p 23). The authors surveyed a number of SMEs, and found that these companies fear that tougher IPRs will unfavorably alter the whole structure of their industry, to the benefit of larger corporations. Even though the vast majority of the firms interviewed created their own content, copyright infringement was not seen as a major threat to their business. The firms rely on time to market and market niche to appropriate the returns of their work (Tang and von Tunzelmann, 2000).

John Perry Barlow noted that the value of some information may actually increase with wider distribution (Barlow, 1993). Several small publishers have experienced this in practice, and have been arguing that more product exposure benefits unknown authors. They therefore choose not to make use of the entire protection provided by copyright, and give electronic copies of books and music away for free (Vandewege, 2003, pp 4-7). Since they don't even make use of the full protection copyright provides them now, having stricter IPRs would not benefit them.

The third party to consider in the publishing camp are trade organizations and industry groups like the Motion Pictures Association of America (MPAA), the International Federation of the Phonographic Industry (IFPI), the Record Industry Association of America (RIAA), the Business Software Alliance (BSA), the International Publishers Association (IPA), etc. These organizations typically represent a large number of publishing companies, but their actions suggest that when it comes to 'intellectual property', they mostly represent

the interests of the large corporations.

Publishing houses are afraid to alienate their customers, but at the same time want to fight copyright infringement, which is often carried out by these very customers. They have been using their trade organizations as proxies, to fight the (legal) battles, enforce legislation, and make unpopular statements. Roger Kruger, the BSA's vice president of enforcement for its North America Anti-Piracy Campaign, said: "We are viewed by many as the software police, the organization that will, in fact, investigate and pursue instances of infringement that come to its attention." (as quoted in Geroski, 2002)

2.6.4 Governments

Governments are important actors in the copyright arena, creating the laws that govern copyright and enforcing these laws.

National governments issue legislation, but they also sign up to international treaties, like the WIPO treaties. In Europe, the situation is even more complicated with transnational EU directives that, once approved by the EU parliament, need to be converted into national laws by the member states.

Some nations are also using their economic muscle to force other countries to institute IPR legislation and ensure its enforcement. In 1994, China was trying to receive 'most-favored nation' trade status with the US. The US demanded that China added copyright infringement to their list of capital punishments (Robin Gross as interviewed in Koman, 2003). In other words, violate copyright and lose your head. That is – to say the least – extreme, but it is in line with the changing treatment of IPR violations from mostly civil to criminal offenses in the US and elsewhere (Loren, 1999).

The US has also begun adding requirements for IPR enforcements to bilateral trade agreements. The most recent agreements signed with Singapore and Chile in May and June 2003, for instance, contain sections on IPR that come straight from the Digital Millennium Copyright Act (DMCA) (Koman, 2003b).

2.6.5 Technology industry

The technology industry is another important player in the copyright debate. Today's challenges to copyright originate with technological change, which is fueled by universities, research groups, and organizations that sell technological devices and services. That last

category includes consumer electronics manufacturers, most of the computer manufacturing industry, Internet Service Providers (ISPs), etc. All these companies sell devices and/or services that manipulate information, and their interest is in selling more devices and services, not directly in protecting other people's copyrights.

At the same time, though, these companies are relying on copyrights, trademarks, patents, and trade secrets. All websites of major consumer electronics manufacturers, for example, contain copyright notices. All these companies use trademarks to protect their brand names. Many use patents to protect their inventions. Trade secrets are important to keep 'first to market' advantages.

These firms are also under pressure from firms that produce content – the publishers. ISPs want to have as many customers as possible, and to achieve that goal, they rely on content publishers that provide attractive content to lure customers to their sites.[10] That way, potential customers will hopefully find use in a more expensive, faster Internet connection which the ISP will be more than happy to sell them, and existing customers use bandwidth for which the ISP charges.

Computer manufacturers also rely on content publishers to make their products more useful, and hence more attractive, for consumers. Manufacturers of CD and Digital Versatile Disc (DVD) players, finally, would not sell many products if the content industry decided to give up on producing new content for these players.

Two large corporations are both content publishers and part of the technology industry. America Online (AOL), is both an ISP and a content provider. Sony owns a major music label, a film studio, and also produces consumer electronics and computers. This dual position leads to fairly schizophrenic behavior on behalf of these companies – with the content division complaining about copyright infringement while the other divisions try to sell more products or services that make the infringement possible.

In the case of Sony, this opposition within the company has lead to missed opportunities in the consumer electronics division. Sony is the company that pioneered portable music devices like the transistor radio, the portable cassette player and portable CD player, and is a very important company in those markets. But these devices are being supplanted by MP3 players – and there the undisputed king of sales is Apple, not Sony (Rose, 2003). Apple's iPod player contains a hard disk, which can store thousands of songs. Sony's products use removable storage devices that can not store much more than a couple of dozen songs. Sony

10 E.g. Earthlink, a big US ISP, with its 'digital music service' available here: http://earthlink.fullaudio.com/p/elnk_prospect_home.jhtml

has no plans to develop a hard disk based MP3 player, because all Sony products conform to the rules of its copy protection software.[11] This software makes transferring digital content from one device to another cumbersome and does not allow hard disk to hard disk copying (Rose, 2003). MP3 players connect to computers, so a hard disk based MP3 player is out of the question for Sony. Meanwhile, Apple has sold over 1 million units of its high-priced high-end iPod (Apple, 2003) – and Sony's music business is holding the whole company hostage.

2.6.6 Libraries

Libraries are centers for information dissemination, often funded by governments. They collect information and make it available to the public – for consultation in the library, to lend out, etc. Many libraries provide public, free Internet access.[12] Libraries also archive and preserve information for the future.

Obviously, copyright affects the way libraries work. In particular, there are issues with conservation of copyrighted material. As explained above, the DMCA and EUCD do not allow circumvention of access control mechanisms – not even for works that have fallen out of copyright, or are simply not copyrighted. That means that preserving these works for posterity, as libraries often do, is made impossible.

Consider, for instance, this example. Twenty years from now, the DVD data storage format has long been superseded by a smaller storage medium that can store 10 times as much. DVD players are becoming rare, and DVD discs are starting to decay. Libraries in the US decide to start converting the collections of rare DVDs they have built up over the past 30 years onto the new fancy data medium, so that they will not be lost forever. Some of the most precious films are made by companies that no longer exist, and are therefore not likely to be re-released on the new medium. Unfortunately, DVDs contain an access control mechanism, which the libraries are not allowed to circumvent. As a consequence, the precious films are lost forever.

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11 The software is called openMG.

12 Internet access in libraries and schools in the US has been a source of great controversy, with legislation passed that requires them to install censorship software if they want to keep their funding. This software needs to prevent children from accessing obscene material, as well as material 'harmful to minors'. The legislation was fought in the courts by the American Library Association (ALA) and the Electronic Frontier Foundation (EFF) but finally upheld before the Supreme Court on June 23rd 2003 (EFF, 2003). At issue were free speech rights for library users and web publishers, as well as the malfunctioning and inaccuracy of the censorship software. For a list of examples of incorrect blocking, see here: http://www.eff.org/Censorship/Censorware/net_block_report/appendix_d.php

The DMCA and EUCD will also pose problems with accessing and lending the materials. Finally, library users will not be able to make full legitimate use of the work as the access controls hinder uses like citation, making a parody, etc (ALA, 2003). The DMCA also creates problems for interlibrary loans, and off-site accessibility of works available in a library (ALA, 2003b).

2.6.7 Collection societies

Logistical problems with the collection of royalties from the use of copyrighted material has lead to the establishment of collection societies. These agencies collect royalties on behalf of their members, and distribute the income, minus an operational cost, among them.

There are many different societies, performing collection of different types of royalties (for sale of recordings, for public performance, and in some countries on blank recordable media). Some societies only represent one particular kind of author, e.g. writers, whereas others represent artists across different disciplines. Sometimes there are multiple societies authors can be a member of, e.g. in the US where ASCAP, BMI and SESAC all collect royalties for public music performances.[13] This obviously makes life much harder for people that need to pay royalties, since they need to figure out which authors are part of which agency, and consequently which agency royalties need to be paid to.

The collection societies are not to be underestimated in this debate. Any changes to the copyright system that will reduce their role, or even just change the balance in collecting between different agencies will meet with stiff opposition, as has been demonstrated in the past (Litman, 2001, p 186, fn 2).

2.6.8 Universities and scientists

In nineteenth century European universities academic research was thought most valuable if it could flow freely (Quéau, 2002, p 10). Today public funds for universities are being reduced, and hence universities need to find other sources of income. Some UK universities now have 'intellectual property' officers, whose job it is to maximize the financial gain for the university of the 'intellectual property' it produces – patentable inventions and copyrightable content. In the US, the situation is not different – universities now need to capitalize on the copyrightable content they produce. Of course that means academic research can not flow

13 See http://www.ascap.com, http://www.bmi.com and http://www.sesac.com

freely anymore – it is locked up and only people who pay can get access to it.

In an attempt to solve this problem, Congressman Martin Sabo proposed a bill in the House (HR 2613), which would '... exclude from copyright protection works resulting from scientific research substantially funded by the Federal Government.' (HR 2613). Any works created by the US Government automatically fall into the public domain (US Code, Title 17, Chapter 1, Sec. 105) and this would extend this principle to scientific research 'substantially funded by the Federal Government'. The idea behind it is logical – what taxpayers have already paid for should be available to them for free and, hence, should be in the public domain.

Of course, the universities don't like this plan. While they generally agree that something needs to be done about the accessibility of the knowledge they produce, this bill would cut them off from a lucrative source of funding (Hasselmo, 2003).

Individual scientists don't necessarily feel the same. A group of prominent scientists has started an initiative called the 'Public Library of Science', which is planning to release a series of peer-reviewed biomedical journals that will be available *gratis* on the Internet. This initiative fits in a wider movement of 'open access publishing' that aims at making all research articles freely available.

3. The unsustainability of copyright

A number of problems exist with today's copyright law: the law is far too complex; it is ill adapted to reality; and it is generally unenforceable. All these issues contribute to the current situation, where copyright legislation is generally ignored by an important part of the population. These three problems are addressed in more detail in what follows.

3.1 The law is too complex

In 2001, the US legal code defining copyright was 205 pages long (Litman, 2001, p 75, fn 2). But those 205 pages do not even define copyright entirely, case law needs to be studied as well. Consider the time-limited exclusive right to reproduction granted to copyright owners. This right is actually not entirely exclusive, for instance because of the 'fair use' exceptions explained above. The definition of 'fair use' is vague and complicated – to the point where, simply by reading the law, it is impossible to decide if a certain action is permitted or not. Hence case law research is necessary to achieve that goal.

Not only is copyright law long, it is also full of counterintuitive rules and exceptions. It is, in fact, so complicated that even copyright lawyers do not understand it anymore. Copyright law professor Jessica Litman describes a 2 month long discussion on a mailing list with over 1000 copyright-savvy people – both laypeople and experts – that could not come to an answer to the non-complicated question of whether and how one could put electronic online 'postings' into the public domain (Litman, 2001, p 76 fn 10).

A couple of examples illustrate the counterintuitive complexity of copyright law. First of all – why are there many movie rental businesses but no audio CD rental services? Commercial audio CD rental is explicitly forbidden by the law, while movie rental businesses are not. The second example concerns public performance of works – e.g. playing music in public. Public performances are generally prohibited unless authorized by the rights holder of the work, except if you play a single radio or television and the program is not transmitted any further (US Code, Title 17, section 110-5 A). This means that it is fine to listen to a car stereo with the windows open as long as you listen to the radio – but not if you put on a CD (Litman, 2001, p 75 fn 7).

There are hundreds of similar exceptions in the copyright act. It is unreasonable to expect that any ordinary member of the public would be able to remember and understand all these rules, let alone know how to apply them.

3.2 The law is ill adapted to reality

Copyright law is so complex because it is the result of one hundred years of deals between the copyright lawyers of industries with a stake in the copyright debate. As long as this law only affected how they did business, there was no real problem with that complexity: all these industries can afford to have their own copyright lawyers (Litman, 2001, pp 73-74).

A long sequence of technological advances has made publishing and re-publishing of works many orders of magnitude cheaper and easier. The advent of new computer and communication technologies has so seriously reduced the requirements for copying, publishing, and manipulating creative works that these actions are now within virtually anyone's reach. This means that copyright law now applies to things ordinary people do every day.

Imagine you are having a birthday party for your child. Downloading a photo from the Internet and putting it on the invitation without authorization is technically copyright

infringement, so do not do that. You can not sing 'Happy Birthday' without paying royalties, because the words to that song are still covered by copyright (Mikkelson, 2002). If the party is in your backyard, do not play a CD: your neighbor might overhear it, and hence such a 'public performance' would mean copyright infringement. Do not let the children role-play Star Wars either because they are creating an unauthorized derivative work and therefore infringe on copyright (Litman, 2001, p 71).

These are all actions most people would have trouble believing are copyright infringements. Other actions are more obvious infringements.

The Pew Internet Project estimates that 35 million US adults downloaded music online in the period of March to May 2003. Twenty-six million of them also share files online. The Pew study also states: “Two-thirds of those who download music files or share files online say they don't care whether the files are copyrighted or not” (Madden and Lenhart, 2003). In other words, more than 20 million people don't care about the copyright on the files they download and/or share.

Most of these file sharers are likely to use peer-to-peer (P2P)[14] file sharing software. P2P networks are famous as a very convenient and efficient way to download and share copyrighted content without permission. But P2P networks are also being used to distribute non-copyright infringing content, like shareware, Free Software,[15] and music and video content for which the rights holders have licensed unlimited distribution.[16] This was confirmed by a US judge in a recent landmark decision in favor of P2P software companies. The judge decided that "It is undisputed that there are substantial non infringing uses for Defendants' software." (Maguire, 2003).

This does not mean it is unreasonable to assume that many of the 35 million music-downloading US citizens are committing at least some copyright infringement under the current law. This makes them unindicted felons (NET act).

3.3 The law is unenforceable

When it comes to enforcement of IPR, governments face logistical and legal problems. In 2001, for example, the Belgian branch of the International Federation of the Phonographic

14 P2P software allows users to share files between computers on the internet, without the need for a central repository with the files. Unlike Napster, newer P2P systems don't even need a central index of the files that are available on the P2P network.

15 See Appendix A.1

16 For live music recordings of their concerts, The Grateful Dead, R.E.M., Phish, etc. have such a policy (EFF, 2003c).

Industry (IFPI), a music industry trade organization, announced that it had recorded 12000 Internet Protocol addresses of Napster users. These numbers are the addresses of computers on the Internet and can be linked to the customers of ISPs, but only with access to the databases of these ISPs. IFPI passed the addresses on to the ISPs in question, which wrote their customers that they were infringing copyrights. According to IFPI, 100 of the Napster users ignored the letter, and IFPI filed a complaint with the judiciary system against them. Marcel Heymans, the IFPI spokesperson, announced in the press that these 100 people could expect a visit from the police with a search warrant, since IFPI was demanding approximately 25,000 Euro in damages from each of them (Tijdnet, 2001). The reaction of Marc Verwilghen, the Minister of Justice, was not positive. He announced that the prosecution of Napster users would get the lowest priority possible and made it clear that the justice department alone, not any commercial organization, decides who gets a police visit. The legality of IFPI's monitoring of Napster users under the Belgian and EU privacy legislation was also questioned (Verhoeven and Lefelon, 2001).

While the reaction of the Minister was probably triggered by the arrogance of the IFPI announcement, it is based on the limited resources of the government. Given the scale of online copyright infringement, it is not possible or practical to prosecute every infringer. And there are far more serious matters that need to be dealt with – it is not likely that the general population would see copyright infringement as a more urgent problem than, say, murder or violent crime.

Legal problems also exist, since the determination of the actions and identity of the infringer may conflict with legislation that protects the privacy of citizens. In this particular case, IFPI may or may not have violated privacy rights by recording people's Internet addresses. But in order to establish copyright infringement, a log of all Internet traffic of that particular person would have to be obtained. This would certainly invade privacy rights of citizens of EU countries[17] if done by the IFPI, and even by the state if done without the proper legal procedure.

17 Protection of personal data is guaranteed in the Charter of Fundamental Rights of the European Union. Due to the EU Data Protection Directive, EU countries have implemented protection of personal data in national laws. Other countries have similar legislation.

3.4 The law is unsustainable

These three major problems with copyright law have led to today's situation, where most people are infringing copyright on a daily basis – often without even knowing they are.

Jessica Litman attributes this general disobedience to copyright law not to the fact that people are lawless, but to the fact that people don't believe that the law says what it does, and insist in thinking that the law must make sense (2001, p 112). This is a plausible explanation, given how complex and illogical copyright law is. But even while many people know sharing of copyrighted music and films online is illegal, they still do it. People are simply not willing to accept copyright law as it is today.

This is an unsustainable situation. As technology progresses further and legislation becomes stricter, this conflict between what the public wants and what is allowed will become larger and larger.

Litman observes that sooner or later, governments stop enforcing laws that people do not believe in (2001, p 112). Such an evolution can be observed in other legal areas, e.g. drugs laws. There are signs that the restrictive stance on marijuana is slowly being softened, with countries like the Netherlands (and to a limited extent Belgium) legalizing the use of marijuana, and Canada and some US states, like California, starting to legalese marijuana for medical use.

Obviously, major copyright reform to restore the copyright balance – with the public finally represented as the most important stakeholder - is the last thing the content industry wants. So to avoid that from happening, copyright law needs to be made sustainable. One way to do that would be removing the general public's opportunity to infringe. Efforts are underway to change technological devices in such a way that they make unauthorized use and copying simply impossible. As discussed previously, laws are already in place that protect such devices from tampering. Bypassing access controls, or even just trading in bypassed devices is highly illegal and a criminal offense under the DMCA and the EUCD. Simply not giving people the choice to infringe would solve the problem of enforcement, as well as the problem of the complexity of the law and the unwillingness of people to follow it (Litman, 2001, pp 29-30). People technologically smart enough to bypass the copy protections will be far fewer in number and, hence, much easier to prosecute. That solves the problem of enforcement. Effectively, this strategy would adapt reality to copyright law, thereby removing all three of the problems mentioned above.

At least, that is the theory. To get an idea of how realistic this plan is, it is necessary to

look in more detail at how such technical protection measures could be made pervasive.

4. 'Trustworthy' computing

Different forms of such technical protection measures - Digital Rights Management (DRM) systems - are already in use.[18] Many similar systems are being developed, and a fierce battle for control over DRM standards is in progress through the (software) patents that describe them (Healey, 2003).

While these existing protection systems could be an interesting subject for closer investigation, they are only the very first – and not very effective – test cases. As long as a widely supported standardized DRM platform is not in place, there is little chance that the ultimate goal of the content industry – pervasive DRM systems that allow total control over *every* use of copyrighted works *at any time* – is feasible.

This is why a concept called 'trustworthy computing' that is currently gaining momentum is so important. As mentioned in section 2.2, computers play an increasingly important role in the distribution and use of copyrighted material.[19] Any roll out of DRM systems would have to happen primarily on general purpose computers, since these are being used more and more to access copyrighted works.

The idea behind trusted or trustworthy computing is to make clients in computer networks 'trusted', that is, guaranteed to be behaving within a specification set by some authority. Through a combination of tamper-resistant hardware, unique certificates that bind people's identities to computers, strong public key cryptography, and registered software, a computer network can be secured much more effectively than is the case today. This would be done by locking down all the machines on it individually, without the opportunity for someone with physical access to the machine to tamper with it and run uncertified software. A service company – say, a bank – will be able to verify that a customer's computer is running certain trusted versions of hardware and software, which it expects to be safe. This process is called 'attestation', and the bank's decision to allow a customer to log into its online banking software can be – and most likely will be - based on the outcome of the attestation process.

Trustworthy computing is particularly backed by the Trusted Computing Group (TCG),

18 For instance on DVDs, game consoles like the Xbox, Playstation 2, and Game Cube, etc.

19 At first sight, it could be argued that the opposite is the case for electronic games, with a shift away from games for general purpose computers to game consoles like the Xbox. These game consoles, however, are in fact nothing more than powerful computers with some custom hard- and software. The Xbox in particular is nothing more than a general purpose computer, hardened with some cryptographic hard- and software.

formerly the Trusted Computing Platform Alliance (TCPA), which was founded by Compaq, Hewlett Packard (HP), International Business Machines (IBM), Intel, and Microsoft (TCPA, 2002), and had more than 200 corporations as members (TCPA Members). Separately, Microsoft has also announced that the next version of Windows, code-named Longhorn, will be built on its Next-Generation Secure Computing Base (NGSCB), which contains concepts from trustworthy computing. Microsoft states that the NGSCB is a superset of the TCPA/TCG specifications, and that it is working with the TCG to integrate the two specifications (Microsoft NGSCB Technical FAQ, 2003).

While NGSCB is not the same as DRM, it will enable strong DRM software by providing the cryptographic framework and tamper-resistant software for it through implementing strong cryptography in hardware. This puts an interesting perspective on the word 'trusted' in trusted computing. It seems that despite what Microsoft and others want to convince the public of, the computers people buy will not be more trustworthy for their owner but rather for the entities that control the software that runs on it. In the case of DRM software, that would be the content publishing industry. In addition, because that entity will most likely be contacted on every use of the material – to check if the use is allowed – NGSCB and DRM form serious threats to privacy.[20]

It is also likely that NGSCB will lead to a further lock-in to certain software and hardware vendors (Anderson, 2003, pp 11-12). As is stated in the NGSCB Technical Frequently Asked Questions (FAQ), there is no technical reason why the NGSCB trusted software system could not be developed under other operating systems. The FAQ states at the same time, though, “Much of the next-generation secure computing base architecture design is covered by patents, and there will be intellectual property issues to be resolved.” (NGSCB Technical FAQ, 2003). This would particularly be a problem for open source operating systems like Linux and FreeBSD.[21]

A full discussion of trusted computing is out of place here,[22] but for the purpose of this paper, the following summary suffices. There is a trend towards general purpose computers that, rather than doing what their owner instructs them to, will follow the orders of content

20 See footnote 17.

21 These systems can not include any technology for which patent royalties are due, since they are available free of charge and not a product of a single corporation. Obviously, any system for which source code is available also flies right in the face of 'trusted computing'. The latter aims exactly at making software hard to change, and therefore put control in the hands of the hard- and software manufacturers, while having the source code available does precisely the opposite: it encourages the user and owner of the machine to tinker with it.

22 For a comprehensive overview of what is wrong with 'trustworthy computing', see Ross Anderson's FAQ: http://www.cl.cam.ac.uk/~rja14/tcpa-faq.html

publishers, software vendors and other organizations, possibly including governments. If this trend continues, technology will decide for the user what she is allowed to do with her computer. Of course, technology already makes such decisions for users today, but they are generally based on limitations of hardware or software, not on deliberate policies set by outside entities. Tampering with the machine or its software to circumvent these artificial restrictions and make the computer do what the user desires is already a felony in the US – regardless of whether what the user wants to do is legal or not. When the EUCD is implemented by the EU member states, will also be the case in the EU.

NGSCB/Trustworthy computing will allow the content industry to implement pervasive DRM technology on general purpose computers. This will allow the industry to make any unauthorized copying impossible – even if copyright law says no authorization is necessary.

5. Scenarios for the future

Now that the content industry's plan and the basic tools it intends to use have been explained, it is worth investigating more closely if and how the industry would be able to pull this off. This section examines two possible future scenarios. In the first one – titled 'no fundamental policy change' – attention is given to what can be expected if society continues on the path it is on today, which is, so far, more or less 'according to plan' for the content industry. The second scenario – 'reinstitution of copyright registration' – discusses a small change in copyright law that could lead to a different path, which could be much more desirable in terms of the public good.

5.1 No fundamental policy change

The conflict between technology and distributors of creative works that rages today is sometimes called the 'Copyright Wars' (Perry, 2003, p 21). Indeed, the situation is starting to look more and more like guerrilla warfare between the content publishers and large numbers of people from the general public.

The publishers try to protect their products from duplication, with technological and legal measures. The public tries to have as much access to content as possible, and while generally willing to pay for it, does infringe on copyrights on a regular basis. It is worth noting that infringement is far more widespread where there are no reasonable legal alternatives, or where the official products offered are too crippled to allow the content to be useful for the

customer.[23] The public also tries to exercise its fair use rights – which are being eroded by the publishers.[24] At the same time, of course, publishers depend on that same public to buy their products.

The weapons used by both sides in this conflict are of three kinds: technological, legal, and social.

5.1.1 Legal weapons

5.1.1.1 The Law

The content publishers already have the EUCD and DMCA at their disposal, and comparable laws in other jurisdictions. More legislation is being proposed, however. In the EU, the European Commission is working on an IP enforcement directive,[25] which in its current draft state would create stricter criminal penalties for copyright, trademark and patent infringements 'carried out deliberately in the course of a business', and make it far easier for rights holders to enforce their rights across the EU (IP enforcement directive). In addition, the draft directive proposes that any legal protection that is available in one of the member states should also be available in all other member states. An example of such measures available in only one member state are the United Kingdom's 'Anton Piller orders', which allow searches in civil cases. UK law has implemented several safeguards against abuse since this law was introduced in 1976 (Anderson, 2003b). The draft directive does not require that these legal safeguards are also implemented in all member states.

The directive proposes far more serious compensations and additional rights for copyright holders, including a new 'right to information' which would force telecommunication companies to hand over the identity of their customers if a rights holder suspects infringement, with little or no judicial control. Rights holders would also gain powers to freeze bank accounts, stop sales, etc in an alleged case of infringement, before the case goes to court (Anderson, 2003b). This directive has not passed the EU parliament yet, but if it does and if it looks anything like it does in this draft, it will be a major victory for the publishing

23 As the difference in popularity between the Apple iTunes store and its commercial competitors shows.

24 Consider, for instance, the encryption on DVDs. Making a backup copy of a purchased work is a fair use right – but it is impossible to do for a DVD without circumventing the encryption of the DVD. Software tools exist for this purpose. Since that encryption is considered an access control mechanism under the DMCA and EUCD, parents that protect their DVDs from their young children by making a backup copy are felons under these laws.

25 COM (2003) 46(01), "Proposal for a directive of the European Parliament and of the Council on measures and procedures to ensure the enforcement of intellectual property rights"

companies.

Meanwhile in the US, senator Orrin Hatch has been arguing for laws that would allow rights holders to physically destroy computers of alleged copyright infringers (Associated Press, 2003). This would effectively mean the creation of some sort of corporate copyright enforcement militia with a government mandate. Senator Fritz Hollings has proposed a law to make copyright control systems mandatory into every device that processes digital information (S.2048 in the 107th Congress). This would affect 'devices' from garage door openers to the latest version of your computer's operating system (McCullagh, 2002). Congresspeople Conyers and Berman proposed H.R. 2752 that would criminalize the sharing of one single copyright infringing file, instituting penalties of five years in prison and a $250,000 fine (Dean, 2003).

While most of these ideas and other similar proposals have met with stiff opposition, the fact that they are being proposed at all is intriguing. These proposals are obviously extreme, disregarding long legal traditions and completely shifting what is left of the copyright balance to the rights holders. Who do the politicians that support legislation like this really serve – the public that elects them or the interests of big corporations?

Possibly some extreme legislation will eventually pass. Lobbyists often push for an extreme law which would achieve much more than what they want. If the law is passed they get more than they wanted. If not, a 'compromise' can be reached where the lobbyists still achieve what they want. Rather than seeming extreme compared to the status quo, the resulting law will seem reasonable next to the much more extreme original proposal.

On the other side of this debate are concerned members of the public, librarians, civil rights organizations, the Free/Open Source software movement, small publishers, and increasingly a number of politicians. In the US a number of laws have been proposed that would reinstitute the right to circumvent access controls for fair use reasons, for instance the Digital Media Consumers' Rights Act, the Benefit Authors without Limiting Advancement or Net Consumer Expectations (BALANCE) Act, and the Digital Consumer Right to Know Act (Grebb, 2002).[26] Some of these laws would force disclosure before the purchase of any technical restrictions put on copyrighted material. The level of political support for these proposals is growing but still quite limited.

26 The proposed bills are H.R.107, H.R.1066, and S.692 in the 108th Congress.

In the EU, legal counter proposals need to be made at the EU level, which requires a lot of organization for the grass-roots groups that usually only have a presence at the member-state level.

5.1.1.2 Enforcement

Enforcement is the other side of the legal coin. As the situation is today, it is practically impossible to enforce copyright, which is why the industry is evolving towards technological protection measures like the ones that Microsoft's NGSCB will provide.

The original strategy of the music industry involved suing the companies that make P2P file sharing software. This was effective against Napster, but in a case against two other P2P companies that control the Grokster and Morpheus P2P networks, the RIAA lost because the judge ruled that there is 'substantial non-infringing use' for P2P networks (Madden and Lenhart, 2003, p 2). Of course the RIAA appealed the case, but their legal strategy seems to have changed at the same time. Rather than trying to stop the tools that can be used for copyright infringement, there is now a clear effort to prosecute individual infringers. The RIAA says it will only press charges against people sharing 'substantial' amounts of music (Dean, 2003b) but, naturally, does not specify what number of shared songs would qualify as 'substantial'.

As mentioned in section 3.2, many millions of Americans share files online. It would be impossible to prosecute all these people, so the RIAA is likely to prosecute a number of scapegoats. By the end of July 2003, it had already sent more than 1000 subpoena's to ISPs and universities to acquire the identity of file sharers. But opposition is mounting. At least one US Senator – Norm Coleman - has expressed his concern over the practice and its consequences for the judicial system and the privacy of citizens (Dean, 2003). A Massachusetts district judge allowed Massachusetts Institute of Technology (MIT) and Boston College to ignore the subpoena's until they are filed through local district courts, not the Washington DC district court through which all subpoena's were sent (EFF, 2003b). Pacific Bell Internet services, an ISP, has sued the RIAA over the flood of subpoena's it received (Reuters, 2003). All this opposition might well mean that the RIAA's 'scare tactics' could seriously backfire (McCullagh, 2003).

While none of the cases has gone to court yet, the reaction of the American public will be interesting to see. Especially when a Joe Average is prosecuted for sharing a couple of songs

on his computer, facing harsh criminal punishments and enormous fines. The public feeling might well be that there are more important crimes to spend precious judicial time and resources on, and a public opinion backlash against the music industry is not unlikely.

5.1.2 Technical weapons

Content publishers have been very busy getting copy control systems included in the technological standards of tomorrow. They have already succeeded for some standards that are in widespread use today. While copy control technology in current standards and products is relatively easily circumvented, this will become harder and harder.

At the same time, however, it takes only one person breaking the copy control to make a copy without restrictions available on the Internet for anyone to peruse. This problem is called “Break Once Run Anywhere” (BORA). Therefore, the protection has to be made as difficult as possible to circumvent. Standards are being developed that will put DRM in every part of devices capable of using digital content – from the data lines on a printed circuit and the hard disks in computers, to the cables used to connect monitors to computers (USPTO, 2003b). Of course, there is a major problem because of the enormous installed base of devices that do not have copy control systems built-in. No doubt there will be major efforts on behalf of the content publishers to migrate everyone to newer, non-compatible standards for digital media with copy controls built-in. Manufacturers of computer parts and consumer electronics will be all too happy to join in with that effort because it will allow them to sell many new devices. An additional benefit for the publishers is the massive 'replacement' market that can be expected as people replace their legacy content-carriers with the new model, as was the case when people switched from vinyl records to CDs for music. The music industry is already trying to do this with the introduction of the Super Audio Compact Disc (SACD) and the DVD-Audio (DVD-A). Both of these formats have superior audio capabilities compared to CDs. They are also deliberately crippled to prevent any device but a certified player from rendering what they contain in anything but a very low quality version. This means that buying a SACD or DVD-A is pointless for the many people that own digital audio players like Apple's iPod, or for anyone who listens to music through a computer.

Even the new SACD and DVD-A players still come with an analog output – or if they don't, they can be plugged into amplifiers that have one. How else would one be able to listen to the music? So what would stop someone from plugging in a good audio cable and

recording the content of the disc on a computer? This problem is called the 'analog hole', and it is surprisingly difficult to plug. Of course, during such a transfer some quality would be lost, but with good equipment very near CD quality should be achievable. When it comes to films, recordings made with hand-held cameras in movie theaters are a major source of illegal copies that spread through the Internet (Associated Press, 2003b). The quality problem is much bigger for video, but at today's broadband speed, the quality bottleneck is usually the necessary compression to make the size of the films reasonable.

Efforts have been made to make content traceable, by putting an invisible/inaudible watermark in that can survive this analog step. Equipment that enforces DRM policies would then refuse to play the content if it was not recorded on an official disc (Imai & Kobara, 2000). But as long as there is DRM-free equipment available to the public, this watermarking would be of little use.

The logical consequence is that all equipment that can process digital information will need to contain some form of DRM – right up to the screens and speakers we use to convert the digital content to our analog ears and eyes. Until that happens, the public will be able to circumvent the protection, making BORA and the analog hole big problems. Even if the content publishers will manage to force pervasive DRM down the throats of its customers, it will take many years before all existing equipment is replaced. Pervasive DRM, therefore, is a long term plan.

On the shorter term, some interesting activity has been observed on the P2P networks. The music industry has been hiring subcontractors to 'poison' these networks by flooding them with files that look like they are music files but in reality contain just silence, or endless loops of messages discouraging people from sharing music. In one famous case, a number of such dummy files were released on the Kazaa P2P network that looked like Madonna's latest album, 'American Life'. The files contained silence, but started with Madonna saying “What the fuck do you think you're doing?” (Irixx, 2003). The reaction of listeners was to be expected. In quite a creative statement against the practices of the music industry and legislation like the DMCA, a full album with remixes of the sample is now available online for free through the Madonna Remix Project website[27] and in certain record stores in the UK. The remix project got major press coverage through Reuters and CNN, and as such can be seen as yet another defeat for the music industry (Dixon, 2003 and Irixx, 2003).

At the same time, the nature of file sharing networks is starting to change. New, small

27 http://www.madgelloland.org/irixx/madonna/

scale private networks are appearing. They use strong encryption to prevent anyone but the sender and receiver – not even all members of the network - from seeing what is trafficked over them. They are invite-only, preventing the 'poisoning' attacks the music industry is challenging Kazaa and other P2P networks with. More importantly, they make it close to impossible for content publishers to see who is sending which files to whom (Fraser, 2003). File sharing is moving to small networks that rely on trust between the members – much like the software-sharing circles of the eighties and nineties where people who physically met swapped tapes with illegally copied software.

Once DRM is pervasive, and enforced through hardware and software, these private networks will no doubt make use of the very strong encryption and authentication DRM will provide. The very tool that the content publishers have worked so hard for will be used against themselves.

Technical measures will not win the copyright wars for the content publishers. This is why these technical measures are supplemented with legal measures, but these laws remain largely unenforceable. Ironically, the use of strong encryption on P2P networks may well be a hurdle that proves unsurpassable for content providers.

5.1.3 Social weapons

Until pervasive DRM is firmly in place, publishers are trying to deter the public by spreading 'fear, uncertainty and doubt' (FUD) about the use of P2P software,[28] and sometimes outright lies about what is (not) allowed under copyright law.[29]

At the same time, efforts are being made to 'educate' the public, with a particular focus on young people. The Information Infrastructure Task Force (IITF) White Paper on Copyright of 1995[30] called for a “just say yes” copyright awareness campaign in which people would be encouraged to license copyrighted material before use (Litman, 2001, p 111 and footnote 3). The US government has an “Intellectual Property Rights Training Program Database” online,

28 The MPAA Respectcopyrights.org site has an interesting paragraph about the use of P2P software: “Network users have a back door to your hard drive while you're online, thereby seeing your personal, private information, such as bank records, social security number, etc.” (http://www.respectcopyrights.org/popup/why-3.html). While it is true that some commercial P2P software comes with 'spyware' – software that tries to steal information about its user – that is certainly not the case for all P2P software, and it is not inherent to the P2P concept, as the MPAA suggests here.

29 See for instance Derek Slater's Harvard Political Review interview with Jack Valenti, in particular Mr. Valenti's claims about fair use: 'What is fair use? Fair use is not a law. There's nothing in law.' (Slater, 2003)

in cooperation with the RIAA, MPAA, BSA, etc.[31] The RIAA and MPAA advertising campaigns featuring poor starving artists fall in the 'social' category as well.

All in all, the social engineering tactics of the content publishing industry are not having much effect – file sharing is only becoming more popular, regardless of how many education and advertising campaigns the industry funds and runs. This is not really surprising, because the message publishers bring is negative (do not share music/films/books/...), and no real alternative to file sharing is offered. The attitude towards the intended audience (you are all thieves and criminals) is not very conducive to the positive reception of the message. The fact that the RIAA has started a witch hunt of file sharers is not going to make the industry more popular either (McCullagh, 2003).

Grassroots activists and civil liberties groups have much more potential to be effective at getting their message across. They are not motivated by profit, and that lack of an economic interest in the current copyright system can be associated with a moral high ground. There is also the psychological benefit of being the underdog.

The 'Let the music play' campaign of the EFF is a good example of a campaign that could actually influence people. It has a positive message (let's make file sharing legal), and looks good because it aims to feed the poor starving artists, without branding the audience as thieves and criminals (EFF, 2003c). Most importantly, the campaign proposes realistic alternatives to today's less than perfect situation. It offers ideas for concrete ways to fund artists while legalizing file sharing.

5.1.4 No fundamental policy change: conclusion

Publishers have acquired a variety of legal and technological weapons. Legally they are in a position of strength, and more legislation is likely in the pipeline. Opposition is growing, however – mostly grassroots, but some politicians are starting to listen. Enforcement of the law remains practically impossible.

Technically the future looks bright for the publishers, since it seems likely that pervasive DRM will become a fact of life. BORA remains a problem though, particularly if some of the legal protections are overturned. The public will have an increasingly hard time to exchange digital copyrighted material freely, but there will always be ways around DRM – even if they

30 The full name of the white paper is: Intellectual Property and the National Information Infrastructure: The Report of the Working Group on Intellectual Property Rights (1995). A copy is available online here: http://www.geog.ubc.ca/~acitpo/copyright/clinton_whitepaper.html

31 http://www.training.ipr.gov/

are currently illegal. At the same time, more and more material is deliberately made available under much less restricted licenses. See appendix A for examples of such licenses like the GNU General Public License (GPL) and the Creative Commons Licenses. The fact that such content exists will most likely force publishers to tone down the restrictions on their material – or risk going out of business.

The publishers could have been much more influential on the social front if the artists – the heroes of the public – had given a much more constructive message (please use our online music stores, see they have all these advantages over the P2P networks!), rather than the current 'you are all thieves' approach. The very bad reputation the music and movie industry have today may well prove their biggest enemy for years to come.

5.2 Reinstitution of copyright registration

People are experimenting with several different ways to restore the copyright balance, and many more potential solutions have been proposed. Unfortunately, limits to the size of this thesis do not allow a thorough analysis of all of the most important alternatives. Instead, this section will only look at one of the most promising alternatives, the reinstitution of copyright registration. A short introduction to a number of other alternatives is provided in appendix A as a starting point for further study.

In 1998, the US congress passed the 'Copyright Term Extension Act' (CTEA), which extended the duration of copyright protection by 20 years. This extension applied to future works, as well as to works currently covered under copyright. A legal case lead by Lawrence Lessig[32] followed, challenging this retroactive extension for works covered under the previous version of copyright law. The lead plaintiff, Eric Eldred, publishes works that fall into the public domain on his website, eldritchpress.org. The works are available to the public at no cost and without any restrictions. Because of the CTEA, no works will fall into the public domain until 2018. Hence there will be no new works Eldred can add to his website until that date – assuming that copyright length will not be extended again before 2018.

After 2 appeals, Eldred and his co-plaintiffs lost the case with a 7-2 decision by the Supreme Court to uphold the CTEA (Eldred, 2003). Justice Steven G. Breyer remarked in his dissent that based on a study by the Congressional Research Service prepared for Congress before the CTEA was passed (Rappaport, 2003) and official figures on copyright renewals,

32 See http://lessig.org

only 2% of copyrighted works between 55 and 75 years old still generate royalties (US Supreme Court, 2003, p 67).

In a January 2003 New York Times editorial, Lawrence Lessig first proposed the institution of a mandatory fee to maintain copyright on a work 50 years after its publication (Lessig, 2003). Meanwhile, more than 18000 people have signed an online petition supporting this idea,[33] and bill H.R. 2601 (HR2601) has been introduced in the House of Representatives by Zoe Lofgren and John Doolittle (Lessig, 2003b). The 'Public Domain Enhancement Act' calls for a mandatory 'maintenance fee' of $1 to maintain the copyright on works 50 years after their original publication. From then on, the fee needs to be paid every 10 years until the copyright on the work expires. If the fee is not paid, the work falls into the public domain. An additional requirement is that with the payment, copyright holders need to submit a form with their contact details, the exact title of the work, and the date of publication. The bill requires the Copyright Office to establish procedures that allow electronic submission of the copyright renewal forms. The Copyright Office also has to make the information contained in the forms “easily accessible to the public” (HR2601). This last requirement is an attempt to solve a 'rights holder discovery' problem that exists today. Because there is no compulsory copyright registration, there is no registry of who owns the copyright to a particular work if that work has not been registered. This is especially a problem if one wants to request permission to use older works. For these, the original author or rights holder may not be alive anymore, and the copyright would have passed on to one of her descendants. Consequently, it is often very difficult to try to find the owner of the rights to a work. This puts the 'just say yes to licensing' campaigns mentioned above into a questionable light – how do you find out who to say yes to?

A compulsory registration after 50 years would solve that problem for all works older than 50 years. For such works unlisted in the Register of Copyrights,[34] the $1 fee would not have been paid, which means they would have fallen into the public domain. For works listed, the exact publication date would be there, making it easy to determine when they fall out of copyright in the case of works for hire. When the work was not made 'for hire', the length of the life of the author would still be an unknown variable, but at least contact information would be available, as well as the name of the rights holder to the work.

While this would not solve the rights holder discovery problem for works under 50 years old, it would be a good first step for a long term solution to this problem.

33 See http://www.petitiononline.com/mod_perl/signed.cgi?eldred

34 Currently, the Registry only contains works for which a copyright has been registered.

The main advantage of the bill would of course be that, if Justice Breyer is correct, 98% of all works older than 50 years would fall into the public domain. They would not be valuable enough to their owners to pay $1 every 10 years until the copyright expires. For the other two percent of works, $1 and filling out a form is a negligible expense considering the extent of the copyright protection it buys.

This bill has obviously been drafted very carefully to minimize opposition as much as possible. It will affect copyright holders only very minimally, while at the same time providing considerable restoration of the copyright balance. The bill is supported by librarians and archivists and cosponsored by several other Congresspeople. Not surprisingly, a representative of the MPAA has already spoken out against it – saying that “consumers are not necessarily better off when works fall into the public domain” (Rich Taylor, as quoted in Krebs, 2003). The big content publishers are likely to be against the bill, simply because they will be against any bill that tries to restrict copyright in any way. They would, of course, be forced to make stock of the copyrighted works older than 50 years they have the rights to and decide which works to register, so there would be some cost involved for them. On the other hand, they too would benefit from the much increased usefulness of the Register of Copyrights whenever they want to use a work by someone else.

Authors and small publishers would probably benefit most of all from the improved Register, since they would often not have the resources to do a full-blown “copyright search” when they want to use someone else's work.

This bill could be seen as beneficial by governments and the high tech industry as a start to defuse the copyright wars that are hurting everybody, and therefore has a chance of gaining their support.

While it does not directly solve any of the three major problems with copyright discussed in section 3, the proposed bill would alleviate some of the pressure on copyright. For works older than 50 years, the complexity of copyright law would be somewhat reduced by making it clear whether a work is protected or not.

6. Conclusion

Copyright law has lost touch with reality. Through the introduction of new laws the gap between what the law says and the situation on the ground is widening. As a result, people largely ignore the law. This situation is not sustainable, because it endangers the credibility of the whole legal system.

The content industry is trying to solve this problem by adapting reality to copyright law. Publishers are pushing for the introduction of digital rights management systems and other techniques that promise to make all copyright infringement – and a lot of uses that are allowed under copyright law – simply impossible.

This technology would have serious consequences for the freedom of the public to use and process information. The privacy of the people is also in danger. Locking up all information in copy-protected digital vaults, controlled by corporations and other organizations rather than the owner of the carrier of the work, endangers the accessibility of information. It risks introducing a lack of transparency in government. This evolution is a threat to democracy.

There are other ways to deal with copyright's unsustainability. Reinstitution of copyright registration would be a realistic first step because it would hardly affect the content industry, while restoring some of the copyright balance. The introduction of this law would hopefully be the start of a broader copyright reform with the rights of the public, rather than those of the content industry, in the center. It is time we have copyright legislation based on today's reality, rather than the reality of 300 years ago.

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Appendix A: Other approaches to restore the copyright balance

A.0 Creative Commons Licenses

Creative Commons (CC)[35] is a non-profit that wants to enlarge the public domain. Creative Commons provides a number of copyright licenses to the public without a fee. The licenses are all less strict than copyright law permits. Creative Commons encourages authors to put their work under a CC license. The author gets the choice which of the licenses her work is put under, by answering three simple questions. Besides the necessary legal text, CC provides a simple explanation of the terms of each license, both in words and with symbols.

A.1 Free Software model

In January 1989, Richard Stallman and the Free Software Foundation (FSF) introduced the GNU General Public License (GPL) for software. This license "turns the concept of copyright upside down"[36] by giving users the right to redistribute software and the modifications they make to it, free of charge, as long as the complete source code is made available with the software. This requirement is ensured through contract law.

Because of the license, all works covered under the GPL are public goods. A public good is non-rivalrous and non-excludable – by virtue of the GPL, this is per definition so through the license agreement.

Moreover, GPL'd software is a public goods that can not be internalized/made private again, because any changes and enhancements need to be given back to the public. The license agreement only allows redistribution of the software as long as all source code is made available with it, without a fee. It is worth noting that making modifications available to the public is only required when the work is redistributed, not when it is used privately.[37] This means that a company could benefit from re-internalizing Free Software if it only uses that software in house. This could be seen as free-riding, but it is limited: a company that sells goods based on Free Software is not allowed to do this.

The GPL is the best known Free Software license, but it is not the only one.[38] The FSF defines software as free, if four kinds of freedom for the user of the software are available:[39]

35 See http://creativecommons.org
36 Tai, L (2001), *The history of the GPL*, Online, free-soft.org, 2001-07-04, Available: http://www.free-soft.org/gpl_history/, 2003-08-21
37 See http://www.gnu.org/licenses/gpl-faq.html#GPLRequireSourcePostedPublic
38 For an incomplete list, see http://www.gnu.org/licenses/license-list.html
39 See http://www.gnu.org/philosophy/free-sw.html

- *“The freedom to run the program, for any purpose (freedom 0).*
- *The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.*
- *The freedom to redistribute copies so you can help your neighbor (freedom 2).*
- *The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.”*(FSF)

These four freedoms are the main difference between 'Open Source' software and Free Software. While both require that the source code for the software is available, Free Software goes beyond that requirement, ensuring the user is truly *libre* to use the software.

Though the idea of Free Software is quite a radical departure of copyright tradition, it has grown enormously popular within the software industry. Examples of software released as Free Software include the core (kernel) of the GNU/Linux operating system and the Apache web server.[40] Large companies have embraced GNU/Linux – and with it it's GPL kernel - and it's popularity continues to rise. It is being developed by many thousands of people around the world – most are not paid to do so – and yet has become a serious competitor for commercial software vendors.

In the software world, the GPL and it's fellow Free Software licenses are important. At the same time, much software is written that is covered under more traditional copyright licenses. This suggests that for other types of works, a more diverse universe of copyright alternatives may be possible as well.

A.2 Open Source Threshold Escrow (O-step) model

Proposed by the Center of Open Source & Government (EGovOS.org), the Open Source Threshold Escrow (O-step) model[41] tries to solve a specific problem that pesters governments and large organizations: long-term lock-in into software products and de-facto 'standards' for data exchange. While these organizations spend large amounts of money on proprietary software, they gain no control whatsoever over the source code. This leaves them at the mercy of the software vendor for new features or support on the software. Because the data exchange formats are also secret, the costs involved with changing to another software

40 More than 60% of the world's websites run on Apache software (Source: http://news.netcraft.com/archives/web_server_survey.html)

41 See http://www.egovos.org/

product are prohibitively high. Even worse, the software vendor can go bankrupt, or for any reason decide not to support the software anymore.

The O-step model is proposed as a way to solve this problem. Under the model, software is a private good until a certain number of copies is sold, or until the company has made a certain amount of money from the product. At that point, it becomes a public good, and is released under a Free Software or Open Source license. This does not mean that the original producer of the software looses all possible ways of making money on the product at that point – only that there can be competitors offering updates and support on the software from then on.

There are parallels with the current copyright system: the escrow is sale-based, not time-based. The decision to use the O-step model could be voluntary by the producer of the software. On the other hand, it could be a decision made by whoever provides funds for the software to be developed; e.g. when governments fund development. Governments and large organizations may also be able to use the size of their potential order to demand the O-step model from their software suppliers.

Of course, this model could also be applied to other kinds of works. While the proprietary lock-in problem is mostly a software problem, this approach could be practical and valuable for music, books, or films – particularly those for which government money was involved during the creation. After all, the public already paid for those works with taxes.

A.3 Compulsory licensing

Compulsory licensing could be another solution to the copyright problem. Several proposals have been made to make the sharing of copyrighted works legal, and fund the parties involved in their creation through a mechanism of compulsory licensing. Berkman Center for Internet & Society Faculty Director William Fisher proposes such a plan.[42] There are many things to be considered – for instance, how would the compulsory license be paid – through income taxes, through taxes on specific products or services, or some other way? Would it be a flat fee (which is what William Fisher proposes) or a fee dependent on usage of copyrighted material (as proposed by Lionel Sobel)[43] ? How would the distribution of the compensation among rights holders be determined? Would this invade privacy rights of the people? How fair would this system be?

42 See http://cyber.law.harvard.edu/home/home?wid=10&func=viewSubmission&sid=53
43 See https://www.law.berkeley.edu/institutes/bclt/drm/papers/sobel-drm-btlj2003.html

Fisher and Sobel go into a lot of detail answering these questions and many more, and as such their papers give a good overview of the problems involved with compulsory licensing.

It is worth noting that in the context of copyright, compulsory licensing can also refer to the compulsory licensing of copyrighted material to third parties by the rights holder. For instance, as mentioned in section 2.6.2, a compulsory license for mechanical reproductions of music exists.

A.4 Applying copyright law to commercial exploitation only

In chapter 12 of her book, 'Digital Copyright', Jessica Litman proposes to narrow copyright law down to only apply to commercial exploitation, or use that would cause “large-scale interference” with the commercial interests of the rights holders (Litman, 2003, p 171-191). Litman is eager to have copyright make sense in the eyes of the public. She wants copyright to be understandable and considered fair. She observes that making a difference between commercial and non-commercial use of copyrighted material is fairly close to how the system works in practice today. While this approach would certainly help to restore the copyright balance, it would be stiffly opposed by the content industry. And even if copyright law would be changed to accommodate this idea, the content industry is likely to keep using contract law and laws like the DMCA to reduce the ways people can use their content without paying. As Litman points out, “even if the copyright grant is narrowed in scope, the public will need some of *its* rights made explicit.” (Litman, 2003, p 182).

Appendix B: GPL and 'consideration' in contract law

The GNU General Public License (GPL) relies on contract law to enforce its licensing terms. Contract law requires a 'consideration' in exchange for property in most countries. Such consideration can be monetary, but also for instance the giving up of a right. Software covered under the GPL can always come free of charge (the original author can not stop someone from distributing it free of charge), so the monetary consideration is not there. See these two websites for background on 'consideration':

http://freeadvice.com/law/518us.htm
http://www.duhaime.org/contract/ca-con3.htm

The GPL has a 'No Warranty' section (http://www.gnu.org/licenses/gpl.html) that states:

> NO WARRANTY
> 11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
> 12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This could mean that the consideration in the case of the GPL is the acceptance of the absence of any warranty or liability of the author or distributor of the software. This has not been tested in court.