Notes

THE NEW LOOK AND FEEL OF COMPUTER SOFTWARE PROTECTION

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In 1946, University of Pennsylvania Professors J. Presper Eckert, Jr. and John Mauchly developed the ENIAC, the first true digital computer.[1] During the subsequent forty years, the descendants of that initial machine have reshaped almost every aspect of modern life. With the rapid evolution of both hardware and software,[2] a constant problem facing the computer industry has been the inability of the law to remain current with new technological developments. In no area is the problem of the law failing to deal adequately with a rapidly changing industry more evident than in the area of copyright protection of computer software.

During the past year, several cases were decided which could dramatically alter the level of protection afforded to computer software programs. Perhaps the most significant decision arose from the Third Circuit Court of Appeals in *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*,[3] where the court extended copyright protection to include the program's "structure, sequence and organization,"[4] thereby protecting software even where there is no substantial similarity between the literal elements—the source and object codes—of the original and infringing programs. This expansion of coverage, sometimes referred to as protecting the program's "look and feel,"[5]

1. N. STERN, FROM ENIAC TO UNIVAC 65 (1981). *See, e.g.*, D. BENDER, 1 COMPUTER LAW § 1.02 (1986); Randell, *An Annotated Bibliography on the Origins of Digital Computers*, 1 ANNALS OF THE HISTORY OF COMPUTING 101 (1979). ENIAC, the acronym for "Electronic Numerical Integrator and Computer," was an 1,800 square foot behemoth containing almost 18,000 vacuum tubes. N. STERN, *supra*, at 51. A federal district court later ruled that Professors Eckert and Mauchly derived part of their ideas from John Vincent Atanasoff. Honeywell, Inc. v. Sperry Rand, Inc., 180 U.S.P.Q. 673 (D. Minn. 1973).

2. "Hardware" refers to the actual machinery itself. "Software" describes "a set of statements or instructions used directly or indirectly in a computer to bring about a certain result." 17 U.S.C. § 101 (Supp. 1985).

3. 797 F.2d 1222 (3d Cir. 1986), *aff'g* 609 F. Supp. 1307 (E.D. Pa. 1985), *cert. denied*, Jaslow v. Whelan, 107 S. Ct. 877 (1987).

4. *Id.* at 1248.

5. The "look and feel" doctrine was first expressed in a non-computer related area. Roth Greeting Cards v. United Card Co., 429 F.2d 1106 (9th Cir. 1970). To date, the most expansive interpretation of the look and feel doctrine has been a federal district court decision in Broderbund

has created considerable controversy and uncertainty in the area of copyrighting computer software. While there has been a trend towards broadening the scope of protection, other courts have recently refused to expand the level of protection, holding that protection may not extend beyond the source and object code itself.[6]

This Note will examine the development of copyright law as applied to computer software programs. It will discuss and analyze the recent decisions extending the level of copyright protection granted to computer software programs. Finally, the Note will explore the recent "look and feel" lawsuits and their effect on the law and the software industry itself.

DEVELOPMENT OF COPYRIGHT LAW AS APPLIED TO COMPUTER SOFTWARE

The power to grant and regulate copyrights originates from the United States Constitution, which provides that Congress shall "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."[7] Congress has most recently codified that power in the Copyright Act of 1976.[8]

Requirements for Copyright Protection

Section 102 of the Copyright Act extends copyright protection if two criteria are met: the work must be "an original work of authorship,"[9] and it must be "fixed in any tangible medium of expression."[10] Although not specified in the statute, under current law, computer programs are considered literary works.[11] Subsequent to the passage of the 1976 Act and the 1980

Software, Inc. v. Unison World, Inc., 648 F. Supp. 1127 (N.D. Cal. 1986). *See infra* notes 64-69 and accompanying text.

6. *See* Q-Co Indus., Inc. v. Hoffman, 625 F. Supp. 608 (S.D.N.Y. 1985); Plains Cotton Coop. Ass'n of Lubbock, Texas v. Goodpasture Computer Serv., Inc., 807 F.2d 1256 (5th Cir. 1987), *reh'g denied*, 813 F.2d 407 (5th Cir. 1987). *See infra* text accompanying notes 81-84.

"Source code" is the label given to the English-like instructions written by the programmer. Once the program is compiled, or translated, into machine language to be executed by the computer, it is referred to as "object code."

7. U.S. CONST. art. 1, § 8, cl. 8.

8. 17 U.S.C. (1982 & Supp. 1985).

9. *Id.* at § 102(a) (1982). The statute lists seven categories of works of authorship: "(1) literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic and sculptural works; (6) motion pictures and other audiovisual works; and (7) sound recordings." *Id.*

10. *Id.* at § 102(a) (1982). Section 101 states that:

> A work is "fixed" in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration. A work consisting of sounds, images, or both, that are being transmitted, is "fixed" for purposes of this title if a fixation of the work is being made simultaneously with its transmission.

Id. at § 101.

11. *See* H.R. REP. NO. 1476, 94th Cong., 2d Sess. 54, *reprinted in* 1976 U.S. CONG. & ADMIN. NEWS 5659, 5667. In 1980, Congress amended § 101 to include the definition of a computer program. 17 U.S.C. § 101 (1982 & Supp. 1985). The amendment followed the creation by Congress of the National Commission on New Technological Uses [hereinafter CONTU], Pub. L. 93-573 § 201, 88 Stat. 1873 (1974). In its report to Congress, CONTU recommended that the Copyright Act be

amendments, courts have consistently held that computer programs are copyrightable.[12]

It is a basic premise that copyright law protects the expression of ideas, but not the underlying idea itself.[13] This was first stated in *Baker v. Selden*,[14] a Supreme Court case upon which virtually all modern copyright law has developed. Similarly, if there is no alternate way to express the idea, then the idea and expression "merge," and the expression in that instance cannot be the proper subject of copyright.[15]

Determining Copyright Infringement

In an action for copyright infringement, the plaintiff must prove ownership of a valid copyright over the subject matter and that the defendant illegally copied the copyrighted work.[16] While proving the existence of a valid copyright is generally easy, proof of the second element, that the defendant copied the material, often must be shown through circumstantial evidence. This can be achieved by showing that the defendant had access to the copyrighted work,[17] and that the infringing work is substantially similar to the

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modified so that the law be "explicit that computer programs, to the extent that they embody an author's original creation, are proper subject matter of copyright." FINAL REPORT OF THE NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS 1 (1978) [hereinafter CONTU REPORT], *reprinted in* 3 COMPUTER L.J. 53, 54 (1981).

12. *E.g.*, Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240 (3d Cir. 1983); Stern Elecs., Inc. v. Kaufman, 669 F.2d 852, 855 (2d Cir. 1982); Williams Elecs., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 873 (3d Cir. 1982); M. NIMMER, 1 NIMMER ON COPYRIGHT § 2.04[C] (1981). *But cf.* CONTU REPORT, *supra* note 14, at 29 ("The functions of computer programs are fundamentally and absolutely different in nature from those of sound recordings, motion pictures, or videotapes... The first three communicate with human beings. The computer program communicates, if at all, only with a machine.") (Hersey, Commissioner, dissenting); White-Smith Music Publishing Co. v. Apollo Co., 209 U.S. 1 (1908) (a piano roll for use in a player piano held not copyrightable as a musical composition because it was not in a form generally perceivable by others). These contrasting views, however, clearly do not reflect the current position held by any court. *Apple Computer*, 714 F.2d at 1248.

13. *See* Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1234 (3d Cir. 1986), citing Baker v. Selden, 101 U.S. 99 (1879); Mazer v. Stein, 347 U.S. 201, 217 (1954). Section 102 of the Copyright Act of 1976 states: "In no case does copyright protection of an original work of authorship extend to any idea, procedure, process, system, method for operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work." 17 U.S.C. § 102(b) (1982).

14. 101 U.S. 99 (1879).

15. Broderbund Software, Inc. v. Unison World, Inc., 648 F. Supp. 1127, 1131 (N.D. Cal. 1986); Baker v. Selden, 101 U.S. 99, 104 (1879). In *Baker*, the plaintiff wrote a book on accounting. Part of the book consisted of blank forms to be used for the accounting method described in the book. The Supreme Court held that while the book was copyrightable, the forms could not be, as they were an indispensible part of this particular accounting system, and to protect the forms would be to allow an idea to be protected by copyright. *Id. See also* Herbert Rosenthal Jewelry Corp. v. Kalpakian, 446 F.2d 738, 741-42 (9th Cir. 1971) (The idea of a jewel encrusted pin in the form of a bee was indistinguishable from its expression. The pin, therefore, is not subject to copyright protection.).

16. 3 M. NIMMER, NIMMER ON COPYRIGHT § 13.01 (1986). *See e.g.*, Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp., 562 F.2d 1157, 1162 (9th Cir. 1977); Reyher v. Children's Television Workshop, 533 F.2d 87, 90 (2d Cir. 1976); Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc., 797 F.2d 1222, 1231 (3d Cir. 1986).

17. Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp., 562 F.2d 1157, 1172 (9th Cir. 1977); Reyher v. Children's Television Workshop, 533 F.2d 87, 90 (2d Cir. 1976). "Access is proven when the plaintiff shows that the defendant had the opportunity to view or to copy plaintiff's work." *Sid & Marty Krofft*, 562 F.2d at 1172, citing Arrow Novelty Co. v. Enco Nat'l Corp., 393 F.

original.[18]

The first case to address the issue of substantial similarity was *Nichols v. Universal Pictures Corp.*[19] In that case, Judge Hand developed a test involving a series of abstractions, ranging from, at one extreme, only general similarities between the two works to, at the other extreme, an exact duplication of the original work. At some point between the two extremes, there exists a line beyond which the defendant too closely imitates the plaintiff's work.[20]

In *Arnstein v. Porter*,[21] the Second Circuit Court of Appeals developed a bifurcated substantial similarity test which has become the standard in many courts. Under this test, the trier of fact first determines whether or not the two works are substantially similar so as to presume that the infringer copied the original work.[22] Secondly, if the trier of fact finds that the works are substantially similar, it must then determine, without the aid of expert testimony, whether the copying was an "unlawful appropriation" of the original work.[23]

The Ninth Circuit applied a similar test in *Sid & Marty Krofft Television Productions, Inc. v. McDonald's Corp.*[24] Although the *Krofft* test was similar to the *Arnstein* test, the Ninth Circuit used a slightly different approach. As in *Arnstein*, the court applied a two-part analysis. The first part, the "extrinsic test," is used to determine whether or not there exists a substantial similarity between the underlying ideas of the works in question.[25] During this stage, expert testimony is allowed to assist the jury in evaluating the similarities between the technical aspects of the two programs—technical aspects which, if similar, would reveal a common underlying idea. The second element, the "intrinsic test," examines whether there is a substantial similarity in the *expression* of the underlying idea.[26] No expert testimony is

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Supp. 157, 160 (S.D.N.Y. 1974), *aff'd*, 515 F.2d 504 (2d Cir. 1975); Universal Athletic Sales Co. v. Salkeld, 340 F. Supp. 899, 901 (W.D. Pa. 1972).

18. *Whelan*, 797 F.2d at 1232; *Sid & Marty Krofft*, 562 F.2d at 1164. "Substantial similarity" has been defined as "whether the accused work is so similar to the plaintiff's work that an ordinary reasonable person would conclude that the defendant unlawfully appropriated the plaintiff's protectible expression by taking material of substance and value." Atari, Inc. v. North Am. Philips Consumer Elecs. Corp., 672 F.2d 607, 614 (7th Cir. 1982), citing *Sid & Marty Krofft*, 562 F.2d at 1164.

19. 45 F.2d 119 (2d Cir. 1930) (L. Hand, J.). The case concerned a copyright suit between the author of the play, "Abie's Irish Rose" and the author of the motion picture, "The Cohens and the Kellys."

20. [T]here is a point in this series of abstractions where they are no longer protected, since otherwise the [author] could prevent the use of his "ideas," to which, apart from their expression, his property is never extended. Nobody has ever been able to fix that boundary, and nobody ever can. . . In such cases we are rather concerned with the line between expression and what is expressed.

Id. at 121 (citations omitted).

21. 154 F.2d 464 (2d Cir. 1946).

22. *Id.* at 468. It is important that the defendant had access to the work. Absent evidence of access, "the similarity must be so striking as to preclude the possibility that plaintiff and defendant independently arrived at the same result." *Id.* A later court referred to this as the "extrinsic" test of substantial similarity. *Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157, 1164 (9th Cir. 1977). *See infra* notes 24-27 and accompanying text.

23. *Arnstein*, 154 F.2d at 468. This has been termed the "intrinsic" test of substantial similarity. *Sid & Marty Krofft*, 562 F.2d at 1164. *See infra* notes 24-27 and accompanying text.

24. 562 F.2d 1157 (9th Cir. 1977).

25. *Id.* at 1164.

26. *Id.*

allowed under the second part of the test.[27]

While the *Arnstein* test is the most prevalent, other courts have adopted a different test to determine substantial similarity for more complicated subject matters. In *E.F. Johnson Co. v. Uniden Co.*,[28] a federal district court in Minnesota developed an "iterative" test for substantial similarity.[29] Under this approach, once the plaintiff proves that the defendant had access to the copyrighted work, he then must prove that the reproduction is an "exact duplication of substantial portions of the copyrighted work."[30] Expert testimony is allowed to provide "quantitative and qualitative evidence of similarities" between the two works.[31]

Applicability to Computer Software

Many of the "early" cases interpreting copyright law to computer software involved video games, rather than computer application programs. At issue in these cases was whether video games came within the "audiovisual works" provision of the 1976 Copyright Act.[32] Specifically, the question centered upon whether the audiovisual aspect of the games could be copyrighted separately from the program creating the game. In *Midway Manufacturing Co. v. Artic International, Inc.*,[33] the Seventh Circuit held that the legislative intent behind the Act was to have courts broadly construe the definitional provisions, to avoid the need for Congress to have to constantly update the Act.[34] The court determined that by giving a flexible interpretation to the statutory requirement that the work "consist of a series of related images,"[35] the fact that the games displayed different images on the game screens from game to game did not prevent the screens from being protected by copyright.[36] The court also discarded the defendant's claim that since the person playing the game could control the order in which they appeared upon the screen, that the screen actually represented the performance of the player, rather than the work of the game's creator.[37]

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27. "Analytic dissection and expert testimony are admissible to prove similarity under the extrinsic test, but the intrinsic test consists solely of the response of the ordinary reasonable person." *Id.*

28. 623 F. Supp. 1485 (D. Minn. 1985).

29. *Id.* at 1493.

30. *Id. See* Note, *Copyright Infringement of Computer Programs: A Modification of the Substantial Similarity Test*, 64 MINN. L. REV. 1264 (1984).

31. *Id.*, citing Note, *supra* note 30, at 1296-99.

32. 17 U.S.C. § 101 (1982). Audiovisual works are defined as:

> works that consist of a series of related images which are intrinsically intended to be shown by the use of machines or devices such as projectors, viewers, or electronic equipment, together with any accompanying sounds, if any, regardless of the nature of the material objects, such as films or tapes, in which the works are embodied.

Id.

33. 704 F.2d 1009 (7th Cir. 1983), *aff'g* 547 F. Supp. 999 (N.D. Ill. 1982).

34. *Id.* at 1011.

35. 17 U.S.C. § 101 (1982).

36. *Midway*, 704 F.2d at 1011.

37. *Id.* at 1011. Both of Midway's games involved in the suit, Pac-Man and Galaxian, had screen displays which varied depending upon the player's responses with the game controls. In rejecting the argument that the player "created" the result, the court reasoned that "[p]laying a video game is more like changing channels on a television set than it is like writing a novel or painting a picture. . . He is unlike a writer or a painter because the video game in effect writes the sentences and paints the painting for him. . ." *Id.* at 1012.

The Third Circuit followed the same reasoning in *Williams Electronics, Inc. v. Artic International, Inc.*[38] There, the court held that programs which were stored on ROM chips[39] were valid "copies" for purposes of the Act.[40] The defendant claimed that since the ROM chips were actually utilitarian objects or machine parts, any programs stored on a chip could not be protected by copyright.[41] The *Williams* court, like every other court that has considered the issue, rejected that argument, ruling that programs which themselves are validly copyrighted are protected regardless of the medium in which they are stored.[42]

The first major case to apply the copyright issue to the protection of microcomputer software was *Apple Computer, Inc. v. Franklin Computer Corp.*[43] *Apple*, also from the Third Circuit, addressed the issue of whether computer operating systems are protected under the Act. The court also examined whether copyright protection extends beyond source code to include object code and programs stored in ROM.

In *Apple*, the defendant, Franklin Computer, distributed with their ACE computers several programs which were developed and copyrighted by Apple. Franklin manufactured their computer to be, and advertised it as, "Apple compatible."[44] Franklin, which admitted to copying all of the programs, claimed that copyright protection should not extend to computer operating systems.[45] Franklin argued that an operating system is expressly precluded from both section 102(b) of the Copyright Act,[46] and the general principles derived from *Baker v. Selden*.[47] In denying Franklin's argument, the Third Circuit held that computer operating systems are not within the "process, system, or method of operation" prohibition of section 102(b). The court distinguished Apple from the statute and from *Baker* on the grounds that Apple was not copyrighting the method of instructing the computer, but rather, only the actual instructions themselves.[48] Since computer application programs are recognized as valid copyright subjects, operating

38. 685 F.2d 870 (3d Cir. 1982).

39. ROM (Read Only Memory) Chips are storage devices similar to tapes or disks except that the program is permanently stored on the chip during the manufacturing process.

40. *Williams*, 685 F.2d at 876-77. The defendant argued that a copyright should only protect programs which are intelligible to human beings or intended as a medium of communication for human beings. *Id.*

41. *Id.* at 874.

42. *Id.* at 875, citing Midway Mfg. Co. v. Artic Int'l, Inc., 547 F. Supp. 1009, *aff'd*, 704 F.2d 1009 (7th Cir. 1982) ("Midway has sought and obtained protection for the audiovisual aspects of its games that appear on the screen. Midway no more restricts the use of ROMs than an author with a valid copyright restricts the use of books.").

43. 714 F.2d 1240 (3d Cir. 1983).

44. The fourteen programs included the operating system (which controls the internal functions of the computer, and operates "beneath" the application programs) as well as several general utility programs. Apple held copyrights for all fourteen programs. *Id.* at 1244 n.4.

45. *Id.* at 1245.

46. 17 U.S.C. § 102(b) (1982) provides that:

> In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.

47. 101 U.S. 99 (1879). *See supra* notes 14-15 and accompanying text.

48. *Apple Computer*, 714 F.2d at 1251. The court implied, however, that if there was no other way to operate the computer than by using Apple's means of expression, then perhaps the idea-expression merger rule would apply. *Id.* at 1253. *See supra* notes 13-15 and accompanying text.

systems could not be differentiated so as to exclude them from protection.[49] The court also reaffirmed its earlier holdings that programs embedded in ROM chips are protectable, and that object code as well as source code is subject to copyright protection.[50]

THE MOVE TO EXTEND COPYRIGHT PROTECTION

Earlier software copyright cases clearly established that the actual computer code, whether in source or object form, could be copyrighted, and that audiovisual output could be separately copyrighted. In addition, courts were in agreement that protection of the computer source code did not automatically protect the computer's audiovisual output. Recently, however, several courts have begun to expand the scope of computer object and source code protection, to include the audiovisual screens within that protection.

The most recent case from the Third Circuit Court of Appeals to address this issue is *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*[51] In *Whelan*, the defendant hired an outside programmer to write a dental management computer program.[52] After the program was completed, the defendant translated the original program into a different programming language which could be used on a wider variety of computers.[53] The plaintiff then filed a copyright infringement suit against Jaslow.

In response to the suit, the defendant argued that while there were "overall structural similarities" between the two programs, there were "substantial differences" in their structure and style, so that his version of the program did not infringe upon the plaintiff's copyright.[54] The court held that although the idea of a computerized program for operating a dental laboratory would not be subject to copyright protection,[55] if there are a number of ways of implementing that idea, then there is expression that is not unique to that idea. In other words, the idea may be implemented in a number of different ways, and while the idea itself is not protected, the vari-

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49. *Id.*

> Since it is only the instructions which are protected, a "process" is no more involved because the instructions in an operating system program may be used to activate the operation of the computer. . . There is, therefore, no reason to afford any less protection to the instructions in an operating system program than to the instructions in an application program.

Id. Additionally, the court found that the definition of "computer program" in § 101 does not distinguish between application programs and operating systems, only requiring "instructions to be used directly or indirectly in a computer in order to bring about a certain result." *Id.* at 1252, quoting 17 U.S.C. § 101 (Supp. 1985).

50. *Id.* at 1249. *See also* Midway Mfg. Co. v. Strohon, 564 F. Supp. 741, 750-51 (N.D. Ill. 1983).

51. 797 F.2d 1222 (1986), *aff'g* 609 F. Supp. 1307 (E.D. Pa. 1985), *cert. denied*, Jaslow v. Whelan, 107 S. Ct. 877 (1987).

52. The complete facts of *Whelan* are set forth at 797 F.2d 1225-27.

53. *Id.* at 1226. The original program created by Whelan Associates was written in the Event Driven Language for use on IBM Series One minicomputers. Jaslow wrote his copy in BASIC to be used on microcomputers.

54. *Id.* at 1228. Additionally, the defendant Jaslow argued that he, and not the plaintiff, owned the copyright to the original program. The court found no basis for overturning the district court's determination that the plaintiff did posses a valid copyright over the program. *Id. See* Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc., 609 F. Supp. 1307, 1318-20 (E.D. Pa. 1983).

55. *Whelan*, 797 F.2d at 1238.

ous implementations of that idea are protected expression.[56]

Although the two dental management programs were written using different programming languages, there were several areas that showed considerable similarity. These included: five of the most important subroutines within each program performed almost identically; most of the file structures used for storing the data were virtually identical, as were the screen outputs generated by each program.[57] In finding for the plaintiff, the court concluded that copyright protection extends beyond the literal computer code, to protect the program's structure and organization as well.[58]

The *Whelan* court's interpretation of the idea-expression dichotomy significantly increased the level of copyright protection for virtually all computer programs. The court distinguished the fact that the case in question involved a utilitarian work, as opposed to a " 'non-functional' visual representation," or literary work.[59] While a 'non-functional' visual representation or literary work is inseparable from the idea of the work itself, a utilitarian or functional work has aspects which are not essential to the underlying idea of the work—the work can be implemented in various ways. In this manner, the court was able to make the distinction between "idea", which was protected, and "expression,"[60] which was not protected.

The court also discarded the bifurcated substantial similarity test for computer software. Instead, it adopted a single test, in which both expert and lay testimony would be admissible.[61] The court reasoned that the exclusion of expert testimony would be of "doubtful value" in computer software cases because of the complexity of the subject matter and the public's lack of knowledge in the area.[62] In addition, the court found it unlikely that the trier of fact would be able to hear expert testimony for the first test, yet disregard that testimony when considering the second test.[63]

Currently, the most expansive copyright protection for software has been provided by a California federal district court in *Broderbund Software,*

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56. "Where there are various ways of achieving the desired purpose, then the particular means chosen is not necessary to the purpose; hence there is expression [which will be protected] and not idea." *Id.* at 1236. In an accompanying footnote, the court continued, "the idea of the Dentalab program was the efficient management of a dental laboratory... Because that idea could be accomplished in a number of different ways with a number of different structures, *the structure of the defendant's program is part of the program's expression, not its idea.*" *Id.* at n.28 (emphasis added).

57. *Id.* at 1228.

58. *Id.* at 1237. *But cf.* Q-Co. Indus., Inc. v. Hoffman, 625 F. Supp. 608 (S.D.N.Y. 1985), where a federal district court found no copyright infringement even where the defendant, a programmer for the plaintiff, later wrote a virtually identical program in a different language to run on different computers. "[C]opying is impossible here, given the differences between the hardware for the Atari and IBM computers. Here the idea was used rather than its expression." *Id.* at 616.

59. *Whelan,* 797 F.2d at 1238. *"[T]he purpose or function of a utilitarian work would be the work's idea, and everything that is not necessary to that purpose or function would be part of the expression of the idea."* *Id.* at 1236 (emphasis in original).

60. *Id.*

61. *Id.* at 1233. *Accord* E.F. Johnson Co. v. Uniden Corp., 623 F. Supp. 1485 (D. Minn. 1985); Midway Mfg. Co. v. Strohon, 564 F. Supp. 741 (N.D. Ill. 1983).

62. *Id.*

63. *Id.* Although other courts had abandoned the bifurcated substantial similarity analysis, the *Whelan* court represents the first decision by a federal court of appeals to alter the standard. *See supra* notes 21-31 and accompanying text.

Inc v. Unison World, Inc.,[64] where the court extended the *Whelan* analysis to protect not only the program's literal code, structure and organization, but also the audiovisual screen displays generated by the program. Although the court was compelled to apply the Ninth Circuit's *Sid & Marty Krofft* extrinsic-intrinsic substantial similarity test, it expressed a desire to follow the *Whelan* idea-expression analysis.[65]

Broderbund was the exclusive licensee of the software program "Print Shop," a program which generated banners, greeting cards, signs and posters.[66] The defendant produced a competing program, "Print Master," which was virtually an identical copy of "Print Shop." In determining that Unison World had violated Broderbund's copyright, the court announced that it was following the *Whelan* rationale of protecting the program's structure, sequence and organization.[67] In applying that analysis, however, the court extended the original *Whelan* scope of protection. The *Broderbund* court interpreted *Whelan* as holding that protection was "not limited to the literal aspects of a computer program, but rather . . . [extended] to the overall structure of a program, *including its audiovisual displays.*"[68] Yet the *Whelan* court, while never explicitly considering the inclusion of audiovisual screens within the scope of copyright protection of the underlying program, appeared to at least imply that such screens would not fall within that scope of protection.[69]

Another court which recently adopted the *Whelan* rationale, albeit reaching a narrower interpretation than *Broderbund*, was a Georgia federal district court in *Digital Communications Associates, Inc. v. Softklone Distributing Corp.*[70] The *Softklone* case involved the communications program "Crosstalk" and a competing look-alike program, "Mirror." The *Softklone* court, while upholding Digital Communications' claim of copyright infringement of the Crosstalk status screen,[71] expressly refused to include the status screen as falling within the zone of protection resulting from the source code copyright.[72]

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64. 648 F. Supp. 1127 (N.D. Cal. 1986)

65. *Id.* at 1136. ("[T]his court is of the opinion that an integrated test involving expert testimony and analytic dissection may well be the wave of the future in this area. . .").

66. *Id.* at 1130.

67. *Id.* at 1133.

68. *Id.* at 1133 (emphasis added).

69. *Whelan*, 797 F.2d at 1244. In *Whelan*, the plaintiff had obtained a separate copyright for the audiovisual screen outputs. The defendant argued that since the screen displays were not covered by the same copyright as the program, any similarities between the audiovisual displays of the two programs should not be considered. The court, in rejecting that argument stated, "the only conclusion to be drawn from the fact of the different copyrights is that the screen outputs cannot be *direct* evidence of copyright infringement." *Id.* Thus, it seems that the *Broderbund* court may be overextending the *Whelan* rationale, at least with respect to the audiovisual displays.

70. 659 F. Supp. 449 (N.D. Ga. 1987).

71. *Id.* at 465. The status screen displayed important information to the user regarding the current settings of various parameters needed for computer communications, such as the rate of transmission over the telephone lines (the baud rate), the type of algorithm to be used to ensure that the data was sent and received correctly, etc. Crosstalk used two-letter abbreviations for each command. For example, typing "SP" would alter the speed, or baud rate, of the program. *Id.* at 452.

72. *Id.* at 455-56. The court agreed with the holding of the earlier video game cases that the audio-visual displays were the proper subjects of a separate copyright. *See supra* notes 32-42 and accompanying text. The court then stated that since a screen could be created by several different and independently created programs, it was illogical that those screens could be considered copies of

Instead, the court protected the screen based on the plaintiff's separate copyright for the status screen. The court reiterated the *Whelan* idea-expression analysis, noting that although the idea of displaying the various parameter settings could not be copyrightable, the manner in which those parameters are displayed would be valid expression, subject to copyright protection.[73] The court emphasized that the screen did not violate the idea-expression analysis merely because it displayed essential information.[74]

The court also distinguished an earlier case, *Synercom Technology, Inc. v. University Computing Company*,[75] involving the use of format input cards[76] developed by Synercom. The defendant did not copy the input cards, but rather developed a program which was able to read data in the exact format and sequence used by Synercom. Judge Higginbotham concluded that, although the cards were copyrighted, the use of the cards was not expression, but actually the underlying idea and so could not be protected by copyright.[77] The *Softklone* court distinguished *Synercom* on two facts: in *Synercom* there was no actual copying of the format cards, while Softklone had copied the Crosstalk status screen; and second, the format cards were not proper subjects for copyright protection since the idea had merged with the expression, while in *Softklone* there were several different ways to express the same status screen idea.[78]

Because the *Softklone* court refused to extend copyright protection to the audiovisual displays of a program, it is essential under the *Softklone* analysis that displays be copyrightable on their own merits. While the earlier video game cases had little difficulty in finding that the artistic display screens of the games qualify as audiovisual works under the Copyright Act, it was less clear whether a status screen would qualify as either a literary work or audiovisual display. The *Softklone* court held that the screen is a literary work and also qualifies as a "compilation" under the Copyright Act.[79] Because the screen also meets the section 102 fixation requirements,[80] the court concluded that the status screen is properly protected by

each program. *Id. See* Goldstein, *Infringement of Copyright in Computer Programs*, 47 U. PITT. L. REV. 1119, 1126 n.29 (1986). *But cf.* M. Kramer Mfg. Co., Inc. v. Andrews, 783 F.2d 421, 441 (4th Cir. 1986) ("[T]he fact that the computer program could have been separately copyrighted does not mean that the audiovisual copyright may not protect the computer program which implements the audiovisuals. . .").

73. *Id.* For example, the court found nothing essential about the two-letter combinations used to control various parameters, or which words were used to describe the various functions.

74. *Id.* at 458.

75. 462 F. Supp. 1003 (N.D. Tex. 1978).

76. The computer that the Synercom program was designed to run on was only able to process data in a specific order. To assist the user in arranging the data, Synercom developed a card which used shading to indicate which data should be entered in each column of the card.

77. *Id.* at 1013. Judge Higginbotham noted "[i]f sequencing and ordering is expression, what separable idea is expressed?" *Id.*

78. *Softklone*, 659 F. Supp. at 460.

79. *Id.* at 462-63. Section 101 of the Copyright Act defines a compilation as

> [A] work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship. The term "compilation" includes collective works.

17 U.S.C. § 101 (1982).

80. *See supra* note 10.

copyright.[81]

While *Whelan, Broderbund* and *Softklone* have expanded the level of copyright protection, there is some indication that not all courts are willing to follow their direction. In *Plains Cotton Cooperative Association of Lubbock, Texas v. Goodpasture Computer Service, Inc.*,[82] the Fifth Circuit, in a motion for a preliminary injunction, declined to follow the *Whelan* approach and instead followed the *Synercom* analysis, which limited the scope of protection. In *Plains Cotton*, the plaintiff developed Telcot, a computer program to assist its members with various financial information relating to cotton production. Several of the plaintiff's employees who participated in the development of the program eventually left to work for the defendant and develop a personal computer version of Telcot.[83] Although the two programs were structurally and organizationally similar, the defendants claimed to rely upon their knowledge of the cotton industry in designing the new program; there was only evidence of direct copying of a small part of the program.[84] In denying the motion for preliminary injunction, the Fifth Circuit held that the similarities between the two programs were due to the externalities of the cotton market, and that the design of a program under those circumstances constituted ideas, not expression.[85]

THE FUTURE OF "LOOK AND FEEL" PROTECTION

Although there has been an increasing amount of litigation in the computer software protection area during the last few years, there are a few cases which are currently being tried which may have the greatest impact on the industry. In perhaps the most publicized litigation, Lotus Development Corp., the developers of the top selling Lotus 1-2-3 spreadsheet program, filed suit in federal district court against the manufacturers of two rival spreadsheet programs which are advertised as "clones" of the Lotus program.[86]

In the two identical lawsuits, Lotus has alleged that the competing programs violate the "look and feel" of Lotus 1-2-3 by copying virtually the entire user interface of the program.[87] Lotus has copyrighted the source code

81. *Softklone*, 659 F. Supp. at 463.
82. 807 F.2d 1256 (5th Cir. 1987).
83. *Id.* at 1259.
84. *Id.*
85. *Id.* at 1262.
86. Lotus Development Corp. v. Paperback Software Int'l, No. 87-0076-K (D. Mass. filed Feb. 3, 1987); Lotus Development Corp. v. Mosaic Software, Inc., No. 87-0074-K (D. Mass. filed Feb. 3, 1987).
87. *Paperback Software*, No. 87-0076-K at 5-8, *reprinted in* 5 COMPUTER L. REP. 803, 908; *Mosaic Software*, No. 87-0074-K, at 5-8, *reprinted in* COMPUTER L. REP. 795, 798. In paragraph 20 of each complaint Lotus alleges:

> [The defendant] has continuously infringed plaintiff's copyright of Lotus 1-2-3 by copying, publishing, distributing, marketing and placing upon the public market . . . works copied from, and substantially similar or identical to plaintiff's Lotus 1-2-3 in numerous respects, including, *inter alia*: the organization, structure and sequence. . .; the instructions, command and menu language. . .; the macro commands and syntax. . .; the organizational and structural expressions. . .; the visual displays and screen images. . .; the content and format of the video displays. . .; the sequence of the video displays. . .; and the display instructions and language. . . .

of 1-2-3, but not any of the display screens. While the previous cases have established "look and feel" litigation as the next battleground for copyright litigation of computer software, the result of the Lotus lawsuits may change the attitudes and practices of the entire programming industry.[88] Traditionally, computer programs have been evolutionary, rather than revolutionary in their development. For example, the Lotus spreadsheet itself evolved from an earlier product, VisiCalc.[89] Some industry observers argue that if the look and feel of a program is protected, then the rate of development of new software will be dramatically slowed, as developers work to create new ideas, instead of refining current applications.[90]

From the other perspective, however, is the argument that development will be slowed by not allowing the look and feel of programs to be protected. Not only are developers discouraged from spending large amounts of time and money in developing attractive user interfaces, which can be easily copied by competitors, but industry resources as a whole are wasted, as competitors spend their efforts in imitating successful products, rather than creating new programs.[91]

Ironically, SAPC, Inc., the developer of the original computer spreadsheet program VisiCalc, recently filed suit against Lotus claiming that the founder of Lotus Development used confidential information while working as an employee of SAPC to imitate the "look and feel" of VisiCalc in designing the Lotus 1-2-3 spreadsheet.[92]

If the Massachusetts court follows the *Broderbund* interpretation of *Whelan*, it almost certainly will have to find the clone programs in violation of the Lotus copyright. *Broderbund* held that as long as the displays are dictated by "artistic and aesthic considerations," and not utilitarian necessities, the menu layout is subject to protection.[93] However, the *Whelan* decision itself has come under heavy criticism as being too broad of an application of the copyright laws,[94] and since *Broderbund* is even more ex-

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Id.

For a comparison of the V-P Planner, The Twin and Lotus 1-2-3 user interfaces, see 6 PC MAGAZINE No. 10, 190-91, 194-95 (May 26, 1987).

88. The president of Mosaic software stated, "[i]f Lotus win this case, it spells, at the bottom line, monopoly in the spreadsheet market which will be duplicated in most of the other markets of software or computers. Basically everybody has to pack their bags and leave." National L.J., June 29, 1987, at 10, col. 2.

89. Machrone, *Roots: The Evolution of Innovation*, 6 P.C. MAGAZINE No. 10, 166, 169, 174 (May 26, 1987).

90. Dan Bricklin, one of the creators of VisiCalc, stated: "If you are going to see farther than others, make sure you're not standing on the shoulders of any giants." 6 P.C. MAGAZINE No. 10, 166 (May 26, 1987).

91. *See* letter from Lotus President Jim Manzi, 6 P.C. MAGAZINE No. 10, 162-63 (May 26, 1987). *See also* Rosch, *The Copyright Law on Trial*, 6 P.C. MAGAZINE No. 10, 157, 164 (May 26, 1987) ("The 'look and feel' copyright doctrine should provide incentive for program developers to be more creative. Not only will writing more creative programs avoid infringement, but the increased copyright protection afforded them should give them more monetary incentive to pursue creative work.").

92. 4 COMPUTER LAWYER 37 (1987). For a comparison of the program user interface structures, see 6 P.C. MAGAZINE No. 10, at 172-73 (May 26, 1987). *See also* Barr, *From VisiCalc to 1-2-3*, 6 P.C. MAGAZINE No. 10, 169 (May 26, 1987)

93. *Broderbund*, 648 F. Supp. at 1134.

94. One commentator has suggested that the proper interpretation for *Whelan* should be that copyright protection includes more than the literal code, protecting in addition the structure, se-

pansive, it seems unlikely that the *Lotus* court will apply the *Broderbund* analysis.

On the other hand, if the *Lotus* court applies the *Softklone* interpretation, Lotus will probably not prevail. *Softklone* expressly limits the protection of audiovisual displays to those displays which have been independently copyrighted. While the Lotus case presents a more severe case of identical screen displays, the *Softklone* court only considered that as evidence in determining whether the two works are substantially similar.[95]

Assuming the *Lotus* court decides to follow the *Whelan* court's lead in expanding software copyright protection, based on the above discussion, the court will most likely reject *Broderbund* and adopt an approach similar to that espoused by the *Softklone* court. Perhaps a sensible middle ground is that suggested by Ed Esber, the president of Ashton-Tate, a large microcomputer software developer. In his opinion, protection should extend beyond the literal source code to protect the look of the product. However, standard user interfaces should not be protected, to ease the burden in using many different software programs.[96] In any event, an endorsement by the *Lotus* court of protecting the complete "look and feel" of the program would place the court at the outer limit of any software copyright protection case decided to date.

CONCLUSION

During the past year, the area of copyright protection for computer software has exploded in litigation. It is clear that computer code, in either source or object form, stored on any medium, is the proper subject of copyright protection. In addition, three important cases have recently expanded the level of copyright protection. The Third Circuit Court of Appeals, in *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*, held that protection extends beyond the literal code to include the structure, sequence and organization of the program. A California federal district court broadened that definition to include audiovisual displays within the protection of the program. That approach was rejected by another district court in Georgia which adopted the *Whelan* analysis, but refused to include within the protection of the program those displays which are not separately copyrighted as audiovisual works.

Until the courts are able to arrive at a clear definition of what is pro-

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quence and organization of the *internal* aspects of the code. Under this analysis, similarities in the external aspects, such as audiovisual displays, should only be considered as evidence of the overall substantial similarity. Davidson, *The Whelan Decision: Missing the Middle Ground*, 5 COMPUTER L. REP. 335, 338 (1986). *See also* Kost, *Whelan v. Jaslow: Back to the Rough Ground!*, 5 COMPUTER L. REP. 145, 146 (1986) ("The court's analysis in *Whelan* is nevertheless unworkable. It suffers from a variety of theoretical and practical difficulties. . . by virtue of this failure, it will become conceptually obsolete. . .").

Additionally, the Patent, Copyright & Trademark section of the American Bar Association, in its 1986 Report stated, "the willingness of some courts, through either dicta or alternate holdings to use expansive language with respect to analyzing copyrights on software is troublesome." A.B.A. SEC. PAT., COPYRIGHT & TRADEMARK 182 (1986).

95. *Softklone*, 659 F. Supp. at 455.

96. 6 P.C. MAGAZINE No. 10, 158 (May 26, 1987). *See also* Davidson, *supra* note 95, at 335, 337 ("A close analysis suggests the 'look' may be protectable, but 'feel' should not be.").

tected and what is excluded from copyright protection, the current surge of litigation will undoubtedly continue. Perhaps with the resolution of the *Lotus* case, and a future decision by the United States Supreme Court,[97] the issue can be resolved, and software developers can finally work with a legal system that is current with the state of the industry.

97. The Supreme Court refused to grant certiorari to hear the *Whelan* case. Jaslow v. Whelan, *cert. denied*, 107 S. Ct. 877 (1987).