

## *Introduction: Valid Protection or Abusive Control?*

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*ABSTRACT Digital Rights Management (DRM) systems are often touted by the copyright material distribution industry as a 'solution' to the 'problem' of digital content and peer-to-peer sharing of copyright information. We introduce the law and technology overlap issues this generates, and present some motivating examples as to why this is an area in need of significant academic study.*

### **Introduction**

The memetic view of human culture, first codified by Dawkins,<sup>1</sup> classifies information as the basic element of culture. Whether that information is expressed in sounds (speech, music or non-speech utterances) or in vision (graphics, writing, sculpture) it is in the interaction of sender and receiver via the transport medium that culture is created. Control of the information people receive gives a measure of control over what and how they think. Perfect control over information reception is, of course, impossible. Since the development of the movable-type printing press technology development has been making the transmission of information quicker, easier and cheaper. However, until the development of the home computer and the rise of Internet access, multi-generational copying produced enough degradation in the signal that copying and distribution by ordinary members of the public remained highly limited. The final nail in the coffin of basic technological redistribution was the ability to compress music files sufficiently to make their distribution over Internet connection feasible. Given that the music industry had already cashed in on the move from analogue (vinyl and cassette) to digital (Compact Disc Audio) distribution, they were faced with a big problem: they had lost control of the means of distribution. The response was to use their significant wealth to lobby governments (particularly in the US and Europe) to pass new laws to prevent circumvention of

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'technological protection measures' applied to new or old technologies. Following the adoption of this in the World Intellectual Property Organization (WIPO) Copyright Treaty<sup>2</sup> and its implementation in the US as the 'Digital Millennium Copyright Act'<sup>3</sup> and in Europe as the 'Copyright in the Information Society Directive',<sup>4</sup> the music and film industry trade groups (the Recording Industry Association of America [RIAA] and Motion Picture Association of America [MPAA] in the USA and their international counterparts such as the International Federation of the Phonographic Industry [IFPI] and International Federation of Film Producers Associations [FIAPF]) were emboldened by such success and have moved across to lobbying for horrendously restrictive legislation which would put manufacturers of all electronic devices which have the capability to encode or decode information which might be under copyright, at the mercy of the requirements of the content middlemen industry for protecting 'their property'. One such proposal was even to give the content distribution industry immunity from the provisions of computer misuse laws and allow them, on terms far more lenient than those even allowed to law enforcement officials, to crack into networked computers which they had reason to believe were being used to infringe copyright. This is despite the already draconian laws against infringement in countries such as the USA, which set penalties at levels that assume each incident of infringement represents a commercial level of unproved prior activity and seeks to enact monetary penalties exceeding those of any other legal offence, including dealing in the most dangerous classes of illicit narcotics.

The linked subjects of Digital Rights Management (DRM) software and hardware, and the development of peer-to-peer distribution software (which simply uses the original designed architecture of the Internet to bypass the imposed client-server architecture beloved of large commercial distributors and government censors alike) are one of the multitude of areas in which modern communications technology is challenging the law and social norms to keep up with individual power and technological developments.

The papers in this Special Issue of the *International Review of Law, Computers and Technology*, range from examining the philosophical basis of copyright and its place in the modern technological world, to detailed examinations of the effects of specific legal measures on behaviour of users and of software developers.

In this Introduction, we highlight some of the controversial cases that have arisen in the last few years, on the use and abuse of DRM technology to exert not only the draconian level of control allowed in the legislation, but to extend that control beyond the restrictions imposed by copyright law.

### **Sony's Rootkit CD DRM**

One of the problems with distributing the CD audio format is that its specification (set by Philips the originator of the format) is a completely open and unencrypted digital copy of the music files. It remains one of the major distribution channels of the music market (despite recently being overtaken in dollars earned by digital downloads). There is a huge install base of the players needed for CDs in the Western world. Not only are special purpose CD players attached to most home sound systems, but new cars in recent years have been fitted with CD systems, and home computers have had drives capable of reading them in parallel to the physically compatible CD-ROM, CD-R and CD-RW formats. Consumers have grown used to the flexibility of being able to use each CD in various locations around the home and even away from home, in the office

or on the road using low cost portable players and laptop computers. The problem, claim distributors, is that the CD audio format is too open and thus allows not only reading on a variety of hardware, but the copying of the raw data and its burning onto CD-R/CD-RW discs (which are in turn compatible with most players) or its re-encoding into compressed formats such as MP3. Various mechanisms have attempted to prevent access by home computers to the raw data of CD audio, in ways which generally break the standard but which are within the tolerances of most special-purpose home players.

Unfortunately, the majority of customers already use some machines that do not fall into this model. Many of the portable and in-car players are based around computer CD-ROM drives which interpret the raw data stream and assume a level of compliance with the standard that is beyond that of the DRM-enabled discs.

Sony were not the first distributor to attempt to target home computers explicitly by making use of the separate CD-ROM standard to include software on their CD audio discs instructing the computer only to play the attached raw audio data files through 'approved' DRM-enabled software. The operating system on most home machines defaults to read such software and carry out its instructions whenever a disc is inserted into the drive. However, there is a deliberately simple method of avoiding this for a specific instance of disc insertion (usually holding down a key on the keyboard while inserting the disc). In addition there are software settings that change the default to NOT automatically running such software on insertion but only on explicit demand.

Rather than admitting defeat on CDs and perhaps turning their attention to promoting new distribution mechanisms (mini-disc, encrypted download, etc). Sony developed a program that, if executed once on a particular machine, would embed itself in the operating system and interfere with any attempt to copy data off that CD audio disc, with the intent that the same software would also check further releases from Sony and prevent their copying as well. There is a name for this type of software. It is called malware (which also includes the more common self-replicating viruses and worms). Sony did not go so far as to make their software self-replicating, but its unauthorized installation of software designed to change the fundamental operation of the computer may be regarded as breaking the computer misuse laws of many countries. Following significant adverse publicity, Sony withdrew the disc and issued a DRM-free version, and later issued a 'repair kit' program to unload their installed software. Unfortunately, the software they released still left the machines that had been 'infected' in a less than perfect condition afterwards, because it had changed certain security settings to make the machine more vulnerable to attack, which were then still left open.

Complaints have been made about Sony's actions to law enforcement in a number of countries and it remains to be seen whether they might be prosecuted for computer misuse. A private class action suit brought against Sony was offered a settlement in December 2005 with Sony offering replacement non-DRM versions of the disc and other *ex gratia* compensation for any difficulties caused, including giving assurances that information transmitted to Sony from customer's computers would not be used without their consent.

### Reading Aloud/Allowed

The music and movie industries are not the only copyright middlemen concerned about the potential for digital copying to disrupt their business model. The first criminal case arising from the anti-circumvention provisions of the US' DMCA arose from Dmitri

Sklyarov and his Russian employer Elcomsoft releasing a crack to defeat the very weak encryption system built into the Adobe ebook format. The case is well documented online.

Lessig<sup>5</sup> relates a tale of Adobe's ebook reader and its DRM system. In promoting the ebook standard (and of course their free reader that promotes their paid for production software by increasing the reader market) Adobe produced a number of public domain works as free downloads in ebook format, including Lewis Carroll's *Alice in Wonderland*. Adobe's ebook reader includes a moderately sophisticated set of different settings that may be applied to each individual ebook file. These allow the generator of an ebook to technologically allow or deny certain standard activities that might be done with text in more open formats, including: copying portions of the text as plain ASCII text (ie without font or other layout information) and passing the text into a text-to-speech synthesizer (one of the commonly used accessibility options for the blind or partially sighted computer user). There are clear rules about copyright when reprinting works that have passed beyond their period of copyright protection and into the public domain. A newly formatted version of such a work attracts a new copyright *in the formatting only*. The publisher does not gain any rights over the words, only their layout (which includes all elements of the typesetting). Before the advent of digital computers this meant that another publisher could not simply make a lithographic plate from a copy of the book and reprint it with perhaps minor changes (such as their publication details). In the digital age, this means that if taking all or some of such a digital text to use elsewhere, then only the text should be accessed. Adobe's ebook DRM system allows for this distinction. Unfortunately, whoever produced the *Alice in Wonderland* file laid claim to all the rights technically possible. In addition to the prevention of ASCII text copying, the way the permissions were stated made an even stronger claim that purchasers of the ebook were 'not allowed to read aloud'. While to the technically sophisticated this is a reference to the facility to pass the text through a speech synthesizer, the actual claim is that a public domain classic children's book can not be read aloud after purchase. Since education specialists everywhere encourage parents to read to their young children daily, this demonstrates the ridiculous situations to which DRM-enabled copyright can lead.

### Technology and Law Over-riding Rights

The cases described above are only a small sample of the examples of legally protected DRM mechanisms over-riding common sense and traditional rights of access to and re-use of media. There are many others, such as the fact that copying restrictions and region-encoding go hand-in-hand for games and DVDs. Courts have taken different views in the USA, Australia, the UK and Italy about whether bypassing the region encoding justifies bypassing the copy protection at the same time or whether protecting the copy protection necessitates legal protection for the region encoding as well. Automatic, and not well documented, DRM technology can even prevent people from accessing their own copyright material produced with DRM-enabled equipment, such as the case related on 42hours.org of a UK PhD student who no longer has access to the 42 hours of interviews he recorded with his Sony product, the loss of months of work because of automatic application of paranoid DRM restrictions on digitized recording of real-world sound (an attempt to plug the so-called 'analogue hole').

**Notes and References**

- 1 R Dawkins *The Selfish Gene* Oxford University Press, Oxford, 1989.
- 2 World Intellectual Property Organization *Copyright Treaty* 1996.
- 3 US Congress *Digital Millenium Copyright Act* 1998, H.R. 2281.
- 4 European Parliament and Council of the European Communities 'Directive 2001/29/EC of the European Parliament and of the Council on the harmonisation of certain aspects of copyright and related rights in the information society' 2001, OJ L 167, pp 10–19.
- 5 See ch 10, p. 152 of L Lessig *Free Culture* Penguin, Harmondsworth, UK, 2004.