Protecting Computer Software

Law remains uncertain; more litigation will help improve predictability

BY MARK F. RADCLIFFE*

Copyright has emerged as the most important form of legal protection for computer programs both in United States and abroad, although the patent and trade secret law still have important roles to play in their protection. The evolution of copyright protection to its current status began in the early 1960s with the acceptance of computer programs for registration by the U.S. Copyright Office. Despite such acceptance by the Copyright Office, the copyrightability of computer programs under the then current act (the Copyright Act of 1909) was uncertain.

This uncertainty was dispelled upon the enactment of the Copyright Act of 1976. In the legislative history Congress specifically stated that the computer programs were copyrightable. Nonetheless, several questions remained open concerning the scope of copyright protection for computer programs and Congress preserved the existing state of the law concerning the use of copyrighted works in computers. 17 U.S.C. §117 (90 Stat. 2541, 2565 subsequently amended).

Congress adopted this temporary measure while awaiting the report of a commission it had established several years earlier, the National Commission of New Technological Uses of Copyrighted Works (CONTU). CONTU made its report in July 1978 and recommended that the statute explicitly state that all computer programs were copyrightable. CONTU also proposed a set of limitations on the rights of copyright owners with respect to the use of computer programs by "rightful possessors." Congress adopted these recommendations with a single change and they were enacted into law in the Computer Software Copyright Act of 1980.

Despite the relatively long period during which copyright protection has been asserted in computer programs, cases addressing the basic issues in this area have only been decided within the last two or three years. These "first-generation" issues primarily concern the availability of copyright protection for computer programs in different forms. The courts have held that a computer program is copyrightable in all of its forms: in object code as well as a source code, *GCA Corporation v. Chance,* 217 U.S.P.Q. 718 (N.D. Cal. 1982); as embedded on a Read Only Memory (ROM) chip, *Tandy Corp. v. Personal Micro Computers Inc.,* 524 F.Supp. 171 (N.D. Cal. 1981); and as an operating system as well as an applicant program, *Apple Computer, Inc. v. Formula International, Inc.,* 725 F.2d 521 (9th Cir. 1984). The last of these basic issues which remains unresolved in the copyrightability of "microcode." Microcode is the interface between the software in object code form and the computer hardware. Two cases have recently been filed on this issue in California and it too may soon be resolved.

The first set of more complex, "second-generation" issues are currently being decided. These issues relate to compatibility, scope of protection under the Act and the doctrine of preemption. Two issues that have been considered recently are of particular importance to the computer software industry and will be discussed in this article: the limitation on the exclusive rights of copyright owners pursuant to Section 117 and the scope of copyright protection for computer programs.

Several Problems

CONTU foresaw that several problems would arise if copyright protection was afforded to computer programs: each time a party "inputted" a computer program, it would violate computer owner's reproduction rights; any modification of the program to run on a different computer would violate the copyright owner's right to prepare derivative works; and the common practice of making "backup" copies of programs would also violate the copyright owner's reproduction rights.

In developing the revisions to Section 117, CONTU tried to deal with these issues by limiting the exclusive rights of a copyright owner in relation to the "rightful possessor" of a copy of a computer program. These changes were made to enable such a rightful possessor of a computer program. Congress adopted these recommendations verbatim with one small but important change—Congress changed "rightful possessor" to "owner" without explanation. Since most computer programs are licensed, rather than sold, this change severely limits the application of Section 117. No court has yet had to deal with this issue, but it is unlikely that a court will be able to ignore such a change. Thus it appears likely that Section 117 will have a very limited impact.

The present Section 117 permits the owner of a copy of computer program to make or have made a new copy or an adaptation of the original copy of the program if such a copyright or adaptation is created as an "essential step in the utilization of the computer program in conjunction with a machine" 17 U.S.C. §117(1) (1984). The owner of a copy of a computer program may also make a copy of the computer program or its adaptation for archival purposes. Congress balanced these limitations on the right of the copyright owners by severely limiting the right to transfer these copies. Any exact copies made in accor-

*Brobeck, Phleger & Harrison, San Francisco, CA.

dance with these rights may be transferred only along with the transfer of all rights in the original copy of the computer program. Adaptations may only be transferred with the permission of the copyright owner.

Several recent cases have indicated that the courts will interpret Section 117 narrowly. In a case involving Section 117(1), the court prohibited Formula International, Inc. from copying Apple's operating system from diskettes onto ROMs and then selling the ROMs for installation into Formula's computers. The decision came as a result of a contempt action brought by Apple. Formula had previously copied Apple's operating system and had defended itself on the basis that operating systems were not copyrightable. Formula lost and was enjoined from copying, importing or distributing Apple's programs. *Apple Computer Co. v. Formula International, Inc.,* 562 F.Supp. 775 (C.D. Cal. 1983), *aff'd,* 725 F. 2d 521 (9th Cir. 1984). Both parties agreed that the injunction would not apply to activity permitted by Section 117.

Another Finding

After this loss, Formula proceeded to buy "Wong diskettes," which had authorized copies of Apple's operating system on them. Formula then copied the operating system on the diskette onto a ROM for insertion into its computers. The court held that Formula was not entitled to copy Apple's operating systems from diskettes onto ROMs under Section 117(1).

The court reasoned that Section 117 was unavailable to Formula since it was not an "owner-user" of the computer on which the ROMs were to be used and thus did not qualify for the limited exemptions under Section 117. In an alternative argument, the court held that the copying of a program from a diskette to a ROM was not "an essential step" to using the program on a computer. *Apple Computer, Inc. v. Formula International, Inc.,* Copyright Law Reports (CCH) ¶25, 731 (C.D. Cal. October 1, 1984). The court suggested that the programs should have been copied onto the erasable Random Access Memory rather than the more permanent form of a ROM.

In another case a court rejected a defense based on Section 117 asserted by a typing service which provided diskette copies of programs printed in a computer magazine. *Micro-Sparc Inc.* v. *Amtype Corporation,* 592 F. Supp. 33 (D. Mass. 1984). The typing service placed the program onto a master disk and then made copies on diskettes for sale to subscribers of the magazine. The court held that the making of the second copy of the program by the typing service went beyond the scope of the exemption in Section 117(1). Since the court's decision turned on this technological quirk in the reproduction process, the decision offers little guidance on the appropriate scope of Section 117. Unfortunately, the reasoning in the case also vitiates the statutory right to use third parties in exercising Section 117 rights. For example, the creation of "second" copies is essential as a practical matter in "adapting" a program.

The typing service also made an alternative argument: that its activities were permitted under Section 117(2), the "archival exception." The court also rejected this argument, relying in part on an earlier decision in Illinois. The court stated that the printed versions of the program found in the magazine did not suffer any special danger of destruction and, therefore, no archival copies were necessary for protection against risk of the program's destruction.

The Illinois case cited in Micro-Sparc involved Atari, the manufacturer of video games, and the JS&A Group, a manufacturer of a device (the "PROM BLASTER") which permitted the copying of the semiconductor chips incorporating such games. *Atari* v. *JS&A Group, Inc.,* Copyright Law Reports (CCH) ¶25, 613 (N.D. Ill. December 6, 1983). The court found that the allegation that the copies made by JS&A's PROM BLASTER were permitted under Section 117(1) as "archival" copies was unconvincing. JS&A produced no proof that the semiconductor chips suffered any special risk of destruction. The court found that the application of Section 117(2) was limited to situations entailing a high risk of destruction of the computer program through either electrical or mechanical means.

More Subtle

While the courts have interpreted the limitations on the copyright protection of computer programs narrowly, they have simultaneously interpreted the scope of that protection expansively. Most "first-generation" cases involved simply piracy, in which the defendants copied the plaintiff's programs more or less verbatim. A more subtle case of infringement involving the adaptation of a computer program was decided by the International Trade Commission. In *the Matter of Certain Personal Computers and Components Thereof,* U.S. International Trade Commission, Investigation No. 337-TA-140 (Final Decision, March 23, 1984). In that case, the ITC found copyright infringement where a company had revised Apple's operating system programs so as to avoid infringement claims. The program that emerged from the adaptation process was quite different from that of Apple: some 18% of its program code was the same as the Apple program code on a location-by-location basis; 25% of its program code was the same after accounting for transpositions; and of the 70 subroutines in the program, 23 of the 32 most important subroutines were identical or nearly identical to the Apple program.

Although not binding on the courts, the decision suggested that copyright law will protect computer programs from more than mere plagiarism. This suggestion was borne out in two cases decided in early 1985. Both cases involved users of programs who had modified the program to run on a different type of computer than that for which the program had been designed and then subsequently distributed the "translated" program. *SAS Institute Inc.* v. *S&H Computers, Inc.,* 605 F.Supp. 816 (M.D. Tenn. 1985); *Whelan Associates, Inc.* v. *Jaslow Dental Labs, Inc.,* Civ. No. 83-4583 slip op. (E.D. Pa. January 22, 1985). The district courts in both cases found copyright infringement, primarily on the basis that the "structure" of the program had been copied.

In neither decision did the court define the "infringed" structure in any detail. In *SAS Institute,* the court referred to 44 examples of copying out of 186,000 lines of code. The *Whelan* court defined the protected "expression" of a computer program so broadly that it precludes virtually any use of one computer program to design another one except at the most abstract level. In fact, both decisions are so vague concerning the difference between permitted and forbidden "copying" of a program's structure that the

courts have effectively sidestepped their responsibility to clearly explain the factual and legal basis of their decision.

Copyright law should clearly protect more than simply the code of a computer program. But the level of "structure" to which such protection is extended is critical for the software industry, an industry which frequently relies on previous work to develop new programs. Although *SAS* and *Whelan* add little of substance to the analysis of this issue, two recent cases provide such a framework. *Q-Co Industries, Inc. v. Hoffman,* Civ. No. 4653, slip op. (S.D.N.Y., December 26, 1985), and *E.F. Johnson Co.* v. *Uniden Corp.,* Civ.No. 85-767, slip op. (D. Minn. December 13, 1985).

Q-Co is based on the common occurrence in the software industry of employees leaving their employer and creating a program similar to the program they had created for him, but for use on a different type of computer. In this case the defendants, Hoffman and Som, had written a prompting program for Q-Co Industries, Inc. ("Q-Co") for use on the Atari 800-XL. During their employment by Q-Co and later after they left Q-Co, the two commenced writing such a program for the IBM-PC. However, the creation of a prompting program for the IBM-PC is considerably more complex and difficult than creating such a program for the Atari 800-XL because the IBM-PC does not have the special graphics chips of the Atari computer.

The court found several similarities between the two programs but concluded that the IBM program did not infringe the copyright owned by Q-Co in the Atari program because the differences between the IBM and Atari hardware were so great that no literal translation was possible. Although the analysis in this case is limited, the opinion nonetheless focuses on the critical issue: the distinction between copying ideas and copying expression.

Another important lesson taught by this case is the importance of employing a combination of trade secret and copyright protection for computer programs. Although the court found no copyright infringement, the court stated that it would be prepared to issue an injunction on the basis of the trade secret misappropriation claims because Q-Co distributed the program solely in object code form and had taken steps to limit disclosure of the source code. As employees, the court found that Hoffman and Som owned Q-Co an implied duty to protect the company's trade secrets as embodied in the Atari program. The court did not issue the injunction because the IBM program was inoperable and no sales or distribution had occurred and thus the irreparable harm necessary to issue an injunction had not occurred.

The *Johnson* decision deals with another common occurrence in the software industry: the creation of a competing product which is functionally compatible with one already in distribution. Judge McLaughlin provides a well reasoned decision which thoroughly examines the issues and difficulties in copyright infringement cases relating to computer software.

In April 1985 Uniden offered a mobile radio unit that was compatible with the Johnson mobile radio system. Uniden had developed the software for its mobile unit by decompiling the object code of the EFJ unit and writing the program for a different microprocessor. The two manufacturers used microprocessors made by different semiconductor companies so that direct copying of the program was not possible.

Despite the differences, the court found that the Uniden software infringed the Johnson copyright in its software because of the features of the Johnson program found in the Uniden software. Several of these features were determined by the technical limitations of the microprocessor used by Johnson and were difficult or not reasonable to employ on the more flexible microprocessor used by Uniden. The court analyzed the technical similarities of the program in great detail. Upon finding infringement the court issued a preliminary injunction against further infringement of EFJ's copyright and included a prohibition against further distribution of Uniden's radio units incorporating the present Uniden software.

The court's discussion of the scope of copyright protection (unprotected idea vs. protected expression) is particularly important since it is primarily concerned with the scope of copying which would be permitted to achieve compatibility with an existing program without a finding of liability for infringement. Although the court dismisses out of hand the argument that copying is permitted based on the "bare fact" that Uniden's objective was to design a compatible system, it does admit that some copying may be justified to achieve compatibility. However, such copying is permissible only if the copyrighted software instruction is the sole or one of the few means of accomplishing a given task. The *Johnson* decision establishes this principle, found in other areas of copyright law, for the first time in the context of computer software. The court also decided another issue of first impression by stating that decompilation alone is not an infringement of the rights in copyright in computer programs but instead focused the infringement analysis on how the decompiled software was used.

These cases represent the first answers to "second-generation" copyright issues relating to computer programs. The cases demonstrate a strong disposition on the part of the courts to read copyright law broadly to protect computer programs. Unfortunately, however, the courts have in some cases been too sweeping in their condemnation of infringers. For example the opinions in the earlier, rather egregious cases of infringement such as *Apple, SAS* and *Whelan* could prove troublesome in closer cases. Nonetheless, they demonstrate a sensitivity to the delicate balances underlying copyright law protection. As the judge in *Johnson* stated, too broad an application of copyright law in computer software could "inhibit salutory innovation by in effect requiring software engineers to 'reinvent the wheel' in order to achieve technological progress." The complexity of these issues, both technically and legally, ensures that more cases will be needed before the law in this area will be reasonably predictable.