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Intellectual Property and Electronic Communication

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Abstract : The impact of electronic communication on our society poses unprecedented problems to Intellectual property regimes. They are designed to balance the public and private interest and depend largely on history and circumstances. The concept and doctrines of copyright is based on traditional printing technology which needs to be reconsidered given the pressure electronic communication puts on existing institutional arrangements.

I. Introduction

Technological change is driven by a constantly fluctuating debate about the extent intellectual property regimes ought to serve the over-riding needs of society. As such, electronic communication has affected our society to become a dominant and justified concern to democracies. What are the stakes? Given the central importance of information in our life, there are economic, political and social implications. Electronic communication is capable not only of fostering access and dissemination of information but also brings new and unprecedented opportunities for society and individuals.

In this paper, I will focus mainly on copyright because it is here that the greatest amount of changes seem to have taken place. Since Queen Anne's Copyright Act(1), the 1791 and 1793 French decrees(2) and the promulgation of the United States Constitution(3), national copyright laws have been revised in most developed countries in order to render the subject matter of copyright as technologically neutral(4). Each new form has found protection under the scope of copyright, either with little changes to its underlying concepts or as deviant forms.(5) As a result, copyright laws are designed to make the criteria of copyrightability non-specific to protect works of the mind regardless of the technologies involved in their creation. Nevertheless, electronic technologies have introduced new and unprecedented forms of expression; and problems still remain concerning the protection of digitised forms of intellectual property. To understand the problems posed by electronic communication, I will look at the impact of the cyberspace on our society and at the pressure that is put on intellectual property, and in particular, copyright. Finally, I will reconsider the regime of copyright in relation to electronic communication.

2. Impact of The Cyberspace

The cyberspace environment may be defined as the interaction of computers within an international array of computer networks.(6) A computer network is a collection of computers, called hosts, that communicate with each other. Users can connect themselves with other computers through standard telephone lines, satellite transmissions, or submarine optical fibre links. For the establishment of instantaneous communication it makes no physical difference that the user's personal computer and the remote host system are a continent apart. The capacities of computer networks for on-line creation and world-wide co-operation are unlimited. Simultaneous transfer of a large amount of data is possible whereas a simple telephone call transmits only one simple stream of data. Electronic communications are delivered instantly to distant locations where users can be connected at the same time to the same network. Also, the interactive capability of computers allows creativity in which a preliminary or final version of a work can be the product of interactions not only between persons but programmed machines.(7) This information infrastructure offers opportunities for research, personal communications, building new communities, helping business to work more efficiently, opening markets to rural businesses previously closed to them. It becomes difficult to individualise or localise non-static or digital works created in such circumstances, which poses conceptual and legal problems in copyright terms. In other words, problems arise when one needs to identify and to administer "original" works of "authorship".

Cyberspace regroups a vast array of private and public computer networks. On the one hand, there are the private local area networks (LANs) or small group of users run by companies or organization who do not wish to open their network to the public.(8) Such combinations are intended to restrict access to subscribers only and protect users' personal accounts. On the other hand, there are networks which are open to world-wide interaction with other networks. This system may support commercial or public on-line services. All it needs is a personal computer and the proper access equipment with a personalised account to log-on on-line services. Users log on onto the service with a unique name and password

combination that identifies them to the host system. Finally, larger decentralised networks in both a technical and a managerial sense may encompass all these networks. The most important network in the world is the Internet.(9) It is decentralised in the technical sense because there is no central hub through which all messages must be routed. Likewise, there is no central governing body on such large networks and they are governed through a surprisingly effective yet anarchic autonomy. The Internet is generally referred as the "Network of networks" which covers North America, Europe and Asia.(10) This truly international system facilitates resource sharing between private and public organizations, educational institutions and government agencies. The Internet is especially popular among scientists and is probably the most important scientific instrument of the late twentieth century. New challenges are still to come since national and international projects of information infrastructures are under research in North America(11) and within the European Union(12), to encompass digital and interactive on-line services.

3. The Internet

To support my argumentation that there is a need to reconsider concepts of intellectual property rights, and in particular copyright, I will take the *Internet* and its services to understand the legal and political pressure that electronic communication places on the intellectual property system.(13)

The Internet is not just the electronic highway but a high capacity multi-media structure regrouping a large number of services. Broadly speaking, the services offered are e-mail, discussion groups, long-distance computing, and file transfer. E-mail allows individuals to send electronic text or any other works in digital form.(14) The message is stored and becomes available immediately to the recipient when he comes on-line. The system is characterised by the easy management of the messages received. One can store, delete, forward messages automatically. Mailing lists can also be created to contact a large number of users automatically at the same time.(15) As a developed form, public message systems like *Usenet* newsgroup exist on any system subscribing to discussion groups networks. Such systems use the Internet to communicate between private networks and users. Other mass communication systems exist such as computer bulletin board systems (BBSs). They have the lowest entry barrier as they are commonly used as a public service to support e-mail, message boards, and software trading. These services are characterised by an ungoverned and sometimes chaotic approach which tends to put the fate of the services in the subscribers' hands, however, it is very popular.(16) Moreover, countless electronic periodicals are published on the Internet. Some publications are archived by on-line services so that back-issues are available upon demand. Most systems are free of charge and directly available to the public. There are also many electronic versions of magazines and publications in paper form which are distributed sometime before their paper counterparts.(17) Any individual may become a publisher. There is no need for a printing-press or a method of distribution to enable his work to reach its audience. The nature of publishing has therefore changed. On-line systems and networks make distribution of electronic publications feasible even to individuals with limited resources. Educational and research information services provide most of the time access at no charge to encyclopaedias, dictionaries, databases, libraries catalogues, softwares for all, students or scholars.(18) On-line tutors exist for one to one assistance, and automated computer-aided instruction programs help users master a variety of disciplines. Some colleges offer distance learning courses via modem. (19) Commercial applications are finding an enormous potential. Electronic shopping, on-line information on securities and other services can be provided. Subscription to the service might be placed via e-mail using direct credit-card information for payment. Finally, we should not omit entertainment services, which provide games.(20)

These few examples convey the problems that electronic communication poses. Control over such services is unclear. Copyright notices and protection may be automatically advocated.(21) For instance, the moment the e-mail is fixed on a storage device it attracts copyright protection and any unauthorised copies or publications of it would be an infringement of copyright. However, the question remains whether or not messages are being fixed long enough to attract copyright protection. Certain systems might ask also their subscribers to waive their rights to "e-mail ownership" to distribute messages or compilation of messages. Compiling messages from a private network might bring problems of liability whereas messages taken from a public network may be less problematic. Identifying authorship has become a problem. Networking technology allows a group of authors to collaborate in writing an article. Digital forms of expression increase communication capacity in terms of speed and manipulation to pose problems of identifying infringements of copyright, enforcing rights and integrity of works. Universal access allows people to peruse a vast quantity of materials without the knowledge or permission of copyright owners. In defence, a private citizen may invoke the doctrine of fair use which covers research or private study. Anyone may use the ideas or information expressed in a work as a starting point for his own independent research or private use. Questions remain as to control people's behaviour in the privacy of their own home.

The conception of the Internet is based upon a decentralised structure which has made its expansion easy.(22) It is a rare example of a true modern, functional, anarchy.(23) It could accommodate different kinds of machine where the content or ownership of the machine was irrelevant to the system. Networks needed only to run a common program called *file transfer-internet protocol* (the FTP/IP standard protocol) and share common name, address and spaces.(24) The system, called *Arpanet*, was established as a computer sharing network to transfer data on dedicated high-speed transmission lines where supercomputers could be programmed from other nodes. This long-distance secured network allowed scientists to transfer data and share each other's computer facilities and notes to become a popular means of

communication, especially to send personal messages.(25) Until 1983 *Arpanet* was controlled securely enough by military standards to become a network used also by civilians. New supercomputer groups linked themselves to the existing backbone embracing larger territories of people and resources using the FTP/IP protocol which belonged to the public domain. Anyone was free to make use of it. The wider availability of this decentralised technology caused its own booming development, since nobody intervened to stop it, and created what is known as the Internet. Connecting to the "Network of networks" costs the taxpayer little or nothing since each node is technically independent and is supported financially by independent institutions. It has given cheap and easy access on a planetary scale to unlimited data and applications are potentially unlimited. Future computer networks will support world-wide features such as 3-dimensional animated graphics, radio and cellular phone links to portable computers, as well as fax, voice and high-definition television.(26)

The original concept of *Arpanet* has mutated from a controlled network of communication to an uncontrolled network spreading exponentially to find a place in libraries, schools, universities, government agencies and other commercial or public organizations. There is no company, no chairman, no stockholders, no official censors. A total freedom of communication is observed on the network. The overall goal is to promote public access and use of any forms of communication supported by the Internet.(27) Much of its development has taken place without commercial or legal incentives. Only public interests in sharing ideas and information has driven its development. Each person accessing the Internet is responsible for his own comments and use. The Internet's anarchy may seem strange or even unnatural, but it makes a certain deep and basic sense. The Internet is common property, and as such a common good, reducing scarcity of information and freeing information. The system is improved by actions of people who come forward with new ideas. This is an institution that resists institutionalization. The network belongs to everyone and no one. The common standard protocol involves an open and non-proprietary system. Indeed, all nodes are equal and independent which means that they can communicate as peers to any other node so long as it obeys the same TCP/IP protocol. The latter is strictly technical, not social or political. The Internet does not cost anything, because there is no official entity to charge for its services. Each person accessing the Internet is responsible for his own machine and his own section of line and maintenance. Programs such as *Mosaic* or *Gopher* are freely available for the benefit of all users and which serve to help them to find their way in cyberspace.(28) Nevertheless, the situation is changing, since businesses supply their own links to provide commercial services. As a consequence, a certain order is sought to control the network. The issue resides in the types of control needed over the use of the information provided through private or public networks. Such issues may be regrouped under three categories: intellectual property, privacy, and national security. Each of the various users have different claims. Business people want the Internet for financial opportunities. Government people want it more fully regulated. Academics want it dedicated to scholarly research. Military people want it to be spy proof and secure. All these interests are sources of conflict; however, the system has, so far, kept a balance because it remains in an anarchic condition where nobody is able to take control. The issue is whether or not intellectual property can accommodate all interests.

4. Is Copyright viable in the light of electronic communication ?

The concept of intellectual property, and in particular copyright, is the brainchild of certain political and social conditions dependent on one form of technology.

During the Middle Ages, the emphasis was on individuals who existed within a community and for the community. No individual responsibilities were to be recognised; therefore literary responsibility or creativity could not be assumed by individuals as authors.(29) Duplication and preservation of manuscripts formed the main tasks of religious communities for centuries. The invention of the printing-press gave an impulse to literary creativity, breaking away from the Middle Ages.(30) Intervention from a central political authority was sought by printers to legitimate their ownership of copies. The new literature market required considerable investment in money and equipment by the bookmakers, and protection against piracy motivated their requests at first. Intervention was two-fold. The authority decided to intervene in economic affairs to protect the developing book trade and to control the press as a means of censorship. A monopoly right to copy, in effect a patent, was granted to protect the technological developments from the start. However, the printing-press brought by the same token, not only economic change but also social and political changes.(31) Copyright arose first as an adequate means for political censorship with the complicity of the book trade. Copyright as it is known now came later with the respect for the individualistic rights, first vested in publishers and then in authors, the real source of literary property. The concept of authorship or intellectual property rights vested in creators or authors was not fully initiated before the 1710 Copyright Act in the United Kingdom and was formally recognised only in the case of *Donaldson v. Becket* in 1774.(32) In sum, copyright is the child of one technology: the printing press. Its concepts and principles all derive in essence from this specific technology. We have to agree that a particular legal system is designed to serve certain goals depending on history. Like the printing-press, electronic communications has transformed society, where the creation, use and communication of information have become a central element. Copyright is analysed as a means to protect freedom of expression and the creation and dissemination of new ideas. "A bad copyright law can destroy that independence, a good one can help to preserve it".(33) Arguments are put forward suggesting that copyright has proven its flexibility over time and that the current system can adapt itself to encompass new forms of expression.(34) If the printing press has given rise to our intellectual property system one can expect that where printing technology is no longer the chief source of communication then copyright will be undermined.(35)

What are the fundamental concepts of copyright? The concept of authorship was prompted into existence by the emergence of the printing press, enabling a central authority to support authorship. Not only did the development of the printing-press lead to the creation of copyright, but it led people to think of creative expressions as property. In other words, the press gave us the opportunity to initiate the creation of copyright as a legal institution and to establish by the same token the very substance of the doctrines on intellectual property. Property right whether tangible or intangible must have boundaries. Ownership in intellectual property is defined in terms of intangible characteristics. Unfortunately, electronic technologies have disrupted the traditional proprietary boundaries and control over them. These observations are reflected in legal theory by the idea-expression dichotomy rationalised by the concept of originality which moulded the doctrine in copyright law.(36) Ideas, as such, are neither patentable or copyrightable. Monopoly in ideas is against the very purpose intellectual property rights seek to promote. Authorship is a matter of personal responsibility initiated with fixed mediums of original expression made possible by printing technology. Authorship is rewarded by the copyright regime in relation to its dependence with the technology that makes creations possible. Therefore, the relationship between technology and intellectual property rights poses important questions in the light of electronic communication. Works exist in a non-static and digital form. Scholars can work simultaneously and interact on the same project from different parts of the world. Such works can be modified by anyone who has access to the network representing possible problems of misrepresentation, fair use of the work or respect of its integrity. Copyright regime fails to grasp all aspects of this new form of expression. Problems administering copyright reflect the doubts about the viability of copyright protection for digital forms of expression; and consequently to respond to society's expectations.

Copyright theory, direct successor of the licensing mechanism, has also several consequences. It may be argued that copyright allows the suppression of freedom of speech as a whole. Only certain works are the chosen ones. Some scholars advocate that people do what comes naturally and then invent some theory to make their effort plausible.(37) What would come naturally to copyright is the deliberate or selective suppression and advancement of speech. For instance, copyright limits the essence of the creative process by penalising unconscious infringement or simply inhibits creation of derivative works or inventions which rely on deliberate imitation or improvement of previous works. Intellectual property has established institutions: the book trade in its early development, and the Press, which could not exist without some form of protection against copying. Beyond the press industry other media, such as the entertainment industry, and now the software industry, are absolutely dependent upon intellectual property rights for revenues.(38) The mechanism of suppression has relied on the concept of authorship. Authors are "ideological figure by which one marks the manner in which we fear the proliferation of meaning".(39) An author holds a social function in our culture which society intends to control by legal and social means.(40) Interestingly, he has played the role of a regulator of a society based upon individualism and private property. Moreover, the role of the authority which grants protection re-inforced its powers by institutionalising moral rights to authorise or forbid speech.(41) We have succeeded in limiting authorship only through our success in controlling access to its chief tangible means of embodiment. Society has lost this ability to limit that access with electronic technologies. Indeed, electronic communication allows customised information on demand creating opportunities to expand and develop information-based products and services. In sum, the concept of authorship has evolved to find more freedom in cyberspace.

Copyright has tried to encompass all forms of expression to keep a uniform approach of protection. Deviant forms of protection have been established which over-strain the intellectual property system to its extreme limits. Not all forms of expression can be treated in the same manner by the same legal regime. Traditionally, three types of works may be identified. The first category denotes works which have an intrinsic value whether aesthetic, entertaining or educational. The second one encompasses works whose value lies in the accurate representation of reality. Finally, works of function regroup works which implement or describe a process, procedure or algorithm.(42) All three categories may receive copyright protection according to their particular form of expression. The digital communication revolution, however, is erasing the distinction among these different categories to alter the concept of idea-expression dichotomy. It has also facilitated a greater dissemination of works of authorship. With the advent of electronic communication there is a need to preserve a balanced system that guarantee public creation and dissemination of works with promotion of the interests of authors and the public. High powered cryptography is a possible technique, however, the debate over this technology in cyberspace is controversial.(43) Users may rely on the computational prowess of their computer system to encode digital files in such a way that only the intended recipient of the message can decipher it. Governmental agencies, however, want to be able to decrypt messages when necessary and owners of intellectual property rights may also restrict access to works to the detriment of users. It has become urgent to re-examine the current system which we have taken more or less for granted in order to find less intrusive alternatives to protect authorship.(44) There is a need to reconsider concepts of intellectual property, privacy, and the like. A one size-fit-all approach to multi-media cyberspace network run the risk of wrecking its very nature and opportunities.

Conclusion

The information infrastructure has already affected our civilization as deeply as did Gutenberg's printing press did.

Electronic communication has tremendous democratic potentials: potential for connecting learners with teaching resources, promoting political discourse, and increasing economic competitiveness.(45) The purpose is to make available text, illustrations, audio and visual and other forms of expression with greater freedom. Digital technology allows us to

achieve that goal. Direct access implies that we have full affordable capacity to access the system to view, print, hear, retrieve and save. In other words, to be able to bring the complete set of users' expectations, as readers may do with books. It is important that users receive an authentic and correct version of the original work in order to encourage creativity and dissemination of works.

The concept of authorship needs to be redefined in a more personal form. Authorship as a form of recognition of whom something belongs to cannot be rejected. It is a defensible and inevitable concept as well as an essential requirement of human existence. If intellectual property survives it will be upon the construction of authorship for the purpose of advancing speech, with room for encouragement of creativity and appropriation of its products.

By and large, the internet community favours sharing information and ideas because it promotes creativity and co-operation. This spirit has to be preserved as the development of information superhighways moves forward to ensure affordable information and communication services with free speech and use of a common carriage.