

Copyright and the Internet

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The two faces of ICTs and intellectual property

The human species has an inexhaustible capacity to be both captivated and terrified by its own creations. What is particularly disconcerting is that the forces of fascination and fear are sometimes bound up in the same object. The new information and communication technologies (ICTs), and in particular the Internet, are one embodiment of this paradox.

Many look upon the Internet, or rather the World Wide Web, as a magical stairway to a utopia in which knowledge, education, culture and decision-making are all democratized. Others see it as an unfettered world in constant motion, beyond the control of states, where everyone can be free. Still others find in it a market that operates without borders, customs formalities, business hours or even money, at least in its conventional form.

On the other hand, there are those who see the Web as a downward-spiralling staircase, something that envelops and dehumanizes us, plunging us into an unreal world where personal relationships do not exist, a world of solitary consumers who have exchanged the real world for a chaotic universe consisting only of fleeting images and sounds that devour distances and sacrifice privacy to the point of suffocation.

Curiously, intellectual property is also the object of much debate. Once relegated to the status of a minor legal discipline, intellectual property has assumed great importance for the workings of the economy and the information society. Like the Internet, it attracts both praise and diatribes. Some would elevate it to the status of an inviolable human right, as the perfect and perhaps the only incentive to creativity, investment and innovation. Yet as others see it, intellectual property rights represent the enshrining of the expropriation, monopolization and commercialization of knowledge, culture and information by those who wield economic power.

These views of the Internet and of intellectual property would seem to be rooted primarily in our mythical or utopian imagination, which no doubt has profound human value and meaning. At the same time, however, and in an attempt to shed some objective light on our ideas and our actions, these issues deserve careful analysis.

The present paper is an attempt at such an analysis, in the form of an essay with a specific focus: the links between the Internet and copyright. In it we shall discuss the legal concepts involved and analyze them critically from the viewpoint of countries that are mired in poverty and social inequality

and that are at the same time rich in culture, in biodiversity and also in fears and dreams.

We shall first outline the concept of intellectual property in general, and copyright in particular. We shall then apply this concept to the new information technologies as they relate to a few central themes: author and producer, originality, reproduction and communication, fair use and private copying. Finally, we shall suggest some hypotheses about how copyright can be respected in the course of appropriation and dissemination of works over the Internet.

The central thesis of this essay is that the notion of copyright, at least in its conventional form, falls far short of providing adequate protection for intellectual property over the Internet. These shortcomings arise both from the social and technical characteristics of the Internet and from the distortion that copyright has suffered in the process of applying it to the digital age.

As we shall see, efforts to achieve the true objectives of copyright have been vitiated by two extreme approaches, which have resulted in either excessive protection or no protection at all. These extreme approaches are also obstacles to the socially beneficial use of the Internet itself. Consequently, there is a need for new legislation that will respond better to the social use of the digital environment. There are in fact legal and institutional frameworks in which developing countries can negotiate rules and policies for the dissemination of knowledge, but civil society must also play an active role.

The concept of intellectual property

Like the god Janus, intellectual property has two faces: that of appropriation, exclusivity and exclusion on one hand, and that of socialization and dissemination on the other.

Intellectual property is a complex set of legal and economic measures intended to protect the exclusive exploitation of intangible goods. Just as a company is the owner of its plant and vehicles, it can in a sense be the “owner”² of an invention embodied in a new artefact and of the trademark that it places on that artefact. If someone publishes a book recounting the history of that invention, the writer may have authorship rights to the text of the book.

Generally speaking, intellectual property is divided into three broad areas:

1. Copyright, the area that embraces the protection of literary, artistic and scientific works, as well as the content of new information technologies. This is the principal subject of the present essay.
2. Industrial property rights, which include the protection of inventions (patents), trademarks and other distinctive signs.
3. Rights to new plant varieties.

There are other intellectual creations, sometimes of significant economic value, that do not fall squarely into any of these categories, such as the traditional knowledge of indigenous peoples, for which special regimes are now under consideration.

The nucleus of intellectual property is *ius excluendi*, or the right to exclude, i.e. the possibility that the owner of these property rights may exclude others from using or exploiting a work, an invention or a trademark for economic purposes. In this case, only the holder of those rights or a person authorized by him may produce, use, reproduce, transform or, in general, commercialize those intangibles.

On the other hand, exclusive intellectual rights are never absolute because they are subject to a series of exceptions and limitations in observance of the social interest, among which we may highlight the “temporary nature” of those rights, and so-called fair use.³

Each regime also has its own limitations: for example, while a literary work may be protected by copyright, it can be quoted and even reproduced within certain bounds for educational, cultural or information purposes. Although in principle a patented invention cannot be legally manufactured except by the owner of the patent or persons authorized by him, there are compulsory licensing systems whereby the state, under exceptional circumstances, may require a patent holder to transfer his exclusive right, temporarily and with compensation.

On the other hand, in a state that enshrines other constitutional rights besides those to intellectual property, the latter must be made compatible with other constitutional values such as the right to culture, to information, to education, to scientific and technological development, or to freedom of expression. This point is frequently overlooked by those who champion intellectual rights uncritically.

In a constitutional state, intellectual property is exercised within a constitutional framework, as is any other right. Modern constitutional systems actively seek to achieve balance and mutual limitation, when necessary, between competing constitutional rights, rather than allowing some rights to exclude or negate others. They strive in this way to ensure the simultaneous exercise of as many rights as possible.

From the economic point of view, limitations on intellectual property acquire their full meaning and necessity in the context of a market economy. As an exclusive and excluding right, intellectual property is the equivalent, or nearly, of a monopoly⁴ and is in this sense contrary to the freedom to produce or commercialize goods or services.

For this reason, competition law and policies have been seen as an indispensable counterpart to intellectual property and are intended to prevent the abuse of intellectual property rights. If intellectual property rights were absolute, there would be no room for innovation and the free flow of ideas.

Unfortunately, it is the economic interests of industrialized countries that predominate in international negotiations in this field, as well as in much domestic legislation, and this fact has progressively shifted the balance between exclusion and dissemination in the area of intellectual property, tipping the scales increasingly towards the protection of ownership interests, sometimes to the point of damaging the public interest (Buydens 1999).

Thus, for example, the biotechnology industry has been pressing for the expansion of patent rights over elements that were traditionally excluded, such as living beings and discoveries. The software industry has been lobbying for the protection of computer programs under copyright law, relying on a forced comparison with literary works. The intention here is to protect not only the selection and arrangement of elements in a database, but its content as well. There is a generalized tendency to grant excessively long terms of protection for intellectual property, to apply such protection to new fields that were formerly excluded, and to eliminate or diminish exceptions and, in general, the possibilities of fair use for protected intellectual goods.

In contrast, economically valuable forms of information generated in developing countries go unprotected and in fact are frequently appropriated as intellectual property by companies in industrialized countries. Examples of such information include the ancestral knowledge of indigenous communities and genetic information from megadiversity countries, information that is extremely useful to transnational producers of pharmaceuticals, agricultural inputs and biotechnology. The cultural products of developing countries, such as handicrafts and folklore, face a similar situation.

The pressure of developed countries, especially the United States, to enhance the protection of intellectual property has translated into legal and institutional reforms in developing countries. Yet those reforms, and the level of protection they afford, have been of very limited effect. Paradoxically, this situation may be attributed to the fact that these pressures have been purely external, while there are no interest groups within developing countries campaigning for effective protection⁵ (Sell 1998).

These criticisms of the excesses and abuses of intellectual property rights by no means imply that those rights are not socially useful. Much of our information, works and inventions would never have been produced without this protection, and many cultural industries and authors demand and deserve it. Without protection, many inventions and transactions would not take place. In a market economy, it is unrealistic to expect that businesses would spend huge amounts developing proprietary information only to find themselves immediately displaced in the market by competitors offering cheap knock-offs of their products.

It is no coincidence that authorship rights are included in declarations of human rights. Intellectual creations are linked to the rights to personality and to labour rights, both of which affect human dignity directly. Intellectual work can and must be recognized, both socially and economically. Otherwise we would find ourselves in a regime where this form of human labour is in

effect plundered, and that would probably and paradoxically bring us to a situation of absolute monopoly (Lévy 1999). What we are questioning here, then, is not the principle that the rights of intellectual creators should be recognized, either through a profoundly overhauled copyright law or through new legislation, but rather the scope and structure of copyright, the forms of remuneration and the exceptions applicable to the Internet, and above all its relation to the public interests at stake.

In fact, whenever national industries producing goods of high intellectual value-added have emerged in developing countries, the interest in intellectual property protection has risen accordingly, as can be seen in the cases of video and music producers in Brazil, South Korea, Mexico, the Philippines and Singapore, or the computer industry in Thailand and Malaysia, or pharmaceuticals in India (Sell 1998).

Within this political economy of intellectual property, the relationship to the Internet has some very special features. The great capacity to communicate and reproduce works placed on the Internet lends both urgency and complexity to this balance, which is not only legal but very real, between exclusion and dissemination.

Excessive protection of works circulating over the Internet would make it difficult or impossible to make creative use of them. Writing a book, composing a piece of music or creating a graphic design using Internet resources would require an endless series of authorizations to use protected texts, sounds or graphics. This would make the process extremely onerous and complex. On the other hand, weak or ineffective protection would discourage authors and producers from placing their works on the Internet, if they want to protect and exploit them economically. The easy and often uncontrollable reproduction of works that the Internet allows, in the absence of protection, would make the Web a lawless land where many creators would fear to tread.

The mechanism whereby developed countries, and especially the United States, have brought pressure for greater protection of intellectual property has been to link it with trade. The argument is that no country can afford to export goods or investment to another country where its products will be counterfeited and sold at much lower prices. The United States, for example, has therefore taken commercial retaliation against countries that failed to protect intellectual property.

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) represents the institutionalization, through a multilateral mechanism negotiated in the context of the General Agreement on Tariffs and Trade (GATT), of minimum international standards for intellectual property. TRIPS contains no ad hoc provisions relating to digital media networks, but rather universalizes software protection through copyright. Moreover, TRIPS allows for the development of information policies for teaching, research and private use, through exceptions to exclusive rights (Correa 1996).

With the “de-territorialization” of the Internet, however, this linkage between intellectual property and international trade becomes relative. Electronic trade via the Internet, for example, allows instantaneous transactions in which both the goods acquired and the price paid may be virtual, and hence very different from those that are the object of conventional international trade and investment. Of course, anyone who sells over the Internet can protect his information via copyright, but he cannot discriminate between countries that offer greater or lesser degrees of protection.

Intellectual property and new information technologies

There is a direct link between intellectual property and the new ICTs. Of all the conventional legal measures, intellectual property has been the preferred mechanism, especially among developing countries, for protecting the production and marketing of informational goods or goods with a high information content.

In an economy where a great portion of value-added derives from technology and embodied information, the nature of information as a public good in itself is clearly problematic. Producing information often requires significant investment, as is the case with new computer programs, databases, multimedia works, musical recordings or film productions. Paradoxically, with the new technologies available, reproducing this information has become easy and inexpensive, as can be seen in the widespread illegal copying of software, videos and books.

If producing information is expensive and difficult, while copying it is cheap and easy, why would a business, for example a computer programming company, invest in producing new software? The answers will differ: it may be that the company that produces the originals will benefit from being the first in the market, or that company may be the recipient of government subsidies, or it may simply be that there are always consumers who will prefer the original product. Yet there is a further answer to be found in intellectual property itself. If the government ensures an acceptable degree of exclusivity to the company in producing its programs, competition based on copying can at least be diminished or controlled (Cooter and Ulen 1998).

For developing countries, which are primarily importers and consumers of the information transmitted with these new technologies, the problems and challenges are complex. In the absence of solid empirical studies, we may nevertheless venture to say that intellectual property will be more important to a country's international trading interest the more significant its production of goods is linked to ICTs (Correa 1999). For countries that are primarily importers and consumers, the important thing is to ensure that the level of intellectual property protection does not inhibit trade, technology transfer, and domestic production and innovation.

A deeper challenge for developing countries is to make themselves into innovative producers of these informational goods. This is a complex but

not an impossible undertaking, as can be seen in the success of government efforts to develop the computer industry in countries like Brazil, India, South Korea and Costa Rica. In Latin America as a whole, the copyright for computer programs is usually held by foreign companies. Production within the region has been confined for the most part to the publishing industry and the creation of musical and television works (Correa 1999).

Copyright and the Internet

The Internet poses problems of intellectual property rights over ICTs that are both complex and fascinating. In terms of intellectual property specifically, the Internet has a particular impact on copyright and trademarks (and on the relationship between trademarks and domain names). In this paper, as noted earlier, we shall focus exclusively on the first of these relationships, which is copyright.

Copyright consists essentially in the exclusive power of the owner of such rights to exploit a work for economic purposes: by “work”, we mean here an artistic or literary creation, a scientific text or the content of new information technologies. In other words, copyright is the legal power to exclude others from making economic use of a work. Yet, as we shall see, it also includes other kinds of rights, known as moral rights.

From the economic viewpoint, a copyright holder may perform, authorize or prohibit the reproduction, communication, distribution, importation and translation of copyrighted works. The relationship of copyright to the Internet, then, is a direct one, since the Internet circulates many works, such as texts, images, music, computer programs, databases, plans, designs, etc.

The central issue with respect to copyright and the Internet, and to intellectual property in general, is to strike a balance between exclusion and dissemination. It is clear that authors and producers must be entitled to recognition of their creative effort and their financial investment, but culture and ideas cannot be monopolized, except at the cost of the cultural and educational development of the community.

For example, people who write and publish school textbooks must have authorship rights, but if those rights lead to monopolistic price-fixing that makes the works inaccessible we will be faced with an education policy problem that goes beyond copyright issues. On this point, the Appendix to the Berne Convention allows for compulsory licensing by developing countries for translation of works for school, university and research purposes. Those licences are intended to make available certain works to meet the needs of the public or the education system at a price comparable to that in their country of origin. The social role and importance of copyright, then, cannot be evaluated in isolation from other social considerations.

Generally speaking, to prevent abuse in the exercise of authorship rights, those rights are granted for a limited time only and are subject to exceptions and fair-use provisions. The existence and exercise of fair use is essential if

intellectual property rights are not to become obstacles to economic competition and the dissemination of knowledge.

In copyright theory, fair uses are exceptions that do not affect normal exploitation of the work and do not harm the legitimate interests of the copyright holder. In addition to the ability to quote extracts, other fair uses include the dissemination of media articles or commentaries, citing the source, and the dissemination of lectures and speeches to the press, personal use of speaker's notes, etc.

The most far-reaching international rule-setting initiative on copyright and the Internet is that of the World Intellectual Property Organization (WIPO).⁶ In 1996 this United Nations agency proposed, for the ratification of at least 30 countries, the WIPO Copyright Treaty (WCT). This treaty comprises, together with the Performances and Phonograms Treaty, the WIPO Internet treaties.

According to its Article 1, the WCT is essentially a special agreement within the meaning of the Berne Convention for the Protection of Literary and Artistic Works (1971). Its basic thrust is to extend conventional copyright protection to works in digital environments and networks. We shall express some reservations throughout this article as to the real prospects for that undertaking, recognizing that the Internet effectively undermines the conceptual basis of many aspects of copyright.

These reservations are shared by many critics. When it comes to applying copyright in digital network environments, as one author has noted, "any revision must include a more profound analysis of the nature of authorship rights, and in particular the possibility of maintaining the traditional formulation of exclusive rights in the face of a growing collectivization that could be better addressed through rights of compensation or other legal formulas" (Correa 1996).

In any event, the Agreed Statement on Article 10 of the WCT provides that contracting parties may "carry forward and appropriately extend into the digital environment limitations and exceptions in their national laws which have been considered acceptable under the Berne Convention. Similarly, these provisions should be understood to permit Contracting Parties to devise new exceptions and limitations that are appropriate in the digital network environment" (WIPO 1997).

Even within the framework of these multilateral negotiations, then, there is room for states to legislate policies in this area. In designing such rules or policies, it must be borne in mind that the Internet can also constitute a means for concentrating information, education and wealth, as well as an instrument for democratizing them.

In Latin American societies, inequitable as they are, states must develop technology and education policies that will serve to disseminate knowledge. It is in the context of these democratizing policies that the rights to intellectual property on the Internet, and its "exceptions and fair use", must be protected and regulated. It is in the context of these policies that copyright must be

redesigned to adapt it to the digital age. Authorship rights must contain balancing factors of a scope that will provide real incentives to the production and dissemination of knowledge and wealth but that will never pose barriers to those processes.

The Internet and the right of integrity in a work

Authors' rights to their works go beyond economic or property rights. As we have noted, in the Romano-Germanic legal systems there are also moral rights of authorship. These rights recognize the author's interests in the work. Chief among these rights are the right to be identified as the author of the work (paternity or right of attribution), the right to withhold it from publication (right of disclosure and withdrawal), and the right to object to any distortion of the work (right of integrity in the work).

In contrast to property rights, moral rights cannot be transferred and they have no time limits. These rights show that copyright is not a purely commercial affair but is also linked to so-called personal rights, i.e. those that arise from the condition of persons as such.

The moral right to integrity in a work is directly related to the property rights to transformation of that work. We may expect, then, that once the author transfers his property rights there may be conflict between the transformations that the new holders wish to make to the work and the moral right of the author to prevent its distortion (right of integrity). Such a situation can readily occur between the person who designs a web page and the person for whom it is designed.

The Internet, however, poses other unusual situations for copyright and in particular the rights of integrity and transformation. A work may be placed on a server and updated countless times by many individuals (as is the case with Linux). This situation is clearly very different from that of a book, a painting or a video, reproduction of which requires a material support on which a version of the work has already been established. In other words, digital network technology gives such versatility to works that its impact on the right of transformation and in particular on the right of integrity is obvious.

In contrast to television and radio, where reproduction possibilities are limited to recording a video or audio work, the Internet offers many more alternatives in terms of the kinds of works that can be transmitted, as well as a greater capacity to reproduce and transform those works. Even more important is the fact that, while national authorities can readily control what goes on in a television or radio station, it is far less easy to control access to information from the Internet, or its extraction and transformation.

Reproduction and communication

Among the economic rights (property rights) of authors are the rights to control the reproduction, communication and public distribution of their

works. By reproduction, we mean replicating the work in any medium or by any procedure, including digital storage. Communication, on the other hand, consists in making the work accessible to a number of individuals, assembled or not, as in a theatre production, the screening of a film or the transmission of a radio programme. Distribution means making the original work or copies of it available to the public, by sale, lease or any other manner.

The Internet disrupts the traditional structures of these concepts because it superimposes them to the point where they are difficult to differentiate. By connecting a computer to the Internet, we can download works that are protected by copyright. This connection therefore implies automatic "reproduction" of protected works, since in technical terms the Internet requires our computer to make a partial and temporary copy of the web pages we visit. At the same time there is an act of communication, although here it is not clear whether that communication is public or private. In a sense, there is also distribution, both for the copies that our computer makes and for the many possibilities we have to make a "private copy", by printing or recording the information.

Another property right of the author or copyright holder is that of "adapting or modifying the work", yet the editing possibilities of current programs give us the ability, at least in a private setting, of modifying the works that we find on the Internet. Moreover, if the system permits access, we can modify the work online. We can change pictures, musical works, literary texts or computer programs, transforming ourselves in this way from audience into co-authors, thereby breaking the concepts of integrity and of author, producer and audience.

This superimposing of property rights can even coincide with another property right, that of "importing". If their works are produced outside their own country, authors have the right to import or repatriate them, unless they have already been marketed abroad (exhaustion of rights). Yet, when it comes to the Internet, it may well be that a work – a text, a photograph or a piece of music – can be purchased abroad, and online, by the use of a credit card. Is this an act of importing?

Internet technology, then, has blurred the conceptual boundaries between the property rights of authors. It makes automatic copies and sends them to us in unpublished form, sweeping away frontiers in seconds. Digital reproduction technologies vastly surpass analog technologies in terms of volume capacity, speed and quality, and they make mass reproduction possible at the domestic level (Marks and Turnbull 1999).

These technological and social characteristics of the Internet mean that, for copyright purposes, their dissemination function comes out ahead of their exclusion function. Proof of this can be seen in phenomena such as Napster, virtual libraries that offer free information, virtual editions of magazines, computer programs that can be freely downloaded and, in general, the great number of public and private services that are available free over the Internet. In many of these cases, the financing is provided not by the surfer but from

advertising placed on the sites the surfer visits and from the economically valuable information that the service gathers from surfers (Lévy 1999).

Of course, there are other interests exerting pressure in the opposite direction, in the sense of regulating or protecting copyright over the Internet. The Napster case and the demands of the recording industry point clearly in this direction. Other phenomena such as the registration of copyright for information placed on web sites, payment for access to that information, identification of persons visiting the site or the contractual stipulation of conditions of access are all expressions of this demand for the protection of such rights.

Authors and producers

There is an important distinction to be made between authors and producers. The author is the intellectual creator of a work, while the producer takes the initiative to finance production of the work and place it on the market. The author may assign his economic rights to the producer, as happens when the author is an employee of the producer.

There has been a recent trend in copyright law to strengthen the rights of producers at the expense of those of authors. The legal clout of those who invest in a computer program is greater today than that of the person who designed it. There has been a similar development with "neighbouring rights"⁷ of broadcasters and phonogram producers, the investments and technical activities of which are protected in a manner similar to the creative activity of authors and artists.

Legal experts and economists seeking to enhance protection of authors' rights frequently argue that the economic benefits from this kind of monopoly provide an incentive to authors. This statement, debatable as it is when applied to authors, would seem however to be more admissible today in the case of investors and producers.

In a market economy, the protection of investment in intellectual property, whether desirable or not, is a real issue and poses the need for policies, regulations, limitations or exclusions that will affect other values and public interests. If such policies and regulations are to serve these social interests, they cannot be identical for all countries. While countries that dominate the production of copyrighted or copyrightable information will call for greater protection, consumer countries of such information will, or should, seek to ensure an adequate degree of flexibility. Yet as those countries themselves become producers of information, for example through the growth of their cultural industries, they too will come to feel the need for broader protection.

In any event, the Internet now poses a series of copyright questions. Can and should the Internet make every person an author? By eliminating publishers and producers, does it give a new voice and new rights to authors, or does it make authors into both authors and producers? Can a socially desirable and technologically feasible balance be struck between appropriation and dissemination?

The difficulty with private appropriation of information in general – its nature as a public good that in reality always requires some kind of material support, the fact that it is more a process or an event than an object (Lévy 1999) – comes to a head in the case of the Internet.

These are just some of the particular features that give rise to doubts about the suitability of copyright for regulating the circulation of works over the Internet. It would seem more reasonable to overhaul copyright completely or to create new laws that will not only preserve the dissemination potential of the Internet but will recognize a new kind of authorship rights, as required.

Although it may seem far-fetched, comparing the Internet to a drinking water system can serve to illustrate the idea that in using a photograph, for example, or downloading music from the Web, we are turning on an information faucet rather than reproducing a product (Lévy 1999). Just as we pay to use a little water, we could also pay to use some of this information, if only to make sure that it keeps on being produced. Yet, in looking at things this way, we are already adopting a normative approach that will reshape copyright significantly.

Alternatives of this kind could perhaps be appropriate for developing countries, to the extent that they preserve the dissemination of information over the Internet while recognizing certain rights of private creators who want or need to earn revenue from their works. This would certainly seem to be the alternative under consideration in the Napster case.

Problems may arise at the point of intersection between copyright and criminal law, relating for example to originality and new technological possibilities of accessing literary, visual or musical works placed on the Web or “collaborative works” created using the Internet. If a group of authors writes a book using the Internet, it is technically possible to capture this information and plagiarize it. Proving this in court could require evidence of a technical kind previously unimaginable in intellectual property proceedings.

The Internet and originality

Originality is a key concept in copyright. Imagine, for example, what it would mean if someone sought to protect a book or picture copied from someone else. Similarly, a simple list such as a telephone book or information that by its nature cannot be exclusive, such as the wording of laws, can hardly be considered original creations subject to copyright protection.

Legislation does not generally define what is meant by “originality”: it has been left to judges and treaty drafters to provide a definition. While in common-law countries the prevailing view has been that an original work must be a unique creation and not a copy, continental European legal systems have insisted that an original work is a projection of the author’s personality, the material expression of his creativity (Rengifo 1996).

Today, these two approaches have converged, and the newly dominant concept of originality requires a degree of creativity on the part of the author

– the author must have created his work through independent effort without openly or surreptitiously copying a preexisting work (Rengifo 1996).

The notion of copyright reflects the spirit of the Renaissance and thus stresses the individual's contribution in the creative process. Seen from other cultural viewpoints, such as that of many indigenous peoples, the author is always a collective being. A craftsman, for example, is an artist expressing the tradition of the community. In effect, the individual contribution must not obscure the social dimension in the creation of a work. The history of art and science provides countless examples of social sources feeding the most creative genius.

Since creation is both an individual and a social process, copyright must seek to strike a balance between these two kinds of interests. An overly lax or broad concept of originality will mean that virtually any kind of information can be regarded as copyrightable. There is in fact a trend to extend copyright protection to any work in which time and money have been invested: computer programs with an obvious structure, the contents of databases, hypertext on the Internet, web pages with very standard formats. What this says is that the thing that is really being protected is an economic investment and not creativity.

A very narrow and strict concept of originality, on the other hand, will mean that many works that represent an innovative contribution may go unprotected. This can be discouraging to small but valuable innovations and transformations, and it will tend to reinforce the monopoly of those who are successful in obtaining protection.

The Internet raises questions about the concept of originality, such as those surrounding certain versions of *art.net* that allow for a kind of artistic Linux – the Internet makes it possible for us not only to see a painting, hear a song or read a literary text but also to transform them, to be both spectator and co-creator. Cyberspace can let us join in a collective aesthetic creation where everyone can participate, where the distinction between author and producer or that between author and audience becomes increasingly blurred.

Without going into aesthetic considerations about this prospect, we may note the cracks that this technology is producing in the legal foundations of copyright, where concepts such as “author”, “originality” and “integrity” depend on a clear distinction between author and audience.

Online program protection

The Internet's high degree of interactivity also has complex implications for the production and marketing of computer programs online. Computer programs are a problem for copyright in any case: while two programs may have an identical structure, the copy can be disguised by merely tinkering with its visible features (Sarra 2000).

In principle, computer programs available over the Internet are protected by copyright. Paradoxically, in certain cases the Internet can even enhance

the level of protection. One technological response to preventing copying and counterfeiting has been to use cryptography (Sarra 2000).

Marketing software over the Internet provides opportunities for small businesses and independent professionals, who would find it difficult to compete with large producers through conventional marketing channels (Sarra 2000). This option could enhance the economic potential of software producers in developing countries.

Despite cryptography, there remain legal difficulties in determining whether a program is original and what the scope of protection should be. For example, if someone penetrates the internal structure of a computer program (the source code) downloaded from the Web and instead of copying it uses it to create a new program, we are faced with what is called reverse engineering. Is reverse engineering illegal and an infringement of copyright?

A basic principle of copyright is that it protects the form in which ideas are expressed, not the ideas themselves. It is a specific picture representing a forest or a text explaining a scientific theory that will be protected, not the idea of painting a forest or the scientific theory itself. Similarly, the mathematical ideas underlying a computer program cannot be protected, but the way in which those theories are used to design a specific program is copyrightable. If things were otherwise, it would be tantamount to prohibiting a novelist from reading other novels in order to write his own.

The possibility of reverse engineering increases with the greater accessibility and circulation of programs that the Internet makes possible. Consistent with emerging jurisprudence in the United States and Japan, and with the European Council Directive on computer programs, legislators and authorities in developing countries will have to allow reverse engineering as long as it does not represent a step towards plagiarism. Reverse engineering must not be seen as a copy but rather as research into the ideas of the program – in legal terms, “fair use”, i.e. an activity that, at least by itself, does not interfere with normal exploitation of the original work nor with the rights of the original author.

Reverse engineering is essential for the technological and economic development of software industries in developing countries, and it constitutes a technical necessity for ensuring interoperability between programs. This clarification is necessary because some legal provisions, such as Andean Decision 351, could be interpreted as prohibiting reverse engineering.

Andean Decision 351, like much national legislation, authorizes a person acquiring a computer program only to load and run it on his hard disk and to keep a backup copy. Unfortunately for the interests of developing countries, these are the only exceptions to copyright that this rule permits (Alvarez and Restrepo 1997).

Nevertheless, when properly conducted, reverse engineering is not only necessary but compatible with the fundamental principles of copyright, which are to protect the author or the holder of author's rights while striking a balance vis-à-vis social needs for the dissemination of ideas, culture, science

and technology. To prohibit reverse engineering would be equivalent to copyrighting ideas, which as we have seen is contrary to the basic principles of copyright.

Databases

The “originality” problem appears again in the case of databases. The Internet contains countless databases that can be accessed through a connected or authorized computer from anywhere in the world. These databases can be quickly and perfectly reproduced. This poses the problem of what exactly it is that copyright protects in a database placed on the Internet. Here we must distinguish between different parts of the database: the program or software that runs it, the content or data inside it, and the container itself.

All of these database parts might seem to be protected by copyright. Yet when it comes to the data or content, we must note that what is protected is the “selection or arrangement of their content” to the extent that they constitute intellectual creations. There is no protection for the data or material itself when it has been taken from the public domain.⁸ This is the meaning of Article 5 of WCT and Article 10.2 of the TRIPS Agreement, as well as the interpretation that the Andean Court of Justice has given to Articles 4, 28 and 58 of Andean Decision 351 on Copyright.

It is also essential to clarify what is protected in databases in order to maintain the balance we have been discussing between exclusion and dissemination. We may say that authorship rights deriving from the creativity, work and investment of someone who constructs a database must be balanced against the needs, benefits and fair use of users (Sarra 2000). In effect, scientists, researchers, educators and the general public also have rights and interests in accessing information.

In preparing a database and posting it on the Internet, then, the author of that compilation or the person who has rights to it must, on one hand, respect the rights of those who prepared the data and, on the other hand, allow the public to access that information and make use of it by extracting from it freely, if it was taken from the public domain and if it is used in a manner consistent with fair use.

While it is difficult to maintain this balance, it is important to do so. There has been a tendency, particularly within the European Community,⁹ to provide overprotection for databases or, more precisely, to broaden the legal concept of databases to include any compilation that represents significant economic investment. According to this view, copyright should apply not only to the selection or creative arrangement of data but to the content itself (Buydens 1999), on the grounds that some databases are *sui generis* and so the investment in updating, verifying and presenting their content must be protected (Sarra 2000). Unauthorized extraction of information from those databases, then, would be a violation of copyright, even if that information was taken and compiled from the public domain.

Such an approach certainly gives excessive scope to authorship rights over databases, to the point of breaking the balance with social rights and interests in access to information and with fair use by the public. In contrast, the US Supreme Court (*Feist Publications Inc. v. Rural Telephone Service, 1991*) rejected copyright to alphabetical listings of names, addresses and telephone numbers, on the grounds that such information was obvious and did not entail the modicum of creativity necessary for copyright protection.

One of the strengths of the Internet lies precisely in the fact that information from databases can be widely accessed and used. Hypertext links, for example, can be seen as a database, and they are indeed one of the keys to the development of the Web. To protect hypertext links on the grounds that building them into a web page involves investment or creativity would inhibit rather than facilitate the use and growth of the Web.

The simple aggregation of data, however labour-intensive it may be, cannot in itself be protected – it is only the original selection and creative arrangement of information that is copyrightable. To maintain otherwise would be in a sense to legalize the private appropriation of information already in the public domain, and that would be contrary to the basic principles of human rights and constitutional rights to information, culture and education.

Other restrictions on technological developments related to database use include “prohibition on” or “sanction for” the import of tools or technologies that can be used to copy databases, as well as provisions that hold Internet goods and services providers liable for violations committed by users. Such measures can readily become a means of extending excessive protection to intellectual property and converting it into a system of monopolistic abuse.

Web pages

Another problem that relates directly to originality has to do with the protection of web pages that may include and combine text, photographs, music, video and other copyrightable works. Under such a system, the authors of web pages would have to obtain the appropriate authorizations. The new web page, in turn, would be protected as a new work. This is more or less what happens now in producing a film, where the music, text and images used are protected by previous copyrights, and the film production itself is protected as a new work.

The originality problem arises with the need to differentiate creative pages that are part of a business marketing strategy from other pages created with standard software and designs that are similar to thousands of others circulating on the Internet (Sarra 2000). A further problem has to do with determining who should have authorship rights, since businesses frequently contract other firms to design their web pages. In this case, in the absence of an agreement to the contrary, copyright will go to the firm that contracted and paid for the preparation of the page (Sarra 2000).

Private and unauthorized copying

If we record a musical or audiovisual work on a home cassette player and even if we photocopy part of a book that belongs to us, we are not violating copyright. In effect, this is what is known as “private copying”. It consists in reproducing a work for purely personal reasons, i.e. for private use without any intention to profit thereby. This is different from “unauthorized copying”, which is generally done on a mass scale and for profit, and for which there is no compensation mechanism.

Generally speaking, intellectual property laws permit private copying and provide for the payment of compensation for any economic loss suffered by holders of the copyright. These compensation payments are generally financed by imposing a levy on the importers of recording devices such as photocopiers, recording machines, etc.

The question then arises: does our reproduction for personal use of works posted on the Internet constitute private copying? In principle, there is no great difference between recording a work on an audio or video cassette, on the hard drive of our computer, or on a diskette. In all cases, there will be a problem if we make multiple copies with the intent of selling them.

Nevertheless, unlike the situation with private audio or video copies, there is as yet no legislative mechanism to provide financial compensation for the loss that private copying of a work on the Internet may imply. There is no copying levy on the import of computers, since their function is not restricted to reproduction. On the other hand, the automatic copy that a computer makes of a work on the Internet, in contrast to a private copy, is involuntary and temporary. It often reflects a technical rather than a personal need.

When it comes to the voluntary printing or recording of a work placed on the Internet, this would seem to correspond more clearly to the concept of private copying. Yet some acts, such as placing a work on a web page different from the one where we found it or resending it electronically, may constitute a use that, while not necessarily commercial, exceeds the private sphere and could violate copyright.

Some works on the Internet may be susceptible of communication beyond the personal sphere, depending on the context in which it is used. It is natural enough for the text of an e-mail letter, for example, to be widely disseminated by a participant in a discussion group, but if it is a personal communication it will involve the right to privacy and perhaps copyright as well.

Neighbouring rights and the Internet

Neighbouring rights protect the property and moral interests of those who help to make copyrighted works accessible to the public. For example, a singer may perform a musical work or a radio station may broadcast it. On one hand, there is copyright to the musical composition, and on the other hand

there are neighbouring or related rights to the performance or broadcasting of the work. Although related, they are distinct rights. They are called neighbouring or related rights precisely because they are directly related to authorship rights.

Neighbouring rights protect the property and moral rights of performing artists, producers of sound recordings, and broadcasting organizations. In terms of protecting investment, there is a tendency to lump together within a single category artistic activities such as those of performers and the technical processes of recording and broadcasting sounds. In any event, the connection between neighbouring rights and the Internet arises from the fact that many of these performances and recordings are widely disseminated over the Web. Illegal reproduction thus affects not only copyright but neighbouring rights as well.

The property rights conveyed by neighbouring rights refer to the power to authorize or prohibit reproduction, distribution, rental and, in general, public communication of performances and to receive compensation for such communication.

The WIPO Performances and Phonograms Treaty (WPPT) extends to the digital environment the rights and protection of the 1961 Rome Convention on neighbouring rights. Attention should be drawn, however, to the Agreed Statement concerning Article 15. It declares that the diplomatic delegations that adopted the treaty were unable to achieve consensus on the exact scope of rights of broadcasting and communication to the public that should be enjoyed by performers and phonogram producers in the digital age.

Another aspect to note is the provision of Article 16 of the WPPT, whereby contracting parties may, in their national legislation, provide for limitations and exceptions to neighbouring rights in the digital environment, provided that such limitations are consistent with fair use as defined in the Berne Convention.

Articles 15 and 16 of the WPPT, then, confirm the idea put forth here: copyright, including neighbouring rights, must be significantly redimensioned to meet the challenges of the digital age.

Technical protection against unauthorized copying

In addition to legal measures, efforts have also been made to develop new technologies to prevent the infringement of copyright in works on the Internet. The Millennium Act in the United States and Article 11 of the WCT grant legal protection to authors and producers against attempts to circumvent these technical measures.

These technical measures are varied and complex. They range from the encryption of information to mechanisms that will provide warning of copyright before a work is reproduced. In other cases, they prevent the making

of more than one copy, and they provide various systems for identifying the user or any inadvertent and harmless errors that will show when a database has been copied, for example.

These technologies have also been the subject of much debate. For those seeking protection, they are ideal mechanisms for insuring their rights without necessarily limiting those of users. For their critics, such technologies limit the right to information and to the fair use of private copies and, in some cases, even threaten the right to privacy.

Some of these technologies are already in use: the results have been uneven, but it is clear that their indiscriminate application would certainly represent an attack on the legitimate rights of users. Moreover, as the companies themselves recognize, these technologies suffer from several technical limitations and are by themselves inadequate for providing effective protection (Marks and Turnbull 1999).

The problem of jurisdiction

The Internet is global, while intellectual property laws, despite their internationalization through bilateral and multilateral treaties, continue to be based on national states, their laws and authorities. This discrepancy gives rise to complicated jurisdictional problems. When Internet use infringes upon copyright, who is entitled or required to complain? Should the plaintiff go to court in his home jurisdiction or that of the Internet goods or services provider, or perhaps that of the person accused of the violation?

International private law governs the legal relationships between the nationals of different states. It is clear that schemes of this kind are inadequate to the extent that they are based upon territoriality (Sarra 2000). Internet jurisdiction is further complicated by the speed at which information travels over the Internet, the possibility that a single page or portal can be found on different servers located in several countries, and the fact that consumers can conduct transactions from any access point in the world.

Indeed, some see in this lack of central control and of defined rules and authorities a revolutionary aspect of the Internet. We may be on the threshold of a new social reality under a global government and systems of self-regulation. Yet this does not dispense with relationships of power within the system. Thus, for example, it is the most highly computerized societies that will dominate because it is in their countries that the companies, institutions and servers that control the flow of key information, such as domain names, will be located (Simon 1998).

One response to the lack of defined standards, authorities and jurisdiction has been the emergence of systems of arbitration and self-regulation. This phenomenon supports the so-called legal pluralism theories, which hold that there are many juridical orders beyond those created by the state.

Electronic commerce and copyright

The Internet is generating new forms of trade. Commercial transactions over the Internet are not, as some maintain, simply a complement to traditional national and international trade, conducted via the telecommunication media (Bertrand and Piette-Coudol 1999). Such transactions, at least over the Internet, are not always merely complementary because they often involve informational goods and they are paid for by sending information (especially credit card numbers). These transactions are nearly always instantaneous, which makes it difficult to determine whether the contracting parties have given their legal consent. On this point, we must recall that the Internet consumer frequently has no direct contact with merchandise and often conducts the transaction with or via a server (Barbieri 1998).

On the Internet, the “adhesion contract”, whereby the consumer simply accepts or “adheres to” the supplier’s conditions of contract, is the most common legal format. Although the adhesion contract is a legal procedure that is widely used in mass commerce today, that procedure is proliferating over the Internet and the forms of legal control designed for such contracts (such as public registries and lists of prohibited abusive or oppressive clauses) do not seem readily applicable.

It is precisely in such adhesion contracts that companies can include abusive clauses relating to copyright – for example, a company providing information via databases may establish a contractual prohibition on the use of data that may have been taken from the public domain.

The Internet’s impact on trade gives a new and significant economic dimension to information. Information today is wealth, and the technical possibilities for businesses to keep records on purchasers’ habits and interests mean that it is the consumer who, by the simple act of searching for information on the Web, produces that wealth (Lévy 1999). From this viewpoint, as Bob Metcalfe has noted, the more computers there are connected and the more information there is circulated, the more wealth will be generated. We are faced, then, with a new kind of externality digital externalities (Simon 1998). Many writers have pointed to the disappearance of commercial intermediaries on the Internet, the emergence of digital money, and demand-based production, among other aspects.

It is these sharp differences between conventional trade and electronic trade that have given rise to a new set of rules and laws focused on electronic trade. Such legislation tends to encourage user identification systems and seeks to give electronic contracts equal force with conventional contracts.

In terms of copyright, a key problem is the registration of protected rights. Copyright arises at the time of creation and does not require any legal registration – if this is done, it is simply for evidentiary purposes in case of litigation. National copyright offices maintain this information, which is also useful for finding out who is the owner of what work. The volume, speed

and transnational nature of circulation of these works over the Internet demand new forms of registration.

One criticism of the requirement for conventional licences for the use of copyrighted works placed on the Internet is that it is difficult to identify protected works and their owners. WIPO has accordingly proposed establishment of a global information network of national and regional copyright registries, both public and private (WIPOnet). Such a network would make it possible for persons interested in using copyrighted works anywhere in the world to find information on copyright holders, learn about licensing conditions, and even obtain a licence (Koskinen-Olsson 1999).

On this point, we must repeat that such a registry, at least in conventional copyright theory, would merely provide evidence of copyright and would not by itself constitute rights. It has traditionally been held that copyright is born with the creation of a work, not with its registration. A global copyright registry would therefore provide information only on registered works and not on all legally protected works. If such a registry were to be useful, then only works registered in it should be protected. This would amount to a further structural amendment to copyright, which would then be born, at least as far as circulation on the Internet is concerned, only when it is registered in some local or regional office connected to the global registry.

Conclusion

The legal system does not seem to be adapting as swiftly as it should to the challenges of the information economy and society. One response to these challenges has been to insist on Internet self-regulation.

It is in the relationship between the Internet and copyright that this discrepancy becomes obvious. The traditional categories of author, originality, reproduction, communication, import, integrity, fair use and private copying do not hold up when they are applied to Internet works.

Some of the responses to this discrepancy have included the design of technical protection systems against copying, global copyright registries, introduction of criminal penalties for piracy, and discussion or issuance of new rules, such as the WIPO Internet treaties or the US Millennium Act.

These responses, however, fail to address the central problem: the nature of digital information and the technical and social implications of its circulation over the Internet. The intention is to take laws that were designed for analog information and apply them forcibly to digital information. The result is frequently to distort such laws and render them inapplicable.

What we need, then, is to redesign or create laws that will address the rights of authors, performers and producers while striking a balance with the rights of Internet users, fair use and the rights to the information and culture that the Internet provides.

In this process, care will be needed, in particular, to guarantee educational use of the Internet by libraries and researchers, to allow fair use of databases and reverse engineering of software on the Internet for research purposes, and to develop new systems for registering and compensating rights in ways that are appropriate to the digital environment of the Internet, thereby fostering its growth and its democratic use.

Those who are committed to projects for democratizing the Internet in Latin America, as well as educators and researchers in general, must pool their efforts and forge alliances in support of appropriate policies and legislation. The WIPO Internet treaties, the subregional integration schemes and the Free Trade Agreement of The Americas are all potential scenarios where action should be pursued. Organizations devoted to protecting the rights to information, privacy and the freedom of expression over the Internet in the United States and other industrialized countries may turn out to be valuable allies.

Notes

1. Lawyer and political scientist, currently teaching economic law at the Ecuador campus of the Universidad Andina Simón Bolívar in Quito.
2. The simile is relative and therefore debatable, because there are major differences between common property and intellectual property, which is time-bound and characterized by inherent limitations and intangible objects.
3. *Usos honrados* is the equivalent in civil law of "fair use" in common-law countries.
4. This statement must be conditioned by the fact that, if there is to be a monopoly, the exclusive right conferred by intellectual property must eliminate competition in a market for a specific product or service (the relevant market), for which there is no substitute product or service.
5. According to Susan Sell (1998), this contrasts with the comparatively greater effectiveness, reflecting the greater interest of national industries, that has been achieved in the enforcement of antitrust legislation.
6. Other important documents include the Bangemann Report, the European Community Green Paper, and the conclusions of the Stockholm Group.
7. Neighbouring rights are rights related to the communication of works protected by copyright. They include economic and moral rights to the public communication of works by performing artists, producers of sound recordings, and broadcasting organizations.
8. In fact, such information may or may not be subject to previous copyright. If it is not, it is because the information was taken from the public domain, for example a collection of extracts from legislation. If there is preexisting copyright, such information will be protected as far as those previous authors are concerned, for example in the case of a database consisting of extracts from encyclopaedias.

9. We refer here to the European Community Common Position (EC) No. 20-95 for a Community Directive on the legal protection of databases. In a similar vein, WIPO has proposed a treaty on the *sui generis* protection of databases.

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