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Copyright Law in the Digital Environment : Private Ordering and the regulation of digital works

Primavera de Filippi

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COPYRIGHT LAW IN THE DIGITAL ENVIRONMENT

PRIVATE ORDERING

AND THE REGULATION OF DIGITAL WORKS

PRIMAVERA DE FILIPPI

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INTRODUCTION

AREA OF STUDY

Content on the Internet is regulated by a combination of public and private ordering. In particular, if we look at the way in which information is being regulated on the Internet, it is possible to identify three different layers that contribute to establishing the regulatory framework for the production and the distribution of digital content.

Public regulation mechanisms, such as intellectual property laws and copyright law in particular, are responsible for setting up the initial body of law regulating the use of and access to information. The provisions of the copyright regime establish the basic legislative framework for the production and dissemination of content. By default, authors are thus granted a series of exclusive rights over the exploitation of their works, whereas users are provided with a limited number of privileges over the consumption of these works. This initial endowment of rights is, however, not meant to be permanent. It qualifies instead as a default rule that establishes a series of exclusive rights that can be subsequently reformulated and traded on the market for information goods.

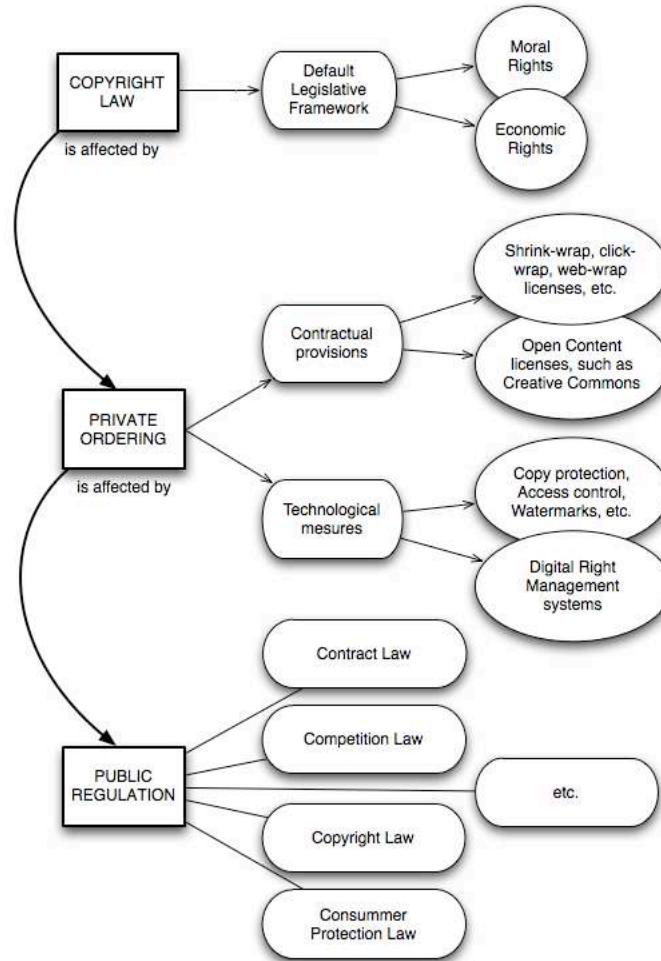
Private ordering then comes into play in order to modify the scope of protection granted by default under the law. Private actors can introduce supplementary provisions and/or override the default rules of the copyright regime by means of contractual agreements and technological measures. As the majority of digital works are, nowadays, no longer being sold to end-users but are instead licensed under particular terms and conditions, private regulation is assuming a predominant role in regulating the way information is exploited in the digital environment. The extent to which private regulation can alter or substitute the provisions of the copyright regime is ultimately determined by the limits of contract law.

Private ordering is, however, not immune to government intervention.¹ The enforcement of private regulation ultimately depends upon the legitimacy of the private transactions it entails. Other bodies of law might impose a series of limitations on the operations of the private sector. Public policies and public values can be used as a means to control or restrain the application and efficiency of private ordering. The more impact private ordering has upon the regulation of information, the more it will be subject to public scrutiny and political pressure.² Whether or not the norms introduced by private regulation

¹ In the digital environment, private ordering has assumed a prevalent role over the regulation of information. Private regulation is in fact aiming towards the creation of an alternative regime apart from copyright law, in which the terms and conditions according to which any piece of content can be legitimately exploited are ultimately dictated by contractual agreements. The provisions of the copyright regime are consequently being increasingly ignored and/or overridden to be replaced by a series of contractual rules established by private parties. Yet, while private ordering may sometimes be regarded as being more efficient in that it reflects the actual will of the parties, it should nevertheless be

² Private ordering necessarily occurs within the public framework established by the laws of the State. The efficiency and the legitimacy of private regulation are, as a consequence, ultimately dependent upon their respective compliance with the specific values and political decisions of the political system. For more details on the manner in which public regulation is likely to affect the operations of private regulation in the context of copyright law, see e.g. DINWOODIE,

should be enforced by the legal system is subject to the discretion of the State, which must ensure that they do not infringe upon the provisions of copyright law or any other bodies of law (such as contract, competition, and consumer protection laws).



The thesis starts with a general overview of copyright law and then analyses how it has been reformed to comply with the digital environment.

By and large, copyright law can be distinguished into two separate regimes. One is the regime of author's right that is characteristic of civil law countries. This regime is based on the concept of romantic authorship, according to which a work must be protected as an extension of the personality of the author. Besides, following Locke's theory of labour, authors are also entitled to a natural right over the fruits of their intellectual labour. The problem is that, after a work has been made available to the public, it is difficult to control the subsequent dissemination thereof. Authors are thus granted a series of moral rights (i.e. the right to be recognized as the author of a work, the right to ensure the integrity of the work, etc) and a series of exclusive economic rights (i.e. the exclusive right of reproduction, distribution,

G. B. (2004) Private Ordering and the Creation of International Copyright Norms: The Role of Public Structuring. *Journal of Institutional and Theoretical Economy*.

communication to the public, etc) that enable them to control the exploitation of their works up to the point in which the copyright has expired.

The other one is the copyright regime that is found in most common-law countries. This regime based on utilitarian and economic considerations. The idea is to provide an incentive for authors to create by granting them a series of exclusive but limited rights over the exploitation of their works. Indeed, the immaterial nature of information is such that it can be easily reproduced without incurring significant costs. This is especially true in the digital environment, where, as a result of Internet and digital technologies, information can be reproduced by anyone and at virtually no costs, to be further redistributed on a global scale in a very short period of time. In order to reduce the opportunities for free-riding over the investment of others, the copyright regime grants authors a series of exclusive rights over the economic exploitation of their works, which can be either licensed or transferred to third party.

Even though they differ in their justifications and in their implementation, those two regimes achieve a similar result, by turning an intellectual creation into an object trade that can be exchanged on the market.

Yet, the function of the copyright regime is not limited to ensuring adequate compensation for the creative endeavour of authors. It is ultimately aimed at promoting the production and the dissemination of culture for the ultimate benefit of society. In order to achieve this purpose, the copyright vesting in a work should protect the expression of any original work of authorship against the unauthorized exploitation thereof only to the extent necessary as to ensure an optimal production of works, whereas users should be entitled to use or to consume these works for any legitimate purpose that is unlikely to jeopardize the commercial exploitation of the work.

Conceived as a means to promote the production and dissemination of cultural works, the provisions of the copyright regime must be constantly revised in order to reflect the changes that occur in society. Internet and digital technologies dramatically increased the quantity of works that have become available to the public, and drastically changed the way in which information is being produced and communicated to the public. Although it is likely to benefit society as a whole, the advent of these new technologies resulted in a series of concerns that seriously challenged the copyright regime in the digital environment. In order for the law to adapt to the specificities of the digital world and as an attempt to bring together the copyright regimes of different jurisdictions under a common framework, a process of harmonization has begun and a series of legislative reforms have been enacted. Yet, while the scope of the copyright regime has been extended to cover new forms of exploitation, copyright law is unable to operate successfully in the digital environment – either because it has been improperly reformed or because it is not able to keep up with the pace of technological advances.

So far, legislative reforms have been unable to embrace the specificities of the digital environment. Instead of re-establishing a balance between the interests of different stakeholders, most of these reforms were meant to further the interests of right holders.³ Most notable is the additional layer of protection

³ The function of copyright law is to establish a balance between the interests of right holders and the interests of the public at large. Yet, the way in which the copyright regime has been reformed to address the challenges of the digital environment has often been accused to be more focused on protecting the revenues of right holders, rather than furthering the interest of society at large. See, *inter alia*, ELKIN-KOREN, N. (1996) Public/Private and Copyright Reform in Cyberspace. *Journal of Computer-Mediated Communication*, 2, PATRY, W. (1997) Failure of the American Copyright System: Protecting the Idle Rich. *Notre Dame Law Review*, 72, BOYLE, J. (2003) The Second Enclosure Movement and the Construction of the Public Domain. *Law and Contemporary Problems*, 66, SELL, S. K. (2003) *Private Power, Public Law: The Globalization of Intellectual Property Rights*, Cambridge University Press, HOUWELING, M. S. V.

granted to certain technological measures of protection, which drastically reduced the ability for end-users to access and to consume information in a digital format. Yet, while they considerably restrained the rights of end-users, copyright reforms failed to eliminate piracy on the Internet.

The problem is that copyright has been conceived for the physical world and has been designed around it. Before copyright, there was a discrepancy between the properties of the physical medium, which is a private good, and the properties of the work as an intellectual creation, which is not affected by scarcity. As copyright came in, the properties of the work have been re-aligned with the properties of the physical medium, by introducing artificial scarcity and excludability. This created some kind of self-regulating regime, where the physical medium constitutes a natural barrier against copyright infringement.

In the digital environment, there is, once again, a discrepancy between the properties of the medium, which has become digital, and the properties of the work, which - because of copyright law - is now affected by scarcity. The self-regulating features of the copyright regime have therefore disappeared in the digital environment, and this might well be the reason why copyright infringement has grown so much ever since the advent of digital technologies.

Given the current deficiencies of the law, the private sector began to assume a predominant role in regulation of information in the digital environment. To the extent that they are not satisfied with the law, right holders have started to deploy private mechanisms of self-help in order to either expand or reduce the default level of protection granted under the law by means of contracts and technology. Rather than obtaining ownership over the copy of a work, it has become standard practice for users to only acquire the right to exploit a particular copy of the work according to the terms and conditions of end-user licensing agreements, often automatically enforced by technological means. As a result, many provisions of the copyright regime can be fundamentally ignored, and eventually supplanted by private ordering.

The thesis then focus on how the private sector has intervened in the regulation of information by means of contract and technology. The opposition is between the approach taken by DRM systems & restrictive licensing agreements on the one hand, and the Open Content movement on the other hand. One important thing to note is that, even though those two approaches are very different in their goals, they do share something in common which is the use of contract to change the default rule of copyright law.

The use of restrictive licensing agreements combined with technological measures of protection is meant to re-align the properties of the digital medium with the properties of the copyright work, by introducing excludability and artificial scarcity by technological means. This enable right holders to exercise ex-ante control over the exploitation of their works, which are now granted three layers of protection: (1) the contractual provisions of the licensing agreement, (2) the technological measures designed to enforce those terms, and (3) the anti-circumvention laws, which prohibit the circumvention of these technologies. The result is no longer a self-regulating regime but rather a self-enforcing regime, where the terms and conditions of the licensing agreement are automatically enforced by technological means. The risk is that this might actually conflict with other bodies of law, such as contract law, copyright law, privacy law, or competition law.

On the other hand of the spectrum is the Open Content community. As opposed to the former approach,

(2005) Distributive Values in Copyright. *Texas Law Review*, 86, UGUCCIONI, J. (2007) Bias over balance in copyright reform? *Select Committee on Culture, Media and Sport, 5th report*. New Media and the Creative Industries.

which tried to convert the digital medium back into a private good, Open Content licenses actually try to restore some of the original properties of the work as an intellectual creation. Their goal is to reduce the scarcity that has been imposed by the copyright regime in order to encourage the free reproduction and dissemination of works. This is achieved by licensing to the public some of the exclusive rights granted by default under the law, while maintaining a certain degree of control over the way in which the work can be exploited. While this approach is unlikely to negatively impact the rights of end-users, there are nonetheless a few legal concerns that should be taken into account, in particular with regard to the validity and enforceability of these licenses in view of potential conflicts or incompatibilities with other bodies of law.

In spite of the growing significance assumed by private ordering in the digital world, the State still has a role to play in the regulation of information. If government intervention can be justified on account of the positive externalities resulting from an increased production and consumption of information, the State has a duty to limit the number of restrictions imposed on the production and consumption of works. Besides, even though contracts have become a predominant form of regulation on the Internet, they do not come without problems. DRM & restrictive end-user licensing agreements, in particular, are often criticized for being unfairly negotiated, excessively restrictive and often going beyond the scope of copyright law. They are also often accused of violating privacy laws and stifling competition in the market.

According to the principle of freedom of contract, private parties are entitled to enter into any contractual agreement without any governmental intervention. Yet, the State has to make sure that the contractual framework established by private regulation remains compliant with the public interest. Given that the private sector operates within the legal system, contractual freedom can sometimes be restrained to the extent that it is in conflict with other bodies of law. Limitations on contractual freedom can be justified on a series of grounds, such as, e.g. positive or negative externalities, disparities of power, information asymmetries, consumer protection, and so forth. Moreover, under certain circumstances, government intervention can limit the enforcement of certain contractual terms that would otherwise undermine public policy. In particular, if the granting of a series of proprietary rights over the exploitation of a work is ultimately aimed at increasing the overall number of works available to society, the State must ensure that none of the contractual restrictions introduced by private ordering run counter the interests of society as a whole. Besides, given the strong asymmetry of information that characterizes the market for information goods, the State should be entitled to intervene in order to prevent the introduction of unfair terms and conditions into a copyright license.

After providing a general overview of the copyright regime both in the physical and in the digital environment, the thesis will analyse different licensing practices to identify their respective advantages and drawbacks for right holders and society as a whole. Although their legal status may vary from one jurisdiction to another, the validity and enforceability of their most common provisions will be assessed against the provisions of other bodies of law, in order to determine the impact they are likely to have on the production and the consumption of information in the digital environment.

RESTRICTIVE LICENSING AGREEMENTS

While a copyright license represents the permission to do something that would otherwise constitute copyright infringement, nothing can prevent the licensor from introducing contractual provisions in order to restrict the access and to control the usage of a work. Moreover, if contractual provisions alone are considered too weak to protect the interests of right holders in the digital environment, technological measures of protection can also be incorporated into a digital work in order to further restrict consumption.

Combined together, contractual provisions and technological measures of protection can be relied upon in order to achieve extensive price discrimination. This approach is likely to increase the profits of right holders while simultaneously increasing the overall welfare of society by reducing the deadweight loss generated by the copyright regime (i.e. price discrimination can reduce the number of users who cannot purchase a work, its price being too high, by allowing for specific uses of the work, often limited in time or in scope, to be offered at a lower price).⁴ In particular, technological measures of protection allow to price discriminate between end-users as a result of self-selection, without the need to determine the maximum willingness to pay of every individual user. Technological measures also enable right holders to monitor the usage and the consumption of their works, as well as to prevent arbitrage between different classes of consumers

The problem, however, is that this particular mode of protection creates an opportunity for right holders to release their works under very restrictive terms and conditions that reduce the default scope of copyright protection. This can be problematic because, to the extent that it can bypass the copyright regime, private ordering does not have to account for any considerations of public interest. For instance, most DRM systems or other automated systems are likely to impinge upon the consumers' right to privacy in order to protect the interests of right holders. In addition, for the purposes of price discrimination, content providers are likely to offer products whose features have been intentionally disabled by technological measures and which may even be detrimental to the security or integrity of the device into which they have been stored. Besides, by decreasing interoperability, technological measures of protection reduce the number of devices on which a work can be accessed. Restrictive licensing agreements combined with technological measures of protection are thus likely to have a negative impact on society to the extent that they can be used to foreclose competition on the market of substitute and complementary devices. Interoperability between different technological measures is one of the most significant problems in the context of DRM systems. Not only is the lack of interoperability between different DRM systems likely to harm consumers who can only access a work a particular set of devices, but it is also likely to stifle innovation and competition on the market to the extent that, unless all the necessary information has been released to the public, it becomes impossible for competitors to implement an interoperable device or to insert a compatible technology into their own devices.

Finally, the validity and enforceability of certain licensing agreements can be questioned under the framework of contract law. In particular, given that most end-user licensing agreements are offered on a take-it-or-leave-it basis, their corresponding enforceability under contract law fundamentally depends

⁴ Price discrimination is assuming an ever more important role in the digital environment. The advantage of differential pricing in the context of copyright works is the reduced deadweight loss for society on the one hand, and greater economic gains for right holders on the other. Yet, although price discrimination is generally regarded as a desirable tool to increase the efficiency of the economy, it is often opposed by the public on the grounds of discriminatory treatment. See, e.g. ODLYZKO, A. M. (2004) Privacy, Economics, and Price Discrimination on the Internet. IN CAMP, L. J. & LEWIS, S. (Eds.) *Economics of Information Security*. Kluwer.

upon whether or not they qualify as contracts of adhesion (i.e. a contract offered under circumstances requiring one party to accept or reject the contract as a whole without having the opportunity to negotiate). Although the validity of many shrink-wrap and click-wrap licenses has nowadays been recognized in many jurisdictions, the extent to which their corresponding terms and conditions can actually be enforced under the law is still open to debate.⁵

OPEN CONTENT LICENSES

As the problems related to restrictive practices have become apparent, Open Content licenses have acquired increasing popularity in view of the benefits they can bring, not only to the authors themselves, but also to society at large. These licenses provide for a broader dissemination of works by reducing the default scope of protection granted under the law, while allowing for a certain degree of control to be maintained over the exploitation thereof. By providing incentives for authors to make their works freely available on the Internet, Open Content licenses encourage the creation of new works and improvement of previous works.

Yet, the uncertainty surrounding these licenses is likely to raise a series of concerns that may affect both authors and end-users. In spite of the extensive process of harmonization undertaken, substantial differences still exist between the national implementations of the copyright regime. In view of the differences in the legal systems, the same license may therefore enjoy a different legal status in different jurisdictions.⁶ This is relevant because any provision that extends beyond the scope of the copyright regime cannot be enforced under the framework of copyright law, but only on the basis of contract law. Hence, the extent to which the provisions of a license can be enforced against third parties ultimately depends upon whether or not the license can be regarded as an actual contractual agreement - as opposed to a bare license. Another problem, usually encountered in the case of works developed through the collaborative effort of a large number of contributors, is that it is often difficult to distinguish between the co-owners and the joint-owners of a work - the identity of which is likely to have a significant impact upon the validity and the enforceability of a license.⁷

⁵ See e.g. STERN, R. H. (1985) Shrink-Wrap Licenses of Mass Marketed Software: Enforceable Contracts or Whistling in the Dark? *Rutgers Computer & Technology Law Journal*, 11, GOODMAN, B. (1999) Honey, I shrink-wrapped the consumer: the shrink-wrap agreement as an adhesion contract. *Cardozo Law Review*, 21, PAETZOLD, R. L. (1991) Contracts Enlarging a Copyright Owner's Rights: A Framework for Determining Unenforceability. *Nebraska Law Review*, 68, RYAN, M. G. (1989) Offers users can't refuse: Shrink-wrap licenses agreements as enforceable adhesion contracts. *Cardozo Law Review*, 10, EINHORN, D. A. (1995) Shrink-Wrap Licenses: The Debate Continues. *IDEA: The Journal of Law and Technology*, 38.

⁶ Given the rare occasions in which Open Content licenses have actually been brought to court, it is difficult to determine their legal status, which is also likely to differ from one jurisdiction to the other. Potential problems have been identified in e.g. POSSE, R. I. (2009) The legal status of copyleft before the Spanish courts. *Journal of Intellectual Property and Practice*, 4, KENNEDY, D. M. (2001) A Primer on Open Source Licensing Legal Issues: Copyright, Copyleft and Copyfuture. *St. Louis University Public Law Review*, 20, KROWNE, A. & PUZIO, R. (2006) The fog of copyleft. *First Monday*, 11.

⁷ Many collaborative platforms on the Internet rely on Open Content licenses in order to release the output produced by the community of users. The problem is to determine who owns the copyright to the resulting work, which can be extremely difficult given that many different authors can contribute the content. Besides, contributions are often anonymous, and it is often impossible to clearly distinguish between one contribution and the others. The result is a

Accordingly, given that copyright law is based upon a strict liability regime, the legal uncertainty associated with the majority of Open Content licenses may actually prevent authors and end-users from engaging into the exploitation of a particular work of authorship, unless they are willing to incur the risk of being sued for copyright infringement.

STRUCTURE OF THE THESIS

The structure of the thesis identifies the three layers of regulation that simultaneously contribute to regulate the manner and the extent to which information can be legitimately accessed and consumed.

- Chapter 1 begins with an analysis of copyright law as it applies both to the physical and the digital world. After describing the scope of the rights granted under the copyright regime, it investigates the extent to which these rights have been reformed to comply with the specificities of the digital world. Yet, in spite of the process of harmonization carried out at the European and international level, copyright law still does not qualify as a uniform body of law. Chapter 1 proceeds to draw attention to practical and legislative concerns that have yet to be resolved. In particular, it analyses the impact of recent legislative reforms in terms of overall market efficiency, accessibility of works and consumer expectations. Finally, in order to explain the challenges that the law has to face in the digital environment, Chapter 1 examines the extent to which the self-regulating features of the copyright regime have been jeopardized with the advent of Internet and digital technologies.
- The chapter analyses the structure and the operation of private ordering. It examines how private regulation tried to resolve the problems that had yet to be addressed in the digital world. The first section begins by analysing different mechanisms of regulation by private means - which constitute the focus of the next two sections. Section 2 focuses on the use of end-user licensing agreements and technological measures of protection in order to restrict the consumption of digital works beyond the scope of the copyright regime. Section 3 then looks at the use of Open Content licenses intended to support a greater dissemination and broader availability of works, amidst other goals. The objective of these 2 sections is, ultimately, to identify the corresponding advantages and drawbacks of these two divergent approaches.
- Chapter 3 investigates the role of the State in regulating the operations of private ordering. More precisely, this chapter analyses the extent to which public policy can impose a series of limitations over the regulation of information. It concludes that government intervention can be justified on certain grounds, such as information asymmetries, positive or negative externalities, and public interest.

situation of legal uncertainty, where in spite of a work being released under Open Content licences, the exploitation of that work by third parties may nonetheless qualify as copyright infringement. See BOTTERBUSCH, H. R. & PARKER, P. (2008) Copyright and Collaborative Spaces: Open Licensing and Wikis. *Techtrends*, 52.

CHAPTER 1

COPYRIGHT LAW

LEGISLATIVE FRAMEWORK

The evolution of copyright law reflected the changes taking place in society.⁸ Originally meant for the regulation of trade, copyright subsequently began to be seen as a natural right belonging to the authors as a result of their labour. As the concept of romantic authorship flourished, the foundations for a strong author-based copyright regime were ultimately established. Later, with the development of international trade and the more recent trends towards globalization, a process of harmonization became necessary and a series of international conventions and international treaties have been signed. Finally, the advent of Internet and digital technologies has induced further legislative reforms to accommodate the provisions of copyright law with the specificities of the digital environment.

Looking at the manner in which copyright law has been implemented around the world, it is possible to distinguish two main lines of argument that justified the formation of two separate regimes. Principally found in countries with a civil law tradition, the regime of authors' rights is based on an individualist conception of the author who is naturally entitled to a proprietary right in every intellectual creation.⁹ Conversely, the copyright regime, characteristic of most common law countries, is mainly justified on the grounds of economic efficiency. Since authors will only invest in the production of a work if they believe they can receive appropriate returns from their investments, the set of exclusive rights granted by copyright law constitutes an additional incentive to create. Thus, the ultimate objective of the copyright regime is not to promote the interests of the author but that of society as a whole.¹⁰

THE COPYRIGHT REGIME

The copyright regime that is found in most common-law countries is based on utilitarian and economic considerations. Conceived as an exclusive right granted by the government to a limited number of publishers,¹¹ copyright has subsequently developed into a series of exclusive rights granted to the author

⁸ From a Law and Literature interdisciplinary approach, if one reads the various copyright statutes as a story, it appears that each reform in the law is actually the expression of a change in the society. FREDRIKSSON, M. (2005) *Copyright and the Story of the Author. MIT4: The Work of Stories*.

⁹ France is the first country to have implemented an authors' right regime, first with the enactment of the Law of 1791, which introduced the exclusive right of representation, then with the Law of 1793, recognizing the exclusive right of reproduction to authors. The regime was justified on the grounds that the work of authorship is the fruit of the writer's thought; it is therefore "the most sacred, the most unassailable and the most personal of all the properties. [...] It is extremely just that the men who cultivate the field of thought enjoy some fruits from their work." LECHAPELIER, J. (1791) Reports to the revolutionary parliaments. *January 15*. Paris.

¹⁰ See, e.g. *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 430-31 nn. 11-12 (1984): Copyright law "is intended to motivate the creative activity of authors [...] by the provision of a special reward, and to allow the public access to the products of their genius after the limited period of exclusive control has expired." *Fogerty v. Fantasy, Inc.*, 114 S. Ct. 1023, 1029 (1994): "Although intended to motivate the creative activity of authors and inventors by the provision of a special reward, [the exclusive rights] are limited in nature and must ultimately serve the public good."

¹¹ The earliest example of exclusive printing privilege is the system of state privileges that regulated the printing industry in Venice from 1469 (when the first printing privilege has been granted to Johannes de Spira, the publisher who first introduced printing techniques in Venice) until 1570 (when the system of state privileges was repealed and

of any original work of authorship to encourage cultural production for the ultimate benefit of society.¹²

From an economic standpoint, copyright law is a legal instrument whose function is to maximize the production and the distribution of works. As such, the copyright regime tries to address the problems that might reduce the incentives for authors to create and/or make their works available to the public. One such problem is the market failure resulting from the fact that every work of authorship exhibits the two basic characteristics of a public good: they are non-excludable and non-rival in consumption.¹³

While the costs of producing new information can be very high, the immaterial nature of information is such that it can be easily reproduced without incurring significant costs. This is especially true in the digital environment, where, as a result of Internet and digital technologies, information can be reproduced by anyone and at virtually no costs, to be further redistributed on a global scale in a very short period of time. There are, therefore, no real incentives for anyone to purchase a work from the original creator, rather than by somebody who, having had access to one copy, reproduces it and sells it at its marginal cost - or little above that cost. Besides, it is virtually impossible to exclude anyone from enjoying a particular piece of information after it has been disclosed to the public. Insofar as everyone can benefit from the consumption of information, users are unlikely to reveal their actual willingness to pay for that a particular piece of information but would rather attempt to free ride on the contribution of others.¹⁴

If the costs incurred in the production of information cannot be recouped, the production of information is less likely to be economically viable. There is thus a risk that, without an established system of rewards, authors will create only a suboptimal quantity of works.¹⁵ This might result in a loss of welfare for society, as certain works may not be produced although it would be socially valuable to do so.¹⁶

If the goal is to achieve an optimal allocation of resources, the production and the exploitation of creative works must, therefore, be regulated. As an attempt to do so, the copyright regime established a balance

the activity of publishers started being supervised by the guild of printers and booksellers). STAPLETON, J. (2002) *Art, Intellectual Property & the Knowledge Economy*. London, Goldsmiths College, University of London.

¹² The Statute of Anne of 1709 is considered to be the first modern copyright statute, which for the first time codified the idea that copyright should be limited to the extent necessary as to provide the incentive for authors to create and disseminate their cultural productions. ALFINO, M. R. (1991) *Intellectual Property and Copyright Ethics*. *Business and Professional Ethics Journal*, 10.

¹³ Public goods are defined by two characteristics: the inherent quality of non-rivalry (whenever the enjoyment of the good by an individual does not affect the enjoyment of the same good by others) and the contextual character of non-excludability (whenever it is impossible for an individual to exclude others from enjoying the good). Although the former is a permanent characteristic of the good that cannot be altered, the latter is only a product of the current state of affairs. VARIAN, H. R. (1998) *Markets for Information Goods*. University of California, Berkeley, CA.

¹⁴ For a more detailed overview on free-riding and intellectual property, see LEMLEY, M. A. (2005) *Property, Intellectual Property, and Free Riding*. *Texas Law Review*, 83.

¹⁵ If the production of information goods is regulated by the invisible hand of the market, creative works may only be produced up to a less than optimal amount, because people will be able to capture the benefits deriving from their consumption regardless of whether or not they are contributing to the production thereof. See OAKLAND, W. H. (1974) *Public Goods, Perfect Competition, and Underproduction*. *The Journal of Political Economy*, 82.

¹⁶ See GORDON, W. J. (1992) *Asymmetric Market Failure and Prisoner's Dilemma in Intellectual Property*. *University of Dayton Law Review*, 17.

between incentives for authors to create and public access to information.¹⁷ In order to reduce the opportunities of free riding over the works of others, the copyright regime turned a quasi-public good like information into a private good by introducing artificially scarcity and/or legal excludability. This has been achieved by granting authors a series of proprietary rights over the expression of their works, which can be licensed to third parties in order to control the (commercial) exploitation thereof.¹⁸ By turning information into information goods, authors are thus given the opportunity to rely upon market mechanisms in order to obtain economic returns from their works.

Yet, the function of the copyright regime is not limited to ensuring adequate compensation for the creative endeavour of authors. It is ultimately aimed at promoting the production and the dissemination of culture for the ultimate benefit of society. Copyright thus has to be limited to the extent necessary to ensure an optimal level of production and a widespread dissemination of works. The copyright regime creates a situation of artificial scarcity, which might prevent the maximization of social welfare insofar as certain users will be excluded from enjoying a work even where the exploitation thereof would not impose additional costs on society.¹⁹ Hence, to determine the optimal level of protection that should be granted under the copyright regime, the costs and benefits of any extension or reduction thereof should be thoroughly analysed: while a greater scope of protection is likely to increase the incentives for authors to create, it is also likely to increase the welfare loss imposed on society as a result of monopoly pricing, as well as the costs for the making of new works based on former works. In order to strike a fair balance between the need to reward authors for their intellectual endeavours and the need to make a maximum number of works available to the public, copyright law should protect the expression of any original work of authorship against the unauthorized exploitation thereof only to the extent necessary as to ensure an optimal production of works.²⁰ The copyright regime has thus introduced a number of

¹⁷ The production and consumption of creative works must be regulated so as to ensure that sufficient incentives are available for authors to produce an optimal quantity of works. By restricting the exploitation of non-rival goods, however, a deadweight loss necessarily emerges given that certain consumers will be excluded from enjoying the works even if they would be willing to pay for the marginal cost of production. An efficient regulation must therefore establish a trade-off between maximizing the incentive to create (dynamic efficiency) and maximizing the benefits resulting from the creation of additional works (static efficiency). See LÉVÊQUE, F. & MÉNIÈRE, Y. (2004) *The Economics of Patents and Copyright*, Paris, The Berkeley Electronic Press.

¹⁸ In order to promote the creation of new works, creative endeavor is to be rewarded and authors must be compensated for the costs, time and efforts spent in the production of their works. The establishment of a monopoly (albeit limited) is therefore a necessary evil to ensure that a sufficient amount of creative works will be produced. See MACAULAY, T. B. (1841) A Speech in the House of Commons on the 5th of February 1841. IN YOUNG, G. M. (Ed.) *Macaulay, Prose and Poetry*. Harvard University Press

¹⁹ In a situation of perfect competition, the price of a good equals its marginal costs and the good is produced up to the point where the demand meets the function of marginal costs. In a situation of monopoly, given a specific demand function, the monopolist will produce only to the point where marginal revenues equal marginal costs (the first order condition for profit maximization). The establishment of a monopoly right will therefore impose a deadweight loss on society whose magnitude depends on the difference between the sum of both producers and consumers' surplus in the two situations. For a more detailed analysis of the deadweight loss resulting from the introduction of a temporary monopoly within the copyright regime, see LANDES, W. M. & POSNER, R. A. (1989) An Economic Analysis of Copyright Law. *The Journal of Legal Studies*, 18.

²⁰ Because creative works constitute both the input and the output of creative endeavor, the term of copyright protection should be confined to the point where the marginal benefits resulting from the extended copyright protection are equal to the marginal costs required for the production of new works. See e.g. VARIAN, H. R. (2005)

limitations on the proprietary rights granted to every copyright owner. Although they have been granted with a series of exclusive rights over the expression of their works, authors are not entitled to arbitrarily prevent the unauthorized exploitation thereof. Users should be entitled to use or to consume these works for any legitimate purpose that is unlikely to jeopardize the commercial exploitation of the work. Moreover, after a certain period of time, a work will inevitably enter into the public domain and consequently become freely available to anyone.

THE AUTHOR'S RIGHTS REGIME

As the concept of romantic authorship flourished,²¹ the foundations for a strong author-based copyright regime were ultimately established.²² As a result, the regime of author's right implemented in most civil law countries exclusively focuses on the relationship between authors and their works.

Locke's discourse on property entitlements²³ is one of the basic foundations for an author-based rationale of copyright law. Although originally intended to justify the appropriation of tangible property, Locke's theory can be applied by analogy to justify the implementation of an author's rights regime. Following Locke's theory of labour, authors are entitled to a natural right over the fruits of their intellectual labour, provided that there is enough and as good left for others.²⁴

Hegel's personhood theory provides a different justification for the introduction of author's right. In contrast with Locke's view of property rights as natural rights, Hegel regards them as a product of social construction. He considers that property rights are a necessary condition for individuals to distinguish

Copying and Copyright. *Journal of Economic Perspectives*, 19. Moreover, in the name of economic efficiency, the scope and the extent of copyright protection have to be restrained in order to ensure that certain exploitations of a work will not be undermined by any imperfection of the market. Whenever a socially valuable exploitation is likely to be prevented as a result of market failure (e.g. excessive transaction costs), the unauthorized exploitation of the work may thus nevertheless be allowed. See e.g. GORDON, W. J. (1982) Fair Use as Market Failure: A Structural and Economic Analysis of the "Betamax" Case and its Predecessors. *Columbia Law Review*, 82.

²¹ A theory of romantic authorship justifies copyright proprietary rights on the grounds that authors possess the original ideas embodied in their works because each work is the expression of the author's personality. AOKI, K. (1996) (Intellectual) Property and Sovereignty: Notes toward a Cultural Geography of Authorship. *Stanford Law Review*, 48.

²² Most countries of continental Europe did not introduce a copyright system derived from the English model which was mainly based on economic considerations, but adopted instead an extensive system of authors' rights based on the romantic notion of original authorship, as a consequence of the fact that by the time the countries of continental Europe decided to introduce a copyright regime in their national legislations the copyright discourse based on natural rights was more advanced and more widely accepted. MATTHEWS, B. (1890) The Evolution of Copyright. *Political Science Quarterly*, 5.

²³ In Locke's word: "Whatsoever [a Man] removes out of the State that Nature hath provided, and left it in, he hath mixed his Labour with, and joyned to it something that is his own, and thereby makes it his Property [...] at least where there is enough, and as good left in common for others." Locke, J. (1689). *An Essay Concerning the True Original, Extent, and End of Civil Government*. Two Treatises of Government. P. Laslett.

²⁴ See CRAIG, C. S. J. (2002) Locke, Labour, and Limiting the Author's Right: A Warning against a Lockean Approach to Copyright Law. *Queen's Law Journal*, 28.

themselves from the whole by expressing their own identity as individuals.²⁵ Hegel's theory constitutes the fundamental basis for the regime of moral rights, according to which a work must be protected as an extension of the personality of the author.²⁶

The problem is that, after a work has been made available to the public, it is difficult to control the subsequent dissemination thereof. Under the regime of author's rights, authors are thus granted a series of moral rights (i.e. the right to be recognized as the author of a work, the right to ensure the integrity of the work, etc) and a series of exclusive economic rights (i.e. the exclusive right of reproduction, distribution, communication to the public, etc) that enable them to control the exploitation of their works up to the point in which the copyright has expired.

Once again, the law turns a public good like information into an information good, which can be traded on the market just as any other economic good.²⁷ Even though they differ in their justifications and in their implementation, both the copyright regime and the author's rights regime ultimately achieve a similar result by turning an intellectual creation into an object trade that can be exchanged on the market.

Yet, given that the appropriation of the product of one's labour is justifiable only on the grounds that it does not worsen the situation of others,²⁸ the scope of the proprietary rights must necessarily be limited. On the one hand, in order not to exhaust the information commons, authors cannot be entitled to a proprietary right over the underlying facts and ideas of a work, but only over the expression thereof.²⁹ On the other hand, in order not to restrain the liberty of individuals to express themselves, unauthorized exploitation of a work should nevertheless be allowed in certain circumstances.³⁰

²⁵ Hegel claims that property rights are a product of the society. According to Hegel, the only way individuals can actualize their freedom is by constructing interpersonal relations, wherein property rights play a key role for being the only means by which individuals can express their own identity and personality. Hegel, G. W. F. (1821). *Philosophy of Right*. Oxford, Clarendon Press.

²⁶ Hegel is said to have correctly recognized the peculiarity of copyright works, which belongs to the authors as an extension of the self (as an expression of their personality). Accordingly, authors are entitled to dictate what can or cannot be done with their works, and the most fundamental of those entitlements (e.g. the right to prevent mutilation and/or misattribution) should be inalienable. Hughes, J. (1988). "The Philosophy of Intellectual Property." *Georgetown Law Journal* 77(287).

²⁷ See, in particular, VARIAN, H. R. (1998) *Markets for Information Goods*. University of California, Berkeley, CA.

²⁸ See the lockean proviso, according to which appropriation of the fruits of one's labour is justifiable only insofar as there is "as good left in common for others". Nozick, R. (1974). *Anarchy, State, and Utopia*. Oxford, Basil Blackwell.

²⁹ The idea-expression dichotomy resolve the potential conflict of the copyright regime with the Lockean provision. Ideas and facts cannot be removed from the common to the extent that there would otherwise not be enough and as good left in common for others afterwards. Hughes, J. (1988). "The Philosophy of Intellectual Property." *Georgetown Law Journal* 77(287).

³⁰ The regime of limitations and exemptions to copyright exclusive rights is consistent with Locke's proviso. In fact, if copying from an existing work is necessary for an individual to accurately describe his world and communicate the nature of his art, then without the privilege of copying, an individual would be made worse off with regards to his ability to use the intangible commons than if he had never been exposed to the work. This claim is particularly relevant with regard to works of scholarship and criticism. Gordon, W. J. (1993). "A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property." *The Yale Law Journal* 102(7).

INTERNATIONAL HARMONIZATION

Copyright law does not automatically protect a work in every country around the world. As a territorial right, copyright only subsists within the territory in which it has been granted. This means that the scope of copyright protection ultimately depends on the jurisdiction where protection is sought.³¹ In spite of their commonalities, the copyright regime and the author's right regime have been built upon different justifications and consistently differ in their implementation. A process of harmonization has thus become necessary over time and a series of international conventions and international treaties have been signed.

The main step towards international harmonization was achieved in 1886 with the ratification of the Berne Convention for the Protection of Literary and Artistic Works (the Berne Convention), administered today by the World Intellectual Property Organization (WIPO). In addition to requiring that copyright protection be granted automatically upon the creation of a work without the need for any formality,³² the Berne Convention also set forth a series of "minimum standards" of protection that every signatory country must comply with in the national implementations of the copyright regime.

The Universal Copyright Convention of 1952 was developed as an alternative to the Berne Convention for countries who did not agree with the minimum standards set up by the Berne Convention. It has nowadays become insignificant with the endorsement of most of the Berne Convention by the TRIPS Agreement, which mandates that all contracting parties comply with the most essential requirements of the Convention.

In 1994, the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) has led to the establishment of the World Trade Organisation (WTO) that administered the negotiations of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). The TRIPS Agreement establishes a series of minimum standards for intellectual property regulation. Those standards apply to all WTO members, who have the obligation to implement them within their national legislation either by means of self-executing provision or by incorporating the content of the agreement directly into domestic law. The impact of the TRIPS Agreement on copyright law is that it requires every WTO member to comply with the provisions of the Berne Convention, with the exception of the provisions related to moral rights. Today, most countries in the world have thus become members of the Berne Convention.

The Berne Convention is also the main international copyright agreement concerned with the protection of foreign authors. The treaty establishes a system of equal treatment for foreign works (the principle of "equal national treatment") according to which a foreign work must receive the same level of protection as a domestic work. Hence, while copyright protection is based on national law, foreign works are protected by virtue of the principle of national treatment as stipulated in the Berne Convention.³³ In

³¹ Since the copyright regime is regulated on a strictly national basis, the copyright is a territorial right that does not extend beyond national territory. Copyright owners may only enjoy country specific rights and the protection they get is based on the law of the country where the protection is sought. See GOLDSTEIN, P. (2001) *International Copyright: Principles, Law, and Practice*, Oxford University Press.

³² The Berne Convention (article 5(2)) stipulates that copyright protection applies automatically (no registration and no formalities are required in order to secure copyright protection) as soon as a work is created.

³³ Article 5(1) and 5(2) of the Berne Convention establish the principle of national treatment for works protected by copyright, by introducing an obligation to grant to nationals of countries of the Berne Union national treatment in respect of the rights specifically covered by the Convention. It does not however specify whether national treatment

addition to that, the TRIPS Agreement introduced into the realm of intellectual property law the principle of the “most-favoured-nation” according to which any advantage accorded to the nationals of a country must necessarily be accorded to the nationals of every other WTO country.³⁴

In case of non-compliance with any of those obligations, the WTO dispute settlement mechanism is available to encourage consultation and to facilitate the settlement of disputes amongst WTO member states. Trade sanctions might sometimes be imposed whenever the parties refuse to abide the result of the dispute settlement.³⁵

Later, with the worldwide deployment of the Internet network, the harmonization of the copyright system in different jurisdictions has become increasingly necessary. In 1996, two treaties were concluded at the World Intellectual Property Organization (WIPO) as an attempt to standardize the regulation of copyright and neighbouring rights in the digital environment: the WIPO Copyright Treaty (WCT), intended to provide additional protection to copyright works as a result of the advent of Internet and digital technologies, and the WIPO Performances and Phonograms Treaty (WPPT), mainly concerned with the neighbouring rights of performers and producers of phonograms. Important contributions of these treaties for copyright law are the introduction of a new exclusive rights for the online dissemination of works, defined as the making available of a work in such a way that members of the public can access it at a time and from a place individually chosen by them,³⁶ and the legal protection granted against the circumvention of technological measures of protection and digital rights management information.³⁷

Copyright harmonization has also been undertaken on a regional level by the European Community, because it constitutes a necessary condition for a properly functioning common market. In Europe, copyright harmonization has been achieved by means of a series of European Directives adopted by the Council of Ministers acting together with the European Parliament. Those directives provide general instructions and specific provisions that every member States is obliged to implement into domestic law by a certain date. In the context of copyright law, the most relevant directives are the Computer Programs Directive of 1991, establishing a common standard for the copyright protection of computer programs under copyright law, the Copyright Duration Directive of 1993, establishing a common term of copyright protection of 70 years from the death of the author, the Database Directive of 1996, creating a sui generis protection for certain databases that do not meet the criterion of originality for copyright, the Copyright Directive of 2001 on the harmonization of certain aspects of copyright and

obligations apply to every right granted under national copyright regimes or only to the minimum rights stipulated in the Convention.

³⁴ See Article 4 of the Agreement on Trade-Related Aspects of Intellectual Property (TRIPS), which requires any advantageous conditions granted to a member of the WTO to be extended, automatically and unconditionally, to every other WTO member (subject to a only a limited number of exceptions).

³⁵ For more details on the WTO dispute settlement mechanism, negotiation and consultation procedure, see http://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm

³⁶ See Article 8 of the WIPO Copyright Treaty and Article 10 of the WIPO Performances and Phonograms Treaty, according to which rights holders shall enjoy the exclusive right of authorizing any communication to the public of their works, by wire or wireless means, including the making available to the public of their works in such a way that members of the public may access these works from a place and at a time individually chosen by them.

³⁷ See Articles 11 and 12 of the WIPO Copyright Treaty and Articles 18 and 19 of the WIPO Performances and Phonograms Treaty.

related rights in the information society, the Resale Rights Directive of 2001, creating a right for authors to participate in the proceeds of the resale of their works, and the Enforcement Directive of 2004, covering the remedies available in civil courts and harmonizing the rules on copyright enforcement.

Although a few discrepancies subsist between the copyright regimes of different member states (and in particular amongst civil law and common law countries), copyright law at the European level has nowadays been relatively harmonized. While complete harmonization has yet to be achieved, the effective level of protection granted to original work of authorships has nonetheless become more uniform amongst countries.

COPYRIGHT PROTECTION

Copyright law encourages the production of original works of authorship by providing authors with a particular set of rights vesting in the expression of any original work of authorship. Although protection is granted automatically and unconditionally, the standard for originality requires that the work be regarded as an original creation resulting from the intellectual endeavour of the author. As a general rule, copyright protection is granted through two different bundles of rights: a series of are freely and independently alienable exclusive rights governing the commercial exploitation of a work, and a series of inalienable moral rights protecting the personality, the honour and the reputation of the author. While the scope of protection might vary according to the context of analysis, the majority of these rights have been limited to the extent necessary as to allow society to benefit from an increased production and dissemination of works.

The provisions of copyright law are likely to differ from one jurisdiction to another. Before identifying the function assumed by copyright law in the regulation of information, a broad overview of the copyright regime will thus be provided in order to determine (1) the extent to which different categories of works may qualify for protection, and (2) the actual scope of copyright protection they may be granted with under a variety of jurisdictions. Finally, some of the concerns regarding the application of copyright law in the digital environment will be addressed.

SUBJECT MATTER

As prescribed by the Berne Convention, copyright law awards protection to any artistic, literary, musical or dramatic work. These categories are extremely broad and can potentially include a large variety of works.

Through time, copyright protection has thus been made available to an increasingly large variety of works. The rights of performers, phonogram producers and broadcasting organizations have become part of copyright regime as a result of the Rome Convention of 1961,³⁸ computer software has become eligible for protection as a literary work,³⁹ semiconductors and integrated circuits may sometimes qualify for protection under a sui-generis regime,⁴⁰ and, in Europe, additional sui-generis rights have been introduced for the protection of unoriginal databases.⁴¹

³⁸ The rights of performers, phonogram producers and broadcasting organization were first recognized in the Rome Convention of 1961. The protection of performers and producers of phonograms has later been endorsed by the TRIPs Agreement (article 14) and extended into the digital environment through the WIPO Performances and Phonograms Treaty of 1996.

³⁹ See e.g. Article 10(1) of the TRIPs Agreement, Article 4 of the WIPO Copyright Treaty, the European Directive 91/250/EC on the legal protection of computer programs, and section 101 of the US Copyright Act (as amended in 1980).

⁴⁰ Semiconductors and electronic circuit diagrams are protected differently in different jurisdictions. In the USA, the Semiconductor Chip Protection Act of 1984 created a specific form of intellectual property right which may be regarded as a hybrid between patent and copyright protection. In Europe, the Directive 87/54/EEC on the Legal Protection of Semiconductor Products was enacted in order to establish an uniform system of protection for semiconductors and microchips, but the directive has been implemented in different manners in the national

Conversely, in most jurisdictions, certain categories of works, such as titles, names, and short phrases, as well as governmental works in general, may not be eligible for protection.⁴² Similarly, ideas, procedures, principles and discoveries are automatically excluded from copyright protection, as is any work which merely consists of common place data or information.⁴³ The idea/expression dichotomy is a fundamental principle of copyright law, which does not protect any of the ideas or facts underlying a work but only the manner in which they have been expressed. As a result, anyone is entitled to use the unprotected elements of a work (facts, ideas, and other materials from the public domain) as long as they are expressed in a different way. This provides an adequate protection to the expression of a work, while simultaneously allowing for the free flow of information, although it is sometimes difficult to precisely to differentiate between expression and idea.⁴⁴

ECONOMIC RIGHTS

Copyright is a negative right. It prevents people from doing something they would have otherwise been allowed to, rather than giving right holders the right to do something they could have otherwise not done.

The bundle of exclusive rights constitutes the main form of economic exploitation of a work. The exclusive right of reproduction is perhaps the most important one, as it prevents the direct or indirect reproduction of a work, in part or as a whole, and in any manner or form. Yet, according to the doctrine

legislations of member states: the majority of countries introduced a sui-generis right subject to registration, whereas the UK, Ireland and Belgium adopted a copyright approach, based on the unregistered design right. In addition to the divergent models of protection, the term of protection varies from one country to another. More detail on the European protection of semiconductors at: HOEREN, T. (1991) Chip protection in Europe. IN MEIJBOOM, A. & PRINS, C. (Eds.) *The law of information technology in Europe*. Amsterdam.

⁴¹ While any original compilation of data is protected under copyright law with regard to its structure, the data that it incorporates is not, as such, protected under the law. Yet, as a result of the European Directive 96/9/EC on the legal protection of databases, a sui-generis right has been introduced into the law in order to protect the structure and the content of unoriginal compilations or databases whose production has required a substantial investment of time, money and effort.

⁴² In order to be protected by copyright law, a work must involve a minimum amount of authorship originating from the author. Names, titles, and other short phrases are generally believed not to be sufficiently substantial to be awarded copyright protection as such. Besides, according to the Berne Convention article 2(4): “It shall be a matter for legislation in the countries of the Union to determine the protection to be granted to official texts of a legislative, administrative and legal nature, and to official translations of such texts.” e.g. in the US copyright protection does not extend to works of the US Government, which can therefore be freely reproduced, distributed, adapted and/or publicly displayed in the US (although they may be nevertheless protected abroad).

⁴³ See e.g. article 9(2) of the TRIPs Agreement: “Copyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such” as well as section 102(b) of the US Copyright Act: “In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.” See article 2(8) of the Berne Convention: “The protection of this Convention shall not apply to news of the day or to miscellaneous facts having the character of mere items of press information.”

⁴⁴ See: SAMUELS, E. (1989) The idea-expression dichotomy in copyright law. *Tennessee Law Review*, 56.

of independent creation, any work whose content is substantially similar to that of another but that does not result from actual copying will, nonetheless, be granted an independent copyright.⁴⁵ The exclusive right of distribution precludes the sale or the dissemination of any original work of authorship that qualifies for copyright protection, or any copies thereof. The right has traditionally been subject to the principle of exhaustion, according to which the right holder can no longer exercise control over the distribution of the copies that have been legitimately distributed to the public. This principle is however not applicable in the digital environment, where the copies of a work do no longer qualify as tangible objects.⁴⁶ Similarly, the rental right, which regulates the renting of computer software, cinematographic works and phonograms for commercial purposes, is itself not subject to exhaustion. In addition, the copyright includes the exclusive right of communication to the public, which regulates the extent to which a work can be performed or displayed to the public. This also includes the right of making the work available to the members of the public in such a way that it can be accessed at the time and place individually chosen by them.⁴⁷ Finally, right holders are granted the exclusive right of adaptation, which prohibits the making of derivative works displaying a substantial amount of similarity with the original works, regardless of the fact that the derivative works may exhibit a sufficient amount of originality so as to qualify for copyright protection themselves.⁴⁸

In order to obtain monetary or non-monetary returns, the copyright owner can license one or more of these exclusive right to a variety third parties, either in whole or in part, under particular terms and conditions that precisely stipulate the manner and the extent to which the work can be legitimately exploited.

MORAL RIGHTS

As opposed to exclusive rights, concerned with the economic value of a work, moral rights are for the most part concerned with the manner in which a work reflects the personality of the author. Moral rights are assigned to the author of a work and are generally regarded as being inalienable, for all the duration of the copyright and beyond. Deeply rooted into the national conceptions of authorship, the regime of moral rights is however likely to significantly differ from one jurisdiction to another.⁴⁹

⁴⁵ Copyright law only protects against actual copying. Independent creations are therefore not liable under copyright law, to the extent that (1) it does not involve any free-riding on the works of others, and (2) it would be too expensive to ensure that any given expression has not been made created. See LANDES, W. M. & POSNER, R. A. (1989) An Economic Analysis of Copyright Law. *The Journal of Legal Studies*, 18.

⁴⁶ See WIPO Copyright Treaty, Agreed statements concerning Articles 6 and 7.

⁴⁷ See the WIPO Copyright Treaty, Art. 8 and the WIPO Performances and Phonograms Treaty, Art. 10

⁴⁸ Berne Convention Article 2(3): "Translations, adaptations, arrangements of music and other alterations of a literary or artistic work shall be protected as original works without prejudice to the copyright in the original work."

⁴⁹ Even within the European Community, there has been no harmonization of the national moral rights regimes. The duration is quite different from one country to another. Moral rights may last for an indefinite period of time (e.g. in France), or they may be limited to the copyright term (70 years post mortem) or to the life of the author. The alienability thereof is also subject to debate. See e.g. Article L. 121-1 of the French Code de la propriété intellectuelle, which represent one of the strongest implementation of the doctrine of moral rights: "The author shall enjoy the right

The moral right of attribution is probably the most widely recognized. It has been expressly endorsed by the Berne Convention⁵⁰ and has nowadays been implemented in almost every jurisdiction. It consists of the right to be identified as the author of a work, the right of not being falsely attributed as the author of another work, as well as the right for the author of a work to remain anonymous. The moral right of integrity has also been endorsed by the Berne Convention⁵¹ and provides authors with the right to object to any mutilation, distortion or other modifications of a works that is likely to cause prejudice to their honour or reputation. The moral right of first publication, although not expressly provided for in the Berne Convention, has nonetheless been acknowledged in most authors' rights regimes of continental Europe.⁵² The right basically protects authors against the premature disclosure of their works by giving them the right to decide upon the date and the location for the first publication thereof. Finally, a number of jurisdictions also recognize the moral right of withdrawal,⁵³ according to which authors are entitled to prevent the further reproduction and dissemination of their works, as well as to withdraw any copy that has been made available on the market, in exchange for providing adequate monetary compensation to the owners of the rights in these works.

LIMITATIONS

Copyright is not an absolute right. In the attempt to create a balance between the interests of rights holders in protecting their works and the interests of the community in consuming and reusing these works for a variety of purposes, every national jurisdiction has implemented a number of limitations into the law so as to limit copyright protection in terms of scope and duration.

To begin with, copyright is not a perpetual right. In order not to excessively restrain the dissemination of information and to encourage the production of new works based on former works, copyright has been conceived as an intellectual monopoly that may only last for a limited period of time. Different jurisdictions have implemented a different term of protection. While the Berne Convention stipulates that it may not last for less than 50 years after the death of the author, the Convention allows for longer or shorter terms of protection for particular types of work.⁵⁴ Thus far, most countries have adopted a standard copyright term of 70 years after the death of the author.

to the respect for his name, his authorship and his work. This right shall be attached to his person. It shall be perpetual, inalienable, and imprescriptible.” Instead, in most of the common law countries, which actually implemented a moral right regime (e.g. UK, Canada), moral rights can be contractually waived.

⁵⁰ Berne Convention Article 6bis: “Independently of the author's economic rights, and even after the transfer of the said rights, the author shall have the right to claim authorship of the work [...]”

⁵¹ Berne Convention Article 6bis: “[...] and to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, the said work, which would be prejudicial to his honor or reputation.”

⁵² See, e.g. the "droit de divulgation" in France (Article L. 121-2 of the French Code de la propriété intellectuelle).

⁵³ See e.g. the "droit de retrait" in France (Article L. 121-4 of the French Code de la propriété intellectuelle).

⁵⁴ Article 7 of the Berne Convention establishes the minimal term of protection of 50 years after the death of the author as a default, but also provides for possible derogations with regards to cinematographic works, photographic works, works of applied art, as well as anonymous and pseudonymous works.

With regard to the scope of rights, although the three-step-test of the Berne Convention⁵⁵ has been widely embraced at the international level, the actual implementation of copyright limitations in the different jurisdictions is far from being uniform. Many common law countries have developed a series of general principles that stipulate the condition under which an alleged act of copyright infringement may be nevertheless regarded as fair,⁵⁶ whereas the majority of countries with a civil law tradition opted for the establishment of a well-defined regime of exemptions with an exhaustive list of permitted acts. Moreover, it has to be noted that, after the introduction of a particular regime of protection against the circumvention of technological measures of protection and digital rights management information,⁵⁷ users dealing with technologically protected works in the digital environment may not avail themselves of the same level of indemnities as in the physical environment.⁵⁸

Finally, another important limitation relates to the exclusive right of distribution. According to the doctrine of exhaustion, right holders cannot control the dissemination of copies that have been legitimately distributed to the public as the exclusive right of distribution is exhausted after it has been exercised once for the particular copy of a work and with the consent of the copyright owner. The reason is that the copyright owner has already been remunerated for the sale of that particular copy of the work and is no longer entitled to control any further distribution of the same copy. Regardless of whether it occurs at the national, regional or international level, in the physical world, the exhaustion of rights plays an important role in ensuring a broad dissemination of works, since it ensures that anyone purchasing a copyright work can subsequently re-sell that work without the permission of the copyright owner.

⁵⁵Article 9(2) of the Berne Convention for the Protection of Literary and Artistic works introduces the “three-step-test” according to which limitations to copyright protection can be introduced insofar as they are (1) confined to certain special cases (2) not in conflict with a normal exploitation of the work and (3) of no unreasonable prejudice to the legitimate interests of the author. The test has been endorsed by the TRIPs Agreement (article 13), the WIPO Copyright Treaty (article 10), the WIPO Performers and Phonograms Treaty (article 16), and a number of European Directives.

⁵⁶ Common law countries have implemented a generalized model of limitations based on principles of fair use/dealing. See, e.g. the U.S Copyright Act, section 107, according to which, in order to determine whether a specific use may qualify as fair, it is necessary to consider (a) the purpose and character of the use, (b) the nature of the copyrighted work, (c) the amount and substantiality of the portion used in relation to the copyrighted work as a whole, and (d) the effect of the use upon the potential market of the copyright work). In other common law countries, such as the UK, Canada and Australia, fair dealing principles have first been established by the courts at common law and have been later incorporated as specific provisions into the Statute.

⁵⁷ See WIPO Copyright Treaty, articles 11, 12 and WIPO Performances and Phonograms Treaty, articles 18, 19.

⁵⁸ Different regimes of exemptions have been introduced with regard to technologically protected copyright works (see WIPO Copyright Treaty, article 10 and WIPO Performances and Phonograms Treaty, article 16; as implemented in the United States by the DMCA section 1201(d) to 1201(i), which establishes a regime of limitations much less flexible than the system resulting from the application of the fair use doctrine of the US Copyright Act of 1976, 17 U.S.C. § 107; and as implemented in the European Community by the Article 5 of the Copyright Directive, which proposes one mandatory exemption together with a list of optional limitations that the member states can implement in their national legislation - subject to the qualification of article 6(4) according to which no measures needs to be taken to ensure that the exemptions are made available to the users whenever voluntary measures such as private agreements have been undertaken between right holders and the other parties concerned.

SELF-REGULATING SYSTEM

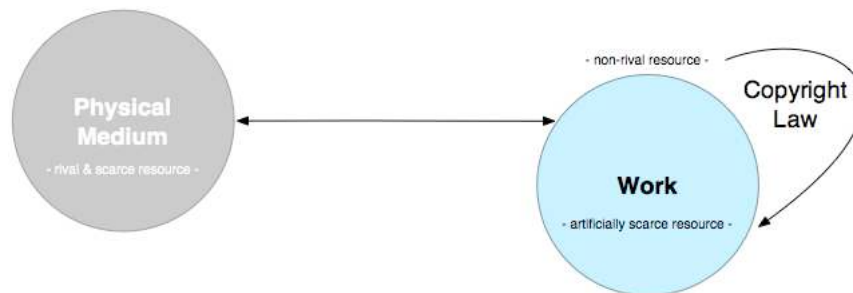
The underlying assumption of copyright law is that, before any work of authorship can become an object of trade, it must assume the characteristics of a private good. This is achieved through the introduction of a series of proprietary rights vesting in the expression of a work, so that it can be economically exploited.⁵⁹ Every work of authorship can thus be regarded as an independent object of trade whose legal properties are consistent with the physical properties of the medium into which it inheres.

As a result, the copyright regime can be regarded as a self-regulating system that is able to regulate itself without relying upon external intervention. As the legal properties of the work are in line with the properties of the physical medium into which it has been incorporated, the proper functioning of the system is guaranteed by its own structure and can therefore only be jeopardized by external forces.

The problem is that copyright law has been conceived for physical media. In order to create a self-regulating regime, copyright law thus replicated the properties of the physical medium into a public good like information, thereby creating an information good that can be exchanged on the market.

However successful it may be in the physical world, the current implementation of the copyright regime no longer qualifies as a self-regulating system in the digital environment. As opposed to most physical media, which are both rival and excludable, digital content qualifies as a non-rival resource that can be consumed simultaneously by everyone. In the digital world, therefore, the properties of the work are once again misaligned with the properties of the medium into which it inheres.

IN THE PHYSICAL WORLD



In the physical world, the copyright regime can for the most part be regarded as a self-regulating system. In spite of the standard controversies surrounding the determination of copyright infringement, the system has been built to take advantage of the physical barriers provided by the tangible world in order to reduce the likelihood of infringement.

⁵⁹ There can be no market without property rights, because if there is no private property there can be no object of trade. Copyright law introduces a series of proprietary rights in the original expression of any original work of authorship to allow for a market of creative works to develop over time. For more details, see LANDES, W. M. & POSNER, R. A. (2003) *The Economic Structure of Intellectual Property Law*, Cambridge, Massachusetts, The Belknap Press of Harvard University Press.

As an abstract and intangible entity, a work of authorship fundamentally qualifies as a public good.⁶⁰ A work is intrinsically non-rival in consumption (i.e. a work can be enjoyed simultaneously by an indefinite number of people) and non-excludable (i.e. once a work has been disclosed to the public, it becomes extremely difficult to exclude people from enjoying it, without relying on any legal or technological means). In contrast, as a tangible entity, the physical resource into which the work has been incorporated ultimately qualifies as a private good. The consumption of one item by a person necessarily precludes the simultaneous consumption of the same item by another, and, to the extent that it qualifies as private property, the owner of the item is entitled to exclude others from the enjoyment thereof.

There exists, therefore, a fundamental disparity between the properties of the work (which is essentially non-rival and non-excludable) and the properties of the medium (which is both scarce and excludable). Yet, the two are inherently interconnected. On the one hand, since a work can only be experienced once it has been incorporated into a tangible medium of expression, the value of the former cannot be appreciated independently of the latter. On the other hand, however, since the market value of an item ultimately depends upon the value that has been assigned to the work it embodies, the value of the former is intrinsically connected to the value of the latter.

Before they can be either enjoyed or exchanged on the market, the work and the medium must necessarily be bundled together. This is likely to be problematic to the extent that the work as an intellectual creation is a public good that is not affected by scarcity, whereas the medium through which it is being conveyed to the public is a scarce resource that necessarily qualifies as a private good.

Copyright law constitutes thus an attempt to realign the properties of the work with the properties of the physical item into which it inheres.⁶¹ By introducing a series of exclusive rights vesting in the expression of a work, right holders can exclude others from the enjoyment or the consumption of a work. Artificial scarcity is a natural consequence of excludability, given that it is not possible to benefit from the non-rival properties of information insofar as the work can no longer be exploited without the consent of the copyright owner. As long as it is eligible for copyright protection, any original work of authorship thus qualifies as a private good which can be exchanged on the market like any other commodity.

Most importantly, in the physical world, copyright law operates in a self-regulating environment, where the provisions of the law are to a large extent enforced by the characteristics of physical media. For instance, since the reproduction of a work necessarily involves the reproduction of the physical medium into which it inheres, physical constraints may prevent a physical work from being reproduced and distributed beyond the private sphere. The copyright regime is thus capable of dissuading the majority of end-users from illegitimately exploiting a work insofar as the medium it has been embodied into cannot itself be easily reproduced outside of a commercial context.⁶²

Besides, copyright infringement can be further discouraged by the fact that the tangible medium into which the work has been embodied does not generally permit any alteration or modification of the work

⁶⁰ See VARIAN, H. R. (1998) *Markets for Information Goods*. University of California, Berkeley, CA.

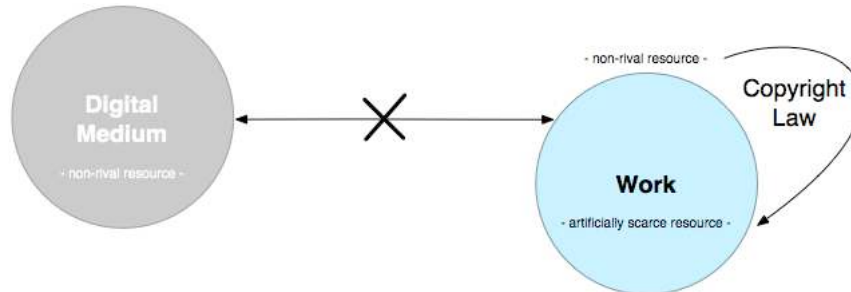
⁶¹ For more details on the role of copyright law in realigning the properties of the work as an intangible entity with the properties of the tangible manifestation thereof, see BENTLEY, N. (2007) *Trading Rights to Digital Content*. *International Workshop for Technical, Economic and Legal Aspects of Business Models for Virtual Goods*. Koblenz, Germany.

⁶² See DAVIS, R. (2000) *The Digital Dilemma: Intellectual Property in the Information Age*, Washington, National Academy Press.

to be performed without causing any irremediable damage to the original item. The properties of the physical world can be regarded as a natural barrier to copyright infringement, which is more likely to be confined to a small number of commercial infringers.

Copyright law could thus be regarded as a self-regulating system, which has been relatively successful until the advent of the digital technologies.

IN THE DIGITAL WORLD



Given the different characteristics of digital media, the self-regulating feature of the copyright regime does no longer apply in the digital world, where there is no any natural barrier against copyright infringement.⁶³

The advent of digital technologies has completely transformed the nature of copyright works. Through the process of digitization, the work has essentially become independent from the medium into which it is being conveyed to the public, which itself has become intangible. While the physical medium into which they inhere (such as a CD, DVD or hard-drive) are fundamentally scarce and therefore rival in consumption, digital works can ultimately be regarded as public goods which, as a result of their intangible nature, are both non-excludable and non-rival in consumption.⁶⁴ Since they can be reproduced at virtually no costs, the consumption of one work by one person does not necessarily preclude the consumption of the same work by another. Moreover, digital works are ultimately non-excludable, since, to the extent that every user becomes a potential supplier of the work, the possibility for the copyright owner to exclude users from enjoying a work decreases with the number of users who have already come into possession of the work.⁶⁵

However, to the extent that the expression of a work is still eligible for copyright protection, a digital work nevertheless qualifies as a particular kind of information good, which may be traded on the market.

⁶³ For more details on the impact of the digital technologies on the enforceability of copyright law, see e.g. HALPERN, S. W. (2001) *The Digital Threat to the Normative Role of Copyright Law*. *Ohio State Law Journal*, 62.

⁶⁴ For more details on the public good nature of digital goods, see RAYNA, T. (2007) *Digital goods as public durable goods*. *Department of Economics*. Université Aix-Marseille III.

⁶⁵ Although a digital work is theoretically excludable, it may become *de facto* non excludable as soon as the number of users owning the work becomes sufficiently large. The non-excludability of digital works is a direct consequence of their non-rivalry. See RAYNA, T. (2008) *Understanding the Challenges of the Digital Economy: The Nature of Digital Goods*. *Communications & Strategies*, 71, 13-68.

As such, the work has in fact preserved the same qualities of excludability and is therefore still subject to the same form of artificial scarcity that it used to enjoy in the physical environment.

As the concept of scarcity disappears, digital technologies have eliminated the self-regulatory features of the copyright regime by destroying the link that had been established between the work (which has been turned into a private good as a result of copyright law) and the physical manifestation thereof (which has been turned into a public good by the advent of digital technologies). As the properties of the work are once again misaligned with the properties of the medium into which it inheres, preventing copyright infringement in the digital environment is likely to become a difficult challenge.

This discrepancy may actually constitute the basis for the increasing piracy of digital works that has been observed in recent years. Indeed, while the copyright regime may preclude anyone from reproducing or distributing a digital work other than for personal purposes, the content of the work can easily be extracted from the medium into which it has been incorporated in order to be reproduced and subsequently disseminated on a worldwide scale through the Internet network. As opposed to the physical world, where the medium actually constitutes a barrier to copyright infringement, in the digital world, copyright infringement is actually being favoured by the intangible characteristics of the medium incorporating the work. The increasing amount of piracy that is emerging in the digital environment is, to some extent, a consequence of the inherent attributes of digital works.

Legislative reforms have therefore been enacted in order to restore the self-regulating features of the copyright regime in the digital environment.

DIGITAL COPYRIGHT

Conceived for the physical world, copyright law should theoretically apply equally in the digital world. Yet, the copyright regime has been considerably affected by the deployment of the Internet network and by the increasing availability of digital content. The advent of Internet and digital technologies created new opportunities for authors to produce, process or manipulate information and for users to access, consume or exploit the resulting pieces of information. The consequence is that the traditional equilibrium of the copyright regime has been partially disrupted in the digital environment.

Copyright law has thus been reformed. Legislative reforms tried, on the one hand, to overcome the challenges posed by recent technological advances, and, on the other hand, to benefit from new opportunities offered Internet and digital technologies. In order to re-establish the traditional balance of the copyright regime, the law ensures the successful development of a market for information goods while nonetheless allowing for a maximum number of works to be made available to society.

The idea was to reproduce, in the digital environment, a similar regime to the one in place in the physical world. Most of the legislative reforms have therefore been implemented with the intention of restoring the original status quo previously established in the physical world. Yet, in view of the specificities of the digital environment, certain provisions of the copyright regime have been drastically extended to provide a similar level of protection in a world where the reproduction of content and the dissemination thereof can be performed on a global scale and at virtually no cost.

This resulted into the emergence of an alternative copyright regime for digital works whose protection has been extended far beyond the standard scope of protection that exists in the physical world. On the one hand, the scope of exclusive rights has been extended to cover the new forms of exploitation that are now possible with digital works. On the other hand, the scope of the copyright regime has been expanded to provide legal protection against the circumvention of technological measures designed to prevent the unauthorized exploitation of a copyright work. As a result, the scope of copyright protection in the digital environment is nowadays much broader than the scope of copyright protection available in the physical world.

LEGISLATIVE REFORMS

In order to protect the rights of copyright owners and to ensure the long-term viability of the copyright regime in the digital environment, a series of legislative reforms have been enacted to accommodate the provisions of copyright law to the specificities of the digital environment. Copyright protection has thus been extended to cover new forms of exploitation, and it has been amended to remove digital copies from the doctrine of exhaustion – which has been expressly excluded from the digital environment.⁶⁶

⁶⁶ See WIPO Copyright Treaty, Agreed statements concerning Articles 6 and 7: “As used in these Articles, the expressions “copies” and “original and copies” being subject to the right of distribution [...] refer exclusively to fixed copies that can be put into circulation as tangible objects.” See also the preamble 29 of the European Directive 2001/29/EC on the harmonization of certain aspects of copyright and related rights in the information society, and the US Copyright Office Report on the DMCA Section 104 concerning the non-implementation of the Digital First Sale Doctrine.

Besides, in order to reduce the level of infringement resulting from the immediate reproduction and global dissemination of digital content, a series of technological measures of protection have been developed with the intention to restrict the access to and to prevent the reproduction of digital works. Yet, however sophisticated the technology may be, there is always the risk that an effective technological measure can be circumvented by a malicious user, who may subsequently be tempted to publicly disclose the procedure and/or to disseminate the technological means necessary to perform the circumvention on the Internet for anyone else to benefit from it.

Copyright law has thus been reformed to endorse the use of technological measures of protection by prohibiting the circumvention as well as the removal or alteration of DRM information. The objective was to encourage the deployment of private mechanisms of self-help whenever they are likely to assist copyright law in fulfilling its function in the digital environment.

The WIPO Copyright Treaty (WCT) of 1996 is perhaps the most relevant piece of legislation that has been enacted thus far. With the intention of adjusting the provisions of copyright law to the digital world, the WCT provided for an explicit endorsement of Digital Right Management (DRM) systems. On the one hand, it extended the scope of copyright protection to certain technological measures intended to restrict the access to or the usage of copyright works.⁶⁷ On the other hand, it sanctioned the removal or alteration of any information incorporated into a copyright work and necessary for the correct operation of DRM systems, as well as the mere dissemination of copies whose information has been previously tampered with.⁶⁸ The provisions of the Treaty have been ratified by a large number of countries, including the US through the Digital Millennium Copyright Act and the EU by way of the European Directive 2001/29/EC on the Information Society. Both introduced a similar set of provisions concerning the prohibition against the circumvention of technological measures of protection and the alteration of digital rights information, but also made it a punishable offense to produce, distribute or even only to possess any kind of circumvention device.⁶⁹

Yet, as the WCT called for the introduction of adequate legal protection against the circumvention of any effective technological measure employed for the protection of copyright works, the Treaty gave no indication of whether circumvention is to be prohibited only to the extent that it would lead to copyright

⁶⁷ See article 11 of the WIPO Copyright Treaty (WCT), introducing an additional layer of protection against the circumvention of particular technological measures of protection: “Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.” These provisions have been implemented in the USA by the Digital Millennium Copyright Act of 1999, section 1201, and in the European Community by the Directive 2001/29/EC on the harmonization of certain aspects of copyright and related rights in the information society, Article 6.

⁶⁸ See article 12(1) of the WIPO Copyright Treaty (WCT): “Contracting Parties shall provide adequate and effective legal remedies against any person knowingly performing any of the following acts knowing [...] that it will induce, enable, facilitate or conceal an infringement of any right covered by this Treaty or the Berne Convention: (i) to remove or alter any electronic rights management information without authority; (ii) to distribute, import for distribution, broadcast or communicate to the public, without authority, works or copies of works knowing that electronic rights management information has been removed or altered without authority.”

⁶⁹ See the provisions of the European Directive 2001/29/EC on the harmonization of certain aspects of copyright and related rights in the information society (the Information Society Directive), Articles 6 and 7; and of the provisions of the Digital Millennium Copyright Act of 1998, section 1201.

infringement or whether it should be categorically forbidden regardless of the purpose for which it has been performed.

In the USA, the provisions of the WCT have been implemented through the Digital Millennium Copyright Act (DMCA), which provides for the criminalization of any act of circumvention carried out against technological measures that effectively control the access to a copyright work.⁷⁰ The DMCA thus established a strict liability regime, where the circumvention of any device restricting the access to a copyright work is regarded as a criminal activity, regardless of whether circumvention has been achieved for the purpose of copyright infringement.⁷¹ Only a specific list of exceptions has been introduced in order to specify the circumstances in which the circumvention of technological measures is legitimate, thereby creating a different regime of exceptions for technologically protected works.⁷² However, since the DMCA expressly prohibits the production and the distribution of any technology or device primarily designed to facilitate the circumvention of technological measure of protection,⁷³ legitimate acts of circumvention may not be achieved unless one is capable of obtaining the necessary tools or information.

In the European Community, the Directive 2001/29/EC on the harmonization of certain aspects of copyright and related rights in the information society (the Infococ directive) transposed the provisions of the WCT by imposing an obligation on every member state to implement an adequate level of protection against the deliberate circumvention of any effective technological measure of protection.⁷⁴ The directive introduced an additional provision that prohibits the production and the distribution of any technology

⁷⁰ See section 1201 of the Digital Millennium Copyright Act, subsection a(1): “No person shall circumvent a technological measure that effectively controls access to a work protected under this title” and subsection a(3): “a technological measure effectively controls access to a work if the measure, in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work.”

⁷¹ The circumvention of a technological measure for the sole purpose of exploiting a work in such a way that would not amount to copyright infringement (e.g. according to the regime of copyright limitations or fair use), would not provide any cause of action for a claim of copyright infringement, but the liability resulting from the circumvention of the technological measure of protection would subsist.

⁷² See section 1201 of the Digital Millennium Copyright Act, which stipulates an autonomous regime of exceptions allowing for the circumvention of technological measures in a few restricted circumstances (section 1201 subsections d: Exemption for Nonprofit Libraries, Archives, and Educational Institutions; e: Law Enforcement, Intelligence, and Other Government Activities; f: Reverse Engineering; g: Encryption Research; h: Exceptions Regarding Minors; i: Protection of Personally Identifying Information; j: Security Testing).

⁷³ See section 1201 of the Digital Millennium Copyright Act, subsection a(1): “No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that (a) is primarily designed or produced for the purpose of circumventing protection afforded by a technological measure that effectively protects a right of a copyright owner [and](b) has only limited commercially significant purpose or use other than to circumvent protection afforded by a technological measure that effectively protects a right of a copyright owner.”

⁷⁴ See Article 6(1) of the European Directive 2001/29/EC: “Member States shall provide adequate legal protection against the circumvention of any effective technological measures, which the person concerned carries out in the knowledge, or with reasonable grounds to know, that he or she is pursuing that objective.”

measures or device that may facilitate the circumvention of these technological measures⁷⁵ - but only where this constitutes the primary purpose for which it has been designed.⁷⁶ The Directive also established a series of exemptions as an attempt to harmonize the copyright regime of different member states. It introduced one mandatory exemption concerning temporary acts of reproduction that are an integral and essential part of a technological process, together with an exhaustive list of exemptions that can be implemented at the discretion of the member States (who are nonetheless entitled to maintain any pre-existing exceptions).⁷⁷ The Directive then stipulates that users of technologically protected works shall be entitled to benefit from the regime of exemptions, but only to the extent that there exist no voluntary measures taken by the copyright owner.⁷⁸ In the digital environment, therefore, contractual agreements between users and right holders have been given preference over statutory limitations, and only in the absence of the former are member states entitled to intervene in order to give users the possibility to exercise their rights.⁷⁹

Finally, in order to ensure the effective application of DRM systems and in order to prevent their circumvention by alternative means, the WCT called for the implementation of an additional layer of protection against the unauthorized manipulation of rights management information (defined as any information incorporated into the copy of a copyright work, capable of identifying the work, the

⁷⁵ See Article 6(2) of the European Directive 2001/29/EC: “Member States shall provide adequate legal protection against the manufacture, import, distribution, sale, rental, advertisement for sale or rental, or possession for commercial purposes of devices, products or components or the provision of services which: (a) are promoted, advertised or marketed for the purpose of circumvention of, or (b) have only a limited commercially significant purpose or use other than to circumvent, or (c) are primarily designed, produced, adapted or performed for the purpose of enabling or facilitating the circumvention of any effective technological measures.”

⁷⁶ See recital 48 of the European Directive 2001/29/EC: “Legal protection [against provision of devices and products or services for the circumvention of effective technological measures] should respect proportionality and should not prohibit those devices or activities which have a commercially significant purpose or use other than to circumvent the technical protection.”

⁷⁷ The European Directive 2001/29/EC established one mandatory exemption with regard to temporary acts of reproduction that are an integral and essential part of a technological process (article 5(1)) and introduced an exhaustive list of possible exemptions that member states may or may not implement (articles 5(2) and 5(3)), with the possibility of maintaining existing exceptions only in cases of minor importance that only concern analogue uses and do not affect the free circulation of goods and services within the European Community (article 5(3)(o)). The Directive has however failed to achieve an adequate harmonization, since, in view of the high level of discretion that has been left to the national legislators, member states have generally maintained their earlier system of exemptions.

⁷⁸ See Article 6(4) of the European Directive 2001/29/EC (paragraph 1): “In the absence of voluntary measures taken by right holders, including agreements between right holders and other parties concerned, Member States shall take appropriate measures to ensure that right holders make available to the beneficiary of an exception or limitation provided for in national law [...] the means of benefiting from that exception or limitation, to the extent necessary to benefit from that exception or limitation and where that beneficiary has legal access to the protected work or subject-matter concerned.”

⁷⁹ See Article 6(4) of the European Directive 2001/29/EC (paragraph 4): “The provisions of the first and second subparagraphs shall not apply to works or other subject-matter made available to the public on agreed contractual terms in such a way that members of the public may access them from a place and at a time individually chosen by them.”

copyright owner and/or the terms and conditions for the exploitation of the work)⁸⁰ through the introduction of effective legal remedies against anyone deliberately removing or altering rights management information, as well as knowingly disseminating a work whose rights management information has been illegitimately tampered with.⁸¹

As a result of recent legislative reforms, copyright works in the digital environment are nowadays subject to three layers of protection: the legal protection provided by copyright law, the technological protection provided by technological measures, and the additional legal protection granted to these technological measures of protection.

LEGAL CONCERNS

Although the context has changed, the original *ratio* of the copyright regime should be preserved in the digital environment. The law should therefore try to promote not only the creation and the production of creative works, but also the distribution and the dissemination thereof to ensure that an optimal quantity of works will be made available to every member of society either before or after copyright protection has expired. In order to do so, copyright law established a trade-off between the economic interests of right holders and the interests of society in ensuring the public availability of works. Yet, the balance has been disrupted as a new series of legal and practical challenges have emerged with the advent of Internet and digital technologies. A number of legislative reforms have thus been enacted with the intention of restoring the *status quo* in the digital environment.

Some of these legislative reforms might, however, have gone too far. While trying to resolve the concerns specific to the digital environment, copyright law actually introduced a whole new set of issues that yet have to be addressed. By protecting the interests of right holders against the pervasive practice of copyright infringement that has been emerging on the Internet, the legal protection of technological measures of protection may actually have a number of unintended consequences on the interests of end-users.⁸² Indeed, the anti-circumvention laws opened the way to a new form of regulation based on private ordering, which is likely safeguard the interests of right holders at the expense of end-user's

⁸⁰ See article 12(2) of the WIPO Copyright Treaty: "rights management information" means information which identifies the work, the author of the work, the owner of any right in the work, or information about the terms and conditions of use of the work, and any numbers or codes that represent such information, when any of these items of information is attached to a copy of a work or appears in connection with the communication of a work to the public."

⁸¹ See article 12(1) of the WIPO Copyright Treaty: "Contracting Parties shall provide adequate and effective legal remedies against any person knowingly performing any of the following acts knowing [...] that it will induce, enable, facilitate or conceal an infringement of any right covered by this Treaty or the Berne Convention: (i) to remove or alter any electronic rights management information without authority; (ii) to distribute, import for distribution, broadcast or communicate to the public, without authority, works or copies of works knowing that electronic rights management information has been removed or altered without authority."

⁸² A large collection of reported cases concerning the negative impact of the anti-circumvention provisions of the Digital Millennium Copyright Act on a number of important public policy prerogatives can be found in: EFF (2006) Unintended Consequences: Seven Years under the DMCA. Electronic Frontier Foundation.

given that it does not have to take into account most of the statutory limitations of copyright law.⁸³ In an attempt to reintroduce the characteristics of the physical world into the digital environment, the traditional *status quo* has ultimately been jeopardized.

OBJECT OF PROTECTION

Recent legislative reforms to copyright law have expanded the scope of copyright protection to a new category of things that does not pertain to the realm of original works of authorship. In addition to protecting a work against unauthorized acts of exploitation, the copyright regime also protects technological measures of protection against the unauthorized circumvention thereof. As a result, by applying technological measures of protection to a digital work, the owner of the copyright in that work can regulate the consumption of the original expression of the work, as well as any public domain information incorporated therein. Indeed, given that DRM systems are unable to distinguish between the original expression of a work and the other elements of the work that belong the public domain, the only viable solution is to protect everything as if the work as a whole was eligible for copyright protection.⁸⁴

It becomes thus easy to falsely claim copyright protection on public domain material. No transformative use is required to put back the work under copyright protection, since all that is required is to incorporate copyrighted material into the work. Adding a foreword, a preface, or even just an illustration to a public domain book, and protecting the whole thing by technological means, would allow publishers to extend copyright protection to the digital file incorporating the book, without actually claiming to own the copyright in the book.⁸⁵ This is, theoretically, no different from a publisher claiming copyright protection on the particular arrangement of a Mozart concerto.

However, while the laws against the circumvention of technological measure of protection only applies when they are used to regulate the consumption of copyright works, tampering with technological means which has been applied to a work in the public domain might nonetheless qualify as an infringing activity to the extent that that the work comes together with one or more copyrighted materials.

In certain jurisdictions, such as in the USA for instance, the circumvention of technological measures of protection might qualify as a violation of copyright law even where circumvention is necessary to perform an act that would not itself amount to copyright infringement. As such, the law provides the possibility for right holders to regulate the use of information that is not, as such, eligible for copyright protection. Provided that it is protected by technological means, any copyrighted material added to a work which has fallen in the public domain would provide the possibility for right holders to control the

⁸³ Rather than relying on copyright law, a growing number of copyright owners are starting to rely on particular licensing agreements in order to refine and to license their rights. Private ordering is therefore taking priority over the provisions of the copyright regime, which are increasingly regarded as mere default provisions that can thus be bypassed and/or expanded by contractual means. See COHEN, J. E. (1998) Copyright and the Jurisprudence of Self-Help. *Berkeley Technology Law Journal*, 13.

⁸⁴ For a more detailed overview on how the laws against the circumvention of technological measures of protection may have a negative effect on the public domain, see e.g. ELKIN-KOREN, N. (2001) The Privatization of Information Policy. *Ethics and Information Technology*, 2.

⁸⁵ This is the approach taken by Barnes & Nobles, for instance, whose most of the digital content – including public domain books – is wrapped into a proprietary DRM format that is not only incompatible with other DRM standards (such as Amazon's and Sony's) but that also prevents users from printing or converting the content of these books.

whole variety of facts, public domain information and unoriginal content from the work, in the same way as they can control the exploitation of copyrighted information.

The statutory limitations of copyright law might thus eventually become irrelevant, as the scope of protection granted under the copyright regime could theoretically be extended to any form of exploitation and to any type of information.

SCOPE OF PROTECTION

By increasing the scope of copyright protection, the introduction of anti-circumvention laws has disrupted the traditional equilibrium established by the copyright regime. Today, the basic freedoms granted to end-users in the physical environment may no longer be preserved in the digital environment.⁸⁶

In the digital environment, users no longer acquire ownership over the copies of a work but merely acquire the right to consume it according to the terms and conditions of the licensing agreement. While, in the physical world, the consumption of works was based on the distribution of physical copies that users had to acquire in order to obtain full access to the work, in the digital world, it has evolved into a system of access privileges imparted by means of copyright licenses that precisely stipulate the conditions under which the work can be enjoyed.⁸⁷ What is being purchased is no longer the copy of the work but rather that particular set of rights and obligations governing the access to and usage of the work.⁸⁸ Users cannot expect to consume digital works in the same way as they consume physical works. While the consumption of physical works is exclusively regulated by the provision of copyright law, the consumption of digital works is regulated by way of restrictive licensing agreements whose terms and conditions can be automatically enforced by technological means.

Economic theories claim that it is in the interests of right holders to offer a product in line with consumer expectations, because, to the extent that certain terms and conditions are unreasonable or excessively restrictive, the market will presumably reject them. Yet, market competition is necessary for consumers to be given a choice between different products so as to select the one that best satisfy their preferences concerning quality and price.⁸⁹ While certain content providers may provide a product that is consistent

⁸⁶ See e.g. Severine Dusollier, concerned that the fair exercise of copyright exemptions such as criticism, news reporting, scholarship, or research, will not be maintained, and that free access to public domain works will be increasingly restrained. DUSOLLIER, S. (1999) Electrifying the fence: the legal protection of technological measures for protecting copyright. *European Intellectual Property Review*, 6.

⁸⁷ See ELKIN-KOREN, N. (1996) Public/Private and Copyright Reform in Cyberspace. *Journal of Computer-Mediated Communication*, 2.

⁸⁸ A contract may sometimes be regarded as a standard commodity which can be traded on the market like any other product. For instance, to the extent that they do not involve the transfer of any additional asset, it is often the case that most end-user licensing agreements actually constitute the sole product of a transaction. In the case of digital works, although a digital asset is being exchanged in the market, the copyright license can be regarded as a constitutive part of the product, insofar as it directly affect the manner in which and the extent to which the work can actually be consumed. See BURKE, J. J. A. (2003) Reinventing Contract. *Murdoch University Electronic Journal of Law*, 10.

⁸⁹ See GUIBAULT, L. & HELBERGER, N. (2005) Copyright Law and Consumer Protection. *Policy conclusions of the European Consumer Law Group*. Institute for Information Law, University of Amsterdam.

their most users' expectations, others might actually get away with a limited product that is likely to modify the standard expectations of Internet users.⁹⁰ As a result, users may reduce their level of expectations and what may appear unconscionable in the physical world may eventually be regarded as acceptable in the digital environment.

Besides, the extra layer of protection granted to technological measures of protection could potentially be relied upon, not only to prevent the unauthorized exploitation of a work, but also to obstruct legitimate activities permitted under copyright law.⁹¹ Indeed, the terms and conditions of the license under which a work has been released can be technologically enforced by means of technological measures which are in turn legally enforced by the regime of anti-circumvention laws – regardless of whether the provisions of the license are compatible with copyright law and whether that particular acts of exploitation might actually fall beyond the scope of the copyright regime.⁹² The consequence is that the laws against the circumvention of technological measures of protection could theoretically enable copyright owners to acquire absolute control over the access and exploitation of their works.

Copyright law is thus being increasingly criticized by a large number of scholars who claim that the traditional *ratio* of copyright law has been disrupted⁹³ and that the balance has nowadays shifted too much in favour of right holders and to the detriment of end-users.⁹⁴ The danger is not only a theoretical one. Thus far, the legal protection granted to technological measures of protection has been exploited in order to restrain freedom of expression and scientific research,⁹⁵ as well as to impede competition and to obstruct the normal course of innovation.⁹⁶

⁹⁰ Pamela Samuelson claims that “the main purpose of DRM is not to prevent copyright infringement but to change consumer expectations about what they are entitled to do with digital content.” See SAMUELSON, P. (2003) DRM {and, or, vs.} the Law. *Communications of the ACM*, 46.

⁹¹ See e.g. *Universal City Studios, Inc. v. Reimerdes*, 111 F. Supp. 2d 294 (S.D.N.Y. 2000), aff'd, 273 F.3d 429 (2d Cir. 2001), where the plaintiffs obtained an injunction against the distribution of the DeCSS software, which reverse engineered the CSS algorithm in order to be able to play a DVD on a higher number of playback devices, but thereby allowing decryption of DVDs without paying CSS licensing fees; *United States v. Elcom Ltd. & Sklyarov* (2002) 203 F.Supp.2d 1111, 62 USPQ2d 1736, where the defendant's software that allowed to convert Adobe e-books into standard PDF format was condemned under the terms of the Digital Millennium Copyright Act as a product designed to circumvent copyright protection measures; *RealNetworks, Inc. v. Streambox, Inc.*, 2000 WL 127311 (W.D. Wash. Jan. 18, 2000), where the plaintiff obtained an injunction against the distribution of the defendant's software designed to permit the time-shifting of Internet streaming media.

⁹² See COHEN, J. E. (1997) Some Reflections on Copyright Management Systems and Laws Designed to Protect Them. *Berkeley Technology Law Journal*, 12.

⁹³ See e.g. Lawrence Lessig, arguing that the Internet and the new technologies have disrupted the traditional balance of copyright law and that the copyright reforms have only reinforced the new state of affairs, rather than attempting to reestablish the original balance. LESSIG, L. (2004) *Free Culture*, New York, The Penguin Press.

⁹⁴ See e.g. SAMUELSON, P. (2003) DRM {and, or, vs.} the Law. *Communications of the ACM*, 46, SAMUELSON, P. (1999) Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to be Revised. *Berkeley Technology Law Journal*, 14, SAMUELSON, P. (2001) Anticircumvention Rules: Threat to Science. *Science*, 293.

⁹⁵ See e.g. *Universal City Studios, Inc. v. Reimerdes*, 111 F. Supp. 2d 294 (S.D.N.Y. 2000), aff'd, 273 F.3d 429 (2d Cir. 2001), where the 2600 Magazine has been prohibited from publishing, or even linking to the DeCSS software program that defeats the CSS encryption used on DVD movies; *Felten & al. v. RIAA & al.* (2001) District Court of New

Jersey, case No. Case No. CV-01-2669 (GEB), where the RIAA sought to prevent the publication of a paper by the plaintiff which described flaws in a digital music watermarking technique by threatening suit under the Digital Millennium Copyright Act and the plaintiff sued claiming the right to present the results of the research on the grounds of the first amendment; Hewlett-Packard's threats to invoke section 1201 of the DMCA when researchers published a security flaw of HP's Tru64 UNIX operating system; Blackboard Inc.'s threats to invoke the DMCA in order to prevent the presentation of research relating to security vulnerabilities in its products at the InterzOne II conference in Atlanta.

⁹⁶ See e.g. *Lexmark International, Inc. v. Static Control Components, Inc.*, 387 F.3d 522 (6th Cir. 2004), where the plaintiff invoked the Digital Millennium Copyright Act to prevent the defendant's manufacture of computer chips that enabled to produce toner cartridges compatible with the laser printers manufactured by the plaintiff; *Sony Computer Entertainment America Inc. v. Gamemasters*, 87 F.Supp.2d 976 (N.D. Cal. 1999), where the court held that by circumventing the regional encoding mechanism put by Sony on its Playstation games, the defendant Software appeared to be a device whose primary purpose was to circumvent a technological measure that effectively controls access to a copyrighted work, thereby giving Sony an exclusive right to control the complementary market of Playstation games; but see the Australian case *Stevens v Kabushiki Kaisha Sony Computer Entertainment*, [2005] HCA 58 (Oct. 6, 2005), where the court held that the regional encoding mechanism of Sony PlayStation games did not qualify for legal protection as it did not prevent or inhibit copyright infringement.

CHAPTER 2

PRIVATE ORDERING

THE PRIVATE SECTOR

Regulation does not necessarily involve government intervention. While copyright law is necessary to establish the basic framework of a proprietary right over information, the private sector can avail itself of various mechanisms in order to produce and enforce specific norms, rules, or codes of conducts without relying upon any intervention from the State.⁹⁷ Contractual mechanisms are used to modify the default rule of the law in order to create a legal regime that is more compliant with the private interests of the parties concerned, whereas technological means can be used in order to enforce the provisions of the law or the contractual terms.

In the context of copyright law, the length and complexity of the legislative process, as opposed to the speed and unpredictability of technological advances, may bring private regulation as a valid alternative to the legislative reform of the copyright regime. In many situations, private actors are in fact better candidates to regulate a specific area of the industry because they are more aware of the context in which they operate. They can thus implement a more suitable regulatory system for the particular field of industry to which it is intended to apply. Besides, the regulatory process implemented by the private sector is likely to be much more efficient than the legislative process of the State constrained by an established bureaucratic system.

Given the speed and flexibility of private ordering, private regulation is likely to have a stronger role in the digital environment, where the pace of technological advances is continuously increasing and the complexity of identifying a single solution that pleases everyone is becoming ever more problematic.

REASONS FOR PRIVATE INTERVENTION

The advent of Internet and digital technologies, society has evolved towards what is commonly referred to as the “information society”- a society in which the production of knowledge and information has become one of the main prerogatives. As the trading and the marketing of information goods have been assuming an ever more important role in the world’s economy of today, the development of electronic commerce and new marketing techniques had a significant impact upon the everyday life of consumers.

Most importantly, in view of the inherent characteristics of digital content, the costs of producing and disseminating information have been drastically reduced. The advent of digital technologies and the worldwide deployment of the Internet network have made it possible for anyone (be it an individual, a group of individuals, a particular organization or a large corporation) to produce content in digital format and to distribute it almost instantaneously to a global audience.⁹⁸ While this represents an obvious

⁹⁷ Standards setting, certifications, monitoring, warranties, and arbitration are only a few examples of the various ways in which the private sector can regulate a particular sector of the industry without government intervention. For more details on the operations of private regulation, as opposed to public regulation, see e.g. YILMAZ, Y. (1998) Private Regulation: A Real Alternative for Regulatory Reform. *Cato Policy Analysis*, 303.

⁹⁸ Digital technologies have drastically reduced the costs of content creation. Faster computers with better storage facilities and ever more sophisticated electronic devices (such as digital cameras, sound recorders, video recorders, etc) are becoming progressively more affordable and easy to use. Software applications are also being developed into much more accessible and user-friendly tools, for anyone to create and/or edit content without any specialized knowledge.

advantage for many content producers, it also constitutes an important danger that could eventually jeopardize the commerce of digital works. The increasing level of copyright infringement that takes place on the Internet is in fact likely to impinge upon the activities of both content producers and content providers.⁹⁹

New laws, therefore, had to be enacted - and old laws had to be reformed - in order to regulate new aspects of the information society, and, in particular, to provide right holders with a stronger level of protection against online piracy.

LEGISLATIVE LAG

New legislative reforms have to be constantly implemented in order to keep up with the pace of technological advances. Indeed, in view of the continuous evolution of digital technologies, whatever legal rule may have been adopted today is likely to become obsolete in the near future. Besides, while technological changes can increase the need for legislative reforms, they do not necessarily require them. Whether or not technological progress is such as to require an actual change in the law is likely to depend on many factors, such as e.g. the degree of inadequacy of the current legal system, the costs of a potential legal transition, and the extent to which the new legal system is likely to fit with the new state of affairs. As a general rule, the presumption should be for the preservation of the old legal order. However, to the extent that the traditional legal rules are no longer satisfactory, technological advances can be used as a pretext to require an actual reform to the legal system. Conversely, insofar as the current law still qualifies as reasonable body of law, any legislative reform would be unnecessary since technological advances could theoretically be addressed by way of contractual provisions.¹⁰⁰ In particular,

Besides, with the deployment of Web 2.0 technologies allowing anyone to post content on the Internet, users have now the opportunity to publish their own content without engaging into any additional investment. For a general overview, see: RONTE, H. (2001) The impact of technology on publishing. *Publishing Research Quarterly*, 16.

⁹⁹ The advent of digital technologies and the establishment of the Internet network have had a strong impact on the distribution of content. As a result of digital technologies, content can in fact be reproduced immediately and at very low costs, as the process of digitization allow for making of a copy which is identical to the original in every aspect. In addition, technologies such as peer-to-peer and file-sharing have recently been developed in order to provide for the widespread diffusion of digital content in a way that is particularly difficult to monitor. Accordingly, in the entertainment industry, it is often argued that the advent of digital technologies has generated a massive amount of Internet piracy which ultimately contributed to reducing the sale of a variety of content providers, while simultaneously constituting a barrier to entry to the online distribution of content. In particular, on the grounds that the online distribution of digital content is likely to be jeopardized by the excessive number of users engaging in copyright infringement, a large number of copyright owners claim that it has therefore become necessary to reinforce copyright law in order to address the challenges of the digital environment. See e.g. DUCHENE, A. & WAELBROECK, P. (2005) Peer-to-peer, piracy and the copyright law: implications for consumers and artists. IN TAKEYAMA, L., GORDON, W. J. & TOWSE, R. (Eds.) *Developments in the economics of copyright: research and analysis*. Edward Elgar Publishing.

¹⁰⁰ Whether new technological advances require a reform of the old legal system is a question of contingent circumstances. As a general rule, whenever private property rights are adequately set up so as to be flexible enough to adapt to a new situation, technological changes do not require any change in the legal rules, in that private solutions, such as, for instance, the alteration of standard contractual terms, will be sufficient to adjust the legal framework to the

given that any legislative reform could actually constitute a hindrance to the development of alternative solutions from the private sector, extreme caution is required in the making of a legislative framework capable of regulating such a variable and unpredictable medium as the Internet.¹⁰¹

Yet, caution does not necessarily imply inertia: where the law may retreat, private ordering may come forward. If the problems concerning the distribution of creative works in the digital environment cannot be immediately resolved through the law, they may nonetheless be addressed by the means of private regulation. Even though the copyright regime has not been specifically designed for the digital environment and may sometimes be difficult to implement by analogy, the content of the law is nevertheless appealing to a majority of right holders. As opposed to the physical world, however, in the digital environment, ensuring an adequate amount of economic rewards to the authors of any original work of authorship might be difficult to achieve by virtue of the law alone. Although they ultimately rely upon the underlying copyright regime, private mechanisms of regulation have therefore been implemented in order to complement the function of the law. Indeed, contractual agreements and technological measures of protection are likely to be more effective than the standard provisions of the copyright regime in preventing the unauthorized reproduction and dissemination of digital content on the Internet.¹⁰² Content providers are therefore likely to assume an increasingly predominant role in controlling the manner in which the access to and/or the use of information should be regulated on the Internet.

In recent years, the role of the private sector has increased in many sectors of the economy - including the entertainment industries, where private regulation is progressively replacing the role of public regulation by national regulatory regimes. As major companies and corporations are getting more and more involved in the regulation of their specific area of business, the private sector has become a primary source of rules, standards and social norms. In particular, given the difficulties for national governments to cooperate in order to implement proper legislation at a rapid pace and on a global scale, the role of the private sector has become predominant in the regulation of a world economy characterized by global coverage and rapid technological change.¹⁰³

new state of affairs. See, e.g. EPSTEIN, R. A. (1998) *Before Cyberspace: Legal Transitions in Property Rights Regimes*. *Chicago-Kent Law Review*, 73.

¹⁰¹ In view of the constantly evolving nature of the digital environment, it may still be too early for the implementation of a proper regulation of cyberspace. As digital technologies are still evolving and the potentialities of the Internet medium have still to be exhaustively explored, a strict regulation of the cyberspace may eventually hurt its development. See LESSIG, L. (1995) *The path of cyberlaw*. *Yale Law Journal*, 104, 1743-1755.

¹⁰² In the digital environment, private regulation based on contracts and technological measures of protection is likely to be much more effective than public regulation based on the provisions of the copyright regime. The economic interests of rights holders can in fact be protected by private mechanisms which may not only be more effective than copyright law in the fight against copyright infringement, but may also entail fewer transaction costs, greater economic efficiency and a more egalitarian system for regulating access to intellectual property. For more details, see FISHER, W. W. (1998) *Property and Contract on the Internet*. *Chicago-Kent Law Review*, 73, 1203-1211.

¹⁰³ See, HAUFLE, V. (2001) *A Public Role for the Private Sector: Industry self-regulation in a global economy*, Carnegie Endowment.

COPYRIGHT AS A DEFAULT RULE

The scope of copyright protection has been designed as a default rule rather than as a mandatory attribute of the work. Indeed, in order for any work of authorship to be exploited by anyone other than the copyright owner, it must be possible for right holders to either transfer or license each of the exclusive rights they have been granted with.

From the perspective of right holders, therefore, the purpose of copyright is twofold. On the one hand, it allows them to prevent others from exploiting a work in any way that would conflict with one of their exclusive rights. On the other hand, it gives them the possibility to consent for any such exploitation by ensuring the complete alienability and divisibility of these rights, at least with regard to the economic rights.¹⁰⁴ Anyone wishing to exploit a copyrighted work is, therefore, required to acquire the right to do so from the copyright owner. The exploitation of any copyright work is achieved through the transfer or the licensing of rights to any third party interested in making use of that work. Copyright licenses generally involve the granting of one or more exclusive rights to the respective licensees who become henceforth entitled to exercise these rights subject to the eventual restrictions stipulated by the licensor.

Hence, to the extent that they are not entirely satisfied with the level of protection that copyright law provides by default, rights holders are given the possibility to adjust the scope of copyright protection according to their corresponding needs and expectations. This is generally achieved by means of contractual agreements specifically intended to regulate the manner and the extent to which a copyright work can be legitimately exploited by third parties (whose individual rights and obligations will be ultimately determined by the terms and conditions of the license).

In line with the principles of freedom of contract, the default level of protection provided by the copyright regime can theoretically be complemented and/or eventually superseded by contractual means.¹⁰⁵

In the digital environment, however, the licensing of digital works considerably differs from the standard licensing practices that have been so far employed for the licensing of works in the physical world. In particular, one important distinction is that, as opposed to the physical world, where users generally acquire the property over an actual copy of the work, in the digital environment, instead, users only acquire the license to use that particular copy of the work for some predefined purpose. As opposed to

¹⁰⁴ The alienability of copyright is clearly stated in section 201(d) of the US Copyright Code, according to which (1) the ownership of a copyright may be transferred in whole or in part by any means of conveyance or by operation of law and (2) any of the exclusive rights comprised in a copyright, including any subdivision thereof, may be transferred and owned separately. Civil law countries, such as France or Germany, are more restrictive and do not allow for the alienability of certain rights (e.g. moral rights), but nevertheless allow for the free alienability of all exclusive economic rights.

¹⁰⁵ In contrast with the *numerous clausus* principle in property law, contract law allows for the exercise of a higher level of discretion in defining the terms and conditions a contractual relationship shall be based upon. When licensing a work by the means of a contractual instrument, the contracting parties can therefore autonomously determine the various terms and conditions under which the work may or may not be exploited: not only can they specify the exact subject matter of the transaction, but they may also introduce additional rights and obligations which have not been provided for by the relevant intellectual property laws. Enforcing the terms and conditions under which a creative work has been licensed may thus eventually be more a matter of contract law than a matter of copyright law. See MERGES, R. P. (1997) The End of Friction? Property Rights and Contract in the 'Newtonian' World of On-Line Commerce. *Berkeley Technology Law Journal*, 12.

the standard transfer of ownership, licensing agreements are framed in such a way as not to grant any proprietary right in a work.¹⁰⁶ As a general rule, therefore, users only obtain the right to access and eventually exploit a work, but not the right to own and to freely dispose of the purchased copy (item).

Other relevant differences subsist, not only with regard to the way in which the license is being conveyed to the users, but also with reference to the nature and scope of the various terms and conditions stipulated within the copyright license, as well as to the mechanisms employed to enforce those terms.

According to whether digital technologies are considered to be a challenge to copyright enforcement or, rather, an opportunity to achieve a broader dissemination of content over the Internet network,¹⁰⁷ different instruments will be employed to regulate the manner and the extent to which copyright works can be accessed and/or exploited in the digital environment. A license might thus include a number of provisions aiming at expanding the scope of the copyright regime (e.g. proprietary licenses constraining the exploitation of works beyond the boundaries of copyright law) or, rather, at diminishing its negative impact upon the dissemination of works (e.g. Open Content licenses promoting free reproduction and distribution of copyright works).

In particular, mass-market licenses have emerged as a standard way of licensing copyright material on the digital environment. Originally elaborated for computer software under the form of shrink-wrap licenses,¹⁰⁸ they have nowadays been adopted for the licensing of information goods through the

¹⁰⁶ When the copyright owner assigns one of the exclusive rights to a third party, the latter becomes the new owner of the right and the former copyright owner can no longer exercise any form of control over the exploitation of that right. Conversely, if the copyright owner merely licenses an exclusive right to a third party, the former maintains the ownership of the right but allows the third party to perform an act that would otherwise amount to copyright infringement. As opposed to an assignment of rights, the licensing of rights therefore entitles the copyright owner to maintain complete control over the manner in which the third party can exploit that right. For a more detailed analysis of the distinction between the transfer of ownership and the licensing of rights in the context of copyright Works in the digital environment, see e.g. DAVIS, R. (2001) The Digital Dilemma. *Communication of the ACM*, 44, 77-83.

¹⁰⁷ On the one hand, the Internet can be seen as a threat to the traditional business models which have been employed so far by the content industry, as it encourages users to by-pass the market so as to acquire the content illegitimately on the Internet network, thereby leading to an obvious decrease in the sales of physical products without necessarily increasing the sales of online content. On the other hand, however, the Internet can also be regarded as an important channel of distribution and as an extremely valuable marketing tool that is likely to create many new opportunities for the online distribution and the widespread dissemination of content. In fact, in the digital environment, the production and the distribution of content is based on a much more flexible and modular organization, where authors may assume the role of producers and publishers, and consumers can themselves contribute to the production and the dissemination of the final product. For more details on the impact of the Internet on the development of new business models in the content industry, see: KRUEGER, C. C. & SWATMAN, P. M. C. (2005) The Impact of Internet Technology on the Online Content Sector: Value Webs in online news and music. *Building Society through E-Commerce*.

¹⁰⁸ Shrink-wrap licenses have become an integral part of software transactions as a result of computer programs turning into a commodity. The term refers to the transparent plastic wrapping commonly employed to seal the software package on which the license has been written, so that users could read the terms and conditions before tearing it apart. The opening of the package constitute proof of acceptance and the user will consequently be bound by the terms of the license. For an analysis of shrink-wrap licenses, see: LEMLEY, M. A. (1995) Intellectual property and Shrinkwrap Licenses. *Southern California Law Review*, 68.

introduction of click-wrap licenses and web-wrap licenses,¹⁰⁹ whose provisions may sometimes be enforced by technological measures.¹¹⁰

Even though a copyright license is rooted within the provisions of copyright law, it is in fact ultimately governed by contract law.¹¹¹ Hence, while the particular set of rights granted by default under the copyright regime can actually be enforced under a claim of copyright infringement, the owners of the copyright in a work can nonetheless rely upon the provisions of contract law in order to enforce the various terms and conditions that extend beyond the scope of the copyright regime. In addition, right holders can make use of specific technological measures in order to automatically enforce both copyright and contractual rights.

While they modify the standard level of protection granted under copyright law, these licenses are generally valid and legally enforceable as long as their terms and conditions do not conflict with any specific provisions of contract law or other relevant bodies of law (e.g. copyright law, competition law, etc).¹¹²

¹⁰⁹ Click-wrap licenses appear on the screen of the computer during the installation of a digital product (e.g. computer software or other information good) which cannot be enjoyed or exploited before the user agrees on the licensing terms. Web-wrap licenses subsist instead directly on the website where the user request access to the content, which will be transmitted only upon agreement with the terms and conditions. For more details, see HILLMAN, R. A. & RACHLINSKI, J. J. (2001) Standard-Form Contracting in the Electronic Age. Cornell Law School

¹¹⁰ Since controlling the manner in which a digital work is being exploited may be virtually impossible in the digital environment, the legal protection provided by copyright law and contract law might be insufficient to ensure that users actually respect the various terms and conditions under which the work has been licensed. Before making their works available on the Internet, a number of copyright owners may therefore decide to adopt particular measures of protection so as to enforce some of the provisions of the licensing agreement by technological means. See ESKICLOGLU, A. M. (2004) Protecting Intellectual Property in Digital Multimedia Networks. *Computer*, 36.

¹¹¹ Copyright law is aimed at creating a series of property rights in an original work of authorship, but after the rights have been granted, copyright owners can freely dispose of their exclusive rights, subject to the common rules and principles of property law and contract law. Essentially, the role of copyright law is that of establishing a proper framework for right holders to subsequently dispose of their rights as they see more fit. EASTERBROOK, F. H. (2005) Contract and Copyright. *Transactions, Information and Emerging Law*.

¹¹² The principle of freedom of contract allows private parties to enter into any sort of contractual agreements, but only as long as the provisions of the contract do not conflict with any other legal rule. As a general rule, the copyright owner may thus stipulate a contract that expressly eliminates one or more copyright limitations and the contract will be legally enforceable as long as it possesses all the requisites of validity and enforceability. However, as a matter of copyright law, certain characteristics of the copyright regime may not be overruled by contractual means, such as the inalienability of moral rights in most civil law jurisdictions (see e.g. Art. L. 121-1 of the French Code de la propriété intellectuelle), the mandatory character of certain copyright exemptions for computer software which cannot be eliminated by contract (see e.g. article 9 of the European Directive 91/250/EEC on the legal protection of computer programs, section 296A of the UK Copyright, Designs and Patents Act of 1988, section 47H of the Australian Copyright Act of 1968). Moreover, in the US the doctrine of copyright misuse prevents copyright owners from licensing a work under restrictive terms and conditions so as to secure a privilege that goes beyond federal copyright law and is contrary to public policy (*M. Witmark & Sons v. Jensen*, 80 F. Supp. 843 (D. Minn. 1948)).

REGULATION BY PRIVATE MEANS

As opposed to public regulation, regulation by the private sector has the advantage to be more efficient, flexible and dynamic. Given that the rules are implemented directly by active players in the market, they are likely to better understand the context of analysis and to better satisfy the needs and expectations of regulated parties. This is especially the case in a dynamic environment such as the cyberspace, where technological advances might require legal norms to be reformed faster than the legislative process could do. Before exploring the role of the private sector in regulation the production and consumption of information, an important distinction must however be made between private ordering, private regulation, and self-regulation.

Self-regulation, understood narrowly, is the law formulated by private actors to govern and regulate their professional and commercial activity. The term denotes collective constraints not directly emanating from the government and producing an outcome that could not have been reached by the market alone. This is generally achieved through codes of conduct, standardized contract terms, and by means of standards or certifications. To the extent that third parties are directly or indirectly affected by these rules, self-regulation is sometimes criticized on the grounds that the lack of external involvement creates potential for abuse and discriminatory practices. Indeed, as the name indicates, self-regulation implies no external involvement or control in the regulatory process: while the regulators coincide with the regulated, all the other stakeholders and beneficiaries are left out of the picture.

Private regulation is much broader than self-regulation, because it allows for the involvement of external stakeholders. As a whole, private regulation encompasses the development, monitoring and enforcement of rules by private actors. This includes, *inter alia*, regulatory standard setting, rule making, rule promotion and implementation, control and monitoring, adjudication of compliance, as well as the imposition of sanctions in case of deviant behaviours.

Finally, private ordering refers to soft-law created by means of agreements between private parties. Just like self-regulation and private regulation, private ordering is a process whereby rules are not imposed in a “top-down” manner by the State, but rather emerge “bottom-up” by initiative of the parties involved in the regulated activity. As opposed to the former two types of regulation, however, private ordering abides to the principle of voluntary consent. Rules can only be enforced to those parties who have expressly consented to become party to the contractual agreement. Besides, private ordering does not involve any regulatory body, nor does it contemplates any specific sanction other than those provided for under contract law or any other body of law. In the context of copyright law, private ordering thus merely refers to the regulation of information through contracts or technology.

STANDARDIZATION AND NORMALIZATION

Standardization is a process aimed at the development and implementation of technical standards, in terms of technical specifications, definitions, standardized procedures or processes, methods, etc. Given the increasing contractual complexity and the growing technological diversity characteristic of the private sector, private regulatory schema emerged as an attempt to encourage legal harmonization and technological interoperability between different solutions provided by the private sector. Private regulatory schema concerning technical and legal standardization emerged under the initiative of both industry incumbents and civil society.

In terms of technical standardization, large corporations and industry associations involved in the provision of content and the manufacturing of consumer electronics attempted to regulate the market by developing a series of technological standards for Digital Rights Management (DRM) systems. Indeed, industry-wide standardization is often a necessary condition for the adoption of a technology by users, who might be reluctant to commit to a technology whose characteristics are unknown and whose future is ultimately uncertain. Two of these initiatives were the Copy Protection Technical Working Group (CPTWG), established in 1996 by consumer electronics and motion picture industry associations with the intention to develop technological standards for the protection of audio-visual content, and the Secure Digital Music Initiative (SDMI), created in 1998 by major recording companies and trade associations with the objective to discourage the widespread dissemination of unprotected audio material in MP3 format. Both initiatives fundamentally served as standard-setting bodies. While the CPTWG eventually led to the establishment of the Content Scramble System (CSS) for the technological protection of DVDs, the SDMI did not actually succeed to introduce any technological standard in the consumer market, and eventually came to the realization that DRM technology could not succeed in the market for online music.

Concerning the standardization of contracts, two different approaches emerged in the field of copyright law, both aimed at regulating the use and the consumption of information by private means. On the one hand, standard form contracts were developed by large multinational companies for the purpose of simplifying the process of contractual negotiations. Originally only addressed to authors, performers and publishing associations, standard form contracts were subsequently employed to regulate the relationship with end-users. The advantage is that they eliminate the transaction costs that would otherwise be incurred from entering into negotiations with every user who requests access to a given piece of content. First in the context of computer software (with the deployment of shrink-wrap, web-wrap, or click-wrap licences), standard end-user licencing agreements (EULA) later invaded the market for digital content with a series of restrictive terms and conditions regulating the use and the consumption of copyrighted works, often beyond the default level of protection granted under the law. On the other hand, and probably as a reaction to the former approach, non-profit organization, consumer associations and various communities of end-users began cooperating in regulating the use and consumption of information on the Internet by means of a standardized set of copyright licenses aimed at reducing the scope of copyright protection. The first instance thereof was the GNU General Public License (GPL) developed in 1985 by Richard Stallman to allow the free reproduction, distribution and modification of computer software. The only condition is that the source code remains accessible and that any derivative software be licensed under the same terms of the license, in order to ensure that third parties cannot subsequently appropriate the resulting code.¹¹³ While the GPL remains de-facto the standard in free and open source software development, other standardized licenses have been introduced in the context of computer software, with a higher or lower degree of restrictions. The Berkeley Software Distribution license, for instance, are more permissive than the GPL as they do not require the distribution of source code along with the software, and also allow for derivative works to be licensed under different terms and conditions. Standard copyright licenses were later introduced in the context of creative works, such as literary, artistic and musical works, with the establishment of the Creative Commons licenses in 2002. Their goal is to promote the dissemination of works and to facilitate their use and reuse by providing authors with a set standardized modules with various options to choose from.

¹¹³ One of the clauses of the GNU General Public License specifically requires the licensee to distribute derivative works under the same license. This clause is known as the « copyleft » clause, which is meant to ensure that the freedoms stipulated by the license are preserved, even after the work has been modified or used for the making of a derivative work.

In spite of their differences in method and results, both the development of technological standards and the standardization of copyright licenses can be regarded as private regulatory initiatives intended to address the problems resulting from the lack of transnational copyright regulations. Both emerged as a consequence of the legislative reforms that have been enacted so far, as an attempt to re-establishing the self-regulating features of the copyright regime in the digital environment.

SELF-REGULATING SYSTEM

Conceived for the physical environment, the copyright regime has been designed a self-regulating system, where every work of authorship can be regarded as an independent object of trade provided that the legal properties of the work are consistent with the physical properties of the medium into which it inheres. In order to turn the work into a private good, copyright law replicated the properties of the physical medium of expression in the work itself. By granting a series of proprietary rights to the author of any original work, the copyright regime makes it possible for any intangible work to turn into an object of trade, which, like any other type of commodity, can be economically exploited.¹¹⁴

The advantage of a self-regulating system is that it permits to achieve a stable environment for the regulation of information. If a system can regulate itself without relying upon external intervention, the system is likely to operate in an organic way whereby every part cooperates in order to achieve a common objective. The proper functioning of a self-regulating system is, therefore, guaranteed by its own structure and can only be jeopardized by external forces.

The problem is that copyright law has been conceived for physical media. As such, it has been implemented in such a way as to create a self-regulating environment, where the properties of the work are in line with the properties of the physical medium into which it has been incorporated.

The deployment of Internet and digital technologies eventually disrupted the self-regulating features of copyright law. The current implementation of the copyright regime no longer qualifies as a self-regulating system in the digital environment because the properties of the medium are once again misaligned with the properties of the work as defined by copyright law. As opposed to most physical works, in fact, a digital work essentially qualifies as a non-rival resource that can be consumed simultaneously by everyone.

In addition to the legislative reforms enacted thus far, if the default rule of the copyright regime is no longer suitable to the digital environment, alternative solutions can be implemented by means of private ordering and market-based solutions. A series of contractual and technological measures have been developed by the private sector as an attempt to re-establish the self-regulating features of the copyright regime.¹¹⁵ Private ordering may therefore acquire an increasingly important role in the regulation of

¹¹⁴As a general rule, there can be no market without property rights, because if there is no private property there can be no object of trade. Accordingly, copyright law provides author with a series of proprietary rights in the original expression of their works in order to allow for a market of creative works to develop. For more details, see LANDES, W. M. & POSNER, R. A. (2003) *The Economic Structure of Intellectual Property Law*, Cambridge, Massachusetts, The Belknap Press of Harvard University Press.

¹¹⁵ Rather than relying on copyright law, a growing number of copyright owners are starting to rely on particular licensing agreements in order to refine and to license their rights. Private ordering is therefore taking priority over the provisions of the copyright regime, which are increasingly regarded as mere default provisions which can thus be

information, as an attempt to re-establish the properties of a private good into the digital medium, or alternatively, to revert the expression of a work back to a public good.

From a practical standpoint, licensing practices for digital works can be regrouped into two broad categories. One is Digital Right Management (DRM) systems approach,¹¹⁶ which consists in licensing a work under very restrictive provisions and in combination with technological measures of protection. This approach has become standard practice in many commercial settings in a majority of activities concerned with the distribution of digital content under a proprietary format. The other is the Open Content approach,¹¹⁷ which consists in licensing a work under very liberal terms and conditions and in exchange of no consideration. This has become ordinary practice in the context of many non-commercial initiatives interested in encouraging individual participation in the making of collaborative works and in achieving the broadest dissemination of works.

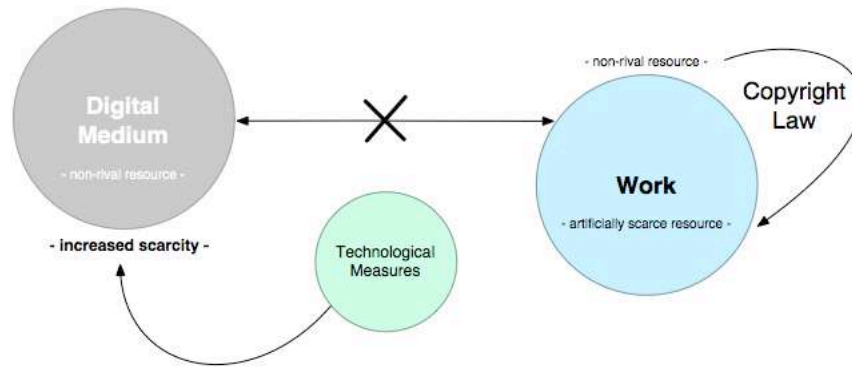
Digital Rights Management systems and Open Content licenses are being increasingly employed for the release of copyright works into the digital environment. Although they rely upon two divergent approaches, both are ultimately aimed at refining the default rule of the copyright regime so as to make it more consistent with the new framework established by Internet and digital technologies.

If copyright law can be regarded as an attempt by the State to realign the intangible properties of the work with the properties of the physical medium into which it has been conveyed to the public, private ordering is an attempt to realign the legal attributes of the work with the physical attributes of the medium, in a world in which the medium has become inherently digital.

bypassed and/or expanded by contractual means. See COHEN, J. E. (1998) Copyright and the Jurisprudence of Self-Help. *Berkeley Technology Law Journal*, 13.

¹¹⁶ DRM systems are basically intended to provide a secure distribution platform for digital content through the deployment of particular technological measures. There exists however no generally accepted definition of what exactly constitutes a DRM system. The term may cover a wide range of different technologies, from the most basic copy-protection mechanisms to the most sophisticated technologies covering both the distribution and the subsequent exploitation of digital content. For a comprehensive overview of the technological aspects of Digital Rights Management systems, see chapter 2 in BECKER, E., BUHSE, W., GÜNNEWIG, D. & RUMP, N. (2004) *Digital Rights Management: Technological, Economic, Legal and Political Aspects*, Springer.

¹¹⁷ The term has first been conceived in 1998 by David Wiley, founder of the Open Content project and drafter of the Open Content License together with Eric Raymond and Tim O'Reilly. Although the project has now been discontinued, the term has nevertheless survived and has today acquired a more general meaning which encompasses certain typologies of copyright licensing agreements which are designed to increase the liberties of end-users. In order to guarantee the free availability of knowledge, Open Content licenses eliminate some of the restrictions on the reproduction and the distribution of works that are imposed by default by the copyright regime. Additionally, Open Content licenses may also include particular provisions allowing for free exploitation of a work (although sometimes limited to non-commercial purposes) as well as the making of derivatives works. For a general overview of the different typologies of Open Content licenses, see LIANG, L. (2004) *Guide to Open Content Licenses*. Piet Zwart Institute.



DRM systems employ various technological mechanisms to regulate the reproduction and the distribution of a work, but also to administrate the various rights and obligations pertaining to a particular user of the work. They can dynamically respond to any user's request by either preventing or allowing a particular exploitation of the work and by ensuring that exploitation be permitted only after the user has paid the necessary fees.

As such, DRM systems are used to replicate the properties of private goods into the digital realm. This is accomplished by creating technical excludability by means of specific technological measures of protection aimed at preventing the unauthorized access to a work,¹¹⁸ and artificial scarcity by means of specific hardware or software devices intended to preclude the illegitimate reproduction of the work and any further distribution thereof.¹¹⁹ By reconciling the properties inherent to the digital instance of a work

¹¹⁸ Content providers may be reluctant to release their content on the Internet unless they can avail themselves of a reliable mechanism allowing them to specify certain access conditions and to preclude any unauthorized access to the content. There exist today a large number of access restriction mechanisms, the most common of which are based on encryption and watermarking technologies. For a general overview, see e.g. ESKICIOGLU, A. M. & DELP, E. J. (2001) An overview of multimedia content protection in consumer electronics devices. *Signal Processing: Image Communication*. Elsevier. One of the most widespread technologies used to restrict the access to digital content is perhaps the Content Scramble System (CSS), which is used to encode the content of a majority of commercial DVDs is one of the most widespread technologies used to restrict the access to digital content. Limitations may also relate to the time period and/or to the number of times a digital file can be accessed (see e.g. Apple iTunes Movie Store, which gives users a period of 30 days for watching a movie, automatically reduced to a period of 24 hours after the movie has first been played) or to the manner in which the file can be exploited (see e.g. Adobe Acrobat Reader, which may prevent users from printing and/or modifying a document, as well as most DVD playback devices, which may disable certain operations - such as fast forwarding during commercial - if so requested by the content provider). Moreover, tethering systems may be introduced in order to limit the number and/or the type of devices capable of accessing a given digital file (see e.g. Apple iTunes' policy, which imposes a limit upon the number of devices on which a given digital file can be played; Adobe Acrobat's activation, which is absolutely required for the users to be able to view and/or share technologically protected PDF files; and the CSS region-coding feature, which prevents any DVD player released into one particular region from displaying a DVD which has been released for a different region).

¹¹⁹ See e.g. BECHTOLD, S. (2004) Digital Rights Management in the United States and Europe. *The American Journal of Comparative Law*, 52. The CSS technology, for instance, although originally conceived as an access-restriction mechanism, has also been employed to indirectly prevent the unauthorized exploitation of a work, by licensing the technology necessary to decrypt the content of an encrypted DVD only to the producers of playback devices that would agree to incorporate particular restrictions against the illegitimate reproduction thereof. IEEE (1999) Copy Protection for DVD Video. *Proceedings of the IEEE*, 87. See also the security measures developed by RealNetworks Inc. in order to

with the properties that every original work of authorship has been granted under copyright law, DRM systems may therefore greatly facilitate the trading of digital works.

On the negative side, DRM systems are usually employed in the framework of particular licensing schemes, where what is being sold is not the digital instance of a work but only the right to use the work under the specific terms and conditions of the license.¹²⁰ Moreover, the provisions of many end-user licensing agreements (EULAs) are likely to feature a number of restrictions that extend beyond the scope of the copyright regime,¹²¹ so that the properties of the work and of the digital manifestation thereof may end up being once again misaligned. Yet, while it may not be feasible to reproduce the self-regulating feature of the copyright regime in the digital environment, it may nevertheless be possible to create a self-enforcing regime through a combination of contractual and technological measures that would fundamentally preclude users from making use of any digital work unless they specifically comply with the terms and conditions of the licensing agreement.

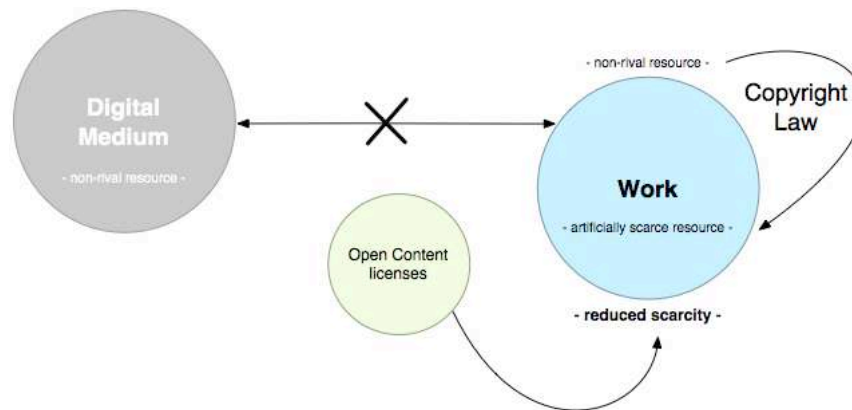
The restrictive nature of proprietary licenses and the corresponding technological measures of protection by which their terms and conditions are technologically enforced have been progressively counterbalanced by the liberal character of an emerging type of licenses: the so-called Open Content licenses, which are principally aimed at increasing the freedom of end-users. All Open Content licenses endorse the free reproduction and the widespread distribution of works, but a large number of them also promote the free exploitation thereof for commercial and/or non-commercial purposes.¹²²

protect content against unauthorized copying, which consist of (1) the Secret Handshake, to ensure that the content on a RealServer will only be streamed to a RealPlayer, and (2) the Copy Switch, which incorporates the content owner's preferences with regards to whether or not the user shall be entitled to save a copy of the content that is being streamed. *RealNetworks, Inc. v. Streambox, Inc.* (2000) W.D. Wash. Jan. 18, 2000.

¹²⁰ Licensing agreements are generally framed in such a way as not to grant any proprietary right in a work, except in the case of the exclusive licensing of rights which may under certain circumstances be regarded as an outright assignment of rights. See e.g. *Waterman v. Mackenzie*, 138 U.S. 252 at 256, 11 S.Ct. 334 (1891), according to which, whenever an exclusive license is unconditional and do not incorporate any supplementary reservations, it should be regarded as equivalent to an unqualified assignment of rights, in spite of the fact that it may actually purport to be a license. Under a non-exclusive licensing scheme, instead, users generally only obtain the right to access and eventually to exploit a work, but not the right to own and to dispose freely of the work. Accordingly, as opposed to a standard transfer of ownership, the licensing of rights enables the copyright owner to maintain control over the manner in which and the extent to which the third parties can exploit these rights.

¹²¹ Copyright owners can release their works under very restrictive terms and conditions which are likely to extend beyond the scope of the copyright regime and which may eventually bypass some of the statutory limitations of copyright law. The license may also be supported by a variety of technological measures of protection specifically designed to automatically enforce a number of contractual provisions. The exploitation of a work in the digital environment is therefore ultimately governed by private ordering, implemented by the various terms and conditions of the license, together with the supplementary restrictions introduced and automatically enforced by technological means. For more details, see ELKIN-KOREN, N. (2001) *The Privatization of Information Policy. Ethics and Information Technology*, 2.

¹²² Various reasons may justify the development of Open Content licenses, even though the ultimate objective is always that of ensuring that a work remains accessible to all. In order to guarantee the free availability of knowledge, Open Content licenses eliminate the unnecessary restrictions on the reproduction and the distribution of works that are



Open Content licenses are essentially aimed at realigning the properties of the work with those of the digital manifestation thereof.¹²³ The goal is to reintroduce some of the public good characteristics originally pertaining to the work by reducing the scope of copyright protection that every author has been granted with. As such, Open Content licenses are designed to encourage the free reproduction of a work. While the distribution and/or the making available of the work may sometimes be subject to certain requirements of form, Open Content licenses cannot impose any restrictions upon the distribution and/or the making available of a work.¹²⁴ Although they ultimately rely upon the copyright regime,

imposed by default by the copyright regime. Additionally, Open Content licenses may also include particular provisions allowing for free exploitation of a work (although sometimes limited to non-commercial purposes) as well as the making of derivatives works. For a general overview of Open Content licenses, see LIANG, L. (2004) Guide to Open Content Licenses. Piet Zwart Institute.

¹²³Open Content licenses allow copyright owners to release their works under a scheme where only some rights are reserved: a level of protection that lies in between the extensive protection of the copyright regime, where almost all rights are reserved, and the negative protection of the public domain, where no rights are reserved. A situation with only some rights reserved is supposed to constitute an appropriate balance between these two extremes. See Creative Commons (2007) Some Rights Reserved: Building a Layer of Reasonable Copyright, www.creativecommons.org

¹²⁴ See e.g. the Open Knowledge definition at <http://www.opendefinition.org> and the definition of the Free Cultural Works at <http://freedomdefined.org>. On the other hand, Open Content licensing also eliminate the artificial excludability established by copyright law and/or technological means. For instance, Certain Open Content licenses are incompatible with the application of technological measures of protections to the extent that they prevent or restrict the access to and/or the legitimate exploitation of a work (see e.g. the Creative Commons licenses), whereas others are incompatible with the application of any technological measures of protection as such, whether or not they have been designed to prevent or restrict the legitimate exploitation of a work (see e.g. the Anti-DRM license and the GNU Free Documentation License). Moreover, a number of Open Content licenses expressly preclude the commercial distribution of a work (see e.g. the non-commercial clause of the Creative Commons licenses), so that access to the work may not be conditional to the payment of a fee. Besides, even where the commercial exploitation of a work is allowed, the terms and conditions of the license, according to which the work can be freely reproduced and redistributed to anyone, cannot be modified by the licensee (see e.g. article 4(a) of the Creative Commons licenses: "You may distribute, publicly display, publicly perform, or publicly digitally perform the Work only under the terms of this License") and the majority of Open Content licenses generally prevent the licensee from imposing further restrictions on the rights granted by the license (see e.g. article 4(a) of the Creative Commons licenses: "You may not offer or impose any terms on the Work that alter or restrict the terms of this License or the recipients' exercise of the

Open Content license are employing the law to create a series of positive rights (as opposed to the traditional exclusive rights) to ensure the public availability and the free dissemination of content.¹²⁵

Open Content licenses differ from standard copyright licenses to the extent that they usually attempt to get rid of certain proprietary rights granted under the copyright regime by licensing to anyone the right to exploit a particular work according to specific terms and conditions, without any kind of consideration to be given in return. The problem is, however, that the license does not actually attach to any particular instance of the work but only to a particular user thereof.¹²⁶ A new license has therefore to be created every time the item is being transferred to a new user.¹²⁷ Despite the simplicity of the operation, it is likely to result into the formation of a complex network of contractual relationships that is likely to increase the degree of legal uncertainty that is already associated with the enforcement of these licenses.¹²⁸

Both DRM systems and Open Content licenses may eventually succeed in reducing the level of discrepancy existing between the legal characteristics of the work as an abstract and intangible entity and the physical characteristics of the digital medium into which it is being conveyed to the public, they

rights granted hereunder”). All users subsequently coming into possession of the work will therefore be entitled to redistribute the work for free, whether or not they originally had to pay for it.

¹²⁵ Intellectual property rights can be used negatively in order to restrict the exploitation of a work, or positively in order to enable the free dissemination of works and to promote the social contribution to the cultural heritage. Such a framework benefits both users, who can enjoy a broader availability of works, and right holders, whose rights remain protected by Intellectual Property laws so that no one may exploit a work in any manner which has not been specifically provided for. See AIGRAIN, P. (2003) Positive Intellectual Rights and Information Exchange. IN CENTURY, M. (Ed.) *CODE*. MIT Press.

¹²⁶ As a proprietary right, the copyright in a work endows the copyright owner with a set of rights which can be enforced against third parties. Conversely, a contractual agreement only exists when there is *privity* amongst the parties, and any contractual obligation may therefore only be enforced against those parties who have previously agreed to the terms and condition of the contract. Consequently, although the copyright owner may introduce a number of restrictions on the possibility for the licensees to redistribute a work, the licensor has however no authority over any sub-licensees and can thus only enforce the contract through the intermediary of the particular licensee to whom the work has been originally licensed. Accordingly, any contractual provision restraining the power of a licensee to sublicense a work may only be enforced against that licensee. If the licensee breaches the contract and sublicense the work under more lenient terms and conditions than those originally stipulated by the licensor, however, the licensor has no authority under contract law to enforce the terms and conditions of the original license against any subsequent licensees, although the owner of the copyright in the work may nevertheless take action under copyright law whenever the copyright in the work has been infringed. See MERGES, R. P. (1997) The End of Friction? Property Rights and Contract in the 'Newtonian' World of On-Line Commerce. *Berkeley Technology Law Journal*, 12.

¹²⁷ Note, however, that in order to facilitate the maximum dissemination of works, Open Content licenses automatically grant a new license to anyone that come into possession of the work regardless of the approval of the licensor (see e.g. article 8(a) of the Creative Commons licenses, according to which every time a licensee distributes or publicly digitally performs the work, the licensor offers to the recipient a license to the work on the same terms and conditions).

¹²⁸ For more details concerning the legal uncertainty with regard to the validity or the enforcement of Open Content licenses and the various legal issues it is likely to entail, see *infra* Chapter 2: Private Ordering. Open Licenses. Section 4: Problems.

both have to face a number of challenges, which could eventually jeopardize the long-term sustainability of both licensing practices, or prevent them from entirely restoring the self-regulatory feature of the copyright regime in the digital environment.

In particular, while they are both likely to provide a series of advantages and disadvantages to either right holders or end-users, the extent to which they have been acknowledged by the law is different. While, as a result of the WIPO Copyright Treaty, the deployment of DRM systems has been expressly endorsed by the legislative reforms of the copyright regime, the validity and enforceability of the contractual agreements that they generally come with (e.g. shrink-wrap or click-wrap licenses) cannot however be guaranteed to the extent that they might actually run counter to the provisions of other bodies of law. Moreover, nothing in the Treaty actually addresses any of the issues related to Open Content licensing, whose legal status and enforceability have yet to be tested in courts.

Before entering into a thorough examination of the respective advantages and drawbacks of each approach, it is however necessary to engage into a preliminary analysis of the various instruments available to the private sector for the regulation of content on the Internet. There exist today so many ways of dealing with copyright works in the digital environment that a systematic review of every possible technical or legal tool may prove to be unfeasible. Different approaches will therefore be categorized according to two lines of analysis, namely: the amount of contractual restrictions incorporated within the license (e.g. proprietary licenses with a large number of restrictions often going beyond the scope of the copyright regime vs. more liberal licenses whose main purpose is to eliminate some of the restriction that are implemented by default within the copyright regime) and the use of technological measures in order to prevent the unauthorized exploitation of copyright works and/or to facilitate the administration of the rights vesting therein (e.g. technological measures of protection specifically meant to enforce the terms and conditions of the license or digital right management systems designed to control and to process the licensing of rights).

RESTRICTIVE LICENCES

By allowing for the reproduction of digital content to be performed at very low costs and without quality loss, and to further allow for the distribution thereof to be achieved instantaneously and on a worldwide scale, Internet and digital technologies have revolutionized the way in which copyright works are being produced and the mechanisms by which they are being made available to the public in the digital environment. With the recent developments in Internet communication, together with the increasing consumption of digital content, a large number of opportunities have emerged for the commercial distribution of copyright works in the digital environment and an ever larger amount of commercial content is consequently becoming available on the Internet network.

Some right holders have been able to use these technologies to their own advantage. Internet and the digital technologies have in fact enabled the development of direct e-commerce, a new business scheme according to which digital content is entirely traded over the Internet and services are exclusively performed by electronic means. Direct e-commerce has a number of advantages over traditional commerce, the most important of which are (1) the availability of a global market place, (2) the significant reduction of logistic costs and transaction costs, and (3) the possibility to better respond to users' needs by way of product customization and price discrimination.¹²⁹ However, the majority of right holders suffered considerable losses from the extensive practice of copyright infringement that emerged on the Internet as a result of the new opportunities offered by digital technologies.¹³⁰

In the digital environment, in fact, the possibility to reproduce content at very low costs and to redistribute it instantaneously on a worldwide scale resulted into a situation in which even the private usage of a work is likely to have a significant impact upon the economic interests of copyright owners.¹³¹

¹²⁹ For more information about the specific features and peculiarities of direct and indirect e-commerce, see *inter alia*: RAYPORT, J. F. & JAWORSKI, B. (2002) *Introduction to e-Commerce*, McGraw-Hill.; BAKOS, Y. (2001) The Emerging Landscape for Retail E-Commerce. *The Journal of Economic Perspectives*, 15.; CHOI, S. Y. & WHINSTON, A. B. (1999) The future of e-commerce: integrate and customize. *IEEE Computer*, 31.

¹³⁰ Before engaging into any type of copyright infringement, users must compare the benefit resulting from the infringing activity with the costs and risks of being caught. In the digital environment, copyright infringement is made particularly easy and convenient. Any user is itself an information provider, the costs of copyright infringement have been drastically reduced, the quality of infringing copies significantly increased, and the risks of being caught have considerably dropped (LEE, G. B. (1996) Addressing Anonymous Messages in Cyberspace. *Harvard Journal of Computer-Mediated Communication*, 2.). Besides, the public is generally uneducated about copyright law and does not necessarily regard the illegitimate reproduction and dissemination of data on the Internet as a criminal activity LITMAN, J. (1994) The Exclusive Right to Read. *Cardozo Arts & Entertainment Law Journal*, 13.). On the other hand, copyright enforcement on the Internet has become particularly difficult. As a result of network and media convergence, some provisions of copyright law may turn out to be obsolete (DAVIS, R. (2000) *The Digital Dilemma: Intellectual Property in the Information Age*, Washington, National Academy Press.) and the discrepancies between national copyright systems combined with the international scope of the Internet which does not take account of national boundaries may introduce a series of challenges to the international resolution of copyright disputes (GOLDSTEIN, P. (2001) *International Copyright: Principles, Law, and Practice*, Oxford University Press.).

¹³¹ The exclusive rights of the copyright regime were originally conceived in order to protect the economic interests of the copyright owner by precluding competitors from commercializing a work for a limited period of time. In the digital

Hence, although traditionally intended to regulate the commercial exploitation of a work, nowadays, the vast majority of copyright licenses stipulated in the digital environment are ultimately addressed to end-users and are fundamentally intended to regulate the mere consumption of the work. Digital content is therefore increasingly being released under proprietary licenses whose terms and conditions purport to restrict the exploitation of the work and to impose contractual conditions upon the usage of the work that often exceed the standard provisions of the copyright regime.

In view of the inferior bargaining power of end-users, however, proprietary licenses are often very restrictive and only authorize a very limited exploitation of the work.¹³² Even if they are primarily based on copyright law, the scope of these licenses may extend beyond the scope of the copyright regime¹³³ so as to regulate the reproduction, the modification and the dissemination of the work, but also the specific conditions governing the access and the usage thereof. Contractual agreements are acquiring an ever more important role for the transaction of information goods into the digital environment. In contrast to the *numerous clausus* principle of property law, transactions based on contract law allows for greater flexibility in defining the terms and conditions under which a good may or may not be exploited. Contracting parties have therefore a higher level of discretion in defining the terms and conditions their contractual relationship is based upon: not only can they specify the exact subject matter of the transaction, but they can also introduce additional rights and the obligations that have not been provided for by the relevant intellectual property laws.¹³⁴ Enforcing the terms and conditions under which a digital work has been licensed may thus eventually become a matter of contract law rather than copyright law.

While they do not necessarily need to be combined with any particular technological measure of protection, the provisions of these licenses are unlikely to be deliberately followed without an additional layer of protection.¹³⁵ In order to prevent users from breaching the terms and conditions of the licensing

environment, however, the economic interests of right holders may be seriously affected also by the non-commercial exploitation of works by end-users. In fact, although they are not in direct competition with the copyright owners, end-users may considerably reduce the marketability of a work by privately reproducing and redistributing it to their peers, a process which, if repeated a sufficient number of times, may progressively eliminate the incentives for anyone to purchase an original copy of the work. See ELKIN-KOREN, N. (1996) Public/Private and Copyright Reform in Cyberspace. *Journal of Computer-Mediated Communication*, 2.

¹³² Copyright owners are entitled to license their rights in a work either in whole or in part, but they may also rely on contractual means in order to introduce additional restrictions and/or obligations on the exploitation of the work, which can be limited in time, in scope, in quantity, or in any way they see fit. For a general overview of copyright licensing practices in the digital environment, see, e.g. GIAVARRA, E. (1998) Copyright and licensing in the digital age. *Digital library and e-publishing for science and technology*. Tilburg.

¹³³ Instead of relying on copyright law, copyright owners are increasingly relying on licensing agreements in order to define and to protect their rights. Private ordering is taking priority over the provisions of copyright law, which are regarded as mere default provisions and can therefore be bypassed and/or expanded by standard contractual means. COHEN, J. E. (1998) Copyright and the Jurisprudence of Self-Help. *Berkeley Technology Law Journal*, 13.

¹³⁴ For a discussion on the relationship between property rights and contracts, see e.g. MERGES, R. P. (1997) The End of Friction? Property Rights and Contract in the 'Newtonian' World of On-Line Commerce. *Ibid.* 12.

¹³⁵ See ESKICLOGLU, A. M. (2004) Protecting Intellectual Property in Digital Multimedia Networks. *Computer*, 36.

agreement,¹³⁶ as well as to reduce the difficulty for right holders to identify the users responsible for the breach¹³⁷ and to enforce their rights against every single infringer,¹³⁸ rights holders can use a variety of technological measures of protection.

Sophisticated DRM systems and technological measures of protection can ensure compliance with the provisions of the copyright license through automatic enforcement: users may no longer deviate from the terms of the license because the breach of any contractual provision is precluded by design. Technological measures of protection can exercise an ex-ante control over the exploitation of the work, thereby providing copyright owners with an almost absolute control over the manner in which their works may or may not be exploited.¹³⁹ Intended to safeguard the economic interests of right holders, this particular scheme of licensing may however be subject to a series of legal challenges concerning the validity and enforceability of certain contractual provisions. While they may be unenforceable as a result of the manner in which they are conveyed to the users, or to the extent that they are contrary to the provisions of other bodies of law, certain terms and conditions might also be considered unreasonable in view of the consequences they may have on the interests or the fundamental rights of end-users.

¹³⁶ Copyright infringement is a function of the benefits deriving from an infringing activity and the costs of infringement (i.e. the costs incurred in performing the infringing activity plus the risks of being caught and punished). Accordingly, since the costs of creating and disseminating infringing copies have drastically dropped as a result of the digital technologies and the quality of infringing copies has significantly increased, the incentives for users to violate the terms and conditions of the copyright license are much higher in the digital environment, in particular, in view of the lower the risks of being caught. LEE, G. B. (1996) Addressing Anonymous Messages in Cyberspace. *Harvard Journal of Computer-Mediated Communication*, 2.

¹³⁷ In order to establish a communication between two parties, the architecture of the Internet network requires their respective network addresses to be known. The address of every user connected to the network can therefore always be determined by keeping track of the nodes to which the relevant packets are being transferred to. However, although the starting point and the ending point of a communication can always be ascertained, the content that is being communicated can be concealed by the means of particular encryption algorithms. Moreover, users may avail themselves of a number of technologies which are capable of reducing the traceability of the communication to different degrees (see e.g. the practice of content fragmentation, the use of anonymous proxies, or the employment of anonymous routing systems) which make it extremely difficult to identify who is communicating with whom. For a detailed analysis of the various opportunities for engaging in anonymous communication in the digital environment, see CLAESSENS, J., PRENEEL, B. & VANDEWALLE, J. (1999) Solutions for Anonymous Communication on the Internet. *International Carnahan Conference on Security Technology*.

¹³⁸ It is economically unsound for the copyright owners to sue end-users for the infringement of the copyright in their works, given the considerable complexity and the high costs involved in bringing an action for copyright infringement, as opposed to the relatively small amount of damages that could be derived from every individual infringer. LEMLEY, M. A. & REESE, R. A. (2004) Reducing Digital Copyright Infringement Without Restricting Innovation. *Stanford Law Review*, 20. However, lawsuits may increase the awareness of copyright law and act as a deterrent for future infringements, eventually leading to a situation where those who can afford buying content will buy it and those who cannot afford it will keep on infringing. See HUGHES, J. (2005) On the Logic of Suing One's Customers and the Dilemma of Infringement-based Business Models. *Cardozo Arts & Entertainment Law Journal*, 20.

¹³⁹ Technological measures of protection can be employed in order to turn a mere licensing agreement into a self-enforcing contract. See COHEN, J. E. (1998) Copyright and the Jurisprudence of Self-Help. *Berkeley Technology Law Journal*, 13.

TECHNICAL ASPECTS

In order to address the problem of copyright infringement, technological measures of protection (TPMs) and digital right management system (DRMs) have been combined together in order to restrict the access, the usage and the reproduction of digital content, as well as to enable the identification and the monitoring of every user's activities.

TPMs are anti-infringement measures that have been applied to a work in order to restrict the subsequent exploitation thereof. They generally consist of encryption technologies intended to prevent illegitimate access to digital content; copy protection mechanisms to prevent unauthorized reproduction; or technological measures limiting the period in which a particular digital file can be accessed or the manner in which it can be exploited.¹⁴⁰

Yet, technological measures do not necessarily have to be restrictive. TPMs may sometimes be employed with the mere intention of guaranteeing the integrity and the authenticity of data in combination with digital watermarks and digital signatures.¹⁴¹ The goal is to provide users with a better understanding of the history of a digital file: where is it coming from, who can certify for its authenticity or its integrity, and whether or not it has been modified along the way.

¹⁴⁰ Content providers may be reluctant to release content on the Internet unless they can rely on a reliable mechanism to specify access conditions and prevent unauthorized access. For example, the Content Scramble System (CSS) used to encode the content of a majority of commercial DVDs is one of the most widespread technologies used to restrict the access to digital content. Although conceived as an access-restriction mechanism, the CSS could also indirectly prevent the unauthorized exploitation of a work, by licensing the technology necessary to decrypt the content only to the producers of playback devices that incorporate a series of restriction against illegitimate reproduction (IEEE (1999) Copy Protection for DVD Video. *Proceedings of the IEEE*, 87.). See also the security measures used by RealNetworks Inc. to secure content against unauthorized copying, which have been discussed in *RealNetworks, Inc. v. Streambox, Inc.* (2000)W.D. Wash. Jan. 18, 2000. Digital technologies also enable right holders to incorporate an unlimited number of restrictions into a digital file. Limitations may relate to the time period and/or number of time that the digital file can be accessed (see e.g. Apple iTunes Movie Store giving users a period of 30 days for watching a movie, automatically reduced to a period of 24 hours after the movie has first been played) or to the manner in which the file can be exploited (see e.g. Adobe Acrobat Reader which may prevent users from printing and/or modifying a document and most DVD playback devices which may disable certain operations such as fast forwarding during commercial if requested by the content provider).

¹⁴¹ Digital watermarks are patterns of bits inserted into a digital file in order to provide information about that particular file. By providing a mechanism to verify the origin and the integrity of content, digital watermarks constitute an effective solution to the inherent manipulability of digital data, as well as to ascertain copyright ownership. See: MEMON, N. & WONG, P. W. (1998) Protecting Digital Media Content. *Communications of the ACM*, 41, VOYATZIS, G. & PITAS, I. (1999) The use of watermarks in the protection of digital multimedia products. *Proceedings of the IEEE*, 87. Similarly, digital signatures are a mechanism to ensure the integrity and the authenticity of digital content. Based on a two-key encryption algorithm (the data is encrypted with the content provider's private key and decrypted with the user's public key), digital signatures may ensure that the data has not been tampered with, since any type of manipulation would prevent the content from being decrypted. Moreover, when incorporated into digital content, digital signatures may also guarantee that the data comes from a particular source, see: LIN, C.-Y. (2000) Watermarking and Digital Signature Techniques for Multimedia Authentication and Copyright Protection. Columbia University.

Besides, by incorporating the identity of the purchaser into digital files, digital watermarks and digital signatures can also be used to dissuade users from disseminating copies of a legitimately purchased work on the Internet, where they could be discovered by specific tracking technologies.¹⁴²

DRM systems are a more advanced type of technology that implement all the necessary steps for the ultimate consumption of the work - from the initial negotiation of the terms and conditions, to the automatic enforcement thereof through the monitoring of user activity.¹⁴³ As a general overview, whenever a user requests access to a particular piece of content, the DRM client contacts the DRM server on which the work has been stored, which then informs the user of the terms and conditions under which the work has been released. Upon acceptance, the user becomes legally bound to the provisions of the licensing agreement, and - to the extent that it is technologically feasible - the terms and conditions of the copyright license are automatically enforced by specific technological measures of protection designed to prevent unauthorized access or usage of the content.¹⁴⁴

Closely connected with the operation of DRMs is the concept of metadata, a particular set of information that constitutes an essential feature for the correct functioning of DRMs. While descriptive metadata refers to the general characteristics of a work, the function of legal metadata is to represent the terms and conditions of the copyright license in order to allow for any DRM system to subsequently identify the rights that any party holds with regard to that work.¹⁴⁵

In the music industry, a number of content providers have already adopted this model. Apple's FairPlay DRM from the iTunes Music Store is perhaps one of the most well known implementation of a

¹⁴² Watermark tracking agents are specific software whose main purpose is to browse the Internet, search for digital files incorporating particular watermarks and report them to the relevant watermark dispatchers. The watermark dispatcher will subsequently communicate with the corresponding DRM server in order to determine whether appropriate actions are to be taken. For more details on the possible applications of digital watermarking technologies for the commerce of digital content, see: ZHAO, J. (1997) Applying Digital Watermarking Techniques to Online Multimedia Commerce. *Conference on Imaging Science, Systems and Applications*. Las Vegas.

¹⁴³ For a comprehensive overview of the technological aspects of Digital Rights Management systems, see chapter 2 at BECKER, E., BUHSE, W., GÜNNEWIG, D. & RUMP, N. (2004) *Digital Rights Management: Technological, Economic, Legal and Political Aspects*, Springer.

¹⁴⁴ Whenever a user purchase a DRM-enabled device and/or use it in order to request access to a particular work, the user is required to enter into a contractual agreement that stipulate the manner in which the work can be legitimately exploited and what are the respective rights and obligations of the user. As the contract is only binding upon the particular user that purchased the license, a user who obtained a pirated copy of the content would not be affected by any provisions that go beyond the scope of the copyright regime. With a properly designed DRM system, however, the terms and conditions of the license will nevertheless be enforced by technological means. See BECHTOLD, S. (2002) From Copyright to Information Law: Implications of Digital Rights Management. IN SANDER, T. (Ed.) *Security and Privacy in Digital Rights Management*. Berlin, Springer.

¹⁴⁵ Rights Expression Languages (RELs) are an essential element of DRM systems. Ranging from very simple languages that are only capable of expressing the preferences of right holders to more sophisticated languages with very complex semantics that can be read and understood by specific DRM systems, all RELs ultimately purport to endorse compliance with the terms and conditions of a particular license, regardless of whether they can be enforced by technological measure. For a detailed overview of the similarities and differences of various Right Expression Languages, see: COYLE, K. (2004) Rights Expression Languages. Library of Congress.

comprehensive DRM system regulating the access to and the usage of digital songs.¹⁴⁶ Another popular example is that of Napster, which allows for the streaming of musical files according to a variety of different subscription schemes.¹⁴⁷ The video industry is currently expanding in the same direction. For instance, Apple's iTunes Movie Rental Store allows users to download digital movies that can only be watched for a determined period of time.¹⁴⁸ Netflix is another online movie rental store that offers a large collection of movies that can be streamed directly to the user's computer.¹⁴⁹ Finally, a DRM of more general application is the Windows Media DRM system developed by Microsoft, a technology licensed to a number of content providers in order to enable them to distribute DRM-protected media on the Internet.¹⁵⁰

Most of these technologies are inherently neutral. However, according to the way they are employed, different technologies might have different legal implications depending upon the manner in which and the extent to which they can control and regulate the consumption of digital works.

¹⁴⁶ Apple iTunes Music Store is an online music store, where users can buy single songs or full albums in digital format. iTunes also provide users with personalized recommendation based on their previous purchases and give them the possibility to listen a 30-second preview of any song before buying it. The songs acquired on iTunes are released under a specific end-user licensing agreement and were originally protected by a particular DRM system (FairPlay DRM) allowing for the songs to be burnt on an unlimited number of CDs for personal use, to be transferred on an unlimited number of iPod players, but only to be played on a maximum of 5 computers at a time. Yet, iTunes has recently started to release their songs devoid any DRM protection which can be purchased for exactly the same price as the DRM-enabled version. For a general overview of Apple iTunes Music Store, see <http://www.apple.com/itunes/overview>

¹⁴⁷ Napster offer different types of services for different prices. The standard subscription model allows users to listen to an unlimited number of songs and to download them to a maximum of 3 computers, although they become unplayable as soon as the subscription ends. A more expensive subscription model also allows users to copy their songs into portable music players, but only if they have been given a license to the Napster DRM technology. In addition, every song may be recorded into a CD for extra 99cents. For more details, see <http://free.napster.com/>

¹⁴⁸ Apple iTunes Movie Rental Store has adopted an innovative business model in order to give users the possibility to rent movies online. More precisely, a movie may be rented for \$3.99 or \$2.99 according to how new the movie is, and users are subsequently given a period of 30 days to start watching the movie, although it gets automatically reduced to a period of 24 hours after the first time the movie has been played. For more details, see <http://www.apple.com/itunes/store/movies.html>

¹⁴⁹ Netflix is an online DVD rental store based on a subscription mechanism, according to which users can order a variable number of DVDs which are delivered directly in their mailbox. Netflix recently introduced a new service that is capable of delivering the movie directly to the user's computer by way of a particular DRM system allowing for the video to be streamed but not to be preserved on the computer. For more details, see <http://www.netflix.com/>

¹⁵⁰ Microsoft Windows Media DRM consists of a number of technological components designed to allow different types of devices to acquire and to display any content that has been technologically protected by Microsoft's DRM system. The Windows Media Rights Manager technology is licensed to content providers willing to encrypt their content in a Windows Media DRM format and to subsequently issue licenses with particular terms and conditions, whereas the Windows Media DRM technology is licensed to software companies willing to develop software applications capable of understanding the DRM format. For more details, see the Windows Media DRM FAQ at <http://www.microsoft.com/windows/windowsmedia/forpros/drm/faq.aspx>

LEGAL STATUS

The legal status of technological means of protection ultimately depends upon the type of technology that is employed and the way in which it is applied in practice. As a general rule, most of the commercial transactions involving technologically protected digital content are associated with specific contractual agreements (sometimes described as End Users License Agreements or EULA) that precisely stipulate the terms and conditions under which the content can be exploited.¹⁵¹

Despite their large-scale deployment, the legal status of these licensing agreements remains, as such, ambiguous. Given that their provisions may be inconsistent with other bodies of law (e.g. contract law, consumer protection law, competition law, etc), it is uncertain whether these contractual agreements may actually qualify as valid and enforceable contracts.¹⁵² Moreover, to the extent that they incorporate a particular set of provisions which have not been negotiated and are offered on a take-it-or-leave-it basis, most end-user licensing agreement are likely to qualify as a standard form contract,¹⁵³ whose terms and conditions are usually not read carefully or at least not properly understood by end-users.¹⁵⁴ A number of complications could therefore come into play when trying to determine, on the one hand, the eligibility of a EULA as a valid contractual agreement, and, on the other hand, the extent to which the various terms and conditions incorporated into the licensing agreement could actually be enforced under contract law.

¹⁵¹ End Users License Agreements (EULAs) contain the conditions governing the access to and the exploitation of digital products. While they give every licensee the possibility to carry out certain activities that would otherwise constitute copyright infringement, EULAs often implement a number of restrictions that may sometimes extend beyond the scope of the copyright regime. EULAs can therefore be extremely valuable in supporting the online distribution of content, however, they may sometimes cause some concerns with regard to the fairness of these transactions, as it is usually difficult to precisely draw the line between what is conscionable and what is unconscionable. For more details, see: TRAKMAN, L. E. (2007) Adhesion Contracts and the Twenty First Century Consumer. University of New South Wales.

¹⁵² In particular, three issues can be identified with regard to the legal status of a EULA concerning the licensing of digital works: (1) whether the licensing agreement is valid as a matter of contract law; (2) whether the particular terms and provisions of the license are enforceable; and (3) whether certain provisions of copyright law can effectively be supersede by contractual means. LEMLEY, M. A. (1995) Intellectual property and Shrinkwrap Licenses. *Southern California Law Review*, 68.

¹⁵³ A standard form contract can be defined as a pre-determined set of contractual provisions which are used by a firm on a regular basis in order to regulate the relationship with its customers. Standard form contracts are beneficial because they reduce transactions costs by eliminating the process of negotiation and by reducing the costs of obtaining information concerning the terms and conditions under which a product is licensed. See BURKE, J. J. A. (2000) Contract as Commodity: A Non-fiction Statutory Approach. *Statute Law Review*, 21. For an overview of the advantages of standard form contract from a law & economics perspective, see: KOROBKIN, R. (2003) Bounded Rationality, Standard Form Contracts, and Unconscionability. *University of Chicago Law Review*. and SCHWARTZ, A. & SCOTT, R. E. (2007) Precontractual Liability and Preliminary Agreements. *Harvard Law Review*, 120.

¹⁵⁴ For a general overview of the characteristics of standard form contracts and the customary consumer behavior in the physical and in the digital environment, see HILLAMN, R. A. & RACHLINSKI, J. J. (2002) Standard-Form Contracting in the Electronic Age. *New York University Law Review*, 77.

In a large number of jurisdictions, the rules of offer and acceptance constitute the basic elements necessary for the formation of a valid contract.¹⁵⁵ While the element of the offer is generally apparent in the case of most end-user licensing agreements, the actual or presumed acceptance by end-users may be more difficult to establish. The main problem essentially resides in the determination of what constitutes consent. It may in fact be argued, on the one hand, that, as long as end-users do not actually consent to some of the terms and conditions of the license, these provisions may not be regarded as being part of the contractual agreement and will therefore not be enforceable under contract law. On the other hand, it may be argued that actual consent is not necessary as long as end-users have given an indirect manifestation of assent to the terms of the license by e.g. using the product.

Consequently, the enforceability of the terms and conditions of a licensing agreement ultimately depends upon the nature of the assent (whether it is actual or presumed) and on the scope thereof (whether it is general to the transaction or specific to the disputed provision).¹⁵⁶ In the case of click-wrap, shrink-wrap and/or web-wrap licenses, the concept of assent can be distinguished between (1) actual assent, which amount to an express acceptance to the individual terms of the license, and (2) presumed assent, which merely amount to an express agreement to the transaction, from which it may be presumed that the licensee also consented to the terms and conditions of the license. However, in the case of presumed assent, it should not be assumed that the licensee has accepted each and every provision of the license, but only those which are directly related to the material terms of the transaction (i.e. the granting of a copyright license). Any additional provisions unrelated with the substance of the copyright license and merely intended to impose supplementary obligations and/or to restrict the rights of the licensees should therefore be regarded as having been assented to only upon actual acceptance by the licensee. Thus, while actual acceptance of every terms and conditions of the contractual license is likely to lead to the enforceability of the license as a whole (only subject to the specific limitations of contract law),¹⁵⁷ in the case of presumed acceptance, the licensing agreement (albeit valid) may only be enforced to the extent that the individual provisions could have been reasonably expected by the licensee.¹⁵⁸ Moreover, it is

¹⁵⁵ For a review of the fundamental requirements of contract formation, see ASHLEY, C. D. (1903) Mutual Assent in Contract. *California Law Review*, 3. and COHEN, M. R. (1933) The Basis of Contract. *Harvard Law Review*, 46.

¹⁵⁶ For more details on the concept of acceptance in contract, with specific reference to the use of standard form contracts in the digital environment, see KIM, N. S. (2007) Clicking and Cringing. California Western School of Law.

¹⁵⁷ As a valid contractual agreement, the provisions of a copyright license can generally be enforced under contract law by both the licensor and the licensee. However, in accordance with the principles of contract law (which may considerably differ from one jurisdiction to another), certain terms and conditions of the license may not be enforced whenever they have been improperly established (e.g. as a result of the incapacity of the parties, frustration, misrepresentation, mistake, duress or undue influence, unconscionability, bad faith, etc) or whenever the provisions of the licenses are incompatible with other bodies of law (e.g. copyright law, consumer protection law, competition law, etc).

¹⁵⁸ According to the reasonable expectation doctrine (which emerged from the basic requirement in contract law that the terms and conditions of a contractual agreement be actually an expression of the meeting of minds of the various contracting parties), in order for the provisions of a standard form contract to be enforceable, they have be regarded as reasonable, in the sense that the average customer would not be surprised that these provisions to have been included into the contract. Conversely, unreasonable terms and conditions may not be enforced. See, e.g. WARE, S. J. (1989) A Critique of the Reasonable Expectations Doctrine. *University of Chicago Law Review*, 56. Consequently, although a contract is perfectly valid, its provisions may not necessarily all be enforced. See, in general: TREBILCOCK, M. J. (1993) *The Limits of Freedom of Contract*, Harvard University Press.

sometimes alleged that EULAs actually constitute a contract of adhesion, the provisions of which are therefore less likely to be enforced.¹⁵⁹

To date, the validity and the enforceability of a number of shrink-wrap, click-wrap and web-wrap licenses have been partly challenged in court, albeit with some discordant results.¹⁶⁰

In the USA, for instance, they were initially regarded as unenforceable contracts, either because the license was regarded as a contract of adhesion¹⁶¹ or because the provisions of the license were considered to constitute additional terms and conditions independent from the original agreement.¹⁶² These licenses subsequently acquired a more significant legal status in the landmark case of *ProCD v Zeidenberg*,¹⁶³

¹⁵⁹ A contract of adhesion is a standard form contract offered on a take-it-or-leave-it basis and where the party who drafted the contract has more bargaining power than the other party. Although not invalid per se, a contract of adhesion is subject to special scrutiny and some provisions may not be enforced if they do not meet the reasonable expectation of the user or if they are regarded as being unconscionable in that they give an unfair advantage to one party. For a discussion with regard to the legitimacy of contracts of adhesion, see: KESSLER, F. (1943) Contracts of Adhesion: Some Thoughts about Freedom of Contract. *Columbia Law Review*, 43.

¹⁶⁰ For a general overview of the different approaches that have been adopted by various jurisdictions around the world in order to address the concerns related to the legal status of shrink-wrap licenses, see XUE, J. (2009) A Comparative Study of Shrink-Wrap License. *Journal of Politics and Law*, 2.

¹⁶¹ See *Vault v. Quaid Software Limited* 847 F.2d 255 (5th Cir. 1988): Vault is a software company that distribute its product together with a shrink-wrap license prohibiting the reproduction, the modification, and the reverse engineering of the software. Quaid Software reverse engineered the software in order to develop an application capable of circumventing the copy protection mechanism, and Vault sued for breach of contract. The court held that, although State law allowed software producers to impose a number of contractual restrictions to the exploitation of computer software, the shrink-wrap license was unenforceable because (1) it was an unenforceable contract of adhesion and (2) the provisions of the license were preempted by federal copyright.

¹⁶² See *Step-Saver Data System Inc v. Wyse Technology and the Software Link Inc* 939 F.2d 91. (3rd Cir 1991): Step-Saver purchased a software developed by The Software Link and agreed over the phone that The Software Link would ship the software together with an invoice stipulating the formerly contracted terms and conditions with regard to price, quantity and method of payment. The software was however shipped with an additional shrink-wrap license that disclaimed any form of express and/or implied warranties and Step-Saver sued for breach of warranty. The court relied on section 2-207 of the Uniform Commercial Code and concluded that in the absence of assent to the additional terms, only the original contractual agreement was enforceable. See also *Arizon Retail Systems Inc v. The Software Link Inc* 831 F. Supp. 759 (D. Ariz. 1993).

¹⁶³ See *ProCDInc v. Zeidenberg*, 86 F.3d 1447, 1449 (7th Cir. 1996): Matthew Zeidenberg acquired a copy of the Select Phone database of ProCD. The manner in which the database could be used was regulated by a license that prevented the purchased copy of the database from being used for any commercial purpose, in order to allow for price discrimination by charging different prices for the non-commercial and the commercial version of the database. The license was expressed in the form of a shrink-wrap license but also in the form of a click-wrap license which had to be accepted before installing the software and which appeared on the screen every time the database was used. As Zeidenberg created his own database based on the data of the Select Phone database and offered the data on the Internet for a small fee in spite of the prohibition to do so, ProCD sued for breach of the contractual provisions against commercial usage stipulated by the EULA. The District Court held that the terms of the EULA were not enforceable because (1) the license was not a valid contract and (2) even if it were, the terms would be preempted by federal

where the court ultimately accepted the validity and the enforceability of shrink-wrap licenses. As an ordinary contract regulated by the common law of contracts and the Uniform Commercial Code, the license was held to constitute a valid contractual agreement, since it was necessary for the users to take positive action in order to manifest their assent with the terms of the agreement, which should therefore be enforced as long as they do not conflict with any relevant body of law.¹⁶⁴ Yet, whether or not the license can be regarded as an enforceable contract ultimately depends upon the issue of consent. Accordingly, in *Klocek v Gateway*,¹⁶⁵ the EULA was held not to be legally enforceable because the provisions of the license were considered to be additional terms upon which the parties had not previously agreed.¹⁶⁶ Similarly, in *Specht v Netscape Communications*,¹⁶⁷ it was held that the terms and conditions of the EULA could not be enforced, since the provisions of the license may only become effective upon mutual assent of the parties.

copyright law. The Court of Appeals for the 7th Circuit reversed the decision holding (1) the license should be treated as an ordinary contract and (2) the terms should be enforced, unless they are proven to be objectionable on the grounds of a particular body of law.

¹⁶⁴ See section 2-204(1) of the US Uniform Commercial Code: "A contract for sale of goods may be made in any manner sufficient to show agreement, including conduct by both parties which recognizes the existence of such a contract." Accordingly, a vendor may invite acceptance by conduct and a buyer may accept the offer by performing the acts the vendor proposes to treat as acceptance. In the case of ProCD, who proposed a contract that a buyer could accept by using the software after having an opportunity to read the license, Zeidenberg accepted that contract by using the database and was consequently bound to its terms. *ProCDInc v. Zeidenberg*, 86 F.3d 1447, 1449 (7th Cir. 1996)

¹⁶⁵ See *William S. Klocek v. Gateway et al.* 104 F.Supp.2d 1332 (D. Kan. 2000): Klocek acquired a computer from Gateway, which distributes computers together with a shrink-wrap license according to the user is deemed to have accepted the terms and conditions of the license if the computer has not been returned within 5 days after the date of delivery. Klocek brought proceedings against Gateway, claiming that it induces consumers to purchase computers by making false promises of technical support. The question related to whether additional terms received together with a purchased product may constitute part of the purchasing agreement. The court held that the provisions of the shrink-wrap license cannot be enforced against a user who has not manifested assent to the particular terms and conditions.

¹⁶⁶ See section 2-207 of US Uniform Commercial Code, according to which additional terms may not constitute part of an original agreement unless the offer stipulates the assent to these terms as a condition for acceptance. Otherwise, if the additional terms are not specifically assented to, the user shall be deemed to have accepted only the offer of the original agreement which does not include the additional terms. In the case of *Klocek v Gateway*, William S. Klocek was therefore held not to be subject to the terms and conditions of the shrink-wrap license, because the conditional nature of the acceptance was not expressed clearly enough so as to notify the user that Gateway was unwilling to proceed with the transaction unless the additional terms were included into the contract. *William S. Klocek v. Gateway et al.* 104 F.Supp.2d 1332 (D. Kan. 2000)

¹⁶⁷ See *Specht v. Netscape Communications Corp.*, 150 F. Supp. 2d 585 (S.D.N.Y.2001): Netscape Communications offers software for users to access the Internet, such as the Smart Download software used to download files from the Internet. The software can be obtained from the Netscape's website by merely clicking on the download button. Reference to the EULA is only made by way of a link pointing to another webpage where the full text of the license is displayed and which state that by using the software the user accepts to be bound to the terms and conditions of the license. The EULA was held not to be enforceable because (1) it was possible to download the software without assenting to the terms and conditions (2) the link only referred to the existence of a license but did not specify that every user using the software would be deemed to have agreed with the terms (3) the text of the license was not directly visible on the download page.

In Europe, given the level of inconsistencies between the national legislations, the legal status of many EULAs has always been rather unclear.¹⁶⁸ For instance, in the Netherlands, it was held that a shrink-wrap license does not constitute an agreement between the parties if one party was not aware of the conditions of the license before purchasing the product.¹⁶⁹ In the UK, it was held that EULAs might not be enforced on subsequent purchasers because the doctrine of privity in contract law would not allow for them to be bound by any third party agreement.¹⁷⁰ In Scotland, instead, the validity of the license was justified on the basis on the doctrine of *jus quaesitum tertio*, according to which the contracting parties are entitled to confer particular rights to a third party.¹⁷¹

A series of international instrument have been introduced as an attempt to reduce the level of uncertainty concerning the validity and the enforceability of different end-user licensing agreements amongst different jurisdictions.

At the European level, in particular, the Directive 1993/13/EEC on Unfair Contract Terms provides a series of legal remedies to anyone who has become part to a contract without the opportunity of becoming acquainted to its terms.¹⁷²As a result of this Directive, different countries introduced specific provisions regulating the enforceability of standard form contracts within their national legislation. For instance, the UK implemented the European Directive through the enactment of the Unfair Terms in Consumer Contracts Regulations, which requires the Office of Fair Trading to investigate any complaint related to unfair terms and to come up with appropriate amendments to every unreasonable contractual term.¹⁷³ In Germany, instead, the civil Code was amended with the Standard Terms Statute which provides a definition of unfair contract terms as well as a series of legal remedies against any contractual term that would place the consumer at an unreasonable disadvantage.¹⁷⁴

¹⁶⁸ For an overview of European case law with regard to the validity and/or the enforceability of various types of end-user license agreements, see COTEANU, C. (2005) *Cyber Consumer Law and Unfair Trading Practices: Unfair Commercial Practices (Markets and the Law)*, Ashgate Publishing.

¹⁶⁹ See *Coss Holland B.V. v. TM Data Nederland B.V* (May 24, 1995) Amsterdam, Court of first instance.

¹⁷⁰ See *St Albans City & District Council v International Computers Ltd*, High Court, Scott Baker J., 3rd October 1994

¹⁷¹ See *Beta computers (Europe) Ltd v Adobe Systems (Europe) Ltd* [1996] FSR 367

¹⁷² See the European Directive 1993/13/EEC on Unfair Contract Terms, according to which a term should be regarded as not negotiated whenever “it has been drafted in advance and the consumer has therefore not been able to influence the substance of the term, particularly in the context of a pre-formulated standard contract”.

¹⁷³ In 1999, in the United Kingdom, the Office of Fair Trading issued the Unfair Terms in Consumer Contracts Regulations, according to which the Director General of Fair Trading is under the obligation to investigate complaints related to unfair terms. The Office of Fair Trading has also been extensively involved in providing advice and support to the relevant actors in the industry in order to help them devise standard contract terms that are compatible with the provisions of the Directive.

¹⁷⁴ In 2002, the German Standard Terms Statute has been incorporated into the German civil Code. See, in particular, section 305(c)(1) of the Code, which expressly stipulates that surprising and/or unreasonable contractual terms shall not become part of the contract. According to the German Standard Terms Statute, the enforcement of any standard contract term should be subject to (a) the accessibility test, to check whether or not it qualifies as a prohibited term, and (b) the reasonability test, to assess whether it should nevertheless be regarded as an invalid term to the extent that it does not fulfill the requirements of good faith.

In the USA, instead, the National Conference of Commissioners on Uniform State Law (NCCUSL) has been working on the development of the Uniform Computer Information Transactions Act (UCITA) with the intention to establish the necessary rules to ensure a uniform enforceability of shrink-wrap, click-wrap and web-wrap licenses.¹⁷⁵ The Act has however been subject to strong criticism¹⁷⁶ and the legislation has thus far only been passed in two States (Virginia and Maryland).

At a more international level, the International Institute for the Unification of Private Law (UNIDROIT) has established a set of common principles for the regulation of commercial contracts on an international scale.¹⁷⁷ Although it does not specifically deal with shrink-wrap, click-wrap or web-wrap licenses, a number of provisions concerning standard form contracts and the conditions under which their respective terms and conditions can be legally enforced may nevertheless be applicable to a variety of end-user licensing agreements.

BENEFITS

Many right holders may be unwilling to make their works available on the Internet unless they can ensure that the terms and conditions of the relevant copyright license will be ultimately complied with. While the enforceability of certain end-user licensing agreements may be difficult to determine, the possibility of using technological means in order to automatically enforce the provisions thereof may encourage content providers to experiment with new business models.

The drawback is that many content providers are likely to distribute their works in combination with specific technological measures of protection that preclude their works from being exploited in any other

¹⁷⁵ The UCITA has been conceived with the intention to facilitate the transactions of information goods in the digital environment and to clarify the law governing these transactions so that it can be applied uniformly amongst the various jurisdictions. The scope of the Act extend to any kind of computer information transaction, including commercial agreements to create, modify, transfer or distribute computer software, multimedia interactive products, computer data and databases, and Internet and online information. The goal is to provide a firm basis for marketplace transactions in cyberspace, by establishing a legal basis that explicitly recognizes the importance of the unique modes of contracting and doing business in the information society. See the Uniform Computer Information Transactions Act, Prefatory Notes.

¹⁷⁶ UCITA allows most of the terms incorporated into a licensing agreement to be enforced, a situation which would undermine the traditional doctrines of intellectual property that have been conceived to protect the rights of users. See KANER, C. (2002) UCITA: a disaster in progress. *Spectrum*, 39. In fact, while it may validate shrink-wrap, click-wrap and other mass-market licenses of information, it would also have a considerable impact on the rules governing electronic transactions in information goods, allowing content providers to eliminate the first sale doctrine and other limitations of the copyright regime by way of restrictive licensing agreements and self-help mechanisms of technical enforcement. See SAMUELSON, P. (1998) Legally Speaking: Does Information Really Want to be Licensed? *Communications of the ACM*.

¹⁷⁷ See the Principles of International Commercial Contracts established in 1994 by the UNIDROIT. In particular, section 2.19 defines standard form contracts as “provisions which are prepared in advance for general and repeated use by one party and which are actually used without negotiation with the other party” and section 2.20 provides that a standard form contract is not enforceable whenever it contains a term “which is of such a character that the other party could not reasonably have expected it is effective unless it has been expressly accepted by that party.”

way than what is explicitly endorsed by the licensing agreement.¹⁷⁸ It thus becomes possible for right holders to rely upon the operation of DRM systems in order to protect their works not only against copyright infringement but also against the violation of certain contractual provisions.

This drawback is, nonetheless, counterbalanced by an important advantage. Releasing a work under a variety of licenses whose contractual provisions can be enforced by technological measures allows for a very sophisticated form of price discrimination to be implemented. Specific versioning strategies can be developed in order to satisfy the needs of different consumers with different willingness to pay. Restrictive licensing practices combined with DRM systems make it possible for content providers to offer the same work at a different price, discriminating amongst consumers according to their different willingness to pay and their particular expectations with regard to both the quality and the manner in which the work can be exploited. Likewise, an identical work may be released in different formats and/or quality according to the willingness to pay and specific needs of consumers.¹⁷⁹ As a result, while it can be very advantageous to right holders, whose profits are likely to increase, price discrimination may also benefit society at large, whose overall welfare is likely to rise as a result of the reduced deadweight loss generated by the copyright regime.¹⁸⁰

In spite of the large variety of rights and obligations that might regulate the exploitation of different digital works, thanks to the employment of DRM systems, no additional costs would have to be incurred in order to determine the legal status of a work and to identify the owners of the various interests vesting

¹⁷⁸ While right holders can always enforce their rights with traditional legal means (i.e. copyright law and contract law), the digital environment has made enforcement by way of technological restrictions an ever more appealing alternative. Although the legitimacy of these restrictions is to some extent controversial (see *infra* Part 2. Chapter 3: Private Regulation: Digital Rights Management Systems. Subsection 3: Problems), DRM systems are in fact an effective mechanism to complement the contractual provisions of a licensing agreement by constraining the usage of a work in any way that is technically feasible. For a functional description and technological analysis of DRM systems, see BARLAS, C., CUNARD, J. & HILL, K. (2003) Current Developments in the Field of Digital Rights Management. WIPO Standing Committee on Copyright and Related Rights.

¹⁷⁹ Extensive price discrimination would allow for consumers to pay for the right to exploit a work in any way they see fit, without being required to pay for any additional right they would never make use of. For an overview of the various modalities of product customization and price discrimination for the sale of information goods, see: VARIAN, H. R., FARRELL, J. & SHAPIRO, C. (2004) *The Economics of Information Technology: An Introduction*, Cambridge University Press. For more information on how DRM systems may assist in the price discrimination of digital works, see BOMSEL, O. & GEFFROY, A.-G. (2005) Economic Analysis of Digital Rights Management systems. Paris, CERNA.

¹⁸⁰ Whenever a product is sold at a price that is higher than the marginal cost of production, there will be a welfare loss on society because consumers whose willingness to pay is higher than the marginal cost but lower than the actual price will be excluded from consumption. With regard to works in the digital environment, although their marginal cost of production is zero, the price needs necessarily be higher because it would otherwise be impossible for the author to recoup the fixed costs of creation. Price discrimination enables the author to extract the maximum profit from the different willingness to pay of consumers, while simultaneously reducing the deadweight loss generated by the copyright regime by making the work available to a higher number of people. For more details concerning the price discrimination of information goods, see VARIAN, H. R. (1995) Pricing Information Goods. *Scholarship in the New Information Environment*. Harvard Law School.

in that works.¹⁸¹ Most importantly, DRM systems may considerably reduce the transaction costs that traditionally had to be incurred in order to negotiate and to obtain a license for any given exploitation of the work. It may therefore be argued that the main economic justification for the introduction of a series of copyright limitations - based on the idea that a number of socially valuable transactions may not be completed as a result of the market failure resulting from excessive transaction costs - will progressively go disappearing as DRM systems become more and more sophisticated and ubiquitously deployed.¹⁸² A scheme of micro-payments may instead progressively emerge, where perfect price discrimination could eventually be achieved by charging users on a per use basis.¹⁸³

Finally, DRM technologies may be integrated together with new distribution mechanisms in order to develop innovative business models where users pay to acquire temporary access to a work (e.g. subscription mechanisms where users pay for the general access to a particular collection of works, pay-per-use and on-demand services where users pay every time they access a particular work, demos and previews where users only pay if they are interested in accessing the content in full) without acquiring the ownership of the work itself.¹⁸⁴ In spite of the limitations on access and usage, the advantages for

¹⁸¹ Clearing all the necessary copyright rights may sometimes be a very complex and expensive task, in particular in the case of works that are made up of many other works released under different terms and conditions and pertaining to different right holders. By endorsing specific standards for the recording of copyright related information into every digital work, DRM systems together with their respective Right Expression Languages constitute an effective tool to identify the legal status of a work and the owners of different interests in the work. See FERNANDEZ, I. G. & MERCE, J. D. (2005) XML and Digital Rights Management over the Internet. *The European Journal for the Informatics Professional*, 6.

¹⁸² Copyright limitations may be regarded as an answer to a specific form of market failure resulting a situation where the costs of transaction that have to be incurred in stipulating a contract between the right holder and the users are higher than the value that can be derived from the transaction. In such circumstances, certain limitations of the copyright regime allowing for a work to be exploited without the consent of the copyright owner may be justified on the grounds that no transaction would have otherwise occurred. Allowing for the unauthorized exploitation of the work would therefore enable a socially valuable use to be performed without impairing the potential revenues copyright owner. See, in general, GORDON, W. J. & BONE, R. G. (2000) Copyright. IN BOUCKAERT, B. & GEEST, G. D. (Eds.) *Encyclopedia of Law and Economics*. Cheltenham, Edward Elgar. For a broader and more detailed analysis on the economic justification for the introduction of a series of copyright limitations based on the concept of market failure, see LANDES, W. M. & POSNER, R. A. (2003) *The Economic Structure of Intellectual Property Law*, Cambridge, Massachusetts, The Belknap Press of Harvard University Press. See, however, also the various critics to this strictly economical interpretation of copyright exemptions in e.g. BENKLER, Y. (2006) *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Yale University Press.

¹⁸³ In such a scheme, users would only pay for what they consume. They would not acquire any rights in a work, but merely the possibility to access or exploit one basic element of the work (e.g. to display one page of a book, to listen one time to a song, etc). The advantage of a micropayment scheme is that consumers who are not willing to pay the full price to obtain full access to a work will be given the possibility to purchase a single access to a single element of the work for a much lower fee. Assuming that the more they use a work, the higher is the users' willingness to pay for that work, the establishment of a system of micropayments may to some extent be regarded as a strategy to achieve maximum price discrimination. For more details on DRM systems and the mechanism of micropayments, see LIEBOWITZ, S. (2002) Policing Pirates in the Networked Age. *Policy Analysis*, 438.

¹⁸⁴ Internet and the digital technologies have endorsed the emergence of a variety of business models for the distribution of digital content on the digital environment. Subscription-based access to a large number of works or the institution of metered services would in fact be impractical in the physical environment. DRM systems provide the necessary

end-users are the lower prices associated to these services and the possibility to access the work from anywhere and at any time.¹⁸⁵

Another important advantage of DRM systems is that they make it possible for right holders to monitor every usage that is being made of a work and to collect relevant information on every user's identity and activities.¹⁸⁶ Provided that it does not impinge upon the privacy of the individuals concerned, right holders can subsequently process the data they have gathered in order to gain deeper insight over the behavior of different categories of users and to acquire valuable information about the popularity of their works.¹⁸⁷

Accordingly, the combination of end-user licensing agreements and technological measures of protection are likely to result into the emergence of new business models based upon extensive price discrimination. While this is likely to provide a series of benefits to right holders, who can precisely determine the costs and establish the manner in which a work can effectively be consumed, this is also likely to benefit consumers insofar as they do not have to buy the work as a whole, but can instead pay only for the particular piece of content they want with the opportunity to access it from the place and at the time individually chosen by them.

infrastructure for these new business models to be implemented and make them economically viable by technologically enforcing the terms and the conditions under which every work can be exploited. See SANDER, T. (2001) Golden Times for Digital Rights Management? , InterTrust Technologies.

¹⁸⁵ With the advent of ever more sophisticated forms of DRM systems, users have acquired an ever higher level of discretion with regard to the time and the manner in which they may access and/or exploit digital content. In addition, while network convergence and the deployment of a global infrastructure of communication have given users the possibility to access content from any place and at any time, media convergence is allowing content to be displayed on an increasing number of devices. For an overview on the emerging mechanisms of content distribution in the digital environment and the need for a centralized management system, see WOLF, M. & WHEELLOCK, C. (2007) Digital content unleashed. *Journal of Digital Asset Management*, 3.

¹⁸⁶ While the main purpose of a DRM system is to protect and/or to manage the exploitation of a digital work, they may sometimes feature certain monitoring mechanisms in order to keep track of every usage that is made of the work. For instance, right holders can keep track of the time, the date and the manner in which the work has been exploited, together with the identity of the user who has performed the action (whenever that information has been made available). Although not a necessary feature, the ability of a DRM system to track usages is one important attribute for right holders to be more aware of the manner in which their works are being exploited. See e.g. BARTOLINI, F., CAPPELLINI, V., PIVA, A., FRINGUELLI, A. & BARNI, M. (1999) Electronic Copyright Management Systems: Requirements, Players and Technologies. *10th International Workshop on Database & Expert Systems Applications*. IEEE.

¹⁸⁷ The privacy of the end-user is being threatened by the advent of technological measures designed to control individuals' behaviors and to collect information about their intellectual preferences and activities. See e.g. COHEN, J. E. (2003) DRM and Privacy. *Berkeley Technology Law Journal*, 18. DRM systems, however, are not as such incompatible with privacy laws, provided they have been designed so as to respect the right to privacy of every user. See e.g. KORBA, L. & KENNY, S. (2002) Towards Meeting the Privacy Challenge: Adapting DRM. Canada, Institute for Information Technology, National Research Council.

PROBLEMS

The advantages discussed above can only be achieved to the extent that no one is likely to circumvent the technological measures that constitute the basic infrastructure of these DRM systems. While this cannot be prevented by virtue of technology alone, from a legislative standpoint, the problem has been addressed with the introduction of an additional layer of protection against the circumvention of certain technological measures of protection.¹⁸⁸ However, a series of complications have emerged as a collateral effect arising from the ability for right holders to license their works under restrictive terms and conditions that can be automatically enforced by technological means, even if they run counter to the general principles of copyright law and/or violate the provisions of other bodies of law.

I. CONSUMER RIGHTS

In a context where every act of consumption is ultimately governed by technological measures of protection, releasing a work under a restrictive end-user licensing agreement may seriously affect the ability for end-users to legitimately exercise their rights. Even though certain provisions may not be enforceable under contract law because they are inconsistent with other bodies of law, they may, nevertheless, be enforced by technological means - the circumvention of which is punished under copyright law.¹⁸⁹

To the extent that users are precluded from performing an act before it is even possible to address the legitimacy of that act, the regime of copyright exemptions can no longer be used as a defense to copyright infringement.¹⁹⁰ In addition, the number of exemptions available to users of technologically

¹⁸⁸ See the WIPO Copyright Treaty of 1996, article 11: “Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.” and article 12(1): “Contracting Parties shall provide adequate and effective legal remedies against any person knowingly performing any of the following acts knowing [...] that it will induce, enable, facilitate or conceal an infringement of any right covered by this Treaty or the Berne Convention: (i) to remove or alter any electronic rights management information without authority; (ii) to distribute, import for distribution, broadcast or communicate to the public, without authority, works or copies of works knowing that electronic rights management information has been removed or altered without authority” as well as the corresponding provisions in the WIPO Performances and Phonograms Treaty of 1996, at articles 18 and 19 respectively.

¹⁸⁹ Although there are certain limited situations in which technological measures employed for the protection of copyright work can be circumvented (see e.g. section 1201 subsections (d) (e) (f) (g) (h) (i) (j) of Digital Millennium Copyright Act of 1998 in the USA, and article 6(4) of the Copyright Directive 2001/29/EC in Europe), as a general rule, however, both the circumvention of technological measures for protection of copyright works and the manufacture or the dissemination of devices principally designed to enable the circumvention thereof constitute a violation of copyright law (see articles 11 and 12 of the WIPO Copyright Treaty). For a broader overview, see: *supra* Part I. Chapter 3: Private Regulation: Technological measures. Section 2: Legal status.

¹⁹⁰ If users are precluded ex-ante from performing an act, they will not have the chance to experiment with the new technology, for courts to subsequently decide whether that particular activity constitutes copyright infringement, whether it may fall within the current scheme of copyright exemptions, or, alternatively, whether the principles of fair

protected works has been drastically reduced. In Europe, for instance, the regime of exemptions only applies into the digital environment in the absence of any voluntary measure taken by right holders.¹⁹¹ In the USA, instead, the DMCA introduced a specific set of exemptions allowing for the circumvention of technological measures only in a very limited set of circumstances, which is much narrower than the traditional principles of fair use.¹⁹²

Technological measures of protection are also generally not able to understand the idea/expression dichotomy, nor can they distinguish between the protected elements of a work and the elements that are a constitutive part of the public domain.¹⁹³

2. PRIVACY

In the digital environment, the interrelation between copyright law and privacy law has become problematic because the measures taken for the enforcement of the former do not necessarily comply with the constraints of the latter.

While DRM systems can protect the economic interests of right holders, by precluding users from engaging into any particular act of consumption that has been specifically forbidden by technological means, they are likely to impinge upon the privacy of end-users to the extent that they can monitor the activity of end-user and collect various kinds of personal data or information without informing the user. Given that they can keep a record of every usage that has been made of a work without asking for the

dealing may need to be revised to better accommodate the new technology. LOHMANN, F. V. (2002) Fair Use and Digital Rights Management: Preliminary Thoughts on the (Irreconcilable?) Tension between them. *Computers, Freedom & Privacy*.

¹⁹¹ See article 6(4) of the European Directive 2001/29/EC (paragraph 1): Member States are entitled to intervene only “in the absence of voluntary measures taken by right holders, including agreements between right holders and other parties concerned” (paragraph 4): “The provisions of the first and second subparagraphs shall not apply to works or other subject-matter made available to the public on agreed contractual terms in such a way that members of the public may access them from a place and at a time individually chosen by them.”

¹⁹² In the United States, the Digital Millennium Copyright Act of 1998(DMCA), section 1201 prohibits the circumvention of technological measures of protection regardless of the purpose for which circumvention is made. The Act nevertheless stipulate a number exemptions (see section 1201 subsections d: Exemption for Nonprofit Libraries, Archives, and Educational Institutions; e: Law Enforcement, Intelligence, and Other Government Activities; f: Reverse Engineering; g: Encryption Research; h: Exceptions Regarding Minors; i: Protection of Personally Identifying Information; j: Security Testing)which establishes a particular regime of limitations for technologically protected copyright works that is much less flexible than the system resulting from the application of the fair use doctrine of the US Copyright Act of 1976, 17 U.S.C. § 107

¹⁹³ Not every aspect of a work is protected by the copyright regime. In particular, facts and ideas are not eligible for copyright protection, as opposed to the expression thereof, and neither are the elements that have been taken from the public domain. As such, DRM systems are not able to determine which elements of a work are subject to copyright protection, although they may be able to do so with specific metadata that identifies the legal status of every element of the works. See MULLIGAN, D. & BURSTEIN, A. (2002) Implementing Copyright Limitations in Rights Expression Languages. *ACM Workshop on Digital Rights Management*. However, while this may be a viable solution for DRM systems not to unnecessarily restrain the exploitation of the public domain elements of a work, it would however entail considerable costs and the complexity involved may not always be compensated by the resulting benefits.

user's consent,¹⁹⁴ the resulting data could be used, not only for the purpose of protecting the copyright in a work, but also for other purposes which the user may not necessarily endorse.¹⁹⁵

There exists, therefore, a conflict between the legal protection granted to the owners of the copyright in a work and the protection of the fundamental right to privacy that pertains to every individual user.¹⁹⁶ Although both the Copyright Directive in Europe and the DMCA in the USA have expressly addressed the need for DRM systems to protect the interests of right holders while simultaneously preserving the users' right to privacy,¹⁹⁷ no mechanism has thus far been established in order to reconcile the interests of the two parties. Moreover, while the DMCA introduced specific provisions allowing for the circumvention of technological measures of protection for the purpose of preventing the collection and the dissemination of personal data,¹⁹⁸ no similar exemption has been introduced in Europe.¹⁹⁹ Accordingly, identifying the circumstances under which the protection of the copyright in a work may actually prevail over the protection of the fundamental right to privacy is a very difficult issue which has yet to be resolved.²⁰⁰

¹⁹⁴ See e.g. Sony BMG's CDs, which secretly infected users' computers with a software application that collected information on the activities of users and reported it to Sony BMG without appropriate notice and consent. For more details, see FELTEN, E. W. & HALDERMAN, J. A. (2006) *Digital Rights Management, Spyware, and Security. Security & Privacy*, 4.

¹⁹⁵ See BYGRAVE, L. A. & KOELMAN, K. J. (2000) *Privacy, Data Protection and Copyright: their interaction in the context of electronic copyright management systems*. IN HUGENHOLTZ, B. P. (Ed.) *Copyright and Electronic Commerce*. Kluwer Law International.

¹⁹⁶ See article 12 of the Universal Declaration of Human Rights: "No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honor and reputation. Everyone has the right to the protection of the law against such interference or attacks." See, also the European Directive 95/46/EC and the various sectorial regulations in the US (such as *inter alia*, the Video Protection Act of 1988, the Cable Television Consumer Protection and Competition Act of 1992, and the Fair Credit Reporting Act).

¹⁹⁷ See article 9 of the Directive 2001/29/EC and, more particularly, recital 57, according to which "rights-management information systems [...] should incorporate privacy safeguards in accordance with Directive 95/46/EC." See section 1201(i) of the Digital Copyright Millennium Act, introducing an exemption allowing for the circumvention of technological measures for preventing the collection and dissemination of personally identifying information.

¹⁹⁸ See section 1201(i) of the Digital Copyright Millennium Act, according to which it is not a violation for a person to circumvent a technological measure that effectively controls access to a work if it is capable of collecting or disseminating personally identifying information; without providing conspicuous notice to such person and without providing any possibility to prevent or restrict such collection or dissemination.

¹⁹⁹ As a result, if the legal protection granted to technological measures of protection also applies to technological devices aimed at monitoring the usage of a work, the circumvention of any such mechanism may be regarded as an infringement of copyright law even if it would be perfectly justifiable according to the data protection laws. See BYGRAVE, L. A. (2002) *The Technologization of Copyright: Implications for Privacy and Related Interests*. *European Intellectual Property Review*, 24.

²⁰⁰ See e.g. the case of *Promusicae v Telefonica* (2008) ECJ C-275/06, where the ECJ tried to balance the protection of Intellectual Property and the right to privacy without expressing a particular preference with regard to which right should prevail over the other.

3. INFERIOR PRODUCTS

The need to protect the interests of right holders may sometimes be satisfied at the expense of the interests of consumers. For the purposes of price discrimination, users are likely to be offered products whose key features have been intentionally disabled by technological means and which are therefore less functional than their non-protected counterparts.²⁰¹ In addition, even if they are only meant to discourage copyright infringement, certain technological measures may also be detrimental to the security or to the integrity of the device they have been stored into.²⁰² Finally, content encoded into a proprietary format is likely to be less attractive to users. Not only can it only be accessed or consumed on authorized devices, but it also might eventually become insignificant since there is no guarantee that the technology will not be discontinued and become forever obsolete.²⁰³

This problem is closely related to the issue of interoperability. Although it is theoretically possible to translate digital content from one format to another, several reasons may prevent users from converting a technologically protected work into another format. To begin with, for the purposes of copyright law, conversion would amount to an unauthorized reproduction of the work which is likely to be infringing unless it qualifies under the regime of copyright exemptions. Moreover, to the extent that it requires the circumvention of technological measures of protection, conversion might be regarded as a further infringement unless it has been expressly exempted by the law.²⁰⁴

²⁰¹ For instance, CDs with certain copy-protection mechanisms may not be properly played on every CD player, because specific errors which have been deliberately introduced into the CD in order to prevent it from being played on a personal computer may negatively affect, or even preclude their readability in a variety of hardware and software devices. In addition, the errors are likely to degrade the sound quality and shorten the lifetime of the CDs they have been introduced into. For more details, see HALDERMAN, J. A. (2002) Evaluating New Copy-Prevention Techniques for Audio CDs. *ACM Workshop on Digital Rights Management*. Washington DC.

²⁰² See e.g. Sony BMG's CDs, which secretly installed a software application (XCP) into the users' computers in order to prevent the unauthorized reproduction of the content of the CD. The software had however a series of security flaws, which could be exploited by malicious software in order to gain administrative control over the users' computers. For more details, see CASS, S. (2006) Antipiracy software opens door to electronic intruders. *Spectrum*, 43.

²⁰³ As new technologies develop, previous technologies may become obsolete and a large amount of data may become inaccessible as the hardware and software devices that rely on these technologies progressively disappear and new devices are developed which may no longer support backwards compatibility. Sometimes, the firm providing a particular technology may itself disappear. Accordingly, digital content which has been incorporated into a proprietary technological measure of protection runs the risk of being forever trapped in an obsolete format or medium, unless it can be converted into a new technological format. See KUNY, T. (1997) A Digital Dark Ages? Challenges in the Preservation of Electronic Information. *International Preservation News*, 17.

²⁰⁴ For instance, in the USA, the DMCA allows users to circumvent a technological measure for the purpose of enabling interoperability of an independently created computer program with other programs, to the extent that doing so does not constitute copyright infringement (see section 1201(f) of the DMCA), although this only applies to computer programs and not to works generally such as music or audiovisual works (see the Senate Committee Report on the DMCA 105-190). In Europe, the Software Directive include a series of provisions with regard to the interoperability of computer programs (see article 6 of the European Directive 91/250/EC), the Copyright Directive does not comprise any such provisions, although it appears to encourage Member States to adopt certain interoperability measures (see

With reference to contract law, instead, converting the content into another format may be precluded by a series of contractual provisions, the violation of which would constitute a breach of the licensing agreement.²⁰⁵ Finally, at the technological level, the format from which or into which the content is to be converted may be a proprietary format whose encryption or decryption algorithm has not been disclosed to the public.²⁰⁶ The use of excessively restrictive or faulty DRM systems and the lack of interoperability amongst them are therefore likely to result in an inferior product which does not properly satisfy the expectations of consumers.

4. ANTI-COMPETITIVE PRACTICES

The use of proprietary systems and the refusal to license the technology necessary for the making of interoperable devices could, under certain circumstances, be regarded as an anti-competitive practice aimed at reducing competition in the market.²⁰⁷ Not only can large technology providers rely upon the anti-circumvention regime in order to foreclose competition in the market of playback devices,²⁰⁸ but

recital 54 of the European Directive 29/2001/EC). Only a few Member States have in fact incorporated specific interoperability provisions in their national legislation (see e.g. the HADOPI law in France).

²⁰⁵ The iTunes Music Store's EULA expressly states that users are allowed to export the purchased music files into another format as long as this is done for personal purposes. However, iTunes software will refuse to convert any DRM protected file into another format, and the EULA prevents users from attempting to circumvent or to modify any security technology. See iTunes' Terms of Services at <http://www.apple.com/legal/itunes/us/service.html>. Moreover, conversion has been expressly prohibited by a large number of more restrictive EULAs, see e.g. the terms and conditions regulating the exploitation of the digital content that can be downloaded on Napster (<http://www.napster.com>); PassAlong Music Store (<http://www.passalong.com>); PayPlay.FM Music Downloads (<http://payplay.fm>), CinemaNow (<http://www.cinemanow.com>), VidZone (<http://www.vidzone.tv>), MovieLink (<http://movielink.com>), etc.

²⁰⁶ See e.g. the CSS technology employed to protect the content of most commercial DVDs against unauthorized reproduction. As the CSS technology is itself protected by Intellectual Property rights, it is not available for anyone to incorporate it into a hardware or software device, but only gets licensed to certain device manufacturers who agree to abide to the specific terms and conditions of the licensing agreement and who can afford to pay the corresponding fees.

²⁰⁷ See e.g. the Judgment No. 04D54 of the French Conseil de la Concurrence (2004) which addressed a complaint issued by VirginMega to the French competition authority against Apple, on the ground that Apple's refusal to license the FairPlay DRM technology was an abuse of dominant position according to article 82 of the EC treaty. For a general overview of the case, see MAZZIOTTI, G. (2005) Did Apple's refusal to license proprietary information enabling interoperability with its iPod music player constitute an abuse under Article 82 of the EC Treaty?, Berkeley Center for Law & Technology.

²⁰⁸ See e.g. the case of *Blizzard & Vivendi Universal v Jung*, 422 F.3d 630 (8th Cir. 2005), where the court held that reverse engineering in order to emulate Blizzard software amounted to an illegal activity under the DMCA and the interoperability exception did not apply to the facts of the case. See also *Sony Computer Entertainment v Connectix Corp*, 203 F.3d 596 (9th Cir. 2000) and *Sony Computer Entertainment v Bleem*, 214 F.3d (9th Cir. 2000), where Sony sued the developers of two software emulating the Sony Playstation console in order to allow users to play Playstation games on their personal computers, and although the court ruled against Sony, the software of both Connectix Corp and Bleem have been discontinued. However, see *Chamberlain Group v Skylink Technologies* (Fed. Circuit, 2004) 381 F.3d, where the court held that the competing product produced by Skylink Technologies was not infringing the anti-circumvention

they might also engage into leveraging practices in order to exploit the market power that they have acquired in one market into a complementary market - such as e.g. the market of content distribution.²⁰⁹

In many cases, the lack of interoperability between DRM systems is also likely to create a situation of consumer lock-in, where users can no longer depart from one technology without incurring significant loss.²¹⁰ As a general rule, technologically protected content can only be accessed on a specific set of hardware or software devices which, in turn, can only understand a particular set of data formats.²¹¹ After purchasing a particular type of content, consumers are therefore tied to one particular type of technology, from which they become increasingly unwilling to depart. As more and more DRM systems are being deployed, the issue of interoperability is becoming an ever more important concern for consumers, which has, so far, only been addressed by a few countries.²¹²

provisions of the DMCA, which are meant to protect copyrighted content and not to regulate the aftermarket for a good; *Lexmark International v Static Control Components* (6th Circuit, 2004) 387 F.3d 522, where the court held that Lexmark could not rely on the anti-circumvention provisions of the DMCA in order to control the market of complementary goods.

²⁰⁹ A firm with a dominant position in the market of playback devices does not necessarily hold a dominant position in the market of digital music distribution. However, by foreclosing competition in the market of playback devices and by refusing to license the technology incorporated into its own playback devices, the dominant undertaking may reduce the ability of competitors to achieve sufficient economies of scale from the distribution of digital music. A number of competitors may therefore be driven out of the market as a whole, thus enabling the firm to establish itself as a dominant undertaking also in the market of digital music distribution. See LÉVÊQUE, F. (2006) *Is Online Music Locked in by Leveraging? Communications & Strategies*, 63.

²¹⁰ The lower is the level of interoperability between DRM systems, the higher are the costs of switching from one system to another. Consumer will therefore stick to the old system whenever the cost of switching to another system is likely to overcome the expected benefits of the new system. For more details on the impact of switching costs upon consumer's lock-in, see MARIÑOSO, B. G. (2001) *Technological Incompatibility, Endogenous Switching Costs and Lock-In. The Journal of Industrial Economics*, 49. See e.g. the judgment of the Consumer Ombudsman of Norway with regard to the complaint against iTunes Music Store (whose report is available at <http://forbrukerportalen.no/>), where the Consumer Ombudsman of Norway strongly criticized Apple's refusal to disclose interoperability information concerning the FairPlay DRM and accused it to be using the DRM technology in order to lock the consumers into Apple's proprietary systems.

²¹¹ Tying may occur by ensuring, on the one hand, that the content may only be played on a particular set of devices, and on the other hand, by requiring that any playback device to which the DRM technology has been licensed to be only capable of playing that particular type of technologically protected content. See e.g. Apple iTunes Music Store, whose content is technologically protected by the FairPlay DRM and may therefore only be enjoyed on Apple's iTunes software and Apple's iPod music players; Napster Music Store, whose content may be enjoyed only these software or devices which have been licensed to play WMA-protected subscription content (which excludes the iPod and most other portable players); RealNetworks Music Store, whose content may be played only on a narrow set of authorized devices which are compatible with the proprietary format of RealNetworks DRM.

²¹² In France, for instance, the Law n.2009-669 for the diffusion and the protection of creations on the Internet (more commonly known as the Hadopi law) provides for the establishment of a public and independent authority, "Hadopi" (Haute Autorité pour la diffusion des œuvres et la protection des droits sur Internet), whose main function is, inter alia, to monitor and ensure the interoperability of DRM systems.

5. LEVY SYSTEMS

In certain countries, in which the copyright regime permits the unauthorized reproduction of a work for personal and non-commercial purposes, a system of levies has been established allowing for private copies to be made as long as fair compensation is given.²¹³ The system incorporates a compulsory tax into the price of any product or device that is likely to be used for the making of private copies, and provides for a redistribution scheme according to which every right holder should receive a fair level of compensation.

Originally introduced on the grounds that it was too difficult to control the reproduction of a work for the purpose of private use, levy systems might no longer be necessary in the digital realm. Indeed, the widespread deployment of DRM systems may seriously affect the operations of the levy systems and ultimately eliminate the need and justification for any mandatory system of levies.²¹⁴

The reason is that, in the digital environment, the owners of the copyright in a work can now obtain direct compensation for any use of their work. By introducing a fee that every user must pay before the work can be enjoyed, DRM systems significantly reduces the legitimacy of the levy system, given that they provide right holders with a fair compensation by way of direct licensing fees or other forms of payment.²¹⁵ Moreover, in determining the proper amount of compensation that every right holder is entitled to, account should be taken of the fact that technological measures of protection may prevent users from availing themselves of certain copyright exemptions (i.e. private copying) which should therefore be excluded from the levy.²¹⁶

²¹³ See article 5(2) of the European Copyright Directive 29/2001/EC: “Member States may provide for exceptions or limitations to the reproduction right [...] (b) in respect of reproductions on any medium made by a natural person for private use and for ends that are neither directly nor indirectly commercial, on condition that the right holders receive fair compensation.” Most countries of the European Community have implemented such an exemption by the means of a levy system (except for the UK which does not allow for private copying). The USA and Canada also introduced a particular system of levies, but only with regards to audio recording media (see, respectively, the US Audio Home Recording Act of 1992 and sections 81-82 of the Canadian Copyright Act).

²¹⁴ As a result of the widespread deployment of DRM systems, it may no longer be necessary to apply current levy systems into the realm of digital media. Either the copyright owners already obtained compensation by way of licensing fees, or they have given their consent to the making of private copies from which they may expect no compensation. Moreover, when applied to general purpose digital equipments, levy systems are likely have negative consequences from both an economic and social perspective, as users would end up paying a tax on virtually any digital device, which may be interpreted as an unlimited license to copy with copyright eventually turning into a liability regime. For more details, see: HUGENHOLTZ, P. B., GUIBAULT, L. & GEFFEN, S. V. (2003) *The Future of Levies in a Digital Environment*. Amsterdam, Institute for Information Law.

²¹⁵ See recital 35 of the European Copyright Directive 29/2001/EC: “In certain cases of exceptions or limitations, right holders should receive fair compensation to compensate them adequately for the use made of their protected works or other subject-matter. [...] In cases where right holders have already received payment in some other form, for instance as part of a license fee, no specific or separate payment may be due. The level of fair compensation should take full account of the degree of use of technological protection measures referred to in this Directive. In certain situations where the prejudice to the right holder would be minimal, no obligation for payment may arise.”

²¹⁶ See recital 39 of the European Copyright Directive 29/2001/EC: “When applying the exception or limitation on private copying, Member States should take due account of technological and economic developments, in particular

The relation between technological measures of protection and the regime of fair compensation that has been established in certain jurisdictions under the form of a levy system may therefore need to be reassessed in view of the ubiquitous deployment of DRM systems.

with respect to digital private copying and remuneration schemes, when effective technological protection measures are available. Such exceptions or limitations should not inhibit the use of technological measures or their enforcement against circumvention.”

OPEN LICENCES

Every license necessarily involves an element of permission. In the context of copyright law, a copyright license is therefore a permission to do something that would otherwise constitute copyright infringement. Such permission may either be granted unconditionally to the public at large or be subject to the previous acceptance of particular terms and conditions.

As a general rule, most Open Content licenses can be regarded as instant licenses²¹⁷ whose terms and conditions are usually incorporated within the work itself. Yet, as opposed to most proprietary licenses, Open Content licenses rely upon the copyright regime in order to create a series of positive rights to ensure the public availability of content and the free dissemination of knowledge.²¹⁸ Even if there is no requirement that the work be necessarily given away for free,²¹⁹ in practice, most of the works released under an Open Content license are released to the public at large and in exchange of no consideration.

After investigating the technical and legal aspects of this new emerging licensing practice, the research will subsequently address the various benefits that it may engender, as well as the legal challenges that must be faced in order to ensure the long-term sustainability of that particular scheme of licensing.

²¹⁷ The concept of “instant license” refers to the fact that it is no longer necessary to contact the copyright owner in order to obtain the license to exploit of a particular work. Instant licenses are automatic: the copyright owner decides upon the various terms and conditions according to which a work can be legitimately exploited and incorporates them directly into the work, as a result of which the user that legitimately obtain that copy of the work will be automatically subject to the terms and conditions of the license. See FRIPP, C. (2005) Instant licences move copyright into a new digital space: is it time to encourage Copyright Cannibals? *8th Symposium on Electronic Theses and Dissertations*. Sydney, Australia.

²¹⁸ Intellectual property rights can be used negatively in order to restrict the exploitation of a work, or positively in order to enable the free dissemination of works and to promote the social contribution to the cultural heritage. Such a framework benefits both users, who can enjoy a broader availability of works, and right holders, whose rights remain protected by Intellectual Property laws so that no one may exploit a works in a manner that has not been provided for. See AIGRAIN, P. (2003) Positive Intellectual Rights and Information Exchange. IN CENTURY, M. (Ed.) *CODE*. MIT Press.

²¹⁹ As a general rule, Open Content licenses do not preclude the commercial distribution of a work, although a number of Open Content licenses which do not allow for the commercial exploitation of a work are likely to prevent any licensee from distributing the work in exchange of a financial reward (see e.g. the non-commercial clause of the Creative Commons licenses, according to which the licensee “may not exercise any of the rights granted [...] in any manner that is primarily intended for or directed toward commercial advantage or private monetary compensation”). However, even if the licensee is entitled to distribute the work in exchange of a fee, the terms and conditions of the license, according to which the work can be freely reproduced and redistributed to anyone, cannot be modified by the licensee (see e.g. article 4(a) of the Creative Commons licenses: “You may distribute, publicly display, publicly perform, or publicly digitally perform the Work only under the terms of this License”) and the license generally prevent the licensee from imposing further restrictions on the rights granted by the license (see e.g. article 4(a) of the Creative Commons licenses: “You may not offer or impose any terms on the Work that alter or restrict the terms of this License or the recipients' exercise of the rights granted hereunder”). All users subsequently coming into possession of the work will therefore be entitled to redistribute the work for free, whether or not they originally had to pay for it.

TECHNICAL ASPECTS

In reaction to the recent expansion of the copyright regime,²²⁰ the Open Content community has endeavored to reduce the impact of the exclusive rights granted by default under the law. Open Content licenses allow for a work to be released under a particular scheme where only some rights are reserved: a level of protection that lies in between the default protection of the copyright regime, where almost all rights are reserved, and the negative status of the public domain, where no rights are reserved.²²¹ Different copyright owners have different interests in their works. Some may wish for the utmost dissemination of their works, while nonetheless being able to earn money from the exploitation thereof. Others may prefer anyone being able to exploit their works, but nevertheless want to preserve the integrity thereof. Some may want to charge for only certain forms of exploitation, whereas others may want to charge only certain types of users. Open Content licenses offer copyright owners the possibility to license only these rights they do not want to enforce, while maintaining full control of the rights they are concerned with.²²²

As a result of the recent proliferation of Open Content licenses,²²³ providing a proper definition thereof has become extremely complicated. In spite of the different attempts which have been made thus far, there are still no generally accepted definitions of the term Open Content.

The Open Knowledge Definition established a set of principles that may help determine the status of a work through the identification of eleven conditions which have to be satisfied for a particular piece of content to be regarded as “open knowledge”: (1) the work must be universally available; (2) the license must allow for the work to be freely redistributed and (3) freely modified; (4) the work may not be released in a format allowing for technological restrictions to prevent the performance of any of the

²²⁰ It may be argued that the legal protection of technological measures have subordinated the public ordering of copyright law to the private ordering of contract law. New contractual practices have however emerged, which, based on the copyright regime, have reintroduced the balancing principles of copyright law within the digital environment. See, VÄLIMÄKI, M. & HIETANEN, H. (2004b) Challenges of Open Content Licensing in Europe. Helsinki Institute for Information Technology. and MERGES, R. P. (2004) A New Dynamism in the Public Domain. *University of Chicago Law Review*, 71.

²²¹ Open Content licenses are a compromise between a situation of total control, where every usage of a work is completely regulated (“all rights reserved”), and a situation of anarchy, where every work is left vulnerable to complete exploitation (“no right reserved”). A situation with “some rights reserved” constitutes a more moderate balance between these two extremes. See Creative Commons (2007) Some Rights Reserved: Building a Layer of Reasonable Copyright, www.creativecommons.org

²²² See CLARKE, R. (2003) Copyright: The Spectrum of Content Licensing.

²²³ Perhaps the most popular examples of Open Content licenses are the Creative Commons, a set of licenses that endow users with various degrees of liberties. Other popular Open Content licenses are the GNU Free Documentation license and the Apple Common Documentation license, for the distribution of handbooks and other functional documents, the Open Music licensing scheme and the Audio license of the Electronic Frontier Foundation, for the distribution of musical works, and the Free Art license, regarded as the first license to have effectively transposed the ideology of the Open Source into the domain of the arts. For a general overview of the different Open Content licenses and of their respective popularity, see KUMAR, V. (2008) Open Licenses and Content Distribution. *Emerging Trends and Challenges in Library and Information Services*.

rights that have been granted by the license; (5) the license may require that proper attribution be given and (6) that derivative works be distributed with a different name and/or version than the original work; (7) the license cannot discriminate against any person or (8) against any specific field of endeavor; (9) the terms and conditions of the license must automatically apply to anyone to which the work has been redistributed; (10) the license must not be specific to a particular package but should only refer to the work per se, and (11) it cannot restrict the distribution of other works distributed along with the licensed work.²²⁴

Similarly, the Free Cultural Works definition identifies the four freedoms that must be necessarily incorporated into a Free Cultural license: (1) the freedom to use and to perform the work; (2) the freedom to study the work and to apply the acquired information in any way and for any purpose; (3) the freedom to redistribute copies of the whole or only part of the work; and (4) the freedom to make and to redistribute derivative works. However, the respect of these four freedoms is a necessary but per se not sufficient condition to ensure the free status of the work – together with the four conditions necessary for a work to be regarded as a Free Cultural Work: (1) the free availability of source data; (2) the availability of the work in a free data format; (3) the absence of technical restrictions that are in conflict with any of the freedoms granted by the license; and (4) the absence of other legal restrictions or limitations that may negatively affect the exercise of the four essential freedoms.²²⁵

As such, the term Open Content is a general concept whose definition may ultimately encompass different categories of works. While the common denominator is that they all grant the right to freely reproduce and distribute a work for non-commercial purposes, Open Content licenses differentiate themselves according to the extent to which they allow or prohibit a more extensive exploitation of the work. For instance, although the access to a work is unconditionally permitted, the exploitation thereof may sometimes be restricted by certain formal or legal requirements²²⁶ which constitute the core characteristics of many Open Access licenses.²²⁷

²²⁴ See <http://www.opendefinition.org/>

²²⁵ See <http://freedomdefined.org/Definition>

²²⁶ As for the formal requirements, a very common condition of Open Content licenses is that proper attribution be given to the authors of the work. Another common restriction is to require that a copy of the license or a reference thereof be distributed along with the work, so as to ensure that anyone subsequently coming into possession of the work may unequivocally find out under which terms and conditions can it be legitimately exploited. Sometimes, the license also prohibits the use of any technological measure of protection that may impede the legitimate exploitation of the work. As for the legal aspect, the modification or the making of derivative works may be expressly prohibited or otherwise subject to the condition that the resulting work be distributed under the same terms and conditions as the original work. See, e.g. the GNU Free Documentation License and the Creative Commons licenses BY-SA and BY-NC-SA. Sometimes, the overall exploitation of the work may also be confined to a particular category of users or to a particular type of exploitation. See, e.g. the Creative Commons licenses BY-NC, BY-NC-ND or BY-NC-SA, and the Creative Archive licenses, which allow for the introduction of a series of territorial restrictions, together with a number of limitations with regard to the field of endeavor.

²²⁷ Open Access licenses are more restrictive Open Content licenses that may not authorize the making of derivative works without the consent of the copyright owner and may introduce specific restrictions with regard to the commercial exploitation of a work. The work remains nevertheless freely accessible by anyone and can be reproduced and redistributed for non-commercial purposes, provided proper attribution is given and every formality is fulfilled. For an overview of the different definitions of Open Access, see: BAILEY, C. W. (2006) What is Open Access? IN JACOBS, N. (Ed.) *Open Access: Key Strategic, Technical and Economic Aspects*. Oxford, Chandos Publishing.

One particularity of the digital environment is that the consumption of works has developed from a system based on the distribution of physical copies, into a system of access privileges where users merely acquire access to the work.²²⁸ Given that any additional access does not involve any additional costs, it is up to the copyright owner to decide whether access should be granted for free or in exchange of specific consideration.

The notion of a gift economy²²⁹ emerged and established itself as an alternative model within the information society. According to this model, information goods are not traded for monetary consideration but, rather, on the expectation of reciprocity and mutual obligations to share. In particular, as anyone can engage in creative activities without relying upon any sort of intermediaries, user-generated content is assuming a predominant function in the digital environment²³⁰ that is often capable of providing economic returns even though it is made publicly available on the Internet.²³¹ Although free of charge, most works released under an Open Content license are not given away for nothing. Consideration may sometimes subsist within the concept of indirect reciprocity (e.g. by way of enhanced social status or other intangible rewards) or deferred reciprocity (according to which compensation will only be received later in time).²³²

²²⁸ Traditionally, works have been distributed to the public through the transfer of physical copies. Online distribution, however, does not necessarily involve the distribution of copies (albeit intangible) but only the transmission thereof. See ELKIN-KOREN, N. (1996) Public/Private and Copyright Reform in Cyberspace. *Journal of Computer-Mediated Communication*, 2.

²²⁹ The advent of the digital technologies has led to the emergence of a strong set of ideals, which advocate the free circulation of knowledge and the sharing of culture as a common, in line with the principles of the “gift economy” (see CHEAL, D. (1998) *The Gift Economy*, Routledge. as well as CASTELLS, M. (2001) *The Internet galaxy: Reflections on the Internet, business and society*, Oxford University Press. introducing the concept of the gift economy to describe the mechanisms of Open Source).

²³⁰ With the advent of the Web 2.0 technologies, an increasing number of web platforms are being developed for the hosting and the sharing of user-generated content (e.g. chats, blogs, forums, wikis, personal homepages, video and photo repositories). A comprehensive review of the different platforms can be found at: OECD (2007) *Participative Web and User-Created Content: Web 2.0, Wikis and Social Networking*.

²³¹ Content can be either commercialized as a copyright work as such or as a constituent of a broader service: e.g. by way of subscriptions and/or pay-per-item models. Content may also be employed as a value-adding mechanism in order to increase the value of other goods or services. In addition, advertising and/or merchandising mechanisms may sometimes be used as a form of remuneration, in order to shift the costs away from the consumer onto a third party (such as the advertiser or sponsor). For a more throughout overview of alternative business models in the digital environment, see CLARKE, R. (2004) *Open Source Software and Open Content as Models for eBusiness*. *17th International eCommerce Conference*. Bled, Slovenia.

²³² It is generally assumed that consideration is immediate and reciprocal. There exists however many situations in which consideration is neither immediate nor reciprocal. Something that may at first sight appear as altruistic behavior could, in fact, be regarded as a standard transaction in a market economy if one takes into account the possibility of deferred reciprocity (giving a thing in order to subsequently get an analogous thing back from the same person) and indirect reciprocity (giving a thing in order to get another thing back from anyone who is part of the community). See CLARKE, R. (2007) *Business Models to Support Content Commons*. *SCRIPT-ed*, 4.

LEGAL STATUS

In spite of their increasing popularity, the nature and the legal status of many Open Content licenses is still open to debate. In the context of property law, in a majority of common law jurisdictions, the issue is addressed through the distinction between a bare license (i.e. the implied permission, granted without consideration, to use the property of another) and a contractual license (i.e. the permission, granted in exchange of valuable consideration, to use the property of another, derived from an express or implied contract).

Whether Open Content licenses should be regarded as bare licenses or as contractual agreements is an important question, which may affect not only the manner in which the provisions of the license are to be interpreted, but also the extent to which their terms and conditions can be enforced and the nature of the remedies available upon breach.²³³

The problem is that it can be very difficult to draw a line between what constitutes a contractual license and what may instead only be regarded as a bare license.

A bare license is merely a waiver of rights. It amounts to a unilateral permission granted by the licensor, for the licensee to perform an act that would have otherwise been prohibited by law.²³⁴ While the licensor undertakes not to sue anyone who respects the terms of the license, the establishment of a bare license does not require the consent of the licensees because it does not create any kind of obligation on their part.²³⁵ In the context of a public license, in fact, no licensee needs to have been previously identified.²³⁶

If they were to be regarded as a bare license, Open Content licenses could only be enforced by the copyright owner in accordance with the provisions of copyright law and any condition that extends

²³³ The procedure to enforce the terms of a license and the remedies available may vary according to whether the license is regarded as a bare license or as a contractual license. For instance, if a licensee breach of the terms of a contractual license, all contractual obligations may come to an end and the licensee will have to pay damages and/or execute a specific performance. If the licensee acts beyond any of the rights granted by a bare license, instead, the licensee be liable of copyright infringement and the term of the license may only be enforced in accordance with the provisions of copyright law. For more details, see HIETANEN, H. (2007) A License or a Contract: Analyzing the Nature of Creative Commons Licenses. Helsinki Institute for Information Technology.

²³⁴ According to the Encyclopedia Britannica, a bare license occurs when a person enters or uses the property of another with the express or implied permission of the owner and without any obligation in return. With reference to Intellectual Property law, the Merriam-Webster's Dictionary of Law describe a bare license as a grant by the holder of a copyright of any of the rights embodied in the copyright, short of an assignment of all rights.

²³⁵ A bare license is a unilateral act, whereby the owners of a resource independently impose limits upon their rights to exclude others from that resource. See ELKIN-KOREN, N. (2005) What Contracts Can't Do: The Limits of Private Ordering in Facilitating a Creative Commons. *Fordham Law Review*, 74.

²³⁶ A public license is created whenever the licensor does not identify nor impose any limit on who may qualify as a potential licensee but merely grants the license to the general public. See e.g. the GNU General Public License at www.gnu.org/copyleft/gpl.html, and the various Creative Commons Licenses available at <http://creativecommons.org/licenses>.

beyond the scope of the copyright regime could therefore not be enforced.²³⁷ Moreover, to the extent that reasonable notice has been given, a bare license involving no consideration could theoretically be revoked.²³⁸ However, in certain jurisdictions, the licensor may be precluded from terminating a license that purports to be irrevocable or which has already been acted upon under the doctrine of promissory estoppels.²³⁹

A contractual license is a more complex legal construct, which is formed whenever the offer of the licensor has been unconditionally accepted by the licensee.²⁴⁰ Acceptance can be anything that constitutes a positive manifestation of assent,²⁴¹ and, once the license has been accepted by the licensee, it can no longer be revoked without the mutual consent of the parties.

As opposed to a bare license, which is merely concerned with the licensing of pre-existing rights, a contractual license is capable of creating new rights and obligations that did not exist before. Depending upon the relationship that subsists between the licensor and the licensees, a contractual license may be regarded as either a unilateral contract, where only the licensor undertakes to assume a certain number of obligations,²⁴² or as a bilateral contract, where both parties commit themselves to their respective obligations.²⁴³

²³⁷ See e.g. *Bobbs-Merrill Co. v. Straus*, 147 F. 15 (2d Cir. 1906), aff'd, 210 U.S. 339 (1908), where the licensing practices of a book publisher who licensed the right of distribution under the condition that the books be sold at a fixed retail price was seen as an illegitimate attempt to impose contractual condition upon the sale of the book by third parties. According to the Court, such a condition could therefore only be secured by the means of a positive contractual agreement between the parties.

²³⁸ For more details on the conditions in which a licenses should be regarded as being revocable or not, see *infra*, Part I. Chapter 4: Private Regulation: Open Content. Section 4.B: Revocability.

²³⁹ For more details, see HILL, J. (2001) The Termination of Bare Licences. *The Cambridge Law Journal*, 60.

²⁴⁰ For a critical discussion on the fundamental requirements of contract formation, see ASHLEY, C. D. (1903) Mutual Assent in Contract. *California Law Review*, 3. and COHEN, M. R. (1933) The Basis of Contract. *Harvard Law Review*, 46.

²⁴¹ Although acceptance is generally established from an explicit manifestation of intent, it can also be deduced from a particular course of action that shows that the party intended to enter into the contractual relationship. See TIERSMA, P. M. (1986) The Language of Offer and Acceptance: Speech Acts and the Question of Intent. *California Law Review*, 74. With regard to Open Content licenses, acceptance of the terms and conditions of the license might be presumed by the fact that the user is reproducing and/or distributing a work, whose exploitation is protected by copyright law and would therefore amount to copyright infringement were the user not to have accepted the license. See e.g. the GNU General Public License, which specifically provides that assent occurs “by modifying or distributing the Program (or any work based on the Program).”

²⁴² A unilateral contract is a promise by one party (the offeror) to do something in exchange for actual performance by the other party (the offeree). Performance by the offeree constitutes acceptance and consequently creates a legal obligation for the offeror to fulfill the contract.

²⁴³ A bilateral contract is an exchange of promises between two parties (the offeror and the offeree), where the promise of each party constitutes consideration for the promise of the other party. A bilateral contract, therefore, may be enforced against both the offeror and the offeree, who are both legally bound by their respective obligations..

The problem is that certain legal systems do not consider a contract to be valid unless it is supported by consideration.²⁴⁴ In those jurisdictions, certain Open Content licenses may therefore fail to qualify as a valid contract to the extent they do not involve proper consideration. The license will therefore be considered as an invalid contract whose provisions cannot be enforced. However, to the extent that it at least qualify as a bare license, it may nonetheless be possible to rely upon the doctrine of promissory estoppels in order to enforce the promise that has been made by the licensor.²⁴⁵

Whether they purport to be a contract or a bare license, the nature of an Open Content license is generally difficult to ascertain because it depends both on the distinctive characteristics of license and on the legal system in which it is being assessed.²⁴⁶ Establishing the legal status of an Open Content license is however necessary in order to determine the extent to which its various terms and conditions can be enforced under various bodies of law. If the license qualifies as a contract, its corresponding terms and conditions may extend beyond the scope of the copyright regime, and the breach of any of the licensing provisions may therefore be enforced by the licensor either under copyright law or under contract law. Conversely, if the license fails as a contract, it may nonetheless be regarded as a bare license, whose terms and conditions may therefore only be enforced under copyright law in so far as they do not unduly restrain the exploitation of the work in excess of what has been provided for under the copyright regime.

In spite of the importance they are assuming in the Internet network, there have been so far only a few judicial precedents addressing the legal status of Open Content licenses.

²⁴⁴ In most common law jurisdictions, a contractual obligation is binding on any one party only to the extent that it is reciprocated by any other party with another contractual obligation. Consideration can be given at the moment in which the contract is formed (e.g. in the case of unilateral contracts) or be promised in the future (e.g. in the case of bilateral contracts) but it may not relate to anything done in the past. For more details see: ASHLEY, C. D. (1913) *The Doctrine of Consideration*. *Harvard Law Review*, 26.

²⁴⁵ Estoppel is an equitable doctrine that can be found in the jurisdiction of many common law countries. In the context of Open Content licenses, if the licensee exploits a work in such a way that would amount to copyright infringement under the belief that the license constitutes a valid and enforceable contract, great loss would be incurred were the licensor to bring an action for copyright infringement. Promissory estoppels, therefore, might perhaps be used as a substitute for consideration in Open Content license. See ROSEN, L. & EINSCHLAG, M. B. (2004) *Taxonomy of Licenses*. *Open Source Licensing, Software Freedom and Intellectual Property Law*. Prentice Hall.

²⁴⁶ It is difficult to draw a sharp line between a contract and a bare license. The provisions of conditional licenses may in fact be interpreted as either a restriction on the scope of the copyright license or as a supplementary contractual obligation constraining the actions of the licensee. See e.g. the case of *Jacobsen v Katzer et al.*, where the court held that the provisions of the Artistic license requiring every licensee to distribute the licensed work together with the appropriate copyright notice was not a limitation of the copyright license but a contractual covenant that could therefore only be enforced in accordance with the provisions of contract law. (See Case 3:06-cv-01905-JSW, Northern District Court of California, 2006). Moreover, since every jurisdiction has different rules and principles concerning what may be regarded as a valid contractual agreement, it is impossible to unequivocally characterize a given Open Content license as either a bare license or as a contractual license. In fact, while a license that requires no consideration will be likely not to qualify as a contract in most common law jurisdiction, but it does not necessarily mean that the same license may not be regarded as a contract in another jurisdiction where consideration is not considered an essential requirement of a contract. A single Open Content license may therefore be regarded as a contract in a particular legal system, although it may only amount to a bare license in another. See HIETANEN, H. (2007) *A License or a Contract: Analyzing the Nature of Creative Commons Licenses*. Helsinki Institute for Information Technology.

The validity of the Creative Commons licenses has first been addressed in Spain in the case of *SGAE v Luis*,²⁴⁷ where the court held that the licenses were invalid because they lacked a signature; and later in the case of *SGAE v Fernandez*,²⁴⁸ where the court finally acknowledged the legitimacy of the licenses as a valid legal instrument. In the Netherlands, not only did the case of *Curry v Audax*²⁴⁹ confirm the validity of the Creative Commons licenses, but it also endorsed the enforceability of their various terms and conditions. More recently, in the USA, a series of lawsuits have been filed against the infringement of Creative Commons licenses on the basis of copyright infringement and breach of contract.²⁵⁰ Finally, certain statutory instruments have expressly recognized the legitimacy of Open Content licenses, such as, for instance, the French Code de la propriété intellectuelle, which specifically provides for the possibility to license the copyright in a work without any consideration to be given in return.²⁵¹

²⁴⁷ See *SGAE v JoseLuis* (Audiencia Provincial de Pontevedra, Sentencia de 29 Nov. 2005, rec. 3008/2005), where the Spanish collecting society SGAE claimed that the owner of a cafe bar that only plays music released under Creative Commons licenses nevertheless had to pay copyright royalties for the public performance of the musical works. According to the court, since the defendant could not prove that none of the songs played in the premises constituted a commercial music track, the defendant should pay adequate royalties to the collecting society. (Note that Court regarded the Creative Commons licenses as a mere informative leaflet about the contents of the license but without any legal value because they lacked a signature).

²⁴⁸ See *SGAE v Ricardo Andres Utrera Fernandez* (Juzgado de Primera Instancia de Badajoz, Procedimiento Ordinaria 761/2005, Sentencia N. 15/2006), where the Spanish collecting society SGAE claimed that the owner of a disco bar that only plays music released under Creative Commons licenses nevertheless had to pay copyright royalties for the public performance of the musical works. According to the court, however, the SGAE could not collect the royalties in the name of right holders it did not represent. (Note that, while the court actually considered the Creative Commons licenses to be a valid legal instrument, if the right holders were actually represented by the SGAE, the outcome of the case would have been quite different, since the SGAE require every artist it represents to transfer the right of public performance in any current and future work to the collecting society, so that the Creative Commons licenses would have not been effective in any case).

²⁴⁹ See *Curry v Audax* (District Court of Amsterdam, Case no. 334492 / KG 06-176 SR, 2006), where a magazine publisher was held liable of copyright infringement for having published certain pictures released under the Creative Commons license: Attribution-Noncommercial-Sharealike. According to the court, by releasing the work under that particular license, the copyright owner had maintained the exclusive right to authorize any commercial use of the work and any commercial exploitation of the pictures would constitute copyright infringement. (This case constitutes an important precedent as it confirms the fact that the terms and conditions of an Open Content license can be effectively enforced in court against any sort of abusive exploitation).

²⁵⁰ See e.g. *Chang v. Virgin Mobile* (2007), where the court held that the use by Virgin Mobile of photographs released under a Creative Commons Attribution-only license was to be regarded as a breach of the licensing provisions because it failed to provide adequate attribution to the author; see also *GateHouse Media Inc. v That's Great News*, No. 10-50164 (N.D. Ill. Filed 6/30/2010), where the defendant has been accused to have violated the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives license under which the plaintiff's works had been released. In addition to a claim of copyright infringement and unfair competition, the plaintiff also brought an action against the defendant's commercial use of the licensed material under a claim of breach of contract.

²⁵¹ See e.g. Article L.122-7-1 of the French Code de la propriété intellectuelle (introduced by Law N.2006-961 of 1 August 2006 on copyright and related rights in the information society – the DADVSI law), which provides that authors

BENEFITS

Open Content licenses are being widely employed to release an ever-increasing amount of content on the Internet. Although completely unacquainted with most of the legal challenges concerning the licensing thereof, end-users are progressively starting to understand the advantages that can be derived from releasing a work under an Open Content license. Many users are, nowadays, evolving into active producers of information, who collaborate towards the production of socially valuable content by creating or modifying new or pre-existing works. User-generated works are often released under an Open Content license in order to encourage the maximum dissemination thereof, while nevertheless maintaining a certain degree of the control over the manner in which they can be exploited.

While the underlying reasons that motivate a growing number of users to enter the Open Content community are particularly difficult to identify,²⁵² the benefits that may derive from the widespread adoption of Open Content licenses can be quite easily established with regard to the authors themselves and the community at large.

In particular, although they are actually reshaping the provisions of the copyright regime,²⁵³ Open Content licenses were originally conceived with the very same objectives as copyright law, as both

are free to make their works *freely* available to the public, subject to the rights of possible co-authors or third parties and in compliance with the agreement they have concluded (emphasis added).

²⁵² The driving forces which may lead authors to release their content under an Open Content license may involve a large variety of incentives of any technical, economic, social or political nature. In particular, social incentives may include the pleasure of cooperating and interacting with other people on the development of a collaborative project, or the self-realization deriving from the satisfaction of learning new things. Altruism may also play an important role, together with the idea of reciprocity, according to which the author may receive quality feedback in exchange of giving away the content for free. Political motivations are generally related to the various levels of fame, reputation and prestige that may be acquired from participating into a given Open Content project. Economic motivations, such as the publicity deriving from the widespread dissemination of works and the possibility to use Open Content as an alternative business opportunity or in order to acquire indirect revenues from complementary markets may also considerably contribute to the adoption of an Open Content licensing scheme. Finally, technical motivations relates to the practical difficulty of producing a large and labor-intensive work without being able to rely on the contribution and the collaboration of a large number of individual users. Ultimately, however, the best explanation is probably a mix of all these different driving forces, the combination of which is likely to vary for each individual author and for every category of work. For a classification of the driving forces leading people to engage into an Open Source project, see FELLER, J. & FITZGERALD, B. (2002) *Understanding Open Source Software Development*, London, Addison-Wesley. For the corresponding analysis of the driving forces leading to the adoption of Open Content licensing, see CEDERGREN, M. (2003) Open Content and Value Creation. *First Monday*, 8.

²⁵³ The default level of protection provided by the copyright regime (“all rights reserved”) may not always be the most appropriate level of protection for every work and circumstance. If copyright owners can release their works under less restrictive terms and conditions by maintaining only the restrictions they are actually concerned with (“some right reserved”), users will thus able to extract more value from these works with no detriment to the interests of right holders. See e.g. Lawrence Lessig, claiming that the copyright system should be adapted to fit the new circumstances of the digital environment, in LESSIG, L. (2004) *Free Culture*, New York, The Penguin Press. and Yochai Benkler, condemning the proposition that if some property rights in information are good, more rights in information are even better, in BENKLER, Y. (2001) A Political Economy of the Public Domain: Markets in Information Goods versus the

purport to contribute to the advancement of the public good by encouraging the production and the dissemination of creative works.

One of the main goals of the Open Content community is to promote the widespread dissemination of knowledge and the preservation of the cultural heritage for present and future generations.²⁵⁴ The goal is to provide broader access to knowledge and to ensure global availability of information. In the last years, in particular, a large number of initiatives have emerged over the Internet in order to provide opportunities for users to make their content freely available in the digital environment.²⁵⁵

Marketplace of Ideas. IN DREYFUSS, R. C. & ZIMMERMAN, D. L. (Eds.) *Expanding the Boundaries of Intellectual Property: Innovation Policy and the Knowledge Society*. Oxford University Press.

²⁵⁴ On the one hand, the public good may only be achieved when knowledge is made available to a maximum number of persons, which should be entitled to use, reuse, and further redistribute it. On the other hand, however, the cultural heritage must also be protected against certain forms of undue appropriation and/or excessive exploitation. Open Content licenses, with the concept of “some rights reserved” have been a successful attempt to reconcile these two necessities, by encouraging the widespread dissemination of knowledge, while at the same time ensuring that it will be made equally available in the future. For more details, see KANSA, E. C., SCHULTZ, J. & BISSELL, A. N. (2005) Protecting Traditional Knowledge and Expanding Access to Scientific Data: Juxtaposing Intellectual Property Agendas via a “Some Rights Reserved” Model. *International Journal of Cultural Property*, 12.

²⁵⁵ The emergence of Open Content licenses purports to promote the global availability and the widespread dissemination of creative works, by allowing (at least) their free reproduction and distribution. See, e.g. the Internet Archive database (<http://www.archive.org>) and the Wikimedia Commons project (<http://commons.wikimedia.org>), two major digital media repositories with a broad assortment of Open Content material of different sorts; the various projects of the Wikimedia Foundation (<http://wikimedia.org>), including projects such as Wikipedia, Wiktionary, Wikinews, Wikiversity, Wikibooks, etc., entirely based on users’ contributions; the Open Library (<http://www.openlibrary.org/>), a digital library of Open Content and Public Domain literary works; the Wikisource project (<http://wikisource.org>), an online library of free content publications collected and maintained by the community; the Open Clip Art Library (<http://www.openclipart.org/>), an archive of user contributed clip art that can be used by anyone; the Flickr repository (<http://www.flickr.com>), a photo sharing website which offers users the ability to release their images under certain Open Content licenses; the Jamendo initiative (<http://www.jamendo.com>) and the Simuze music platform (<http://www.simuze.nl/live>), two music sharing platforms dealing exclusively with musical content released under Open Content licenses; the BBC’s Creative Archive (<http://creativearchive.bbc.co.uk/>), whose slogan “Find it. Rip it. Mix it. Share it.” clearly expresses the objectives of the initiative, the Swarm of Angels (<http://aswarmofangels.com>), an open source film project, whose aim is to make the world’s first Internet-funded, crewed and distributed feature film; the Work Book Project (<http://workbookproject.com>), an Open Source social experiment for content creators; the MakeZine blog (<http://www.makezine.com>), a video blog which requires all clips to be released under the Creative Commons licenses, the Project Gutenberg (<http://www.gutenberg.org>) and the ManyBooks initiative (<http://manybooks.net>), two large libraries of e-books whose content has been released under an Open Content license or whose copyright has expired; the LibriVox project (<http://librivox.org>), which provides free audiobooks from the public domain; the Open Books Project from O’reilly (<http://www.oreilly.com>), where books are released under an Open Content license whenever the books have gone out of print and/or the author agrees to give them away for free; the Friday Project (<http://www.thefridayproject.co.uk>) and the Penguin Publishing House (<http://www.penguin.co.uk>), two publishing companies that specialize in the publishing of books which can be freely accessed on the web under a non-commercial Open Content license, etc. See also the constantly increasing number of Open Access journals (for a full overview see the directory of open access journals at <http://doaj.com>) and the various initiatives launched by

Open Content licenses are not limited to promoting the free flow of information and the widespread dissemination of knowledge. They may also be employed to foster innovation and to encourage the creation of new works or the development and enhancement of previous works. If every work necessarily builds upon prior knowledge,²⁵⁶ Open Content licenses allowing for the making of derivative works will ultimately facilitate the process of cumulative innovation²⁵⁷ by reducing the costs that would otherwise be incurred in order to identify the owners of the copyright in a work and to obtain a license from them.²⁵⁸

Moreover, the recent deployment of new platforms of cooperation based on Open Content licenses²⁵⁹ are likely to encourage the creation of collaborative works by providing a mechanism for the aggregation of

prominent institutions such as the MIT's OpenCourseWare (<http://ocw.mit.edu>) and the RICE University's Connexions Repository (<http://cnx.rice.edu/browse/>) to release educational resources under Open Content licenses.

²⁵⁶ Authors do not create out of nothing. A work of authorship is the output of a process which requires other works of authorship as an input. Every new work is to a certain extent based on previous works, which may have been processed, adapted, converted, transformed, developed and recombined (whether consciously or not) in the mind(s) of the authors(s). Authors cannot produce a new work without the necessary raw material. They need to take from the world that surrounds them in order to create something new, which necessarily builds upon the past. See LITMAN, J. (1990) *The Public Domain. Emory Law Journal*, 39.

²⁵⁷ The process of innovation in the information industries differs from the innovative process in more conventional industries, in that information is both an output and an input of the innovation process and its success is heavily dependent on the external contributions of users and/or competitors. Strictly speaking, in the creative industries, every innovation is cumulative to the extent that it builds upon the knowledge of previous works. For the purpose of copyright law, however, cumulative innovation occurs when an author takes a substantial part of a work and uses it for the creation of a new work which the law would regard as an infringing work in view of the substantial similarity with the previous work. For more details on the process of innovation in information, see CLARKE, R. & DEMPSEY, G. (2004) *The Economics of Innovation in the Information Industries*.

²⁵⁸ In the framework of copyright law, cumulative innovation may only be achieved when an author is capable of obtaining a license with regard to every work necessary for the production of a derivative work. See e.g. SCOTCHMER, S. (1991) *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law. Journal of Economic Perspectives*, 5. arguing that it is necessary to stimulate cumulative innovation and the production of new information by remunerating current innovators for their new contributions, while simultaneously providing a proper remuneration to the previous innovators who produced the knowledge necessary for the new contributions to be made. However, excessive transaction costs may sometimes discourage the author from producing the derivative work, whenever the costs cannot be compensated by the expected benefits resulting from the creation of the work. See BENKLER, Y. (2006) *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Yale University Press. Open Content licensing may instead facilitate the process of cumulative innovation by considerably reducing the transaction costs to be incurred for the exploitation of a work released under a license which specifically allows for the making of derivative works.

²⁵⁹ Building on the model of OpenSource software development, Open Content licenses allow for the production of collective works resulting from the collaboration of many different users from different parts of the world. See e.g. the various Wikis (such as Wikipedia, Wikibooks and Wikinews) where anyone is entitled to contribute by adding, editing, correcting or deleting the contribution of anyone else. See also the Open Directory Project (<http://www.dmoz.org>), one of the most comprehensive directories of the web, which exclusively consists of the contributions of users.

several contributions into one collective work, the quality of which can ultimately be ensured through peer review.²⁶⁰

In an attempt to maximize the production and the dissemination of works, Open Content licenses are also concerned with the protection of private interests and individual values. In line with the principles of the gift economy,²⁶¹ works are released under an Open Content license not only for the purposes reciprocity, gratitude, or solidarity,²⁶² but also with the expectation of obtaining rewards of personal nature, such as status, prestige or self-esteem.²⁶³ By allowing for the free reproduction and distribution of content,

²⁶⁰ The greater the number of people involved in the production and the consumption of a work, the more the quality of the work can be ensured, since a larger number of persons will be able to intervene and correct any potential imperfection. The work can thus be continuously improved by way of an ongoing peer-review. See e.g. Eric Raymond, claiming that an extensive peer-review by an unlimited number of people is one of the main advantages of the Open Source model of software development. In RAYMOND, E. S. (1999) *The Cathedral and the Bazaar*, O'Reilly. With regard to Open Content, see e.g. Wikipedia (<http://www.wikipedia.org>) and Nupedia (<http://www.nupedia.org>), two online encyclopedia based on user contributions with very different mechanisms of peer-reviews (Nupedia has a very hierarchical organization with a strict division of roles, whereas Wikipedia allows anyone to contribute and to edit the contributions of others); Slashdot (<http://slashdot.org>), a website for users to post technology-related news, whose posts are moderated through a complex mechanism of peer-review whereby every user who has become a moderator can assign a specific score to each post, which will be added to the total score according to the relative karma of each moderators.

²⁶¹ A gift economy is a particular economic system where transactions are governed by social rather than economic principles. Traditionally regarded as a distinctive feature of certain small communities and tribal societies, after the advent of the digital technologies and the development of the Internet network, a gift economy also emerged in certain subcultures of the Information Society, where digital goods are given away without the prospect of receiving any consideration in return and the practice of gift giving is regarded as a fundamental instrument to create and reinforce social relationships. See, CHEAL, D. (1998) *The Gift Economy*, Routledge. See, also, Manuell Castells, drawing upon the concept of the gift economy in order to describe the mechanisms of Open Source, in CASTELLS, M. (2001) *The Internet galaxy: Reflections on the Internet, business and society*, Oxford University Press.

²⁶² Open Content licensing can be regarded as a form of social solidarity, according to which works are made freely available without the expectation of receiving any direct *quid pro quo*. Releasing a work under an Open Content license is however likely to give rise to an indirect form of social reward, which may result from the establishment of new social relationships, from the satisfaction deriving from doing something good for the others and for the community, and/or from the opportunity to benefit from the other works which have released under an Open Content license as a form of reciprocity. On the model of the Open Source community, the Open Content community has therefore succeeded in creating a gift economy based on principles of solidarity and reciprocity, where works made available for free in exchange of social rewards. See, with regard to the Open Source model: HEMETSBERGER, A. (2002) Fostering cooperation on the Internet: social exchange processes in innovative virtual consumer communities. *Advances in Consumer Research*, 29.

²⁶³ Peer recognition is a key factor in the artistic community, which may sometimes be regarded as being more important than economic rewards. By releasing a works under an Open Content license, the work will enjoy extensive visibility which may result in a broader recognition of the author. Being recognized by their peers could therefore constitute a valuable reward for authors, which may simultaneously satisfy their desire for fame and self-esteem, thereby encouraging further participation in the Open Content community. For a discussion on the role of recognition in motivating individuals' participation to a common goal, see: LOCH, C., YAZIJI, M. & LANGEN, C. (2001) The Fight for the Alpha Position: Channeling Status Competition in Organizations. *European Management Journal*, 19.

authors may acquire substantial fame and reputation as a result of the widespread dissemination of their works,²⁶⁴ the popularity of which theoretically results from their intrinsic value for society than it does from the amount of marketing expenses.²⁶⁵ In addition, even if they have been released under an Open Content license, authors do not necessarily lose control over the exploitation of their works. Not only can they introduce a series of limitations concerning the manner in which and the extent to which their works can be exploited,²⁶⁶ but they can also regulate the making of derivative works²⁶⁷ and determine the terms and conditions under which they should be released.²⁶⁸ Finally, in order to ensure the authenticity and the integrity of their works, or to keep track of the way in which their works are being consumed, right holders could theoretically release their works under an Open Content license in combination with a series of technological measures or in the framework of a DRM system.²⁶⁹ However, this sort of release

²⁶⁴ Fame constitutes an important incentive for authors to create, and certain artists may be more motivated by the pursuit of fame than by the prospects of economic rewards. See, SHAW, R. R. (1951) Copyright and the Right to Credit. *Science*, 113. Open Content licensing could be a valuable instrument for authors to acquire fame and reputation by promoting the widespread distribution of their works. Moreover, since the commercial success of most artists mainly depends on their fame, authors could eventually exploit their reputation in order to earn additional revenues on complementary activities (such as, e.g. lectures, concerts, merchandising), in order to obtain additional funding or sponsorships and/or in order to undertake new commercial activities.

²⁶⁵ Open Content licensing allows authors to compete in the market for creative works according to the actual merit of their contributions and not according to how much money they have spent in making their works popular. In fact, the viral nature of the Internet network allows for the content regarded as the most valuable by the public to spread almost instantaneously all over the world, so that the popularity of every work is ultimately determined by their intrinsic value for society.

²⁶⁶ For instance, a number of Open Content licenses allow for a non-commercial clause to be inserted into the terms and conditions, restraining the sphere of application of the license and thereby reducing the possibilities for users to make use of the licensed work. See e.g. the Creative Commons licenses BY-NC, BY-NC-ND, BY-NC-SA (<http://creativecommons.org/licenses/>)

²⁶⁷ The possibility to create derivative works does not appear as an essential condition for certain Open Content licenses, which purport to deliberately prohibit the transformative use of a work for the purpose of maintaining the integrity thereof. See e.g. the Creative Commons licenses BY-ND and BY-NC-ND, which expressly stipulate that although any licensee has the right to make such modifications as are technically necessary to exercise the rights of reproduction in other media and formats, the right does not extend to the making of adaptations. (<http://creativecommons.org/licenses/>)

²⁶⁸ Amongst the Open Content licenses which allow for the making of derivative works, certain licenses require the additional condition that any derivative work be licensed on the same terms and conditions under which the original work was released. See e.g. the GNU Free Documentation License (<http://www.gnu.org/licenses/fdl.html>); and the Creative Commons licenses BY-SA and BY-NC-SA (<http://creativecommons.org/licenses/>)

²⁶⁹ DRM systems may have a role also for the management of rights for works released under Open Content licenses. For instance, watermarking technologies could be combined with digital signatures in order to guarantee the integrity and the authenticity of content or with detailed metadata in order to communicate the licensing terms to the user and to the device on which the content is being accessed. Technological measures could also be used to keep track of every act of exploitation that has been made of the work and communicate it to the corresponding right holders. More importantly, DRM systems could be capable of enforcing, or at least inducing compliance with the terms of most Open Content licenses, without unduly restraining the exploitation of the work. For instance, technological measures could ensure that attribution be given by e.g. incorporating the author's identity into the work by the means of robust

would only be valid to the extent that DRMs and other technological measures have not been expressly forbidden by the license²⁷⁰ or to that their operation would not unduly restrain the legitimate exploitations of the works.²⁷¹

PROBLEMS

Although the Open Content community has been flourishing in the last years, the long-term sustainability of Open Content licenses has yet to be confirmed and a need for greater legal certainty is progressively emerging.

To date, in fact, Open Content licenses have not actually been tested in court, with the exception of two cases in Spain, one in the Netherlands, and a limited number of lawsuits in the USA that did not however address the merits of the licenses as such.²⁷² As the Open Content community will eventually assume

watermarking technologies; they could prevent the making of derivative by e.g. applying a fragile watermark that would be destroyed with any modification of the work thereby providing a signal that infringement occurred; they can prevent the commercial exploitation of the work by e.g. applying a watermark with the user's identity and particular metadata that would communicate to any tracking technology browsing the Internet in search of potential infringing works that the work is being illegitimately exploited. See: FITZGERALD, B. & REID, J. (2005) Digital Rights Management (DRM): Managing Digital Rights for Open Access. IN ROONEY, D., HEARN, G. & NINAN, A. (Eds.) *Handbook on the Knowledge Economy*. Edward Elgar.

²⁷⁰ A few Open Content licenses are incompatible with the application of any technological measures of protection designed to prevent and/or restrict the access to and/or the exploitation of a work, whether the restricted act is legitimate or not. See for instance the Anti-DRM license: "This license is incompatible with any technology, device or component that, in the normal course of its operation, is designed to prevent or restrict acts which are authorized or not authorized by licensor: this incompatibility causes the inapplicability of the license to the work." (http://www.freecreations.org/Against_DRM2.html). See also the GNU Free Documentation License: "You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute." (<http://www.gnu.org/licenses/fdl.html>)

²⁷¹ Certain Open Content licenses are incompatible with the application of technological measures of protections to the extent that they prevent and/or restrict the access to and/or the legitimate exploitation of a work. See e.g. article 4(1) of the Creative Commons licenses, according to which: "You may not distribute, publicly display, publicly perform, or publicly digitally perform the Work with any technological measures that control access or use of the Work in a manner inconsistent with the terms of this License Agreement." (<http://www.creativecommons.org/licenses>). However, certain Open Content licenses also require that the right of users to perform a legitimate exploitation of the work be not restrained. See, e.g. article 2 of the Creative Commons licenses, stating that "Nothing in this license is intended to reduce, limit, or restrict any rights arising from fair use, first sale or other limitations on the exclusive rights of the copyright owner under copyright law or other applicable laws." It is therefore arguable whether any technological measures designed to control access or use of the work could ever be consistent with the terms of the License, in view of the difficulties for a technological measure of protection to properly comply with the whole set of copyright exemptions and limitations. See SAMUELSON, P. (2003) DRM {and, or, vs.} the Law. *Communications of the ACM*, 46.

²⁷² See *SGAE v Jose Luis* (Audiencia Provincial de Pontevedra, Sentencia de 29 Nov. 2005, rec. 3008/2005) and *SGAE v Ricardo Andres Utrera Fernandez* (Juzgado de Primera Instancia de Badajoz, Procedimiento Ordinaria 761/2005, Sentencia N. 15/2006); *Curry v Audax* (District Court of Amsterdam, Case no. 334492 / KG 06-176 SR); *Chang v. Virgin Mobile* (2007), and *Gate House Media Inc. v That's Great News*, No. 10-50164 (N.D. Ill. Filed 6/30/2010).

greater significance in society, however, the validity and enforceability of this particular licensing mechanism will likely be subject to a more severe legal scrutiny. A variety of new legal questions may therefore have to be addressed, the answers to which have yet to be established.

I. ENFORCEABILITY

The uncertainty concerning the legal status of Open Content licenses may affect the validity and the enforceability of their corresponding terms and conditions. As a legal instrument, an Open Content license can in fact be regarded either as a bare license – whose terms and conditions can be enforced only to the extent that they do not extend beyond the scope of the copyright regime,²⁷³ or as a contractual license – whose provisions can be enforced in accordance with the principles of contract law.²⁷⁴

Any provision that extends beyond the scope of the copyright regime cannot be enforced under copyright law, but can only be enforced in accordance with the provisions of contract law.²⁷⁵ The difference is that, while the provisions of the copyright regime can be enforced over the public at large, the provisions of a contractual agreement only affect the relationship that subsists between the licensor and the licensees and cannot therefore impinge upon the liberties of third parties.²⁷⁶ In order to ensure that every contractual provision can be enforced against any potential user of the work, many Open Content licenses therefore prohibit the sublicensing of rights but require instead that a new license be issued to every user of the work.²⁷⁷

²⁷³ For instance, the provisions of certain Open Content licenses which prohibit the commercial exploitation of a work may in certain situations not be enforced by the courts, because copyright law does not cover the purpose of the exploitation. See VÄLIMÄKI, M. & HIETANEN, H. (2004a) The Challenges of Creative Commons Licensing. *Computer Law Review*, 6.

²⁷⁴ The qualification of an Open Content license as either a contractual agreement or as a bare license is an extremely important distinction which is however very difficult to determine and whose qualification may vary from one jurisdiction to another. See *supra*, Part I. Chapter 4: Private Regulation: Open Content. Section 2: Legal Status.

²⁷⁵ See e.g. the case of *Jacobsen v Katzer et al.* (Case 3:06-cv-01905-JSW, Northern District Court of California, 2006), where it was held that, as a contract, the copyright license had effectively been breached, but that the requirement to include the copyright notice in every copy of the software was only a contractual covenant, which is beyond the scope of the copyright regime. Injunctive relief because there unavailable because there was no copyright infringement.

²⁷⁶ According to the principle of privity, any contractual obligation can only be enforced against those parties who have previously agreed to the terms and condition of the contract. Consequently, although the copyright owner may introduce a number of restrictions on the possibility for the licensees to redistribute a work, the licensor has however no authority over the activity of sub-licensees and can thus only enforce the contract through the intermediary of that particular licensee who sublicensed the work. See e.g. MERGES, R. P. (1997) The End of Friction? Property Rights and Contract in the 'Newtonian' World of On-Line Commerce. *Berkeley Technology Law Journal*, 12.

²⁷⁷ See e.g. the Creative Commons licenses, whose article 4(a) stipulates that no licensee is allowed to sublicense any of the rights acquired in a work released under a Creative Commons license to anyone else; and article 8(a) which stipulates that every time a licensee redistributes a work released under a Creative Commons license, the new recipient will automatically be entitled to a license from the original licensor allowing for the work to be exploited under the

This notwithstanding, in the case of derivative works based upon a substantial number of previous works - or in the case of large collaborative works where the identity of every single contributor cannot be easily established, enforcing the copyright in a work can be extremely complicated to the extent that it requires the identification of the different joint-owners or co-owners of the copyright in the work.²⁷⁸

Finally, certain licenses might not be enforced to the extent that they are incompatible with the provisions of copyright law. For instance, in many jurisdictions, allowing for the free dissemination of works with no proper attribution to be given, or allowing for a work to be exploited regardless of the impact upon the honor and the reputation of the author is likely to be incompatible with the regime of moral rights which are often considered to be unalienable.²⁷⁹

2. REVOCABILITY

Whether or not the licensor is entitled to modify the terms and conditions under which a work has been released is of key importance for the credibility of Open Content licensing. The issue is directly related to the question of revocability.

As a general rule, although the licensor may decide that a work shall no longer be released under a particular license, this decision cannot impinge upon the rights of any previous licensee who has legitimately obtained a license. Unless the license can be revoked, any formerly issued license will in fact continue to be valid provided that no breach has occurred.²⁸⁰ Instead, a license is considered to be

same terms and conditions of the license that had been originally granted to the licensee from which the work has been obtained.

²⁷⁸ While the co-owners of the copyright in a work might only sue against the infringement of their particular share of the copyright, joint-owners may actually bring an action on their own behalf, even though the proper enforcement of the copyright in the work would generally require the cooperation of each and every joint-owner. Indeed, while every joint-owner may enforce the copyright in a collective work with no requirement that any other joint-owner be party to the action., as a general rule, the various joint-owners may only be entitled to recover compensation for the portion of damages they are entitled to, regardless of the amount of damages incurred by the other joint-owners who did not join the action. See e.g. article 8 of the German Urheberrechtsgesetz, according to which “each joint author shall be entitled to assert claims arising from infringements of the joint copyright”, and similar provisions in article 6 of the Swedish Act on Copyright in Literary and Artistic Works, article 26 of the Dutch Copyright Act, article 7 of the Swiss Copyright Law, section 6 of the Finnish Copyright Act, etc.

²⁷⁹ Most civil law countries implemented the regime of moral right of paternity with a series of inalienable rights which cannot be waived. See e.g. L. 121-1 of the French Code de la propriété intellectuelle, according to which: “The author shall enjoy the right to the respect for his name, his authorship and his work. This right shall be attached to his person. It shall be perpetual, inalienable, and imprescriptible” Likewise, in most of the common law countries which actually implemented a moral right regime (e.g. Canada), moral rights can be contractually waived, but cannot be alienated to third parties.

²⁸⁰ See e.g. article 7(b) of the Creative Commons licenses, according to which the “licensor reserves the right to release the Work under different license terms or to stop distributing the Work at any time; provided, however that any such election will not serve to withdraw this License (or any other license that has been, or is required to be, granted under the terms of this License), and this License will continue in full force and effect unless terminated [by a breach].” Accordingly, as long as the license has not expired and that none of its provisions have been breached, the license is

revocable if, after a work has been released to the public, the license can, subsequently, be unilaterally withdrawn by the licensor, thereby extinguishing the rights that have been granted to every licensee.

Whether it amounts to a contractual license or to a bare license, however, the revocability of different Open Content licenses is still subject to debate. In particular, while the revocability of a license is likely to vary from one jurisdiction to another, as a general rule, if it amounts to a contractual agreement, a copyright license cannot be unilaterally withdrawn if not in certain exceptional circumstances.²⁸¹ Conversely, in the case of a bare license, the licensor is generally entitled to revoke the license at any time, provided that reasonable notice has been given to every party concerned.²⁸² Yet, if the license purports to be irrevocable, the revocation thereof may be proscribed on the grounds of promissory estoppels whenever it has already been acted upon.²⁸³

deemed to be valid and legally effective with regard to every work it has been applied to, and any change in the terms and conditions of the license will not have any effect on the copies that have already been released but will only affect the license for the new copies of the work. See VÄLIMÄKI, M. & HIETANEN, H. (2004a) The Challenges of Creative Commons Licensing. *Computer Law Review*, 6.

²⁸¹ If all the element for a valid contract are present, a license can be regarded as a contractual between the licensor and the licensee according to which the licensor promise not to sue the licensee for infringement in exchange of a promise from the licensee. Accordingly, once the license has been accepted by the licensee, the license is governed by the provisions of contract law and can therefore no longer be revoked unless by mutual consent of the parties, although it may nevertheless be terminated as a result of a breach or by other operations of law (e.g. frustration, conflict with another body of law, undue influence, misrepresentation). Exception to the rule can be found e.g. in the USA, where authors are granted with an unalienable termination right (see Section 203 of the US Copyright Act), according to which the transfer and/or the licensing of the copyright in the work can be terminated after 35 years; and in certain civil law jurisdictions, where authors are granted with an unalienable right of revocation (see e.g. Article 42 of the German Urheberrechtsgesetz, Article L.121-4 of the French Code de la propriété intellectuelle, Article 142 of the Italian Legge sul diritto d'Autore), according to which the transfer and/or the licensing of the copyright in the work can be terminated if the author no longer agrees to the exploitation of a work on the grounds that it does not reflects the conviction of the author anymore, subject to prior indemnification of the current holder of the right.

²⁸² As opposed to a donation, which is generally irrevocable (except in some rare situations), an Open Content license distinguishes itself from e.g. a donation to the public domain by virtue of the contractual nature of the provisions. Accordingly, to the extent that it is not coupled with consideration, in common law, a bare license can theoretically be revoked at any time - although the licensor is required to notify the licensees within a reasonable period of time before actual revocation. More details in HILL, J. (2001) The Termination of Bare Licences. *The Cambridge Law Journal*, 60. See e.g. *Carson v. Dynegy*, 344 F.3d 446, 451 n5 (5th Cir. 2003), where it was held that, even though a nonexclusive license had implicitly been granted by Carson, the license was however revocable because unsupported by consideration. By requesting the employees to stop using the worksheet, Carson had given effective notice that the license had been revoked.

²⁸³ If the license declares to be irrevocable and the licensee can provide sufficient evidence that the revocation of the license would cause considerable detriment to his person or activity (e.g. as a result of the making of a derivative work that would end up being infringing if the license were to be withdrawn), the revocation of the license could theoretically be prevented according to the principle of promissory estoppels. For more details, see ROSEN, L. & EINSCHLAG, M. B. (2004) Taxonomy of Licenses. *Open Source Licensing, Software Freedom and Intellectual Property Law*. Prentice Hall.

3. COPYRIGHT OWNERSHIP

Before a work can be licensed under an Open Content license, it is necessary to identify the owners of the copyright in the work. This might be difficult to achieve in the case of a work released under an Open Content license which encourages the making of derivatives works and which may involve the contributions of many different individuals who can be regarded as either the co-owners or the joint owners of the copyright in the work depending upon the jurisdiction and the type of contributions they made.²⁸⁴ Their qualification as one or the other may have a significant impact upon the validity of the license and the enforceability of its terms and conditions. While the co-owners of the copyright in a work are only entitled to license their particular share of the copyright, joint owners can license the work as a whole but only after obtaining the consent of all the other joint owners.²⁸⁵ The more contributors there are to a single work, the higher is the risk that the work be improperly released under an Open Content license. Besides, ensuring the legitimacy of every contribution made to a collective work is an extremely challenging task that is often poorly implemented, and that may often result in the production of infringing material.²⁸⁶

²⁸⁴ The copyright in a collective work may be owned in common by two or more persons. There is no uniform concept of ownership in common, because it ultimately depends on the principles of national property law. In particular, ownership in common may be understood as joint-ownership, where each owner has a right of ownership in the property as a whole, or as co-ownership, where each owner owns a share of the property. As a general rule, joint-ownership subsists whenever the contribution of each author amounts to an inseparable element of the work and cannot be distinguished from the other contributions (e.g. in most European jurisdictions) or whenever each author contributes to the work with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole (e.g. in United States). Joint-owners are granted with an undivided interest in the copyright, which they can dispose of without the consent of the others, although dealings in the work necessarily require the consent of all joint-owners. Co-ownership subsists when the contribution of each author is distinguishable from the whole and can be thus independently exploited as a separate work. Co-owners are granted with a fractional interest in the copyright, whose amount generally depends on the value of their contribution with regard to the value of the work as a whole. For a more precise analysis of the regime of joint-ownership and co-ownership in the copyright regimes of Europe see report of the IPR Helpdesk of the European Commission: Joint Ownership in Intellectual Property Rights.

²⁸⁵ Given that that they all own an indivisible interest in the work, in the USA, non-exclusive licenses can be independently granted by every joint-owner, although they may not grant an exclusive license without the consent of the other joint-owners. In many countries of Europe (e.g. France, Germany, Spain, Italy, Belgium, Switzerland, The Netherlands, Sweden, Finland), joint-owners can exercise their rights over the work as a whole, but can only license the exercise of these rights with the consent of all, or at least a majority of the other joint-owners - although a number of jurisdictions provide that one joint-owner may not refuse the licensing of the copyright in the work without any reasonable motives (see e.g. article 8 of the German Urheberrechtsgesetz). For more details on the various conflicting in the different regimes of ownership in common, see GABRIEL, G. (2007) International Distributions: Divergence of Co-Ownership Laws. *Vanderbilt Journal of Entertainment and Technology Law*, 9.

²⁸⁶ In large projects for the making of a collaborative works, it may be extremely difficult to keep track of the origin of every contribution. Serious complications may therefore arise whenever people contribute to the work by incorporating material to which they do not own the copyright. As a result of an infringing contribution, in fact, the final work will necessarily amount to an infringing work, and so will any other work that has been derived from it. See, in particular, the case of *SCO v. IBM* (District Court of Utah, 2005, Case No. 2:03CV294 DAK), where SCO claimed that IBM had contributed to the Linux operating system with code from the Unix operating system whose copyright was owned by SCO, thus denying the applicability of the GPL license on the specific pieces of code that were owned by

As a result, the legal status of a work that purports to have been licensed under an Open Content license is ultimately uncertain. The problem is critical because copyright law is based on a strict liability regime, which does not acknowledge any form of protection for those users who may be reproducing, using, or distributing a work in good faith. Neither knowledge nor intent is a requirement for an individual to be held liable of copyright infringement.²⁸⁷

In order to address this problem, certain insurance companies have recently developed particular insurance policies aimed at the Open Source community and specifically designed to help companies whose key business largely depends on the use and the development of Open Source software in bearing the costs and the risks of copyright infringement.²⁸⁸ Whether or not a similar scheme will be developed for the Open Content community is still to be established.

4. LEGAL INTEROPERABILITY

In the Open Content community, there are nowadays a large number of licenses for users to select from. There is however a risk that the recent proliferation of licenses may actually jeopardize the goal of the Open Content community by reducing the legal interoperability of content released under different licensing schemes.

In line with the copyleft ideology,²⁸⁹ certain licenses require that the making of derivative works is allowed only to the extent that the resulting works are released under the same terms and conditions as the original work.²⁹⁰ Yet, the incorporation of a copyleft clause into an Open Content license can actually

SCO on the grounds that that the license had been illegitimately granted without the authorization of the actual copyright owner.

²⁸⁷ The strict liability regime of copyright law may affect anyone who comes into possession of a work released under an Open Content license, regardless of whether or not the user is aware that the work may be infringing. In fact, it does not help for the user to be acting in good faith and to only be using the work in accordance with the terms and conditions of the license, since copyright infringement is a strict liability crime which does not require actual intent to infringe the copyright in a work, although the knowledge of the parties may have an impact on the amount of damages to be paid. Accordingly, the burden is on end-users to ensure that the whole work has actually and legitimately been released under an Open Content license. See VÄLIMÄKI, M. & HIETANEN, H. (2004b) Challenges of Open Content Licensing in Europe. Helsinki Institute for Information Technology.

²⁸⁸ See e.g. the Open Source Risk Management (OSRM), the first insurance policy designed to reduce the uncertainty related to the use and the exploitation of Open Source software, by providing financial coverage for the risks the most commonly faced by those companies which include and/or rely upon elements of Linux and other Open Source software in their commercial products or IT infrastructures, at <http://www.osriskmanagement.com/insurance.html>

²⁸⁹ Copyleft (as opposed to copyright) refers to the practice of using copyright law to eliminate some of the restrictions imposed by the copyright regime by default (such as the prohibition to reproduce, distribute or adapt a work without the consent of the copyright owner) and ensuring that any modified or extended version of the work be equally free, by requiring that a derivative work inherit the license of the original work. See: What is Copyleft?; <http://www.gnu.org/copyleft/>, accessed on September 2007.

²⁹⁰ See e.g. the GNU Free Documentation License (<http://www.gnu.org/licenses/fdl.html>); the Creative Commons licenses BY-SA and BY-NC-SA (<http://creativecommons.org/licenses/>); the AShareNet-Share and Return (<http://www.aesharenet.com.au>); the Free Art license (<http://artlibre.org/licence/lal/en>); the Design Science

make the license incompatible with a series of other Open Content licenses, which, albeit similar, do not necessarily incorporate an identical set of provisions.²⁹¹ Such a situation is likely to severely affect the activities of artists who specialize in transformative activities and might eventually disrupt the production of works that involve the combination of many different pieces of content.²⁹²

Accordingly, although it may ensure that future generations maintain full access to a growing variety of works, there are certain circumstances in which a copyleft clause may actually hinder rather than safeguard the capacity for future generations to engage in the production of derivative works.²⁹³ The lack

License (<http://www.gnu.org/licenses/dsl.html>); the Open Publication License (<http://opencontent.org/openpub>); etc.

²⁹¹ For instance, although the GNU General Public License (GPL) and GNU Free Documentation License (GFDL) have been intended to act as complementary licenses for the licensing of computer software and the documentation thereof, they are nevertheless incompatible with each other, since while the former requires that the whole work be freely modifiable, the latter provides that certain parts of the work may not be modified. Consequently, dual-licensing of both the code and the documentation is required in order to incorporate documentation into the source code of computer software and/or to incorporate code samples into the documentation thereof. Similarly, in spite of their similarities, the Creative Commons Attribution + Share-Alike license (CC-by-sa) is incompatible with both the GPL and the GFDL, because every license requires that any derivative work be licensed under exactly the same license (or family of licenses) as the original. For a broader overview of the difference between various Open Source and Open Content licenses and their respective compatibility, see the comprehensive review of licenses made by the Free Software Foundation available at <http://www.gnu.org/philosophy/license-list.html>. Note however that ever since version 3.0 of the Creative Commons Attribution + Share-Alike license (CC-by-a), a new provision has been inserted in article 4(b), according to which the licensee “may Distribute or Publicly Perform an Adaptation [also] under the terms of (iv) a Creative Commons Compatible License” listed at <http://creativecommons.org/compatiblelicenses>. To date, however, Creative Commons has not approved any licenses for compatibility.

²⁹² See e.g. the various challenges faced by Wikipedia which requires all the content to be released under the GNU Free Documentation License, although it is likely to preclude a large number of Open Content from being published on Wikipedia for the purposes of compatibility, and vice versa, to prevent the content of Wikipedia from being published in any other platform which endorses a different model of licensing. For more details, see BLACK, P., DELANEY, H. & FITZGERALD, B. (2005) Legal Issues for Wikis: The Challenge of User-generated and Peer-produced Knowledge, Content and Culture. *International Symposium on Wikis*. Australia. The incompatibility between the GFDL and the Creative Commons licenses has eventually led the Free Software Foundation to update the GFDL (GFDL version 1.3) in order to enable the migration of content towards the Creative Commons license CC-By-SA (Attribution – Share Alike) from the 1st of November 2008 until the 1st of August 2009. The amendment was made for the sole purpose of allowing Wikipedia and other initiatives in the same situation to shift away from the GFDL by relicensing or dual-licensing the content into the appropriate Creative Commons license in order to achieve a greater level of interoperability. See the GFDL license v.1.3 clause 11, which allows for content which had previously been released under the GFDL to be relicensed under the Creative Commons license CC By-SA 3.0 subject to a very specific set of conditions.

²⁹³ The viral effect of any given copyleft clause is likely to bring considerable advantages to the creative community by ensuring that the content released under any Open Content license incorporating a copyleft clause will remain forever available for exploitation by future generations. However, the incorporation of a copyleft clause into a copyright license may also to a certain extent undermine the capacity of future generations to combine different works together, since the terms and conditions of the license becomes permanently attached not only to the content of the work they have been originally applied to, but also to every derivative work that will be made of that work and/or any subsequent work that directly or indirectly derives from that content. With regard to incompatibility problems related to Open

of legal interoperability amongst different Open Content licenses is therefore likely to evolve into a key concern that may considerably limit the opportunities for authors to avail themselves of the contributions of other authors for the production of new works.²⁹⁴

5. JURISDICTIONAL CONCERNS

In spite of the extensive process of harmonization that has been undertaken, substantial differences subsist amongst the national implementations of the copyright regime. The vast majority of Open Content licenses have therefore been designed with one legal system in mind and their provisions have been tailored to the distinctive features thereof. Yet, given that the copyright is a national right,²⁹⁵ the validity of a copyright license ultimately depends upon the provisions of the applicable national law. It is always possible that a license which has been conceived for a particular jurisdiction be considered invalid or unenforceable in another jurisdiction.²⁹⁶

In order to ensure their universal validity and worldwide enforceability, the provisions of certain Open Content licenses have therefore been translated and adapted to better comply with the specificities of domestic laws.²⁹⁷ While this is likely to ensure their validity and the enforceability within a larger range of jurisdictions, the process of adapting a license to national jurisdictions has the severe drawback of actually increasing the level of discrepancies that subsist between the nationalized versions of the

Source licensing, see e.g. SILVA, A. C. & MASBERNAT, P. (2004) Licensing of Free Software and Open Source. University of Chile.

²⁹⁴ Incompatibilities between different Open Content licenses resulting from conflicting share-alike constraints may considerably restrain the future production of creative works by limiting the possibility for authors to create new works based upon a variety of different works, since the number of works from which to choose from will be drastically reduced as a result of the potential liability arising from the use of works released under incompatible terms and conditions. For more details, see KATZ, Z. (2006) Pitfalls of Open Licensing: An Analysis of Creative Commons Licensing. *IDEA*, 46.

²⁹⁵ As the copyright regime is regulated on a strictly national basis, the copyright in a work merely constitutes a territorial right which may only be enforced within the national territory in which the right has been granted. Although the work may be eligible for copyright protection within different jurisdictions, the requirements and limitations of the copyright regime are not necessarily the same from one country to another. Copyright owners may only enjoy country specific rights and the protection they are granted with is ultimately based on the law of the country in which protection is sought. See GOLDSTEIN, P. (2001) *International Copyright: Principles, Law, and Practice*, Oxford University Press.

²⁹⁶ Just like copyright law, the rules and principles of contract law are deeply rooted within the national laws of national jurisdictions. The discordances between the provisions of different jurisdictions may thus pose a significant number of challenges for both the licensors and the licensees in establishing the validity and the enforceability of a particular license according to the provisions of the corresponding national legislation. For more details, see NIMMER, R. T. (1995) Licensing on the Global Information Infrastructure: Disharmony in Cyberspace. *Northwestern Journal of International Law & Business*, 16.

²⁹⁷ See e.g. the Creative Commons International (CCi) project, whose main objective is to port the Creative Commons licenses in order to adapt them to the local jurisdictions of different countries, not only by linguistically translating the licenses but also by legally adapting them to every particular legal system. More information available at <http://creativecommons.org/international/>

license.²⁹⁸ This may ultimately jeopardize the validity and the enforceability of these licenses, whenever they are employed into the legal system of a country other than that for which they have been specifically designed.²⁹⁹

²⁹⁸ For instance, in the context of the Creative Commons, the licenses of certain jurisdictions expressly stipulate that the licenses should be regarded as a contract (e.g. France, Spain, Holland), while others do not mention anything with regard to the legal status of the licenses. Certain national adaptations have been required to use very different terminology (e.g. distribution vs. making available to the public) in order to ensure compliance with the national copyright laws. The different regimes of exemptions (e.g. general principles of fair dealing in most common law jurisdictions vs. closed lists of limitations in the jurisdictions of most civil law countries) and the regime of moral rights (very strong in the law of most civil law countries but less significant in many common law jurisdictions) also had to be taken into account in the process of adapting the licenses to the various national copyright regimes. For more details concerning the inconsistencies introduced into the national adaptations of the Creative Commons licenses, see VÄLIMÄKI, M. & HIETANEN, H. (2004a) The Challenges of Creative Commons Licensing. *Computer Law Review*, 6.

²⁹⁹ According to the principles of *lex contractus*, if a work has been released under a particular license which has been adapted to the national legislation of a specific jurisdiction, the validity and the enforceability of the license will be subject to the laws of the country believed to be the most closely connected with the contract, which is likely to be the national jurisdiction for which the license has been intended. However, in the context of an action for copyright infringement, the *lex loci protectionis* principle will prevail and the license will therefore be assessed against the copyright regime of the country in which protection is sought. This can be rather problematic insofar as the provisions of the licenses are likely to be to some extent incompatible and/or inconsistent with the provisions of the national copyright regime of the particular jurisdiction in which protection has been sought. For more details on the jurisdictional problems of the Creative Commons licenses, see HIETANEN, H. (2007) A License or a Contract: Analyzing the Nature of Creative Commons Licenses. Helsinki Institute for Information Technology.

CHAPTER 3

PUBLIC POLICY

PRIVATE REGULATION OF THE INTERNET

The advent of the Internet and digital technologies has drastically modified the way in which copyright works are traded in the market for information goods. In the digital environment, a series of new mechanisms have become available for the private sector to complement, rearrange or to completely bypass certain provisions of the copyright regime.

The general belief of the laissez-faire ideology is that once a proper set of property rights has been set up by the State, a network of contractual relationship between private actors may substitute for any external form of regulation. In particular, the digital environment could be regarded as a separate jurisdiction, whose governance could ultimately be determined by self-regulation. Instead of relying on the public regulation of a sovereign State, the cyberspace could be governed by way of private ordering and market interactions.³⁰⁰ As long as the State could provide a background for property and contract law, contractual relationships and coordination mechanisms could, in fact, constitute the main basis of regulation on the Internet.³⁰¹

Governmental intervention is often considered necessary for the creation of a clearly defined set of property rights, as well as the enforcement thereof.³⁰² While the establishment of proprietary rights in particular types of resources is a critical requirement for the institution of a market, it does not however constitute a sufficient condition for the proper functioning of the market. Therefore, to facilitate the transfer of property rights to the parties that value them the most, the establishment of strong and secure property rights must be combined with the definition of a specific set of contractual rules. Fundamentally, the institution of the contract is instrumental to the exchanges of property rights. Although the State may have no role to play in regulating the use or transfer of private property, it may nonetheless have a function in the enforcement of decisions made by private actors. In fact, outside of small and homogenous groups where deviance from the norms is either difficult or apparent, it is sometimes

³⁰⁰ As a separate jurisdiction, the cyberspace can develop its own mechanisms of governance and regulation. In particular, in the digital environment, governance could be based on customary norms that emerges independently and evolve together with the development of the cyberspace. In fact, given that private ordering is assuming a predominant role in the regulation of the Internet network, public regulation may become increasingly less relevant in the digital world up to the point in which it would be completely replaced by private ordering and self-regulation. For a more detailed analysis of private regulation in the digital environment, see in particular JOHNSON, D. R. & POST, D. G. (1997) *And How Shall the Net be Governed? A Meditation on the Relative Virtues of Decentralized, Emergent Law.* IN KAHIN, B. & KELLER, J. H. (Eds.) *Coordinating the Internet.*

³⁰¹ See e.g. the case of ICANN (Internet Corporation for Assigned Names and Numbers), which is universally recognized as the sovereign authority responsible for managing the assignment of domain names and IP addresses; and the case of NSI (Network Solutions Inc.), a private body which has been universally accepted as the sovereign authority for the registrations of domain names on the Internet until 1999.

³⁰² The trading and the exchange of private property rights constitute of the main driving forces of economic growth. The State must therefore define a series of property rights which can be traded amongst private parties. Yet, to the extent that the security of property rights does not occur naturally, the State must therefore play an active role in order to establish a particular legal system designed to regulate the use and to enforce the exchange of these rights in accordance with public policies and social order. See LEVINE, R. (2005) *Law, Endowments and Property Rights.* *The Journal of Economic Perspectives*, 9, 61-88.

difficult to implement proper enforcement mechanisms through self-regulation.³⁰³ Even from a laissez-faire perspective, therefore, the government is generally responsible for the enforcement of contractual agreements between private parties.³⁰⁴ As a result of technological advances, however, enforcement may no longer require the intervention of any regulatory authority, given that technological measures of protection may actually constitute an adequate mechanism of enforcement.

Contractual negotiations can be costly and excessive transaction costs may eventually preclude the conclusion of mutually beneficial agreements. Accordingly, with reference to the most common types of transactions, many legal systems have identified a series of default rules which are automatically incorporated into any contractual agreement unless they have been overridden by explicit contractual provisions. The introduction of a particular set of default terms is particularly valuable to the extent that it decrease the amount of transaction costs involved in a standard round of negotiations, while simultaneously reducing the level of uncertainty resulting from the conclusion of incomplete contracts. In order to be effective, however, default terms should be designed to reflect the common will of the parties, so that only those willing to differ from the established standard may have to incur additional transactions costs.³⁰⁵

In line with the principle of freedom of contract, according to which anyone may enter into an agreement on private terms in order to pursue individual interests, many legal provisions could be regarded as a default rule, which could theoretically be contracted around.³⁰⁶ By analogy, the copyright

³⁰³ Coordination in a self-regulated environment can only be achieved through the cooperation of all members of the group. Accordingly, the smaller the group is and the more culturally homogenous its members are, the easier will it be to achieve stability. Yet, stable coordination also requires the development of mechanisms capable of enforcing the norms of the organization in order to avoid the progressive degeneration thereof as a result of free-riding. Whether or not this can be achieved by internal mechanisms without the support of any external authorities is once again a matter of contingent circumstances. For more details, see RADIN, M. J. & WAGNER, R. P. (1998) The Myth of Private Ordering: Rediscovering Legal Realism in Cyberspace. *Chicago-Kent Law Review*, 73.

³⁰⁴ The fundamental function of contract law is to facilitating the transfer of property rights amongst the members of society. Indeed, a predefined set of clear and enforceable contractual rules is a prerequisite for the trading and the achievement of mutually beneficial exchanges of proprietary assets, which ultimately allows for specialization, innovation and economic growth. See EPSTEIN, R. A. (1996) Contracts Small and Contract Large: Contract Law Through the Lens of Laissez-Faire. University of Chicago Law School.

³⁰⁵ Default rules should generally be based on what is considered reasonable and customary in the particular field of application. In particular, six different types of default rules can be identified: (1) problem-solving defaults, which provide a satisfactory solution to a particular contracting problem; (2) equilibrium-inducing defaults, which are intended to induce parties to adopt a welfare-maximizing term; (3) information-forcing defaults, which attempt to reduce information asymmetries between parties; (4) normative defaults, which try to favor a particular contractual terms on the grounds of fairness; (5) transformative defaults, which may actually transform the parties preferences in order to induce them to select a particular term that is considered more fair; and (6) structural defaults, which fundamentally define the nature of the contractual relationship. For a more detailed overview of default rules in contract law, see e.g. SCHWARTZ, A. (1993) The Default Rule Paradigm and the Limits of Contract Law. *Southern California Interdisciplinary Law Journal*, 3.

³⁰⁶ The law can sometimes regarded as a set of default rules provided for the convenience of private actors. Under this view, contractual agreements may sometimes introduce considerable changes to the standard legal rules, at least to the extent that they apply to that particular contractual relationship. This is the case, for instance, of many provisions of contract law, which have for the most part been designed in order provide a series of default terms to be applied

regime basically provide a series of default rights and obligations intended to facilitate the commerce of creative works by reducing the level of transactions costs that would have been otherwise required for any contracting party to enter into an agreement concerning the manner in which every copy of the work can be legitimately exploited. In many cases, however, it may actually be in the interest of right holders and/or end-users to partially deviate from the default rules provided by the law.³⁰⁷

According to the laissez-faire ideology, copyright owners should be allowed to use contractual agreements and technological measures of protection in order to regulate the manner in which digital works can be legitimately exploited. Deviation from the default rule may, however, take different forms. For instance, while certain right holders would rather have their works freely reproduced and disseminated over the Internet network, others may rather avail themselves of a series of contractual mechanisms and technological measures of protection in order to control the exploitation of their works up to the smallest level of details. As opposed to the inherent rigidity of property law, the increased flexibility of contract law is likely to allow content providers to engage into an extensive form of price discrimination, which may ultimately benefit both copyright owners and consumers.³⁰⁸

Yet, private usages of property law and contract law should nonetheless be regulated by a sovereign authority for the purposes of either limiting or enforcing norms introduced by private ordering. Indeed, while the notion of sovereignty may have to be revised in the digital environment, private regulation of the cyberspace should ultimately be subject to the scrutiny of the State.³⁰⁹

whenever the contracting parties did not expressly agree on something. The idea, therefore, is that private ordering should be able to either modify or override the law whenever it is in the interest of contracting parties to do so, thereby allowing for any legal provision to be superseded by private regulation. The State, however, retains ultimate authority to decide whether or not legal rules emerging from private regulation should be enforced in the same way as those deriving directly from public regulation. For more details, see LEMLEY, M. (1999) *The Law and Economics of Internet Norms. Law & Economics Working Paper Series*. University of California, Berkley.

³⁰⁷ Legal rules may either qualify as default rules which can be waived and/or overridden by contractual means, or as immutable rules which cannot be contracted out. Accordingly, to the extent that copyright law is regarded as a series of default rules, every provision of the copyright regime could essentially be overridden by way of contractual agreements between private parties. Whether it is sensible to regard copyright law as consisting merely of default rules is however open to debate. See, in particular, RADIN, M. J. (2004a) *Regime Change in Intellectual Property: Superseding the Law of the State with the "Law" of the Firm*. *The University of Ottawa Law and Technology Journal*, 1.

³⁰⁸ The manner and the extent to which digital works may or may not be exploited in the digital environment could ultimately be regulated by a contractual regime based on private ordering, insofar as copyright owners are entitled to replace the rights they have been granted with under copyright law with a more customized set of rights based on contractual agreements. To the extent that contract law is much more flexible than copyright law, this shift towards private regulation may even be beneficial to society in that it would allow for a more intensive strategy of price discrimination to be implemented, resulting into an increased production of works as a consequence of the greater economic rewards for content producers. Yet, in order to maintain the proper balance of copyright law, certain provisions of the copyright regime should be regarded as mandatory rather than default rules. For more details, see FISHER, W. W. (1998) *Property and Contract on the Internet*. *Chicago-Kent Law Review*, 73, 1203-1211.

³⁰⁹ There exist no autonomous regimes of property or contract law. The viability of private ordering presupposes the intervention of a sovereign entity with the function of establishing a legal framework regulating the use of property rights and contracts, and with the role enforcing private norms and regulations in accordance with the principles of public policy. This is even more important in the case of the Internet, which, as a result of its global and integrated

LIMITS TO PRIVATE ORDERING

Private ordering cannot - by itself - regulate the access and usage of copyright works without any limits or constraints. In order for any private mechanism of self-help to simultaneously foster the interests of right holders, end-users, and the society at large, private ordering necessarily have to operate in conformity with public regulation.

In contrast with the principle of freedom of contract, a number of contracts may be invalidated on the grounds of public policy. As a general rule, government intervention may be justified in any situation characterized by (1) positive or negative externalities and (2) significant asymmetries of information. Compulsory terms may also be required on the grounds of (3) distributive justice or for the purpose of endorsing the respect of public order or morality. Finally, (4) paternalism may sometimes be regarded as a legitimate ground for government intervention.³¹⁰

With reference to copyright law, to the extent that they may destabilize the traditional equilibrium of the copyright regime, the State may sometimes be required to intervene in order to impose a number of constitutional safeguards and limitations on certain contractual agreements. To begin with, information asymmetries are likely to affect the overall level of competition in the market for information goods, by creating an imbalance of power between right holders and end-users in the context of contractual negotiations. In addition, despite these asymmetries, contractual negotiations are unlikely to result in a socially optimal outcome because of certain positive and negative externalities, which are unlikely to be accounted for by the contracting parties. Finally, government intervention may be required in order to ensure a maximization of social welfare. In this case, limits to contractual freedom are justified in order to ensure that the regulation of information in the digital environment is likely to produce a situation that will ultimately serve the public good of society even if it is fundamentally governed by the private sector.

INFORMATION ASYMMETRIES

According to economic theories, information asymmetries occur whenever the suppliers can avail themselves of more and/or better information than what is available to end-users. Asymmetry of information represents a standard situation in many markets that operate with complex products - where the supplier is generally in a better position to know the actual value of the goods that are being traded and may deliberately prevent end-users from acquiring that information.

structure, necessarily has to be regulated as it would otherwise develop into a state of anarchy. See RADIN, M. J. & WAGNER, R. P. (1998) The Myth of Private Ordering: Rediscovering Legal Realism in Cyberspace. *Chicago-Kent Law Review*, 73.

³¹⁰ Contractual freedom can be fundamentally be limited on six different grounds: (1) bad information which would necessarily lead to the conclusion of a transaction that is not mutually beneficial to the contracting parties; (2) externalities which, if not properly taken into account by the contracting parties, are likely to cause prejudice to the interests of third parties; (3) arguments from future selves which may otherwise not be accounted for; (4) distributive justice intended to transfer wealth from the richest to the poorest; (5) public policy arguments for the endorsement of a decent and just society; and finally (6) paternalism justifications aimed at protecting the interest of the parties involved in the transaction. For a more detailed overview, see *Ibid.*

Contractual negotiations should theoretically establish a situation where the interests of all contracting parties are evenly taken into account. Private ordering may however not necessarily result in a socially optimal outcome to the extent that, as a result of information asymmetries and disparities of power, all parties may not have equal opportunities to participate in contractual negotiations.³¹¹ This is likely to lead to market failure whenever the asymmetries are so significant as to actually distort the outcomes of the market.³¹²

In this respect, the commerce of copyright works has always been associated with a certain degree of information asymmetry. Indeed, because of its very nature as an experience good,³¹³ the actual value of a work for any given user can only be determined after a particular copy of the work has been purchased.

In the digital environment, the problem of information asymmetries has been further intensified as a result of the possibility for content providers to restrict the access and usage of a work by contractual and/or technological means. Given that end-users are not always given proper notice of the whole set of restrictions associated to a particular copy of the work, it is not uncommon, in the digital environment, for users to purchase a work without being fully aware of the various limitations they may subsequently encounter.³¹⁴

³¹¹ Private agreements concluded in a competitive market will generally lead to an increase in social welfare. Competitive pressures will in fact lead to the adoption of terms and conditions which are mutually beneficial to all parties involved. However, the presence of market failures, such as market power or information asymmetries may lead to the conclusion of contractual agreements which do not actually constitute an optimal outcome for all parties to the agreement. In particular, in the context of most copyright end-user licensing agreements, it is often the case that there are information asymmetries between suppliers and consumers. The inability of consumers to distinguish between advantageous and disadvantageous terms is thus likely to result in the adoption of the most unfavorable terms for the consumer. For more details, see e.g. LINDSAY, D. (2002) *The law and economics of copyright, contract and mass market licenses*, Australia, Centre for Copyright Studies.

³¹² Market failure subsists whenever, as a result of its distinctive characteristics, the market is unable to reach the most efficient outcome. In the context of copyright works, the market for information goods is likely to fail whenever important asymmetries can be observed with regard to the information available to content providers and end-users. Given that they can avail themselves of supplementary information, content providers are in a better position than end-user in the course of contractual negotiations, the outcome of which is therefore likely to be more favorable to them. For more details, see e.g. LINDSAY, D. (2003) *Economic Perspectives on Copyright Law*. Centre for Copyright Studies.

³¹³ In economics, experience goods are products whose value and characteristics are difficult to determine in advance because they can only be ascertained upon consumption. As such, it is difficult for consumers to make an accurate choice concerning the acquisition of these goods. For more details on the problems related to the trading of experience goods, see e.g. SHAPIRO, C. (1983) *Optimal Pricing of Experience Goods*. *Bell Journal of Economics*, 14, 497-507.

³¹⁴ Contractual restrictions and technological measures of protection often prevent the standard exploitation of a work beyond what is generally to be expected by end-users. Restrictive licenses can prevent users even from engaging into non-infringing uses, such as time-shifting or device-shifting. Standard users' expectations are therefore likely to be frustrated whenever the exploitation of a work is restricted by contractual and/or technological means, but no proper notice has been given to end-users. This lack of transparency is very common in the digital environment, where content providers do not have an interest in providing adequate and effective notice of the various restrictions associated with the digital copies of a work. SAMUELSON, P. & SCHULTZ, J. (2007) *Regulating Digital Rights Management*

Regulatory action may therefore be necessary in order to address the problem associated with the lack of transparency concerning the extent of restrictions included within certain copyright licenses combined with technological measures of protection.

In particular, severe information asymmetries can be observed in the context of digital works released under particular licensing agreements which assume the form of contracts of adhesion. In the digital world, the majority of end-user licensing agreements (such as e.g. shrink-wrap licenses, click-wrap licenses, etc) basically consist of a series of non-negotiable terms and conditions that can either be accepted or refused altogether.

The danger is that private ordering may exercise coercion by inserting a series of unfair terms and conditions into certain end-users licensing agreements, whose contractual clauses do not result from competitive market interactions but rather from a situation of market power or collusion.³¹⁵ If contracts of adhesion were to become a staple of private regulation in the digital environment, every user willing to consume a work would ultimately be compelled to enter into a contractual agreement they do not necessarily agree with.

In order to ensure an optimal level of production and the widespread dissemination of creative works, it may therefore be necessary to regard certain provisions of the copyright regime as a series of compulsory terms that cannot be waived nor altered. Accordingly, while the principle of freedom of contract should generally be respected in order to allow for the market to operate undisturbed, the State should nonetheless be entitled to intervene in order to ensure, on the one hand, that certain provisions of the copyright regime can always be enforced – regardless of what the copyright license says, and, on the other hand, that any ‘unfair’ or ‘unreasonable’ term and condition incorporated into a copyright license cannot be enforced whenever the license qualifies as contract of adhesion.

EXTERNALITIES

Contract theory is a section of economics analyzing the way in which economic agents behave in the course of contractual negotiations. According to this theory, if the interests of every party involved in a contractual relationship were to be equally taken into account, and provided that the individual preferences of each party were to be perfectly communicated, private ordering would ensure that the best possible outcome is achieved for all parties involved in the contractual negotiation.³¹⁶

Technologies: Should Copyright Owners Have to Give Notice about DRM Restrictions? *Journal of Telecommunications and Technology Law*.

³¹⁵As such, contracts of adhesion are not problematic to the extent that competitive forces will eventually induce the adoption of reasonable terms and conditions. However, insofar as it is possible for the market players to collude in order to achieve a situation of oligopoly characterized with market power, the access to and the consumption of certain digital works may only be possible after entering into a contract of adhesion with a standardized set of terms and conditions which are offered on a take-it-or-leave-it basis. Accordingly, the network of contractual relationship, although theoretically consensual, could ultimately be considered tantamount to a strict and rigid structure of entitlements. For more details, see RADIN, M. J. & WAGNER, R. P. (1998) The Myth of Private Ordering: Rediscovering Legal Realism in Cyberspace. *Chicago-Kent Law Review*, 73.

³¹⁶ According to the laissez-faire ideology, while the market will eventually lead to a Pareto-optimal outcome, there are no objective criteria to determine whether one alternative is better than the other, except from the process by which

Yet, regulating the exploitation of copyright works through private ordering alone may not necessarily result into a socially optimal outcome insofar as it may give rise to a series of positive and negative externalities which are unlikely to be fully internalized by the contracting parties.³¹⁷

The problem with externalities is that they are likely to lead to market failure whenever they are not properly accounted for. Indeed, according to the rationality assumption in economics, the behavior of individuals can normally be regarded as a means to maximize their individual interests and preferences. In the course of any contractual negotiation, private parties will therefore only be concerned with the maximization of their individual utility – as opposed to the overall utility for society. As such, they are unlikely to account for many of the externalities (positive or negative) that may ensue from the agreements they have entered into.³¹⁸

With regard to copyright works, the production and the consumption of information is likely to produce a series of positive externalities on society because every individual can benefit from a broader access to information. Yet, the market is generally unable to understand the positive externalities deriving from the consumption of information goods. This is likely to produce a situation characterized by an under-production of information, because authors are likely to produce new works only up to the point that maximizes their personal returns, without accounting for the fact that their works may also bring some benefits to society at large.³¹⁹

In addition, any restriction on the way in which information can be accessed and/or exploited would ultimately generate a cost on society³²⁰ - which would however have a positive impact upon the interests of right holders. Hence, if the regulation of information were to be left exclusively to the invisible hands

the outcome has been reached. Proper regulation on the Internet can therefore be achieved only if the rules and norms regulating the use of information are determined by the users themselves (e.g. by way of a collective decision-making process) rather than by an external authority representing the interests of the whole community of Internet users (e.g. the State). See, in particular, JOHNSON, D. R. & POST, D. G. (1997) And How Shall the Net be Governed? A Meditation on the Relative Virtues of Decentralized, Emergent Law. IN KAHIN, B. & KELLER, J. H. (Eds.) *Coordinating the Internet*.

³¹⁷ In economics, externalities are defined as the consequences of a particular activity which are experienced exclusively by third parties. They can be either positive or negative according to whether they are beneficial or harmful to third parties.

³¹⁸ For a more detailed overview of the concept of rationality in economic theories, see e.g. NORTH, D. C. (1993) What do we mean by rationality? *Public Choice*, 77, 159-162.

³¹⁹ One problem concerning the regulation of information goods exclusively by private means relates to the positive externalities generated by creative works not being taken into account by authors and publisher when deciding upon the optimal amount of works to produce. The most significant of which are the enrichment of the pool of common cultural heritage, the achievement of greater education through the dissemination of culture and information, the development of critical judgment and discriminatory abilities by individuals subject to a culturally rich and diverse environment, and the ultimate qualitative enhancement of the public debate indispensable for the viability of a democratic society. FISHER, W. W. (1988) Reconstructing the Fair Use Doctrine. *Harvard Law Review*, 101.

³²⁰ To the extent that they are not fully internalized, the contracting parties are not directly affected by these externalities and will therefore be likely to agree upon a higher level of restrictions than what would be socially desirable. See e.g. BENKLER, Y. (2000) An Unhurried View of Private Ordering in Information Transactions. *Vanderbilt Law Review*, 2063.

of the market, it would lead to a situation characterized by an under-exploitation of information, given that right holders are likely to release their works under restrictive terms and conditions and for a price that maximize their economic returns, without accounting for the negative consequences that may have over the interests of authors, end-users and society at large.³²¹

Regulatory action is therefore required, on the one hand, to provide more incentives for authors to create – a function that is currently being fulfilled by copyright law, and, on the other hand, prevent copyright owners from introducing an excessive level of restrictions over the access and the consumption of their works.

PUBLIC INTEREST

While copyright law provides authors with a series of exclusive rights over the exploitation of their works, it is ultimately aimed at increasing the number of works that will eventually be made available to the public. Yet, by means of specific technological measures and contractual agreements, copyright owners may regulate the use of information beyond the default scope of protection granted by the copyright regime – in a direction that might sometimes run counter to the public interest of society.

One critical concern with the private regulation of information goods is, in particular, related to the preservation of the public domain as a common resource of works which are freely available to every member of society. The public domain constitutes in fact a fundamental component of the copyright regime³²² which may however be jeopardized as a result of the shift from a regime based on copyright law to a regime based on private regulation.

The licensing of a work under a particularly restrictive set of terms and conditions could in fact prevent users from engaging into any act of exploitation unless it has been specifically provided for by the licensing agreement and regardless of whether or not the activity would have been otherwise allowed under the copyright regime (e.g. because it would have fallen within the scope of copyright

³²¹ While the monopoly returns provided by the copyright regime are an effective instrument to encourage the production of the creative works that the public want the most, the proprietary regime also raises the costs of the inputs necessary to produce a new copyright work above their marginal costs, thereby generating a net welfare loss. Moreover, according to economic theories, selling products at their marginal costs is a necessary condition for an efficient allocation of resources. However, in a situation of monopoly there is an incentive to sell products at higher prices than their marginal costs of production. Accordingly, consumers will either have to pay the additional charge, or they will have to purchase another less satisfactory product. In the latter case, the loss for the consumers is not balanced by any gain for the monopolist and is therefore a net social loss. In general, the welfare loss resulting from a situation of monopoly can be approximated by the total consumer surplus which is lost. LEE, Y.-H. A. (2006) Competition, Consumer Welfare, and the Social Cost of Monopoly. Yale Law School.

³²² The public domain is necessary in order for the copyright regime to fulfill its original purpose of promoting creative activity. Indeed, the access to and the consumption of a large number of creative Works is a prerequisite for authors to be able to produce new works, since every original work of authorship essentially builds from the past. In particular, according to Jessica Litman, “the public domain should be understood not as the realm of material that is undeserving of protection, but as a device that permits the rest of the system to work by leaving the raw material of authorship available for authors to use.” See LITMAN, J. (1990) The Public Domain. *Emory Law Journal*, 39.

exemptions).³²³ Besides, contractual agreements may enable the owners of the copyright in a work to acquire an additional layer of protection over any type of information pertaining to the public domain.³²⁴

The commodification of the public domain through a series of contractual rights regulating the access to and the use of information is likely to have a limiting effect over the production, the dissemination, and the overall consumption of information. Not only would it increase the costs for end-users to access or to consume information goods, but it is also likely to result in the establishment of an anti-common regime, where any given piece of information would be subject to an ever increasing number of rights and would therefore become increasingly difficult and costly to exploit.³²⁵

In spite of the will of the parties, mandatory limitations on contractual freedom should be introduced when it is in the public interest to do so. Hence, while the State is responsible for the enforcement of contractual agreements between private parties, enforcement should, however, be limited to those contractual provisions which are consistent with the fundamental principles of the copyright system. It

³²³ Copyright owners may attempt to engage into second degree price discrimination by charging different prices for the same Work licensed under different terms and conditions. In order for a price discrimination strategy to succeed, however, it may be necessary for the copyright owner to introduce a series of restrictions on the access to and the usage of a particular version of the work. This may be achieved by contracting around certain of the limitations of the copyright regime in order to be able to charge a lower price to any users willing to give up the privileges they have been granted with by default under the copyright regime. Accordingly, in order to succeed, the model of contractual price discrimination necessarily assumes that the provisions of the copyright regime are a simple system of default rules which can be overridden by contract. See COHEN, J. E. (2000) Copyright and the Perfect Curve. *Vanderbilt Law Review*, 53.

³²⁴ Copyright law can be superseded by contracts in order to exercise control over information that is not subject to copyright protection, such as facts, ideas, or Works whose copyright has expired. Regardless of the default provisions of the copyright regime, contractual agreements can therefore be used in order to turn public domain information into a commodity whose exploitation can be regulated just like any other work which qualifies for copyright protection. For more details on the use of contracts for the commodification of information, see e.g. RADIN, M. J. (2004b) Regulation by Contract, Regulation by Machine. *Journal of Institutional and Theoretical Economics*, 160, 1-15.

³²⁵ According to Michael Heller, an anti-common regime is characterized by a situation in which multiple owners hold effective rights of exclusion in a scarce resource and, as a result of the transaction costs generated by their individual behaviors, are likely to cause that resource to be under-exploited. See HELLER, M. A. (1998) The Tragedy of the Anticommons: Property in the Transition from Marx to Markets. *Harvard Law Review*, 111.. In order to avoid the emergence of an anti-common regime in the context of creative works, copyright protection has been limited in scope, in order to ensure that users may exploit a work for any purpose that would not cause unfair prejudice to the economic interests of the copyright owner, and in duration, in order to prevent that the copyright vesting in a work preclude the exploitation thereof for an indeterminate period of time. However, given that private ordering is not subject to any of these limits, it may encourage the proliferation contractual rights vesting in the expression of a particular work. Exclusive rights may therefore accumulate and eventually overlap over the years, as the work is being licensed and/or used as a basis for the making of new works. In the end, regardless of the fee required by every individual right holder, an excessive number of transaction costs and/or the possibility for a single right holder to veto a particular usage of the work may also constitute an obstacle to the legitimate exploitation thereof. In view of this, private regulation of information goods is likely to result in the under-production and/or under-consumption of works. For more details, see e.g. ELKIN-KOREN, N. (1998) Copyrights in Cyberspace: Rights without Laws? *Chicago-Kent Law Review*, 73.

necessarily follows that any term and condition that violate the provisions of the copyright regime should, instead, not be enforced.³²⁶

As a general rule, therefore, private mechanisms of self-help may only succeed to the extent that they are ultimately supported by the laws of the State. End-user licensing agreements are ultimately subject to the scrutiny of the law in order to ensure that they incorporate the necessary trade-off of the copyright regime. To the extent that they prohibit the usage of a work in such a way that would have been otherwise allowed by copyright law, or that they purport to extend the scope of copyright protection to ideas, facts or other material belonging to the public domain, the State is allowed to intervene in order to restrain the autonomy and the contractual freedom of the interested parties.³²⁷ Moreover, with regard to the technological measures of protection, it has often been suggested that, insofar as certain contractual provisions may be automatically enforced by technological measures of protection, the laws prohibiting the circumvention thereof should only be enforced to the extent that the provisions they refer to are compatible with copyright law, competition law, or any other relevant body of law.³²⁸

³²⁶ In order to protect its economic interests on the Internet network, copyright owners can rely on essentially four forms of protection: (1) the exclusive rights they have been granted with under the copyright regime, (2) the technical challenges that users have to face in order to successfully perform an infringing act, (3) the technological measures of protection that can be employed in order to restrict the access to and the use of a particular Work, and (4) the particular terms and conditions of the licenses under which a work has been released which can be enforced by contract law. As the first two forms of protection have been considerably jeopardized by the advent of Internet and digital technologies, a large number of right holders have begun to rely exclusively on the last two. In particular, the entertain industry has elaborated a number of particularly restrictive licensing schemes, which may sometimes go counter the provisions of the copyright regime. However, to the extent that copyright law has been designed to balance the interests of right holders with the interest of the collectivity, any contractual term that deviate from the tenets of the copyright regime should not be enforced. See HARDY, I. T. (1995) Contracts, Copyright and Preemption in a Digital World. *Richmond Journal of Law & Technology*, 1.

³²⁷ Copyright law introduces a series of property rights on the expression of a work in order to provide incentives for authors to create and disseminate their works. While it may protect the economic interests of right holders, the copyright regime is, however, grounded on values of public policy whose ultimate purpose is to provide society with a maximum number of works. The licensing of rights is however achieved by the means of contractual agreements which are exclusively driven by private interests and may eventually conflict with the traditional ratio of copyright law. Legal intervention may therefore be necessary in order to ensure that the original values of the copyright regime are respected in the context of private licensing schemes. See, in particular, ELKIN-KOREN, N. (1997) Copyright Policy and the Limits of Freedom of Contract. *Berkeley Technology Law Journal*, 12.

³²⁸ The WIPO Copyright Treaty of 1996 called for the implementation of specific provisions against the circumvention of technological measures for the protection of copyright works and against the removal or alteration of the corresponding digital rights management information. The provision has been implemented in the USA by the Digital Millennium Copyright Act (the DMCA) in section 1201(a) - (b) and in the EU by the European Directive 2001/29/EC on the harmonization of certain aspects of copyright and related rights in the information society (the InfoSoc Directive) article 6. Both the DMCA and the InfoSoc Directive have been considerably criticized on the grounds that they do not allow for the circumvention of technological measures of protection in order to perform a legitimate act. Indeed, while section 1021(c)(1) of the DMCA provides that “nothing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement, including fair use”, it is unclear whether fair use can actually constitute a defense against a violation of the anti-circumvention provisions. Similarly, while article 6(4) of the InfoSoc Directive provides “member states should take appropriate measures to ensure that right holders make available to the beneficiary of an exception or limitation provided for in national law [...] the means of benefiting from that exception or limitation,” this

STATE INTERVENTION

The degree of State intervention in the private sector varies according to the jurisdiction and the sector of analysis. While the government of certain countries, such as the European member states, are under the obligation to intervene in order to foster competition in the market and safeguard the fundamental rights of end-users, other countries, such as the United States, have adopted a more laissez-faire approach that tries to minimize governmental intervention in the market. Regardless of the preferred approach, all do however intervene (albeit to a different extent) in order to guarantee the proper functioning of the market and ensure compliance with other bodies of law.

Under certain circumstances, voluntarily negotiated contractual rules (private ordering) might not be enforced by the State on the grounds that the resulting contract is invalid (e.g. due to a lack of consideration, or to an improper manifestation of offer and acceptance). In other cases, the contract is valid but might not be enforced insofar as some of its terms and conditions are not compliant with other bodies of law. This is particularly common in the case of standard form contracts offered on a “take-it-or-leave-it” basis, which are often not properly read nor understood by the parties. As a general rule, whenever the contractual provisions extend beyond standard user’s expectations, only the terms and conditions that users have actually agreed to can be enforced against them. Hence, to the extent that many end-user licensing agreements qualify as a contract of adhesion whose provisions cannot be negotiated by the parties, they must be subject to special scrutiny if they incorporate a series of unconscionable terms.

This issue was raised in the case of *Vault v Quaid*,³²⁹ where it was held that a shrink-wrap licence preventing the reverse engineering of computer software could not be enforced to the extent that it is a contract of adhesion whose provisions are pre-empted by section 117 the Copyright Act which provides an exemption concerning the reverse engineering of computer software. In the United States, in fact, copyright protection can be sought under federal law, State law, as well as under common law. In order

only applies “in the absence of voluntary measures taken by right holders, including agreements between right holders and other parties concerned.” A number of scholars have therefore been arguing that the provisions against the circumventions of technological measures of protection should be reformed in order to account for the copyright limitations. See, inter alia, SAMUELSON, P. (1999) Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to be Revised. *Ibid.*14, SAMUELSON, P. (2000) Towards More Sensible Anti-circumvention Regulations. *International Conference on Financial Cryptography*. London, UK, Springer-Verlag, NIMMER, D. (2000) A Riff on Fair Use in the Digital Millennium Copyright Act. *University of Pennsylvania Law Review*, 148, 673-742, BURK, D. L. & COHEN, J. E. (2001) Fair Use Infrastructure for Rights Management Systems. *Harvard Law Review*, 15, SAMUELSON, P. (2001) Anticircumvention Rules: Threat to Science. *Science*, 293, SINGER, P. (2002) Mounting a Fair Use Defense to the Anti-Circumvention Provisions of the Digital Millennium Copyright Act. *University of Dayton Law Review*, 28, SAMUELSON, P. (2003) DRM {and, or, vs.} the Law. *Communications of the ACM*, 46, DUSOLLIER, S. (2003) Fair use by design in the European copyright directive of 2001. *Communication of the ACM*, 46, 51-55.

³²⁹ *Vault Corp. v Quaid Software Ltd.* 847 F.2d 255 (5th Cir. 1988) is a case heard by the United States Court of Appeals for the Fifth Circuit that tested the extent of software copyright. The court held that making RAM copies as an essential step in utilizing software was permissible under §117 of the Copyright Act, even if they are used for a purpose that the copyright holder did not intend. It concluded that that the Louisiana Software License Enforcement Act clause permitting a copyright holder to prohibit software decompilation or disassembly was preempted by the Copyright Act, and was therefore unenforceable.

to avoid conflicts between those different bodies of law, section 301 of the U.S. Copyright Act specifically pre-empts the application of any law providing broader or equivalent rights to those granted under federal copyright law.³³⁰

The enforceability of EULAs was also addressed in *Step-Saver Data Systems v Wyse Technology*, where it was held that the terms and conditions of a shrink-wrap licence concerning the disclaimer of warranties on computer software could not be enforced to the extent that they formed part of an additional agreement, which had not been explicitly agreed to.³³¹ The same conclusion was found in *Klocek v Gateway*³³² and later in *Specht v Netscape*,³³³ where the provisions of a shrink-wrap licence were regarded as not being enforceable to the extent that there was no proper manifestation of assent.

Conversely, in the case of *ProCD v Zeidenberg*,³³⁴ the court accepted the validity and enforceability of shrink-wrap licences. It was held that the shrink-wrap license was valid and enforceable as a contract, in spite of the contracted-for restrictions preventing the re-use of copyrighted information. In this case, the court held that the default provisions of copyright law could not pre-empt the operation of contract law. Copyright pre-emption is meant to resolve conflicts arising between federal law and state law, generally occurring in the case of unfair competition and misappropriation. However, to the extent that it reflects the willingness of the parties to engage into one form of private ordering, contract law should not be pre-empted.

³³⁰ See 17 U.S.C. §301 (a): “On and after January 1, 1978, all legal or equitable rights that are equivalent to any of the exclusive rights within the general scope of copyright as specified by section 106 in works of authorship that are fixed in a tangible medium of expression and come within the subject matter of copyright as specified by sections 102 and 103, whether created before or after that date and whether published or unpublished, are governed exclusively by this title. Thereafter, no person is entitled to any such right or equivalent right in any such work under the common law or statutes of any State.”

³³¹ *Step-Saver Data Systems, Inc. v. Wyse Technology* was a case in the U.S. Court of Appeals for the Third Circuit primarily concerned with the enforceability of box-top licenses and end user license agreements (EULA) and their place in U.S. contract law. The fundamental question raised in this case was whether the shrinkwrap licenses accompanying TSL's software were legally binding, given that different terms were negotiated over the phone with Step-Saver prior to receiving physical copies of the software. The case was first heard in the United States District Court for the Eastern District of Pennsylvania, where the court ruled that the shrinkwrap licenses were legally binding. However, the U.S. Court of Appeals for the Third Circuit subsequently reversed this decision, ruling that the shrinkwrap licenses were not legally binding.

³³² In *Klocek v. Gateway, Inc., et al.* 2000 U.S. Dist. Lexis 9896, 104 F. Supp.3d 1332 (D. Kan., June 16, 2000), the court held that Gateway's Standard Terms and Conditions, supplied along with and inside the packaging of a computer purchased by the plaintiff, did not create a binding contract despite the fact that the Standard Terms provide that they will constitute the terms of such an agreement if the consumer retains the computer for more than 5 days, and the consumer so retained the computer.

³³³ *Specht v. Netscape*, 306 F.3d 17 (2d Cir. 2002) is a case in the United States Court of Appeals for the Second Circuit regarding the enforceability of browse-wrap software licenses. The court held that merely clicking on a download button does not show assent to license terms if those terms were not conspicuous and if it was not explicit to the consumer that clicking meant agreeing to the license.

³³⁴ *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996), is a United States contract case involving a shrink wrap license prohibiting the re-use of information. The court held that copyright law did not preempt the use of contract law to confer additional rights which are not equivalent to any of the exclusive rights within the general scope of copyright.

The Uniform Computer Information Transaction Act (UCITA) constitutes an attempt at reducing the level of uncertainty surrounding the validity and enforcement of shrink-wrap licences in the U.S. The Act has however been subject to strong criticism and was only passed in two states: Virginia and Maryland.

In Europe, the legal status of shrink-wrap, web-wrap and click-wrap licences is not less confusing. In the Netherlands, it was held in *Coss Holland v TM Data*³³⁵ that a shrink-wrap licence is not a valid contract because a contractual agreement cannot be formed by the mere fact of opening the packaging of computer software if the user was not aware of the terms and conditions before purchasing it. In terms of enforceability, different jurisdictions have reached different conclusions. For instance, in *Beta v Adobe*,³³⁶ it was held that a shrink-wrap license is a valid contract between the retailer and the end-user that is however not concluded at the moment of purchase, but at the moment in which the user opens the package. The contractual provisions could be enforced on the party who actually opened the package. Later, in the UK, the court in *St. Albans District Council v International Computers*³³⁷ held that those licenses are generally enforceable between the retailer and the end-user, but that their provisions cannot be enforced on subsequent purchasers who were not parties to the contract.

At the European level, the directive on Unfair Contract Terms specifies that unfair terms cannot be enforced under the law and introduces a series of legal remedies for parties who were not properly notified of the terms and conditions of end-user licensing agreements.³³⁸ All member States are required to implement the directive into national law. This has a considerable impact in countries such as Italy, Ireland and Belgium, which did not have pre-existing legislation concerning unfair contract terms, or whose legislation was incomplete. Other countries, such as Germany, Portugal, the Netherlands, and the Nordic countries already had detailed legislation concerning unfair contractual terms and merely amended their pre-existing law so as to bring it in line with the provisions of the Directive.³³⁹ In the UK, the Directive was transposed in domestic law by virtue of the Unfair Terms in Consumer Contracts

³³⁵ Under Dutch law, shrink-wrap licences cannot be enforced if users are not aware of the terms and conditions of these licences before the agreement is formed. See *Coss Holland BV v. TM Data Nederland BV*, 24 May 1995, CR 1997, Issue 2, Rechtspraak p. 63

³³⁶ *Beta v Adobe* [1996] FSR 367 confirmed the enforceability of shrink-wrap licenses in Scotland. Unfortunately, the case fails to give any general guidance on the topic of shrink-wraps because it relied upon the principle of *jus quaesitum tertio* (rights conferred upon third parties from a contract) to decide the case.

³³⁷ *St Albans City and DC v International Computers Ltd* [1996] 4 All ER 481 is an English contract law case, concerning unfair terms under the Unfair Contract Terms Act 1977. If the software was faulty, buyers could recover the cost of the system and any losses suffered as a result of the software failing.

³³⁸ Council Directive 93/13/EEC of 5 April 1993 on Unfair Terms in Consumer Contracts introduces a notion of "good faith" in order to prevent significant imbalances in the rights and obligations of consumers on the one hand and sellers and suppliers on the other hand. This general requirement is supplemented by a list of examples of terms that may be regarded as unfair. Terms that are found unfair under the Directive are not binding for consumers. The Directive also requires contract terms to be drafted in plain and intelligible language and states that ambiguities will be interpreted in favor of consumers.

³³⁹ For more details, see the report from the Commission on the implementation of Council Directive 93/13/EEC of 5 April 1993 on Unfair Terms in Consumer Contracts, Brussels, 27.04.2000, COM(2000) 248 final

Regulation,³⁴⁰ which requires the Office of Fair Trading to investigate unfair terms and conditions in consumer contracts and, if necessary, to take legal action in order to prevent the use of such terms.

At the international level, the International Institute for the Unification of Private Law (UNIDROIT) has adopted in 2010 a series of principles for the regulation of commercial contracts – which contain, *inter alia*, new provisions on restitution in case of failed contracts, illegality, conditions, and plurality of obligors and obliges.³⁴¹

Competition law has also been used in several occasions as a means to restrain the range of intervention of private actors. Given the widespread use of Digital Rights Management systems, refusal to license a particular technology can reduce competition in the market or in complementary markets. In a case brought against Apple's refusal to license FairPlay DRM, the French competition authority (Conseil de la Concurrence) found that DRM standards could be regarded as an essential facility to the extent that they are essential for competitors to enter the market. Refusal to license the technology would therefore constitute an abuse of dominant position.³⁴² Several private actors also relied on anti-circumvention laws in order to foreclose competition in the market. In *Blizzard v Jung*, it was held that the reverse engineering of Blizzard's Internet gaming network in order to create a competing network was a violation of both the end-user licensing agreement and the Digital Millennium Copyright Act.³⁴³ Conversely, in the cases of *Sony v Connectix* and *Sony v Bleem*, it was held that the reverse engineering of Sony's PlayStation was a legitimate activity because it was necessary for the making of non-infringing competing games that would run on the PlayStation.³⁴⁴ The use of anti-circumvention laws in order to protect the after-market has also been often prevented by competition law. The issues has been addressed in the case in *Chamberlain v Skylink*, where it was held that anti-circumvention laws were only intended for the protection of Intellectual Property rights and could not be used to eliminate competition in the after-market.³⁴⁵ Similarly, in the case of *Lexmark v Static Control*, the court held that the circumvention of Lexmark's authentication technology did not violate the DMCA because the provisions preventing the circumvention of technological measures could not be relied upon in order to foreclose competition in a

³⁴⁰ In the UK, the Unfair Terms in Consumer Contracts Regulation of 1999 protects consumers from terms that reduce their statutory or common law rights and from terms that seek to impose unfair burdens on the consumer over and above the obligations of ordinary rules of law.

³⁴¹ The new edition of the UNIDROIT Principles of International Commercial Contracts of 2010 consists of 211 Articles (as opposed to the 120 Articles of the 1994 edition and the 185 Articles of the 2004 edition). More a more detailed overview of the principles, see <http://www.unidroit.org/english/principles/contracts/main.htm> for more details.

³⁴² See Conseil de la concurrence (2004): Décision du 9 novembre 2004 relative à des pratiques mises en œuvre par la société Apple Computer, Inc. Dans les secteurs du téléchargement de musique sur Internet et des baladeurs numériques, Case No. 04-D-54

³⁴³ See *Blizzard & Vivendi Universal v Jung*, 422 F.3d 630 (8th Cir. 2005), where the court held that reverse engineering in order to emulate Blizzard software amounted to an illegal activity under the DMCA and the interoperability exception did not apply to the facts of the case.

³⁴⁴ also *Sony Computer Entertainment v Connectix Corp*, 203 F.3d 596 (9th Cir. 2000) and *Sony Computer Entertainment v Bleem*, 214 F.3d (9th Cir. 2000),

³⁴⁵ See *Chamberlain Group v Skylink Technologies* (Fed. Circuit, 2004) 381 F.3d

complementary market.³⁴⁶ Finally, competition law can restrain private intervention whenever it is likely to impair competition on the market by creating excessive barriers to entry. The use of proprietary technology can create a situation of consumer lock-in, whereby the users of a product or service are unable to shift to a different product or service without substantial switching costs. Apple is perhaps the most well-known example of technological lock-in. From the use of specific hardware component in computers (e.g. FireWire serial interface, iPod dock connector, etc) to the use of proprietary DRM technology on their musical files (which could therefore be played only on compliant devices), Apple has often been accused of locking their consumers into their own system. In 2006, the consumer Ombudsman of Norway stated that Apple's iTunes Music Store was infringing the law to the extent the music released under the FairPlay DRM technology was incompatible with music players other than the iPod, and insofar as the terms and conditions regulating the use of DRM technology could be changed retroactively.³⁴⁷ As of, 2009, all music available on iTunes is now DRM-free.

Yet, many services providing DRM-protected content are concerned with preventing the interoperability of their products. The terms and conditions of Apple's iTunes Music Store, Napster, MovieLink and the like, all explicitly stipulate that users cannot convert digital files from one format to another. Such contractual provisions are likely to go counter the provisions of the law concerning the circumvention of technological measures of protection in order to enable interoperability,³⁴⁸ and could therefore be invalidated by the law.

Consumers' right can generally be relied upon in order to justify governmental intervention as an attempt to protect the interests of consumers. The Sony BMG rootkit scandal is a good illustration of how the law can resolve the potential conflict of interest between the commercial interests of right holders and the public interest of society. Sony BMG has been selling CDs whose copy protection mechanism infected users' computers with a spyware that made the computers vulnerable to third-parties' attack. This was done secretly, without obtaining any form of consent and without providing any notice to the users.³⁴⁹ Several class action suits have been filed against Sony BMG in several states. In 2007, the U.S. Federal Trade Commission (FTC) declared that Sony BMG's copy protection mechanism violated Federal law on the grounds that it constituted unfair and deceptive business practices. The settlement required Sony BMG to reimburse consumers for the damages caused by the spyware and to provide prominent notice of any restriction on the use or the reproduction of CDs.

Privacy is another area of law that might require government intervention in order to resolve potential conflicts emerging between contract law and data protection laws. In Europe, the Directive on the legal aspects of copyright in the Information Society explicitly states that it shall be without prejudice to any provision concerning privacy, confidentiality, data protection, and the law of contract.³⁵⁰ Recital 57 of

³⁴⁶ See *Lexmark International v Static Control Components* (6th Circuit, 2004) 387 F.3d 522, where the court held that Lexmark could not rely on the anti-circumvention provisions

³⁴⁷ On June 7, 2006, the Norwegian Consumer Ombudsman Bjørn Erik Thon stated that Apple's iTunes Music Store violates Norwegian law. The contract conditions were vague and "clearly unbalanced to disfavor the customer". The retroactive changes to the Digital Rights Management conditions and the incompatibility with other music players are the major points of concern. See <http://forbrukerportalen.no/> for more details.

³⁴⁸ See section 1201(f) of the Digital Millennium Copyright Act in the U.S. and Article 6 of the Directive on the legal protection of computer programs in Europe.

³⁴⁹ For more details, see CASS, S. (2006) Antipiracy software opens door to electronic intruders. *Spectrum*, 43.

³⁵⁰ See Article 9 (Continued application of other legal provisions) : « This Directive shall be without prejudice to provisions concerning in particular patent rights, trade marks, design rights, utility models, topographies of semi-

the same Directive provides, however, that any right-management information systems designed to process personal data or to allow for the tracing of online behaviour should incorporate privacy safeguards in accordance with the European Directive on Data Protection.³⁵¹ In the US, the Digital Millennium Copyright Act stipulates that the provisions against the circumvention of copyright protection systems do not apply in the case of technological measures collecting or disseminating personally identifying information without providing the user with the capability to prevent or restrict such collection or dissemination, whenever the act of circumvention has the sole effect of disabling this feature.³⁵²

The conflicts between private economic interests and the right to privacy has recently been addressed by the European Court of Justice in the landmark case of *Promusicae v Telefonica*, where it was held that Telefonica, the biggest Spanish Internet service provider, was not under the obligation to disclose personal information necessary to determine the identity of copyright infringers. Under EU law, personal data can be disclosed only in very specific circumstances in order to safeguard the public interest or fundamental rights. In particular, the Court ruled that there must be a fair balance between the protection of intellectual property rights and the fundamental right to privacy. While the disclosure of personal data can be imposed in order to protect copyright or other proprietary rights, there is no obligation to do so. Any measure to be taken must be both appropriate and proportionate to the case under scrutiny, and must therefore always be assessed on a case-by-case basis.³⁵³

Finally, a particularity of U.S. law is the notion of copyright misuse, derived from the equitable doctrine of “unclean hands” – according to which equitable remedy should be refused to anyone acting unethically or in bad faith.³⁵⁴ Although generally restricted to antitrust issues, improper behaviour that might lead to a finding of copyright misuse includes, *inter alia*, anti-competitive activities, restraints on progress (see e.g. the *Lasercomb* case),³⁵⁵ restriction against fair use or against free speech.

conductor products, type faces, conditional access, access to cable of broadcasting services, protection of national treasures, legal deposit requirements, laws on restrictive practices and unfair competition, trade secrets, security, confidentiality, data protection and privacy, access to public documents, the law of contract. »

³⁵¹ See Recital 57: “Any such rights-management information systems referred to above may, depending on their design, at the same time process personal data about the consumption patterns of protected subject-matter by individuals and allow for tracing of on-line behaviour. These technical means, in their technical functions, should incorporate privacy safeguards in accordance with Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and the free movement of such data“

³⁵² Digital Millennium Copyright Act, section 1201, subsection (i) Protection of Personally Identifying Information.

³⁵³ See *Promusicae v Telefonica* (2008) ECJ C-275/06, where Promusicae (an organization of music producers) sought an order from the Spanish Commercial Court for the Internet Service Provider Telefonica to disclose the identity and address of users whose IP addresses had been collected by Promusicae on Kazaa.

³⁵⁴ The doctrine of “unclean hands” is an equitable principle in U.S. law that prevents a participant in a wrongful act to recover damages resulting from it. It is a defense that can be used against any plaintiff who has done a wrong in the same subject matter in which court assistance is requested.

³⁵⁵ *Lasercomb America, Inc. v. Reynolds*, 911 F.2d 970 (4th Cir. 1990) is an appeal filed in the United States Court of Appeals for the Fourth Circuit, where copyright misuse was recognized as an equitable defense to a copyright infringement claim.

CONCLUSION

The advent of Internet and digital technologies has had a considerable impact upon the manner in which information is being produced and consumed. To the extent that any piece of information encoded into a digital format can be reproduced and disseminated much faster and at much lower costs than if it had been embodied into a physical medium, the process of digitization has drastically increased the opportunities for rights holders to distribute their works in the market for information goods. By the same token, however, given that digital content can be reproduced by anyone and at virtually no cost, and redistributed on a worldwide scale in virtually no time, digitization has dramatically increased the level of copyright infringement that occurs on a daily basis over the Internet network. Unless it has been protected by technological measures of protection, digital content can in fact be reproduced indefinitely and further disseminated by anyone who has access to it. In spite of the advantages they might bring, digital technologies are thus likely to reduce the incentives for end-users to purchase digital content directly from right holders or content providers insofar as they can obtain it for free on the Internet.

As a result of these developments, copyright law has had to be reformed. Originally conceived for the physical world, the traditional implementation of the copyright regime was unable to cope with the specificities of the digital environment. Many provisions of the copyright regime had thus to be amended, in order to comply with the new forms of exploitation that emerged with the advent of Internet and digital technologies.³⁵⁶ Yet, given the rapid pace at which technology evolves – as opposed to the speed of the legislative process – it is difficult for the law to be consistently and adequately reformed after every technological advance.³⁵⁷

Given the failure of the public sector in resolving the problem of copyright infringement, the issue has been addressed by the private sector. Even if they ultimately belong to the realm of intellectual property law, the legal properties of the work can theoretically be overwritten by contract. In line with the principles of freedom of contract, private parties can enter into specific contractual agreements in order to either reduce or increase the scope of protection that has been provided by default under the copyright regime. Regardless of the way in which it has been defined by the law, the work can therefore assume the characteristics of either a private or a public good according to the terms and conditions of the copyright license under which it has been released.³⁵⁸ Likewise, even if they are generally associated with the

³⁵⁶ With the advent of Internet and digital technologies, a series of legislative reforms have been implemented to extend the scope of copyright protection to the digital environment, while simultaneously ensuring that a proper balance is struck between the economic interests of right holders and public access to digital works. For more details on legislative reforms that the copyright regime has been subject to, see Chapter 1: Copyright Law. Section 4: Digital Challenges. Subsection 1: Legislative Reforms.

³⁵⁷ A proper implementation of copyright law must necessarily account for the current technological framework of society. Important technological advances will thus require the law to be reformed in order to comply with the new technological framework that is emerging. In recent years, however, the pace of technological advances is too rapid to allow for the legislature to properly catch up with the many technological changes which are likely to affect the production and the consumption of copyright works. See Chapter 2: Private Ordering. Section 2.1: Legislative Lag.

³⁵⁸ Different mechanisms of self-help have emerged in the digital world in order to restore the self-regulating features of the copyright regime. On the one hand, restrictive licensing agreements combined with technological measures of protection constitute an attempt to reintroduce the characteristics of a private good into the digital medium. For more details, see Part I. Chapter 2: Private Ordering: Restrictive Licences. On the other hand, extremely liberal licensing

properties of a public good, the properties of the digital medium can be theoretically modified by technological means. The digital medium can therefore assume the characteristics of a private good by means of specifically designed technological measures of protection.

In particular, in the digital environment, private regulation came into play as an attempt to reintroduce the self-regulating features of the copyright regime by means of two divergent mechanisms.³⁵⁹

On the one hand, it has become common practice in the context of many commercial transactions to rely upon the use of restrictive licensing agreements and technological measures of protection for the distribution and dissemination of digital content. Today, many digital works are licensed under a variety of end-user licensing agreements whose terms and conditions precisely regulate the manner and the extent to which the work can be legitimately accessed and consumed. In order to ensure compliance with the provisions of the copyright license, its terms and conditions are often enforced by technological measures of protection to automatically prevent the unauthorized exploitation of the work. Endorsed by many powerful right-holders, the objective of this approach is to restore the self-regulating features of the copyright regime by turning the digital medium into a private good through a series of contractual and technological means.³⁶⁰

On the other hand, a very liberal set of licenses has been advanced by the Open Content community to embrace the nature of the digital environment. Inspired by the copyleft philosophy of the Open Source movement, the objective of these licenses is to reduce the default level of protection granted under copyright law in order to promote the broadest dissemination of works. Although they necessarily rely upon the provisions of the copyright regime in order to be enforceable against third parties, Open Content licenses are for the most part concerned with the free reproduction and the free dissemination of works.³⁶¹ As such, they purport to re-establish the self-regulating features of the copyright regime by reintroducing into the work certain characteristics of a public good.

agreement such as most Open Content license constitute an attempt to reintroduce the characteristics of a public good into the expression of the work. For more details, see Chapter 2: Private Ordering: Open Licences.

³⁵⁹ The inability of the copyright regime to address certain technological advances in a timely manner necessarily results in a certain degree of legal uncertainty over the application of copyright law into the new technological framework. The greater is the level of uncertainty for right-holders and users, the smaller will be the extent to which they actually rely upon the provisions of copyright law in order to regulate the access to and the consumption of content, and the greater their reliance upon private mechanisms of self-help will be. See DEPOORTER, B. (2009) *Technology and Uncertainty: The Shaping Effect on Copyright Law*. *University of Pennsylvania Law Review*, 157.

³⁶⁰ As opposed to the physical environment, where information is for the most part regulated by the provisions of copyright law, in the digital environment, the private sector is assuming an increasingly relevant role in the regulation of information, whose consumption is fundamentally regulated by contractual agreements and technological measures of protections. For more details, see Chapter 2: Private Ordering: Restrictive Licences.

³⁶¹ While many content providers believe that content in a digital format requires a greater level of protection, certain authors consider instead that the standard level of protection provided under the law is likely to limit the free reproduction and dissemination of their works. While the former are likely to rely on technological measures in order to expand the level of protection beyond the scop of the copyright regime, the latter are instead more likely to rely on Open Content licenses in order to reduce the default scope of protection granted under the copyright regime. For more details, see Chapter 2: Private Ordering: Restrictive Licences and Open Licences.

In spite of the divergence in methods, the commonality of these two approaches lies in their objectives. Both aim at re-establishing the self-regulating features of the copyright regime by re-aligning the legal properties of the work with the physical properties of the medium into which it inheres, so that they can be exchanged in the market for information goods as a single asset with a consistent set of properties.

While the first part of the thesis illustrates the default provisions of the copyright regime, the second part of the thesis analyses how technological means and the terms and conditions of different licensing agreements can be used to either increase or decrease the default level of protection granted under the law. Finally, the last part of the thesis investigates the role of the State and the extent to which it is permitted to intervene to regulate the operations of the private sector.

BIBLIOGRAPHY

- ABRAMS, H. B. (1992) Originality and Creativity in Copyright Law. *Law and Contemporary Problems*, 55.
- AIGRAIN, P. (2003) Positive Intellectual Rights and Information Exchange. IN CENTURY, M. (Ed.) *CODE*. MIT Press.
- AJANI, G. & EBERS, M. (2005) *Uniform terminology for european contract law*, Baden-Baden: Nomos.
- ALFINO, M. R. (1991) Intellectual Property and Copyright Ethics. *Business and Professional Ethics Journal*, 10.
- ANTELMAN, K. (2004) Identifying the Serial Work as a Bibliographic Entity. *Library Resources and Technical Services*, 48.
- ANTELMAN, K. (2005) Identifying the Serial Work as a Bibliographic Entity. *Library Resources and Technical Services*, 48.
- AOKI, K. (1996) (Intellectual) Property and Sovereignty: Notes toward a Cultural Geography of Authorship. *Stanford Law Review*, 48.
- ARANGUREN, M. E. (2005) Ontology Design Patterns for the Formalisation of Biological Ontologies. University of Manchester.
- ARENDT, H. (1958) *The Human Condition*, Chicago, Illinois, University of Chicago Press.
- ASCHEBRENNER, A. (2004) File Format Features and Significant Properties. *Workshop on Digital Preservation*. Beijing, China.
- ASHLEY, C. D. (1903) Mutual Assent in Contract. *California Law Review*, 3.
- ASHLEY, C. D. (1913) The Doctrine of Consideration. *Harvard Law Review*, 26.
- BACHRACH, J. E. (1971) Type and Token and the Identification of the Work of Art. *Philosophy and Phenomenological Research*, 31, 415-420.
- BAILEY, C. W. (2006) What is Open Access? IN JACOBS, N. (Ed.) *Open Access: Key Strategic, Technical and Economic Aspects*. Oxford, Chandos Publishing.
- BAKOS, Y. (2001) The Emerging Landscape for Retail E-Commerce. *The Journal of Economic Perspectives*, 15.
- BARLAS, C. (2006) Digital Rights Expression Languages (DREs). *JISC Technology and Standards Watch*, July 2006.
- BARLAS, C., CUNARD, J. & HILL, K. (2003) Current Developments in the Field of Digital Rights Management. WIPO Standing Committee on Copyright and Related Rights.
- BARLOW, J. P. (1992) Selling Wine Without Bottles. *Exposure: From Friction to Freedom*. Helsinki, Finland, Aula.
- BARRON, A. (2008) Copyright infringement, 'free-riding' and the lifeworld. *Law, Society and Economy working papers*. London, UK, London School of Economics and Political Science (LSE).

- BARTOLINI, F., CAPPELLINI, V., PIVA, A., FRINGUELLI, A. & BARNI, M. (1999) Electronic Copyright Management Systems: Requirements, Players and Technologies. *10th International Workshop on Database & Expert Systems Applications*. IEEE.
- BECHTOLD, S. (2002) From Copyright to Information Law: Implications of Digital Rights Management. IN SANDER, T. (Ed.) *Security and Privacy in Digital Rights Management*. Berlin, Springer.
- BECHTOLD, S. (2004) Digital Rights Management in the United States and Europe. *The American Journal of Comparative Law*, 52.
- BECKER, E., BUHSE, W., GÜNNEWIG, D. & RUMP, N. (2004) *Digital Rights Management: Technological, Economic, Legal and Political Aspects*, Springer.
- BELLA, P. L. (2004) Defending Cyberproperty. *NYU Law Review*, 79.
- BELLINGER, G., CASTRO, D. & MILLS, A. (2004) Data, Information, Knowledge, and Wisdom.
- BENKLER, Y. (1999) Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain. *NYU Law Review*, 74.
- BENKLER, Y. (2000) An Unhurried View of Private Ordering in Information Transactions. *Vanderbilt Law Review*, 2063.
- BENKLER, Y. (2001) A Political Economy of the Public Domain: Markets in Information Goods versus the Marketplace of Ideas. IN DREYFUSS, R. C. & ZIMMERMAN, D. L. (Eds.) *Expanding the Boundaries of Intellectual Property: Innovation Policy and the Knowledge Society*. Oxford University Press.
- BENKLER, Y. (2006) *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Yale University Press.
- BENTLEY, N. (2007) Trading Rights to Digital Content. *International Workshop for Technical, Economic and Legal Aspects of Business Models for Virtual Goods*. Koblenz, Germany.
- BERNERS-LEE, T., MASINTER, L. & MCCAILL, M. (1994) Uniform Resource Locators. *RFC 1738*. <http://www.ietf.org/rfc/rfc1738.txt>.
- BIDE, M., GREEN, B., HEALY, M. & PHILLIPS, D. W. (2002) UK committee members response to the comments on ISO Committee Draft 2047 of the International Standard Textual Work Code from the International Federation of Library Associations and Institutions (IFLA).
- BIDE, M., POTTER, L. & WATKINSON, A. (1999) Digital Preservation: An introduction to the standards issues surrounding the deposit of non-print publications. *Library and Information Commission Research Report 23*. British National Bibliography Research Fund.
- BLACK, P., DELANEY, H. & FITZGERALD, B. (2005) Legal Issues for Wikis: The Challenge of User-generated and Peer-produced Knowledge, Content and Culture. *International Symposium on Wikis*. Australia.
- BOER, A. & VITALI, F. (2007) MetaLEX. *CEN Workshop*. Leiden, the Netherlands.
- BOHM, K. & RAKOW, T. C. (1994a) Metadata for Multimedia Documents. *SIGMOD-Record Special Issue on Metadata for Digital Media*, 23.
- BOHM, K. & RAKOW, T. C. (1994b) Metadata for multimedia documents. *ACM Sigmod Record*, 23, 21-26.

- BOISOT, M. & CANALS, A. (2004) Data, information and knowledge: have we got it right? *Working Paper Series WFO4-002*. Internet Interdisciplinary Institute (IN3).
- BOMSEL, O. & GEFFROY, A.-G. (2005) Economic Analysis of Digital Rights Management systems. Paris, CERNA.
- BOTTERBUSCH, H. R. & PARKER, P. (2008) Copyright and Collaborative Spaces: Open Licensing and Wikis. *Techtrends*, 52.
- BOYLE, J. (2003) The Second Enclosure Movement and the Construction of the Public Domain. *Law and Contemporary Problems*, 66.
- BUCKLAND, M. (1991a) Information as thing. *Journal of the American Society for Information Science*, 42, 351-360.
- BUCKLAND, M. (1997) What is a digital document? *Journal of the American Society for Information Science*, 48, 804-809.
- BUCKLAND, M. K. (1991b) Information as Thing. *Journal of the American Society for Information Science*, 42, 351-360.
- BURK, D. L. & COHEN, J. E. (2001) Fair Use Infrastructure for Rights Management Systems. *Harvard Law Review*, 15.
- BURKE, J. J. A. (2000) Contract as Commodity: A Non-fiction Statutory Approach. *Statute Law Review*, 21.
- BURKE, J. J. A. (2003) Reinventing Contract. *Murdoch University Electronic Journal of Law*, 10.
- BURMANN, C. & ARNHOLD, U. (2008) *User Generated Branding: State of the Art of Research*, LIT Verlag.
- BYGRAVE, L. A. (2002) The Technologization of Copyright: Implications for Privacy and Related Interests. *European Intellectual Property Review*, 24.
- BYGRAVE, L. A. & KOELMAN, K. J. (2000) Privacy, Data Protection and Copyright: their interaction in the context of electronic copyright management systems. IN HUGENHOLTZ, B. P. (Ed.) *Copyright and Electronic Commerce*. Kluwer Law International.
- CAMPBELL, J. (2007) Authorship, incentives for creation, and copyright in the digital 21st century. *American Society for Information Science and Technology*.
- CARLYLE, A. (2006) Understanding FRBR as a Conceptual Model: FRBR and the Bibliographic Universe. *Resources and Technical Services*, 50, 264-273.
- CARLYLE, A. (2007) Understanding FRBR as a Conceptual Model: FRBR and the Bibliographic Universe. *Bulletin of the American Society for Information Science and Technology*, September 2007.
- CARRARA, M. & GIARETTA, P. (2000) On Identity Criteria. IN NIMTZ, C. (Ed.) *Arguments and Analysis*. 4th International Congress of the Society for Analytical Philosophy.
- CARROLL, N. (1997) The Ontology of Mass Art. *Journal of Aesthetics and Art Criticism*, 55.
- CARROLL, N. (1998) *A Philosophy of Mass Art*, Oxford University Press.
- CASELLATI, A. M. (2001) The Evolution of Article 6.4 of the European Information Society Copyright Directive. *Colum.-VLA Journal of Law & Arts*, 24.
- CASS, S. (2006) Antipiracy software opens door to electronic intruders. *Spectrum*, 43.

- CASTELLS, M. (2001) *The Internet galaxy: Reflections on the Internet, business and society*, Oxford University Press.
- CEDERGREN, M. (2003) Open Content and Value Creation. *First Monday*, 8.
- CEUSTERS, W., CAPOLUPO, M. & DEVLIES, J. (2009) ReMINE - RAPS Application ontology.
- CEUSTERS, W. & SMITH, B. (2006) A Realism-Based Approach to the Evolution of Biomedical Ontologies. *American Medical Informatics Association*.
- CHAFEE, Z. (1945) Reflections on the Law of Copyright. *Columbia Law Review*, 45, 503-529.
- CHEAL, D. (1998) *The Gift Economy*, Routledge.
- CHOI, S. Y. & WHINSTON, A. B. (1999) The future of e-commerce: integrate and customize. *IEEE Computer*, 31.
- CLAESSENS, J., PRENEEL, B. & VANDEWALLE, J. (1999) Solutions for Anonymous Communication on the Internet. *International Carnahan Conference on Security Technology*.
- CLARKE, R. (2003) Copyright: The Spectrum of Content Licensing.
- CLARKE, R. (2004) Open Source Software and Open Content as Models for eBusiness. *17th International eCommerce Conference*. Bled, Slovenia.
- CLARKE, R. (2007) Business Models to Support Content Commons. *SCRIPT-ed*, 4.
- CLARKE, R. & DEMPSEY, G. (2004) The Economics of Innovation in the Information Industries.
- COHEN, A. B. (1991) Copyright Law and the Myth of Objectivity: The Idea-Expression Dichotomy and the Inevitability of Artistic Value Judgements. *Indiana Law Journal*, 66.
- COHEN, A. B. (1999a) When does a Work Infringe the Derivative Works Right of a Copyright Owner. *Cardozo Arts & Entertainment Law Journal*, 17.
- COHEN, J. E. (1997) Some Reflections on Copyright Management Systems and Laws Designed to Protect Them. *Berkeley Technology Law Journal*, 12.
- COHEN, J. E. (1998) Copyright and the Jurisprudence of Self-Help. *Berkeley Technology Law Journal*, 13.
- COHEN, J. E. (1999b) WIPO Copyright Treaty Implementation in the United States: Will Fair Use Survive? *European Intellectual Property Review*, 236.
- COHEN, J. E. (2000) Copyright and the Perfect Curve. *Vanderbilt Law Review*, 53.
- COHEN, J. E. (2003) DRM and Privacy. *Berkeley Technology Law Journal*, 18.
- COHEN, M. R. (1933) The Basis of Contract. *Harvard Law Review*, 46.
- COLLIER, J. (2004) Self-organisation, Individuation and Identity. *Revue Internationale de Philosophie*, 151-172.
- CONTRACTOR, F. J. (2001) Valuing Intellectual Property and Corporate Expertise. *Valuation of intangible assets in global operations*. Praeger.
- COTEANU, C. (2005) *Cyber Consumer Law and Unfair Trading Practices: Unfair Commercial Practices (Markets and the Law)*, Ashgate Publishing.
- COYLE, K. (2004) Rights Expression Languages. Library of Congress.
- COYLE, K. (2005) Descriptive metadata for copyright status. *First Monday*, 10.

- CRAIG, C. S. J. (2002) Locke, Labour, and Limiting the Author's Right: A Warning against a Lockean Approach to Copyright Law. *Queen's Law Journal*, 28.
- CREWS, K. D. & RAMOS, J. (2006) Comparative Analysis of World Copyright Law. *Copyright Management for Scholarship*. Zwolle, Netherlands.
- DANIEL, R., LAGOZE, C. & PAYETTE, S. D. (1998) A Metadata Architecture for Digital Libraries. *Research and Technology Advances in Digital Libraries*. IEEE International.
- DANSKI, A. & CHAPMAN, A. (2003) Bibliographic Records in the Computer Age. *Library and Information Update*, 2, 42-43.
- DAVIS, R. (2000) *The Digital Dilemma: Intellectual Property in the Information Age*, Washington, National Academy Press.
- DAVIS, R. (2001) The Digital Dilemma. *Communication of the ACM*, 44, 77-83.
- DELGADO, J. & GALLEGO, I. (2002) Standardisation of the management of Intellectual Property Rights in multimedia content. *Distributed Multimedia Applications Group*. Universitat Politecnica de Catalunya (UPC).
- DELGADO, J., GALLEGO, I., LLORENTE, S. & GARCIA, R. (2003) IPRonto: An Ontology for Digital Rights Management. IN BOURCIER, D. (Ed. *Jurix 2003: Legal Knowledge and Information Systems*. IOS Press.
- DELSEY, T. (2001) Reassessing Conventional Paradigms for Document Description.
- DEPOORTER, B. (2009) Technology and Uncertainty: The Shaping Effect on Copyright Law. *University of Pennsylvania Law Review*, 157.
- DEPOORTER, B. & VANNESTE, S. (2006) Norms and Enforcement: The Case Against Copyright Litigation. *Oregon Law Review*, 84.
- DESCARTES, R. (1641) Meditation II: Of the Nature of the Human Mind; and that is more easily known than the Body. *Discourses on the Method and the Meditations on First Philosophy*. Hackett Publishing (1999).
- DESCARTES, R. (1641) Meditation II: Of the Nature of the Human Mind; and that is more easily known than the Body. *Discourses on the Method and the Meditations on First Philosophy*. Hackett Publishing (1999).
- DESCARTES, R. (1644) *Treatise on Man*, Harvard University Press.
- DINWOODIE, G. B. (2004) Private Ordering and the Creation of International Copyright Norms: The Role of Public Structuring. *Journal of Institutional and Theoretical Economy*.
- DOERING, J. & HERBERGER, M. (2006) Ontologies in the Legal Domain. *Problems of Legal Informatization*, 2.
- DRUMMOND, N. & HORRIDGE, M. (2006) A Practical Introduction to Ontologies & OWL. University of Manchester.
- DRUMMOND, N. & SHEARER, R. (2006) The Open World Assumption. University of Manchester.
- DUCHENE, A. & WAELBROECK, P. (2005) Peer-to-peer, piracy and the copyright law: implications for consumers and artists. IN TAKEYAMA, L., GORDON, W. J. & TOWSE, R. (Eds.) *Developments in the economics of copyright: research and analysis*. Edward Elgar Publishing.
- DUMMETT, M. (1973) *Frege's Philosophy of Language*, New York, NY, Harper and Row.

- DUSOLLIER, S. (1999) Electrifying the fence: the legal protection of technological measures for protecting copyright. *European Intellectual Property Review*, 6.
- DUSOLLIER, S. (2003) Fair use by design in the European copyright directive of 2001. *Communication of the ACM*, 46, 51-55.
- EASTERBROOK, F. H. (2005) Contract and Copyright. *Transactions, Information and Emerging Law*.
- EFF (2006) Unintended Consequences: Seven Years under the DMCA. Electronic Frontier Foundation.
- EINHORN, D. A. (1995) Shrink-Wrap Licenses: The Debate Continues. *IDEA: The Journal of Law and Technology*, 38.
- ELKIN-KOREN, N. (1995) Copyright Law and Social Dialogue in the Information Superhighway. *Cardozo Arts & Entertainment Law Journal*, 13.
- ELKIN-KOREN, N. (1996) Public/Private and Copyright Reform in Cyberspace. *Journal of Computer-Mediated Communication*, 2.
- ELKIN-KOREN, N. (1997) Copyright Policy and the Limits of Freedom of Contract. *Berkeley Technology Law Journal*, 12.
- ELKIN-KOREN, N. (1998) Copyrights in Cyberspace: Rights without Laws? *Chicago-Kent Law Review*, 73.
- ELKIN-KOREN, N. (2001) The Privatization of Information Policy. *Ethics and Information Technology*, 2.
- ELKIN-KOREN, N. (2005) What Contracts Can't Do: The Limits of Private Ordering in Facilitating a Creative Commons. *Fordham Law Review*, 74.
- EPSTEIN, R. A. (1996) Contracts Small and Contract Large: Contract Law Through the Lens of Laissez-Faire. University of Chicago Law School.
- EPSTEIN, R. A. (1998) Before Cyberspace: Legal Transitions in Property Rights Regimes. *Chicago-Kent Law Review*, 73.
- ESKICIOGLU, A. M. & DELP, E. J. (2001) An overview of multimedia content protection in consumer electronics devices. *Signal Processing: Image Communication*. Elsevier.
- ESKICIOGLU, A. M. (2004) Protecting Intellectual Property in Digital Multimedia Networks. *Computer*, 36.
- FALLENBOCK, M. (2003) On the Technical Protection of Copyright: The Digital Millennium Copyright Act, the European Community Copyright Directive and their Anticircumvention Provisions *International Journal of Communications Law and Policy*.
- FELLER, J. & FITZGERALD, B. (2002) *Understanding Open Source Software Development*, London, Addison-Wesley.
- FELTEN, E. W. & HALDERMAN, J. A. (2006) Digital Rights Management, Spyware, and Security. *Security & Privacy*, 4.
- FERNANDEZ, I. G. & MERCE, J. D. (2005) XML and Digital Rights Management over the Internet. *The European Journal for the Informatics Professional*, 6.
- FISHER, W. W. (1988) Reconstructing the Fair Use Doctrine. *Harvard Law Review*, 101.
- FISHER, W. W. (1998) Property and Contract on the Internet. *Chicago-Kent Law Review*, 73, 1203-1211.

- FITZGERALD, B. & REID, J. (2005) Digital Rights Management (DRM): Managing Digital Rights for Open Access. IN ROONEY, D., HEARN, G. & NINAN, A. (Eds.) *Handbook on the Knowledge Economy*. Edward Elgar.
- FLOYD, I. R. & RENEAR, A. H. (2007) What Exactly is an Item in the Digital World? *The American Society for Information Science and Technology*. Milwaukee, Wisconsin.
- FORMANKO, M. (2004) Versioning information goods in digital libraries. *Department of Information Business*. Vienna University of Economics and Business Organization.
- FREDRIKSSON, M. (2005) Copyright and the Story of the Author. *MIT4: The Work of Stories*.
- FREGE, G. (1884) *Die Grundlagen der Arithmetik. Eine Logisch-Matematische Untersuchung über den Begriff der Zahl*, Oxford, Blackwell.
- FRIPP, C. (2005) Instant licences move copyright into a new digital space: is it time to encourage Copyright Cannibals? *8th Symposium on Electronic Theses and Dissertations*. Sydney, Australia.
- GABRIEL, G. (2007) International Distributions: Divergence of Co-Ownership Laws. *Vanderbilt Journal of Entertainment and Technology Law*, 9.
- GANDON, F. (2002) Ontology in a Nutshell. INRIA.
- GARBACZ, P. (2004) The Four Dimensions of Artifacts. *AAAI 2004*. Catholic University of Lublin, Poland.
- GARCIA, R. (2005) A Semantic Web Approach to Digital Rights Management. *Department of Technologies*. Barcelona, Spain, Universitat Pompeu Fabra.
- GASSER, U. & GIRSBERGER, M. (2004) Transposing the Copyright Directive: Legal Protection of Technological Measures in EU Member States. *Berkman Publication Series*. Berkman Center for Internet & Society.
- GETTY, J. P. (2009) Categories for the Description of Works of Art (CDWA): List of Categories and Definitions. College Art Association.
- GIAVARRA, E. (1998) Copyright and licensing in the digital age. *Digital library and e-publishing for science and technology*. Tilburg.
- GINSBURG, J. C. (1990) Creation and Commercial Value: Copyright Protection of Works of Information. *Columbia Law Review*, 90.
- GINSBURG, J. C. (1992) Conflicts of Copyright Ownership Between Authors and Owners of Original Artworks: An Essay in Comparative and International Private Law. *Columbia Journal of Law & the Arts*, 17.
- GLADNEY, H. M. (2002) A Digital Resource Identifier: Prelude to Trustworthy, Durable Digital Documents. California, HMG Consulting.
- GOLDSTEIN, P. (2001) *International Copyright: Principles, Law, and Practice*, Oxford University Press.
- GOODMAN, B. (1999) Honey, I shrink-wrapped the consumer: the shrink-wrap agreement as an adhesion contract. *Cardozo Law Review*, 21.
- GORDON, W. J. (1982) Fair Use as Market Failure: A Structural and Economic Analysis of the "Betamax" Case and its Predecessors. *Columbia Law Review*, 82.
- GORDON, W. J. (1992) Asymmetric Market Failure and Prisoner's Dilemma in Intellectual Property. *University of Dayton Law Review*, 17.

- GORDON, W. J. & BONE, R. G. (2000) Copyright. IN BOUCKAERT, B. & GEEST, G. D. (Eds.) *Encyclopedia of Law and Economics*. Cheltenham, Edward Elgar.
- GORSKA, E. (2003) On partonomy and taxonomy. *International review of English Studies*.
- GREEN, T. R. & BENYON, D. R. (1996) The skull beneath the skin: Entity-relationship modelling of Information Artefacts. *International Journal of Human-Computer Studies*, 44, 801-828.
- GRENON, P. & SMITH, B. (2007) Persistence and Ontological Pluralism. IN KANZIAN, C. (Ed.) *Persistence*. New York, Springer.
- GROFFMAN, E. (1979) Divisibility of Copyright: Its Application and Effect. *Santa Clara Law Review*, 19.
- GRUBER, T. R. (1993a) A translation approach to portable ontologies. *Knowledge Acquisition*, 5, 199-220.
- GRUBER, T. R. (1993b) A Translation Approach to Portable Ontologies. *Knowledge Acquisition*, 5, 199-220.
- GUARINO, N. (1999) The Role of Identity Conditions in Ontology Design. *Spatial Information Theory. Cognitive and Computational Foundations of Geographic Information Science*.
- GUARINO, N. & WELTY, C. (2002) Evaluating ontological Decisions with Ontoclean. *Communications of the ACM*, 45.
- GUARINO, N. & WELTY, C. A. (2000) A formal ontology of properties. *Proceedings of the 12th European Workshop on Knowledge Acquisition, Modeling and Management*. Springer-Verlag.
- GUBA, E. C. (1990) *The Alternative Paradigm Dialog*, Sage Publications.
- GUIBAULT, L. & HELBERGER, N. (2005) Copyright Law and Consumer Protection. *Policy conclusions of the European Consumer Law Group*. Institute for Information Law, University of Amsterdam.
- GUIZZARDI, G., HERRE, H. & WAGNER, G. (2002) On the General Ontological Foundations of Conceptual Modeling. BTU Institut für Informatik.
- GUNDER, A. (2001) Forming the Text, Performing the Work: Aspects of Media, Navigation, and Linking. University College of Borås, Sweden.
- HALDERMAN, J. A. (2002) Evaluating New Copy-Prevention Techniques for Audio CDs. *ACM Workshop on Digital Rights Management*. Washington DC.
- HALPERN, S. W. (2001) The Digital Threat to the Normative Role of Copyright Law. *Ohio State Law Journal*, 62.
- HAMELINK, C. J. New Information and Communication Technologies, Social Development and Cultural Change. United Nations Research Institute for Social Development.
- HARDY, I. T. (1995) Contracts, Copyright and Preemption in a Digital World. *Richmond Journal of Law & Technology*, 1.
- HARDY, T. (2006) Copyright Law, Public Goods, and Incentives. *Intellectual Property Scholars' Conference*. Boalt Hall. University of California at Berkeley.
- HAUFLER, V. (2001) *A Public Role for the Private Sector: Industry self-regulation in a global economy*, Carnegie Endowment.

- HAYES, D. L. (1998) Advanced Copyright Issues on the Internet. *Texas Intellectual Property Law Journal*, 7.
- HEANEY, M. (2000) An Analytical Model of Collections and their Catalogues. University of Oxford.
- HEIDEGGER, M. (1988) *The Basic Problems of Phenomenology*, Bloomington, Indiana, Indiana University Press.
- HEIDEGGER, M. (1992) *History of the Concept of Time*, Bloomington, Indiana, Indiana University Press.
- HELLER, M. A. (1998) The Tragedy of the Anticommons: Property in the Transition from Marx to Markets. *Harvard Law Review*, 111.
- HEMETSBERGER, A. (2002) Fostering cooperation on the Internet: social exchange processes in innovative virtual consumer communities. *Advances in Consumer Research*, 29.
- HEY, J. (2004) The Data, Information, Knowledge, Wisdom Chain: The Metaphorical link. University of California at Berkeley.
- HICK, D. H. (2008) The Metaphysics and Ethics of Copyright. *Department of Philosophy*. University of Maryland.
- HIETANEN, H. (2007) A License or a Contract: Analyzing the Nature of Creative Commons Licenses. Helsinki Institute for Information Technology.
- HILL, J. (2001) The Termination of Bare Licences. *The Cambridge Law Journal*, 60.
- HILLMAN, R. A. & RACHLINSKI, J. J. (2002) Standard-Form Contracting in the Electronic Age. *New York University Law Review*, 77.
- HILLMAN, R. A. & RACHLINSKI, J. J. (2001) Standard-Form Contracting in the Electronic Age. Cornell Law School
- HOEREN, T. (1991) Chip protection in Europe. IN MEIJBOOM, A. & PRINS, C. (Eds.) *The law of information technology in Europe*. Amsterdam.
- HOUWELING, M. S. V. (2005) Distributive Values in Copyright. *Texas Law Review*, 86.
- HOWARTH, L. C. (1997) Content versus Carrier. *International Conference on the Principles and Future Development of AACR*. Toronto, Canada.
- HUESCHEN, G. W. (1951) Patents: Exclusive Licenses: Licensor and Licensee Relationship: Licensee's Obligations. *Michigan Law Review*, 49.
- HUGENHOLTZ, B. (1996) Adapting copyright to the information superhighway. IN HUGENHOLTZ, P. B. (Ed.) *The Future of Copyright in a Digital Environment*. The Hague, Kluwer.
- HUGENHOLTZ, P. B., GUIBAULT, L. & GEFFEN, S. V. (2003) The Future of Levies in a Digital Environment. Amsterdam, Institute for Information Law.
- HUGHES, J. (1988) The Philosophy of Intellectual Property. *Georgetown Law Journal*, 77.
- HUGHES, J. (2005) On the Logic of Suing One's Customers and the Dilemma of Infringement-based Business Models. *Cardozo Arts & Entertainment Law Journal*, 20.
- HUSSERL, E. (1973) *Experience and Judgment: Investigations in a Genealogy of Logic*, Evanston, Illinois, Northwestern University Press.
- IEEE (1999) Copy Protection for DVD Video. *Proceedings of the IEEE*, 87.

- IFLA (1998) Functional Requirements for Bibliographic Records. IN SAUR, K. G. (Ed., IFLA Study Group on the Functional Requirements for Bibliographic Records.
- IFLA (2007) FRBR object-oriented definition and mapping to FRBRer. IN DOERR, M. & BOEUF, P. L. (Eds.). International Working Group on FRBR and CIDOC CRM Harmonization.
- INGARDEN, R. (1964) *Time and Modes of Being*, Springfield, Illinois, Charles C. Thomas.
- INGARDEN, R. (1989) *The Ontology of the Work of Art*, Ohio University Press.
- INGARDEN, R. & GRABOWICZ, G. G. (1979) *The Literary Work of Art: An Investigation of the Borderlines of Ontology, Logic, and Theory of Language*, Northwestern University Press.
- INGARDEN, R. & GRABOWICZ, G. G. (1973) *The Literary Work of Art: An Investigation of the Borderlines of Ontology, Logic and the Theory of Language*, Northwestern University Press.
- IRWIN, R., MARTZ, F., NOH, Y. & SUN, D. (2008) Best Practices for Structural Metadata. *Yale University Library*.
- JANSEN, L. (2007) Dispositions, Laws, and Categories: A Critical Study of E. J. Lowe's The Four-Category Ontology. *Metaphysica*, 8.
- JARDINE, C. J., JARDINE, N. & SIBSON, R. (1967) The structure and construction of taxonomic hierarchies. *Mathematical Biosciences*, 1, 173-179.
- JEHORAM, H. C. (1996) International exhaustion versus importation right: a murky area of intellectual property law. *GRUR International*, 4.
- JOHNSON, D. R. & POST, D. G. (1997) And How Shall the Net be Governed? A Meditation on the Relative Virtues of Decentralized, Emergent Law. IN KAHIN, B. & KELLER, J. H. (Eds.) *Coordinating the Internet*.
- JOUIS, C. (2006) Hierarchical Relationships "is-a": Distinguishing Belonging, Inclusion and Part/of Relationships. *International Conference on Language Resources and Evaluation*. Genoa, Italy.
- KANER, C. (2002) UCITA: a disaster in progress. *Spectrum*, 39.
- KANSA, E. C., SCHULTZ, J. & BISSELL, A. N. (2005) Protecting Traditional Knowledge and Expanding Access to Scientific Data: Juxtaposing Intellectual Property Agendas via a "Some Rights Reserved" Model. *International Journal of Cultural Property*, 12.
- KARLEN, P. H. (1986) Worldmaking: Property Rights in Aesthetic Creations. *The Journal of Aesthetics and Art Criticism*, 45.
- KATZ, Z. (2006) Pitfalls of Open Licensing: An Analysis of Creative Commons Licensing. *IDEA*, 46.
- KENNEDY, D. M. (2001) A Primer on Open Source Licensing Legal Issues: Copyright, Copyleft and Copyfuture. *St. Louis University Public Law Review*, 20.
- KESSLER, F. (1943) Contracts of Adhesion: Some Thoughts about Freedom of Contract. *Columbia Law Review*, 43.
- KHONG, D. W. K. (2004) Copyright Doctrines and Court Error. *Law and Economics*. University of Strathclyde, UK.
- KIM, J. (2001) Phenomenology of Digital-Being. *Human Studies*, 24, 87-111.
- KIM, N. S. (2007) Clicking and Cringing. California Western School of Law.
- KINSELLA, N. S. (2001) Against Intellectual Property. *Journal of Libertarian Studies*, 15.

- KORBA, L. & KENNY, S. (2002) Towards Meeting the Privacy Challenge: Adapting DRM. Canada, Institute for Information Technology, National Research Council.
- KOROBKIN, R. (2003) Bounded Rationality, Standard Form Contracts, and Unconscionability. *University of Chicago Law Review*.
- KROWNE, A. & PUZIO, R. (2006) The fog of copyleft. *First Monday*, 11.
- KRUEGER, C. C. & SWATMAN, P. M. C. (2005) The Impact of Internet Technology on the Online Content Sector: Value Webs in online news and music. *Building Society through E-Commerce*.
- KUMAR, V. (2008) Open Licenses and Content Distribution. *Emerging Trends and Challenges in Library and Information Services*.
- KUMER, A., SMITH, B. & NOVOTNY, D. D. (2004) Biomedical informatics and granularity. *Comparative and Functional Genomics*, 5, 501-508.
- KUNY, T. (1997) A Digital Dark Ages? Challenges in the Preservation of Electronic Information. *International Preservation News*, 17.
- KURTZ, L. A. (1997) Copyright and the Internet-World without borders. *Wayne Law Review*, 43.
- LANDES, W. M. & POSNER, R. A. (1989) An Economic Analysis of Copyright Law. *The Journal of Legal Studies*, 18.
- LANDES, W. M. & POSNER, R. A. (2003) *The Economic Structure of Intellectual Property Law*, Cambridge, Massachusetts, The Belknap Press of Harvard University Press.
- LAYCOCK, H. (1972) Some Questions of Ontology. *The Philosophical Review*, 81, 3-42.
- LECHAPÉLIER, J. (1791) Reports to the revolutionary parliaments. *January 15*. Paris.
- LEE, G. B. (1996) Addressing Anonymous Messages in Cyberspace. *Harvard Journal of Computer-Mediated Communication*, 2.
- LEE, Y.-H. A. (2006) Competition, Consumer Welfare, and the Social Cost of Monopoly. Yale Law School.
- LEMLEY, M. (1999) The Law and Economics of Internet Norms. *Law & Economics Working Paper Series*. University of California, Berkley.
- LEMLEY, M. A. (1995) Intellectual property and Shrinkwrap Licenses. *Southern California Law Review*, 68.
- LEMLEY, M. A. (2005) Property, Intellectual Property, and Free Riding. *Texas Law Review*, 83.
- LEMLEY, M. A. & REESE, R. A. (2004) Reducing Digital Copyright Infringement Without Restricting Innovation. *Stanford Law Review*, 20.
- LESSIG, L. (1995) The path of cyberlaw. *Yale Law Journal*, 104, 1743-1755.
- LESSIG, L. (2004) *Free Culture*, New York, The Penguin Press.
- LÉVÊQUE, F. (2006) Is Online Music Locked in by Leveraging? *Communications & Strategies*, 63.
- LÉVÊQUE, F. & MÉNIÈRE, Y. (2004) *The Economics of Patents and Copyright*, Paris, The Berkeley Electronic Press.
- LEVINE, R. (2005) Law, Endowments and Property Rights. *The Journal of Economic Perspectives*, 9, 61-88.

- LIANG, L. (2004) Guide to Open Content Licenses. Piet Zwart Institute.
- LIEBOWITZ, S. (2002) Policing Pirates in the Networked Age. *Policy Analysis*, 438.
- LIN, C.-Y. (2000) Watermarking and Digital Signature Techniques for Multimedia Authentication and Copyright Protection. Columbia University.
- LINDSAY, D. (2002) *The law and economics of copyright, contract and mass market licenses*, Australia, Centre for Copyright Studies.
- LINDSAY, D. (2003) Economic Perspectives on Copyright Law. Centre for Copyright Studies.
- LIPTON, J. (2001) Copyright in the Digital Age: a Comparative Survey. *Rutgers Computer & Technology Law Journal*, 27.
- LIPTON, J. (2005) The Law of Unintended Consequences: The Digital Millennium Copyright act and Interoperability. *Washington and Lee Law Review*, 62.
- LITMAN, J. (1990) The Public Domain. *Emory Law Journal*, 39.
- LITMAN, J. (1994) The Exclusive Right to Read. *Cardozo Arts & Entertainment Law Journal*, 13.
- LITMAN, J. (1996a) Revising Copyright Law for the Information Age. *Oregon Law Review*, 45, 19-31.
- LITMAN, J. (1996b) Revising Copyright Law for the Information Age. *Oregon Law Review*, 75.
- LITTLE, E. & VIZENOR, L. (2006) Principles for the Development of Upper Ontologies. IN BENNETT, B. & FELLBAUM, C. (Eds.) *Formal Ontology in Information Systems*.
- LIU, J. P. (2001) Owning Digital Copies: Copyright law and the Incidents of Copy Ownership. *William and Mary Law Review*, 32.
- LOCH, C., YAZIJI, M. & LANGEN, C. (2001) The Fight for the Alpha Position: Channeling Status Competition in Organizations. *European Management Journal*, 19.
- LOHMANN, F. V. (2002) Fair Use and Digital Rights Management: Preliminary Thoughts on the (Irreconcilable?) Tension between them. *Computers, Freedom & Privacy*.
- LUBETZKY, S. (1961) The Function of the Main Entry in Alphabetical Catalogue - One Approach. IN SVENONIUS, E. & MCGARRY, D. (Eds.) *Seymour Lubetzky: Writings on the Classical Art of Cataloguing*. Englewood, CO, Libraries Unlimited.
- LUBETZKY, S. (1969) Principles of Cataloging. Final Report. Phase I: Descriptive Cataloging. IN SVENONIUS, E. & MCGARRY, D. (Eds.) *Seymour Lubetzky: Writings on the Classical Art of Cataloguing*. Englewood, CO, Libraries Unlimited.
- MACAULAY, T. B. (1841) A Speech in the House of Commons on the 5th of February 1841. IN YOUNG, G. M. (Ed.) *Macaulay, Prose and Poetry*. Harvard University Press
- MARGOLIS, J. (1977) The Ontological Peculiarity of Works of Art. *Journal of Aesthetics and Art Criticism*, 36, 45-46.
- MARIÑOSO, B. G. (2001) Technological Incompatibility, Endogenous Switching Costs and Lock-In. *The Journal of Industrial Economics*, 49.
- MASOLO, C., BORGO, S., GANGEMI, A., GUARINO, N. & OLTREMARI, A. (2003) WonderWeb Deliverable D18. Laboratory For Applied Ontology - ISTC/CNR.

- MATTHEWS, B. (1890) The Evolution of Copyright. *Political Science Quarterly*, 5.
- MAZZIOTTI, G. (2005) Did Apple's refusal to license proprietary information enabling interoperability with its iPod music player constitute an abuse under Article 82 of the EC Treaty? , Berkeley Center for Law & Technology.
- MEADOW, C. T. & YUAN, W. (1997) Measuring the Impact of Information: Defining the Concepts. *Information Processing & Management*, 33, 697-714.
- MEMON, N. & WONG, P. W. (1998) Protecting Digital Media Content. *Communications of the ACM*, 41.
- MERGES, R. P. (1997) The End of Friction? Property Rights and Contract in the 'Newtonian' World of On-Line Commerce. *Berkeley Technology Law Journal*, 12.
- MERGES, R. P. (2004) A New Dynamism in the Public Domain. *University of Chicago Law Review*, 71.
- MERTINS, K., HEISIG, P. & VORBECK, J. (2003) Knowledge Management. *Springer*.
- MILLER, D. R. (2003) XOBIS - an Experimental Schema for Unifying Bibliographic and Authority Records. *Cataloging & Classification Quarterly*.
- MIMNO, D., CRANE, G. & JONES, A. (2005) Hierarchical Catalog Records. *D-Lib Magazine*, 11.
- MITCHELL, J. T. (2004) DRM: The Good, the Bad, and the Ugly. *Colleges, Code and Copyright: The Impact of Digital Networks and Technological Controls on Copyright*. American Library Association.
- MOATS, R. (1997) Uniform Resource Name (URN). *RFC 2141*. <http://www.ietf.org/rfc/rfc2141.txt>.
- MOURANT, J. A. (1963) *Formal logic*, Macmillan.
- MSI (2006) Naming Conventions for Controlled Vocabularies and Ontologies. *Metabolomics Standards Initiative*. Ontology Working Group.
- MUELLER, M. (1999) Digital Convergence and its Consequences. *The Public*, 6, 11-28.
- MULLIGAN, D. & BURSTEIN, A. (2002) Implementing Copyright Limitations in Rights Expression Languages. *ACM Workshop on Digital Rights Management*.
- MULLIGAN, D. K. (2003) Digital rights management and fair use by design. *Communications of the ACM*, 46.
- NEUHAUS, F., GRENON, P. & SMITH, B. (2004) A Formal Theory of Substances, Qualities, and Universals. IN VARZI, A. & VIEU, L. (Eds.) *International Conference on Formal Ontology and Information Systems*. Turin, Italy.
- NILSSON, J. (2006) Preserving physical structure of digital objects through metadata. *Department of Business Administration and Social Sciences*. Lulea University of Technology.
- NIMMER, D. (2000) A Riff on Fair Use in the Digital Millennium Copyright Act. *University of Pennsylvania Law Review*, 148, 673-742.
- NIMMER, M. B. & NIMMER, D. (1963-85) *Nimmer on Copyright: A Treatise on the Law of Literary, Music and Artistic Property, and the Protection of Ideas*, New York, Matthew Bender & Co.
- NIMMER, R. T. (1995) Licensing on the Global Information Infrastructure: Disharmony in Cyberspace. *Northwestern Journal of International Law & Business*, 16.
- NIMMER, R. T. (1998) Breaking Barriers: The Relation Between Contract and Intellectual Property Law. *Berkeley Technology & Law Journal*, 13.

- NORTH, D. C. (1993) What do we mean by rationality? *Public Choice*, 77, 159-162.
- NOY, N. F. & MCGUINNESS, D. L. (2005) *Ontology Development: A Guide to Creating your First Ontology*. Stanford University.
- NUNBERG, G. D. (1979) The non-uniqueness of semantic solutions: polysemy. *Linguistics and Philosophy*, 3, 143-184.
- NUYS, C. V. & ALBERTSEN, K. (2003) Identification of Network Accessible Documents: Problem Areas and Suggested Solutions. *Conference on Research and Advanced Technologies for Digital Libraries*. Trondheim, Norway.
- O'NEILL, E. (2002) FRBR: Functional requirements for bibliographic records: Application of the entity-relationship model to Humphry Clinker. *Library Resources & Technical Services*, 46.
- OAKLAND, W. H. (1974) Public Goods, Perfect Competition, and Underproduction. *The Journal of Political Economy*, 82.
- OCHOA, X. & DUVAL, E. (2008) *Quantitative Analysis of User-Generated Content on the Web. Webevolve 2008*. Beijing, China.
- ODLYZKO, A. M. (2004) Privacy, Economics, and Price Discrimination on the Internet. IN CAMP, L. J. & LEWIS, S. (Eds.) *Economics of Information Security*. Kluwer.
- OECD (2007) *Participative Web and User-Created Content: Web 2.0, Wikis and Social Networking*.
- OLIVE, B. (2000) Anti-Circumvention and Copyright Management Information: Analysis of New Chapter 12 of the Copyright Act. *North Carolina Journal of Law and Technology*, 1.
- OLSON, D. F. (1983) Copyright Originality. *Missouri Law Review*, 48.
- PAETZOLD, R. L. (1991) Contracts Enlarging a Copyright Owner's Rights: A Framework for Determining Unenforceability. *Nebraska Law Review*, 68.
- PAPADOPOULOS, T. (2003) The First-Sale Doctrine in International Intellectual Property Law: Trade in Copyright Related Entertainment Products. *Entertainment Law*, 2, 40-60.
- PARTRIDGE, M. V. B. (1999) Copyright litigation: Understanding substantial similarity and scope of protection. *IP Litigator*, May/June.
- PASKIN, N. (1999) Towards unique identifiers. *Proceedings of the IEEE*, 87, 1208-1227.
- PASKIN, N. (2003) On Making and Identifying a Copy. *D-Lib Magazine*, 9.
- PASKIN, N. (2006) *DOI Handbook*. International DOI Foundation.
- PATRY, W. (1997) Failure of the American Copyright System: Protecting the Idle Rich. *Notre Dame Law Review*, 72.
- PEIRCE, C. S. (1906) Prolegomena to an Apology for Pragmatism. *The Monist*, 16.
- POSSE, R. I. (2009) The legal status of copyleft before the Spanish courts. *Journal of Intellectual Property and Practice*, 4.
- PRANDONI, C., VALENTINI, M. & DOERR, M. (2009) Formalising a Model for Digital Rights Clearance. IN AGOSTI, M., BORBINHA, J. & KAPIDAKIS, S. (Eds.) *Research and Advanced Technology for Digital Libraries*.

- PRICE, M. E. & POLLACK, M. (1991) The Author in Copyright: Notes for the literary critic. *Cardozo Arts & Entertainment Law Journal*, 10.
- QUAH, D. (2002) Digital Goods and the New Economy. *Centre for Economic Performance - Discussion Paper No. 3846*. London School of Economics.
- QUINE, W. V. (1969) Speaking of objects. *Ontological Relativity and Other Essays*. Columbia, New York.
- RADIN, M. J. (2004a) Regime Change in Intellectual Property: Superseding the Law of the State with the "Law" of the Firm. *The University of Ottawa Law and Technology Journal*, 1.
- RADIN, M. J. (2004b) Regulation by Contract, Regulation by Machine. *Journal of Institutional and Theoretical Economics*, 160, 1-15.
- RADIN, M. J. & WAGNER, R. P. (1998) The Myth of Private Ordering: Rediscovering Legal Realism in Cyberspace. *Chicago-Kent Law Review*, 73.
- RAYMOND, E. S. (1999) *The Cathedral and the Bazaar*, O'Reilly.
- RAYNA, T. (2007) Digital goods as public durable goods. *Department of Economics*. Université Aix-Marseille III.
- RAYNA, T. (2008) Understanding the Challenges of the Digital Economy: The Nature of Digital Goods. *Communications & Strategies*, 71, 13-68.
- RAYPORT, J. F. & JAWORSKI, B. (2002) *Introduction to e-Commerce*, McGraw-Hill.
- READ, D. W. (1989) Intuitive typology and automatic classification: Divergence or full circle? *Journal of Anthropological Archaeology*, 8, 158-188.
- REBIKOFF, S. (2001) Restructuring The Test For Copyright Infringement In Relation To Literary and Dramatic Plots. *Melbourne University Law Review*, 12.
- REILLY, R. F. & SCHWEIHS, R. P. (1998) *Valuing intangible assets*, McGraw-Hill Professional.
- RENEAR, A. & DUBIN, D. Towards Identity Conditions for Digital Documents. *Library and Information Science*. University of Illinois.
- RIVEST, R. (1992) The MD5 Message-Digest Algorithm. *RFC 1321*.
- RONTE, H. (2001) The impact of technology on publishing. *Publishing Research Quarterly*, 16.
- ROSCH, E. (1999) Principles of Categorization. IN MARGOLIS, E. & LAURENCE, S. (Eds.) *Concepts: core readings*. MIT Press.
- ROSEN, L. & EINSCHLAG, M. B. (2004) Taxonomy of Licenses. *Open Source Licensing, Software Freedom and Intellectual Property Law*. Prentice Hall.
- ROSNAY, M. D. D. (2003) Cognitive Interfaces for Legal Expressions Description - Application to Copyrighted Works Online Sharing and Transactions. IN BOURCIER, D. (Ed.) *Legal Knowledge and Information Systems. Jurix 2003*. Amsterdam, IOS Press.
- ROSNAY, M. D. D. (2006) Creative Commons: Open Content Licenses to Govern Creative Works. *UPGRADE: European Journal for the Informatics Professional*, 7.
- ROSSE, C. & MEJINO, J. L. V. (2008) The Foundational Model of Anatomy Ontology. IN BURGER, A., DAVIDSON, D. & BALDOCK, R. (Eds.) *Anatomy Ontologies for Bioinformatics: Principles and Practice*. New York, Springer.

- RUSSELL, B. (1912) On the Relations of Universals and Particulars. *Proceedings of the Aristotelian Society*. Blackwell Publishing.
- RUST, G. (1998) Metadata: The Right Approach. An integrated Model for Descriptive and Rights Metadata in E-commerce. *D-Lib Magazine*.
- RUST, G. & BIDE, M. (2000) The <indec> metadata framework: Principles, model and data dictionary., The <indec> Project.
- RUTENBECK, J. (2000) The 5 Great Challenges of the Digital Age. *NetConnect*, Fall 2000.
- RUTTENBERG, A. (2009a) Introduction to Ontology. *ICBO: International Conference on Biomedical Ontology*. Buffalo, NY.
- RUTTENBERG, A. (2009b) The realist approach to building ontologies for science. *Science Commons*.
- RYAN, M. G. (1989) Offers users can't refuse: Shrink-wrap licenses agreements as enforceable adhesion contracts. *Cardozo Law Review*, 10.
- SAMUELS, E. (1989) The idea-expression dichotomy in copyright law. *Tennessee Law Review*, 56.
- SAMUELSON, P. (1998) Legally Speaking: Does Information Really Want to be Licensed? *Communications of the ACM*.
- SAMUELSON, P. (1999) Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to be Revised. *Berkeley Technology Law Journal*, 14.
- SAMUELSON, P. (2000) Towards More Sensible Anti-circumvention Regulations. *International Conference on Financial Cryptography*. London, UK, Springer-Verlag.
- SAMUELSON, P. (2001) Anticircumvention Rules: Threat to Science. *Science*, 293.
- SAMUELSON, P. (2003) DRM {and, or, vs.} the Law. *Communications of the ACM*, 46.
- SAMUELSON, P. & SCHULTZ, J. (2007) Regulating Digital Rights Management Technologies: Should Copyright Owners Have to Give Notice about DRM Restrictions? *Journal of Telecommunications and Technology Law*.
- SANDER, T. (2001) Golden Times for Digital Rights Management? , InterTrust Technologies.
- SARTOR, G. (2008) The Nature of Legal Concepts: Inferential Nodes or Ontological Categories? *Working Paper*. European University Institute.
- SARTOR, G. (2009) The Nature of Legal Concepts: Inferential Nodes and Ontological Categories. *Artificial Intelligence and Law*, 17.
- SARTOR, G., CASANOVAS, P., BIASIOTTI, M. & FERNANDEZS-BARRERA, M. (2011) Approaches to Legal Ontologies.
- SCHWARTZ, A. (1993) The Default Rule Paradigm and the Limits of Contract Law. *Southern California Interdisciplinary Law Journal*, 3.
- SCHWARTZ, A. & SCOTT, R. E. (2007) Precontractual Liability and Preliminary Agreements. *Harvard Law Review*, 120.
- SCOTCHMER, S. (1991) Standing on the Shoulders of Giants: Cumulative Research and the Patent Law. *Journal of Economic Perspectives*, 5.

- SELL, S. K. (2003) *Private Power, Public Law: The Globalization of Intellectual Property Rights*, Cambridge University Press.
- SHAPIRO, C. (1983) Optimal Pricing of Experience Goods. *Bell Journal of Economics*, 14, 497-507.
- SHAW, R. R. (1951) Copyright and the Right to Credit. *Science*, 113.
- SHI, S. X. (2008) The Place of Creativity in Copyright Law. Queensland University of Technology.
- SILVA, A. C. & MASBERNAT, P. (2004) Licensing of Free Software and Open Source. University of Chile.
- SIMONS, P. & MELIA, J. (2000) Continuants and Occurents. *Proceedings of the Aristotelian Society*. Blackwell Publishing.
- SINGER, P. (2002) Mounting a Fair Use Defense to the Anti-Circumvention Provisions of the Digital Millennium Copyright Act. *University of Dayton Law Review*, 28.
- SLOMAN, S., LOMBROZO, T. & MALT, B. (2007) Ontological commitments and domain specific categorisation. IN ROBERTS, M. J. (Ed.) *Integrating the Mind: Domain general versus domain specific processes in higher cognition*. New York, Psychology Press.
- SMITH, B. (2003) Ontology and Information Systems. IN FLORIDI, L. (Ed.) *Blackwell Guide to the Philosophy of Computing and Information*. Oxford, Blackwell.
- SMITH, B. (2004) *Beyond Concepts: Ontology as Reality Representation*.
- SMITH, B. (2009) BFO and Disease. IN TECHNOLOGIES, I. N. R. C. I. F. B. (Ed. *Signs, Symptoms and Findings: Towards an Ontology for Clinical Phenotypes*. Milan, Italy.
- SMITH, B. & BROCHHAUSEN, M. (2007) Establishing and Harmonising Ontologies in an Interdisciplinary Health Care and Clinical Research Environment. IN BLOBEL, B., PHAROW, P. & NERLICH, M. (Eds.) *eHealth: Combining Health Telematics, Telemedicine, Biomedical Engineering and Bioinformatic on the Edge*. Amsterdam, IOS Press.
- SMITH, B., KUSNIERCZYK, W., SCHOBER, D. & CEUSTERS, W. (2006) Towards a Reference Terminology for Ontology Research and Development in the Biomedical Domain. *Proceedings of KR-MED*.
- SMITH, B. & WELTY, C. (2001) Ontology: Towards a New Synthesis. *Proceedings of the international conference on Formal Ontology in Information Systems*. Ogunquit, Maine, USA.
- SOWA, J. F. (1999) Ontological Categories. IN ALBERTAZZI, L. (Ed.) *Shapes of Forms: From Gestalt Psychology and Phenomenology to Ontology and Mathematics*. Kluwer Academic Publishers.
- SPEAR, A. D. Ontology for the Twenty First Century: An Introduction with Recommendations. Saarbrücken, Germany, Institute for Formal Ontology and Medical Information Science.
- STAPLETON, J. (2002) Art, Intellectual Property & the Knowledge Economy. London, Goldsmiths College, University of London.
- STERN, R. H. (1985) Shrink-Wrap Licenses of Mass Marketed Software: Enforceable Contracts or Whistling in the Dark? *Rutgers Computer & Technology Law Journal*, 11.
- STRAUCH, B. (1996) *Current Legal Issues in Publishing*, Taylor & Francis Inc.
- SVENONIUS, E. (2000) *The Intellectual Foundations of Information Organization*, Cambridge, MA, MIT Press.

- TANG, P. (1997) Multimedia Information Products and Services: a need for 'cybercops'? IN LOADER, B. (Ed.) *The governance of cyberspace: politics, technology and global restructuring*. Routledge.
- TAPSCOTT, D., TICOLL, D. & LOWY, A. (2000) *Digital Capital: Harnessing the Power of Business Webs*, Harvard Business School Press.
- TARGOSZ, T. (2009) Exhaustion in Digital Products. Krakow, Poland, Institute of Intellectual Property Law of the Jagiellonian University.
- THAGARD, P. (1992) *Conceptual Revolutions*, Princeton, NJ, Princeton University Press.
- THOMASSON, A. L. (2005) Ingarden and the Ontology of Cultural Objects. IN CHRUDZIMSKI, A. (Ed.) *Existence, Culture, and Persons: The Ontology of Roman Ingarden*. Frankfurt.
- TIERSMA, P. M. (1986) The Language of Offer and Acceptance: Speech Acts and the Question of Intent. *California Law Review*, 74.
- TILLETT, B. B. FRBR and RDA: Resource Description and Access. IN TAYLOR, A. (Ed.) *Understanding FRBR: What It Is and How it Will Affect Our Retrieval Tools*.
- TILLETT, B. B. (2009) International Cataloguing Principles (ICP) Report. *World Library and Information Congress*. Milan, Italy.
- TRAKMAN, L. E. (2007) Adhesion Contracts and the Twenty First Century Consumer. University of New South Wales.
- TREBILCOCK, M. J. (1993) *The Limits of Freedom of Contract*, Harvard University Press.
- TUOMI, I. (1999) Data is More than Knowledge: Implications of the Reversed Knowledge Hierarchy for Knowledge Management and Organizational Memory. *Journal of Management Information Systems*, 16, 107-121.
- UGUCCIONI, J. (2007) Bias over balance in copyright reform? *Select Committee on Culture, Media and Sport, 5th report*. New Media and the Creative Industries.
- UNESCO (2002) The exhaustion of rights in the digital environment. *Copyright Bulletin*.
- VÄLIMÄKI, M. & HIETANEN, H. (2004a) The Challenges of Creative Commons Licensing. *Computer Law Review*, 6.
- VÄLIMÄKI, M. & HIETANEN, H. (2004b) Challenges of Open Content Licensing in Europe. Helsinki Institute for Information Technology.
- VALIMAKI, M. & OKSANEN, V. (2006) DRM Interoperability and Intellectual Property Policy in Europe. *European Intellectual Property Review*, 26.
- VARIAN, H. R. (1995) Pricing Information Goods. *Scholarship in the New Information Environment*. Harvard Law School.
- VARIAN, H. R. (1998) Markets for Information Goods. University of California, Berkeley, CA.
- VARIAN, H. R. (2005) Copying and Copyright. *Journal of Economic Perspectives*, 19.
- VARIAN, H. R., FARRELL, J. & SHAPIRO, C. (2004) *The Economics of Information Technology: An Introduction*, Cambridge University Press.
- VELASCO, J. (1994) The Copyrightability of Nonliteral Elements of Computer Programs. *Columbia Law Review*, 94.

- VITIELLO, G. (2004) Identifiers and Identification Systems. *D-Lib Magazine*, 10.
- VOYATZIS, G. & PITAS, I. (1999) The use of watermarks in the protection of digital multimedia products. *Proceedings of the IEEE*, 87.
- WARE, S. J. (1989) A Critique of the Reasonable Expectations Doctrine. *University of Chicago Law Review*, 56.
- WESSELS, J. (2001) The future of digital content - Free or paid? *Innovations for an e-Society: Challenges for Technology Assessment*. Berlin.
- WOLF, M. & WHELOCK, C. (2007) Digital content unleashed. *Journal of Digital Asset Management*, 3.
- WOLLHEIM, R. (1968) *Art and its objects*, Cambridge University Press.
- WOLLHEIM, R. (1980) *Art and its objects*, Cambridge University Press.
- WURZER, M. (1989) Infringement of the Exclusive Right to Prepare Derivative Works: Reducing Uncertainty. *Minnesota Law Review*, 73.
- XIANG, J., BJORNER, D., CHEN, X., ARIMOTO, Y., OGATA, K., VESTERGAARD, R. & FUTATSUGI, K. (2006) The Digital Artistic Works: a Domain Analysis and a License Language. Ishikawa, Japan, Japan Advanced Institute of Science and Technology.
- XUE, J. (2009) A Comparative Study of Shrink-Wrap License. *Journal of Politics and Law*, 2.
- YEE, M. M. (1995) What is a Work? Cataloging Theorists and a Definition. *Cataloging & Classification Quarterly*, 20, 3-23.
- YEE, M. M. (2007) Understanding FRBR - FRBR and Moving Image Materials: Content (Work and Expression) versus Carrier (Manifestation). Los Angeles, University of California.
- YEE, M. M. (2008) Cataloguing Rules. Los Angeles, USA, University of California UCLA.
- YILMAZ, Y. (1998) Private Regulation: A Real Alternative for Regulatory Reform. *Cato Policy Analysis*, 303.
- YOUNGER, J. A. (1997) Resources Description in the Digital Age. *Library Trends*, 45, 462-481.
- ZALABARDO, J. L. (2001) Towards a Nominalist Empiricism. *Proceedings of the Aristotelian Society*. Blackwell Publishing.
- ZEMACH, E. (1970) Four Ontologies. *Journal of Philosophy*, 67.
- ZHAO, J. (1997) Applying Digital Watermarking Techniques to Online Multimedia Commerce. *Conference on Imaging Science, Systems and Applications*. Las Vegas.