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COPYRIGHT PROTECTION FOR COMPUTER SOFTWARE IN GREAT BRITAIN AND THE UNITED STATES: A COMPARATIVE ANALYSIS

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I. INTRODUCTION

The issue of adequate legal protection for computer programs is a major concern in the international software industry. United States trade officials estimate that between eight and twenty billion dollars in sales has been lost annually due to the counterfeiting of software products and semi-conductors.¹ In the United Kingdom, it is estimated that at least 150 million pounds per year are lost due to software piracy.² It is not surprising that software producers are increasingly seeking legal protection.

A. *Why Copyright?*

Copyright has emerged as a dominant means of protecting

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1. In fact, in early 1985, the U.S. Department of Commerce announced that it intended to launch an aggressive plan to compel foreign countries to pass laws which protect intellectual property rights. Davidson, Greguras & Bahrick, *International Software Protection: What U.S. Practitioners Should Know to Protect Their Clients' Interests in Foreign Markets*, 2 COMPUTER SOFTWARE AND CHIPS 1986: PROTECTION AND MARKETING 53 (M. Goldberg ed. 1986).

2. From an unpublished paper by R. Tuckett, "Controlling Infringement of Copyright in Computer Software" Jan. 1985. Software piracy has been defined by FAST (Federation Against Software Theft, a computer trade group) as the replication of programs without permission, production of look-alike copies, and the unauthorized supply and use of computer software.

The parliamentary debates to the Software Amendment revealed the results of a university study. The study reported that one in four microcomputer software houses suffered serious losses due to piracy. 73 Parl. Deb., H.C. (5th ser.) 1337 (1985).

software in the international marketplace.³ Other means of intellectual property protection, such as patents, have been rejected as unsuitable for software creations.⁴ Similarly, the use of trade secret licenses, although initially favored, has significantly diminished with the advent of personal computers. When the personal computer market expanded to allow for the promotion of mass-market programs, negotiation of trade secret licenses became impractical.⁵ Furthermore, trade secret laws are governed by state law in the United States, thus providing no uniformity.⁶ As a result, copyright protection has emerged as the favored legal device.

B. *Technical Background*

In order to fully appreciate the various issues involving the scope of intellectual property law and computer software, it is necessary to provide a technical foundation. Software is a generic term, comprising both the program itself as well as accompanying documentation.⁷ Since there is no problem in extending copyright protection to textual documentation,⁸ the key focus is on the definition of computer programs.

3. Taphorn, *Software Protection in the International Marketplace*, 10 N.C.J. OF INT'L LAW AND COM. REG. 617, 623 (1985).

4. According to the United States Supreme Court's interpretation of the Patent Act (35 U.S.C. § 101 (1952)), patent protection of software is unavailable, although some limited aspects of programs may be covered. *Diamond v. Bradley*, 450 U.S. 381 (1981); *Diamond v. Diehr*, 450 U.S. 175 (1981). It is generally agreed that the writing of programs does not constitute invention for purposes of the Patent Act. Taphorn, *supra* note 3, at 622.

The U.K. Patent Act of 1977 expressly declares that computer programs as such are not patentable. Rumbelow, *Software Protection in the United Kingdom*, 10 INT'L BUS. LAWYER 263 (1982) (citing § 1(2)(c) of the Patents Act).

5. Baeza, *Acquisition and Exploitation of Mass Market Software*, COMPUTER SOFTWARE AND CHIPS 1986: PROTECTION AND MARKETING, 515, 529 (M. Goldberg ed. 1986).

In fact, it has been deemed impractical for three reasons: (1) a lengthy license agreement would inhibit sales and negatively impact the image of the "friendly" computer; (2) the transaction costs of negotiating a detailed legal agreement are not justified; and (3) there is little or no opportunity for direct bargaining between the vendor and the ultimate customers. PERFECTING, PROTECTING & LICENSING PROPRIETARY RIGHTS AFTER THE 1980 COPYRIGHT AMENDMENT, 126 (D. Brooks & M. Keplinger ed. 1981).

In the U.K., contractual provisions between licensors and licensees are under the law of confidentiality. Secrecy cannot be maintained when programs are mass-marketed. Anderson, *Piracy and the New Technologies: The Protection of Computer Software Against Piracy*, from papers presented by the ABA at the meeting in London, at 173 (1985).

6. Kesler & Hardy, *Legal Protection of Software in the United States: A Status Report*, 10 INT'L BUS. LAWYER 266, 267 (1982).

7. The U.S. Software Copyright Act of 1980 defines a computer program as a "set of statements or instructions to be used directly or indirectly in order to bring about a certain result." 17 U.S.C. § 101 (1980).

8. This is true in both the U.S. and the U.K. since the printed text falls into the cate-

There are two basic types of programs: operation and application.⁹ Operational programs are necessary to the functioning of the computer.¹⁰ These programs are typically embedded into the computer memory in the form of a silicon chip.¹¹ An application program, on the other hand, permits a computer to perform the specialized tasks that the user requires. These programs are generally sold off-the-shelf in the form of floppy disks, but they may also be embedded in silicon chips.¹²

Computer programs, both operation and application, are written by a programmer in source code.¹³ The source code program represents instructions written in a language, such as BASIC, which can be understood by a human being, albeit a skilled one.¹⁴ The computer converts the source language into object, or machine code. Machine language, represented in binary form, cannot be understood by humans. For purposes of discussion, software is defined to include programs written in both source and object code.

C. *Focus of Article*

This article will concentrate on the use of copyright as a protection device. The history of copyright protection in both the United States and the United Kingdom will be discussed. In addition, a comparison of the current status of such protection in these two sovereignties will be examined as well as the protection afforded under various international conventions. The study will also address the availability of court and administrative proceedings as a remedy for copyright violations. Finally, the article will discuss several issues which have yet to be resolved by the courts and legislatures.

gory of "literary works." Haines, *No Copyright in Computer Software?* 128 SOLICITOR'S JOURNAL 126, 127 (Feb. 24, 1984).

9. Petry, *Computer Software*, 2 COMPUTER SOFTWARE AND CHIPS 1986: PROTECTION AND MARKETING, 467, 475 (M. Goldberg ed. 1986).

10. *Id.*

11. *Id.*

12. *Id.* Although issues relating to firmware or programs on silicon chips pose significant legal questions, this analysis will not address them. For a discussion on firmware issues, see *Copyright Protection for Firmware: An International View*, 4 HASTINGS INT'L & COMP. L. REV. 473 (1982).

13. Taphorn, *supra* note 3, at 618.

14. *Id.* at 619.

II. HISTORY OF SOFTWARE RIGHTS

A. *United States*

The basis for statutory protection of software can be traced to the U.S. Constitution which states that Congress shall have the right to "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."¹⁵ On this authority, Congress has enacted Copyright Acts which define the scope and limits of the protection.

The issue of copyright protection for software products in the United States has its origins in the 1908 case of *White-Smith Music v. Apollo Company*.¹⁶ In *White-Smith*, the Supreme Court considered whether a player-piano roll, a form of machine-readable code, fit under the scope of copyright protection. The Court ruled that the composer's rights were not violated by the transcription of the composition for use on a player piano since the roll itself could not be read by the human eye.¹⁷ Congress endorsed this notion in its revision of the Copyright Act the following year. In order to be copyrighted, the work had to be something which the eye could see.¹⁸

The Copyright Law was substantially modified in 1976,¹⁹ but computer software was not expressly included in the Act's protection. However, the Act did refer to programs in its "moratorium" provision, section 117.²⁰ This section stated that an owner of a program (a copyrighted work used in conjunction with an automatic device) is granted no greater or lesser rights under the Act than were already provided under the law.²¹ The legislative purpose of the provision was to maintain the status quo for software products

15. U.S. CONST. art.1, § 8, cl. 8.

16. 209 U.S. 1 (1907).

17. *Id.* at 17.

18. The history of computer copyright is discussed in R. BAKER, SCUTTLE THE COMPUTER PIRATES: SOFTWARE PROTECTION SCHEMES 11 (1984). Despite the apparent limitation in the law, the Copyright Office began accepting computer programs for registration in 1964.

The Copyright Office allowed for the registration under its "rule of doubt." The rule allows for resolving doubtful issues in favor of registration wherever possible. Brooks, *Reverse Engineering Computer Software: Is It Fair Use or Plagiarism*, 2 COMPUTER SOFTWARE AND CHIPS 1986: PROTECTION AND MARKETING, 7, 24 (M. Goldberg ed. 1986).

19. 17 U.S.C. §§ 101-810 (1976).

20. 17 U.S.C. § 117 (1976).

21. *Id.*

until an appropriate amendment could be formulated.²² The Congressional formula was subsequently codified in the 1980 Amendment to the Act.²³

B. *United Kingdom*

There is no common law of copyright in the United Kingdom; it is exclusively statutory.²⁴ The United Kingdom Copyright Act of 1956 protects "every original literary, dramatic or musical work which is unpublished, and of which the author was a qualified person."²⁵ A qualified person is defined as a person who is a British subject or who is domiciled or resident in the United Kingdom.²⁶ Published works of a non-resident can be protected if first publication took place in the United Kingdom.²⁷

Computer programs were not mentioned in the 1956 Act. A special legislative committee concluded, in the Whitford Report,²⁸ that the term "literary works" was broad enough to encompass computer programs, even though the program could be perceived exclusively by a machine or device.²⁹ The Whitford Committee's findings were significant since literary works had previously been confined to those which were expressed in writing.³⁰ Since most software programs are not encoded in written form but rather exist on magnetic tapes or disks, this would preclude a finding that computer programs were covered in the Act.³¹ Nonetheless, the Whitford Committee held otherwise.³²

The Whitford Committee also concluded that both the loading and unauthorized use of software should be protected as acts of in-

22. See Wilbur, *Copyright Registration for Secret Computer Programs: Robbery of the Phoenix's Nest*, 24 JURIMETRICS J. 357, 365 (Summer 1984).

The issue of what modifications were needed was the focal point of a CONTU study. CONTU, a National Commission on New Technological Uses of Copyrighted Works, analyzed the protection needs for computer software. The committee's recommendations were largely incorporated into the 1980 Amendment to the Copyright Act. *Id.* at 365. See also R. Baker, *supra* note 18, at 12.

23. 17 U.S.C. §§ 101, 117 (Supp. V. 1981).

24. *Copyright Protection for Computer Programs in the United Kingdom, West Germany and Italy: A Comparative Overview*, 7 LOY. L.A. INT'L. & COMP. L.J. 279, 287 (1984).

25. United Kingdom Copyright Act 1956, 4 & 5 Eliz. 2, ch.74, § 2(1).

26. *Id.* at § 1(5)(a).

27. *Id.* at § 2(2)(a).

28. Whitford Committee, *Copyright and Design Law*, Cmnd. 6732, (1977).

29. Since § (48)(1) of the Copyright Act 1956 listed "similar process" as a form of notation for writing, this definition could be stretched to include machine-derivation. Whitford Committee at 128.

30. *Id.*

31. *Id.*

32. *Id.*

fringement.³³ Furthermore, the group found that both source and object code were entitled to protection.³⁴ Finally, despite the finding that the 1956 Act could encompass software as a literary work, the committee recommended that an amendment be enacted to clarify the protective right.³⁵

In 1980, the Cabinet Office's Advisory Council for Applied Research and Development recommended that the copyright laws be modified.³⁶ The Council observed that the increasing risks of non-protection faced by the software producers were exacerbated by the increasing ease of illicit electronic transfer of programs.³⁷

The British government, reacting to pressure from trade groups such as the Federation Against Software Theft (FAST),³⁸ issued a Green Paper on the subject of software and copyright.³⁹ The report declared that copyright protection was appropriate for computer programs and proposed that an amendment be enacted to cover software.⁴⁰ The 1956 Copyright law was therefore amended to include such a provision on July 16, 1985.⁴¹

III. THE MODERN LEGAL SETTING

Three distinct aspects of the present legal environment for copyright and software will be examined. First, the current statutory provisions in the United States and the United Kingdom will be presented. Second, case law will be reviewed. Third, the procedures and remedies available to the copyright holder against an infringer will be discussed.

A. *Statutory Provisions*

1. United States

The 1980 Amendment included the first explicit reference to computer programs.⁴² The Act extended protection to software

33. *Id.* at 129-130.

34. *Id.* at 127.

35. *Id.* at 128.

36. Cabinet Office, Advisory Council for Applied Research and Developments, *Information Technology* 39 (1980).

37. *Id.*

38. FAST, the Federation Against Software Theft, is an association formed by software houses as a trade group. The group's lobby interest was directed at enactment of statutory protection for copyright.

39. REFORM OF THE LAW RELATING TO COPYRIGHT, DESIGNS AND PERFORMERS' PROTECTION, CMND. 8302 (1981).

40. *Id.* at 33.

41. Copyright (Computer Software) Amendment Act 1985, ch. 41.

42. 17 U.S.C. § 101 (1980).

and defined computer programs. The Act allows a work to be indirectly perceived, thus eliminating the problem presented in the *White-Smith* case.⁴³ Further, the new Act gave the owner of a copy of a protected program two rights: the right to copy or adapt the program for use and the right to make backup copies.⁴⁴ For classification purposes, the Copyright Office places computer programs in the same category as literary works.⁴⁵ To be eligible for protection, a program must be fixed in a tangible form of expression.⁴⁶ The protection afforded by the copyright extends for the life of the author plus fifty years, or seventy-five years from the time of publication if the work is made-for-hire.⁴⁷

Publication and registration are no longer a prerequisite for protection as a result of the 1976 revision of the Copyright Act.⁴⁸ Rather, protection automatically attaches to a work that is considered "fixed."⁴⁹ The protection may be lost, however, if the work is published without an appropriate legend.⁵⁰ Although the formation of rights is not conditioned upon registration, it is noteworthy that registration is essential in order to maintain the right to seek judicial intervention if piracy has occurred.⁵¹ If registration is to be made, programs can be registered in either their published or unpublished forms.⁵² In order to gain maximum protection, the author should publish the work by sending two copies to the Copyright Office.⁵³

A copyright holder under the current law is afforded five exclusive rights.⁵⁴ Certain of these enumerated rights are particularly relevant to the holder of a copyright for computer software: the dis-

43. Wilbur, *supra* note 22, at 363.

44. 17 U.S.C. § 117 (1980).

45. 17 U.S.C. §§ 101, 102(a)(1) (1976).

46. 17 U.S.C. § 102 (a) (1976).

47. 17 U.S.C. § 302(a), (c) (1976).

48. 17 U.S.C. § 301(a) (1976). *See generally*, F. NEITZKE, A SOFTWARE LAW PRIMER 12 (1984).

49. *Id.*

50. *Id.*

51. *Id.* and 17 U.S.C. § 205(d) (1976).

52. 17 U.S.C. §§ 408, 410 (1976).

53. 17 U.S.C. § 407 (1976).

54. The holder is entitled to:

1. public performance of the work
2. public display of the work
3. distribution of copies by sale, lease, rental, or loan
4. reproduction of the work in copies
5. preparation of derivative works

tribution right, the reproduction right, and the adaptation right.⁵⁵

The distribution right grants the copyright owner the exclusive right to control the initial public distribution of the program copies.⁵⁶ This control extends to cover the sale, rental, leasing or lending of the copies to the public. Once distributed, however, the "first sale"⁵⁷ doctrine will apply to allow the sold copies to be freely distributed and transferred.⁵⁸

The reproduction right enables the copyright owner to control the reproduction of the protected work.⁵⁹ The right would prohibit, for example, the unauthorized copying of a protected computer disk.⁶⁰ However, the input of a computer program into a computer is not actionable because this action is specifically permitted in the utilization of the program.⁶¹ Thus, the 1980 Act created an exception to the right for the use of the program by the owner.⁶² The exception would not permit the owner to reproduce copies of the program for others, however.⁶³

The adaptation right, or the right to prepare derivative works, allows the copyright owner to control the transformation of the work into another form.⁶⁴ The computer exception applies equally to this right since a program must often be adapted internally by a computer to be used effectively.⁶⁵ Computers must translate high level language into object code to implement a program. Absent the exception, such a translation would constitute an unauthorized conversion. Thus, the 1980 Act allows the owner to adapt the program

17 U.S.C. § 106 (1976).

Nevertheless, Section 117 provides that it is not an infringement for the owner of a copy of a computer program to make or adapt the program provided:

(1) that such a new copy or adaptation is created as an essential step in the utilization of the computer in conjunction with a machine . . . or

(2) that such new copy or adaptation is for archival purposes only. . . . 17 U.S.C. § 117 (Supp. V 1981).

55. Rodau, *Protection of Intellectual Property: Patent, Copyright and Trade Secret Law in the United States and Abroad*, 10 N.C.J. INT'L. & COM. REG. 537, 556 (1985).

56. *Id.*

57. Once copies are distributed by the owner, the doctrine extinguishes the distribution with regard to those lawfully obtained copies. Rodau, *supra* note 55, at 556.

58. *Id.*

59. *Id.* at 554.

60. *Id.*

61. 17 U.S.C. § 117 (1980).

62. *Id.* Since the typical licensing agreement lets the seller remain the legal owner, software suppliers have been able to retain their single copy-single machine limits. See R. Baker, *supra* note 18, at 12.

63. Rodau, *supra* note 55, at 554-55, n.150.

64. *Id.* at 555.

65. *Id.*

for his own use.⁶⁶

2. United Kingdom

Under the present law, a computer program must possess sufficient originality to warrant copyright protection.⁶⁷ This standard requires that the idea begin with the author.⁶⁸ However, the protection does not extend to ideas or opinions, but only to the form in which they are expressed.⁶⁹

To gain protection, the author must show that he is a qualified person. The author will be deemed qualified if he is a British subject or a United Kingdom resident.⁷⁰ In addition, if the relevant person is a citizen, domiciliary or resident of a scheduled Convention country, protection will be extended.⁷¹ The author's status is determined by the author's legal position at the time of publication.⁷² If the author died prior to publication, the significant point will be his status at the time of death.⁷³

The date of publication is another significant factor. If the author is neither a national of the United Kingdom nor a scheduled Convention country, protection can still be extended if the work was first published in the United Kingdom.⁷⁴ If the publication occurs in the United Kingdom and another territory simultaneously, the publication requirement is fulfilled.⁷⁵ In practical terms, if publication occurs in two countries within thirty days, the two events will be deemed to occur simultaneously.⁷⁶

There is no registration requirement nor any procedure that the work should be marked with a circled c or a copyright notice statement.⁷⁷ As in the United States, copyrights are considered effective from the date of creation of the work.⁷⁸ The period of pro-

66. 17 U.S.C. § 117 (1980).

67. *See supra* note 24, at 288.

68. *Id.*

69. *Id.* at 289.

70. United Kingdom Copyright Act 1956, 4 & 5 Eliz. 2, ch. 74, § 1(5)(a).

71. *Id.*

72. *Id.* at § 2(2)(b).

73. *Id.* at § 2(2)(c).

74. *Id.* at § 2(2)(a).

75. W. CORNISH, *INTELLECTUAL PROPERTY: PATENT, COPYRIGHT, TRADEMARKS AND ALLIED RIGHTS*, 337 (1981).

76. Publication means issuing reproductions of the whole work to the public in quantities intended to satisfy reasonable public demand. It is probable that any form of issuance, including sale, will therefore suffice. *Id.* at 338.

77. *Id.* at 337.

78. United Kingdom Copyright Act 1956, §§ 2(1) and 3(4).

tection is for the life of the author plus fifty years.⁷⁹

The author has exclusive control over reproduction of the work in any material form.⁸⁰ Any adaptation of the work is restricted, including translating a computer program into other higher level languages or machine language.⁸¹ Therefore, the mere loading of a program into a computer would be considered a violation of the author's reproduction rights.⁸² Displaying a stored program on a screen or printing it out as tangible copy would also constitute infringement.⁸³

The United Kingdom's copyright law focuses on the need to protect the author's right to economic gain by virtue of the work.⁸⁴ It has been suggested that the most beneficial aspect of the law is the breadth of the statute itself since all types of programs are covered.⁸⁵

The Copyright Amendment Act was formally enacted on July 16, 1985, and became effective on September 16, 1985.⁸⁶ The Amendment removed any doubt that computer programs are protected by copyright.⁸⁷ It specifically confirmed that a computer program is a literary work.⁸⁸ It also provided that the translation of a computer program from one programming language to another is an adaptation, or restricted act.⁸⁹

Section 2 of the Amendment states that the storage of a copyrighted work in a computer is sufficient as a material form for purposes of fixing the time at which a copyright work is made.⁹⁰ It thus follows that any work which is written directly into a computer qualifies for protection at the moment of its creation within the computer. In addition, the provision confirms that the act of loading a computer program into a computer without the owner's consent constitutes infringement since the storing of a work in a computer is a form of reproduction.⁹¹

79. *Id.* at §§ 2(3), 3(4).

80. *See supra* note 24, at 289.

81. *Id.*

82. *Id.* at 290.

83. *Id.*

84. *Id.* at 291.

85. *Id.* at 294. This is particularly true since both operation and application programs are covered by the law.

86. Copyright (Computer Software) Amendment Act 1985, ch. 41.

87. *Id.*

88. *Id.* at § 1(1).

89. *Id.*

90. *Id.* at § 2.

91. *Id.* at § 2.

The new Amendment also enhanced the criminal remedies of the Copyright Act of 1956 for cases of computer program piracy.⁹² Acts of software theft can result in unlimited fines and up to two years imprisonment.⁹³ These stringent criminal provisions were previously limited to piracy of films and sound recordings, not literary works.⁹⁴

B. Case Law

1. United States

The first case involving computer programs under the 1976 Act was *Data Cash Systems, Inc. v. JS&A Group*.⁹⁵ The court ruled that firmware was not entitled to protection under copyright laws. Many unsettled questions lingered after the decision, including the protectibility of programs translated into machine language, or object code.⁹⁶

The courts have recognized that computer programs are protected whether in source or object code.⁹⁷ In fact, the case of *GCA Corporation v. Chance*⁹⁸ ruled that since object code is the encryption of source code, the two are to be treated as one work. Thus, copyright registration of a program in source code only will protect the underlying object code as well.⁹⁹ Courts have also held that written printouts of object code are worthy of protection.¹⁰⁰ Finally, the Court of Appeals for the Third Circuit has ruled that object code embodied in firmware is entitled to copyright protection.¹⁰¹

Courts have also delineated the contours of the idea-expression dichotomy.¹⁰² In *Apple Computer, Inc. v. Formula International*,

92. *Id.* at § 3 (references to §§ 21 & 21B of the Copyright Act 1956).

93. The maximum penalty for selling, exhibiting, or possession in the course of trade of an unauthorized copy is \$ 2,000 for each offense of imprisonment of up to two months. *Id.* at § 3.

94. FAST Press Release, July 1985.

95. 480 F. Supp. 1063 (N.D.Ill. 1979), discussed in Levine, *Piracy and the New Technologies*, JUSTICE FOR A GENERATION (papers presented at the London ABA meeting) 167 (1985).

96. *Id.*

97. *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983).

98. 217 U.S.P.Q. 718 (1982).

99. *Id.* at 720.

100. *Hubco Data Products Corp. v. Management Assistance Inc.*, 219 U.S.P.Q. 450 (1983).

101. *Williams Electronics, Inc. v. Artic Int'l. Inc.*, 685 F.2d 870 (3d Cir. 1982).

102. The dichotomy refers to when an idea (not protectable) is expressed in a way sufficient to merit protection.

Inc.,¹⁰³ the court issued a preliminary injunction prohibiting the copying of Apple computer programs. The court noted that the defendant had the right to market programs which perform an identical purpose. However, the defendant could not market programs which perform in the exact same manner.¹⁰⁴ Thus, although the idea is not protected, the manner of expressing the idea is protected. For computer programs, the "expression of ideas" concept extends to cover the organization and structure of the program itself.¹⁰⁵

Infringement has been found when the expression of the program has left intact references to the infringed work. This occurred in *SAS Institute, Inc. v. S & H Computer Systems, Inc.*¹⁰⁶ In *SAS Institute*, the infringer left a reference to SAS documentation in the software, thus revealing the infringement. Infringement also occurs when a protected program is translated from source code into object code, or "disassembled."¹⁰⁷

2. United Kingdom

The plaintiffs in computer software piracy cases often seek injunctive relief as an immediate remedy to the problem. Consequently, most of the cases in the United Kingdom are reports dealing with interlocutory orders. To date, no infringement cases have been decided.

The first case to address the issue of copyright and computer programs was *Gates v. Swift*.¹⁰⁸ The *Gates* court accepted the plaintiff's argument that the programs, written in assembly language, were literary works under the Berne Convention. Accordingly, the court issued an ex parte order to seize the allegedly infringing copies.

The first attempt to place computer software within the protection of the Copyright Act of 1956 occurred in *Sega Enterprises Ltd. v. Richards*.¹⁰⁹ In *Sega*, the plaintiffs sought interlocutory relief to restrain the reproduction of their computer game "Frogger." The

103. 562 F. Supp. 775 (C.D. Cal. 1983), *aff'd*, 725 F.2d 521 (9th Cir. 1984).

104. *Id.*, at 782.

105. Thus, the protection will cover the programmer's choice of variable names and the programmer's style. T. SMEDINGHOFF, *THE LEGAL GUIDE TO DEVELOPING, PROTECTING, AND MARKETING SOFTWARE* 11 (1986).

106. 605 F.Supp. 816 (M.D. Tenn. 1985).

107. *Hubeo Data Products Corp. v. Management Assistance, Inc.*, 219 U.S.P.Q. 450 (1983). Infringing adaptations include use of a different computer language, *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*, 225 U.S.P.Q. 156 (1985); and conversion from English to source code, *Williams v. Arndt*, 227 U.S.P.Q. 615 (1985).

108. (1982) 13 R.P.C. 339 (Chancery Division).

109. (1982) F.S.R. 73.

defendants admitted that their program was based on that of the plaintiffs, but argued that copyright in computer programs per se did not exist under then-existing law. The court concluded that the assembly code program of the game fell into the category of literary works under the Copyright Act. Thus, the defendant's machine code adaptation of the program was considered an unauthorized reproduction of the work.¹¹⁰

The case of *Thrustcode Ltd. v. W.W. Computing Ltd.*,¹¹¹ demonstrates the practical difficulties in relying on copyright protection for software. To support an interlocutory injunction, a plaintiff is required to produce evidence of a visually perceptible representation of the contents of the defendant's software. Often, the only way to obtain such a representation is from the defendant himself. It would therefore be impossible to obtain relief until the trial has been completed.¹¹² Since the plaintiff in *Thrustcode* did not produce the source or object code of the alleged infringement, the interlocutory relief was denied. The Vice-Chancellor noted that a printout of the programs was required so that the court could compare the two for similarity.¹¹³

C. Infringement

While a copyright is a legal right which prevents others from copying substantial portions of an original work of an author, it will not serve to protect the ideas expressed in the work, nor a concept, process, principle, or discovery.¹¹⁴ Thus, a competitor may be able to create a program which performs an identical function if it can

110. *Id.*

111. (1983) F.S.R. 502.

112. However, the court has approved use of the Anton Piller order for use in computer software cases. See discussion and note 161 *infra* regarding the scope and use of the Anton Piller order. In *Digital Equipment Corp. v. Darkcrest Ltd.*, the High Court confirmed that the order was part of the jurisdiction of the court. *Digital Equipment Corp. v. Darkcrest Ltd.* 3 W.L.R. 617 (1984).

113. Due to the difficulties of proof, the plaintiff should try to shift the burden of proof to the defendant to show that he has not copied. Evidence of the defendant's access to the source code and similarity of result will be helpful to the plaintiff's case, although not conclusive. Carr, *Interlocutory Protection for Computer Software—An Arguable Case*, 2 EIPR 57 (1984).

114. F. Neitzke, *supra* note 48, at 13. This limitation is critical in software protection since it has been estimated that the expression of an idea is about 75% of IBM's cost of program creation. Cohen, *A Businessman's Perspective on Protection of Software*, PERFECTING, PROTECTING & LICENSING PROPRIETARY RIGHTS AFTER THE 1980 COPYRIGHT AMENDMENT 365 (D. Brooks & M. Keplinger ed. 1981).

As stated by P. Prescott, "[A] computer program can take a year to create and a moment to copy . . ." Prescott, *Copyright and Microcomputers*, COPYRIGHT PROTECTION OF COMPUTER PROGRAMS 210 (C. Campbell ed. 1984).

be proven that the competitor's work was the result of independent creation.¹¹⁵ Furthermore, copyright will not prevent others from using reverse engineering to create a similar program.¹¹⁶

Intellectual property rights are not self-executing.¹¹⁷ A holder must therefore take the initiative to enforce his rights against an infringer.¹¹⁸ In fact, the equitable doctrine of laches may apply to bar an action if the holder has knowledge of infringement and fails to act for an unreasonable period of time.¹¹⁹

What are the requisites for enforcement in the United States and the United Kingdom? Each sovereignty's provisions will be discussed in turn.

1. United States

If infringement has taken place, the owner may enforce his rights by bringing an action in a United States district court.¹²⁰ To maintain a successful claim, the copyright owner must show that he owns the copyright, that the defendant had access to the protected work, and that there is a substantial similarity between the infringing work and the protected work in both the general ideas and in the actual expression of those ideas.¹²¹

The copyright owner must first prove that the copyright protection exists.¹²² This requirement is met by showing that the protected work is original and fixed in a tangible means of expression as provided in the statute.¹²³ The copyright owner must also prove ownership of the copyright. The owner then has the burden of proving that the infringing work was copied from his work.¹²⁴

115. F. Neitzke, *supra* note 48, at 13. This is true of U.K. law as well. Rumbelow, *supra* note 4, at 264.

116. Keplinger, *Computers and Copyright*, in PERFECTING, PROTECTING & LICENSING PROPRIETARY RIGHTS AFTER THE 1980 COPYRIGHT AMENDMENT 59, 69 (D. Brooks & M. Keplinger ed. 1981).

117. Taphorn, *supra* note 3, at 628.

118. *Id.* at 628-29.

119. *Id.* In addition, the defendant can claim that the use of the program falls under the doctrine of fair use. This exception applies to all copyrighted work, permitting copying and use for purposes such as news reporting, teaching, scholarship, or research. T. SMEDINGHOFF, THE LEGAL GUIDE TO DEVELOPING, PROTECTING, AND MARKETING SOFTWARE, 53 (1986) (citing 17 U.S.C. § 107 (1976)).

120. By statute, federal courts have original and exclusive jurisdiction over copyright actions. 28 U.S.C. § 1338(a) (1948).

121. Rodau, *supra* note 55, at 562.

122. *Id.*

123. 17 U.S.C. § 102(a) (1982).

124. *Copyright Infringement of Computer Programs: A Modification of the Substantial Similarity Test*, 68 MINN. LAW REV. 1264, 1272 (1984).

In essence, the owner must show that the defendant's fixed work has appropriated the expression of the copyright owner's computer program.¹²⁵ Often this is done by demonstrating that the defendant had "access" to the work and that a substantial similarity exists between the two works.¹²⁶ Since proof of direct copying is virtually impossible, courts have found that a prima facie case is established when the similarity between the two works is striking.¹²⁷ If successful, the copyright owner may be entitled to injunctive relief¹²⁸ and/or monetary damages (including lost profits or royalties as well as attorney's fees).¹²⁹

Once the copyright owner meets the burden of proof, the burden of rebuttal shifts to the defendant.¹³⁰ The defendant will only prevail if he can show that the copying was either authorized or that the work was an independently created program.¹³¹

It has been observed that software producers have seemed to rely very little on copyright law for protecting their products.¹³² In particular, the problem of proof may be a critical obstacle to main-

125. *Id.*

126. Access generally means that the defendant viewed, or had the opportunity to view, the copyright owner's work. Rodau, *supra* note 55, at 562-3.

127. *Id.* at 563.

128. The Copyright Act authorizes the court to order the impoundment of allegedly infringing copies at any time during the pendency of a copyright infringement suit. 17 U.S.C. § 503 (1976) discussed in T. SMEDINGHOFF, *THE LEGAL GUIDE TO DEVELOPING, PROTECTING, AND MARKETING SOFTWARE*, 61 (1986).

A preliminary injunction can also be obtained prior to final judgment. To obtain this measure, a plaintiff must show either (1) probable success on the merits and possible irreparable injury, or (2) sufficiently serious questions going to the merits and a balance of hardships tipping decidedly towards the plaintiff. Ortnier, *Plaintiffs' Discovery and Pre-trial Preparation in a Computer Related Proprietary Rights Case*, in *CONTESTING COMPUTER DISPUTES: LITIGATION & OTHER REMEDIES IN CONTRACT, TRADE SECRET AND COPYRIGHT CASES*, 127 (D. Brooks & M. Gilburne ed. 1981) (citing *Sonesta Int'l Hotels Corp. v. Wellington Associates*, 483 F.2d 247, 250 (2d Cir. 1973)).

129. *Id.* 17 U.S.C. § 504(b) (1976) allows awards of damages suffered and/or the defendant's profits to the extent they exceed plaintiff's damages. Attorney's fees may also be awarded to the prevailing party. 17 U.S.C. § 505 (1976).

In lieu of actual damages, the owner may elect, prior to the point of final judgment, to receive statutory damages. The statutory amount can range from \$250 to \$10,000 for each work infringed. If infringement is willful, the court has the discretion to increase the statutory damages to \$50,000. 17 U.S.C. § 504(c). Girden, *Trying a Copyright Case*, *CONTESTING COMPUTER DISPUTES: LITIGATION & OTHER REMEDIES IN CONTRACT, TRADE SECRET AND COPYRIGHT CASES*, 277 (D. Brooks & M. Gilburne ed. 1981).

130. Rodau, *supra* note 55, at 563.

131. *Id.*

132. Kesler & Hardy, *Legal Protection of Software in the United States: A Status Report*, 10 INT'L. BUS. LAWYER 266, 267 (1982). In the U.K., this is also true. *See supra* Rumbelow note 4, at 264.

taining a successful action.¹³³ Since most software licenses contain obligations of secrecy on the user, it might be difficult to determine if infringement has taken place.¹³⁴ Furthermore, it is difficult to detect reproduction of a computer program.¹³⁵ In addition, since the software user must make copies of the program for his own operation, it gives rise to the argument of implied authorization.¹³⁶ Moreover, a court is unlikely to allow a supplier to utilize the discovery process as a means of delving into a rival's software.¹³⁷ Consequently, there have been few software copyright infringement suits.¹³⁸

Despite these apparent limitations, copyright protection may become a more popular alternative. As previously noted, trade secret protection has been extensively used to protect application programs which had been developed for particular companies.¹³⁹ With the proliferation of microcomputers and mass-marketed software, trade secret protection is no longer a viable option.¹⁴⁰ Concurrently, illicit copying of computer programs has become widespread. Thus, copyright may emerge as a more viable protective mechanism.

There are some additional avenues a copyright owner can pursue if the infringing works are being imported into the United States.¹⁴¹ Under the U.S. Customs Act, a copyright owner may record the work with the Customs Service.¹⁴² Once recorded, imports which are pure copies or those which are substantially similar may be held up until the holder can obtain a court order preventing importation.¹⁴³ In practical terms, however, it is unlikely that the Customs Office will be able to spot an infringing item.¹⁴⁴

It is also possible for the copyright owner to seek an order

133. Kesler & Hardy, *supra* note 132, at 267. Discovery problems in the U.K. can be remedied by use of an Anton Piller order. See note 161 and text *infra*.

134. *Id.*

135. *Id.*

136. *Id.*

137. Rumbelow, *supra* note 4, at 265.

138. *Id.* at 264.

139. See *supra* note 5 and accompanying text.

140. *Id.*

141. The importation of unauthorized copies is considered an infringement under the Copyright Act. 17 U.S.C. § 602 (1976) discussed in Levine, *supra* note 95, at 168.

142. 19 C.F.R. § 133.31 (1972).

143. M. SALOME, HOW TO COPYRIGHT SOFTWARE, 201 (1984).

144. *Id.* (In fact, U.S. Customs agents inspect only about five percent of all imported goods for fakes. The Customs Department admits that their top priorities are to check for illicit narcotics, high technology exports and illegal arms. *A Flood of Counterfeit Goods*, NEWSWEEK, Dec, 24, 1984 at 38.)

under the Customs Act to have the work excluded from the United States.¹⁴⁵ The basis for the order is that the importation would be an unfair act or would constitute an unfair method of competition.¹⁴⁶ Besides the need to show infringement, the holder must prove that the work is being produced in another country, that it has the tendency to destroy a United States industry, and that the industry at risk is efficiently and economically operated.¹⁴⁷ This last point might be difficult to prove if the injury is directed at the holder of a copyright for one program.¹⁴⁸ In such a case, it is hard to argue that an entire industry has been threatened.

Procedurally, the copyright owner must file a formal complaint with the International Trade Commission.¹⁴⁹ The International Trade Commission (ITC) has wide-ranging authority over unfair competition, including copyright violations.¹⁵⁰ The ITC can issue cease and desist orders if a violation is found.¹⁵¹ It can also order importers to post bond while the decision is pending.¹⁵² An Administrative Judge can rule to either ban the offending work in its entirety, or in part.¹⁵³ One key advantage to the ITC process is the speed with which a decision can be reached as opposed to the federal court system.¹⁵⁴

Copyright laws have no extraterritorial operation. As a result, infringing acts which occur outside the jurisdiction of the United States are not actionable under the Act.¹⁵⁵ Nevertheless, operation of the international conventions will protect United States nationals or authors who publish in the United States.

2. United Kingdom

Both copyright owners and exclusive licensees can maintain a suit for copyright infringement. The exclusive licensee must have more than a mere license to distribute, however; he must also have

145. *Id.*

146. *Id.*

147. *Id.*

148. *Id.*

149. *Id.*

150. R. Baker, *supra* note 18, at 79.

151. *Id.*

152. *Id.*

153. *Id.* The ITC acted to exclude importation in the case of *In re Certain Personal Computers and Components Thereof*, CCH Copyright Law Decisions 25, 651 (Int'l. Trade Comm. 337-TA-140, March 9, 1984), discussed in Levine, *supra* note 95, at 169. The ITC has the authority to act under Section 337 of the Tariff Act of 1930.

154. R. Baker, *supra* note 18, at 29.

155. Rodau, *supra* note 55, at 563.

the rights to copy and manufacture the work.¹⁵⁶

Infringement can be shown by establishing that the protected work has been substantially copied in a material form or by adaptation of the work, including its translation.¹⁵⁷ If the evidence indicates that striking similarities exist between the two works, that the plaintiff's work was earlier in time, and that the defendant had the opportunity to become familiar with the protected work, the courts will find copyright infringement has occurred.¹⁵⁸

A preliminary injunction can be issued if a serious question of fact is raised and the hardships balance in favor of granting the relief.¹⁵⁹ The court will decide, on the balance of convenience, whether more damage and inconvenience would be caused by either the imposition of a temporary injunction or allowing the situation to continue. If the latter course is selected, the defendant must be prepared to pay appropriate damages after a full trial.¹⁶⁰

In addition to the preliminary injunction, if the plaintiff makes out a strong prima facie case and demonstrates that the infringing material may be destroyed by the defendant, an "Anton Piller" order may be issued.¹⁶¹

The effect of this ex parte order is to appoint the plaintiff's solicitor as an officer of the court, empowering him to search the defendant's premises without notice and enabling him to seize offending material.¹⁶² In addition, the defendant must respond to questions regarding the identity of his suppliers and customers.¹⁶³ The order is available in any case involving piracy where a defendant is likely to be in possession of easily destructible infringing works.¹⁶⁴ A defendant's refusal to comply is punishable by the

156. Davidson, Greguras & Bahrck, *supra* note 1, at 20.

157. *Id.*

158. W. CORNISH, *INTELLECTUAL PROPERTY: PATENTS, COPYRIGHT, TRADEMARKS AND ALLIED RIGHTS*, 345 (1981).

159. *American Cyanamid v. Ethicon*, 2 W.L.R. 316 (1975). Furthermore, as the decision in *Thrustcode, Ltd. v. W.W. Computing, Ltd.*, F.S.R. 502 (1983) illustrates, without pre-writ discovery, it may be impossible to show infringement of software. A plaintiff must show that a violation occurred in a direct way. Thorne, *Civil Remedies Against Software: Piracy in Common Law Jurisdictions*, 4 SOFTWARE PROTECTION 13, 14 (August 1985).

160. *Id.* See also *Sega Enterprises v. Alca Electronics*, F.S.R. 516 (1982) where a preliminary injunction was imposed in a computer software case.

161. Davidson, Greguras & Bahrck, *supra* note 1, at 74. The name of the order derives from the case of *Anton Piller K.G. v. Manufacturing Processes Ltd.* (1976) 1 All E.R. 779.

The application of the order is made to the High Court in secret. The first software case to rely on the order was *Gates v. Swift*, 13 R.P.C. 339 (1983).

162. Davidson, Greguras & Bahrck, *supra* note 1, at 75.

163. *Id.*

164. There are safeguards built into the order's uses. The plaintiff must be able to pay damages if it turns out the order was improperly made. Further, the plaintiff must report

court as contempt.¹⁶⁵

Assuming that the plaintiff is successful, either damages and/or a permanent injunction is available. It is also possible that the court can order the remaining copies of the infringing work destroyed.¹⁶⁶

Damages are more easily obtained in copyright actions than in patent infringement cases.¹⁶⁷ The plaintiff is entitled to recover losses suffered as a result of the infringement.¹⁶⁸ This is normally based on the appropriate license fee or revenue the holder had expected to receive.¹⁶⁹

In addition to court proceedings, the copyright holder may also prevent infringing copies from entering the United Kingdom by giving notice to the Commissioners of Customs and Excise.¹⁷⁰ The Commissioners would thereby be empowered to seize infringing works at the border.¹⁷¹ Although this procedure is available to prevent the importation of infringing literary works, it is probably less useful to the software copyright holder since there are no printed copies of the infringing work at issue.¹⁷² Thus, it will be difficult for the Customs and Excise Department to detect an infringing work.

IV. INTERNATIONAL CONVENTIONS

There is no international copyright law per se since protection against unauthorized use depends upon the laws of each particular country.¹⁷³ Most countries, however, do extend protection to works first published in other countries in compliance with international conventions on copyright.¹⁷⁴ There are several common questions which determine whether a given work is entitled to protection under the multi-lateral treaties governing copyright. First,

back to the court a few days after the order's execution so that the court can decide how to proceed. Tuckett, *supra* note 2, at 7.

165. *Id.*

166. Davidson, Greguras & Bahrck, *supra* note 1, at 74.

167. *Id.*

168. In addition to losses suffered, the 1956 Act provides for conversion damages to be payable to the plaintiff. These damages are calculated on the total value of the product into which the infringing work has been incorporated. This could therefore cover the full market cost of the software as sold to the end user. See Tuckett note 2 *supra*, at 6.

169. *Id.*

170. Davidson, Greguras & Bahrck, *supra* note 1, at 75.

171. *Id.*

172. *Id.*

173. See *supra* note 24, at 282.

174. *Id.*

is the work itself eligible for protection? Second, what is the national origin of the author? Third, will the territoriality criterion serve to confer eligibility on the work?¹⁷⁵

This three tier analysis is useful for determining what protection is available to an internationally distributed work. Since both the United States and the United Kingdom have participated in an international convention, it is necessary to examine the scope of the treaty provisions.

The first effort to create a uniform level of protection was the Berne Convention, of which the United Kingdom was a participant.¹⁷⁶ Since the Berne Convention does not allow any formalities of notice or registration as a prerequisite of copyright protection, the United States Copyright Law has precluded the United States from joining the Berne accord.¹⁷⁷

Although a signatory, the United Kingdom does not comply with all the provisions of the Berne Convention.¹⁷⁸ In particular, the United Kingdom does not expressly protect "moral rights"¹⁷⁹ under its copyright law. The United Kingdom maintains that these rights are adequately provided for under the common law of contracts, defamation and passing off.¹⁸⁰

To obtain protection under the Berne Convention, an author must first publish in a member nation.¹⁸¹ The author need not be a national of a member country, however.¹⁸² Works are deemed to be published when copies have been issued and made available in sufficient quantities to the public.¹⁸³ Furthermore, there is no require-

175. This third aspect is met if the work is first published in an adhering state. *Id.*

176. *Id.*

177. Bates, *Copyright Protection for Firmware: An International View*, 4 HASTINGS INT'L. & COMP. L. REV. 473, 504-05 (1982). Since the U.S. Copyright Law of 1976 (effective in 1978) amended the formal requirements for creation of the right, the U.S. may be able to join the Berne accord. Taphorn, *supra* note 3, at 627. However, the notice requirement and registration for infringement may preclude this possibility. *Copyright Protection for Computer Software: An International View*, 11 SYR. J. INT'L. & COM. 87, 118 (1984).

178. *See supra* note 24, at 283.

179. *Id.* at 283-284.

180. *Id.* at 284. Moral rights entitle an author to claim, during his lifetime, authorship of the work, to object to any distortion, mutilation or alteration thereof, and to object to any other action in relation to the work which would be prejudicial to his honor or reputation. *See supra* note 35, *Id.* at 284-85.

181. Bates, *supra* note 177, at 504. If the work is published in a non-Berne country, protection can also be obtained if simultaneous publication occurs in a Berne country. The Convention recognizes simultaneous publication if it occurs within 30 days. *Copyright Protection for Computer Software: An International View*, 11 SYR. J. INT'L. L. & COM. 87, 101 (1984).

182. Bates, *supra* note 177, at 504.

183. *Id.*

ment that these copies be visually perceived.¹⁸⁴ Under this liberal definition, software would fall into the scope of protection.¹⁸⁵

After World War II, the Universal Copyright Convention of Geneva examined copyright issues.¹⁸⁶ Both the United States and the United Kingdom adhere to the Universal Copyright Convention.¹⁸⁷ One key feature of the Universal Convention is that the agreement provides for national treatment for citizens of member countries.¹⁸⁸ Thus, if computer programs are provided copyright protection in the United States, then programs published in other member countries will receive the same protection in the United States, even if the other member country does not provide such protection under its own laws.¹⁸⁹

The protection afforded by means of the Convention is limited, however, by virtue of the "publication" requirement.¹⁹⁰ The Convention applies to any work, published or not, of an author who is a national of a member country.¹⁹¹ If the author is not a national of a member country, the Convention will apply only if the work is first published in a member country.¹⁹² In contrast to the definition used in the Berne Convention, publication under the Universal Convention refers to a requirement that the work be visually perceived.¹⁹³ This would seem to exclude works distributed in the form of magnetic tape, punched card and floppy disks.¹⁹⁴ As a result, the Universal Copyright Convention provides only limited protection for software.¹⁹⁵

Both the Berne and Universal Conventions established the principle that each country must provide the same level of protection to nationals of other signatory countries as it would to its own nationals.¹⁹⁶ Furthermore, a minimum level of protection is man-

184. *Id.*

185. *Id.*

186. *See supra* note 24, at 283. The Universal Copyright Convention was formed because of the inability of the U.S. to join the Berne Convention. Approximately 80 nations presently comprise the Universal Copyright Convention. Taphorn, *supra* note 3, at 626.

187. M. Salome, *supra* note 143, at 193.

188. Bates, *supra* note 177, at 502.

189. *Id.*

190. *Id.* at 503.

191. *Id.*

192. *Id.*

193. *Id.*, quoting the Universal Copyright Convention, September 6, 1952, 6 U.S.T. 2731, revised July 24, 1971, 25 U.S.T., art. VI at 1362, T.I.A.S. No. 7868.

194. Bates, *supra* note 177, at 503.

195. *Id.*

196. *Id.* at 503-04.

dated for any work published in a member country.¹⁹⁷ Nevertheless, both the Universal Convention and the Berne Convention agreed that the scope of protection afforded is determined by the domestic law of each member country.¹⁹⁸ Thus, there is no uniform international protection so long as national laws vary.¹⁹⁹

Since most countries, including the United States and the United Kingdom, are signatories to the Universal Copyright Convention, its provisions are more applicable to the modern context.²⁰⁰ To incur broad foreign protection, a copyright owner should take care to protect software with the copyright symbol, the name of the copyright owner, the year of first publication, and the statement "All rights reserved."²⁰¹ The Universal Copyright Convention does not require the use of copyright notice.²⁰² Rather, the notice is a permissive substitute for formal registration or first publication.²⁰³ Thus, the use of the symbol assures that protection can be automatically granted to the author in the signatory countries.²⁰⁴

V. WORLD INTELLECTUAL PROPERTY ORGANIZATION

In 1970, the United Nations requested the International Bureau of the World Intellectual Property Organization (WIPO) to study legal protection devices for computer programs.²⁰⁵ Although WIPO has not prompted a new international convention on the issue, the committee of computer law experts for WIPO has sought to establish worldwide protection for computer software.²⁰⁶ The group released several recommendations in 1983, including a model treaty in which nations would agree to observe a uniform system for protecting software.²⁰⁷

The WIPO committee recognized that current copyright laws

197. If there is a conflict between the two Conventions, the Convention offering the greater protection prevails. Thus, if a British citizen published in the U.K. and the U.S., he would be entitled to protection of either life plus 50 years (Berne Convention) or life plus 25 years (Universal Copyright Convention). The copyright would thus be good for the author's life plus 50 years. M. Salome, *supra* note 143, at 196.

198. Bates, *supra* note 177, at 504.

199. *Id.*

200. M. Salome, *supra* note 143, at 192.

201. *Id.* at 193.

202. *Id.*

203. *Id.*

204. *Id.*

205. *Copyright Protection for Computer Software: An International View*, SYR. J. INT'L. L. & COM. 87, 110 (1984).

206. *Id.* at 102.

207. R. Baker, *supra* note 18, at 86.

do not normally protect against all uses of a protected work.²⁰⁸ Rather, they generally protect only against unauthorized copying and public performance.²⁰⁹ Thus, under the existing conventions, protection against unauthorized use of a program is available only if it is copied in the process.²¹⁰

A basic tenet of the WIPO-suggested treaty is that every country should grant programmers a basic level of protection by the creation of a model code.²¹¹ Secondly, each nation should provide the same protection to foreign holders of software rights as it grants to its own nationals.²¹² Under the suggested treaty guidelines, each nation would agree to protect software against: copying in any form, using the program to produce a substantially similar program, using the protected program or loading it into a computer, and offering the program for sale or license.²¹³ An individual country could extend the protection into other areas, subject only to the provision that it offer the same protection to all.²¹⁴

The WIPO study also found that the long protection terms afforded by previous conventions were inappropriate for computer software since technology in the industry is rapidly changing.²¹⁵ Thus, the draft treaty would provide a minimum protection of twenty years from the program's first use or commercialization.²¹⁶

From a poll taken of its members, WIPO concluded that there was a need for implementation of the model treaty.²¹⁷ In addition, WIPO explored the possibility of creating an international program registry.²¹⁸ So far, neither suggestion has been implemented in the world market.

VI. THE EUROPEAN ECONOMIC COMMUNITY TREATY

There is a potential clash between the European Economic

208. *Id.* at 87.

209. *Id.*

210. *Id.*

211. *Id.* at 86.

212. *Id.*

213. *Id.*

214. *Id.*

215. *Copyright Protection for Computer Software: An International View*, 11 SYR. J. INT'L. L. & COM. 87, 113 (1984). This view has been held by other commentators. See Rumbelow *supra* note 4, at 263.

216. *Copyright Protection for Computer Software: An International View*, 11 SYR. J. INT'L. L. & COM. 87, 113 (1984).

217. R. Baker, *supra* note 18, at 86.

218. *Id.* at 87.

Community (EEC) Treaty and national copyright laws.²¹⁹ The Treaty of Rome is an agreement among member nations to promote the free movement of goods and competition.²²⁰ As such, the Treaty regulates intellectual goods such as copyrights. Nonetheless, copyrights have been treated under domestic laws, with the scope and duration varying widely among the member nations. Due to the application of the various Conventions, however, most member nations do not discriminate between citizens and nationals of signatory countries. Thus, the EEC and the various copyright laws can be harmonized.²²¹

VII. FUTURE IMPLICATIONS

There are several issues which have not been adequately addressed in the laws of either the United States or the United Kingdom. One of the most important issues concerns the availability of copyright to works developed by use of the computer.

Although the statutory provisions recognize that works stored in a computer are entitled to protection, the issue of works developed by use of the computer primarily centers on the notion of authorship. The author of a creative work is deemed to be the holder of the copyright unless the creator sells or licenses the property right to another.²²² What if, however, the author of a creative work is the computer itself? Would the party who wrote the program which fostered the computer's creativity be entitled to claim authorship or would the user who triggered the computer's creativity have claim to the right? In the alternative, is it possible that the work would be classified as unprotected?

219. See *supra* note 24, at 305.

220. *Id.*

221. *Id.* See also B. Niblett, COPYRIGHT PROTECTION OF COMPUTER PROGRAMS IN DATA PROCESSING AND THE LAW, 206 (C. Campbell ed. 1984). "[T]here is a movement within the European Economic Community to harmonize the national copyright laws of the 10 Member States. A comparative study of copyright laws in EEC countries with a view to a program of harmonization has been made by Dietz. It seems likely that one of the earliest recommendations for harmonization of copyright law in Europe will deal with computer programs and databases. . . ."

222. The definition of "author" depends upon the law in a country. In the most frequent case, the author is the natural person who created the work. Many states, however, hold that only human beings can be the original owners of literary works. A legal entity could thus only purchase the copyright since it lacks the capacity to create a work. This approach is most common in states adhering to the Roman legal tradition. In states adhering to Anglo-Saxon traditions, the copyright can belong to a corporate body or legal entity. *The ABC of Copyright*, UNESCO 42-43 (1981). The Anglo-Saxon tradition, apparent in U.S. and U.K. law, might thus recognize a computer processor as an author, or at least as the holder of the property right.

Although artificial intelligence²²³ does not yet exist, current technology allows computers to "create" music and art. We are not far from the day in which a computer will generate an original "thought" which can be embodied in a fixed form of expression. Since most of the focus to date has centered on the classification of software as a literary work, it is not clear what statutory interpretation can be given to the definition of author.²²⁴

Another problem which has yet to be addressed by the legislature concerns the use of copyright "code-breaking" programs.²²⁵ At least in the United States, the sale of these devices can be somewhat justified since the Copyright Act allows a user the right to make back-up copies for one's own use.²²⁶ In practice, however, it is probable that the majority of such programs is used to make unauthorized copies of software. The issue is whether the sale of such programs be sanctioned.

One proposal suggests that section 117 be repealed.²²⁷ It is also possible to amend section 117(2) and make code-breaking programs illegal. A third alternative is to allow such devices to remain in the marketplace.²²⁸ The fate of these programs has yet to be resolved by the law.

223. There have been four stages in the evolution of computer hardware. In the first stage, computers were built with vacuum tubes. In the second generation, transistors were used. The third generation introduced semi-conductor technology and the fourth generation reduced the size of this circuitry to microprocessors. The so-called fifth generation, yet to be developed, will introduce the use of artificial intelligence in computer technology. According to experts, this technology will enable a computer processor to emulate human thought processes. If so, computers would be able to be creative.

224. The Whitford Committee report noted that the program user could be considered a joint author with the author of the creative computer program. The Committee decided, however, that author status could not be conferred on the computer since it was a mere tool. Whitford Committee report, *supra* note 28, at 132.

225. A code-breaking program is one which enables a user to "break" into copy-protected software. Generally, programs protected by copyright will have safeguards built into the programs which preclude unauthorized copies from being made. A code-breaking program enables the user to bypass these safeguards, thus enabling him to produce a copy of the work.

226. The vendors of code-breaking programs argue that the sale of such programs does not violate existing law. They claim that they are providing a means by which a user can exercise his lawful right to copy a program. In fact, most vendors include a disclaimer in their sales literature purporting that the program should not be used for unlawful purposes.

227. *Copy-Protected Software: Does it Need Legislative Protection as Well?* 4 SOFTWARE PROTECTION 10 (November 1985).

228. *Id.* In a sense, the problem is analogous to that posed by radar-detectors, or fuzz busters. The sale and use of the device is aimed at evasion of the law. Thus, many states have outlawed the possession and use of such devices. However, the analogy is imperfect, at least in the United States, due to the existence of Section 117.

VIII. CONCLUSION

There are many similarities between the copyright laws of the United Kingdom and the United States regarding computer software. One distinction arises in the area of owner rights, since the U.S. owner of software is entitled to make back-up copies for personal use and the U.K. owner is not. Another difference emerges in the infringement arena. The U.K.'s Anton Piller order is a powerful discovery tool which allows a plaintiff access to an infringer's work. No such procedure is provided under United States law.

Since computer technology is relatively new and is subject to rapid change, there are several areas which the current laws of the two sovereignties do not address. Due to the proliferation of computers in the international marketplace and the powerful efforts of such trade groups as FAST, it is certain the the laws of both jurisdictions will be amended as necessary, to appropriately resolve the problems.

EDITOR'S NOTE:

As of this writing, the Copyright (Computer Software) Amendment Act of 1985 was amended to expand the jurisdiction of the Act to the Isle of Man. In addition, there have been cases brought under *Anton Pillar* orders at the interlocutory stage in the English Courts, but there have been no final decisions under the Act.