UNIVERSAL STATES ADHERENCE TO THE BERNE CONVENTION AND COPYRIGHT PROTECTION OF INFORMATION-BASED TECHNOLOGIES

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The Berne Convention, which governs the international aspects of copyright protection in its signatory countries, has been in existence for over one hundred years. During that period, numerous attempts have been made to reform United States copyright law to permit our entry into the Convention, but while the reasons for our not joining may have varied with time, the United States has never acceded to its terms.¹ Nevertheless, the differences between United States law and the requirements of the Berne Convention have steadily narrowed over the years, most particularly with the adoption of the Copyright Act of 1976.² With increasing concerns about international piracy of the creative works of American authors, a major groundswell of support for United States entry into Berne has recently developed and seems to be gaining momentum. Three bills to amend United States copyright law to permit our joining the Convention were introduced in 1987.³

The movement toward Berne is not without opponents, but the debate has focused on the historical issue of the desirability of maintaining our traditional

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¹ Other major non-signatories are the Soviet Union and the Republic of China. For a list of ratifications as of January 1, 1986, see 4 M. Nimmer, NIMMER ON COPYRIGHT, APPENDIX 22 (1986).


differences from the requirements of the Convention, such as the United States preference for certain formalities like a notice of copyright on published works and the Convention demand that its members provide for moral rights of authorship. What in the long run may involve a much more important issue of public policy has received little or no attention, namely, the effect of United States entry into the Berne convention and the protection of information-based technology like computer programs and databases under American copyright law. This essay raises that neglected issue.

Any international treaty that survives one hundred years must have something going for it, and even twenty years ago Professor Nimmer referred to the Berne Convention as "one of the earliest and most successful ventures into world law." The levels of protection mandated by the Convention have increased steadily over the years of its existence, leading to its general characterization as "the highest internationally recognized standard" of copyright protection. It is important to bear in mind, however, that reference to "high standards" of copyright protection is almost invariably made from the point of view of copyright owners. The general public, which is not often represented among the interest groups that appear at congressional hearings, benefits from high levels of protection only indirectly, through the incentive protection provides for the creation of works. As users of copyrighted works, members of the general public also benefit from the freest availability of works consistent with the incentive to produce them. The general public also benefits from incremental but steady advances in technology, much of which is attributable to the free flow of information and methodologies among scientists and engineers. Consequently, ever higher standards of protection are not necessarily congruent with the public interest.

High levels of protection under copyright, like those mandated by the Berne Convention, are least problematic in application to traditional literary and artistic works, for which copyright protection was originally designed. When copies of such works are widely distributed, a small royalty on each sale may hardly be noticeable to the purchaser but can generate a healthy return to the creative author. A denial of copyright protection might result in very little saving to the end users while substantially eliminating any financial return to the author. Only the purest of artistic souls would continue to produce creative works under those circumstances. Moreover, even when a particular work is so widely popular or de-

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7. Cong. Rec., May 29, 1987, at S7369 (remarks of Mr. Leahy in support of S. 1301); see also, Nimmer, supra note 5, at 552–53 (comparing the minimum rights provided by Berne to the lesser requirements of the Universal Copyright Convention and arguing that the United States not only has an interest in receiving a "high standard" of protection elsewhere but, with the passage of the then-proposed copyright revisions that actually came to fruition in 1976, would itself have adopted a standard much closer to Berne than the minimalist UCC).
sirable to particular users that protection does result in a substantial monopolistic price increase to purchasers over the price that would prevail absent protection, that very popularity or desirability makes paying the monopoly price more palatable. Even more important, the copyright in works of art and literature only minimally impedes the creation of other desirable works, because such works are valued for their creative variety. One does not create a new novel by starting with an old one and making some improvements.\textsuperscript{8}

Technology is very different. Advances in technology are usually made through incremental developments on an existing base. Because advances necessarily include much that is taken from the existing base, "substantial similarity" between the current advance and some prior work is the rule and not the exception. For this reason we have never used copyright to protect intellectual creativity incorporated into tangible technological products.

I have argued at length recently in these pages that advances in software technology cannot be distinguished from other technologies in this respect and that the application of the traditional substantial similarity test for copyright infringement of one computer program by another leads to a degree of protection for programs that may well stifle rather than stimulate further advances.\textsuperscript{9} Independent of that conclusion, however, and more important with respect to the question of United States participation in Berne, is that our decision to protect programs under copyright was made largely to avoid the limitations of other bodies of intellectual property law, such as patent and trade secrets.\textsuperscript{10} Insufficient attention was paid to the continued appropriateness of "higher standards" of copyright protection, such as the long term of copyright and the denial of compulsory licenses, in application to programs as opposed to traditional works of art and literature.\textsuperscript{11}

The problem is compounded, in the United States at least, by the expansive interpretation the courts are giving to the protection of expression in programs,

\textsuperscript{8}Rewriting the endings of popular novels, for example, is not generally regarded as activity of high social utility. See Karjala, Lessons from the Computer Software Protection Debate in Japan, 1984 Ariz. St. L.J., 53, 69.


\textsuperscript{10}\textit{E.g., National Commission on New Technological Uses of Copyrighted Works} 14–18 (1979) [hereinafter \textit{CONTU Report}]. This Report essentially constitutes the legislative history of the congressional decision to protect computer programs under copyright law.

A major advantage of copyright for protection of programs is that protection arises immediately upon creation of the work, without formalities of any kind, and the full panoply of protection is maintainable through observance of very modest formalities of notice and registration. Patent protection arises only after cumbersome formalities and is likely to be available for only a small number of programs. Trade secret protection is essentially unavailable for widely distributed programs. \textit{Id.} at 17.

\textsuperscript{11}The \textit{CONTU Report} simply concluded that market dominance was unlikely because of ease of entry into the program-writing market. \textit{Id.} at 23. It appears that the writers of the \textit{Report} were oblivious to the similarities between software technology and more traditional technologies to which copyright protection has never been considered appropriate. For a thorough examination of the technological misconceptions underlying the \textit{CONTU Report}, see Samuelson, \textit{CONTU Revisited: The Case Against Copyright Protection for Computer Programs in Machine-Readable Form}, 1984 Duke L. J. 663.
an interpretation protecting elements of structure and organization. Some American courts now treat as "unprotected idea" only the overall function of the program. Any method of achieving that function is protected expression. In fact, however, computer programs are the technology for using computers, not for conversing with them, instructing them, learning from them, or engaging with them in intellectual or emotional interchange of any type associated with traditional authors and their audiences. Some programs use computers more efficiently than other programs aimed at achieving the same general purpose. If we protect such technological efficiencies under copyright, without, incidentally, any showing of nonobvious advance in the art required for patent protection, we should be asking whether the term of protection should still extend for the full period of traditional copyright. Independently, we should be asking whether the first creator should alone be able to determine who is authorized to exploit the technological advance represented by her program or whether we should provide for some form of compulsory licensing that permits widespread exploitation with the payment of a statutory royalty to the original creator.

The "higher standards" of copyright protection under Berne appear flatly to prohibit any experimentation along these lines. The Convention requires a term of at least life plus fifty years for most works, and it permits compulsory licensing only in very limited circumstances, none of which are relevant to the protection of programs or other information technologies in the United States. One could conceivably argue that the drafters of Berne did not have computer programs in mind in setting the standards, so that shorter terms of protection or specially designed compulsory licensing schemes for information-based technologies should not be prohibited. United States membership in Berne, how-


\[14\]Under current law, copyright subsists for the life of the author plus 50 years or, in the case of works made for hire, for 75 years after publication. 17 U.S.C.A. § 302(a), (c).

\[15\]See generally Menell, Tailoring Legal Protection for Computer Software, 39 STAN. L. REV. 1329 (1987). Professor Menell applies economic analysis to conclude that the ideal protective scheme for computer operating systems software should be of moderate duration (shorter even than under patent law), should permit limited reverse engineering as well as modification and adaption for use by others, and should contain a flexible compulsory licensing provision. Id. at 1364-67. He also concludes that the protection of application programs should involve a limited reverse engineering provision as well as a limited form of compulsory licensing. Id. at 1371.

\[16\]Berne Convention Art. 7(1), (6). Article 7(4) permits a term of 25 years from creation for photographs and applied art protected as an artistic work, but it seems difficult to fit computer programs into either of these categories. See Karjala, supra note 8, at 68 n.44.

\[17\]Articles 11 and 13 apply generally to all Berne members but cover only broadcasting and phonorecords. Article II of the Appendix to the Convention [Special Provisions Regarding Developing Countries], which permits compulsory licensing for translations of published printed works under certain circumstances, is by negative inference instructive of the kinds of undesirable limitations adherence to the Convention might mean. Already we have an abundance of mutually incompatible computers, and cases are finding that "translations" of a program to run on an incompatible computer infringe the author's exclusive right to make derivative works. E.g., SAS Institute, Inc. v. S & H Computer Systems, Inc., 605 F. Supp. 816, 830 (M.D. Tenn. 1985). Yet, society benefits
ever, would pose a nearly insurmountable hurdle for the proponents of any proposal for a shortened period of protection or system of compulsory licensing, who would be pitted against the special interest groups who see themselves as benefiting from the “higher standards” of protection apparently required by the Convention. IBM, for example, a major software proprietor, is reported to hold United States membership in Berne as a top strategic priority for protection of its software.\(^{18}\) IBM is a formidable opponent even when it does not have the explicit language of an international treaty supporting its position.

The dispute over operating system software between Fujitsu of Japan and IBM may illustrate the need for more flexibility in the protective scheme for software technology than current copyright law provides.\(^{19}\) The arbitrator’s opinion resolving the dispute expressly states that it adopted at the outset the goal of avoiding detailed analysis of the hundreds of programs involved.\(^{20}\) Determining the scope of protection in the protected work, i.e., separating idea from expression, and determining whether the allegedly infringing work contains substantially similar expression would require precisely the kind of analysis the arbitrators were determined to avoid. Eschewing such analysis may well be another way of saying that copyright is simply not up to the job of drawing the social policy balances involved in protecting works of this type.

Moreover, while refusing to determine infringement according to the standard copyright tests, the arbitrators resolved the dispute by ordering a complex system of compulsory licensing.\(^{21}\) During the five- to ten-year period during which it will be in effect, this system will constitute the intellectual property law between the parties as to the programs at issue.\(^{22}\) It is clearly too early to tell whether the particular solution reached in this arbitration will be an effective and satisfactory way of

from the rapid diffusion of computing power, just as developing countries benefit from the rapid diffusion into their cultures and languages of technological and other works created elsewhere. If we retain copyright protection for programs and continue to treat translations into different programming languages as derivative works, we should consider whether compulsory licensing would provide the original author with the return he deserves, in light of the more rapid diffusion of the technology that compulsory licensing would provide and the absence of direct competition between the original and translated programs. See generally Karjala, supra note 9, at 62, 79, 89-90.

\(^{18}\) Miller, supra note 4. The October 1987 proposal of the Office of the United States Trade Representative to an intellectual property working group for the General Agreement on Tariffs and Trade (GATT) is another indication that flexibility in limiting copyright protection for information technologies under Berne will be difficult. The proposal, which is reproduced at 34 Patent, Trademark & Copyright J. 667 (1987), expressly would require its signatories to protect under copyright all “newer forms of expression such as computer programs and data bases, and . . . forms yet to be developed.” Id. at 669. All limitations and exemptions would have to be consistent with Berne; in particular, compulsory licenses would be limited to those permitted by Berne and the minimum term would be that of Berne. Id.


\(^{20}\) IBM v. Fujitsu, supra note 19, Opinion at 11.

\(^{21}\) Id. at 18-22. The Order attached to the Opinion sets out the scheme in some 48 typewritten pages, but even that leaves the scope of major provisions, such as reverse engineering outside the special facilities set up to look at each other’s software, to be worked out.

\(^{22}\) Id. at 21.
resolving even that particular dispute, let alone whether it will serve as a model for the resolution of others. That intelligent arbitrators for major players in the software game have resorted to non-copyright solutions for software protection problems, however, should at least make us ask whether approaches outside traditional copyright might draw a better balance of the social policies in general. Adherence to the Berne Convention would make it much more difficult to seek for and experiment with such other approaches.

Nor are the ill effects of the Berne straitjacket necessarily limited to computer program protection. One commentator has argued that United States judicial interpretations have converted copyright law, as applied to computer programs, into a broad principle protecting against misappropriation of expression and that this approach would work equally well for all information-based works of function, like recombinant DNA and nonpatented chemicals. 23 Biologists are seriously debating, and worried about, the types and levels of protection that should be available to scientists who map and create databases of the human genome. 24

If copyright is going to bear the burden of drawing the appropriate balances between creation incentives and the free flow of information in these developing areas, the “higher standards” of protection under Berne cannot be blindly relied on to reach a socially optimal tradeoff. Those standards were created with a view to protecting traditional literary and artistic works. Now we are talking about the protection of technology in the form of information, and traditional copyright has had very little role to play in the protection of technology. If we are to press it into service to protect the information-based technologies, we should leave ourselves the flexibility to make adjustments appropriate, perhaps even necessary, to tune the type and level of protection to socially optimal values.

Membership in the Berne Convention would seriously impede our ability to make such adjustments. Consequently, whatever the correctness or incorrectness of our prior decisions to stay out of Berne, we can no longer debate the issue solely in traditional terms like copyright formalities and moral rights. If moral rights are ultimately deemed appropriate by Congress, we can amend our statute to provide for them with respect to traditional works. But we should not hamstring ourselves by rigidly fixing pursuant to international treaty “higher” standards of protection with respect to the emerging information-based technologies, particularly while the debate continues over what the socially optimal types and levels of protection actually are in those areas. Conversely, if we are to adhere to Berne, it is time to reopen the question of a sui generis statute for the protection of intellectual property rights in information-based technologies. 25

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