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COMMENTS

International Protection of Computer Software: The Need for Sui Generis Legislation

I. INTRODUCTION

Computer technology has evolved at a tremendous rate over the past three decades.¹ The new inventions which propelled the advance of the computer — mechanical switches, electro magnetic relays, vacuum tubes, and transistors — have been well protected by existing laws.² However, rapid technological advances in the methods by which a program interacts with the computer have raised unique problems that have never been addressed under existing laws.³

Computer programs⁴ are classified as intellectual property. Unlike other forms of intellectual property, they serve a wide variety of

1. For an in depth history of the development of the computer, see C. EVANS, *THE MICRO MILLENNIUM* 2-57 (1979).

2. These devices were primarily protected by the patent laws of the United States. See 35 U.S.C. §§ 1-376 (1984). For example, an electromagnetic relay was granted patent protection in 1890, *Electrical Signal System*, Pat. No. 443,726, 53 OFFICIAL GAZETTE 1961 (1985); a vacuum tube component was granted patent protection in 1933, *Vacuum Tube Amplifier Circuit*, Pat. No. 1,904,272, 429 OFFICIAL GAZETTE 346 (1985); and a transistor was granted patent protection in 1951, *Circuit Element Utilizing Semiconductive Material*, Pat. No. 2,569,347, 650 OFFICIAL GAZETTE 1173 (1986).

3. The first computers were single purpose machines, and the "program" was built as part of the structure of the machine. Eventually, programs were created independently of the computer. They have been described as "a machine- control element, a mechanical device," NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT 27 (1978) (Hersey, dissenting) [hereinafter cited as CONTU REPORT], to which patent law might apply, or "a set of statements or instructions," *id.* at 12, to which copyright law would appropriately apply.

4. "Computer software" is a term that has created significant confusion in the literature. Caswell, *The Classification of Software: A Logical and Rational Approach*, 24 JURIMETRICS J. 377, 380 (1984). The term is most commonly used to include the program itself and all supporting materials. Since there is little question that the printed supporting materials are covered by copyright law, this comment will focus on the law dealing with computer programs, defined as "[a] set of instructions capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities to indicate, perform or achieve a particular function, task or result." WORLD INTELLECTUAL PROPERTY ORGANIZATION, PUB. NO. 827, GLOSSARY OF TERMS 54 (G. Boytha ed. 1981) [hereinafter cited as WIPO GLOSSARY].

functions, from the rote operation of a machine⁵ to quasi-intellectual activities,⁶ making them difficult to classify under traditional categories of intellectual property. Computer programs also evade the traditional categories because they contain both tangible and intangible elements.⁷

The "information age" has been pushed forward by the development of software technology, and programs have become the primary medium for the creation and manipulation of information. A great deal of energy and capital has been invested in the development and marketing of new computer software to keep pace with the expanding demand.⁸ While software is costly to develop, the finished product can be copied in seconds for only a few cents.⁹ Consequently, piracy of computer software is becoming more prevalent,¹⁰ and the need for protection more pressing.

Attempts have been made in recent years to extend proprietary protection to owners and authors of computer programs. However, there still exists today a great deal of uncertainty in the law protecting computer programs.¹¹ Several countries have amended current legislation to extend protection to computer programs; others have judicially categorized programs under traditional forms of protection.¹²

5. Operating system programs, for example, "generally manage the internal functions of the computer." *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1243 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984).

6. There exists today a category of computer programs referred to as "expert systems." An expert system is:

[A] computer program that has built into it the knowledge and capability that will allow it to operate at the expert's level. Expert performance means, for example, the level of performance of M.D.'s doing diagnosis and therapeutics, or Ph.D.'s or very experienced people doing engineering, scientific, or managerial tasks. The expert system is a high-level intellectual support for the human expert

E. FEIGENBAUM & P. MCCORDUCK, *THE FIFTH GENERATION* 63-64 (1983). For a thorough listing of expert systems around the world, see *id.* at 244 app. B.

7. Davidson, *Protecting Computer Software: A Comprehensive Analysis*, 23 *JURIMETRICS J.* 337, 343 (1983).

8. It has been estimated that in the United States alone, there are 15,000 programs written each day, valued in the tens of billions of dollars. Comment, *Legal Proprietary Interests in Computer Programs: The American Experience*, 21 *JURIMETRICS J.* 345, 345-46 (1981).

9. See Davidson, *supra* note 7, at 339.

10. For every program sold, there are 20 fraudulent copies made. Taylor, *The Wizard Inside the Machines*, *TIME*, Apr. 16, 1984 at 56, 60 (estimate made by Ric Giardina, general counsel of MicroPro, Inc.).

11. INTERNATIONAL BUREAU OF THE WORLD INTELLECTUAL PROPERTY ORGANIZATION, PUB. NO. 814(E), *MODEL PROVISIONS ON THE PROTECTION OF COMPUTER SOFTWARE* 4 (1978), *reprinted in* 14 *COPYRIGHT* 6 (1978) [hereinafter cited as *WIPO MODEL PROVISIONS*].

12. See *infra* notes 47-58 and accompanying text.

The most popular form of protection has been found in the copyright laws.¹³ Protection has also been provided by the laws of patents, trade secrets, trademarks, and contracts or a combination of these. However, the attempts to alter existing laws to cover computer programs have created serious difficulties and have come under attack.¹⁴ Some commentators support a separate body of law to protect computer programs;¹⁵ others support fitting software into traditional categories of protected subject matter. Most agree, however, that there is a great deal of uncertainty in laws protecting computer programs.

Protection at the international level is particularly important in this new area of technology as world-wide link-ups of computer systems are commonplace today.¹⁶ The development of computer networks among nations, made possible by sophisticated telecommunications systems, allows a computer program in one country to be transmitted over communication lines to carry out a function in another.¹⁷ Therefore, a uniform system of protection for computer programs is necessary to protect interested parties on both sides of the transaction.

This comment will first discuss the interests, policies, and goals that must be addressed to adequately protect this rapidly evolving computer technology. A survey of the current legal theories under which computer programs may be protected, and how effective they have been in affording adequate protection, will follow.¹⁸ Existing international treaties will be reviewed and analyzed to assess their effectiveness in protecting computer software. Finally, the creation of a *sui generis* body of law for the protection of computer programs will be considered and current proposals promulgated by the World Intellectual Property Organization and other experts in the field will be discussed.

13. See Davidson, *supra* note 7, at 360.

14. See *infra* notes 153-57 and accompanying text.

15. See *infra* note 158 and accompanying text, text accompanying note 175.

16. For example, airline reservation terminals and multinational time sharing networks involve the "instantaneous cross-border transmission of data." Salzman, *International Protection for Computer Software*, 12 LAW & COMPUTER TECH. 3, 7 (1979).

17. WIPO MODEL PROVISIONS, *supra* note 11, at 4.

18. Each of these categories of law follow basic principles that are common throughout all jurisdictions in the world. Therefore, the analysis in this comment will apply equally among all jurisdictions. Those points which are peculiar to a specific jurisdiction will be noted.

II. CONSIDERATIONS IN THE DEVELOPMENT OF SOFTWARE PROTECTION

A. *Interests, Goals, and Policies*

Our modern society has so quickly embraced the benefits of computer technology that it is hard to imagine any area of our lives untouched by the computer revolution. As a result, there are an array of interests, often conflicting, that must be considered in developing laws to protect computer programs.

The fundamental dichotomy of interests to be balanced in the creation of proprietary laws is well stated by the Constitution of the United States. The Constitution grants to Congress the power "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."¹⁹ The primary interest is to promote the "Progress of Science and the useful Arts"²⁰ by providing society with an ongoing free-flow of information that will contribute to progress. The means for providing this benefit to society is the protection of a secondary interest, that of authors and inventors. Providing these creators with recognition and economic reward encourages them to expend their time and energy in developing new technologies and arts.²¹ These two interests lie at opposite ends of a continuum, between which lie the interests of computer users, data processors, programmers, software manufacturers and computer hardware manufacturers.²²

Laws which are created to protect computer programs must provide the public with a "system that encourages technological progress, the spread of knowledge, industrial efficiency and free competition."²³ These goals are met by effective legal protection which encourages disclosure of new developments. Under current forms of protection, these goals are defeated by providing inappropriately long monopolies in the new development²⁴ or actually discouraging disclosure to pre-

19. U.S. CONST. art. I, § 8, cl. 8. Congress has acted on this grant to promulgate the patent and copyright laws in the United States.

20. *Id.*

21. See 1 M. NIMMER, NIMMER ON COPYRIGHT § 1.03[A] (1985).

22. Stern, *What Should Be Done About Software Protection?*, 12 EUR. INTELL. PROP. REV. 339, 340 n.10 (1981).

23. *Id.*

24. This is true in many jurisdictions for both copyright and patent laws. See *infra* note 63.

serve protection.²⁵

“Encouragement of individual effort by personal gain is the best way to advance the public welfare.”²⁶ Therefore, proprietors must be rewarded with economic and personal incentives to expend both energy and money to develop new software technology. A limited monopoly in new developments that allows the creator to realize the fruits of his labors would appropriately protect that interest. As discussed above, disclosure is a desirable goal. However, public disclosure provides great opportunity for pirates to appropriate newly developed technology to their own use. Only after stringent measures are imposed, on an international scale, will full disclosure be an attainable goal.

Uniform legal protection at the international level would be beneficial to both proprietors and users of software. Software proprietors would be able to enlarge their market and still protect their interests when a citizen of another jurisdiction appropriated their product.²⁷ End users would have the benefit of a larger pool of products from which to choose.

B. *The Future of Software Technology*

The nature of software is complicated,²⁸ and is responsible for the uncertainty of legal protection under traditional forms of protection.²⁹ The rapid development of software technology has outpaced legislative and judicial developments in the protection of programs.

25. This is the case in the law of trade secrets. See *infra* text accompanying note 123.

26. *Mazer v. Stein*, 347 U.S. 201, 219 (1954).

27. Uniform international protection would benefit not only industrial nations, but also developing Third World countries. A proprietor might be encouraged to sell his software in a developing country at an especially low royalty if he was assured an opportunity to enforce his rights against any appropriator of his software. See WIPO MODEL PROVISIONS, *supra* note 11, at 4.

28. In physical form it can vary from a mechanical element which can operate a machine (binary form) to symbolic engineering representations of the hard-wiring of a machine (the source materials). It is tangible, but has basic intangible elements which can be ‘copied’ either by copying the internal design of the program to accomplish the same functions, or by copying the functions with a different type of internal design.

Davidson, *supra* note 7, at 348.

29. The current lack of legal protection arises from the fact that software has not been well understood by either the data processing or the legal profession. There has been a decided lack of established criteria, identifiable traits, quantifiable features, measurable attributes, or indeed anything else to ‘sink one’s teeth into’ for defining and working with software. This has, understandably, caused a great amount of anguish and confusion.

Dakin & Higgins, *Fingerprinting a Program*, 29 DATAMATION 133, 133 (1982).

For example, computer scientists are now on the frontier of "artificial intelligence" — a computer system which will enable machines to reason. While many commentators debate whether a machine can ever reason, projects are underway to develop these machines.³⁰ In October, 1981, the Japanese government announced its "Fifth Generation"³¹ project: a ten year plan to develop "intelligent computers that will be able to converse with humans in natural language and understand speech and pictures. These will be computers that can learn, associate, make inferences, [and] make decisions"³² The Fifth Generation computers will be able to manipulate symbols and infer instead of merely process data and perform mathematical calculations, to which today's computers are limited.³³ The plan is organized around three subsystems,³⁴ each of which contain a hardware component and a software component.³⁵

Since these new programs will be able to generate ideas, their end products will not qualify for protection under most forms of intellectual property law, particularly copyright and patent.³⁶ The design of the software will constantly change as the program "learns" and therefore there will be no work "fixed in any tangible medium of expression"³⁷ to which copyright law would apply.

30. For a list of worldwide artificial intelligence activity, see E. FEIGENBAUM & P. MCCORDUCK, *supra* note 6, at 251 app. C.

31. The first generation of computers was constructed of electronic-vacuum tubes; the second generation utilized transistors; the third generation, most prevalent today, operate through the use of integrated circuits; the fourth generation utilizes "very large-scale integrated" circuits. *Id.* at 17. The fifth generation will abandon current computer technologies in favor of "new parallel architectures . . . , new memory organizations, new programming languages, and new operations wired in for handling symbols and not just numbers." *Id.*

32. *Id.* at 12.

33. *Id.* at 18. The computers will be known as "knowledge information processing systems." *Id.*

34. First is the subsystem that 'manages' the knowledge base needed for problem solving and understanding. Second is the problem-solving and inference subsystem that discovers what knowledge is useful and relevant to the problem at hand, and with it constructs—step by step—a line of reasoning leading to the problem solution, the plausible interpretation, or the best hypothesis. Third are the methods of interaction between human and machine

Id. at 111. For a detailed discussion of the technology of artificial intelligence, see *id.* at 111-20.

35. *Id.* at 113.

36. See *infra* note 123 and accompanying text.

37. 17 U.S.C. § 102(a) (1984).

III. CURRENT FORMS OF LEGAL PROTECTION

A. Copyright

The purpose of copyright law is to grant to authors a limited property right in the form of the original expression of an idea.³⁸ The protected expression³⁹ must be "fixed in any tangible medium."⁴⁰ The protection afforded to copyrighted materials may include economic rights, prohibiting the reproduction, adaptation, distribution, performance, and display without the consent of the copyright owner.⁴¹ It may also consist of moral rights, protecting the author's reputation and his right to claim authorship of the copyrighted work.⁴²

In determining the applicability of copyright law to computer programs, the threshold question is whether a computer program satisfies the requirement that it be an expression fixed in a tangible medium.⁴³ The written supporting material of the computer program clearly satisfies this requirement and it therefore may be copyrighted.⁴⁴ Some commentators have argued, however, that a program — a series of magnetic spots on a magnetized disk — is intangible,⁴⁵ and functions as a mechanical device when working in the computer.⁴⁶ Proponents of copyright have countered that the program is a writing similar to copyrightable phonograph records and cassette

38. A. MILLER & M. DAVIS, *INTELLECTUAL PROPERTY, PATENTS, TRADEMARKS AND COPYRIGHT IN A NUTSHELL*, 286 (1983). Copyright is the "exclusive right granted by law to the author of a work to disclose it as his own creation, to reproduce it and to distribute or disseminate it to the public in any manner or by any means, and also to authorize others to use the work in specified ways." WIPO GLOSSARY, *supra* note 4, at 59.

39. It is important to note that it is not the "idea" of the work that is protected, but only the "expression" of the idea. *Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 738, 742 (9th Cir. 1971) ("The critical distinction between 'idea' and 'expression' is difficult to draw. . . . The guiding consideration in drawing the line is the preservation of the balance between competition and protection reflected in the patent and copyright laws."). This distinction has caused a great deal of confusion when applied to computer programs. See CONTU REPORT, *supra* note 3, at 19.

40. 17 U.S.C. § 102(a) (1981).

41. See 17 U.S.C. § 106(1)-(5) (1981).

42. COPYRIGHT AND DESIGNS LAW, REPORT OF THE COMMITTEE TO CONSIDER THE LAW ON COPYRIGHT AND DESIGNS, CMD. 6732, at 16-17 (1977) [hereinafter cited as WHITFORD COMMITTEE REPORT].

43. See 17 U.S.C. § 102(a) (1981). See also Davidson, *supra* note 7, at 361.

44. *Working Group on Technical Questions Relating to the Legal Protection of Computer Software*, 23 INDUS. PROP. 206, 207 (1984) [hereinafter cited as *Working Group*].

45. For a general discussion on the problems of intangibility, see Caswell, *supra* note 4, at 380-83.

46. CONTU REPORT, *supra* note 3, at 27 (Hersey, dissenting).

tapes which merely require the use of a machine to be perceptible.⁴⁷

To date, the legislatures of several developed countries have specifically provided, or are considering proposals to provide, that computer programs are to be considered writings within the purview of their copyright laws.⁴⁸ In the United States, for example, Congress created the National Commission on New Technological Uses of Copyrighted Works to determine whether computer programs should be copyrightable.⁴⁹ Following the historically liberal construction and application of copyright laws,⁵⁰ the Commission determined that programs should be copyrightable.⁵¹ In other nations, the courts have acted to provide copyright protection to computer programs. Those countries include Canada,⁵² France,⁵³ Germany,⁵⁴ Italy,⁵⁵ Japan,⁵⁶

47. Davidson, *supra* note 7, at 361.

48. In the United States, this was accomplished by the 1980 Computer Software Copyright Act, Pub. L. No. 96-517, § 10, 94 Stat. 3028 (codified at 17 U.S.C. §§ 101, 117). See *infra* note 50. In Australia, protection was provided by the Copyright Amendment Act of 1984, noted in 1984 AUSTL. L.M.D. para. 2519. Japan has recently decided to protect computer software under its copyright laws. Davidson, Greguras & Bahrck, *International Software Protection: What U.S. Practitioners Should Know to Protect their Clients' Interests in Foreign Markets*, in 2 COMPUTER SOFTWARE AND CHIPS: PROTECTION AND MARKETING, 1985 53, 110 (1985). Other countries considering the copyright approach include Taiwan and Singapore. *Id.* at 118-19.

49. Pub. L. No. 93-573, Title II, 88 Stat. 1873.

50. The original Copyright Act was adopted in 1790. Act of May 31, 1790, ch. 15, 1 Stat. 124. The Act was amended in 1802 to extend protection to "arts of designing, engraving, and etching historical and other prints." Act of Apr. 29, 1802, ch. 36, 2 Stat. 171. In 1831, the right of copyright was extended to musical compositions as part of a general revision of the Copyright Act. Act of Feb. 3, 1831, ch. 16, 4 Stat. 436. Protection was provided for photographs and negatives by the Act of Mar. 3, 1865, ch. 126, 13 Stat. 540. The second general revision of the Copyright Laws extended protection to paintings, statues, and other fine arts. Act of July 8, 1870, ch. 230, 16 Stat. 198, 214. Phonographs received copyright protection under the Act of Oct. 15, 1971, Pub. L. No. 92-140, 85 Stat. 391. See also A. MILLER & M. DAVIS, *supra* note 38, at 281-82.

51. See CONTU REPORT, *supra* note 3. The Copyright Act was amended in 1980 to add the definition of computer programs: "A 'computer program' is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." 17 U.S.C. § 101 (supp. 1986). Although computer programs were not expressly added to the list of copyrightable subject matter in section 102, the references and history of the amendment clearly infer that is the case. See 1980 U.S. CODE CONG. & AD. NEWS 6460.

52. *International Business Machines Corp. v. Ordinateurs Spirales Inc.*, 12 D.L.R. 4th 351 (1984). Here, the Federal Court of Canada granted IBM an interlocutory injunction "restraining defendants from infringing the plaintiff's copyright in a computer program entitled the 'IBM Personal Computer Basis Input Output System - 1.0.'" *Ordinateurs Spirales Inc.*, 12 D.L.R. 4th at 353.

53. Judgment of Sept. 21, 1983, Dist. Ct., Paris (*Apple Computer Inc. v. Segimex*) (holding that Apple's Autostart ROM and Applesoft program were copyrightable in both source and object code form), noted in Davidson, Greguras & Bahrck, *supra* note 48, at 90.

54. Judgment of Dec. 21, 1982, Dist. Ct., Munich (*Visicorp v. Basis Software GmbH*)

South Africa,⁵⁷ and the United Kingdom.⁵⁸

Copyright protection of computer programs does have several advantages over other forms of protection. First, copyright protection is relatively easy to obtain. The requirements of "originality"⁵⁹ and "expression"⁶⁰ are relatively easy to meet,⁶¹ and they will preclude protection of only the smaller, simpler programs.⁶² Second, the term of protection under copyright law is far longer than that afforded by other forms of protection.⁶³ Third, protection is automatically applied, in most jurisdictions, when the author first fixes his work in a tangible medium.⁶⁴

The protection provided by copyright, however, also has several shortcomings. First, copyright merely protects the expression of an idea. The underlying idea of the program may be legally copied by one who writes a program that will perform the same functions but

(copyright protection extended to plaintiff's computer program known as "VisiCalc"), *reprinted in* 14 INT'L REV. INDUS. PROP. & COPYRIGHT L. 437 (1983).

55. Judgment of Apr. 1984, Magis. Ct., Pisa (Unicomp s.r.l. v. Italcomputers General Informatics) (Unicomp's software accounting package copyrightable under Italian law), *noted in* Davidson, Greguras & Bahrck, *supra* note 48, at 98.

56. Judgment of Dec. 6, 1982, Dist. Ct., Tokyo (Taito Co. v. I.N.C Enterprises Co.) (holding that the video game program "Space Invader Part II" was a work entitled to copyright protection), *noted in* Davidson, Greguras & Bahrck, *supra* note 48, at 101-02; *see also* Ulmer & Kolle, *Copyright Protection of Computer Programs*, 14 INT'L REV. OF INDUS. PROP. & COPYRIGHT L. 159, 167 (1983).

57. Northern Office Micro Computers (Pty.) Ltd. v. Rosenstein, 1982 F.S.R. 73, 4 S.A. 123 (1981) (computer program comprising an accounting and administrative system for doctors and dentists entitled to copyright protection), *reprinted in* 14 INT'L REV. INDUS. PROP. & COPYRIGHT L. 560 (1983).

58. *Gates v. Swift*, 1982 R.P.C. 339, 1981 F.S.R. 57 (1982) (issuing an interlocutory injunction to seize cassette tapes which contained infringing copies of computer programs in object code form); *Sega Enterprises Ltd. v. Richards*, 1983 F.S.R. 73 (granting interlocutory relief for infringement of copyright that existed in the assembly code of the video game, "Frogger").

59. "Originality means only that the work owes its origin to the author, *i.e.*, is independently created, and not copied from other works." 1 M. NIMMER, *supra* note 21, § 2.01[A].

60. *See supra* note 39.

61. *See infra* notes 98-102 and accompanying text (explaining the requirements for patent protection).

62. Ulmer & Kolle, *supra* note 56, at 180.

63. Generally, the term of protection extends fifty years after the death of the author. *See, e.g.*, 17 U.S.C. § 302(b) (1981) (protection lasts for the life of the author plus fifty years); Federal Republic of Germany Copyright Act of Sept. 9, 1965, amended Mar. 2, 1974, art. 64 (copyright expires 70 years after the author's death). In contrast, patent protection lasts for 17 years in the U.S., 35 U.S.C. § 154 (1984); trade secret protection lasts only as long as the secret is undisclosed; and contract protection will last as expressly provided for in the contract.

64. *See* A. MILLER & M. DAVIS, *supra* note 38, at 385. But a copyright owner cannot sue for infringement until he has registered the copyright. 17 U.S.C. § 411(a) (1976).

uses a different computer language and/or sequence of instructions.⁶⁵ Second, an author could independently write a program exactly the same as a previously written program. Although this is highly improbable, the second author's work would not infringe on the first.⁶⁶ Third, since the active life of an ordinary program is relatively short,⁶⁷ the long-term protection provided by copyright will serve only to inhibit development of programs.⁶⁸ Fourth, by adding computer programs to the list of subjects protected under existing copyright laws, the protection provided to other subjects of protection may be subject to great confusion.⁶⁹ Finally, it may prove difficult for the courts to determine an infringement of a copyrighted program.

To establish copyright infringement, the copyright owner must prove that the infringer had "access"⁷⁰ to the original program, and that the alleged copy is "substantially similar"⁷¹ to the copyrighted program. Programs in their machine-readable form⁷² are not perceptible to the human eye, and when printed out, they require a great deal of technical expertise to determine whether they are "substantially similar."⁷³ For example, computer programs can be written in one of several computer languages, and comparisons for similarity may

65. *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1253 (3rd Cir. 1983), *cert. dismissed* 464 U.S. 1033 (1984).

66. *See* 17 U.S.C. § 501 (1976).

67. Due to rapid advances in technology, computer programs which are on the cutting edge are soon outmoded by more powerful or efficient programs.

68. *See* CONTU REPORT, *supra* note 3, at 28.

69. For example, in *Imperial Homes Corp. v. Lamont*, 458 F.2d 895, 899 (5th Cir. 1972), the court held that the construction of a building that duplicated the plans would not be an infringement of the architect's copyright. But, under the 1976 amendments to the United States Copyright Act, a structure could be construed as a tangible medium of expression of the plans "from which they can be perceived, reproduced, or otherwise communicated, whether directly or with the aid of a machine or device," (17 U.S.C. § 102(a)), and therefore constitute an infringement. *See* A. MILLER & M. DAVIS, *supra* note 38, at 301.

70. The prevailing definition of access is "the opportunity to copy. . . . There must be a reasonable possibility of viewing plaintiff's work — not a bare possibility." 3 M. NIMMER, *supra* note 21, § 13.03[A].

71. [T]he determination of the extent of similarity which will constitute a *substantial* and hence infringing similarity presents one of the most difficult questions in copyright law. . . . Somewhere between the one extreme of no similarity and the other of complete similarity lies the line marking off the boundaries of 'substantial similarity.'

Id.

72. This is called the "object code." For a good description of the various forms of a program, see *Apple Computer, Inc.*, 714 F.2d at 1243.

73. For a proposed application of the "substantial similarity" test to computer programs, see generally Comment, *Proving Copyright Infringement of Computer Software: An Analytical Framework*, 18 LOY. L.A.L. REV. 919 (1985) (outline of an analytical framework for detecting software infringement).

prove impossible to anyone without a thorough knowledge of computer programming. Also, future technology may permit the use of an author's program without first copying it. Though the pirate would use the copyrighted program, there would be no infringement.⁷⁴ If certain forms of a computer program were excluded from copyright protection, the courts would have to bear the burden of drawing the line on a case-by-case basis.⁷⁵

1. International Copyright Conventions

Copyright law has been deemed to be the most suitable form of protection for computer programs to date. It follows then that the form of protection sought on an international level would be copyright. Therefore, the two existing multilateral conventions for copyright protection merit particular discussion.

a. Berne Copyright Convention

The Berne Copyright Convention for the Protection of Literary and Artistic Works of 1886⁷⁶ (Berne Copyright Convention) was the first attempt to create an international system for the protection of intellectual property.⁷⁷ As of January 1, 1985, seventy-six states were members of the Convention.⁷⁸ The latest revision provides protection for "literary and artistic works," defined to "include every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression."⁷⁹ Several commentators have suggested that this language is broad enough to cover computer software

74. See CONTU REPORT, *supra* note 3, at 22.

75. *Id.* at 23.

76. Berne Convention for the Protection of Literary and Artistic Works, *done at Stockholm* July 14, 1967, 828 U.N.T.S. 221 [hereinafter cited as Berne Copyright Convention].

77. See Comment, *International Copyright Law Applied to Computer Programs in the United States and France*, 14 LOY. U. CHI. L.J. 105, 108 n.11 (1982).

78. Those states which have ratified the original Berne Convention or a subsequent revision include Argentina, Australia, Austria, Bahamas, Barbados, Belgium, Benin, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Central African Republic, Chad, Chile, Congo, Costa Rica, Cyprus, Czechoslovakia, Denmark, Egypt, Fiji, France, Gabon, German Democratic Republic, Federal Republic of Germany, Greece, Guinea, Holy See, Hungary, Iceland, India, Ireland, Israel, Italy, Ivory Coast, Japan, Libya, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Mauritania, Mexico, Monaco, Morocco, Netherlands, New Zealand, Niger, Norway, Philippines, Poland, Portugal, Romania, Senegal, South Africa, Spain, Sri Lanka, Surinam, Sweden, Switzerland, Thailand, Togo, Tunisia, Turkey, United Kingdom, Uruguay, Venezuela, Yugoslavia, Zaire and Zimbabwe. 4 M. NIMMER, *supra* note 21, app. 22.

79. Berne Copyright Convention, *supra* note 76, art. 2(1).

in any form.⁸⁰ The definition of copyrightable works is limited by subsection 2 which allows each member-state to proscribe certain works that cannot be protected unless fixed in a material form.⁸¹ To date, no court, in any jurisdiction, has found a copyright infringement of computer programs based on the Berne Copyright Convention.

Article 5(1) provides that nationals of member-states shall enjoy "in countries of the Union other than the country of origin [of the work], the rights which their respective laws . . . grant to their nationals, as well as the rights specially granted by this Convention."⁸² The national treatment accorded to authors of the member-states extends to both published and unpublished works.⁸³ Further, the exercise of these rights shall not be subject to any formalities.⁸⁴ Therefore, a national of a member-state would receive copyright protection for his computer program in any other member-state as soon as the work is created. But the protection would be available only in those Berne Copyright Convention countries which recognize programs as suitable subject matter.⁸⁵

The requirement of Article 5(2), that no formalities be imposed to obtain protection, has been an obstacle to the United States' membership in the Berne Copyright Convention. The United States' Copyright Act of 1976 requires the formality of marking a copyright notice as a condition of granting protection.⁸⁶ An additional obstacle to the United States' membership is that the Berne Copyright Convention provides for the protection of moral rights which are not recognized in the United States.⁸⁷

Before the Berne Copyright Convention can become an effective source of international protection for computer software, it must overcome its several shortcomings. First, it must be determined, by legislative revision or judicial decision, that software is proper subject matter. Second, the duration of protection provided by the Berne

80. Bishop, *Legal Protection of Computer Programs in the United Kingdom*, 5 NW. J. INT'L L. & BUS. 269, 272 (1983) ("This language seems fit to cover computer programs in any form."); see also Kindermann, *Computer Software and Copyright Conventions*, 3 EUR. INTELL. PROP. REV. 6, 8 (1981) ("This applies both to the computer program in machine-readable form and to the related manuals.").

81. Berne Copyright Convention, *supra* note 76, art. 2(2). Salzman, *supra* note 16, at 4.

82. Berne Copyright Convention, *supra* note 76, art. 5(1).

83. *Id.* art. 3(1).

84. *Id.* art. 5(2).

85. See Salzman, *supra* note 16, at 4.

86. See 17 U.S.C. § 401(a) (1976).

87. See *supra* note 42 and accompanying text.

Copyright Convention is inappropriate for software. Finally, since the United States is a world leader in the computer software industry, the Berne Copyright Convention cannot be an effective source for international protection of computer software as long as that country is not a member.⁸⁸

b. Universal Copyright Convention

Dissatisfaction with the lack of universal acceptance of the Berne Copyright Convention resulted in a new attempt to unify relations in the area of international copyright.⁸⁹ In 1952, the United Nations Educational, Scientific and Cultural Organization sponsored the Universal Copyright Convention to establish copyright treaty relations between the members of the Berne Copyright Convention and countries of the American continents.⁹⁰ As of January 1, 1985, seventy-four countries have ratified the Universal Copyright Convention.⁹¹

Like the Berne Copyright Convention, the Universal Copyright Convention provides that a member must give the same treatment to nationals of other member-states as it gives to its own.⁹² The Universal Copyright Convention does not explicitly provide protection, but rather imposes a duty on the member-states to establish their own protection,⁹³ subject to minimum standards.⁹⁴ For example, the dura-

88. But under article 3(b) authors of non-member countries, including the United States, may be afforded the protection under the Berne Copyright Convention if they publish their work for the first time in a member country. Berne Copyright Convention, *supra* note 76, art. 3(b).

Another notable non-participant in the Convention is the Soviet Union. Comment, *supra* note 77, at 108 n.11.

89. Comment, *supra* note 77, at 109 n.11.

90. Universal Copyright Convention, *done at* Paris July 24, 1971, 25 U.S.T. 1341, T.I.A.S. No. 7868.

91. The contracting states of the Universal Copyright Convention are: Algeria, Andorra, Argentina, Australia, Austria, Bahamas, Bangladesh, Barbados, Belgium, Belize, Brazil, Bulgaria, Cameroon, Canada, Chile, Colombia, Costa Rica, Cuba, Czechoslovakia, Democratic Kampuchea, Denmark, Dominican Republic, Ecuador, El Salvador, Fiji, Finland, France, German Democratic Republic, Federal Republic of Germany, Ghana, Greece, Guatemala, Guinea, Haiti, Holy See, Hungary, Iceland, India, Ireland, Israel, Italy, Japan, Kenya, Laos, Lebanon, Liberia, Liechtenstein, Luxembourg, Malawi, Malta, Mauritius, Mexico, Monaco, Morocco, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Senegal, Soviet Union, Spain, Sri Lanka, Sweden, Switzerland, Tunisia, United Kingdom, United States of America, Venezuela, Yugoslavia, and Zambia. 4 M. NIMMER, *supra* note 21, app. 21.

92. Universal Copyright Convention, *supra* note 90, art. II. See WHITFORD COMMITTEE REPORT, *supra* note 42, at 14.

93. Universal Copyright Convention, *supra* note 90, art. I.

94. See *id.* art II(1).

tion of protection may not be less than the life of the author plus twenty-five years after his death.⁹⁵

Article I provides for "protection of the rights of . . . copyright proprietors in literary, scientific and artistic works."⁹⁶ The absence of the phrase "in any form" would seem to prevent application of the Universal Copyright Convention to protect computer software.⁹⁷

B. Patent

The law of patent grants protection to the creator of any useful,⁹⁸ nonobvious,⁹⁹ novel¹⁰⁰ application of an idea.¹⁰¹ Patentable subject matter is limited to "products" and "processes."¹⁰² Whether computer programs are patentable subject matter has been the subject of considerable debate.¹⁰³

Legislation in several jurisdictions has explicitly excluded computer programs as proper subject matter of patent.¹⁰⁴ Nevertheless,

95. *Id.* art. IV(2). The duration is far longer than would be necessary or appropriate to protect computer programs. *But cf.* Kindermann, *supra* note 80, at 12 (pointing out that other works protected by the Universal Copyright Convention have an even shorter lifetime than that of computer software).

96. Universal Copyright Convention, *supra* note 90, art. I.

97. *But cf.* Kindermann, *supra* note 80, at 10 ("the range of works protected under the Universal Copyright Convention is broad enough to cover computer software, including computer programs in machine-readable form.").

98. 35 U.S.C. § 101 (1984). An invention is useful if it is "of some benefit qualitatively, but no particular quantum of benefit is required." A. MILLER & M. DAVIS, *supra* note 38, at 65 (citing *Anderson v. Natta*, 480 F.2d 1392 (C.C.P.A. 1973)).

99. 35 U.S.C. § 103 (1984). An invention is nonobvious if it was not hypothetically conceivable to those skilled in the art. A. MILLER & M. DAVIS, *supra* note 38, at 69.

100. 35 U.S.C. § 102 (1984).

101. A. MILLER & M. DAVIS, *supra* note 38, at 286.

102. 35 U.S.C. § 101 (1984); *see* A. MILLER & M. DAVIS, *supra* note 38, at 18.

103. *See generally* Bender, *Computer Programs: Should They Be Patentable?*, 68 COLUM. L. REV. 241 (1968) (advocating the application of patent law, by the courts or legislature, for the protection of computer programs).

104. For example, the French Patent Law of 1968, 1968 *Journal Officiel de la Republique Française* [J.O.] No. 68-1 art. 7 states: "Ne constituent pas, en particulier, des inventions industrielles: . . . 3° . . . notamment les programmes ou séries d'instructions pour le déroulement des opérations d'une machine calculatrice. ([Objects] not constituting, in particular, industrial inventions [are]: . . . 3 . . . notably the programs or series of instructions for the development of operations of a computer (translation by author)); in Great Britain, computer programs are expressly precluded from patent protection in the Patents Act 1977, ch. 37, § 2, which states: It is hereby declared that the following . . . are not inventions for the purposes of this Act . . . (c) . . . a program for a computer. *Id.* Recently, Japan seriously considered the application of patent protection to computer software. While this legislation was being considered, the Japanese Patent Office had 20,000 patent applications pending for computer programs. *See Working Group, supra* note 44, at 209. *See also* Comment, *The Protection of Computer Programs in Japan*, 6 LOY. L.A. INT'L & COMP. L.J. 105, 115 (1983). Japan's

courts in those jurisdictions have held that patentable processes which are affected by the use of a computer program remain patentable.¹⁰⁵

In the United States, a presidential commission¹⁰⁶ recommended against the patentability of computer programs, but proposed legislation to that effect was never adopted.¹⁰⁷ Though the issue was never resolved in Congress, the United States Supreme Court has considered the patentability of computer programs on several occasions.¹⁰⁸ For example, in *Diamond v. Diehr*¹⁰⁹ the Court upheld a patent to a process for curing synthetic rubber which utilized a computer to determine the ideal time for curing. Though the Court did not hold that computer programs per se are patentable, its opinion did open the door to an increased use of patent protection for computer related inventions.¹¹⁰

Patent provides several advantages over other forms of protection. First, patent can protect the idea underlying a product or process as well as the specific form. This provides the creator with the right to prevent the use of the device or process even if created independently by a third party.¹¹¹ Second, to obtain a patent, the inventor must disclose his invention in the patent application.¹¹² His product, while protected under the patent law, would be disclosed to the public for others to use in the development of technology. Third, the term of protection is shorter than copyright, and therefore better suited to the limited life span of computer programs. The result is to give the inventor a short term, powerful monopoly in his creation.¹¹³

The disadvantages of patent protection of computer software are

Ministry of International Trade and Industry finally dropped its patent proposal "in view of the international protests and the trend towards copyright protection in other countries." Davidson, Greguras & Bahrck, *supra* note 48, at 110.

105. Judgment of June 15, 1981, Ct. App., Paris (*Schlumberger v. Director of INPI*) (granted patent protection to a process for statistical interpretation of geological surveys, utilizing software), *noted in* Davidson, Greguras & Bahrck, *supra* note 48, at 91.

106. Established pursuant to Executive Order No. 11215, 3 C.F.R. 299 (1965).

107. S. 1042, 90th Cong., 1st Sess. (1967) and H.R. 5924, 90th Cong., 1st Sess. (1967) were proposed in 1967 but subsequently withdrawn after provoking great controversy.

108. *Gottschalk v. Benson*, 409 U.S. 63 (1972) (rejecting a patent claim on a method of converting binary coded decimals to binary code); *Parker v. Flook*, 437 U.S. 584 (1978) (rejecting a patent claim to a method of updating an alarm limit in a process involving catalytic conversion of hydrocarbons).

109. 450 U.S. 175 (1981).

110. *See Diamond*, 450 U.S. at 183 (citing *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1877)).

111. Compare *supra* note 66 and accompanying text.

112. 35 U.S.C. § 111 (1981).

113. *See* CONTU REPORT, *supra* note 3, at 16.

formidable. The acquisition of a patent is expensive and time consuming.¹¹⁴ An applicant must first file an application with the Patent Office, search for any prior inventions, and fulfill the requirements of utility, novelty, and nonobviousness. If available, patent protection would probably extend only to one percent of all programs written.¹¹⁵

On the international level, patent protection for computer software is almost nonexistent. The European Patent Convention has expressly excluded computer programs from the group of patentable inventions.¹¹⁶ Patent protection may be supplied by means of national treatment under the Paris Convention for the Protection of Industrial Property (Paris Convention).¹¹⁷ However, this is unlikely since there are no significant member-states of that Convention which provide patent protection for computer programs themselves.

C. Tort

The forms of protection offered to computer programs under concepts derived from tort law include trade secret, trademark, misappropriation and unfair competition.¹¹⁸ These remedies have become discrete fields of law.¹¹⁹

1. Trade secret

The widely accepted definition of a trade secret is "any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it."¹²⁰ The subject of a trade secret must be secret and cannot be a matter of public knowledge or general knowledge in the trade or business. The policies underlying the law of trade secrets are the "maintenance of standards of

114. *Id.* at 17.

115. See WIPO MODEL PROVISIONS, *supra* note 11, at 5.

116. Convention on the Grant of European Patents, *reprinted in 2A WORLD PATENT LAW AND PRACTICE* 3-376 (J. Baxter ed. 1979).

117. Paris Convention for the Protection of Industrial Property, *done at Stockholm*, July 14, 1967, art. 2(1), 21 U.S.T. 1630, 1631, T.I.A.S. No. 6923, at 2.

118. W. PROSSER, J. WADE & V. SCHWARTZ, *TORTS, CASES AND MATERIALS*, 1208-09 (7th ed. 1982).

119. The separate fields of tort law developed through statutory provisions and administrative regulations. *Id.*

120. *RESTATEMENT OF TORTS* § 757 comment b (1939). The Second Restatement of Torts omitted this section because the law of trade secrets has evolved into a separate body of law. Note, *Trade Secret Protection of Computer Software*, 5 *COMPUTER/LAW J.* 77, 78 (1984).

commercial ethics and the encouragement of invention."¹²¹

To date, the law of trade secrets has been a primary source of protection for computer software.¹²² Trade secret law provides a broader scope of protection than other laws, covering not only the information, invention, design, and expression of an idea, but also the idea itself.¹²³ Software must be "novel," but not to the extent required by patent law.¹²⁴ Protection may extend to all phases of computer software including the flowchart, source code, object code, and supporting materials. The trade secret holder is protected against disclosure or unauthorized use by anyone who properly obtained the secret subject to the express or implied restriction of nondisclosure or nonuse. He is also protected against disclosure by anyone who obtained the secret by some "improper means."¹²⁵

Although trade secret law provides wide protection for computer software, it has several substantial disadvantages. Once the secret has been "disclosed" it loses all protection.¹²⁶ Disclosure may occur through independent discovery, inadvertent release of the secret by the owner, or by "reverse-engineering."¹²⁷ In order to maintain the secrecy of protected software, the proprietor must take extensive measures, increasing both costs and labor of maintaining protection.¹²⁸ Therefore, the sale of software in multiple copies over the

121. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 481 (1973).

122. Davidson, *supra* note 7, at 395.

123. Mantle, *Trade Secret and Copyright Protection of Computer Software*, 4 *COMPUTER/LAW J.* 669, 675 (1984). This should be contrasted with the law of copyright which expressly denies protection of ideas. See 17 U.S.C. § 102(b) (1984).

124. See *Kewanee Oil Co.*, 416 U.S. at 476. See also Davidson, *supra* note 7, at 396.

125. RESTATEMENT OF TORTS § 757(a) (1939).

126. See Davidson, *supra* note 7, at 397.

127. See *Kewanee Oil Co.*, 416 U.S. at 476.

128. Patent and copyright on the other hand have minimal costs of maintaining protection.

Some practical trade secret measures include: (1) limiting access to programs and computer areas on a need-to-know basis; (2) monitoring all software and document copying; (3) entering into restrictive covenants with key employees to prevent disclosure and to limit post-employment competition; (4) requiring all third-parties having access to computer programs, and their employees, subcontractors, and other related parties having access, to sign a restrictive nondisclosure agreement; (5) using software with a built-in "lock-out," "time bomb" or self destruct feature activated upon copying; (6) using firmware as opposed to software were feasible to make copying more difficult; (7) licensing a machine-readable object code only and prohibiting reverse assembly, engineering, and compilation; (8) destroying all obsolete, excess, and preliminary copies of proprietary materials to prevent their use or reproduction; (9) adopting appropriate physical security measures, including the use of employee badges, restricted areas, audit trails of all users accessing material, and secure storage; and (10) encrypting high value material.

counter to consumers and hobbyists may preclude trade secret protection.¹²⁹ Finally, trade secret protection is governed by state law and differs in the various jurisdictions. This lack of uniform law creates uncertainty for software proprietors.¹³⁰

2. Trademark

Trademark law is another possible source of legal protection for computer software. Trademark protection may be provided for any device appropriated and used for the purpose of indicating the origin of goods and services.¹³¹ The policies behind trademark law include the prevention of mistake, deception, and confusion with regard to origin, and the protection of the goodwill of a business.¹³² When applied to software, trademark law is particularly important in the mass market for videogames and home computer programs.¹³³

In the United States, the law of trademark developed through state common law as part of the law of unfair competition.¹³⁴ A national system of trademark registration known as the Lanham Act now exists.¹³⁵ Under this Act, a software proprietor may register a good or service under a trade name for any software in commercial use. In *Apple Computer, Inc. v. Formula Intern, Inc.*,¹³⁶ the Ninth Circuit Court of Appeals upheld a preliminary injunction to prevent defendant Formula from marketing its computer kits under the name "Pineapple." The court held that the name "Pineapple" is confusingly similar to the "Apple" trademark when used on related goods, and one possible effect may be to suggest that the computer kits are

Mantle, *supra* note 123, at 676-77 (citations omitted). See also D. REMER, LEGAL CARE FOR YOUR SOFTWARE 12-14 (1982).

129. See CONTU REPORT, *supra* note 3, at 17.

130. *Id.*

131. A. MILLER & M. DAVIS, *supra* note 38, at 286.

A classic common-law definition of a trade mark is the following by Sir Duncan Kerly:

'A trademark is a symbol which is applied to or attached to goods offered for sale in the market, so as to distinguish them from similar goods, and to identify them with a particular trader or with his successors as the owners of a particular business, as being made . . . by him or them, or which has been properly registered under the [Trade Mark] Acts as the trade mark of a particular trader.'

H. PEARSON, COMPUTER CONTRACTS, AN INTERNATIONAL GUIDE TO AGREEMENTS AND SOFTWARE PROTECTION 215 (1985).

132. See *id.* at 149.

133. Davidson, *supra* note 7, at 413.

134. See A. MILLER & M. DAVIS, *supra* note 38, at 150.

135. 15 U.S.C. §§ 1051-1127 (1982).

136. 725 F.2d 521 (9th Cir. 1984).

manufactured by subsidiaries of Apple.¹³⁷ In another case, although copyright protection was not available for the plaintiff, a finding that plaintiff's trademark was infringed prevented further marketing of the defendant's videogame.¹³⁸

Internationally, trademark protection is available through the Paris Convention.¹³⁹ The Paris Convention provides that each member country retain its own system of registration and protection,¹⁴⁰ and that nationals of the other member-states are entitled to the national protection and registration afforded that state's own citizens.¹⁴¹

3. Misappropriation and unfair competition

The tort of misappropriation, though similar to the law of trade secrets, has an independent existence.¹⁴² Misappropriation is based upon the principle that "one may not appropriate a competitor's skill, expenditure, and labor."¹⁴³ The elements needed to prove misappropriation are: (1) a substantial investment of time, effort and money made by the plaintiff to create the software; (2) the misappropriation of the software by the defendant at little or no cost; and (3) injury to the plaintiff resulting from the defendant's misappropriation.¹⁴⁴ A separate tort is the common law doctrine of unfair competition, which proscribes misrepresentation about the nature and origin of products in commerce.¹⁴⁵

The effectiveness of these tort doctrines when applied to the protection of computer software is questionable. The application of these doctrines in the United States may be preempted by section 301 of the 1976 Copyright Act.¹⁴⁶ On the international level, these doctrines have little applicability.

D. Contract

Contract law is applied in several contexts to provide protection for computer software. Software proprietors use contracts to define

137. *Formula Intern Inc.*, 725 F.2d at 526.

138. *Midway Mfg. Co. v. Bandai-America, Inc.*, 546 F. Supp. 125, 155-58 (D.N.J. 1982).

139. Paris Convention, *supra* note 117, art. 1.

140. H. PEARSON, *supra* note 131, at 222-23.

141. Paris Convention, *supra* note 117, art. 2(1).

142. *Videotronics, Inc. v. Bend Electronics*, 564 F. Supp. 1471, 1476 (D. Nev. 1983).

143. CONTU REPORT, *supra* note 3, at 18.

144. *Videotronics, Inc.*, 564 F. Supp. at 1476.

145. CONTU REPORT, *supra* note 3, at 16.

146. Davidson, *supra* note 7, at 413 n.210.

the relationships and the rights and liabilities of the parties in software sales agreements, distributorship agreements, joint venture agreements, and non-disclosure agreements for trade secrets.¹⁴⁷ The problems of software contracts result from the complex and quickly changing laws covering computer software, but specific contracting problems are beyond the scope of this comment.¹⁴⁸ However, several general issues merit mention here.

1. The classification of software

Various areas of law which are thought to protect computer software conflict partly as a result of the varying classification of software for different laws.¹⁴⁹ For example, if a program is considered a writing, it is proper subject matter for copyright protection; if considered part of a machine, it may be patented, but not copyrighted. The same problem exists in determining the law to be applied to contracts involving computer software. If a program is considered "goods," it is properly covered by the law governing goods.¹⁵⁰ If a program is considered to represent only a service, different laws may apply.¹⁵¹

2. The limitations of privity

One limitation on the protection provided by contracts is the rights of those in privity against third parties. Copyright or patent protection is effective against the whole world, but the program owner who seeks protection through contract may only receive protection against breaches by the other party or parties to the contract.¹⁵² On the other hand, even though a computer program is no longer a trade secret, a party who is contractually bound not to disclose or misuse the program is still bound by that contract and may still be sued for breach.

147. See generally H. PEARSON, *supra* note 131.

148. For a detailed treatment of computer contracts, see generally P. HOFFMAN, *THE SOFTWARE LEGAL BOOK* (1981); for a helpful discussion of international software agreements, see H. PEARSON, *supra* note 131.

149. Caswell, *supra* note 4, at 378.

150. In the United States, the contract would be governed by section 2 of the Uniform Commercial Code in those jurisdictions that have adopted it. See *UNIFORM COMMERCIAL CODE* § 2-102, -105 (1978).

151. Caswell, *supra* note 4, at 378 n.3.

152. See Davidson, *supra* note 7, at 399-400.

IV. THE NEED FOR SUI GENERIS LEGISLATION

The current attempts to provide legal protection for computer software have been carried out by amending existing legislation.¹⁵³ Although the amended laws are providing some protection, they are only a "short-sighted [solution] to complex problems."¹⁵⁴ Because of the varied nature of software, several forms of protection under various laws have been found to apply, creating a great deal of uncertainty. The amendments to existing legislation have created confusion as to whether the amendments apply to traditional subject matter.¹⁵⁵ Also, because computer technology is advancing at such a rapid rate, the amendments will have to be constantly revised, creating continued confusion.¹⁵⁶ Eventually, the rapid advances of computer technology may stretch current forms of protection past their limits.¹⁵⁷

Legislation enacted specially for computer software, an approach supported by several commentators,¹⁵⁸ would avoid many of the above mentioned problems. Existing forms of protection for traditional intellectual property subject matter would not be directly af-

153. See *supra* note 47 and accompanying text.

154. See Pope & Pope, *Protection of Proprietary Interests in Computer Software*, 30 ALA. L. REV. 527, 553 (1979).

155. See *supra* note 69 and accompanying text.

156. For example, the Working Group on Technical Questions Relating to the Legal Protection of Computer Software met in Canberra, Australia in 1984 to discuss revisions of the WIPO Model Provisions. Specifically, the Working Group discussed a revision to the definitions in section 1 in "light of developments which had taken place since the preparation of the Model Provisions in 1977 and of developments which could reasonably be expected to take place in the foreseeable future." REPORT ADOPTED BY THE WORKING GROUP (Canberra 1984), reprinted in 23 INDUS. PROP. 206 (1984). See also CONTU REPORT, *supra* note 3, at 2 ("Any legislation enacted as a result of these recommendations should be subject to a periodic review to determine its adequacy in the light of continuing technological change.").

157. This has already occurred according to Professor Nimmer. Broadly construing "literary works" to encompass computer programs "poses a serious constitutional issue in that it is arguable that such an approach stretches the meaning of *authors* and *writings* as used in the Copyright Clause of the [U.S.] Constitution beyond the breaking point." CONTU REPORT, *supra* note 3, at 26 (Nimmer, concurring).

158. Richard Stern, a Washington D.C. attorney, has stated:

In the past, proponents of software protection in the United States have believed that it was easier, and thus tactically better, to try to persuade Congress to amend the copyright law than it was to persuade it to consider a whole software law. This was, I believe, a grave tactical error, for it resulted in poorly thought out and ineffective legislation, for example, the 1980 computer software amendment to the United States copyright law, which is of little use to the software industry. The back door route to legal protection of software is short-sighted, disingenuous, and a mistake. A specific law directed to software would be far better.

Stern, *supra* note 22, at 340. John Hersey also advocated sui generis legislation for computer software. See *infra* text accompanying note 175.

fects by separate legislation for computer software. Also, the constant revisions necessary to keep up with the rapidly advancing technology would not create confusion for the protection of traditional forms of intellectual property.

The legislation should be tailored to cover the full spectrum of computer programs, whether they display a literary work, control the operation of a machine, or originate their own ideas. The term of the protection provided should be long enough to allow a proprietor to fully exploit the economic and moral rights granted in his product. The remedies provided should also be tailored to protect the wide range of software interests; "[t]here are different types of what we may call 'software infringement', and they call for quite different remedies."¹⁵⁹

Therefore, the current debate over the protection of computer software should focus on the unique requirements of special legislation for the protection of computer software.¹⁶⁰ The balance of this comment will discuss the attempts to draft such *sui generis* legislation on the national and international levels.

A. *Proposals for Sui Generis Legislation*

1. World Intellectual Property Organization Model Provisions

In 1970, the United Nations called for a study¹⁶¹ "on the appropriate form of legal protection for computer programs and on the possibilities in the field of international arrangements, with a view to facilitating the access of developing countries to information on computer software."¹⁶² The study was conducted by the World Intellectual Property Organization¹⁶³ (WIPO) with the help of the Advisory

159. Stern, *supra* note 22, at 340.

Punitive damages may well be proper against one who unloads a protected ROM and markets it, but not against a programmer or his employer who reasonably believe, although incorrectly, that a program the programmer writes is not within the scope of protection to which the plaintiff's algorithm is legally entitled. We therefore need to develop a matrix of remedies and wrongs.

Id. at 340-41.

160. Pope & Pope, *supra* note 154, at 553 ("Only such [special] legislation, founded upon a recognition of the unique nature of computer software, can tame the elephantine problem of protecting the proprietary interests of software developers while guaranteeing the general advancement of computer technology.")

161. Application of Computer Technology for Development, Report by the Secretary-General, U.N. Doc. E/4800 (1970).

162. WIPO MODEL PROVISIONS, *supra* note 11, at 3.

163. The World Intellectual Property Organization was established in 1967 to "promote the protection of intellectual property throughout the world through cooperation among States

Group of Non-Governmental Experts on the Protection of Computer Programs. After four meetings over a period of three years, the Advisory Group promulgated the Model Provisions on the Protection of Computer Software (WIPO Model Provisions) "to assist countries in complementing, or introducing certainty into, their laws applicable to the protection of computer software."¹⁶⁴

The WIPO Model Provisions consist of nine sections. They require no formalities as a precondition to protection.¹⁶⁵ The definition of the subject matter protected is designed to cover all forms of computer software,¹⁶⁶ thereby avoiding the current debate over whether the machine readable object code is a "tangible form of expression" for purposes of copyright protection. The proprietor is given the right to prevent disclosure of his software, a trade secret approach,¹⁶⁷ and to prevent "copying by any means or in any form,"¹⁶⁸ a copyright approach. The duration of protection is no longer than twenty-five

... " Convention Establishing the World Intellectual Property Organization, *done at Stockholm July 14, 1967*, art. 3, 21 U.S.T. 1749, T.I.A.S. No. 6932, 828 U.N.T.S. 3.

164. WIPO MODEL PROVISIONS, *supra* note 11, at 8. "They endeavor to regulate their subject matter in as complete a way as possible so that they could form the basis of a special law on the protection of computer software." *Id.* However, the authors of the WIPO Model Provisions also believed the legislation might be effective as "extensions of existing legal rules and could be incorporated — in so far as they are not already included — in existing laws." *Id.* The full text of the WIPO Model Provisions are reprinted in Appendix I of this comment.

165. Possible formalities include registration, deposit and marking of the computer software. *Id.* at 6.

166. Section 1(i) defines "computer program" to be a "set of instructions capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities to indicate, perform or achieve a particular function, task or result." Section 1(ii) to (iv) extends protection to the various forms of computer software including the description of the problem and its solution, the flow chart, the written program expressed in a "programming language," and the machine readable object code on a magnetized disk. *See id.* at 9 (comments on section 1).

167. Section 5 proscribes "disclosure" in subsection (i), or "allowing access," in subsection (ii), to software that is not yet made accessible to the public. The protection that it provides may already be available in many jurisdictions under the law of trade secrets, breach of confidence or data trespass. *Id.* at 16-17 (comments on section 5).

168. Section 5(iii) provides a broad definition of copying to cover the reproduction of the written form and also the reproduction on magnetic tape. *Id.* at 17. Its inclusion is necessary for those jurisdictions that do not consider software in non-verbal form a "literary" or "scientific" work for purposes of copyright law. Subsections (iv) to (vi) proscribe the various acts of reproduction that may or may not be covered by existing forms of copyright protection. For example, using the program in a computer is expressly proscribed in subsection (iv). This essential form of protection is not directly provided by copyright law, but there is a current debate whether this "reproduction" is indirectly covered. During the running of a program in a computer, the program will at some time be copied into the memory of the machine to carry out a function. *Id.* at 18-19.

years from the time the computer software is created.¹⁶⁹ This is substantially shorter than current forms of copyright protection¹⁷⁰ and thereby prevents wasting resources in the protection of software which has outlived its usefulness. When the proprietor's rights have been infringed, he is entitled to an injunction and damages "or such compensation as may be appropriate."¹⁷¹

The WIPO Model Provisions have been lauded as an admirable attempt to fully protect computer software, but it also has been criticized for several inadequacies. First, the ownership of the rights in computer output is not covered.¹⁷² Second, the WIPO Model Provisions do not create an incentive to change the current practice of providing protection by contracts preventing disclosure of programs to third parties.¹⁷³ The encouragement of wider publication could lead to an advance in the art of computer programming and save the industry resources by eliminating duplication of effort. Finally, there is no provision for providing the plaintiff attorneys' fees and costs. This may preclude small developers and individuals from enforcing their rights due to the high costs of litigation.

2. The Computer Software Protection Act

The Computer Software Protection Act (Software Act) was drafted by the staff members of the National Commission on New Technological Uses of Copyrighted Works (CONTU).¹⁷⁴ The text of the Act incorporated the proposals of John Hersey, one of the Commissioners of CONTU. Commissioner Hersey wrote a dissenting opinion to the final CONTU Report in which he pointed out the difficulties involved in extending copyright laws to provide protection for computer software. His proposal is a *sui generis* law — a hybrid between the laws of copyright and patent.¹⁷⁵ Under this approach, "both the expression and the innovative ideas involved in the creation of the computer programs" would be granted protection.¹⁷⁶

The foundation of the protection provided by the Software Act is

169. *Id.* § 7(2)(b), at 20.

170. *See supra* note 63.

171. WIPO MODEL PROVISIONS, *supra* note 11, § 8, at 21.

172. Perry, *The Legal Protection of Computer Software — The WIPO Model Provisions*, 1 EUR. INTEL. PROP. REV. 34, 36 (1979).

173. *Id.*

174. Pope & Pope, *supra* note 154, at 529 n.11. The full text of the Computer Software Protection Act (Software Act) is reprinted in Appendix II of this comment.

175. *Id.* at 539.

176. *Id.* (quoting NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPY-

the registration and deposit of computer software. Section 1 would establish a "Registry of Computer Software" in the Department of Commerce that would receive and register computer software. This registration would be a condition to receiving protection under the Act.¹⁷⁷ A system of registration and deposit would promote and ensure the important goal of disclosure of new software products. Eventual disclosure of software would contribute to the pool of information available to society to further develop innovative software. This system would also create certainty in the object of protection,¹⁷⁸ a task which has caused some confusion under some current forms of protection.

The disadvantages of a mandatory system of registration and deposit are formidable. The first hurdle would be the "difficult task of devising and administering a system for the classification and indexing of computer software."¹⁷⁹ Problems would arise from the fact that computer programs are frequently updated.¹⁸⁰ This system might have a discouraging effect on creators if they had to make a full disclosure of their creations.¹⁸¹ Finally, full disclosure is unrealistic until proprietors can be assured that they will be fully compensated for any violations of their rights in the product.

The subject matter that would receive protection under the Software Act is broad, covering "the product of original intellectual effort, produced in any form or medium, and which includes as one of its component elements a computer program . . ."¹⁸² The phrase "in any form or medium" would permit protection for programs embodied in written materials, source code, object code, microcode, or any medium of fixation to be developed in the future. The scope of protection provided by the Act would put to rest the current debates regarding the protection of programs embodied in object code and microcode under current systems of law.¹⁸³ This section also reiterates a central theme in intellectual property laws: protection does not

RIGHTED WORKS, REPORT OF THE SOFTWARE SUBCOMMITTEE 22 (1977) (Hersey, dissenting)).

177. Software Act, *infra* app. II, § 11.

178. WIPO MODEL PROVISIONS, *supra* note 11, at 6.

179. *Id.*

180. *Id.* at 7.

181. *Id.* at 6. This is especially true under the Software Act, where trade secret protection is preempted in section 8.

182. Software Act, *infra* app. II, § 3.

183. Although programs embodied in these media have been held copyrightable in the United States, *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir.

extend "to any element of computer software which is merely the embodiment of a mathematical relationship or scientific principle."¹⁸⁴

The exclusive rights granted to the proprietor under this Act permit him to prohibit the reproduction, distribution, or use of the software.¹⁸⁵ By giving the proprietor the right to prohibit the "use" of the software "to operate a computer,"¹⁸⁶ protection is provided which is not granted under copyright laws due to the "fair use" doctrine.¹⁸⁷ This provision also extends protection to situations where one uses a program in a computer without the need to reproduce it in the memory of the machine. The prohibition of the "use" of software closes this potential loophole in copyright protection.¹⁸⁸

The term of protection provided under section 7 continues for a period of ten years.¹⁸⁹ This time period is of sufficient length to permit the proprietor to benefit commercially, but not so long that the software is unavailable to other proprietors in the development of their software products.¹⁹⁰ The Act expressly preempts all other legal or equitable rights that may be obtained under other laws, with the exception of federal copyright and trademark legislation.¹⁹¹ Thus, patent, trade secret, and the various tort doctrines would not be available for software proprietors. As a result of this sweeping preemption, proprietors might keep their products a complete secret until they were assured they could obtain full redress for infringements under this Act alone. Such redress may not be possible for the first few years after the Act is implemented, and this provision would be best omitted until protection provided under the Act was fully established.¹⁹²

Provisions of the Software Act also address the requirement of notice, recordation of transfers of the rights granted, jurisdiction, and

1983), *cert. dismissed*, 464 U.S. 1033 (1984), many other jurisdictions have not yet resolved this problem.

184. Software Act, *infra* app. II, § 3(1).

185. *Id.* § 4.

186. *Id.* § 4(3).

187. Fair use is a defense to infringement actions, and is codified at 17 U.S.C. § 107 (1984); see A. MILLER & M. DAVIS, *supra* note 38, at 342-62.

188. See *supra* note 74 and accompanying text.

189. Software Act, *infra* app. II, § 7(a).

190. See *supra* notes 23-25 and accompanying text.

191. Software Act, *infra* app. II, § 8.

192. However, the preemption provided in section 8 is a goal that should be sought after. "If there is a comprehensive regulatory system for protecting software, the operation of other laws could tamper with and disturb any carefully struck balances." Stern, *supra* note 22, at 342.

a three year limitation of actions.¹⁹³ Finally, the remedies provided include injunctive relief, money damages for actual damages and lost profits, and the recovery of attorneys' fees.¹⁹⁴ Provision for punitive damages is conspicuously absent. These damages should be allowed for those willful infringements where punitive means would be the only way to completely deter infringers from repeating acts of piracy whenever profitable.¹⁹⁵

The Computer Software Protection Act is a well thought out attempt to provide full protection for the interests of computer software proprietors. However, several provisions, including preemption, would deter proprietors from supporting this Act. While the Software Act does serve as an optimistic goal in the future, it is unlikely that it would get widespread support in its current form. Those who are debating the merits of *sui generis* legislation for computer software should find this proposal a very useful guide.

B. International Legislation

The arguments which support the creation of special national legislation apply equally well to international legislation. An international treaty dealing specifically with computer software would avoid the problems created by amending, and thereby making more uncertain, the existing conventions.¹⁹⁶ The courts would not have to strain their interpretations of the existing conventions to cover computer software as proper subject matter; the traditional subject matter protected would not be exposed to the legal uncertainties created by amending the conventions to cover software; and advancing software technology would receive the fullest protection by legislation specifically created for the unique nature of software.

An international treaty would have to address the conflicting interests of the various groups involved in the software industry. Protection should be afforded to multinational corporations as well as

193. Software Act, *infra* app. II, §§ 9, 12, 13, 15.

194. *Id.* § 14.

195. *See supra* note 159 and accompanying text.

196. Several other commentators advocate the creation of an international treaty for the protection of computer software. "The proposed [WIPO] treaty would avoid the uncertainty existing at present in respect of the international protection of computer software." *WIPO. Legal Protection of Computer Software*, 17 J. WORLD TRADE L. 537, 539 (1983) [hereinafter cited as *WIPO, Legal Protection*]. *See also* Salzman, *supra* note 16, at 18 ("To the extent that a new protection system is both desired and prudent, its optimum functioning will only be assured by international cooperation."); Comment, *supra* note 77, at 138 ("An international convention should be held to implement the Model Provisions proposed by W.I.P.O.").

individual entrepreneurs; developed countries as well as developing countries;¹⁹⁷ the general public as well as the individual proprietor.

1. World Intellectual Property Organization Draft Treaty

In June, 1983, a committee of experts met in Geneva, Switzerland to consider appropriate measures for the protection of computer software.¹⁹⁸ A draft Treaty for the Protection of Computer Software (WIPO Draft Treaty) was prepared for the consideration of the committee.¹⁹⁹ The WIPO Draft Treaty consists of six substantive clauses, which are similar to the WIPO Model Provisions. Contracting states would undertake to introduce legislation for minimum protection as provided in Article 4.²⁰⁰ The WIPO Draft Treaty provides that member-states shall give national treatment to the residents and nationals of other contracting states, as in the Universal Copyright Convention

197. The diverse needs and interests of countries at differing stages of development must be considered in designing any international scheme for the protection of computer software. Salzman, *supra* note 16, at 16. Developed countries have a strong interest protecting software proprietors in the international marketplace. *Id.* The interests of developing countries must also be considered since to be effective, an international scheme must be near universal in scope. *Id.*

198. *WIPO, Legal Protection, supra* note 196, at 537. The report of the meeting is contained in WORLD INTELLECTUAL PROPERTY ORGANIZATION, PUB. NO. LPCS/II/6, June 17, 1983.

199. WORLD INTELLECTUAL PROPERTY ORGANIZATION, PUB. NO. LPCS/II/3, Feb. 24, 1983.

200. *Article 4. Protection Against Unlawful Acts.*

(1) Subject to paragraph (2), the Contracting States undertake to grant protection to computer software against the following acts:

(i) disclosing the computer software or facilitating its disclosure to any person before it is made accessible to the public with the consent of the proprietor;

(ii) allowing or facilitating access by any person to any object storing or reproducing the computer software, before the computer software is made accessible to the public with the consent of the proprietor;

(iii) copying by any means or in any form the computer software;

(iv) using the computer program to produce the same or a substantially similar computer program or a program description of the computer program or of a substantially similar computer program;

(v) using the program description to produce the same or a substantially similar program description or to produce a corresponding computer program;

(vi) using the computer program or a computer program produced as described in (iii), (iv) or (v) to control the operation of a machine having information-processing capabilities, or storing it in such a machine;

(vii) offering or stocking for the purpose of sale, hire or license, selling, importing, exporting, leasing or licensing the computer software or computer software produced as described in (iii), (iv) or (v).

(2) Paragraph (1) does not apply in respect of any act which has been authorized by the proprietor.

WIPO, Legal Protection, supra note 196, at 538.

and Berne Copyright Convention.²⁰¹ The duration of the protection should be at least twenty years.²⁰² The proprietor is defined to be the person who created the software or who is entitled to the rights of ownership according to applicable national law.²⁰³

The best vehicle for promulgating this vital new area of the law is a multinational treaty created specifically for the protection of computer software. However, it is generally agreed that it would be premature to establish a *sui generis* treaty.²⁰⁴ Indeed, the "adoption of a new treaty might inhibit certain desirable developments in national law."²⁰⁵ The ratification of a multilateral treaty should be the final step in the process of providing worldwide protection for computer programs.

V. CONCLUSION

Over the last three decades, technology has far outpaced the development of the law, and the legal community has since been scrambling to catch up. Proprietors of computer programs have lost billions of dollars to pirates, and consumers have had to bear the cost and inconvenience of the search for a fair method of protection. The prompt action taken by several jurisdictions to legislate solutions to these problems is commendable. However, these solutions are short-sighted and should be considered temporary.

Although copyright protection has been successfully applied in many software infringement actions, its continued application may create more problems than it solves. The impact of software infringement actions on the application of copyright laws to traditional subject matter will create unnecessary confusion. Also, because software technology is still evolving at a rapid pace, copyright laws will be continually unsettled due to constant amendments.

Patent law is of little use to the software proprietor due to the formidable qualification and application requirements it imposes. Trade secret laws may protect the proprietor, but only at the expense of an essential goal of our proprietary laws — disclosure of new technological developments to further promote progress and prevent wasted resources in duplication of efforts.

201. *Id.* See *supra* notes 82, 84 and accompanying text.

202. *WIPO, Legal Protection, supra* note 196, at 538.

203. *Id.*

204. *Id.* at 538-39.

205. *Id.* at 542 (expressing the view of the Computer Law Association).

The goal of the software industry and the legal community should be the development of legal protection for computer programs geared to rapid changes in the nature of the subject matter. A sui generis form of protection is the most efficient way to meet that goal. Finally, because of the international scope of the software industry, sui generis protection must be developed as a concerted effort by the world legal community. The final step of this effort should be the creation of a sui generis multilateral treaty on the protection of computer software.

Howard K. Szabo

APPENDIX I

MODEL PROVISIONS ON THE PROTECTION OF COMPUTER
SOFTWARE

Section 1. Definitions

For the purposes of this Law:

(i) “computer program” means a set of instructions capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities to indicate, perform or achieve a particular function, task, or result;

(ii) “program description” means a complete procedural presentation in verbal, schematic or other form, in sufficient detail to determine a set of instructions constituting a corresponding computer program;

(iii) “supporting material” means any material, other than a computer program or a program description, created for aiding the understanding or application of a computer program, for example problem descriptions and user instructions;

(iv) “computer software” means any or several of the items referred to in (i) to (iii);

(v) “proprietor” means the person, including a legal entity, to whom the rights under this Law belong according to Section 2(1), or his successor in title according to Section 2(2).

Section 2. Proprietorship; Transfer and Devolution of Rights in Respect of Computer Software

(1) The rights under this Law in respect of computer software shall belong to the person who created such software; however, where the software was created by an employee in the course of performing his duties as employee, the said rights shall, unless otherwise agreed, belong to the employer.

(2) The rights under this Law in respect of computer software may be transferred, in whole or in part, by contract. Upon death of the proprietor, the said rights shall devolve according to the law of testamentary or intestate succession, as the case may be.

Section 3. Originality

This Law applies only to computer software which is original in the sense that it is the result of its creator’s own intellectual effort.

Section 4. Concepts

The rights under this Law shall not extend to the concepts on which the computer software is based.

Section 5. Rights of the Proprietor

The proprietor shall have the right to prevent any person from:

(i) disclosing the computer software or facilitating its disclosure to any person before it is made accessible to the public with the consent of the proprietor;

(ii) allowing or facilitating access by any person to any object storing or reproducing the computer software, before the computer software is made accessible to the public with the consent of the proprietor;

(iii) copying by any means or in any form the computer software;

(iv) using the computer program to produce the same or a substantially similar computer program or a program description of the computer program or of a substantially similar computer program;

(v) using the program description to produce the same or a substantially similar program description or to produce a corresponding computer program;

(vi) using the computer program or a computer program produced as described in (iii), (iv) or (v) to control the operation of a machine having information-processing capabilities, or storing it in such a machine;

(vii) offering or stocking for the purpose of sale, hire or license, selling, importing, exporting, leasing or licensing the computer software or computer software produced as described in (iii), (iv) or (v);

(viii) doing any of the acts described in (vii) in respect of objects storing or reproducing the computer software or computer software produced as described in (iii), (iv) or (v).

Section 6. Infringements

(1) Any act referred to in Section 5(i) to (viii) shall, unless authorized by the proprietor, be an infringement of the proprietor's rights.

(2) The independent creation by any person of computer software which is the same as, or substantially similar to, the computer software of another person, or the doing of any act referred to in

Section 5(i) to (viii) in respect of such independently created computer software, shall not be an infringement of the rights of the latter under this Law.

(3) Any presence of the computer software on foreign vessels, aircraft, spacecraft or land vehicles, temporarily or accidentally entering the waters, airspace or land of this country, and any use of computer software during such entry, shall not be considered an infringement of the rights under this Law.

Section 7. Duration of Rights

(1) The rights under this Law shall begin at the time when the computer software was created.

(2)(a) Subject to paragraph (b), the rights under this Law shall expire at the end of a period of 20 years calculated from the earlier of the following dates;

(i) the date when the computer program is, for purposes other than study, trial or research, first used in any country in controlling the operation of a machine having information-processing capabilities, by or with the consent of the proprietor;

(ii) the date when the computer software is first sold, leased or licensed in any country or offered for those purposes.

(b) The rights under this Law shall in no case extend beyond 25 years from the time when the computer software was created.

Section 8. Relief

(1) Where any of the proprietor's rights have been, or are likely to be, infringed, he shall be entitled to an injunction, unless the grant of an injunction would be unreasonable having regard to the circumstances of the case.

(2) Where any of the proprietor's rights have been infringed, he shall be entitled to damages or such compensation as may be appropriate having regard to the circumstances of the case.

Section 9. Application of Other Laws

This Law shall not preclude, in respect of the protection of computer software, the application of the general principles of law or the application of any other law, such as the Patent Law, the Copyright Law or the Law on Unfair Competition.

APPENDIX II

COMPUTER SOFTWARE PROTECTION ACT

§ 1. Registry of Computer Software

There is hereby created within the Department of Commerce the Registry of Computer Software, which will receive and register computer software products in which rights are asserted under the provisions of this Act.

§ 2. Definitions

As used in this Act, the following terms are defined as here set forth:

A "Computer" is a machine or device capable of storing, processing, retrieving or transferring information.

"Computer software" is a computer program and all accompanying documentation.

A "Computer program" is a set of machine directions designed to control the operations of a computer in order to obtain a desired result.

"Accompanying documentation" is that material, including flow charts, diagrams, lists of individual operating steps of a program, and written manuals explaining or describing the function, operation and maintenance of a program, which is supplied by a vendor or supplier of computer software along with the program itself.

§ 3. Protected Subject Matter

(a) Protection may be obtained under the provisions of this Act for computer software which is the product of original intellectual effort, produced in any form or medium, and which includes as one of its component elements a computer program capable of interacting directly with a computer to control its operations in order to obtain a desired result.

(b) In no case does the protection afforded by this Act extend to any element of computer software which is merely the embodiment of a mathematical relationship or scientific principle.

§ 4. Exclusive Rights in Computer Software

The lawful proprietor of computer software under the provisions of this Act has the exclusive right to do and authorize the following:

(1) to reproduce the software in whole or substantial part, in-

cluding any original method or process embodied in the software, in any medium;

(2) to distribute copies of the software, in whole or substantial part, to the public by sale or lease;

(3) to use the software, in whole or substantial part, to operate a computer.

§ 5. *Ownership of Computer Software*

(a) The following parties are entitled to ownership of the exclusive rights in computer software granted under the provisions of this Act; subject to the provision of section 3(b) of this Act.

(1) the independent creator, or in the case of products created jointly by two or more individuals, creators, are entitled to ownership of the software;

(2) in the case of software created by an employee within the scope of his or her employment, the employer is entitled to ownership of the software;

(3) in the case of software specially ordered or commissioned, the individual or entity at whose behest the software is created is entitled to ownership of the software.

(b) In determining ownership of exclusive rights in computer software under the provisions of this Act, the United States Government is entitled to protection as an employer or in commissioning work on the same basis as any private person or organization.

(c) The ownership of exclusive rights in computer software under the provisions of this Act, including initial entitlement thereto, may be transferred in whole or in part by contract and may descend according to testamentary disposition or applicable laws of intestate succession.

(d) The ownership of exclusive rights in computer software protected under the provisions of this Act is separate and distinct from the ownership of any material object in which the software is embodied. Transfer of a particular copy or copies of software does not, in the absence of specific agreement, entitle the transferee to exercise the exclusive rights in software granted by section 4 of this Act.

§ 6. [Omitted].

§ 7. *Term of Protection*

(a) The exclusive rights granted by section 4 of this Act shall

endure for a period of ten years, which period shall terminate in all events on the last day of the 10th calendar year in which protection extends, beginning at the earliest of the following occurrences:

- (1) the computer software is first used, other than for the purpose of developing and testing, in the operation of an electric data processing machine under authority of the owner;
- (2) the computer software is first made available, by sale, lease, or otherwise, to any members of the public under authority of the owner.

§ 8. *Preemptive Effect of Protection*

(a) All legal or equitable rights that may be asserted in computer software created after (effective date of law) are the exclusive product of this Act, subject only to the following exceptions:


- (1) Rights in accompanying documentation may be secured under the Copyright Act, Title 17 of the United States Code; and can coexist with protection under the provisions of this Act.
- (2) Trademark protection, either at common law or under the provisions of the Lanham Act, 15 U.S.C. §§ 1051-1127 *et seq.*, may be secured for computer software, and can coexist with protection under the provisions of this Act.

No other exclusive rights may be asserted in computer software, whether under federal legislation or state statutory and common law, outside the provisions of this Act.

(b) All rights in computer software created prior to (effective date of law) are to be determined according to all federal, state and common law applicable prior to the effective date of this Act.

§ 9. *Notice*

Any program or separate component of accompanying documentation constituting a portion of a software product in which protection under the provisions of this Act is sought must contain a visually perceptible notice placed on or attached to the software component in a conspicuous location so as to give reasonable notification of the claim of ownership in the software. All reproduction of software components created under authority of the owner must contain the notice required by this section. Notice must consist of the following elements:

- (1) The words "software protection," the abbreviation "Soft.," or the symbol 

and

- (2) The name of the owner of the computer software, or an abbreviated designation by which the owner can be recognized.
- (3) The year in which the term of protection initially vests, as defined by section 7 of this Act.

§ 10. *Error in Notice*

(a) The omission of or error in the content or placement of notice required by section 9 of this Act on computer software products distributed under authority of the owner does not invalidate the protection available under the provisions of this Act.

(b) No liability for monetary damages or equitable compensation will be incurred for unintentional violations of an owner's exclusive rights in software which result from an innocent violator being reasonably misled by the absence of proper notice from software in which protection is claimed under the provisions of this Act. In determining the absence of liability, a court shall consider whether a violator had access to sufficient information on the software product in question to identify the actual owner, or be directed to accessible registration records maintained at the Registry of Computer Software which would disclose the identity of any party claiming exclusive rights in the software under the provisions of this Act.

(c) A court may grant injunctive relief under the provisions of section 14(a) of this Act against one innocently misled by the absence of proper notice under the standards of subsection (b) of this section, or in the alternative may, in its discretion and in order to prevent hardship to an innocent violator who has incurred substantial investment in activity in violation of exclusive rights granted by this Act, condition continued violations upon the payment to the actual owner of software of a reasonable royalty.

§ 11. *Registration*

(a) The owner of any computer software product shall, as a condition to protection under the provisions of this Act, register the claim by providing the Registry of Computer Software, with the following:

- (1) an application form prescribed by the Secretary of Commerce; and
- (2) a registration fee prescribed by the Secretary of Commerce; and

(3) one complete copy of the computer software, including the program and accompanying documentation.

(b) The Secretary of Commerce is authorized to prescribe by regulation the required contents of the application form required by subsection (a)(1) of this section and the registration fee required by subsection (a)(2) of this section. The Secretary may also permit, by regulation, the provision of identifying, descriptive material in lieu of the computer program in order to avoid the imposition of practical or financial hardship on the Registry of Computer Software or the registrant.

(c) The Secretary of Commerce shall, upon receipt of a proper claim for registration as governed by subsection (a) of this section, register the claim and issue the registrant a certificate of registration for computer software. That certificate shall constitute *prima facie* evidence of the facts set forth in the application for protection required by subsection (a)(1) of this section, admissible in any action to enforce rights in such registered software brought under the provisions of this Act.

(d) The failure to include individual components of the accompanying documentation required for registration under subsection (a) of this section will not invalidate the registration. Provision to the Registry of Computer Software of any such components may be compelled by order of the Secretary of Commerce, or by any party challenging the rights claimed by an owner of computer software in a civil action brought under the provisions of this Act.

(e) No action to enforce rights granted under the provisions of this Act may be instituted until registration for the computer software in which rights are being asserted is made in accordance with this section and no rights will be enforced unless registration in accord with this section was completed at the time of the allegedly infringing acts. In any case where a proper application form, fee and copy of the computer software have been provided the Registry of Computer Software, but registration has been denied, the applicant may join the Secretary of Commerce in an action to enforce rights under the provisions of this Act, and proceed to assert the jurisdiction of the federal courts provided by section 13 of this Act for all alleged violations occurring after registration was proffered.

§ 12. *Recordation of Transfers*

(a) Transfer of ownership of any of the exclusive rights in com-

puter software granted by section 4 of this Act may be recorded in the Registry of Computer Software. In order to obtain such recordation, the claimant of such rights must provide the Registry of Computer Software with the following:

- (1) [omitted];
- (2) a recordation form prescribed by the Secretary of Commerce for the purpose of recording transfers of rights in computer software; and
- (3) a recordation fee prescribed by the Secretary of Commerce.

(b) The Secretary of Commerce is authorized to prescribe by regulation recordation forms required by subsection (a)(2) of this section and the recordation fee required by subsection (a)(3) of this section.

(c) The Secretary of Commerce, shall, upon receipt of a proper claim for recordation of a transfer of ownership in computer software protected under the provisions of this Act, record the claim and issue the claimant a certificate of recordation. That certificate shall constitute *prima facie* evidence of the facts set forth in the application for recordation, admissible in any action to enforce rights in registered software brought under the provisions of this Act.

(d) No action to enforce rights asserted by the transferee of the initial registrant of rights in computer software may be instituted until recordation of the transfer is made in accordance with this section.

§ 13. *Jurisdiction over Civil Actions*

Jurisdiction over any cause of action to enforce rights granted under the provision of this Act lies exclusively in the federal district courts.

§ 14. *Remedies for Infringement*

(a) The owner of any of the exclusive rights granted under the provisions of this Act may obtain injunctive relief to prevent the violation of any of these exclusive rights, subject to the discretionary authority vested in the courts by section 10(c) of this Act. Any injunction awarded to enforce these rights shall be operative throughout the United States and all territories and possessions subject to its laws, and may be enforced by proceedings in contempt. As part of the injunctive relief, a court may seize and dispose of any materials found to violate exclusive rights asserted in software.

(b) The owner of any of the exclusive rights granted under the

provisions of this Act is entitled to money damages for the actual damages incurred as a result of infringement of rights protected under this Act, and to any additional profits lost as a result of such infringement.

(c) The successful party in a cause of action brought under the provisions of this Act is entitled to recover the costs of this action, and may also recover, at the discretion of the court, a reasonable attorney's fee.

§ 15. Limitation of Actions

No cause of action may be maintained under the provisions of this Act unless it is commenced within three years after the claim accrued.

§ 16. Authorization to Promulgate Rules

The Secretary of Commerce is authorized to establish rules and regulations consistent with the provisions of this Act of [sic] for the administration of the Registry of Computer Software.