

Federal Copyright Law in the Computer Era: Protection for the Authors of Video Games

The quest for novel leisure time activity, augmented by new technologies, has created a computer video game mania¹ in the United States. Understandably, piracy claims have accompanied the marketplace popularity of such games. Confronted with a flurry of copyright infringement claims over the last several years, courts have uniformly indicated that the audiovisual display of a video game merits federal copyright protection.² That protection, however, is far from complete. If the rival display varies in even a minor detail, courts may find no copyright infringement. Under the aegis of a "substantial similarity" test,³

1. The typical video game challenges, and presumably entertains, by allowing the game player control over a fanciful game piece displayed on a cathode ray tube (CRT) and generated by the computer elements of the game. The player must use his game piece to either destroy or avoid advancing enemy game pieces generated and controlled by the computer elements of the game. A high level of sound, modulated in response to the play of the game, often accompanies the game. One such game, "Asteroids," as of 1981 had gross sales of \$125,000,000. *Atari, Inc. v. Amusement World, Inc.*, 547 F. Supp. 222, 224 (D. Md. 1981). *But cf. Landro & Feeney, Fierce Competition in Video Games Behind Dive in Warner Stock Price*, Wall St. J., Dec. 10, 1982, at 25, col. 4 (dive in Warner stock price resulted, in large part, from Warner's lessened market share due to numerous competitors rushing into the video game market).

2. *Midway Mfg. Co. v. Artic Int'l, Inc.*, 704 F.2d 1009, 1012 (7th Cir. 1983); *Williams Elecs., Inc. v. Artic Int'l, Inc.*, 685 F.2d 870, 874 (3d Cir. 1982); *Atari, Inc. v. North Am. Philips Consumer Elecs. Corp.*, 672 F.2d 607, 615 (7th Cir. 1982); *Stern Elecs., Inc. v. Kaufman*, 669 F.2d 852, 857 (2d Cir. 1982); *Midway Mfg. Co. v. Bandai-Am., Inc.*, 546 F. Supp. 125, 155 (D.N.J. 1982); *Atari, Inc. v. Ken Williams*, No. 81-410 (E.D. Cal. Dec. 28, 1981) (available prior to publication of this article on LEXIS, Genfed library, Dist file); *Atari, Inc. v. Amusement World, Inc.*, 547 F. Supp. 222, 226 (D. Md. 1981); *Atari, Inc. v. Armenia, Ltd.*, No. 81 C 6099 (N.D. Ill. Nov. 3, 1981) (available prior to publication of this article on LEXIS, Genfed library, Dist file); *Midway Mfg. Co. v. Dirkschneider*, 543 F. Supp. 466, 480 (D. Neb. 1981); *Nintendo of Am., Inc. v. Bay Coin Distribs., Inc.*, No. 82-1153 (E.D.N.Y. May 28, 1981) (available prior to publication of this article on LEXIS, Genfed library, Dist file).

3. Before a finding of infringement can be made, the courts must find a copying and a demonstrable "substantial similarity" between the two works. *See, e.g., Athletic Sales, Inc. v. Salkeld*, 511 F.2d 904 (3d Cir. 1975); *Ideal Toy Corp. v. Fab-Lu Ltd.*, 360 F.2d 1021 (2d Cir. 1966). *See generally* 3 M. NIMMER, NIMMER ON COPYRIGHT § 13.03 (1983); N. BOORSYRN, COPYRIGHT LAW § 10:14 (1981). Because direct proof of copying is difficult, circumstantial evidence is usually sufficient. One circumstantial method of demonstrating copying is to show access by the defendant to the plaintiff's work. Access means simply that the defendant had the opportunity to see the plaintiff's work. *Peter Pan Fabrics, Inc. v. Dan River Mills, Inc.*, 295 F. Supp. 1366, 1369 (S.D.N.Y.), *aff'd*, 415 F.2d 1007 (2d Cir. 1969).

courts have determined that minor variations in details of the game pieces can result in no actionable appropriation of the copyrighted work.⁴

Thus far, courts ignore similarities between the games' underlying computer programs. By ignoring these similarities, courts are not adequately recognizing and protecting the significant expenditures of intellectual and economic effort required in the development of video games. The effort of authorship can be sufficiently protected only by linking protection to the full extent of the author's intellectual effort. Focusing on the final product solely in the form of the audiovisual display fails to recognize the unique intellectual effort required to arrive at this

In the video game cases, given the wide distribution of the original works, access has generally been inferred. *Midway Mfg. v. Dirkschneider*, 543 F. Supp. 466 (D. Neb. 1981); *Nintendo of Am., Inc. v. Bay Coin Distribs., Inc.*, No. 82-1153 (E.D.N.Y. May 28, 1981) (available prior to publication of this article on LEXIS, Genfed library, Dist file).

This substantial similarity test is cumulative, and infringement occurs at some point less than wholesale appropriation. This test is the *sine qua non* of an infringement action. N. BOORSTYN, COPYRIGHT LAW § 10:14 at 291 (1981). The courts recognize that this test is one that they must apply on an ad hoc basis. "The test for infringement of a copyright is of necessity vague. In the case of verbal 'works' it is well settled that although the proprietor's monopoly extends beyond an exact reproduction of the words, there can be no copyright in the 'idea' disclosed but only in their 'expression.' Obviously, no principle can be stated as to when an imitator has gone beyond copying the 'idea' and has borrowed its 'expression.' Decisions must therefore inevitably be *ad hoc*." *Peter Pan Fabrics, Inc. v. Martin Weiner Corp.*, 274 F.2d 487, 489 (2d Cir. 1960).

Several courts have bifurcated the substantial similarity test, with the first test being to dissect the work using expert testimony to show actual copying, and the latter test being a "common observer" test, which does not allow dissection. However, the latter test is still employed to distinguish those works that are merely influential. *Arnstein v. Porter*, 154 F.2d 464 (2d Cir. 1946); *see also Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157 (9th Cir. 1977); *North Am. Philips Consumer Elecs. Corp.*, 672 F.2d 607 (7th Cir. 1982).

4. *See infra* notes 25-26 and accompanying text. In general, such holdings limiting protection are consistent with the treatment given traditional gameboards. *See* 1 M. NIMMER, *supra* note 3, § 2.18[H][3][a] (1982). The concept of a game such as bridge may not be copyrighted; once the game is disseminated, the idea, absent a patent, becomes part of the public domain. Only the expression of the game in forms such as graphics on the playing cards or the written rules may be copyrighted. *Gelles-Widmer Co. v. Milton Bradley Co.*, 313 F.2d 143 (7th Cir. 1963); *Chamberlin v. Uris Sales Corp.*, 150 F.2d 512 (2d Cir. 1945); *Meccano, Ltd. v. Wagner*, 234 F. 912 (S.D. Ohio 1916) *modified*, 246 F. 603 (1917).

Moreover, courts have at various times determined that most, if not all, expressions of certain games are insufficiently distinguishable from a game concept to be protected by copyright law. *See Affiliated Hosp. Prods., Inc. v. Merdel Game Mfg. Co.*, 513 F.2d 1183 (2d Cir. 1975); *Morrissey v. Proctor & Gamble Co.*, 379 F.2d 675 (1st Cir. 1967); *see also Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 738 (9th Cir. 1971) (the copying of a jeweled bee pin was allowed, as the limited expression of a jeweled bee pin was inseparable from the idea).

final display. It ignores the central and significant contributions added by using a computer program to generate a game's graphics and activities. Only by extending copyright protection to the underlying computer program contained in the game's circuitry can the efforts of authorship be fully protected.

This Comment will analyze both the manner and scope of copyright protection currently afforded computer video games. It will then discuss the means available under federal copyright laws to protect the underlying computer program and conclude that the game should be regarded as a unit. The effect of treating the game as a unit of audiovisual and computer elements—as opposed to considering only the audiovisual display—will be to raise certain appropriations to the level of copyright infringement.

The United States Constitution authorizes long-term private copyright monopolies.⁵ This authorization is predicated upon dual principles: that economic incentives are a valuable means of personal motivation, and that such incentives must necessarily be limited for the benefit of the public at large.⁶ The major public concern is for the free dissemination and development of information within our society.⁷ On a certain level, the public is afforded maximum access to information when an artist or author can preserve his interest in a work and still present it publicly without fearing piracy.⁸ Otherwise, an author might be tempted to sell his work to wealthy private collectors rather than have it printed for mass distribution.

5. The Constitution of the United States gives Congress the power "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to *Authors* and *Inventors* the exclusive Right to their respective *Writings* and *Discoveries*. . . ." U.S. CONST. art. I, § 8 (emphasis added). Works created on or after Jan. 1, 1978 endure for a term consisting of the author's life plus fifty years thereafter. 17 U.S.C. § 302(a) (1976).

6. "Creative work is to be encouraged and rewarded, but private motivation must ultimately serve the cause of promoting broad public availability of literature, music, and the other arts. . . . [T]he ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good." *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975). Central to this concern, therefore, is the grant of limited protection to an author without impinging upon future creative works and advances. Another concept alluded to in *Aiken* is the natural right to be rewarded for one's work. N. BOORSTYN, *supra* note 3, § 1:2. Recognizing the intellectual fruits of one's labor is consistent with the constitutional regard for private property rights in general. See generally 1 M. NIMMER, *supra* note 3, § 1.03.

7. See *supra* note 6.

8. Federal copyright law provides several means to discourage piracy of copyrighted works. See *infra* notes 73-79 and accompanying text, discussing the protections afforded copyrighted works.

Progress in the arts, however, is a process of accretion through influence by prior works. Providing too much protection for very simple game themes and graphics might forestall the development of more complex works.⁹ Thus, in the normal course of most infringement claims involving simple works, it makes sense to deny protection and thereby increase the basic information available within the public domain.

Although denying protection for simple graphics in traditional gameboards may serve the public interest by fostering continued development, limiting protection for computer-generated games may serve the opposite result. The adaptation of computer programming and computer technology to traditional game concepts has significantly altered the intellectual efforts required for game authorship.¹⁰ Moreover, computer-generated games require significant capital investments. Thus, an author venturing into the video game marketplace may copy, in large part, a popular game rather than expend the efforts and monies required to develop and promote a new work. The balance between economic incentive and freedom of information may become too heavily weighted in the latter's favor. The incentive may be to copy rather than to create.

Computer video games, however, are amenable to protection under federal copyright law by means other than simply copy-righting the images displayed upon the screen. For a work to be

9. See *supra* note 4.

10. The originator of a video game first states his concept in a textual format called a source program. Using an assembler or compiler program, he then translates the source program into a machine readable language known as the object code. Chemically encoding this object code onto silicon microchips produces computer memory devices known as ROMs (Read Only Memory) or PROMs (Programmable Read Only Memory). Conceptually, this circuitry is like a multitude of switches left permanently open or closed according to instructions. The ROM carries the information that directs the play of the game and generates the game's graphics. The original concept is, then, realized through the use of a cathode ray tube (CRT) and other circuitry, including the controls by which the player plays the game.

Programming languages for computers are classified in levels ranging from low level to high level languages. The lowest level is the machine language, or the object code. Computers operate in the most basic unit, binary numbers; e.g., the notation 0101 is equivalent to the number five. The next higher language is the assembler language. For example, the instruction LDA 3; ADD 2, tells the computer to load into register A the number 3, then add to it the number 2, for a total of 5 in register A. The next level of language, the one generally used by programmers, is the source program. A source program is a computer program written in algebraic or symbolic notation designed for ease of expression and readability. For example, the phrase $A = 2 + 3$ is a source statement. For a fuller understanding of computer basics, see any book now readily available on personal computing. See, e.g., D. McGLYNN, *PERSONAL COMPUTING* (1979).

copyrightable, the Constitution simply requires an "author" and a "writing."¹¹ Congress codified the requirements for authorship and writing in section 102 of the 1976 Copyright Act ("1976 Act").¹² Section 102 protects "original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."¹³ Although section 102 does not expressly include video games or computer programs in its list of mediums of authorship,¹⁴ the list is not exclusive.¹⁵

The requirements for authorship and originality are easily satisfied in a video game work. The courts define "author" to mean "originator, he to whom anything owes its origin."¹⁶ "Originality," in the copyright sense, means "little more than a prohibition of actual copying."¹⁷ Imagination is not a requirement for authorship, as the common understanding might indicate; mere diligence in the compilation of mundane facts satisfies this requirement.¹⁸

11. See *supra* note 5.

12. 17 U.S.C. § 102 (1976).

13. *Id.*

14. "Works of authorship include the following categories:

- (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."

17 U.S.C. § 102 (1976).

15. Rather, the list sets out the general area of copyrightable subject matter, but with sufficient flexibility to free the courts from rigid or outmoded concepts of the scope of particular categories. H.R. REP. NO. 1476, 94th Cong., 2d Sess. 53, *reprinted in* 1976 U.S. CODE CONG. & AD. NEWS 5666.

16. *Goldstein v. California*, 412 U.S. 546, 561 (1972) (quoting *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 57-58 (1884)).

17. *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2d 99, 103 (2d Cir. 1951) (quoting *Hoage-Sprague Corp. v. Frank C. Meyer Co., Inc.*, 31 F.2d 583, 586 (E.D.N.Y. 1929)).

18. A compilation is "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." 17 U.S.C. § 101 (1976). In fact, "a modicum of creativity may suffice." *Universal Athletic Sales Co. v. Salkeld*, 511 F.2d 904, 908 (3d Cir.), *cert. denied*, 423 U.S. 863 (1975). The originality requirement also does not require judges to sit as critics of the public taste. This principle was well stated by Justice Holmes: "It would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of pictorial illustrations. . . . At the one extreme some works of genius would be sure to miss appre-

The courts have no difficulty in concluding that the audiovisual display, which is fixed in a tangible medium by the game's Read Only Memory ("ROM"),¹⁹ meets the section 102 requirements for copyright protection.²⁰ Although variations in any given display result from the participation and interaction of the person playing the game, a sufficient recurrence of related images exists for viable protection.²¹

Although the audiovisual display acquires copyright protection under section 102, the scope of that protection may be extremely limited under judicially created principles determining when one work infringes upon the protected area of another work. The majority of video game cases deal with nearly identical copying.²² Several decisions, however, address the limited scope of protection afforded a valid copyright in the audiovisual display.²³ In one such case, *Atari, Inc. v. North American Philips Consumer Electronics Corp.*,²⁴ the court articulated the limited scope afforded video game audiovisual displays. The *Atari* court ruled that the use of a figure in pursuit, a corral, and a maze pattern in the "Pac Man" game were not protected because they are unprotectable ideas²⁵ and readily available

ciation. . . . At the other end, copyright would be denied to pictures which appealed to a public less educated than the judge." *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 251-52 (1903).

19. See *supra* note 10.

20. See cases cited *supra* note 2.

21. *Id.*

22. *Id.*

23. See cases cited *infra* notes 24, 28, 30 and accompanying text.

24. 672 F.2d 607 (7th Cir. 1982).

25. *Id.* at 616-17. An axiom of copyright law states that a process or concept may not be copyrighted; only the expression of an idea or concept qualifies for protection.

The description of the art in a book, though entitled to the benefit of copyright, lays no foundation for an exclusive claim to the art itself. The object of the one is explanation; the object of the other is use. The former may be secured by copyright. The latter can only be secured, if it can be secured at all, by letters-patent.

Baker v. Selden, 101 U.S. 99, 105 (1880). See also *Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 38 (9th Cir. 1971); *Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157 (9th Cir. 1977). The separation of idea and expression is now codified in 17 U.S.C. § 102 (b) (1976): "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."

When an expression comes close to being nearly indistinguishable from an idea, protection dissolves. Consequently, at some point when the copyrighted language can be expressed in only a limited number of ways, no actionable copying occurs. See, e.g., *Durham Indus., Inc. v. Tomy Corp.*, 630 F.2d 905 (2d Cir. 1980); *Triangle Publications, Inc.*

game themes²⁶ that are part of the public domain. Only the game characters—the “gobbler,” a round yellow figure with a “V”-shaped mouth, and the pursuing “ghosts” which have animated eyes and change color—were deemed fanciful enough to warrant copyright protection.²⁷ This case indicates, in effect, that a potential duplicator of a Pac Man-like game need only alter a few essential game pieces to avert copyright protection.

A Maryland district court employed substantially the same analysis in *Atari, Inc. v. Amusement World, Inc.*,²⁸ which concerned infringement of the game “Asteroids.” Both games in *Amusement World* consisted of spacecraft in a field of rock-like figures and enemy spacecraft which must be shot down or avoided. In *Amusement World*, the court ruled that the plot of maneuvering spacecraft in an asteroid field was a *scene a faire*²⁹ and therefore not protected.³⁰ Furthermore, the court deemed

v. Sports Eye, Inc., 415 F. Supp. 682 (E.D. Pa. 1976). The point at which this occurs was articulated by Judge Learned Hand in what has come to be known as the “abstraction test.”

Upon any work, and especially upon a play, a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out. . . . [T]here is a point in this series of abstractions where they are no longer protected, since otherwise the playwright could prevent the use of his “ideas,” to which, apart from their expression, his property is never extended.

Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930), *cert. denied*, 282 U.S. 902 (1931).

In other words, “the scope of copyright protection increases with the extent expression differs from the idea.” *Sid & Marty Krofft Television Prods., Inc. v. McDonald’s Corp.*, 562 F.2d 1157, 1168 (9th Cir. 1977).

26. *Atari*, 672 F.2d 617. See also *supra* notes 4 and 25. The essence of infringement lies not in taking a theme used by another but rather in the appropriation of particular expressions through a similarity of treatments, details, plot twists, scenes, and characterizations. Thus, “no one infringes unless he descends so far into what is concrete to invade that expression.” *National Comics Publications, Inc. v. Fawcett Publications, Inc.*, 191 F.2d 594, 600 (2d Cir. 1951).

27. *Atari*, 672 F.2d at 618.

28. 547 F. Supp. 222 (D. Md. 1981).

29. Where the similarity between two works consists solely of thematic concerns which at the very least do not demonstrate a wholesale lifting of a story’s total concept or feel, no actionable appropriation exists. In other words, when scenes or simple plot devices necessarily result from the same situation, or from a thematic concept such as a lost child being reunited with his parents, only *scenes a faire* are generated, and they are not protected by copyright law. See, e.g., *Atari, Inc. v. North Am. Philips Consumer Elecs. Corp.*, 672 F.2d 607 (7th Cir.), *cert. denied*, 103 S. Ct. 176 (1982); *Hoehling v. Universal City Studios*, 618 F.2d 972 (2d Cir.), *cert. denied*, 449 U.S. 841 (1980); *Reyher v. Children’s Television Workshop*, 533 F.2d 87 (2d Cir.), *cert. denied*, 429 U.S. 980 (1976); *Atari, Inc. v. Amusement World, Inc.*, 547 F. Supp. 222 (D. Md. 1981); *Alexander v. Haley*, 460 F. Supp. 40 (S.D.N.Y. 1978).

30. 547 F. Supp. at 229.

the images of spacecraft to be insufficient expressive elements for copyright protection because they were not separable from the mere idea of spacecraft.³¹ "Defendants used plaintiff's idea and those portions of plaintiff's expression that were inextricably linked to that idea. . . . The remainder of defendants' expression is different from plaintiff's expression."³²

Another case, *Atari, Inc. v. Ken Williams*,³³ also involved the "Pac Man" game. The disputed work, "Jawbreakers," consisted of a game visually similar to the "Pac Man" game. The appearance of the central figure in Jawbreakers differed from the "Pac Man" characters by having serrated teeth, and the pursuing figures had different colors and faces. The court found no actionable copying because the similarities were based upon common game themes, including the rules, strategy, and progress of the game's play—all unprotectable ideas.³⁴

Federal copyright law authorizes means of protecting the game other than relying solely upon the resultant display. Copyright law can be used to protect the game's computer program when expressed in textual format,³⁵ i.e., a source program.³⁶ The source program is the first level of program development and is both written and readable by humans. The requirements for copyright protection—original authorship and a writing fixed in a tangible medium—are easily met by a computer program in the source stage.³⁷ With video games, and many other computer

31. *Id.* at 230.

32. *Id.*

33. No. 81-410 (E.D. Cal. Dec. 28, 1981) (available prior to publication of this article on LEXIS, Genfed library, Dist file).

34. *Id.*

35. Textual works, such as the source program, fall within the 1976 Copyright Act's definition of literary works: "works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as books, periodicals, manuscripts, phonorecords, film, tapes, discs, or cards, in which they are embodied." 17 U.S.C. § 101 (1976).

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 as projectors, viewers, or electronic equipment, together with accompanying sounds, if any, regardless of the nature of the material objects, such as films or tapes, in which the works are embodied." 17 U.S.C. § 101 (1976).

36. See *supra* note 10. Under the 1976 Act, copyright protection accrues when a work is "fixed," that is, embodied "in any tangible medium of expression." 17 U.S.C. §§ 101, 102 (1976).

37. Congress perceived no need to specify, in the general provisions of the 1976 Act, the Act's coverage of computer software: "the new expressive forms—electronic music, filmstrips, and computer programs, for example—could be regarded as an extension of copyrightable subject matter Congress had already intended to protect, and were thus

uses, however, the source program is compiled or transformed into a language, the object code, which can only be read by a machine. This code is then chemically encoded onto microchips, creating ROMs or PROMs (Programmable Read Only Memories).³⁸

Although the Third Circuit recently held that computer formats fixed in a ROM are protectable by copyright,³⁹ the decisions by other courts indicate potential conflict.⁴⁰ The uncertainty as to the validity of copyright protection arises from two circumstances: by the author fixing the program in the electronic circuitry of the ROM and by the author expressing the program in a language readable only by machines.⁴¹ Whether a copyright holder creates a loophole in program protection when he embodies the program within the ROM is a matter of present controversy.⁴²

To deny copyright protection for the object code because of its immediate expression in a format unreadable by humans is no longer appropriate. One line of cases supporting denial begins with the 1908 decision in *White-Smith Music Publishing Co. v. Apollo*.⁴³ In that case, the Supreme Court held that a piano roll copied by the defendant did not infringe the plaintiff's copyright

considered copyrightable from the outset without the need of new legislation." H.R. REP. No. 1476, 94th Cong., 2d Sess. 51, reprinted in 1976 U.S. CODE CONG. & AD. NEWS 5664.

38. See *supra* note 10.

39. See *Apple Computers, Inc. v. Franklin Computers Corp.*, 545 F. Supp. 812 (E.D. Pa. 1982), *rev'd and rem.*, 714 F.2d 1240 (3d Cir. 1983). The Third Circuit reversed the lower court's denial of a preliminary injunction, and held that information in object codes and contained in a ROM are subject to copyright protection. The defendant had admitted copying the plaintiff's program.

40. See *Data Cash Systems, Inc. v. JS&A Group, Inc.*, 480 F. Supp. 1063 (N.D. Ill. 1979), *Aff'd on other grounds*, 628 F.2d 1038 (7th Cir. 1980) (see *infra* notes 48-52 and accompanying text); *Synercom Technology, Inc. v. University Computing Co.*, 462 F. Supp. 1003, 1013 (N.D. Tex. 1978) (the court in a similar context stated that computer input formats were not copyrighted).

41. See *Apple*, 714 F.2d 1240.

42. Numerous authors have addressed this issue. See, e.g., L. GASAWAY & M. MURPHY, LEGAL PROTECTION FOR COMPUTER PROGRAMS (1980); FINAL REPORT OF THE NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS 20-21 (1979) [hereinafter cited as CONTU FINAL REPORT]; Rose, *Protection of Intellectual Property Rights in Computers and Computer Programs: Recent Developments*, 9 PEPPERDINE L. REV. 547 (1982); Root, *Protecting Computer Software in the '80's: Practical Guidelines for Evolving Needs*, 8 RUTGERS COMPUTER & TECH. L.J. 205 (1981); Stern, *Another Look at Copyright Protection of Software: Did the 1980 Act Do Anything for Object Code?*, 3 COMPUTER/LAW J. 1 (1981).

43. 209 U.S. 1 (1908). See *Goldstein v. California*, 412 U.S. 546 (1973); *Data Cash Sys., Inc. v. JS&A Group, Inc.*, 480 F. Supp. 1063 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038 (7th Cir. 1980).

in the sheet music. The Court determined that this perforated piano roll was not a copy in terms of federal copyright law, but merely a component part of a machine.⁴⁴ Moreover, the piano roll could not be considered a direct form of communication between humans because, unlike sheet music, it was not visually readable.⁴⁵ In a 1973 decision, *Goldstein v. California*,⁴⁶ the Court reasoned that, prior to amendment in 1972, the Copyright Act did not prohibit record piracy because sound recordings were considered component parts of a machine.⁴⁷ Together, these cases imply that although an author can copyright the source program, copyrighting would not prevent duplication of the program when an author places it on a computer memory device. There would be no infringement of the copyrighted source program because no human communication would have taken place at the object code level.

An Illinois district court applied this rationale in a recent decision, *Data Cash Systems, Inc. v. JS&A Group, Inc.*,⁴⁸ which concerned a nonvideo computer game, "Compu-Chess." In *Data Cash*, the defendant produced a unit nearly identical to the plaintiff's unit by unloading the information contained in the plaintiff's ROM directly into the computer elements of the duplicated game. The *Data Cash* court ruled that under the 1976 Act,⁴⁹ computer programs were to be treated the same as they were under the earlier copyright laws.⁵⁰ This result was predicated upon section 117 as it was originally formulated under the 1976 Act. Section 117 stated:

Scope of Exclusive Rights: Use in Conjunction with Computers and Similar Information Systems. . . . [T]his title does not afford to the owner of copyright in a work any greater or lesser rights with respect to the use of the work in conjunction with automatic systems . . . than those afforded to works under the law, whether title 17 or the common law or statutes of the State, in effect on December 31, 1977. . . .⁵¹

44. *White-Smith*, 209 U.S. at 18.

45. *Id.* at 17.

46. 412 U.S. 546 (1973).

47. *Id.* at 566. Federal law did not, however, preempt California from authorizing additional protection.

48. 480 F. Supp. 1063 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038 (7th Cir. 1980).

49. See *supra* note 12 and accompanying text.

50. *Data Cash*, 480 F. Supp. at 1067.

51. 17 U.S.C. § 117 (1976), *amended by* 17 U.S.C. § 117 (Supp. IV 1980).

Applying the reasoning of the *White-Smith Music* line of cases,⁵² the *Data Cash* court determined that the placement of the computer program in object code created a loophole in protection, leaving the program open to unauthorized duplication.

The holding in *Data Cash* is inapplicable to current uses of computer programs. The 1976 Act relied upon in *Data Cash* was amended in 1980.⁵³ To fully understand these 1980 changes, a brief history of the 1976 Act is in order.

The desire to account for recent and far ranging technological advances was a major impetus for the extensive revisions of federal copyright laws.⁵⁴ The issue of whether computer programs are a fitting subject of copyright protection elicited considerable debate. At the time of enactment of the 1976 Act, Congress deferred the decision concerning computer programs. Congress appointed a special commission, the Commission on New Technological Uses of Copyright Works ("CONTU"), to gather information and make recommendations to Congress.⁵⁵ Meanwhile, Congress left the copyright status of computer programs unchanged.⁵⁶ Subsequently, the majority of the CONTU commissioners recommended a broad range of protection for computer programs, regardless of whether the program was expressed in machine readable language.⁵⁷

Pursuant to recommendations made by CONTU, Congress amended the 1976 Act, effective December 1980, to read: "Section 101 of Title 17 of the United States Code is amended to have at the end thereof the following new language: A 'computer program' is a set of instructions to be used directly or indirectly in a computer to bring about a certain result."⁵⁸ More importantly, Congress rewrote section 117, creating a nontransferable right to translate a program into another computer language or otherwise adapt it without liability.⁵⁹ Furthermore, this section no longer limits computer program protection to that existing under prior case law.⁶⁰ Section 117 now states:

52. See *supra* note 43 and accompanying text.

53. 17 U.S.C. § 117 (Supp. IV 1980).

54. CONTU, FINAL REPORT, *supra* note 42, at 3.

55. *Id.*

56. See *supra* note 51 and accompanying text.

57. CONTU, FINAL REPORT, *supra* note 42, at 9-26.

58. 17 U.S.C. § 101 (Supp. IV 1980).

59. See *supra* note 53 and accompanying text.

60. *Id.*

Notwithstanding the provisions of section 106, it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:

(1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or

(2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner.⁶¹

The presence of this limitation on exclusive use indicates, by negative implication, that protection for a computer program is valid even when translated into object code. If a source program can be "adapted" into object code as an essential step in the utilization of the original program without triggering infringement, then this provision would be unnecessary and meaningless. These 1980 amendments are consistent with the express congressional intent⁶² to eliminate the untenable distinctions created by the *White-Smith* line of decisions.

Since the 1980 amendments, one federal court has specifically held that the imprinting of a computer program onto a silicon chip satisfies the fixation requirement for a computer program without opening a loophole for unauthorized duplication.⁶³ Moreover, the court found the *Data-Cash* decision inapplicable.⁶⁴ Any remaining question of indirect communication invalidating copyright protection should be dispelled with the passage of the amendments.

61. 17 U.S.C. § 117 (Supp. IV 1980).

62. "[Section 102] is intended to avoid the artificial and largely unjustifiable distinctions, derived from cases such as *White-Smith* . . . under which statutory copyrightability in certain cases has been made to depend upon the form or medium in which the work is fixed." H.R. REP. NO. 1476, 94th Cong., 2d Sess. 52, reprinted in 1976 U.S. CODE CONG. & AD. NEWS 5665.

63. *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171 (N.D. Cal. 1981).

64. *Id.* at 175.

Although the information contained in the ROM is correctly viewed as a fitting subject matter for copyright protection, an additional problem exists. Several authors have raised the issue whether the object code is unprotected as an integral part of an electronic machine.⁶⁵ One author conceptually likened the ROM to a cam,⁶⁶ an integral part of a machine which serves to direct work as well as to perform work. Under this conception, the information contained in the memory device merely controls the processing of information retrieval and development, and in the normal course of operation the computer program fixed in the ROM does not communicate information, but simply performs a task.

The prohibition against copyrighting utilitarian devices should not, however, forestall protection of the information contained in the game's memory devices. The conceptualization of the object code as part of a utilitarian device is unnecessarily limited. It is true that an author cannot copyright a per se utilitarian device.⁶⁷ For example, although a copyright may protect a blueprint as a graphic work,⁶⁸ it does not protect the strictly utilitarian product designed from the blueprint,⁶⁹ such as a house or a machine. In other words, anyone can copy the useful object, absent a patent,⁷⁰ without infringement occurring. However, in a leading case on utilitarian devices, *Mazer v. Stein*,⁷¹ the Supreme Court refused to deny protection so long as the expressive form of a manufactured work can rationally be distinguished. In *Mazer*, the Court held that a sculptural base on a lamp was protectable despite its use in a common commercial product.⁷² The key appears to be whether the expressive elements of the utilitarian device can be perceived or expressed separately from the functional elements.⁷³

65. See *supra* note 42.

66. L. GASAWAY & M. MURPHY, *supra* note 42, at 29 for cases disallowing protection for useful objects.

67. See *infra* notes 71-73 and accompanying text. Moreover, 17 U.S.C. § 101 (1976) defines a useful article as: an "article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information."

68. See 1 M. NIMMER, *supra* note 3, § 2.08[D].

69. Once a structure is built from the plans, it would become an intrinsic utilitarian structure. See *Scholz Homes, Inc. v. Maddox*, 379 F.2d 84 (6th Cir. 1967).

70. See *infra* note 84.

71. 347 U.S. 201 (1954).

72. *Id.* at 218.

73. *Esquire, Inc. v. Ringer*, 591 F.2d 796, *cert. denied*, 440 U.S. 908 (1976). In *Esquire*, the court refused protection for a lighting fixture; although having an esthetic

Thus, the fixing of a copyrighted musical score into mechanical vinyl grooves on a record surface does not withdraw the work from protection because the music is still capable of being transferred or communicated with the aid of a machine.⁷⁴ The same reasoning should apply to copyrighted computer information. As the plaintiff in *Data Cash*⁷⁵ learned to his dismay, the information contained in a ROM is susceptible to being copied directly onto other memory devices.⁷⁶ Additionally, the information contained in the ROM is capable of being retranslated into a textual format (the source program) through the process of reverse compilation.⁷⁷

Conceptually, the message contained within the electronic circuitry known as a ROM can be perceived or transferred distinctly and separately from its utility as an electronic machine part. The 1976 Act, as amended, would seem to favor such a conceptual dichotomy.⁷⁸ Under the amended Act, it should make no qualitative difference whether an audio or video recording is fixed in an analog medium such as grooves imprinted onto a vinyl record surface, or in a slightly more indirect manner such as digital representations of sights and sounds.

In one video game case, *Williams Electronics, Inc. v. Artic International, Inc.*,⁷⁹ the court held that copyright law protects the computer program embodied in the ROM.⁸⁰ The court employed a comparison between readouts of the two programs to look for evidence of manifest similarity. The court found relevant indicia of similarity when it considered that over 85 percent of the information contained in the memory devices was identical, an error in the original game was repeated in the defendant's program, and a buried copyright notice appeared only when the contents of the memory devices were read.⁸¹

Technological advances have dramatically reduced the size

quality attributable to its modern design, this element was held inseparable from its function.

74. See *supra* notes 14 & 35.

75. 480 F. Supp. 1063 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038 (7th Cir. 1980).

76. *Id.* at 1066.

77. Just as a program is used to compile the source program into object code (see *supra* note 10), another program can be used to reverse this process.

78. See 1 M. NIMMER, *supra* note 3, § 2.04[C].

79. No. 81-1852 (D.N.J. June 24, 1981), *aff'd and rem.*, 685 F.2d 870 (3d Cir. 1982).

80. 685 F.2d at 871-77.

81. *Id.*

and price of recent generations of computers, while significantly increasing computational powers. As computers have become less cumbersome and less expensive, the trend in development of computer memory devices has become increasingly sophisticated and labor intensive.⁸² A concomitant ease of inexpensive copying of information contained in computer memory devices has accompanied this trend. Computer programs, in whatever format, regardless of being directly readable and understandable by humans, require intellectual and economic commitments. Computer video games offer one popular spinoff of the recent advances in computer memory devices. A movement toward protecting the information contained in the ROM is a healthy and important advance in copyright law.⁸³

Video game authors expect the popularity of their creations to be short-lived, and understandably seek to protect their intellectual and monetary interests. They are entitled to securely disseminate and promote their product before the public without fearing substantial losses through piracy. Federal copyright law provides a useful and valuable tool for protecting the intellectual labor represented by an author's expression. Copyright law may very well be the best means of protection available to a creator of a video game.⁸⁴ Once an author meets the basic requirements of copyright law, the law entitles the author to the full panoply

82. "[T]he critical factor in advancing computer technology over the next decade will be the development of software. Techniques for improving the production and efficiency of computer hardware are well advanced and trends in miniaturization can be expected to continue for several years. The result will be a continued reduction in hardware costs. At the same time, however, costs associated with computer software are expected to rise dramatically because they rely on human rather than machine capabilities." STAFF OF HOUSE COMM. ON SCIENCE AND TECHNOLOGY, 97TH CONG., 1ST SESS., SURVEY OF SCIENCE AND TECHNOLOGY ISSUES PRESENT AND FUTURE 70 (1981).

83. See generally CONTU, FINAL REPORT, *supra* note 42.

84. Several other means of protecting intellectual properties, such as patent, trademark, unfair trade practices, and common law misappropriation, are potentially open to authors of video games. Patent and trademark are fields unto themselves, and though important, demand more detail and space than can be given in this Comment. For a comparison of patent and copyright protection of computer software in general, see CONTU, FINAL REPORT, *supra* note 42, at 16-18. See also Rose, *Protection of Intellectual Property Rights in Computers and Computer Programs: Recent Developments*, 9 PEPPERDINE L. REV. 547 (1982); Root, *Protecting Computer Software in the '80's: Practical Guidelines for Evolving Needs*, 8 RUTGERS COMPUTER & TECH. L.J. 205 (1981). A common law misappropriation action is of questionable validity. Preemption is now a possibility under § 301 of the Copyright Act of 1976, 17 U.S.C. § 301 (1976). Cf. *Hoeling v. Universal City Studios, Inc.*, 618 F.2d 972, 980 (2d Cir.), cert. denied, 449 U.S. 841 (1980) (historical facts and ideas are excluded from federal copyright protection and therefore the states are preempted from granting such ideas or facts legal protection).

of statutory rights. The copyright holder can register his work for minimal costs.⁸⁵ The law entitles the holder to a long term property right⁸⁶ in the work and the exclusive right to reproduce⁸⁷ the work or create derivative works.⁸⁸ In the case of infringement, the holder can seek actual or statutory damages,⁸⁹ attorneys fees,⁹⁰ and in certain cases, seizure and destruction of offending materials.⁹¹ Although the computer era presents new challenges to the courts, the holder of a video game copyright should not be denied this valuable protection.

The copyright laws as currently promulgated are capable of protecting both a computer program and an audiovisual display when fixed in the quasi-mechanical medium of a ROM. Fixing a program in a ROM should not create a loophole in protection. The simplicity of plot and images within some audiovisual displays should not by themselves withdraw a video game from the ambit of federal copyright protection. The game should be examined as a unit. Although the display may be of a simple nature, this does not indicate a simple underlying computer program. Courts should consider whether the computer program has been duplicated as a factor in determining copyright infringement.

Jeffrey B. Mahan

85. 17 U.S.C. § 708 (1976).

86. 17 U.S.C. §§ 302-05 (1976).

87. 17 U.S.C. § 106 (1976).

88. 17 U.S.C. § 103 (1976).

89. 17 U.S.C. § 504 (1976).

90. 17 U.S.C. § 505 (1976).

91. 17 U.S.C. § 509 (1976).