

Liability for the Circumvention of Technological Protection Measures Applied to Videogames: Lessons from the UK's Experience.

David Booton * & *Angus MacCulloch* ⁺

Pre-Print Version of a Paper published in [2012] JBL 165-190.

Abstract

This article examines the emerging law regarding the circumvention of videogame TPMs. It identifies three concerns: a lack of unity between copyright interests and those protected by TPMs; the necessarily contrived arguments advanced to support claims to copyright infringement; and the disconnect between ownership of rights and control of interests.

Introduction

Those industries that rely on copyright have a new and considerable weapon in their armoury aimed at defending themselves against piracy of their products. The so-called 'Infosoc Directive'¹ requires EU Member States to provide legal protection against the circumvention of technological protection measures (TPMs).² Although introducing a novel form of legal protection, the intention behind the Directive is not to create new exclusive rights nor to extend existing ones. Thus the legal protection of TPMs is justified so far as the technical measures do no more than preserve principles and guarantees already laid down in copyright law.³

The videogame industry is an obvious beneficiary of laws preventing the circumvention of TPMs. Software piracy imposes significant costs on this industry. Precise, objectively verifiable, figures are not available and the industry's own estimates of the cost of piracy must be taken with a pinch of salt. But it is clear that piracy significantly effects unit sales and revenue

* School of Law, University of Manchester.

⁺ Law School, Lancaster University. The authors would like to thank Jaimie Vandenberg and others at 'ugym' for technical advice in relation to console architecture and Amanda Odell-West and Hazel Carty for commenting on early drafts of this article. All errors and omissions, of course, remain our own.

¹ Directive 2001/29/EC on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society. The origins of the legal prohibitions on the circumvention of technological protection measures contained in Article 6 of the Infosoc Directive lie in a 1995 European Commission Green Paper on copyright and related rights in the information society: COM(95) 382 final. For a fuller account of the deliberations leading up to the Infosoc Directive see: Institute for Information Law, *Study on the Implementation and Effect in Member States' Laws of Directive 2001/29/EC on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society* (The Netherlands: University of Amsterdam, 2007) (IViR Report), at pp.69-72.

² The Infosoc Directive was implemented in the UK in late 2003 by way of the Copyright and Related Rights Regulations 2003 (SI 2003 No. 2498) which amended the Copyright Designs and Patents Act 1988 so as to bring UK law into line with these European obligations.

³ Infosoc Directive, Recital (13).

with estimated losses running to billions of dollars.⁴ In an attempt to combat this, all the major videogame consoles use software authentication techniques aimed at ensuring that only authentic licensed videogame software is useable in standard (unmodified) machines.⁵

In an economic sense, such software locks complement copyright protection by artificially increasing the actual costs of transmission of game software. It is generally the case that, without intervention, there will be a failure in any market for an 'information good'. This is because, whilst it is often costly to produce, information costs very little to transmit. Thus it is difficult for someone who has devoted resources to the production of information to appropriate its value through its sale. In such circumstances, a producer sells information to a consumer who then becomes a potential competitor of the original producer. Videogames, as specialist software, are just one particular species of 'information good'. Although copyright places a legal restriction on the copying of the software, its effectiveness as a remedy for the market failure arising from free copying is undermined by advances in electronic storage and communication which have made the means of sharing videogames widely available to consumers at close to zero cost.

At the same time, the development and production of the modern generation of videogames is highly specialised and technical, whilst the target consumer base is increasingly wide and general. One consequence is that the costs involved in the production of videogames, and hence the damage to investment incentives of uncontrolled piracy, are obscure to the bulk of their consumers. There has been a rapid and extensive transition of the videogame market from niche to mainstream;⁶ a trend which is continuing and game manufacturers are attempting to further broaden their customer base by targeting 'ordinary' consumers by way of so-called 'casual' games.⁷ The modification of games consoles by consumers in a way that overcomes the manufacturers' software authentication techniques, so allowing the playing of unauthorised software, is not a new phenomenon and has long been a part of 'gaming culture'.⁸ But as

⁴ For Nintendo's dire predictions about the use of R4 Flash Cards, or 'magicoms', see, 'Console game makers fight "magicom" piracy craze', 20 April 2010, <http://www.asahi.com/english/TKY201004190412.html>.

⁵ These software locks have been used by several generations of videogames consoles.

⁶ Singleton, S., 'Copy Protection and Games: Lessons for DRM Debates and Development' (2007) Progress and Freedom Foundation, Progress on Point Paper, Release 14.2, at p.3.

⁷ See for instance, N'Gai Croal, 'You Don't Have to Be a Nerd' (2008) August 25, 152(8) *Newsweek*; Parish, J., 'Survival of the Fittest' (2008) July (230) *Electronic Gaming Monthly*. In this there have been some marked successes and the *Nintendo Wii* in particular is credited with making videogames popular with a cohort of adult consumers who would not traditionally have purchased or played such games. Because of the 'Wii effect', 25% of Americans over 50 now occasionally play videogames, and 44% of people playing are women: Last, J.V., 'Videogames - Not Only for the Lonely', (2009) November 28, *Wall Street Journal (Eastern edition)* p.W.13. Other console manufacturers and videogame publishers are developing products aimed at this newly emerging adult casual-gamer market: Kane, Y.I., and Wakabayashi, D., 'Videogames Rise to New Level', (2010) June 23, *Wall Street Journal. (Eastern edition)*, p.B.4 and see also Commission staff working document accompanying document to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Europe's Digital Competitiveness Report: volume 1- i2010: Annual Information Society Report 2009 - Benchmarking i2010: Trends and main achievements {COM(2009) 390 final} {SEC(2009) 1060} {SEC(2009) 1104}, at [5.3.3].

⁸ See e.g. Schulz, C. and Wagner, S., 'Outlaw Community Innovations' (2008), Munich School of Management, University of Munich, Discussion paper 2008-08, at p.3.

videogames have moved into mainstream markets, so too has modification moved from being a specialist technique developed and employed only by expert enthusiasts, to something that is routinely done and commonplace.⁹

It was concerns over intellectual property piracy that prompted the European Commission to propose legislation mandating the protection of TPMs. But of course intellectual property piracy is a concept that is meaningless without an underlying acceptance that individuals have legitimate rights to claim ownership of ‘intellectual property’. We do not here set out to present a wide-ranging argument addressing this fundamental issue, but note that it is precisely because copyright is not respected by large numbers of consumers that TPMs are thought necessary. Further, a widespread disregard for TPMs on the part of consumers has led to calls for such measures to receive legal protection. As videogames move increasingly into the mainstream, so manufacturers seem motivated by concerns that this ‘disrespect’ will contaminate consumers in mainstream markets.

It is against this background that the videogame industry is trying out the new laws’ fitness for restricting the sale of readily available console modification devices such as ‘modchips’,¹⁰ and ‘R4 cards’.¹¹ Although the industry has had mixed fortunes in its European campaign directed against the sellers of such devices,¹² it has had some recent successes in the

⁹ It is notable that the most popular gaming device of the current generation, Nintendo’s *DS* handheld, is also the easiest to unlock using a widely available ‘R4’ card which was one of several devices imported and dealt with by the defendants in *Nintendo Co Ltd v. Playables Ltd* [2010] EWHC 1932 (Ch).

¹⁰ Modchips, once installed in a games console, enable games not authorised by the console’s manufacturer to be played on the modified console. This would not normally be possible because games consoles typically contain encoded software ‘locks’ which only allow a game to be played if the optical disc on which the game software is stored has the correct codes. Writing these codes is only possible using highly specialised methods. The codes on authorised discs cannot therefore be copied in practice and are thus absent from unauthorised software.

¹¹ Smaller, handheld, consoles typically do not use optical media but store software on proprietary game cards or cartridges. Again, authentication methods are used to ensure that only properly licensed game cards are used. But here internal modchips are typically not used to modify handheld consoles, rather ‘R4’ type cards are used to the same effect. These are devices which are designed to fit into a slot on certain consoles that normally would receive the console manufacturer’s dedicated game storage device (the game card or cartridge). R4 cards contain either built-in memory or a further slot of their own which accommodates a generic memory card such that copies of games can be stored on the device. They also contain circuitry, software and data, which enable them to pass the tests performed by the console to verify that the game card inserted is genuine. In this way, such devices enable unlawful copies of games to be played: see e.g. *Nintendo Co Ltd v. Playables Ltd* [2010] EWHC 1932 (Ch), at [8]-[9].

¹² In November 2009, the Salamanca district court dismissed a criminal action brought against a seller of R4 cards on the grounds that the question of whether a console manufacturer (Nintendo) had the exclusive right to manufacture accessories for their consoles was a matter for the civil and not the criminal courts: <http://www.bufetalmeida.com/554/movilquick.html> . In 2009, Nintendo also failed in its attempt to prosecute the sellers of R4 cards in France: http://www.eurogamer.net/articles/nintendo-to-appeal-not-guilty-judgement-of-flash-cart-sellers_7 . The console manufacturers have had mixed fortunes in Italy. In 2003, the Bolzano Tribunal held that modchips were not mainly aimed at allowing the use of illegal copies, but rather prevented console manufacturers’ abusing their monopoly position and facilitated better use of consoles: Tribunal of Bolzano, Italy, 31 December 2003 [2006] E.C.D.R. 18. However more recently the Italian Supreme Court has held the producer of modchips liable for the circumvention of TPMs under the Italian legislation implementing the Infosoc Directive: see Arezzo, E., ‘Video games and consoles between copyright and technical protection measures’ (2009) IIC, 82.

United Kingdom. The videogame-console manufacturer Nintendo, in *Nintendo v. Playables*¹³ and *Nintendo v. Console PC Com*,¹⁴ succeeded in its applications for summary judgment against importers and dealers in R4 type devices, whilst in *R v. Gilham*¹⁵ the conviction of modchip seller was upheld by the Court of Appeal.

In this article we give an account of the emerging UK law aimed at restricting the circumvention of TPMs, highlighting issues that have been exposed by the cases brought under this legislation and focusing in particular on the potential social costs of the aggressive enforcement strategy adopted. The legislation as drafted is obscure and leaves considerable room for interpretation. Courts, presented with evidence of the damaging effect of piracy and invited to apply a legislative scheme apparently aimed at addressing this problem, seem naturally inclined towards supporting the industry's position by interpreting the law in a way that accords with the industry's arguments as to its scope and effect. That is understandable, but carries significant risks if done without a full appreciation of the consequences. There is a real risk that restrictions placed on users by TPMs coupled with the rules that evolve regarding their legal protection will come to supersede established rules of copyright; which in turn risks not only damaging the interests of consumers (which itself may lead to a backlash that will in the longer term damage the interests of producers) but also damaging established doctrines and principles at the heart of copyright law. We identify and address three principal concerns.

First, although they are related, there is not a precise correspondence between the interests protected by copyright and those protected by TPMs. We set out to illustrate the consequence that the enforcement of laws preventing the circumvention of TPMs prevents certain lawful activities that do not involve piracy or the infringement of copyright and suggest that this is likely to fuel dissatisfaction amongst an important subset of consumers. The industry's strategy of using the law protecting TPMs to enhance the credibility of copyright amongst adult consumers thereby carries the risk that the law will become a 'lightning rod' serving to focus consumer dissatisfaction regarding manufacturers' attempts to control markets, for example by differential pricing and geographical partitioning.

Secondly, the strategy using the stigma of criminal liability to influence consumer behaviour may also harm established copyright doctrine and principles. The legitimate expectations of both users and producers in terms of what is allowable, and the laws that give effect to these expectations, vary according to whether what is at issue is understood to be specialist software or an 'entertainment product' akin to film. An aggressive enforcement strategy based on establishing criminal liability requires claimants to advance highly contrived arguments as to the copyright work(s) protected by the relevant measure and how copyright might be infringed by the measure's circumvention. In both respects we argue that the industry's success has been too easily gained.

Finally we point to the need to scrutinise the ownership and control of rights and interests in videogames noting that the dominant business model under which the videogame industry

¹³ *Nintendo Co Ltd v. Playables Ltd* [2010] EWHC 1932 (Ch).

¹⁴ *Nintendo Co Ltd v. Console PC Com Ltd and Chan* [2011] EWHC 1458.

¹⁵ [2009] EWCA Crim 2293.

operates is not a comfortable fit with the European legislation providing for the legal protection of TPMs. The industry is made up of a number of participants (at root, console manufacturers, software publishers and software developers) and is characterised by often complex licensing agreements between them and sometimes other parties with tangential interests in the games industry. One consequence is that the rights protected by copyright are often not in the hands of those for whom control of transmission and access (via the legal protection of TPMs) is a primary concern and the courts by upholding the claims made under UK law have in effect created a new neighbouring right: a console manufacturers' right.

The UK's Legal Restrictions on the Circumvention of Technological Measures

In the United Kingdom, the legal restrictions on the circumvention of protection measures are now contained in sections 296 to 296ZF of the amended Copyright Designs and Patents Act 1988 (CDPA). The Infosoc Directive requires Member states to provide appropriate sanctions and remedies which must be 'effective, proportionate and dissuasive'.¹⁶ The UK has responded by adopting a scheme that provides civil and criminal remedies.¹⁷

There are two restricted acts, but only the second allows for a criminal mode of redress.¹⁸ For works other than computer programs, which for reasons linked to the history of the European legislation have their own scheme protecting TPMs, the first restriction is on the actual circumventing of 'effective technological measures'. A civil right of action can be brought against a person who circumvents such measures if he knows, or has reasonable grounds to know, that he is pursuing that objective.¹⁹ The criminal offence of dealing in devices designed to circumvent technological measures contained in s.296ZB CDPA is partnered by s.296ZD CDPA which provides for civil rights and remedies in the same circumstances. The decision to seek criminal redress is the right owner's.²⁰

Typically in copyright cases, where a choice exists, most claimants choose to make use of the civil process.²¹ The decision to institute criminal proceedings against Christopher Gilham

¹⁶ Infosoc Directive, Art 8.1.

¹⁷ Borrowing from the existing scheme as it applies to copyright infringement, on which note ss.107-110 CDPA 1988 which contain a series of offences concerning infringements of copyright and see Cornish, W., Llewelyn, D. and Aplin, T., *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights*, 7th edition (London: Sweet & Maxwell, 2010), at [2-19].

¹⁸ Claims that criminal sanctions in this context are too severe can be countered by the observation that such are 'proportionate' in context, being in line with the range of remedies available for copyright infringement.

¹⁹ Section 296ZA CDPA 1988.

²⁰ *Thames & Hudson v. DACS* [1995] FSR 153. Note the competence of any citizen in England and Wales and Northern Ireland to institute criminal proceedings. The Law Commission has expressed the view that prosecutions under the CDPA 1988 should require the consent of the Attorney-General or Director of Public Prosecutions but this is not currently the case: Consultation Paper No.149 (1977) and see also: Cornish, Llewelyn and Aplin, above n.17, at [2-18].

²¹ Cornish, Llewelyn and Aplin, above n.17, at [2-18].

under s.296ZB CDPA indicates an unusually aggressive enforcement strategy. A successful criminal prosecution is a high profile event and the industry seems to be signalling to consumers a strong reminder that videogames are not free for the taking and that modification of consoles is against the law. Fear of the stigma of being labelled a criminal is likely to exercise a significant pull on the conscience of typical adult consumers.²² A desire to highlight the unlawfulness of circumventing TPMs also perhaps explains Nintendo's decision to proceed with litigation against certain importers and dealers in 'game copiers' notwithstanding that Nintendo achieved a partial settlement of their claim by way of a contractual arrangement.²³ The timing is important so far as new adult consumers of videogames do not yet have fixed expectations based on experience as to what is acceptable to do with consoles and games.

An essential element of the offence in s.296ZB CDPA is that the defendant's acts²⁴ must involve a device, product or component 'which is primarily designed, produced, or adapted for the purpose of enabling or facilitating the circumvention of effective technological measures'.²⁵ The definition of 'technological measures' applies to sections 296ZA through to 296ZE²⁶ and crucially, whether a technology amounts to such a measure is conditional on whether it is designed to protect a copyright work.²⁷ By protection it means the prevention or restriction of the acts restricted by copyright.²⁸ Put simply, to succeed in a civil or criminal action, it is necessary to show that the measures being circumvented are designed to prevent the infringement of copyright.²⁹ In this respect it is not enough to show that the technological measure acts as a discouragement or general commercial hindrance to infringement. Rather it must be shown that the measure aims at physically preventing infringement.³⁰ This link with copyright protection provides an essential limit on the rules restricting the circumvention of TPMs. As noted above, the legal protection of TPMs is justified only so far as the measures are

²² Garon, J.M, 'What if DRM Fails?: Seeking Patronage in the Iwasteland and the Virtual O', (2008) (1) Mich St. L. Rev., 103, at p.124.

²³ *Nintendo Co Ltd v. Playables Ltd* [2010] EWHC 1932 (Ch), at [3].

²⁴ Under s.296ZB(1) CDPA 1988, a person commits an offence if he (a) manufactures for sale or hire, or (b) imports otherwise than for his private and domestic use, or (c) in the course of a business – (i) sells or lets for hire, or (ii) offers or exposes for sale or hire, or (iii) advertises for sale or hire, or (iv) possesses, or (v) distributes, or (d) distributes otherwise than in the course of a business to such an extent as to affect prejudicially the copyright owner, any device, product or component which is primarily designed, produced, or adapted for the purpose of enabling or facilitating the circumvention of effective technological measures.

²⁵ Section 296ZB(1) CDPA 1988.

²⁶ Section 296ZF CDPA 1988.

²⁷ Section 296ZF(1) CDPA 1988.

²⁸ Section 296ZF(3) CDPA 1988.

²⁹ See e.g. *R v. Higgs* [2008] EWCA Crim 1324, at [13]. The Infosoc Directive is not clear as to whether only those TPMs which objectively protect works against acts restricted by copyright are to receive legal protection with the consequence that in this respect there has been some divergence in the laws of the Member States implementing the directive: see IViR Report, above n.1, at p.75.

³⁰ *R v. Higgs* [2008] EWCA Crim 1324, at [35]. In *Nintendo Co Ltd v. Playables Ltd*, Floyd J. expressed some doubt as to whether the physical shape and electrical characteristics of a games storage cartridge would qualify as such: [2010] EWHC 1932 (Ch), at [23].

intended to preserve principles and guarantees already laid down in copyright law.³¹ Thus, although TPMs can be used to govern a wide range of user behaviours,³² only those TPMs that restrict acts that are restricted by copyright receive legal protection. The new law does not set out to extend existing monopolies, nor to create new ones, but rather aims to do no more than bolster right holders' (technical) efforts to protect what rights they already enjoy in their copyright works.³³

The Restriction or Prevention of Certain Lawful Activities

The new law may not have set out to extend existing monopolies or create new ones but the legal protection afforded to technical measures will inevitably restrict certain lawful activities. This is inevitable given that the effects of technological protection measures can never be as nuanced as those of the law.³⁴ First, those unauthorised videogames that modchips allow to be played are not invariably 'pirated': they are not always games that have been copied without the licence of the relevant copyright owner. There is a small but significant 'homebrew' community, peopled by enthusiasts who set out to create executable programmes for home consoles.³⁵ Games consoles are a particularly attractive platform to develop home-made software because they are relatively cheap but powerful computing devices equipped with high performance central processing units and graphic processors which can, if modified, work in a variety of ways not endorsed by the manufacturer.³⁶ For instance, one of the most successful homebrew applications is the *XBox Media Center* which considerably expands the console's ordinary capacity to store and manage multi-media.³⁷

Although some console manufacturers have offered support for the development of homebrew software,³⁸ the majority of standard consoles cannot run any kind of 'unauthorised'

³¹ Infosoc Directive, Recital (13).

³² Such as, for example, the number of times a work may be accessed, the duration of access, the ability to reproduce or transmit the work, or the payment schedule for additional access: see Burk, D., 'Market Regulation and Innovation: Legal and Technical Standards in Digital Rights Management Technology', (2005) 74 *Fordham L. Rev.* 537, at p.546.

³³ Infosoc Directive, Recital (47).

³⁴ Besek, J.M., 'Anti-Circumvention Laws and Copyright: A Report from the Kernochan Center for Law, Media and the Arts', (2004) 27 *Colum. J.L. & Arts.* 385, at p.394.

³⁵ More 'homebrew' is created for older generation machines, but considerable material exists for recent and current generation consoles. For examples of the homebrew software available for the Microsoft Xbox see, http://www.xbox-hq.com/html/modules.php?name=Xbox_Homebrew.

³⁶ See in relation to the Xbox: Soghoian, C., 'Caveat venditor: Technologically protected subsidized goods and the customers who hack them', (2007) 6 *Northwestern Journal of Technology and Intellectual Property*, 46, at p.51.

³⁷ Schulz and Wagner, above n.8, at p.8. For a brief outline of the history surrounding the breaching of the Xbox's TPMs see Soghoian, above n.36, at pp.52-53.

³⁸ See generally Flowers, S., 'Harnessing the hackers: The emergence and exploitation of Outlaw Innovation' (2008) 37 *Research Policy*, 177, at pp.181-184. Notable examples are the Sony's Net Yaroze Playstation, and the Microsoft's XNA Game Studio (see <http://creators.xna.com/>).

software without modification. Although the homebrew community has been a consistent feature of video gaming culture for some time it remains small³⁹ and there is considerable evidence that modification devices are used primarily for the purpose of infringing activity rather than to support the lawful use of playing homebrew games.⁴⁰

Of greater significance to the general consumer is that console manufacturers use the embedded codes to support regional differentiation of markets. Games are marketed in a commercially strategic way such that videogames available in one geographic region may not be available in another,⁴¹ there may be significant differences in the price charged for a particular game in different regions⁴² and there may be differences in the release date between regions.⁴³ Modchips allow users to play games designated for publishing regions other than the one to which their console is 'locked'.

It is here that that the new law expands the rights of the copyright owner. A UK resident who, for instance, buys a videogame in the USA intending it to be for his own private and domestic use does not infringe UK copyright in the videogame by importing it into the UK. But to play that game, he would either have to purchase a USA-region-locked console or he would have to modify his UK-region-locked console to allow it to play unauthorised games. The latter act is a circumvention of a technological protection measure falling within s.296ZA CDPA. And, of course, he would have to obtain a suitable modchip, likely as not from a dealer, who by offering for sale the modchip would be caught by s.296ZB or s.296ZD CDPA.

In both cases, the new restrictions are likely to illicit a negative reaction from that small band of game players that are either home-brewers or private importers or both. So far as the latter is concerned, the interests of the games industry is set against a widespread and 'instinctive' prejudice on the part of users, who typically react negatively to attempts by providers to control material which they have lawfully acquired.⁴⁴ At root the difficulty here is

³⁹ See e.g. Flowers, above n.38, at pp.181-184 and note the section on 'Homebrew Game Development' for various consoles in Grand, J., Thornton, F., and Yarusso, A., *Game Console Hacking: Having Fun While Voiding Your Warranty* (Rockland, MA: Syngress Publishing, 2004).

⁴⁰ *Nintendo Co Ltd v. Playables Ltd* [2010] EWHC 1932 (Ch), at [38]. In *Nintendo Co Ltd v. Console PC Com Ltd and Chan*, Kitchen J., held that developing and running 'homebrew software' was not a commercially significant purpose for dealing in game copiers: [2011] EWHC 1458, at [25]-[26].

⁴¹ For most consoles there are three main regions: the NTSC-USA, NTSC-Japan and PAL-Europe. Other areas may get separate releases but are, in effect, sub regions of the main three; for example, Australia may get a separate commercial release but is functionally considered to be part of PAL-Europe.

⁴² See generally Soghoian, above n.36, at p.50. A recent and controversial example is that of *Rockband*, (developed by Harmonix and published by EA/MTV) which at its launch was priced at \$169 (£85, €107) in the US and £180/€240 in Europe: see <http://www.eurogamer.net/articles/rock-band-man-defends-euro-price>. Australia seems to suffer from a particularly high RRP price point: \$110 Aus (£70) compared to £50 in the UK, and \$60 (£40) in the US.

⁴³ For example, *Final Fantasy XIII* (developed and published by Square Enix) was released in Japan on 17 December 2009, and in the EU and US on 9 March 2010. Delays can also occur in the reverse, the European developed console version of *Grand Theft Auto IV* (developed by Rockstar North and published by Rockstar Games) was released in the EU and US on 29 April 2008, but not until 30 October 2008 in Japan.

⁴⁴ Cornish observes that 'copy control... provokes many users to react instinctively against a provider having the power still to control what they have acquired': Cornish, Llewelyn and Aplin, above n.17, at [20-78].

that users are unlikely to respect the interests of intellectual property rights owners without appreciating that the law serves to remedy the market failure that would otherwise lead to an underinvestment of resources in the provision of intellectual goods. There is an inevitable tendency to see intellectual property rights as contrived and artificial compared to the familiar territory of rights in tangibles. This perception is likely to be greater in the case of newly created rights, such as those designed to protect against the circumvention of TPMs.

No doubt the negative reaction on the part of ‘home-brewers’ is a further manifestation of the generally poor appreciation of the nature of intellectual property. But it is also a feature of the inevitable marginalisation of this community as videogames make the transition from a niche to a mainstream market. Importantly, this transition invites thinking of videogames, not as a subset of the software market but as more akin to the older forms of entertainment product such as films. Software is a product where the current generation of users and producers expect a high degree of user engagement and interactivity. So powerful is this norm that it finds expression in a legal right of users to make backup copies and to decompile software notwithstanding intellectual property rights.⁴⁵ But user interactivity in videogames as a mainstream entertainment, whilst obviously present, is allowed only within strict parameters set and controlled by games’ producers. The industry has grown and developed so quickly that this transition from niche software to mainstream entertainment has occurred within a generation of users. The consequence is that home-brewers, precisely because they are technologically advanced, are not typical or target consumers. At the same time, the technical adeptness of the homebrew community make it unusually aware of the costs and difficulties of developing a successful videogame, and there is some evidence that this community sympathises with the industry’s attempts to protect itself against piracy.⁴⁶ It might be enough to persuade this small band of consumers to respect intellectual property and related rights if console manufacturers did more to encourage and support small-scale, non-commercial, software development for their products.⁴⁷

Another issue that highlights the conflict between TPMs and the desire of console users to increase the functionality of their consoles is the use of mass storage devices. Contemporary games consoles rely on proprietary optical media or game cards as part of the TPM, but the reliance on the individual media means that users cannot use mass storage solutions to ‘install’

⁴⁵ Rights enshrined in Article 5 and Article 6 of Directive 91/250/EC on the Legal Protection of Computer Programs (the Software directive).

⁴⁶ Although this does not lead to a greater respect for copyright: Schulz and Wagner, above n.8, at p.16.

⁴⁷ Recent events also show the risks when industry seeks to limit user functionality of products. In 2009, a well-known hacker George Hotz (alias ‘GeoHot’) announced his intention to ‘Jailbreak’ the PS3 so as to allow unsigned code to run on the console. In 2010 Sony responded by removing the ability to run the Linux operating system on the PS3 as it was seen to be a potential hacking vulnerability. This was seen as a challenge by the hacking community and the PS3 was subjected to sustained attempts to overcome the security measures built into the console with the result that the PS3’s fundamental security was successfully breached and the details published online in January 2011. After Sony took legal action against Hotz the dispute widened and in response the ‘hacktivist’ group ‘Anonymous’ began attacks on Sony resulting in the security of Sony’s PlayStation Network (PSN) being compromised and the loss of 77 million users’ personal details. The legal action between George Hotz and Sony was settled but the damage caused by the hacking of PSN was enormous in commercial and reputational terms: see <http://www.telegraph.co.uk/technology/sony/8495072/Playstation-hack-timeline-of-huge-security-breach.html>.

more than one, legitimately purchased, game on a console and access them as and when they wish. The issue is most easily illustrated in relation to handheld, portable, consoles such as the Nintendo DS. Games for the console are on small game cards⁴⁸ which must be carried around with the console. This inconvenience has pushed some users to find a way of using cheap mass storage so that they can carry a collection of games on one card. ‘R4’-type cards allow this functionality as a number of games can be installed onto the micro SD card within the R4 device.

Most contemporary home (non-portable) consoles contain mass storage built in by the manufacturer. This allows users to download purchased content from online stores and to update software. However some users also use that storage to install game content from games purchased on optical media.⁴⁹ The main benefits of installing games in this way, apart from convenience, is an increase in the speed of games loading, a reduction in disc noise while playing and the reduction of wear and tear on the optical drives themselves. Often, though not invariably, installing games on a console’s mass storage device will involve the circumvention of TPMs.⁵⁰

Copyright in Videogames

In all cases, whether the act complained of is the circumvention of a TPM, or is dealing in devices designed to circumvent such measures, and whichever mode of redress (civil or criminal) is sought, it is necessary first to identify a work in which copyright subsists and then to ask whether there are technological measures in place designed to prevent infringement of the rights in that work.

Videogames as such are not works in which copyright subsists. Copyright subsists in: (a) original literary, dramatic, musical or artistic works; (b) sound recordings, films or broadcasts; and (c) the typographical arrangement of published editions.⁵¹ The owner of the copyright has a number of exclusive rights (the ‘acts restricted by the copyright’) including the right to copy a work.⁵² Under UK law, copyright in a work is said to be infringed by a person who, without the licence of the copyright owner, does any of the acts restricted by the copyright, either in relation to the whole work or to ‘any substantial part’ of it.⁵³ The question of substantiality is a matter of

⁴⁸ Game cards are approximately the same size as a standard ‘SD’ memory card.

⁴⁹ Many games, particularly on the Sony PS3, now require certain content to be installed to the console’s mass storage device before they can be played at all.

⁵⁰ A mass storage solution for the Wii exists, via the Wii USB Loader, which operates through the circumvention of TPMs. Following a recent update to the console’s operating system Microsoft’s Xbox 360 allows for games to be installed to the console’s hard drive, but the game disc still needs to be in the console when the game starts to allow the normal authentication to take place; thereafter the game runs from the hard drive.

⁵¹ Section 1 CDPA 1988.

⁵² Section 16(1) CDPA 1988.

⁵³ Section 16(2) CDPA 1988.

impression being determined by the quality of that part taken rather than its quantity.⁵⁴ There is a question however as to whether the UK courts' established approach survives the implementation of the Infosoc Directive. Article 2 of the Directive is headed 'reproduction right' and provides that Member States shall provide for the exclusive right to authorise or prohibit direct or indirect, temporary or permanent reproduction by any means and in any form, in whole or in part, of relevant works. Crucially there is no express reference to a 'substantial part' and in this respect the wording of the Directive differs from that of the UK Act. In *Infopaq International v. Danske Dagblades Forening*, the Court of Justice of the European Union (CJEU), called upon to interpret Art. 2 of the Infosoc Directive,⁵⁵ observed that the need for uniform application of Community law and the principle of equality required that where provisions of Community law made no express reference to the law of the Member States for the purpose of determining their meaning and scope, as was the case with Art.2, then normally the provisions must be given an autonomous and uniform interpretation throughout the Community.⁵⁶ It went on to hold that the various parts of a work enjoy protection under Art. 2 of the Infosoc Directive provided that they 'contain elements which are the expression of the intellectual creation of the author of the work.'⁵⁷ This is clearly a qualitative test but one that focuses on originality rather than substantiality. Proudman J. in *Newspaper Licensing Agency Ltd v. Meltwater Holding BV*⁵⁸ held that 'as a matter of principle' this is now the only test but added that in her judgment, the test of quality whilst it had been re-stated, had not been significantly altered by the Court of Justice's ruling.⁵⁹

Whatever test is to be applied, a fundamental difficulty so far as videogames are concerned, is that it is not possible to say that a work is copied (let alone substantially) without first categorising that work, since what amounts to a copy varies according to the type of work in which copyright is claimed. The matter is complicated because the various categories of work in which copyright can subsist are not necessarily mutually exclusive and a particular production may belong to more than one category.⁶⁰ If this is so, the question whether there is an

⁵⁴ See for instance *Ladbroke (Football) Ltd v. William Hill (Football) Ltd* [1964] 1 WLR 273 (Lord Reid, at p.276, Lord Evershed, at p.283, Lord Hodson, at p.288 and Lord Pearce, at p.293); *Designers Guild Ltd v. Russell Williams* [2000] 1 W.L.R. 2416; and *Newspaper Licensing Agency Ltd v. Marks & Spencer Plc* [2001] UKHL 38, at [19]. The appellant in *R v. Gilham* appealed on the basis that the trial judge had misdirected the jury as to the meaning of 'substantial part'.

⁵⁵ Case C-5/08 *Infopaq International v. Danske Dagblades Forening* [2010] FSR 495.

⁵⁶ *Ibid.*, at [27].

⁵⁷ *Ibid.*, at [39].

⁵⁸ [2010] EWHC 3099 (Ch).

⁵⁹ *Ibid.*, at [81]. On appeal, the Court of Appeal upheld Proudman J.'s decision but disappointingly did not give a reasoned and detailed consideration of the test that should be applied where there has been only a partial taking of a copyright work: *Newspaper Licensing Agency Ltd and others v. Meltwater Holding BV and others* [2011] EWCA Civ 890, at [23]-[29].

⁶⁰ So in *Norowzian v. Arks Ltd (No. 2)* [2000] F.S.R. 363, the Court of Appeal held that a film could be both a recording of a dramatic work and a dramatic work in itself, or alternatively a recording of something which was not a dramatic work, or a dramatic work in itself but not a recording of a dramatic work and in *Anacon Corp Ltd v. Environmental Research Technology Ltd* [1994] F.S.R. 659, an electronic circuit diagram was held to be both an artistic work and a literary work.

infringement will turn on what particular aspect of the work has been copied. For instance, the essential nature of artistic works is that they are things to be looked at and so what matters in relation to the infringement of such works is that which is ‘visually significant’.⁶¹ So, to infringe artistic copyright, a copy must look like the original work in which copyright is claimed. In contrast, a literary work is something that is read as opposed to appreciated simply with the eye.⁶² Further, certain complex products such as films, multi-media productions and videogames, and compilations such as encyclopaedias and newspapers, will likely incorporate several separate copyright works.⁶³ For instance, in the case of a newspaper, each of the articles is a literary work, the drawings and photographs are artistic works and the publisher is also entitled to a copyright in the typographical arrangement of the published edition.⁶⁴ Substantial reproduction of any of the individual works in such complex products will amount to an infringement if done without the licence of the copyright owner of that individual work. The issue of infringement must be considered in relation to each separate copyright work relied upon.⁶⁵

The Court of Appeal *R v. Gilham* took the view that a videogame ‘as a whole’ could be the subject of copyright without specifying the category or categories of copyright work into which games ‘as a whole’ might fall. The court also held that artistic copyright subsisted in various drawings that result in the images shown on the television screen. Neither assertion is entirely convincing.

A claim to copyright in a videogame ‘as a whole’, can be based on only three possible categorisations: that of literary work; film; or dramatic work. Videogames, as computer programs, are ‘literary works’ and enjoy copyright as such.⁶⁶ However, so far as technological measures designed specifically to protect computer programs are concerned, the UK legislation reflects the scope of the Infosoc Directive which leaves computer programs to be governed by the Software Directive of 1991.⁶⁷ But for this, the anti-circumvention rules contained in the Infosoc Directive might have conflicted with the provisions on decompilation provided for in the earlier Directive.⁶⁸ As it is, the UK’s implementing Regulations amended the CDPA 1988 by substituting s.296 so that it now covers the regime on circumvention of technical devices applied only to computer programs. Under s.296 CDPA a civil right of action exists against persons who, for commercial purposes, manufacture or deal in a means which has the purpose of

⁶¹ *Anacon Corp Ltd v. Environmental Research Technology Ltd* [1994] F.S.R. 659, at p.662; *Interlego AG v. Tyco Industries Ltd* [1988] R.P.C. 343, at p.373.

⁶² *Anacon Corp Ltd v. Environmental Research Technology Ltd* [1994] F.S.R. 659, at p.663 and see also *Newspaper Licensing Agency Ltd v. Marks & Spencer Plc* [2001] UKHL 38, at [19].

⁶³ For an overview see Stamatoudi, I.A., *Copyright and Multimedia Works, A Comparative Analysis* (Cambridge: Cambridge University Press, 2002).

⁶⁴ *Newspaper Licensing Agency Ltd v. Marks & Spencer Plc* [2001] UKHL 38, at [4].

⁶⁵ See for example *Nova Productions Ltd v. Mazooma Games Ltd* [2006] EWHC 24 (Ch), at [127].

⁶⁶ Section 3(1)(b) CDPA 1988.

⁶⁷ Infosoc Directive, Article 1.2(a) and Recital (50).

⁶⁸ See the Commission’s 2004 review of the EC legal framework in the field of copyright and related rights (SEC(2004) 995) and note also Cornish, Llewelyn and Aplin, above n.17, at [20-79].

facilitating the removal, or the circumvention, of a 'technical device'.⁶⁹ Importantly, there is no criminal mode of redress under this section. In *Nintendo v. Playables* and *Nintendo v. Console PC Com*, the applications for summary judgement were founded in part on claims under s.296 CDPA which allowed the claimant in each case to assert copyright in the game as a whole as a computer program, whereas in *R v. Gilham* a conviction could not be secured on the basis of a claim to literary copyright.

The most comprehensive category of copyright work into which videogames 'as a whole' might fall is that of film. Section 5A CDPA defines a film as 'a recording on any medium from which a moving image may by any means be produced'. Thus, if a moving image is part of a work's make up it can be treated as a film whether or not the viewer/player interacts with the work.⁷⁰ But it is important to appreciate that a film is understood to be the actual material recording (the celluloid, videotape or electronic means) and not what is recorded.⁷¹ Infringement of film copyright therefore requires copying of the actual film - the recording constituted by the film - and it is irrelevant whether the subject-matter of the film has been copied.⁷² If film copyright protects only the material recording, then any claim to film copyright in a videogame requires an answer to the question: 'where is the game, as a film, recorded?' It cannot be the software stored on disc since this is no more than the 'idea' for a film constituting characters and a basic plot outline. What those characters then do and how the plot develops depends on how the game is played. In the vast majority of in-game sequences the moving images on the screen are produced by way of a combination of pre-scripted animation cycles, user input, and procedurally generated 'artificial intelligence' input.⁷³ During the playing of a game, data is taken from the disc into the random access memory ('RAM') of the console. As the game is played, the data in RAM is over-written by different data from the disc. Certainly it could be argued that the videogame as a film is recorded in the console's RAM as the game is played. But if that is so then it cannot be argued that what is contained in the RAM is a reproduction of the film. Rather it is the film.

It would be easier therefore to claim film copyright in one or more of the pre-scripted 'cut scenes' or animation cycles stored on disc.⁷⁴ But such a claim creates its own problems. First it

⁶⁹ Section 296(1) CDPA 1988.

⁷⁰ At [11-25].

⁷¹ *Norowzian v. Arks Ltd (No. 2)* [1999] F.S.R. 79, at 86.

⁷² *Ibid.*, at p.88 and noted in *Nova Productions Ltd v. Mazooma Games Ltd* [2006] EWHC 24 (Ch), at [120].

⁷³ The bounded interactivity of a game might also raise questions about 'authorship' although these are beyond the scope of this article. Suffice to say that the level of interaction the player is allowed in different games is diverse. In many genres the player is constrained within a game 'corridor' through which they progress by overcoming a series of obstacles. In that sense the level of 'authorship' the player is allowed is minimal. In other genres, notably 'sandbox' games, the player is given enormous freedom to interact with the gameworld, only constrained by the basic physical rules that make up that world. In such games the developer can still control progression to some extent, usually by locking certain content until a particular key 'mission' or bottleneck is passed, but otherwise the player can develop their own game within the world.

⁷⁴ Cut scenes are segments of video, which may be produced using the game engine or entirely separately, which appear in a game and are not under player control, being produced entirely by the developer, and which are often used to set out important events during gameplay. Some can last for seconds, others can extend to 15 minutes or longer.

would be necessary to establish that either the sequence relied on was a film in itself, or that it was at least a substantial part of the film that was the videogame as a whole. Second, it would then have to be shown that what was copied into the console's RAM during gameplay amounted to a substantial part of the claimed copyright subject-matter.⁷⁵

Many films are also 'dramatic works' within the meaning of the Act,⁷⁶ but videogames it seems are not. A dramatic work is a work of action which is capable of being performed before an audience⁷⁷ and must have sufficient unity to be capable of performance.⁷⁸ Videogames lack these essential features. Although games have boundaries set by the developer, the particular sequence of images displayed to the viewer/player depend on how the game is played and the sequence will vary from one game to another, even if the game is played by the same individual. On this basis it has been held that there is insufficient unity within a videogame for it to be said to be capable of performance.⁷⁹

There are thus considerable difficulties of categorising videogames as-a-whole as anything other than a computer program. But in *R v. Gilham*, the Court pointed to the 'various drawings that result in the images shown on the television screen or monitor' noting that these are artistic works protected by copyright, and the appellant's conviction was upheld on the basis that during the playing of a game, these artistic works were reproduced on the screen, and infringed copyright being unlicensed reproductions of a protected work.⁸⁰

It is certainly the case that any conventional artwork, done with pen on paper, that serves as preparatory design material for a videogame will count as a graphic work and be protected by artistic copyright under s.4 of the Act. If such a work is subsequently translated into electronic form and is incorporated into the game, an unauthorised copy of the electronic version will be an 'indirect' copy of the original version.⁸¹ So for instance, in *Nintendo v. Console PC Com*, the claimants argued successfully that use of the game copiers in issue reproduced, in digital form, the Nintendo logo.⁸² Images created electronically and stored as software files have also been

⁷⁵ On which, see section 2.3 below.

⁷⁶ *Norowzian v. Arks Ltd and Others* (No. 2) [2000] F.S.R. 363, at pp.366-367 and at p.369.

⁷⁷ *Ibid.*, at 367. The Act provides only that 'dramatic work' includes a work of dance or mime: s.3(1) CDPA 1988.

⁷⁸ *Green v. Broadcasting Corp of New Zealand* [1989] R.P.C. 700, at 702.

⁷⁹ *Nova Productions Ltd v. Mazooma Games Ltd* [2006] EWHC 24 at [111]-[116] and see also Cornish, Llewelyn and Aplin, above n.17, at [11-11].

⁸⁰ *R v. Gilham* [2009] EWCA Crim 2293, at [24]. For completeness sake it should also be noted that any music which features in the game will itself enjoy copyright. Section 3(1) CDPA 1988 provides: '“musical work” means a work consisting of music, exclusive of any words or action intended to be sung, spoken or performed with the music'. And copyright will also subsist in the sound recording of that music and of any dialogue and sound effects under s.5A(1) CDPA 1988. Reproducing the whole or a substantial part of the music or sound recording without the licence of the copyright owner will amount to an infringement.

⁸¹ Section 16(3)(b) CDPA 1988.

⁸² The boot-up software permanently stored, on Nintendo DS consoles checks for the presence on any inserted card of the Nintendo Logo Data File (NLDF). The game copiers imported and sold by the defendants included a copy of the NLDF which enabled them to pass the tests performed by the boot-up software to verify that an authentic game card has been inserted into the console: [2011] EWHC 1458, at [15].

held to enjoy artistic copyright as ‘graphic works’, notwithstanding their ethereal electronic nature. In this, what seems to matter is that they create a ‘visual effect’ similar to that of a painting or drawing.⁸³ Composite images, generated by a computer program combining and overlaying stored images so as to produce certain visual effects on the display screen are also graphic works.⁸⁴ Here each composite image enjoys a separate copyright from the component images and from the other composite images generated by the computer. Typically, during the playing of a game, composite images will be frequently re-drawn with slight variations in position of the component parts so as to give the impression of movement. What is protected as a ‘graphic work’ is each static, non-moving, image. A series of drawings is a series of graphic works, not a single graphic work in itself.⁸⁵

Although there is some authority in support of the proposition that copyright subsists in electronically created and stored pictures, this proposition cannot go entirely unchallenged. The ethereal and temporary nature of such images needs to be taken into account. A striking difference between literary, dramatic and musical works on the one hand, and artistic works on the other, is that for copyright to subsist in the former they must be fixed in some form.⁸⁶ Fixation is not however required for copyright to subsist in artistic works. This difference makes some sense given the different character and qualities of these works at least as they are traditionally understood. In particular, it is possible to conceive of a dramatic or musical work being performed, or a literary work being recited, without these works being recorded. In other words such works can exist independently of the record of their existence and copyright law therefore demands fixation as a condition of the subsistence of copyright so as to provide some certainty in the subject-matter that is protected. However the conventional view adopted by copyright law is that artistic works are by their nature tangible and are thus both a record of the thing to be protected and the thing itself. This being so, there is no need to demand fixation as a condition of protection.⁸⁷ A consequence is that courts have been rightly cautious to accept that artistic copyright subsists in subject matter that is not concrete and permanent in character.⁸⁸

⁸³ *Nova Productions Ltd v. Mazooma Games Ltd* [2006] EWHC 24 (Ch), at [101].

⁸⁴ *Ibid.*, at [102] – [104].

⁸⁵ *Ibid.*, at [16]. If a claimant wishes to establish there is copyright in the moving image, then this must be claimed as a film. But, photographing a still image that forms part of a film will infringe copyright in the film of which that image forms a part. Section 17(4) CDPA 1988 provides that ‘copying in relation to a film or broadcast includes making a photograph of the whole or any substantial part of any image forming part of the film or broadcast’. See also *Hyde Park Residence Ltd v. Yelland* [1999] R.P.C. 655, at pp. 658-659.

⁸⁶ Section 3(2) CDPA 1988 provides: Copyright does not subsist in a literary, dramatic or musical work unless and until it is recorded, in writing or otherwise; and references in this Part to the time at which such a work is made are to the time at which it is so recorded.

⁸⁷ See Booton, D., ‘Framing Pictures. Defining Art in UK Copyright Law’, [2003] *Intellectual Property Quarterly*, 38, at p.48.

⁸⁸ See for instance *Merchandising Corporation of America Inc. v. Harpbond Ltd* [1983] F.S.R. 32 (A painting is not an idea: it is an object; and paint without a surface is not a painting) and *J & S Davis (Holdings) Ltd v. Wright Health Group Ltd* [1988] R.P.C. 403 (a model which was never intended to have any permanent existence, being no more than a stage in production, was not a ‘sculpture’ for the purposes of copyright law) but c.f. *Metix (UK) Ltd v. G.H. Maughan (Plastics) Ltd* [1997] F.S.R. 718, at 721 (doubting that something which has a mere transient existence cannot be a work of sculpture: ‘a sculpture made from ice is no less a sculpture because it may melt as soon as the temperature rises’).

There is at least an argument that whereas images stored on disc as software ‘files’ are fixed and can thus properly be regarded as artistic works, the composite images, generated by the computer program combining and overlaying these stored images are not sufficiently permanent and concrete to qualify since they have so transient an existence in the computer’s RAM and appear on the display screen for no more than a fraction of a second.

So far as composite images are concerned there is a further problem. Much of what is contained in the console’s RAM is a set of instructions to produce something: typically a composite image on the console’s display screen. It follows that what is contained in the RAM is not a reproduction in material form of the picture that is produced on the screen. The ‘chain of causation’ goes the wrong way in that what is on the screen does not dictate what is in the RAM but rather what is in the RAM dictates what is on the screen.⁸⁹ And since the composite images logically cannot exist until the technical protection measures have been overcome, it cannot be asserted that the measures are put in place to protect the copyright in these images.

2.3 Does the Mere Playing of an Unauthorised (Pirated) Videogame Infringe Copyright?

It is important to appreciate that the modchips sold by the appellant in *R v. Gilham*, and the devices sold by the defendants in *Nintendo v. Playables* and *Nintendo v Console PC Com*, only allowed users to play unauthorised games. They could not be used, for instance, to make counterfeit copies of entire games on a disc or memory card. It followed that liability turned on whether it could be established that the mere playing of an unauthorised (pirated) game infringed copyright. As noted above, during the playing of a game, data is taken from the disc into the console’s RAM which is then over-written by different data taken from the disc as the game progresses. Precisely what data is taken from the disc into RAM varies with the way the game is played and, at any one time, only a very small percentage of the data on the disc is present in RAM.⁹⁰

To this extent then, the playing of a game can be said to involve making a copy of what is stored on disc, albeit a transient electronic one. That the copies are transient and electronic in nature does not bar the claim that they infringe copyright.⁹¹ But if the claim is to infringement of copyright in the videogame as a whole, either as a literary work or as a film, then the difficult question arises is whether the ‘little and often’ taking that occurs when a game is played can amount to a ‘substantial part’ of the claimed work. There is a surprising paucity of authority on this point and what little there is, is unclear and contradictory. The assertion that taking little but often might cumulatively constitute substantial taking derives from the judgment of Laddie J. in

⁸⁹ C.f. the fact situation in *Nova Productions Ltd v. Mazooma Games Ltd* [2006] EWHC 24 (Ch) and [2007] EWCA Civ 219 where the defendants had allegedly copied the composite images displayed on the screen.

⁹⁰ *R. v. Gilham* [2009] EWCA Crim 2293, at [10].

⁹¹ Copying in relation to any description of work includes the making of copies that are transient: s.17(6) CDPA 1988. Furthermore, so far as literary works are concerned, copying means reproducing the work in any material form which includes storing the work in any medium by electronic means: s.17(2) CDPA 1988.

Sony v. Ball.⁹² In that case, the defendants were involved in the design, manufacture, sale and installation of a particular modchip⁹³ which if fitted into Sony's PS2 console allowed the modified console to play unauthorised copies of games.⁹⁴ In a civil action, on an application for summary judgment, Laddie J. rejected that argument that a copy of the copyright works existing in the console's RAM for a fraction of a second was too ephemeral to turn the RAM into an 'infringing copy'. Whilst accepting that an infringing copy must be an 'article', Laddie J. observed that:

'The silicon RAM chip is an article. When it contains the copy data, it is also an article. The fact that it did not contain the copy before and will not contain the copy later does not alter its physical characteristics while it does contain a copy. It is always an article but it is only an infringing article for a short time. There is nothing in the legislation which suggests that an object containing a copy of a copyright work, even if only ephemerally, is for that reason to be treated as not an article.'⁹⁵

But crucially, at no point was the court called upon to consider arguments as to whether a substantial part of a copyright work would be copied into the RAM during the playing of a game. This issue was not contested and the defendant accepted that the playing of an unauthorised copy of a PS2 game involved copying a substantial part of the copyright work into RAM. In *R. v. Higgs*, Jacob L.J. stated obiter, and without hearing arguments on the issue, that the playing of a pirate game on a console would itself be an infringement noting that this was held to be so in *Sony v. Ball*.⁹⁶ And, again obiter, the Court of Appeal in *R v. Gilham* said:

'it seems to us to accord with common sense that a person who plays a counterfeit DVD on his games console, and sees and hears the visions and sounds that are the subject of copyright, does indeed make a copy of at least a substantial part of the game, even though at any one time there is in the RAM and on the screen and audible only a very small part of that work.'⁹⁷

In fact, the only case where the 'little and often' issue has been fully considered, albeit in relation to films is *Football Association Premier League Ltd v. QC Leisure*.⁹⁸ In a decision which is prima facie inconsistent with *Sony v. Ball* and *R v. Higgs*, Kitchin J. held that when considering copying of a film, the few frames that were stored in a satellite broadcast decoding device at any one time did not constitute a substantial part of a film, and further that the fragments of the film that were so copied could not be considered on a cumulative basis.⁹⁹ The case concerned the use

⁹² [2004] EWHC 1738.

⁹³ 'Messiah 2'

⁹⁴ [2004] EWHC 1738, at [6].

⁹⁵ *Ibid.*, at [15].

⁹⁶ *R v. Higgs* [2008] EWCA Crim 1324, at [9]-[10].

⁹⁷ *R v. Gilham* [2009] EWCA Crim 2293, at [28].

⁹⁸ *Football Association Premier League Ltd v. QC Leisure* [2008] EWHC 1411.

⁹⁹ *Ibid.*, at [224]-[230].

of foreign decoder cards in the UK to access foreign transmissions of live Premier League football matches. The claimants complained, amongst other things, that the use of such cards in the UK involved an infringement of the copyrights in various artistic and musical works, films and sound recordings embodied in the televised Premier League match coverage. In particular the claimants contended that the making of unauthorised copies of the copyright works in the internal operation of the satellite decoder infringed copyright so raising the issue as to whether copies of a substantial part of any relevant copyright work were made in the decoder boxes. Kitchen J. noted that, for video data, the decoder at any one time held four frames of video representing approximately 160 milliseconds of video images. Four frames, he said, did not constitute a substantial part of a film. They occupied a mere fraction of a second and had no inherent value other than as part of the whole.¹⁰⁰ Furthermore, he dismissed the argument that the fragments could be considered on a cumulative basis holding that the substantial part must be embodied in the transient copy, not a series of different transient copies which are stored one after the other in the decoder box.¹⁰¹ However the question of whether reproducing the broadcast in this way, by taking little and often, falls within the reproduction right in Art.2 of the Infosoc was referred to the CJEU for a preliminary ruling. The Court's answer was that the reproduced fragments should be examined in order to determine whether they contained elements which are the expression of the intellectual creation of the author of the work.¹⁰² If so, then following its earlier decision in *Infopaq*, this would count as a partial reproduction within the meaning of Art. 2 of the Infosoc Directive and it was not relevant that the reproduction was by means of linear fragments which had only a brief existence.¹⁰³ However the Court left it to the national court to determine whether the fragments of video produced in the decoder during its operation contained the intellectual creation of the video's author. The Court thus did not go so far as A-G Kokott who concluded on the basis of the evidence and arguments advanced in the case that the kind of transient copying involved in the operation of the satellite decoder was a reproduction within the meaning of Art.2. She observed that, unlike words, images stored for a short time are individual in nature. Each image, she said, stemmed from a specific choice made by the camera operator or the director and could be unambiguously attributed to the transmission in question. Her conclusion was that the individual frames formed part of the intellectual creation represented by the transmitted broadcast and it followed that acts of reproduction occurred where frames of digital video were created within the memory of a decoder. These frames, she said, were part of the intellectual creation of the author of the broadcast.¹⁰⁴

In games consoles, image data is stored in a specific area of the RAM called the 'frame buffer' prior to being sent to the console's video monitor. In contemporary consoles, the framebuffer will typically hold data for two image 'frames': the one that is being sent to the monitor, the front framebuffer, and the next one in sequence, the backbuffer. If Kitchen J. is

¹⁰⁰ *Ibid.*, at [224].

¹⁰¹ *Ibid.*, at [227].

¹⁰² Judgment of the Court, Cases C-403/08 and C-429/08 *Football Association Premier League Ltd v QC Leisure; Karen Murphy v Media Protection Services Ltd*, 4th October 2011, at [157].

¹⁰³ *Ibid.*

¹⁰⁴ Opinion of Advocate General Kokott, Cases C-403/08 and C-429/08 *Football Association Premier League Ltd v QC Leisure; Karen Murphy v Media Protection Services Ltd*, delivered 3 February 2011, [2011] E.C.D.R. 11, at [79]-[81].

correct, and four frames of video are not a substantial part of a broadcast, then it is hard to see how it can be claimed that two frames of an animated sequence is a substantial part of a videogame as ‘a film’. But even if A.G. Kokott is correct in her analysis of video broadcasts, **and her approach is taken up by the national court**, it is far from clear that the same analysis could be applied to the images held in the frame buffer of a games console. These images typically cannot be said to be unequivocally the ‘intellectual creation’ of any individual but rather are the result of a complex interaction between the software developer’s code, the game player’s instructions and the console’s processing of these programmed and interactive instructions.¹⁰⁵ Thus any claim that the frames are part of the intellectual creation of the author of the software such that their production in the frame buffer during playing of the game falls within the Art.2 reproduction right is open to challenge.

There is an alternative and stronger argument that a ‘substantial’ part of a videogame, as computer program, is reproduced in a console’s RAM during the playing of a game. Although the majority of data in RAM is over-written by different data from the disc as a game is played, the main game ‘engine’ which handles the input and coordinates all the other tasks, remains in the console’s RAM throughout.¹⁰⁶ And although what data is taken from the disc into RAM varies with the way the game is played, the ‘decisions’ on what material to draw on is made by algorithms within the game engine. Given what amounts to a substantial part is assessed qualitatively, there is strong case for saying that the game engine is a substantial part of the game as a whole and so merely playing a game will invariably reproduce a substantial part of the game *as software*. But, for the reasons we have already considered, this would limit the redress for circumvention of a TPM to a civil claim.

If a criminal conviction is aimed at, then the claim that the playing of an authorised videogame infringes copyright, is best supported not by claiming copyright in the game as a whole, but by way of a claim to the artistic copyright in pre-produced images stored on disc. Indeed this is precisely what was successfully asserted in *R. v. Gilham* and in *Nintendo v. Console PC Com*. Various ‘art assets’ are combined in the framebuffer to make up the final composite image displayed by the console. It is certainly the case that in many games all the art assets for a particular level, or section, of a game will be held in the console’s RAM for the whole time that level or section is being played; to ensure those assets are instantaneously available if and when required.

The argument that the playing of an unauthorised videogame infringes artistic copyright is itself not without problems. As has already been noted, the essential nature of a graphic work is that it is a thing to be looked at and what matters in relation to artistic works is that which is ‘visually significant’.¹⁰⁷ Although this was acknowledged by the Court of Appeal in *R v. Gilham*, the court was rather vague as to why it thought copyright was infringed:

¹⁰⁵ This point is explored more fully below at n.111 and associated text.

¹⁰⁶ The engine is the fundamental code of the game providing essential functionalities such as graphics rendering, artificial intelligence and other core features: see e.g. Arakji, R.Y. and Lang, K.R., ‘Digital Consumer Networks and Producer-Consumer Collaboration: Innovation and Product Development in the Video Game Industry’, (2007) 24(2) *Journal of Management Information Systems*, 195, at p.200.

¹⁰⁷ *Anacon Corp Ltd v. Environmental Research Technology Ltd* [1994] F.S.R. 659.

‘If the game is the well-known Tomb Raider, for example, the screen displays Lara Croft, a recognisable character who has been created by the labour and skill of the original artist. It matters not that what is seen on screen is not precisely the drawing, because the software may cause her to be seen performing actions that are not an exact copy of any single drawing. It is clear that what is on screen is a substantial copy of an original’.¹⁰⁸

The court drew support for its finding that there had been substantial copying from the speech of Lord Russell in *King Features Syndicate v. Kleeman*,¹⁰⁹ a case concerning a claim of infringement of artistic copyright in the well-known cartoon character ‘Popeye’, where he said:

‘For my purpose it is sufficient to refer to sketch No. 3, of which I think a substantial part is reproduced in the brooches. The question of colour is immaterial, but I find reproduced in the figure of which the brooches consist the following salient features of Popeye in sketch No. 3, namely, the sailor’s cap, the nose, the chin, the mouth, the swollen forearms, the baggy trousers, and the enlarged feet. This, I consider, constitutes a reproduction of a substantial part of sketch No. 3. Further, I am of opinion that a comparison of the brooch with the sketch in question raises a strong presumption (not displaced by any evidence) that the figure of the brooch was copied directly or indirectly from that sketch...’¹¹⁰

But Lord Russell is here doing no more than making a statement relating to the facts of the case before him. As to any law implicit in this statement, the most that can reasonably be inferred is that Lord Russell understood that what matters, so far as claims to the infringement of copyright in artistic works are concerned, is that which is visually significant. The Court of Appeal goes too far in suggesting that it is a principle of law that all recognisable reproductions of any well-known character will amount to infringement of copyright if done without the licence of the copyright owner. Such a principle comes perilously close to an application of the now widely discredited maxim that ‘what is worth copying is worth protecting’.¹¹¹

The Court of Appeal also drew support for its finding that the unspecified drawings would be substantially reproduced during the playing of a game from the decision in *Football Association Premier League Ltd v. QC Leisure*.¹¹² Here Kitchen J held that various graphics, devices and logos were wholly reproduced within a single frame of an encrypted broadcast signal temporarily copied in a decoding device before being displayed on a television screen. But in this case the images were all relatively simple static works that were not significantly altered by

¹⁰⁸ *R v. Gilham* [2009] EWCA Crim 2293, at [24].

¹⁰⁹ [1941] 1 AC 417.

¹¹⁰ [1941] 1 AC 417, at 432 and cited in *R v. Gilham* [2009] EWCA Crim 2293, at [24].

¹¹¹ According to Jacob J. (as he then was): ‘[o]ne would not need the Act if the aphorism represented the law. It proves too much’, because if taken literally, ‘it would mean that all a plaintiff ever had to do was to prove copying. Originality, appropriate subject matter for copyright and a taking of a substantial part would all be proved in one go’: *Ibcos Computers Ltd v. Barclays Mercantile Highland Finance Ltd* [1994] F.S.R. 275, at p.289. See also *Cantor Fitzgerald International v. Tradition (UK) Ltd* [2000] R.P.C. 95, at p.133; and *Lambretta Clothing Co Ltd v. Teddy Smith (UK) Ltd* [2004] EWCA 886, at [37].

¹¹² [2008] EWHC 1411 (Ch).

any intervening electronic manipulation in the way that a character might be incorporated into a complex animated gameplay. Individual graphical works in videogames, which are transferred into the RAM of a console, are managed as separate graphical assets known as textures. They are effectively flat building blocks which are then used, when combined with the geometry and lighting in the game world, to build up a recognisable image. For instance, a playable character, such as Lara Croft,¹¹³ will be made up of a complex geometrical ‘wireframe’ of polygons which is then overlaid with a number of graphical textures, which will then have a number of graphical and lighting effects applied to it. Many textures will be held in RAM, but each is arguably individually inconsequential until combined by the game engine with the other elements which are used to build up the final image¹¹⁴ which is then sent to the framebuffer to be displayed. It is far from clear that artistic copyright subsists in these textures or, given all the processes which go to make up the final image, that the screen display substantially reproduces the flat textures.

In short, it can be argued that the Court of Appeal in *R v. Gilham* proceeded too readily from a finding that the playing of a game would result in a copy of something being made to the conclusion that a substantial part of that thing would be copied. Establishing, without doubt, that a work has been copied is a starting point for a finding of infringement, not the end point.¹¹⁵ The question of substantiality is a matter of impression being determined by the quality of that part taken rather than its quantity. As to the quality that is looked for, that is answered by reference to the reason why the work is given copyright protection. In the case of literary copyright the quality relevant for the purposes of substantiality is the literary originality of that which has been copied, and in the case of an artistic work it is the artistic originality of that which has been copied.¹¹⁶ It follows that, for artistic works:

‘the more abstract and simple the copied idea, the less likely it is to constitute a substantial part. Originality, in the sense of the contribution of the authors’ skill and labour, tends to lie in the detail with which the basic idea is presented.’¹¹⁷

As computer processing power increases, so the designers of videogames can increasingly rely on processing carried out in the console itself to render the visual details that are so important in deciding whether a substantial part of an artistic work has been reproduced. It is legitimate to ask, in purely visual terms, how abstract and ‘plastic’ was the design of an original character in which copyright is claimed? And how much concrete detail was then added to this character by processing undertaken in the console during gameplay? Even in games that are visually relatively simple, the alterations made to stored images by the processing of these by the console are of a quality and quantity for copyright to subsist in these processed composite images as

¹¹³ As used in *R v. Gilham* [2009] EWCA Crim 2293, at [24].

¹¹⁴ This process typically takes place in the console’s Graphical Processing Unit (GPU).

¹¹⁵ *Nova Productions Ltd v. Mazooma Games Ltd* [2007] EWCA Civ 219, at [26].

¹¹⁶ *Newspaper Licensing Agency Ltd v. Marks & Spencer Plc* [2001] UKHL 38, at [19].

¹¹⁷ *Nova Productions Ltd v. Mazooma Games Ltd* [2006] EWHC 24 (Ch), at [126] relying on the speech of Lord Hoffmann in *Designers Guild Ltd v. Russell Williams (Textiles) Ltd* [2001] F.S.R. 11. For an illustration of the application of this see *Bauman v. Fussell* [1978] RPC 485.

original artistic works.¹¹⁸ This does not mean that they cannot also be copies as, although these generated images may be ‘original’ for the purposes of copyright law, they may also copy a substantial part of another work and so infringe the copyright in that work. But it does tell us that games consoles have recognised and significant visual processing capabilities. What is actually displayed on the screen is the result of a complex interaction between the software developer’s code, the user’s instructions both in terms of directing the game and in controlling the viewpoint, and the console’s processing of the programmed and interactive instructions it receives.

It may well be that the characters in a videogame start out as conventional drawings done with pen on paper and, of course, copyright will subsist in such drawings and the character’s image may well be substantially reproduced when that character appears in a videogame. But such an assertion cannot be taken for granted: it needs evidence and argument to support it in each case. How much evidence and argument depends in part on the artistic work relied on. In *Nintendo v. Console PC Com*, the claimants very sensibly relied in part on copyright¹¹⁹ in the so-called Nintendo Logo Digital File (NLDF): the evidence showing that the game copiers in issue, to function, necessarily reproduced this file.¹²⁰ That process was not part of the game play but rather was part of the software validation process and occurred quite independently of any player input and it was unarguable therefore that the logo (or rather a digitally stored version) was reproduced in using the game copiers.

It would be trite to conclude no more than copyright law, here as elsewhere, is poorly suited to meet the challenges posed by advances in technology. That may well be true, but copyright law continues to be of relevance and useful to many industries. If copyright law is to continue to provide some security for investment in these fields of endeavour, then care must be taken not to overly distort or damage key doctrines and principles. There is a real risk that restrictions placed on users by TPMs coupled with the rules that evolve regarding their legal protection will come to supersede the established rules of copyright.¹²¹ The Court of Appeal in *R v. Gilham* expressed satisfaction with its conclusion that the appellant was rightly convicted of the offences charged under the CDPA and added that it was ‘common sense’ that a person who plays a counterfeit DVD on his games console makes a copy of at least a substantial part of the game. ‘Common sense’, we feel, is not a reliable touchstone for judging criminal liability in this or any other context.

2.4 Ownership, Control and the ‘Effectiveness’ of Technological Measures

¹¹⁸ See e.g. *Nova Productions Ltd v. Mazooma Games Ltd* [2006] EWHC 24 (Ch) and [2007] EWCA Civ 219 which concerned copyright in a video ‘snooker game’.

¹¹⁹ As the action was brought under s.296ZD, it was necessary for the claimants to establish infringement of a ‘non program’ copyright work. The court agreed that the NLDF was such a non program work but other than this, neither the claimants nor the court specified what type of copyright work the NLDF was.

¹²⁰ [2011] EWHC 1458 (Ch), at [15].

¹²¹ Burk, above n.32, at p.548.

The main participants in the videogames industry are the console manufacturers, software publishers (who are responsible for financing software development and marketing games) and the software developers themselves. Clearly there is a mutual dependence between these participants and not surprisingly, the industry is characterised by complex licensing agreements. The matter is made more complicated because film production companies, sports organisations and print publishers may also have economic and legal interests in the videogames market. One consequence is that the rights protected by copyright are often not in the hands of those for whom control of transmission of, and/or access to, a particular videogame, is a primary concern. This matters because under the CDPA 1988, legal protection is available only to ‘effective’ technological measures, and a measure is ‘effective’:

if the use of the work is controlled by the copyright owner through –

(a) an access control or protection process such as encryption, scrambling or other transformation of the work, or

(b) a copy control mechanism, which achieves the intended protection.

Thus, the sole protected measures are those put in place by the copyright owner to help in controlling the use made of his work.¹²² It is important to appreciate that we are not talking about who has the right to bring an action.¹²³ The significant point is that all rights of action are contingent on the copyright *owner* having acted to control the use made of his work by some form of technological means.

So far as videogames are concerned, this condition of effectiveness is problematic because TPMs are in fact put in place by console manufacturers who may or may not be the owners of copyright in the games that play on their console. The current ‘platform business model’ adopted by all the console manufacturers originated with the introduction of Nintendo’s Nintendo Entertainment System (NES) in the mid 1980s. This was the first console containing a security chip that locked out unlicensed games.¹²⁴

This heralded the modern practice whereby platform vendors license their platforms to

¹²² In this the UK legislation follows the provisions of the Infosoc Directive but that the directive uses the rather more ambiguous term ‘right holder’: see Infosoc Directive, Article 6.3.

¹²³ In the case of a civil action brought under either s.296ZA or s.296ZD CDPA 1988, a right of action is given not only to the copyright owner but to persons who distribute the material with his authority. Specifically to the person issuing to the public copies of, or communicating to the public the work to which the measures have been applied. If this is not the copyright owner or his exclusive licensee, then they too have a right of action: s.296ZA(3); and s. 296ZD(2) CDPA 1988.

¹²⁴ Evans, D.S., Hagi, A., and Schmalensee, R., ‘A Survey of the Economic role of Software Platforms in Computer-Based Industries, (2004) CESIFO Working Paper No. 1314, at p.19. This model was later adopted by Sega, Sony and Microsoft.: Crandall, R.W. and J. Gregory Sidak, J.G, *Video Games. Serious Business for America’s Economy* (Washington: Entertainment Software Association, 2007), at p.1

independent game developers who generate the bulk of the applications.¹²⁵ Console manufacturers will typically demand that a technological lock be put on the software as a condition of any licence granting permission to develop software which will run on their particular console.¹²⁶ In this console manufacturers aren't concerned with protecting copyright; rather protecting essential revenue. Console manufacturers sell consoles at relatively low prices (often at a loss)¹²⁷ but ensure substantial complementary revenue by selling games developed internally or by licensing rights to develop software to publishers.¹²⁸ Losses made on hardware sales are offset by licensing revenue generated by software sales and rentals.¹²⁹

Console manufacturers are dominant in the videogame supply chain, setting the market conditions for software publishers. Publishers in turn set the conditions under which development studios operate.¹³⁰ Individual companies may operate in one, two or all three of these component parts of the industry. The position is complicated because development studios often change ownership and small companies will often enter into development agreements with much larger ones.¹³¹

Understanding these relationships matters because a TPM incorporated in a console by its manufacturer and which protects a game produced by a third party game publisher/developer would not, on a strict reading of Act, count as an 'effective measure' because it is not put in place by the copyright owner to control the use of the work.¹³² For any particular console, there may be games developed by the console manufacturer as well as games produced by 3rd parties. However, if protection measures are applied to all of the games without discrimination, this arguably undermines the credibility of the necessary assertion that, even in respect of games developed by the console manufacturer themselves, these measures are designed to protect a copyright work.¹³³ Rather it would suggest that the measures are designed to do something else – i.e. to support the platform business model by securing licensing revenue.

¹²⁵ Evans, Hagiu and Schmalensee, above n.124, at p.1 and p.20. It remains the case that sometimes the console manufacturer is also in effect the publisher/developer of the software (by way of a so-called 1st party developer wholly owned by the console manufacturer).

¹²⁶ See in relation to the Xbox, Soghoian, above n.36, at p.51. Separate licences are required for Developers to use proprietary 'Dev-kits' to produce the software, for the publishers, and for each game produced.

¹²⁷ Both Sony and Microsoft sell their consoles (the PS3 and Xbox 360 respectively) at a loss but Nintendo makes a profit on the Wii console: Daidj, N. and Isckia, T., 'Entering the Economic Models of Game Console Manufacturers', (2009) 73 Communications and Strategies, 23, at p.37; and Soghoian, above n.36, at p.48.

¹²⁸ Daidj and Isckia, above n.127, at p.26.

¹²⁹ Crandall and Sidak, above n.124, at p.4.

¹³⁰ Daidj and Isckia, above n.124, at p. 34. Publishers for example may enter into agreements with developers a condition of which is that the developers do not enter into publishing agreements with others: see Offir, L., 'Monopolistic Sleeper: How the Video Gaming Industry Awoke to Realize that Electronic Arts was Already in Charge', (2006) 8 Duq. Bus. L.J. 91, at p.97.

¹³¹ See for example, Sheet, L. M. and Katz, A. B., 'Protecting Rights in Videogames: Next Generation Licensing' (2006) 6 Va. Sports & Ent. L.J. 124, at pp.128-129.

¹³² The Infosoc Directive is not clear as to the person entitled to claim rights to legal protection of TPMs: see IViR Report, above n.1, at p.77.

¹³³ As is required by s.296ZF(1) CDPA 1988.

As recounted above, in *R v. Gilham*, the copyright relied on was artistic copyright that the court took to subsist in characters that featured in videogames. All videogames, like other multimedia content, will include contributions of a number of individuals such as musicians, visual artists and software writers. Many of the individual components that go to make up a videogame will attract their own free-standing copyright. Who owns the copyright in a particular component will depend on the circumstances of its creation.¹³⁴ The matter is further complicated because many games incorporate characters already in existence and well known from, for instance, comic books, films and/or TV.¹³⁵ In such circumstances, copyright in a character, if it subsists at all, will almost certainly belong to the publishers of the comic book, or to the film's or TV programme's producers. Sports-based games will often involve licensing agreements with the relevant sport's official organisation, association or league.¹³⁶ Copyright in logos, badges, team colours etc. will belong to the relevant sports association. The developers and publishers of the videogame, in contrast, will be mere licensees. The example of Lara Croft given by the Court of Appeal in *R v. Gilham* was well chosen given that this character was created specifically to feature in a videogame.¹³⁷ The Court might equally have referred to the Sega's character 'Sonic the Hedgehog',¹³⁸ or Nintendo's 'Mario'.¹³⁹ But characters such as Spiderman, Harry Potter, the Simpsons and the X-Men, feature in popular videogames, doing so under licence from the original copyright owner.¹⁴⁰ By the mid-1990s, 38 percent of all entertainment software units sold contained licensed content from some other form of entertainment.¹⁴¹ The point is that in such circumstances a TPM incorporated by a game developer would not, on a strict reading of Act, count as an 'effective measure' because it is not put in place by the copyright owner to control the use of the work. The same point can be made here as was made in respect of games developed by independent, 3rd party, software developers. If protection measures are applied to all games produced for a particular console without discrimination between games whose characters are original and those in which the characters are used under licence, then this undermines the credibility of the necessary assertion that the TPMs put in place are designed to protect a copyright work.

¹³⁴ The CDPA 1988 contains a simple scheme for the initial allocation of rights in a work. Section 9(1) read in conjunction with s.11(1) CDPA 1988 means that rights in literary, dramatic, musical and artistic works will usually first belong to the person who created the work. It is otherwise if such a work is made by an employee in the course of his employment. Under s.11(2) CDPA 1988 the employer will be the first owner of any copyright in the work subject to an agreement to the contrary.

¹³⁵ Licensed film-related games are a lucrative part of the videogame market and, in terms of income, some games surpass the movies upon which they are based. For example, the James Bond film *Goldeneye*, released in November 1995, grossed \$106 million, while the videogame based on the movie, released in August 1997, grossed \$250 million: Crandall and Sidak, above n.124, at p.18.

¹³⁶ Offir, above n.130, at p.99.

¹³⁷ Created by Toby Gard, the character of Lara Croft first appeared in the 1996 videogame *Tomb Raider* published by Eidos Interactive.

¹³⁸ The first game to feature Sonic the Hedgehog was released by SEGA on June 23, 1991. Artist Naoto Ōshima, designer Hirokazu Yasuhara and programmer Yuji Naka are generally credited with the creation of the character

¹³⁹ Created by Shigeru Miyamoto for Nintendo and first appearing in 1981.

¹⁴⁰ A standard development deal in Hollywood is now that of interactive game licensee, with simultaneous release of the videogame along with the motion picture: see Sheet and Katz, above n.131, at p.125.

¹⁴¹ Crandall and Sidak, above n.124, at p.19.

In sum, except in the rare circumstance where software is developed and published by the console manufacturer themselves and using entirely their own content, the various copyrights protecting the content of a videogame are not typically owned by those for whom control of transmission and access (via the legal protection of TPMs) is a primary concern. The courts by upholding the claims made under the UK law prohibiting the circumvention of TPMs attached to videogames have in effect given console manufacturers a new neighbouring right. This strains to breaking point the credibility of the assertion that the new law does not create new rights nor extend existing ones.¹⁴²

3. Conclusions

Several features of the UK law restricting the circumvention of TPMs undermine its utility so far as the videogame industry is concerned. Neither the industry's products nor its business model are a good fit with the legal protection currently available in the UK. First, videogames and their component parts are difficult to position within the categories of work in which copyright subsists. As liability for the circumvention of TPMs is linked to copyright infringement, this creates a fundamental problem. Videogames are extremely complex products with a high degree of user interactivity. As computer programs videogames enjoy copyright protection as literary works but this categorisation does not suit the industry's objectives given the extent of legal protection afforded. Certainly there are alternative ways of categorising videogames and/or their components within the copyright framework but each of these brings with it its own problems both in establishing that copyright subsists and in establishing that copyright is infringed when an unauthorised game is played. Furthermore, the TPMs that are employed seem to be less concerned with protecting the rights of the copyright owners than with propping up the industry's dominant business model and, in particular, in helping to secure revenue for console manufacturers from the granting of licenses to publishers and developers.

At the moment the industry benefits from the fact that the Infosoc Directive's provisions on the legal protection of TPMs are poorly drafted and the obligations it places on Member States are far from clear. There is some variation in the legislation adopted by Member States and absent clear guidance from the Directive itself, national courts have much room for interpretation. Certainly the UK courts seem to be feeling their way somewhat and remain open to arguments as to the scope of protection for TPMs. So far the courts have been largely sympathetic to the videogame industry.

From a purely technical standpoint, establishing a clear set of legal rights will not matter in the longer term because it seems likely that TPMs as they are currently used may become redundant in the videogames industry. A trend, which is certain to continue, is for much game content to be delivered on-line, even for portable devices.¹⁴³ This allows console manufacturers

¹⁴² See above n.3 and accompanying text.

¹⁴³ Sony's 'PSP Go', is the first dedicated handheld games console that does not use physical media, relying entirely on digital distribution. The rise of Apple's iPhone and iPad as gaming platforms also suggest that consumers are willing to accept platforms which are 'download only'.

and games publishers to dynamically monitor and respond to software and hardware hacks in much the same way that viruses and other security threats are responded to in the world of personal computers. At the same time other revenue streams are being developed by console manufacturers. Microsoft, for instance, continues to sell the basic Xbox console at a relatively cheap price but charges significant amounts for additional on-line services and optional hardware components and peripherals (such as hard drives and controllers).

Technical concerns are not the dominant influence here. The industry is aiming to move into new markets in which the expectations and habits of the bulk of consumers are open to influence. Establishing a set of social norms amongst adult casual gamers is crucial if the industry's business model is to survive. The exercise of legal rights thus has an hortatory function as the industry tries to weave a powerful set of social norms out of some very thin material and in a limited timescale.

Given the costs of piracy, the strategy is a necessary one. But at the same time the industry risks alienating old and new customers in a campaign that aims to significantly limit what users can do with products they have purchased (consoles and games). The industry needs to recognise and address consumers' concerns regarding differential pricing and other marketing variations that arise from the geographical partitioning of markets. Granting limited licences that would allow unofficial developers to use consoles in more flexible ways is important notwithstanding the relatively small size of this cohort of users. Such a strategy might avoid alienating the most technically adept of consumers: i.e. those that are most able to develop ways of circumventing TPMs. Sony's recent experience with the PS3 demonstrates that where a console manufacturer denies users some form of desirable functionality in order to protect their business model, technically adept users will find a way to unlock that functionality in a relatively short space of time. It may be wise for the manufacturers to seek to offer as much consumer functionality as possible if they aim to limit attempts at 'underground' solutions.