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SCOPE OF PROTECTION FOR COMPUTER PROGRAMS UNDER THE COPYRIGHT ACT

A recent announcement from the Copyright Office indicated that it has reversed its long standing position and will now consider registration for a computer program as a "book" in Class A provided certain requirements are met. The announcement itself expresses misgivings as to the copyrightability of computer programs and whether a reproduction of the program in a form capable of being read only by a machine, such as magnetic tape, is a "copy" that can be accepted for registration. These issues must eventually be solved by the courts, but assuming that they will be answered in favor of copyrightability there remains the even more complex question of the scope of protection to be accorded copyrighted computer programs. This paper is addressed to the latter question.

For the purposes of this article, a computer program may be thought of as a consistent set of instructions which control the transfer of data within the computer and instruct the computer to perform certain logical operations which may include computation on the raw data fed into the computer. It may appear in the form of a flow chart, a set of instructions written in a computer-oriented notation, a punched paper tape, a deck of punched cards or a magnetic tape. The basic motivation for gaining copyright protection for a computer program is to license it or offer it

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2 The three conditions that must be met are, briefly: (1) original authorship, (2) publication of copies "in a form perceptible or capable of being made perceptible to the human eye" and bearing the required notice [17 U.S.C. § 10 (1958)], and (3) deposing of copies for registration to consist of or include reproductions in a language intelligible to human beings.

3 This paper is concerned specifically with programs for digital computers capable of executing internally stored programs. It is assumed that the reader has some minimal familiarity with the nature of computer programs and functions performed by a computer. For more detailed information concerning the nature of a computer program and the technical aspects of computer hardware see Rackman, The Patentability of Computer Programs, 38 N.Y.U.L. Rev. 891 (1963), and references cited.

4 Note the possibility of a computer infringing a copyright as where the raw data upon which the computer operates has been copyrighted, such as a compilation or directory. Also, it is possible that the data resulting from these operations is copyrightable. These considerations are not directly dealt with here, but the general aspects of infringement considered here are, of course, applicable.
for sale since, unlike the patent law which prevents any subsequent use of the subject matter of a valid patent, one could not be prevented from using a copyrighted computer program if he had developed the program through his own independent effort. If the information contained in the programs were of the nature of a trade secret or a shop right or subject generally to the protection of the common law of copyright or unfair competition, one who did not wish to lease or sell the program would gain negligible additional protection at the expense of publishing the information and possibly reducing his competitive advantage. These considerations make it even more important that a prospective offeror know the limits of protection offered him under the Copyright Law. It is therefore necessary to investigate the specific statutory provisions and how the courts have interpreted them, what considerations might be important in formulating a general test for infringement to be applied to copyrighted computer programs, and how the doctrine of fair use might create exceptions to a general infringement test.

**Protection under the Statute**

The basic grant of exclusive rights given to persons entitled to copyright protection is found in Section 1 of the Copyright Act. Section 1 (a) grants the exclusive right: "... (a) To print, reprint, publish, copy, and vend the copyrighted work..." The leading case in determining

8 For remedies available once a valid copyright has been granted see Studies Prepared for the Subcommittee on Patents, Trademarks, and Copyrights Pursuant to S. Res. 240, 86th Cong., 2nd Sess., Study No. 24, "Remedies Other Than Damages for Copyright Infringement."
9 A fundamental issue in trying to determine the scope of protection afforded a new art under the copyright law is to determine whether the new works can be held to be within the purview of legislation passed before the new art was known or invented. 17 U.S.C. § 1, which grants the basic exclusive rights to holders of copyrights, has remained unchanged since 1953 [subsection (c) was amended by Act of July 17, 1952, effective Jan. 1, 1953]. One writer who addressed himself to this problem with respect to the then new art of video tapes concluded after reviewing the cases in which this issue was raised that "... the mere fact that the copyright legislation which is urged as applicable antecedes the invention or development of a new art will not, of itself, prevent the court from holding the legislation to be applicable to the new art." Meagher, Copyright Problems Presented by a New Art, 30 N.Y.U.L. REV. 1081, 1082 (1955).
whether or not a copyrighted work has been infringed by an alleged "copy" is *White-Smith Music Publishing Co. v. Apollo Co.*, and since writers differ as to the holding of the *White-Smith* case, it is necessary to examine it in detail. It should be noted that the case has a direct bearing on whether recordation on magnetic tape or in the internal storage facility of the computer of a copyrighted computer program constitutes an infringement. The plaintiff had copyrighted a musical composition in the form of sheet music and alleged that defendant's act of implementing a coding of the music on a perforated roll designed to control a player piano was an infringement of his copyright. The court held noninfringement and discussed the issue of what constitutes a copy:

Musical compositions have been the subject of copyright protection since the statute of Feb. 3, 1831 . . ., and laws have been passed including them since that time. When we turn to the consideration of the act it seems evident that Congress has dealt with the tangible thing, a copy of which is required to be filed with the Librarian of Congress and whenever the words are used (copy or copies) they seem to refer to the term in its ordinary sense of indicating reproduction or duplication of the original.

Having reasoned that the roll was not in fact a copy of the specific "tangible" required to be registered with the Librarian of Congress, the court elaborated on the meaning of "copy":

What is meant by copy? . . . A definition was given by Bailey, J. in *West v. Francis*, 5 Barn & Ald. 743, quoted with approval in *Boosey v. Whight*, supra. He said: "A copy is that which comes so near to the original as to give to every person seeing it the idea created by the original."

Various definitions have been given by the experts called in the case. The one which most commends itself to our judgment is perhaps as clear as can be made, and defines a copy of a musical composition to be "a written or printed record of it in intelligible notation." It is true that in a broad sense a mechanical instrument which reproduces a tune copies it; but this is a strained and artificial meaning. When the combination of musical sounds is reproduced to the ear it is the original tune as conceived by the author which is heard.

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11 209 U.S. 1 (1908).


14 It is to be noted that player piano rolls had never been copyrighted at the time the case was decided and this was, of course, not the issue; nevertheless, a distinction should be made that the court was not deciding, and could not decide, what the outcome might have been had the plaintiff deposited a piano roll with his composition encoded on it along with the sheet music.
These musical tones are not a copy which appeals to the eye. In no sense can musical sounds which reach us through the sense of hearing be said to be copies, as that term is generally understood. . . .15

The court seemed to be disturbed by the fact that should they extend copyright to the combination of sounds they would be extending the monopoly beyond that which was intended by Congress into the area of ideas and mental conceptions,16 against which a prohibition had been well established.17 The court went on:

A musical composition is an intellectual creation which first exists in the mind of the composer; he may play it for the first time upon an instrument. It is not susceptible of being copied until it has been put in a form which others can see and read. The statute has not provided for the protection of the intellectual conception apart from the thing produced, however meritorious such conception may be, but has provided for the making and filing of a tangible thing, against the publication and duplication of which it is the purpose of the statute to protect the composer.18

The court in weighing the public interest19 against extending the author's monopoly beyond copying of the object registered with the protection afforded him under the statute, decided to qualify the theretofore accepted definition of "copy" by adding the requirement that any alleged copy of a musical composition be "a written or printed record of it in intelligible notation."20 This qualification certainly does not apply to those copyrighted objects and works that are not deposited in such form.21 The court then went on to hold that the perforated rolls were designed to operate a machine and not to be read by humans as is a music sheet. Consequently there was no infringement. The qualification that a copy be in written form may have come from the Constitutional requirement of "writing,"22 but this is really an issue relating to registrability of works

15 209 U.S. at 17.
18 209 U.S. at 17.
19 That public interest has a very strong effect on framing a test for infringement, see the discussion, infra.
20 It is the wording of this qualification that apparently has lead to the diversity of opinion indicated in note 12, supra.
21 As has been suggested in note 14, supra, if the rolls themselves were copyrightable and the qualification applied there would be absolutely no possibility of infringement. The intriguing question of whether the rolls were copyrightable became moot the following year when Congress enacted the present section 1(e) (Act of March 4, 1909) extending protection to mechanical reproduction of copyrighted musical works.
22 The U.S. Const. art I, § 8, clause 8 states that Congress shall have power "to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."
and not as to whether a work validly copyrighted has been infringed, as will be seen in subsequent discussion. It is submitted that the White-Smith decision stands for the proposition that where a work has been copyrighted in intelligible notation, a different coding, however much it be designed to exactly reproduce the original via mechanical manipulations, does not infringe. The scope of protection afforded a work registered in unintelligible form accompanied by an intelligible form of the work and and copied exactly in the same physical representation was not decided.

The White-Smith case did not prevent a different court in a test case from holding that it is an infringement in violation of section 1(a) to make a positive film from plaintiff's copyrighted negative of a non-dramatic movie film and then to make negatives from the positive. The court took the position that even though none of the words used in section 1 are applicable to a motion picture, it is impossible that Congress could have provided for a valid copyright of motion pictures and given no exclusive right on which an author might derive a reward. Quoting Justice Day with approval, the court said:

Under this grant of authority a series of statutes have been passed, having for their object the protection of the property which the author has in the right to publish his production, the purpose of the statute being to protect this right in such a manner that the author may have the benefit of this property for a number of years. These statutes should be given a fair and reasonable construction with a view to effecting such purpose.

The court went on to say that the White-Smith case was not contrary to their holding since the perforated roll was not a duplication of the written musical composition itself. It has also been held that a recording may be a "copy" of another recording, though neither is a "copy" of the musical composition recorded.

It is clear that one seeking protection for computer programs under section 1(a) must not proceed upon the contention that what he has really done is to gain a monopoly on the intellectual conception for a plan or set of procedures for operating a computer. This approach

23 Patterson v. Century Productions, Inc., 93 F.2d 489, (2d Cir. 1937), cert. denied, 303 U.S. 655 (1938). The decision was criticized in the Report of the Register of Copyrights on the General Revision of the U.S. Copyright Law (1961), at p. 28 but is recognized as representing the existing law on the subject. See also HOWELL, COPYRIGHT LAW 131-32 (Latman ed. 1962).

24 Act of 1909, § 11.


26 Supra note 23, at 493.

27 Aeolian Co. v. Royal Music Roll Co., 196 Fed. 926 (2d. Cir. 1912).

strikes at the foundation of the apprehension felt by the court in the *White-Smith* case.

Another subsection of the statute that is of interest to those seeking protection for computer programs is 1(c) which grants the exclusive right "to make or procure the making of any transcription or record thereof by or from which, in whole or in part, it may in any manner or by any method be exhibited, delivered, presented, produced, or reproduced"\(^{29}\) to authors of any nondramatic literary work. The statute does not define the term literary work, but Howell's *Copyright Law* has the following comment:

The "literary work" here is not confined to belles-lettres or works of elevated thought or language but includes as well works in the vernacular. The term . . . is distinguishable from other such copyrightable subjects as pictures, painting, music, motion pictures, and the like. A writing in the form of an advertisement, a direction sheet for a game, or an item appearing in the column of a newspaper, would if duly copyrighted, enjoy the right here secured.\(^{30}\)

This section has been interpreted by the register of copyrights in view of *White-Smith* to cover only sound recordings and all forms of visual record such as a stenographic transcription or a motion picture of a performance.\(^{31}\) It is submitted, however, that no court would refuse to find infringement were a copyrighted sermon or play transcribed in braille, for instance, by a machine similar to a shorthand typewriter that had its output in braille notation. The only difference between this type of recording and an unmarked deck of perforated cards on which a program might be reproduced is that the former is intended for human interpretation and the latter for machine interpretation.\(^{32}\) A microfilm is difficult if not impossible to perceive without the aid of a machine yet it certainly would infringe the right granted to a copyrighted work as a copy.

Section 1(b) also applies to literary works and grants the right "To translate the copyrighted work into other languages or dialects, or make any other version thereof."\(^{33}\) The language of this section has been given a strict construction in *Corcoran v. Montgomery Ward and Co., Inc.*,\(^{34}\)

\(^{29}\) 17 U.S.C. § 1(c) (1958).

\(^{30}\) Howell, *op. cit. supra* note 23, at 134.


\(^{32}\) Compare Lawlor, *Copyright Aspects of Computer Usage*, 11 *Bull. Copyright Soc’y. U.S.A.* 402 (1964) which suggests that an unmarked perforated card does not constitute a copy, with Banzhaf, *supra* note 12 indicating that the legislative intent of section 1(c) was to protect "all recordation rights in nondramatic literary works," citing H. R. Rep. No. 1160, 82nd Cong., 1st Sess., p. 2 (1951).


\(^{34}\) 121 F.2d 572 (9th Cir. 1941), *cert. denied*, 314 U.S. 647 (1941).
which held that the exclusive right to make "any other version" was not infringed by one who set a copyrighted poem to music and made a phonograph record of the composition. The section, however, has been held to include the right to make abridgements of a copyrighted work. A liberal construction of this section of the statute would grant protection for an algorithm expressed in the form of an information flow chart from being coded literally into a computer-oriented language. This appears to be the most generic type of protection that could be given to computer programs under the copyright law, but it seems unrealistic to expect such protection in view of the Corcoran decision. It is submitted that section 1(b) would protect a line-for-line translation from one computer-oriented language to another or from the machine language of one computer system to that of another computer system despite the Corcoran decision.

TEST FOR INFRINGEMENT

Any test for the infringement of a copyright should be considered within the context of the doctrine of fair use. However difficult it may be to decide on a fact basis that a given use is not technically an infringement while another, though a technical infringement, is permissible within the doctrine of fair use, it helps to separate the two issues when speaking generally since certain circumstances may fall clearly within one and not the other of these categories. A test for infringement of a copyrighted work, like the doctrine of fair use, is applied on an ad hoc basis by a court facing a fact situation. As Judge Learned Hand phrased it:

The test for infringement of a copyrighted work 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 "ideas" disclosed but only their "expression." Obviously, no principle can be stated as to when an imitator has gone beyond copying the "idea," and has borrowed its "expression."

The most important consideration the court faces is to determine to what extent the public interest may militate against the exclusive right given to the author. Where there is public interest in the facts being in the public domain as with scientific journals, business procedures, maps, or compilations, courts have emphasized the actual appropriation of

35 G. Ricordi & Co. v. Mason, 201 Fed. 184 (2d Cir. 1911), aff'd 210 Fed. 277 (2d Cir. 1913).
36 An example of a computer-oriented language is FORTRAN; machine language is the binary representation of information in the form of electrical signals capable of controlling the computer.
37 The doctrine of fair use is discussed infra.
38 Peter Pan Fabrics, Inc. v. Martin Weiner Corp., 274 F.2d 487 at 489 (2d Cir. 1960).
language in finding infringement. On the other hand, a serious dramatic work is protected against appropriation of the theme in a television parody. One writer suggests that the courts have applied different tests to works of literary or artistic merit and fact works. There is essentially a trade-off between the right of an author to the product of his creative intellect and his imagination and the right of the public in the dissemination of knowledge and the promotion and progress of science and the useful arts which is the constitutional mandate. It is to be noted that this is quite a different concept from the public interest in having works of high literary quality for which no additional protection is afforded. The public interest, for example, strongly favors the dissemination of information in the publication of legal reference books.

In the case of computer programs, it is submitted that verbatim hand or machine copying should be treated as discussed above under the specific statutory grants provided that the copyright is held to be valid. However, one must look to the nature and function of the contents of the program when determining the issue of infringement in related uses such as checking one's original work for errors or incorporating a portion of a copyrighted program without consent though the new program may have been designed for another use. It may be helpful to consider how the courts have faced similar situations in the past.

The case of *Eisenschiml v. Fawcett Publications, Inc.*, dealt with a situation where the plaintiff, one of the world's leading scholars on the last months of Lincoln's life and the circumstances of his death, incorporated theories which were original with him and facts which he had discovered through his own research. Defendant's summary of the assassination plot, based on plaintiff's work was held not to infringe. Facts uncovered by researchers as well as ideas, however creative, original or inventive they may be are subject to appropriation by subsequent authors. At the oppo-

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45 246 F.2d 598 (7th Cir. 1957), *cert. denied*, 355 U.S. 907 (1957).
site pole is the case of *Triangle Publications, Inc. v. New England Newspaper Publishing Co.*,\(^{46}\) which held that plaintiff's copyrighted tables of statistics relating to the performances of race horses was infringed when "defendants read the symbols, mathematical notations and cryptic expressions in plaintiff's race result charts and then stated the same information in equivalent words."\(^{47}\) The *Triangle* decision has been criticized\(^{48}\) because the court ignored the difference between fact works and literary works.\(^{49}\) It is submitted that the *Triangle* decision is not bad law since one consideration in determining the public interest is to what extent the public is likely to rely on the work and to what extent public reliance on incorrect information will impede the progress of science and the useful arts.

Other situations such as cite-checking,\(^{50}\) private research,\(^{51}\) development of mathematical tables,\(^{52}\) indexing\(^{53}\) and paraphrasing\(^{54}\) are issues that are likely to arise in considering infringement of a copyrighted computer program. The issues must, as noted above, be determined *ad hoc*, looking to the contents, nature and function of the particular copyrighted program which the plaintiff alleges has been infringed.

**DOCTRINE OF FAIR USE**

The doctrine of fair use is a restriction or limitation on the exclusive rights given to a copyright proprietor which has evolved in judicial interpretation of statutory grants.\(^{55}\) No rigid rules can be applied to all situations.\(^{56}\) Rather, certain criteria have applied depending on the situations involved.\(^{57}\)

Judge Yankwich found the basis of American case law in this area to be founded in the decision of Justice Story in the case of *Folsom v. Marsh*\(^{58}\) and suggests the important elements to be: "(1) the quantity and importance of the portion taken; (2) their relation to the work of which

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\(^{47}\) *Id.* at 202.

\(^{48}\) Another writer has approved the holding, see Jackson, "Fact Works": Copyrightability and Infringement," 45 J. Pat. Off. Soc'y. 833, 836 (1963).

\(^{49}\) Gorman, *supra* note 41, at 1579 and 1581.

\(^{50}\) Gorman, *supra* note 41, at 1585.

\(^{51}\) Petre, *supra* note 12, at 168.

\(^{52}\) Gorman, *supra* note 41, at 1574.

\(^{53}\) Lawlor, *supra* note 12, at 399.


\(^{55}\) See Cooper, *supra* note 54, at 56.

\(^{56}\) Yankwich, *supra* note 42, at 213.

\(^{57}\) See generally *Study No. 14 prepared for the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, United States Senate, 86th Cong., 2d Sess.*, pursuant to S. Res. 240 (1960), at p. 7.

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they are a part; (3) the result of their use upon the demand for the copyrighted publication.”

It is to be noted that the doctrine is so well established that the proposed general revision of the U.S. Copyright Law has recognized it and included certain criteria to be used in determining whether a use is fair.

Fair use has been applied to many situations, but it is believed that its principle effect relative to narrowing copyright protection of computer programs is in the area of the scientific application of a program. Where the interest of the user is strictly in the interest of the advancement of science, fair use implies consent. This would appear to be true even though the program was primarily designed for scientific applications unless the plaintiff can show that such use has diminished the commercial value of the author's right. The court is likely to find it not substantial that the only loss to plaintiff has been the loss of a license or sale to this one particular user.

However, if the unauthorized use of the program in any way competes with the original program or is strictly for the commercial gain of the user, fair use will not be a defense regardless of the quantity taken.

CONCLUSION

The Copyright Office, after considerable soul-searching, has decided to accept computer programs for registration. There is no reason to believe the courts will not uphold the validity of the copyright of computer programs which promote the progress of science and the useful arts. When considering what might be the rights of the author or his successor in interest, one looks to Section 1 of the Copyright Act. Subsection 1 (a) as interpreted by the Supreme Court in the White-Smith case will grant protection against reproducing the program in any form duly registered with the Copyright Office whether in written form or intelligible only through the aid of a machine as long as a copy capable of human perception has also been deposited. The basic reasoning behind this is that to do so would not extend the monopoly to the ideas embodied in the

59 Yankwich, supra note 42, at 212.
62 Jackson, supra note 49, at 847.
63 See Cooper, supra note 54, at 63.
65 Yankwich, supra note 42, at 209.