

## Protection of Proprietary Rights in Computer Programs: A "Basic" Formula for Debugging the System

Kevin F. Cavaliere

Follow this and additional works at: <https://scholarship.law.stjohns.edu/lawreview>

---

This Note is brought to you for free and open access by the Journals at St. John's Law Scholarship Repository. It has been accepted for inclusion in St. John's Law Review by an authorized editor of St. John's Law Scholarship Repository. For more information, please contact [selbyc@stjohns.edu](mailto:selbyc@stjohns.edu).

# PROTECTION OF PROPRIETARY RIGHTS IN COMPUTER PROGRAMS: A "BASIC" FORMULA FOR DEBUGGING THE SYSTEM

## INTRODUCTION

It has been suggested that the computer possesses "inevitable potential . . . in almost every field of human endeavor."<sup>1</sup> Indeed, in the past 30 years, computers have played a dominant role in the development of the American economy.<sup>2</sup> The novelty and advanced technology of these machines, however, have given rise to a variety of legal problems.<sup>3</sup> One of the major areas of concern is the

---

<sup>1</sup> Schmidt, *Legal Proprietary Interests in Computer Programs: The American Experience*, 21 JURIMETRICS J. 345, 347 (1981). The term "computer," as used throughout this Note, refers to a digital computer. In a digital computer, data is represented by digits, and problems are solved by arithmetical calculations. *Gottschalk v. Benson*, 409 U.S. 63, 65 (1972). An analog computer, unlike its digital counterpart, utilizes electrical analogs to solve a given problem by "drawing an analogy between the variables of the problem, and certain electrical quantities." D. BENDER, *COMPUTER LAW: EVIDENCE AND PROCEDURE* § 2.01, at 2-5 (1982). One example of an analog device is the thermometer, which analogizes the height of mercury to a specific temperature. See *id.* § 2.01, at 2-4.

The digital computer contains five main elements: the input unit, which enters the data into the computer; the memory unit, which retains the data; the control unit, which guides the computer pursuant to the stored data; the arithmetic unit, which implements the logical process; and the output unit, which manifests the result of the previous operations. Note, *The Patentability of Computer Programs*, 38 N.Y.U. L. REV. 891, 891 n.2 (1963).

<sup>2</sup> See Note, *Computer Programs and Proposed Revisions of the Patent and Copyright Laws*, 81 HARV. L. REV. 1541, 1541 (1968). Prior to 1950, various kinds of computers were constructed, but each type proved to be either difficult to program or limited in its capabilities. See D. BENDER, *supra* note 1, § 1.02[2]. The modern stored-program computers, which incorporated basic operations directly into the circuitry, became popular in the 1950's. See *id.* § 1.02[3]. By the latter part of that decade, these machines were refined to be "smaller, cheaper, faster . . . , more reliable, and thirty times as economical to operate." *Id.* Since that time, computers have been used in a multitude of areas, see *id.* § 3.01, including airline reservation systems, management information systems, manufacturing, weather forecasting, mathematical simulation, patient monitoring systems, and hospital record maintenance, *id.* §§ 3.02-.07; see Note, *supra* note 1, at 891 n.1. For extensive discussions of how computers have been utilized in the legal system, see *THE LAW OF COMPUTERS* (G. Holmes & C. Norville eds. 1971); *THE USE OF COMPUTERS IN LITIGATION* (J. Young, M. Kris, & H. Trainor eds. 1979).

<sup>3</sup> Schmidt, *supra* note 1, at 349. In addition to the problem of providing protection for proprietary rights in computer programs, there are both substantive and procedural difficulties inherent in the use of these programs. *Id.* at 347. The substantive areas of concern

protection of proprietary rights in computer programs.<sup>4</sup> In light of the estimate that the total value of computer software in the United States is "in the tens of billions of dollars" and steadily increasing,<sup>5</sup> it appears that an in-depth examination of this problem is merited.

Traditionally, a developer of computer software has sought to protect his proprietary rights by recourse to the patent, copyright, or trade secret laws.<sup>6</sup> Appeal to each of these sources of protection, however, has spawned difficulties which have evaded uniform resolution.<sup>7</sup> For instance, a major question concerning the patent and copyright laws is whether a computer program is proper subject matter for protection.<sup>8</sup> In the trade secret realm, courts have been burdened with the task of determining whether federal patent and copyright laws preempt state laws governing trade secrets<sup>9</sup> and, as

---

include computer crimes and torts, contract questions, and the effect computers have had upon basic human rights. *Id.* Additionally, the characterization of computer software as either tangible or intangible property has sparked controversy in the tax field. *See Bigelow, The Computer and the Tax Collector*, 30 EMORY L.J. 357, 358 (1981). In the procedural realm, computers have impacted upon discovery, trial preparation, and trial procedure. *See generally* D. BENDER, *supra* note 1, §§ 9.01-.02.

<sup>4</sup> This Note examines patent, copyright, and trade secret protection of computer programs in order to emphasize that clear legislative action is needed to eliminate the confusion existing in these fields. For other commentaries which focus upon the question of legal protection for computer programs, see Bender, *Computer Programs: Should They Be Patentable?*, 68 COLUM. L. REV. 241 (1968); Note, *Copyright Protection for Computer Programs*, 64 COLUM. L. REV. 1274 (1964); Note, *supra* note 2; Note, *Adequate Legal Protection for Computer Programs*, 1968 UTAH L. REV. 369; Comment, *The Protection of Property Rights in Computer Software*, 14 AKRON L. REV. 85 (1980).

<sup>5</sup> *See* Schmidt, *supra* note 1, at 345-46 & n.2. The growth of the computer industry in general has been rapid. *See* D. BENDER, *supra* note 1, § 1.03. In the 1950's, there were approximately 20 computers in the United States, with the value of computing equipment estimated to be close to \$820 million. *Id.* By 1975, the respective figures had climbed to 212,000 and \$40.8 billion. *Id.*

<sup>6</sup> Note, *Protection of Computer Programs: Resurrection of the Standard*, 50 NOTRE DAME LAW. 333, 334 (1974); *see, e.g.,* Gottschalk v. Benson, 409 U.S. 63, 64 (1972) (patent protection); Synercom Technology, Inc. v. University Computing Co., 462 F. Supp. 1003, 1007-08 (N.D. Tex. 1978) (copyright protection); Sperry Rand Corp. v. Pentronix, Inc., 311 F. Supp. 910, 911 (E.D. Pa. 1970) (protection under trade secret law).

<sup>7</sup> *See infra* notes 8-10 and accompanying text.

<sup>8</sup> *See, e.g.,* Diamond v. Diehr, 450 U.S. 175, 177 (1981); Parker v. Flook, 437 U.S. 584, 585 (1978); Gottschalk v. Benson, 409 U.S. 63, 64 (1972); Tandy Corp. v. Personal Micro Computers, Inc., 524 F. Supp. 171, 172-73 (N.D. Cal. 1981); Data Cash Sys., Inc. v. JS&A Group, Inc., 480 F. Supp. 1063, 1068-69 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038, 1040 (7th Cir. 1980).

<sup>9</sup> *See, e.g.,* Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 472 (1974); Warrington Assocs., Inc. v. Real-Time Eng'g Sys., Inc., 522 F. Supp. 367, 368 (N.D. Ill. 1981); Avco Corp. v. Precision Air Parts, Inc., 2 COPYRIGHT L. REP. (CCH) ¶ 25,207, at 16,157 (M.D. Ala. Sept. 4, 1980), *aff'd on other grounds*, 676 F.2d 474 (11th Cir. 1982).

fundamentally, whether particular subject matter constitutes a "secret."<sup>10</sup>

Clearly, the patent, copyright, and trade secret laws, as presently interpreted, have not been completely effective methods of protecting proprietary rights in computer programs.<sup>11</sup> This Note will examine the major cases and statutes which have contributed to the inadequacies of each of these protective bodies of law. The Note will conclude that because the current methods have failed to provide sufficient protection for the software industry, separate legislation designed specifically for the protection of computer programs should be enacted. To assist in this endeavor, the Note proffers a statute which is intended to enable owners to secure full proprietary protection for their computer programs. In order to obtain such protection, the Note further suggests, a program owner must be willing to employ more than one protective form. Finally, the Note briefly demonstrates how these proposals effectuate the basic policies underlying computer program protection.

#### PATENTABILITY

The United States Constitution empowers Congress to provide authors and inventors with protection against plagiarism of their work product.<sup>12</sup> Pursuant to this authorization, section 101 of the Patent Act declares that a patent may be obtained by anyone who "invents or discovers any new and useful process, . . . subject to . . . [certain] conditions and requirements . . . ."<sup>13</sup> "Process," as defined by the statute, is equivalent to art or method.<sup>14</sup> The ques-

<sup>10</sup> See, e.g., *Motorola, Inc. v. Fairchild Camera & Instrument Corp.*, 366 F. Supp. 1173, 1183-84 (D. Ariz. 1973); *Com-Share, Inc. v. Computer Complex, Inc.*, 338 F. Supp. 1229, 1234-35 (E.D. Mich. 1971), *aff'd per curiam*, 458 F.2d 1341 (6th Cir. 1972).

<sup>11</sup> See Comment, *Computer Program Protection: The Need to Legislate a Solution*, 54 CORNELL L. REV. 586, 589 (1969) ("there has been only limited success in obtaining effective protection"); see also Note, *supra* note 6, at 343 ("programmer's only current recourse is to treat the program as a trade secret").

<sup>12</sup> U.S. CONST., art. I, § 8, cl. 8. Section 8, clause 8 of article I provides that Congress has the 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 . . . ." *Id.*; see P. ROSENBERG, *PATENT LAW FUNDAMENTALS* III-1 (2d ed. 1982).

<sup>13</sup> 35 U.S.C. § 101 (1976). Since 1790, Congress has enumerated the categories of statutory subject matter. P. ROSENBERG, *supra* note 12, § 6.01, at 6-2. It was not until the present Act, however, that the word "process" appeared. *Id.* It is this "process" category of patentable subject matter that has caused the most difficulties in interpretation. *Id.* at 6-3.

<sup>14</sup> 35 U.S.C. § 100(b) (1976). Section 100(b), in addition to defining the term "process," states that this class of statutory subject matter "includes a new use of a known process,

tion as to whether computer software is embraced by this definition, however, has been left to judicial interpretation.

The Supreme Court first confronted the issue of computer program patentability in *Gottschalk v. Benson*.<sup>15</sup> In *Benson*, the patent applicants claimed a new method which, with the aid of a programmed digital computer, allegedly converted binary-coded decimal numerals into pure binary form.<sup>16</sup> Their claims, however, were not limited to any specific technology, machinery, or end-use of the method.<sup>17</sup> The Court held that the applicants' programming method was not a "process" within the meaning of the Patent Act and was, therefore, unpatentable.<sup>18</sup> In so deciding, Justice Douglas reasoned that the plaintiffs' "process" claim was overbroad in that it "covered both known and unknown uses" of the conversion method.<sup>19</sup> Additionally, the Court stated that the mathematical

---

machine, manufacture, composition of matter, or material." *Id.*

<sup>15</sup> 409 U.S. 63 (1972). Prior to 1968, patent law principles apparently would have precluded patentability of computer programs. *Diamond v. Diehr*, 450 U.S. 175, 195 (1981) (Stevens, J., dissenting). Specifically, the "function of a machine" doctrine classified as unpatentable any process which simply described the function of a particular machine. *Id.* at 196 (Stevens, J., dissenting); see *Expanded Metal Co. v. Bradford*, 214 U.S. 366, 383 (1909); *Westinghouse v. Boyden Power Brake Co.*, 170 U.S. 537, 554-57 (1898); *Risdon Iron & Locomotive Works v. Medart*, 158 U.S. 68, 78-79 (1895); *Corning v. Burden*, 56 U.S. (15 How.) 252, 268 (1853). This doctrine enjoyed wide acceptance in a number of lower courts. See, e.g., *Black-Clawson Co. v. Centrifugal Eng'g & Patents Corp.*, 83 F.2d 116, 119-20 (6th Cir.), cert. denied, 299 U.S. 554 (1936); *Chisholm-Ryder Co. v. Buck*, 65 F.2d 735, 736 (4th Cir. 1933); see also *In re Gartner*, 223 F.2d 502, 504 (C.C.P.A. 1955); *In re Horvath*, 211 F.2d 604, 607-08 (C.C.P.A. 1954); *In re Ashbaugh*, 173 F.2d 273, 274-75 (C.C.P.A. 1949); *In re Nichols*, 171 F.2d 300, 302-03 (C.C.P.A. 1948); *In re Middleton*, 167 F.2d 1012, 1013-14 (C.C.P.A. 1948); *In re Solakian*, 155 F.2d 404, 407 (C.C.P.A. 1946); *In re Mead*, 127 F.2d 302, 304 (C.C.P.A. 1942); *In re Wadman*, 94 F.2d 993, 998 (C.C.P.A. 1938); *In re Ernst*, 71 F.2d 169, 171-72 (C.C.P.A. 1934). Additionally, under the "mental steps" doctrine, purely mental operations did not constitute a patentable process. See *In re Shao Wen Yuan*, 188 F.2d 377, 380-81 (C.C.P.A. 1951); *In re Heritage*, 150 F.2d 554, 556 (C.C.P.A. 1945). The basis of this doctrine was the well-established rule that a scientific concept or mere idea is unpatentable. *Diamond v. Diehr*, 450 U.S. 175, 195 (1981) (Stevens, J., dissenting); see, e.g., *In re Bolongaro*, 62 F.2d 1059, 1060 (C.C.P.A. 1933). The "mental steps" doctrine was used primarily to prevent patentability of inventions involving mathematical computations. See, e.g., *In re Shao Wen Yuan*, 188 F.2d at 379-80; *Bolongaro*, 62 F.2d at 1060. In addition, this doctrine was employed to deny patentability in cases where the only inventive element of the patent claim was the mental computation. See, e.g., *Halliburton Oil Well Cementing Co. v. Walker*, 146 F.2d 817, 821-23 (9th Cir. 1944), rev'd on other grounds, 329 U.S. 1 (1946); *In re Venner*, 262 F.2d 91, 95 (C.C.P.A. 1958); *In re Lundberg*, 197 F.2d 336, 339 (C.C.P.A. 1952); *In re Abrams*, 188 F.2d 165, 168-70 (C.C.P.A. 1951); *In re Cooper*, 134 F.2d 630, 632 (C.C.P.A. 1943).

<sup>16</sup> 409 U.S. at 64.

<sup>17</sup> *Id.*

<sup>18</sup> *Id.* at 71-72.

<sup>19</sup> *Id.* at 68. The Court stated that the applicants' conversion method could be used for

formula involved could only be applied in connection with a digital computer.<sup>20</sup> To permit the patent to issue, Justice Douglas concluded, would thus be to patent the formula itself.<sup>21</sup>

The *Benson* Court noted that its decision did not preclude the granting of a patent for any computer program.<sup>22</sup> Four years later,

---

a variety of purposes, including train operation, license verification, and legal research. *Id.*

<sup>20</sup> *Id.* at 71.

<sup>21</sup> *Id.* at 71-72. Although the *Benson* Court did not expressly discuss the "mental steps" doctrine, see *supra* note 15, at least one commentator has suggested that the holding in *Benson* "compliments rather than conflicts" with that doctrine. Comment, *Computer Program Classification: A Limitation on Program Patentability as a Process*, 53 OR. L. REV. 501, 518 n.132 (1974). It is interesting to note that the Court of Customs and Patent Appeals had rejected the "mental steps" doctrine, as applied to computer programs, 4 years prior to *Benson*. See *In re Prater*, 415 F.2d 1378, 1389 (C.C.P.A. 1968), modified on rehearing, 415 F.2d 1393, 1406 (C.C.P.A. 1969); see also *In re Bernhart*, 417 F.2d 1395, 1399 (C.C.P.A. 1969). Furthermore, in the modified *Prater* opinion, the court observed that it knew of "[n]o reason . . . why . . . apparatus and process claims broad enough to encompass the operation of a programmed general-purpose digital computer . . . [would] necessarily [be] unpatentable." 415 F.2d at 1403 n.29 (emphasis in original).

Notably, in 1968, the Court of Customs and Patent Appeals expressly declined to follow the cases applying the "function of a machine" doctrine. *In re Tarczy-Hornoch*, 397 F.2d 856, 866 (C.C.P.A. 1968); see *supra* note 15. This doctrine, together with the "mental steps" doctrine, subsequently was replaced by principles that accounted for various developments in computer technology. *Diamond v. Diehr*, 450 U.S. 175, 200 (Stevens, J., dissenting). In *In re Bernhart*, the court held that a computer "programmed in a . . . new and unobvious way" is patentable subject matter. *In re Bernhart*, 417 F.2d 1395, 1400 (C.C.P.A. 1969). One year later, the Court of Customs and Patent Appeals was faced with a "process" claim involving a computer program and decided that "a sequence of operational steps" is a patentable "process" if it is within the "technological arts." *In re Musgrave*, 431 F.2d 882, 893 (C.C.P.A. 1970).

<sup>22</sup> 409 U.S. at 72. The Court restricted the scope of its holding by stating:

We do not hold that no process patent could ever qualify if it did not meet the requirements of our prior precedents. It is said that the decision precludes a patent for any program servicing a computer. We do not so hold. It is said that we . . . extend our holding to programs for analog computers. We have, however, made clear from the start that we deal with a program only for digital computers.

*Id.* at 71. The first attempt by the Court of Customs and Patent Appeals to interpret *Benson* took place in *In re Christensen*, 478 F.2d 1392 (C.C.P.A. 1973). In *Christensen*, the court held that a particular claim is unpatentable if its "point of novelty" is a mathematical formula that must be solved as a condition to the method's effectiveness. *Id.* at 1394. But see *In re Walter*, 618 F.2d 758, 766 (C.C.P.A. 1980) (declining to adopt the "point of novelty" approach). The court, recognizing that the issue in *Benson* was distinguishable insofar as it involved "process" and a computer program, nevertheless believed that *Benson* was applicable to the claimed method. 478 F.2d at 1394. This broad construction of *Benson*, however, was narrowed in a number of later cases. See *In re Noll*, 545 F.2d 141, 148-49 (C.C.P.A. 1976), cert. denied, 434 U.S. 875 (1977); *In re Chatfield*, 545 F.2d 152, 156 (C.C.P.A. 1976), cert. denied, 434 U.S. 875 (1977); *In re Johnston*, 502 F.2d 765, 771 (C.C.P.A. 1974), rev'd on other grounds sub nom. *Dann v. Johnston*, 425 U.S. 219 (1976); *infra* text accompanying notes 23-26.

in *Dann v. Johnston*,<sup>23</sup> the Court observed that the holding in *Benson* was, indeed, "limited" to "process" claims.<sup>24</sup> A similar attitude was exhibited by the Court of Customs and Patent Appeals in *In re Noll*<sup>25</sup> and *In re Chatfield*,<sup>26</sup> notwithstanding dissenting arguments that *Benson* prohibited patentability of all computer software.<sup>27</sup> In subsequent cases, it was consistently determined that a program-related claim was unpatentable if, by granting the patent, further use of the mathematical formula involved in the program would be precluded.<sup>28</sup>

The Supreme Court again addressed the issue of patentability of computer software in *Parker v. Flook*,<sup>29</sup> in which a patent applicant claimed a new method for updating alarm limits during catalytic conversion processes.<sup>30</sup> The method involved three steps, only one of which, the mathematical algorithm, caused the applicant's invention to differ from conventional methods of updating alarm limits.<sup>31</sup> The applicant contended that *Benson* was distinguishable on the ground that there were useful "post-solution" applications

---

<sup>23</sup> 425 U.S. 219 (1976).

<sup>24</sup> *Id.* at 224. In *Johnston*, a patent was sought for what the applicant described as a "machine system for automatic record-keeping of bank checks and deposits." *Id.* at 220. The applicant sold his claimed invention in the form of a computer program. *Id.* The Court found it unnecessary to address the issue of the general availability of patent protection for such programs, concluding that the obviousness of the invention rendered it unpatentable. *Id.*; see 35 U.S.C. § 103 (1976). See generally P. ROSENBERG, *supra* note 12, §§ 9.01-.05 (discussing the nonobviousness requirement for patentability).

<sup>25</sup> 545 F.2d 141, 148-49 (C.C.P.A. 1976), *cert. denied*, 434 U.S. 875 (1977).

<sup>26</sup> 545 F.2d 152, 155-56 (C.C.P.A. 1976), *cert. denied*, 434 U.S. 875 (1977).

<sup>27</sup> See *In re Chatfield*, 545 F.2d at 160-61 (Rich, J., dissenting); *In re Noll*, 545 F.2d 141, 151 (C.C.P.A. 1976) (Lane, J., dissenting), *cert. denied*, 434 U.S. 875 (1977).

<sup>28</sup> See, e.g., *In re de Castelet*, 562 F.2d 1236, 1243-45 (C.C.P.A. 1977); *In re Waldbaum*, 559 F.2d 611, 616-17 (C.C.P.A. 1977); *In re Deutsch*, 553 F.2d 689, 692-93 (C.C.P.A. 1977).

<sup>29</sup> 437 U.S. 584 (1978). Prior to the *Flook* decision, the Court of Customs and Patent Appeals developed a two-prong test to determine the patentability of program-related inventions. See *In re Freeman*, 573 F.2d 1237, 1245 (C.C.P.A. 1978). Under the *Freeman* test, an initial determination is made as to whether the claim includes a mathematical algorithm, followed by an analysis of the preemptive effect of the claim on that algorithm. See *id.* If a particular claim served to preempt entirely the algorithms, then *Benson* would be applied to deny patentability. See *id.*; see also *In re Sherwood*, 613 F.2d 809, 817-19 (C.C.P.A. 1980), *cert. denied*, 450 U.S. 994 (1981); *In re Phillips*, 608 F.2d 879, 882-83 (C.C.P.A. 1979); *In re Toma*, 575 F.2d 872, 877 (C.C.P.A. 1978) (applying *Freeman*).

<sup>30</sup> 437 U.S. at 585.

<sup>31</sup> *Id.* at 585-86. As the Court noted, an "alarm limit" is simply a number which indicates the existence of an abnormal condition in the catalytic conversion process. *Id.* at 585. For certain operations, the alarm limit may be fixed, whereas for others, it is essential that the alarm limit be updated periodically. *Id.*

of the formula involved in his method.<sup>32</sup> The Court, speaking through Justice Stevens, held that such applications did not "transform an unpatentable principle into a patentable process."<sup>33</sup> Assuming the algorithm to be within the prior art,<sup>34</sup> the Court stated that the claim, taken as a whole, was unpatentable because it "contain[ed] no patentable invention," not because a mathematical formula was an element of the applicant's method.<sup>35</sup>

Justice Stewart dissented,<sup>36</sup> disputing the majority's interpretation of *Benson* and arguing that a claimed method is not unpatentable merely because one of its components, standing alone, may not be patented.<sup>37</sup> Furthermore, the dissent asserted, the Court's consideration of the inventiveness of the process was an improper inquiry in determining subject-matter patentability.<sup>38</sup> The question of inventiveness, contended Justice Stewart, becomes significant only after the subject matter is determined to be patentable.<sup>39</sup>

---

<sup>32</sup> *Id.* at 589-90. The applicant argued that the claim did not "wholly preempt the mathematical formula" because, although the claim covered many of the potential uses in the petrochemical and oil-refining industries, it did not "cover every conceivable application of the formula." *Id.* at 586, 589-90.

<sup>33</sup> *Id.* at 590.

<sup>34</sup> *Id.* at 591-93. The Court observed that a mathematical formula must be considered well known because the scientific principle expressed in the formula merely indicates a relationship previously in existence. *Id.* at 593 n.15; see P. ROSENBERG, *supra* note 12, § 1.04.

<sup>35</sup> 437 U.S. at 594. It has been suggested that the *Flook* holding is a return to the "point of novelty" approach adopted by the Court of Customs and Patent Appeals in *In re Christensen*, 478 F.2d 1392, 1394 (C.C.P.A. 1973). See D. BENDER, *supra* note 1, § 4A.01[2], at 4A-4; see also *supra* note 22. Notably, however, the "point of novelty" analysis has been replaced by the two-prong test developed in *In re Freeman*, 573 F.2d 1237, 1245 (C.C.P.A. 1978). See *supra* note 29. Indeed, the Court of Customs and Patent Appeals has stated that *Flook* did not adopt a "point of novelty" test, arguing that "such a test flies in the face [sic] of Supreme Court precedent . . . ." *In re Walter*, 618 F.2d 758, 766-67 (C.C.P.A. 1980). The precedent being referred to by the *Walter* court includes a number of cases that deal with principles of science and mathematics, yet aid in the resolution of computer-related issues. *Id.* at 765; see *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948); *Mackay Radio & Tel. Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94 (1939); *Tilghman v. Proctor*, 102 U.S. 707, 724-25, 728 (1880); *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. (20 Wall.) 498, 507 (1874); *O'Reilly v. Morse*, 56 U.S. (15 How.) 61, 101 (1853); *LeRoy v. Tatham*, 55 U.S. (14 How.) 156, 175 (1852). It should be noted that the *Freeman* test officially has been incorporated into the Patent and Trademark Office Guidelines that were promulgated in light of the Supreme Court's decision in *Diamond v. Diehr*, 450 U.S. 175 (1981). See U.S. Patent & Trademark Office, *New M.P.E.P. Sec. 2110 Patentable Subject Matter-Mathematical Algorithms or Computer Programs*, reprinted in D. BENDER, *supra* note 1, App. 4A[2], at App. 4A-23.

<sup>36</sup> Justice Stewart was joined by Chief Justice Burger and Justice Rehnquist.

<sup>37</sup> 437 U.S. at 599 (Stewart, J., dissenting).

<sup>38</sup> *Id.* at 600 (Stewart, J., dissenting).

<sup>39</sup> *Id.* (Stewart, J., dissenting). The dissent argued that a particular claim's novelty is



The most recent pronouncement by the Supreme Court in this area was made in *Diamond v. Diehr*.<sup>40</sup> In that case, the patent applicants claimed a novel method for curing synthetic rubber that involved an established mathematical formula<sup>41</sup> and a programmed digital computer.<sup>42</sup> Unlike its decisions in *Benson* and *Flook*, the Court, in *Diehr*, accepted the applicants' claim, reasoning that a particular method should not be considered unpatentable merely because a mathematical equation or programmed digital computer is used.<sup>43</sup> The critical inquiry, stated the Court, is whether the applicant is attempting to patent an abstract formula or simply trying to prevent others from using that equation "in conjunction with all of the other steps in . . . [the] claimed process."<sup>44</sup> The Court also noted that the "novelty" of the process itself or of its steps is irrelevant to the determination of whether the subject matter is patentable.<sup>45</sup>

---

relevant only to the question of whether a patent will actually issue. *Id.* (Stewart, J., dissenting). The majority's decision to introduce this element when determining whether the claim is patentable subject matter, the dissent opined, "strikes . . . a damaging blow at basic principles of patent law . . . ." *Id.* (Stewart, J., dissenting); see *In re Bergy*, 596 F.2d 952, 963 (C.C.P.A. 1979) ("[a]n invention can be statutory subject matter and be 100% old, devoid of any utility, or entirely obvious"), *aff'd sub nom.* *Diamond v. Chakrabarty*, 447 U.S. 303 (1980); see also *Nickola v. Peterson*, 580 F.2d 898, 906 (6th Cir. 1978), *cert. denied*, 440 U.S. 961 (1979).

<sup>40</sup> 450 U.S. 175 (1981). Prior to the decision in *Diehr*, the Court of Customs and Patent Appeals expressed dissatisfaction with the analysis used by the Supreme Court in *Flook*. See *In re Bergy*, 596 F.2d 952, 960-63 (C.C.P.A. 1979), *aff'd sub nom.* *Diamond v. Chakrabarty*, 447 U.S. 303 (1980); *In re Sarkar*, 588 F.2d 1330, 1336 (C.C.P.A. 1978).

<sup>41</sup> The formula involved in the patent applicants' method was the Arrhenius equation. 450 U.S. at 177. This equation, named after its discoverer, was long used as a method of calculating the cure time in rubber molding presses. *Id.* at 177 n.2.

<sup>42</sup> *Id.* at 178. The patent applicants claimed that their method for curing synthetic rubber was novel because it accurately measured the *inside* temperature of the press. *Id.* at 179. The remainder of the method consisted of entering the temperature readings into a computer which would, by means of a mathematical formula, eventually determine the proper moment at which the press should be opened. *Id.* Prior to the development of this method, overcuring or undercuring of the rubber was a common problem in the industry. See *id.* at 178 & n.3.

<sup>43</sup> *Id.* at 187.

<sup>44</sup> *Id.* The Court concluded that the patent applicants' claims were not "an attempt to patent a mathematical formula, but rather . . . [were simply] drawn to an industrial process for the molding of rubber products . . . ." *Id.* at 192-93.

<sup>45</sup> *Id.* at 190. The *Diehr* Court stated that the "novelty" of the claimed method should be considered only under section 102 of the Patent Act, the provision dealing with the conditions for patentability. *Id.* at 190-91. This reasoning is in complete harmony with the legislative history of the 1952 Patent Act. See *id.* at 190. The Senate Report clearly indicates that "section 102 covers the conditions relating to novelty." S. REP. NO. 1979, 82d Cong., 2d Sess., reprinted in 1952 U.S. CODE CONG. & AD. NEWS 2394, 2399. Moreover, the same re-

Justice Stevens, who authored the *Flook* decision, dissented,<sup>46</sup> offering three reasons for his rejection of the majority's view that the claimant's method was "new."<sup>47</sup> First, the dissent stated that the patent application itself lacked any indication of a unique characteristic embodied in the temperature reading device.<sup>48</sup> Second, the dissent noted, such devices have been in existence for years.<sup>49</sup> Finally, Justice Stevens stressed that the only distinguishing element of the device was its use of a mathematical formula and a digital computer.<sup>50</sup> Justice Stevens concluded that to grant a patent under such circumstances "trivializes the holding in *Flook*, the principle that underlies *Benson*, and the settled line of authority reviewed in those opinions."<sup>51</sup>

Clearly, *Diehr* illustrates the Supreme Court's current willingness to sustain the patentability of program-related inventions.<sup>52</sup> Such willingness does not connote, however, that computer programs, as such, are patentable.<sup>53</sup> This lack of an ascertainable rule

---

port states that "[s]ection 102 . . . may be said to describe the statutory novelty required for patentability, and includes, in effect, an amplification and definition of 'new' in section 101." *Id.* Thus, it is submitted that the *Diehr* Court's conclusion as to the "novelty" requirement is wholly within the spirit and letter of the Patent Act of 1952, and comports with the Court's own mandate that the express language of the patent laws must be adhered to strictly. *See* *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980) (quoting *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933)); *see In re Bergy*, 596 F.2d 952, 960-61 (C.C.P.A. 1979), *aff'd sub nom. Diamond v. Chakrabarty*, 447 U.S. 303 (1980). Indeed, even textwriters treat subject-matter patentability and "novelty" as two distinct areas of law. *See, e.g.,* A. DELLER, *DELLER'S WALKER ON PATENTS* 72-162, 230-476 (2d ed. 1964); G. ROSE, *PATENT LAW HANDBOOK* 18-40 (1978); P. ROSENBERG, *supra* note 12, §§ 6.01-7.14; *Diamond v. Diehr: The Patentability of Processes and Incorporated Algorithms*, 8 OHIO N.U.L. REV. 535, 539-40 (1981).

<sup>46</sup> Justice Stevens was joined by Justices Brennan, Marshall, and Blackmun.

<sup>47</sup> 450 U.S. at 207-08 (Stevens, J., dissenting). Justice Stevens sardonically remarked that the "question [whether a rubber-curing process is patentable] was effectively answered many years ago when Charles Goodyear obtained his patent on the vulcanization process." *Id.* at 205 (Stevens, J., dissenting) (footnote omitted). In fact, the dissent posited, the claimed method is similar to the method which was at issue in the *Flook* case. *Id.* at 207 (Stevens, J., dissenting).

<sup>48</sup> *Id.* at 209 (Stevens, J., dissenting).

<sup>49</sup> *Id.* at 207-08 (Stevens, J., dissenting).

<sup>50</sup> *Id.* at 208-09 (Stevens, J., dissenting). The dissent asserted that section 101 precludes the patentability of a program-related invention provided that the use of the computer constitutes the requisite contribution to the art. *Id.* at 219 (Stevens, J., dissenting).

<sup>51</sup> *Id.* at 205 (Stevens, J., dissenting).

<sup>52</sup> *Cf. Keplinger, Computer Software—Its Nature and Its Protection*, 30 EMORY L.J. 484, 492 (1981) (*Diehr* clarifies that patent protection is available for the underlying processes of computer programs, as long as the process is something more than a mere mathematical formula).

<sup>53</sup> The Supreme Court has not yet directly addressed whether computer programs

presents an obstacle for the patent lawyer who is trying to determine whether a particular invention incorporating a computer program will be patentable.<sup>54</sup> Indeed, several commentators believe that as a result of *Diehr*, the success of a patent application involving a computer program is likely to hinge upon skillful claim-drafting.<sup>55</sup> More significantly, however, it appears that reliable patent protection currently is not available for the developers, financiers, and investors involved in the creation of a computer program.<sup>56</sup>

---

themselves are patentable. See *Diamond v. Diehr*, 450 U.S. 175, 177 (1981) ("determin[ing] whether a process . . . which includes . . . the use of a mathematical formula and a programmed digital computer is patentable subject matter under 35 U.S.C. § 101"); *Parker v. Flook*, 437 U.S. 584, 585 (1978) (ascertaining "whether the identification of a limited category of . . . post-solution applications of . . . a formula makes . . . [a] method eligible for patent protection"); *Dann v. Johnston*, 425 U.S. 219, 220 (1976) ("no need to treat" the question whether computer programs are patentable); *Gottschalk v. Benson*, 409 U.S. 63, 64 (1972) (determining "whether the method described and claimed is a 'process' within the meaning of the Patent Act" (footnote omitted)). Historically, a "process" was considered patentable subject matter notwithstanding that it was not statutorily protected until 1952. *Diamond v. Diehr*, 450 U.S. 175, 182 (1981). In *Cochrane v. Deener*, 94 U.S. 780 (1876), the Supreme Court described a patentable process in the following manner:

That a process may be patentable, irrespective of the particular form of the instrumentalities used, cannot be disputed. . . . A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing . . . . In the language of the patent law, it is an art. The machinery pointed out as suitable to perform the process may or may not be new or patentable; whilst the process itself may be altogether new, and produce an entirely new result. The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence.

*Id.* at 787-88. It is submitted that in order to provide protection for computer programs themselves, they must be defined as clearly as the *Cochrane* Court defined the nature of a patentable process. Until this is done, it appears that the lack of adequate protection for computer programs will continue.

<sup>54</sup> See *Diamond v. Diehr*, 450 U.S. 175, 219 (1981) (Stevens, J., dissenting).

<sup>55</sup> See, e.g., Freed, *Patent Developments: The Eighth Annual Judicial Conference of the United States Court of Customs and Patent Appeals*, 92 F.R.D. 192, 195 (1981); Comment, *Diamond v. Diehr*, 50 U. CIN. L. REV. 645, 661-62 (1981) (suggesting that if the *Diehr* claim had been drafted differently, the C.C.P.A. might have denied the patent).

<sup>56</sup> See Note, *Process Patents for Computer Programs*, 56 CALIF. L. REV. 466, 490-92 (1968); Comment, *supra* note 11, at 589-90; Comment, *supra* note 21, at 511-12. In addressing the adequacy of patent protection for computer programs, it should be noted that some commentators question whether computer programs *should* be patented at all. See, e.g., Bender, *supra* note 4, at 250-52. The primary argument asserted is that the Patent Office cannot adequately examine program claims because there are no effective methods of classification. See *id.* at 250 n.47 (quoting THE REPORT OF THE PRESIDENT'S COMMISSION ON THE PATENT SYSTEM, "TO PROMOTE THE PROGRESS OF . . . USEFUL ARTS" IN AN AGE OF EXPLODING TECHNOLOGY 13 (1966)). Moreover, it is contended that even if such methods did exist, the administrative burdens placed upon the Patent Office would be overwhelming. See

## COPYRIGHTABILITY

Section 102(a) of the Copyright Act of 1976 (the Act) states that copyright protection extends to "original works of authorship fixed in any tangible medium of expression."<sup>57</sup> The legislative history of the Act clearly indicates that computer programs, in their written form, are included within the protected subject matter.<sup>58</sup> There has been some dispute, however, as to the copyrightability of a computer program in its "object" stage, where the program is embodied in a mechanical device such as the Read Only Memory (ROM) silicon chip.<sup>59</sup> Although much of the confusion in this area

Bender, *supra* note 4, at 251 & n.50; see also *Diamond v. Diehr*, 450 U.S. 175, 177 (1981) (Stevens, J., dissenting); Comment, *The Subject Matter Analysis for Computer-Related Processes: A Matter of Characterization*, 27 LOY. L. REV. 1140, 1164-65 (1981). But see Note, *supra* note 1, at 914 ("[i]t is theoretically and practically possible to secure effective patent protection for computer programs"). For a criticism of the arguments raised against the patentability of computer programs, see Bender, *supra* note 4, at 250-52. At least one commentator has suggested that the question whether computer programs should be protected may be "academic" because the rapid technological advancement of the software industry might render programs obsolete. Note, *Adequate Legal Protection for Computer Programs*, 1968 UTAH L. REV. 369, 370.

<sup>57</sup> 17 U.S.C. § 102(a) (Supp. III 1979). Section 102(a) specifies a number of categories of protected subject matter. See *id.* These categories include sound recordings, motion pictures, pantomimes, and literary, dramatic, and choreographic works. *Id.* Also protected by section 102(a) are musical, pictorial, graphic, and sculptural works. *Id.* The subject matter eligible for copyright protection, however, is not unlimited. See *id.* § 102(b). Section 102(b) provides that copyright protection does not "extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the [particular] form" of the work. *Id.* This section was enacted to clarify the rule that copyright protection extends only to the *expression* of intellectual ideas, such as the writing, and not to the ideas themselves. See H.R. REP. NO. 1476, 94th Cong., 2d Sess. 56-57 [hereinafter cited as H.R. REP.], reprinted in 1976 U.S. CODE CONG. & AD. NEWS 5659, 5670. The legislative history indicates that in the area of computer programs, copyright protection extends to the particular expression used by the programmer. *Id.* The "actual processes or methods embodied in the program" are not copyrightable. *Id.*

<sup>58</sup> See H.R. REP., *supra* note 57, at 57. Any lingering doubts as to the copyrightability of computer programs, in their written form, should be dispelled by the recent addition of a definition of computer program to section 101 of the 1976 Copyright Act. See 17 U.S.C. § 101 (1976), as amended by Act of Dec. 12, 1980, Pub. L. No. 96-517, § 10(a), 94 Stat. 3028 (1980) (presently codified at 17 U.S.C. § 101 (Supp. IV 1980)); see also *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171, 173 (N.D. Cal. 1981); *Data Cash Sys., Inc. v. JS&A Group, Inc.*, 480 F. Supp. 1063, 1066 n.4 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038, 1040 (7th Cir. 1980).

<sup>59</sup> Compare *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171, 173 (N.D. Cal. 1981) and *Williams Elec. Inc. v. Artic Int'l, Inc.*, No. 81-1852 (D.N.J. June 24, 1981) with *In re Data General Corp. Antitrust Litigation*, 490 F. Supp. 1089, 1113 (N.D. Cal. 1980) and *Data Cash Sys., Inc. v. JS&A Group, Inc.*, 480 F. Supp. 1063, 1066 n.4 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038, 1040 (7th Cir. 1980). There are four stages in the development of a computer program. See M. Pope & P. Pope, *Protection of Proprietary*

can be traced to the 1908 Supreme Court decision of *White-Smith Music Publishing Co. v. Apollo Co.*,<sup>60</sup> recent statutory amendments of the federal copyright laws have done little to clarify the availability of copyright protection for computer programs in their "object" stage.<sup>61</sup> As a result, courts have experienced difficulty in determining whether to grant protection to such a medium.<sup>62</sup>

---

*Interests in Computer Software*, 30 ALA. L. REV. 527, 530 (1979). The first stage, a "schematic program," involves the development of a "flow chart" which graphically manifests a problem-solving concept. *See id.*; *see also* Data Cash Sys., Inc. v. JS&A Group, Inc., 480 F. Supp. at 1065. A "source program" which translates the flow chart concept into programming language (such as FORTRAN or ALGOL) is then developed. *See* M. Pope & P. Pope, *supra*, at 530; *see also* 480 F. Supp. at 1065. Third, the "assembly program" is developed in order to translate the source program into "mechanically readable computer language." 480 F. Supp. at 1065; M. Pope & P. Pope, *supra*, at 530-31. Finally, an "object program," which converts the assembly program into a mechanical apparatus is constructed. 480 F. Supp. at 1065. The object program involved in the *Tandy* and *Data Cash* cases was a Read Only Memory (ROM) silicon chip which, upon installation, became part of the computer's circuitry. *See* 524 F. Supp. at 173; 480 F. Supp. at 1066; *see also* Keplinger, *Computer Intellectual Property Claims: Computer Software and Data Base Protection*, 177 WASH. U.L.Q. 461, 464 (a computer program is really "the mechanical embodiment of the [written] instructions themselves").

<sup>60</sup> 209 U.S. 1 (1908). The *White-Smith* decision, *see infra* text accompanying notes 63-65, caused difficulties in the sound recording industry as well as the computer program industry. *See* Schmidt, *supra* note 1, at 367. Prior to the enactment of remedial statutory measures, there was widespread record and tape "piracy." 1 M. NIMMER, NIMMER ON COPYRIGHT § 2.10[A], at 2-141 (1982); *see* Schmidt, *supra* note 1, at 367. The value of such unauthorized duplication was estimated to be in excess of \$100 million annually. 1 M. NIMMER, *supra*, § 2.10[A], at 2-141. This tremendous loss to copyright owners prompted enactment of the Sound Recording Amendment in 1971. *Id.*; *see* Act of Oct. 15, 1976, Pub. L. No. 92-140, 85 Stat. 391 (codified as amended at 17 U.S.C. § 102(a)(7) (Supp. III 1979)). This section definitively provides that copyright protection extends to sound recordings. 17 U.S.C. § 102(a)(7) (Supp. III 1979). Notably, however, a copyright owner's rights in a sound recording are more restricted than those which may be asserted for other kinds of copyrightable subject matter. *See* 2 M. NIMMER, *supra*, § 8.05[A]; *see also* 17 U.S.C. § 114(a), (b) (Supp. III 1979). A copyright nevertheless is infringed only if there is a "substantial similarity" between the plaintiff's and the defendant's works, regardless of the form in which those works appear. 2 M. NIMMER, *supra*, § 8.05[A].

<sup>61</sup> *See infra* notes 90-92 and accompanying text.

<sup>62</sup> Compare *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171, 173 (N.D. Cal. 1981) (computer program is copyrightable even if it is in the form of a mechanical ROM chip) with *Data Cash Sys., Inc. v. JS&A Group, Inc.*, 480 F. Supp. 1063, 1066-67 n.4 (N.D. Ill. 1979) (dictum that computer programs are copyrightable "in their flow-chart, source and assembly phases but not in their object phase, i.e., the ROM . . ."), *aff'd on other grounds*, 628 F.2d 1038, 1040 (7th Cir. 1980). It should be noted that the Copyright Office began accepting computer programs for copyright in 1964. Schmidt, *supra* note 1, at 366. At that time, the Copyright Act of 1909 did not expressly cover computer programs. *See id.* Computer programs thus were considered to be within the section of the statute covering "[b]ooks . . . and other compilations." *Id.* (emphasis in original); *see* Act of Mar. 4, 1909, ch. 320, § 5(a), 35 Stat. 1076 (current version at 17 U.S.C. § 102(a)(1) (Supp. III 1979)). This interpretation was not unusual, however, in view of the broad construction

In *White-Smith*, the Supreme Court encountered the question of whether a copyright on sheet music was infringed by a perforated pianola roll which, when operated, reproduced the same musical sound as that represented on the sheet.<sup>63</sup> The Court, speaking through Justice Day, held that there was no copyright violation.<sup>64</sup> In reaching this conclusion, the Court stated that the pianola roll was not a "copy" because it was not "in a form which others can see and read."<sup>65</sup> Although the legislative history of the 1976 Copyright Act indicates that the *White-Smith* rationale should be avoided,<sup>66</sup> that case nonetheless continued to have an impact upon

---

traditionally given to the "writings" of an author. *E.g.*, *Goldstein v. California*, 412 U.S. 546, 561-62 (1973) (sound recordings); *Kalem Co. v. Harper Bros.*, 222 U.S. 55, 60-62 (1911) (motion pictures); *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884) (photographs); Nelson, *The Copyrightability of Computer Programs*, 7 ARIZ. L. REV. 204, 207 (1966); see Schmidt, *supra* note 1, at 366; Comment, *Scope of Protection for Computer Programs Under the Copyright Act*, 14 DE PAUL L. REV. 360, 365 (1965).

<sup>63</sup> 209 U.S. at 8-9. The plaintiff sought injunctive relief against the defendant's alleged infringement of the copyrights obtained by the plaintiff for two musical compositions published in the form of sheet music. *Id.* at 8. Contending that the defendant's perforated pianola roll was an infringement of such copyrights, the plaintiff theorized that copyright law is designed to preclude the use of every means of reproducing the composer's particular music. *Id.* at 11. The defendant, on the other hand, argued that copyright protection extended merely to the physical results of the mental operations, namely, the sheet music representing the plaintiff's two musical compositions. *Id.* Addressing these opposing arguments, the Court observed that "large property interests" would be affected by the decision rendered in the case. *Id.* at 9. Indeed, one commentator has stated that "*White-Smith* reflected the tension between the public interest in protecting the rights of sheet music publishers, on the one hand, and the infant pianola industry, on the other." Schmidt, *supra* note 1, at 367.

<sup>64</sup> 209 U.S. at 18. Generally, in order for a plaintiff to establish his case in a copyright infringement action, he must prove that he owned the copyright and that there was a "copying" by the defendant. 3 M. NIMMER, *supra* note 60, § 13.01. A number of requirements, including subject-matter suitability, originality, citizenship, and compliance with statutory formalities, must be met before a plaintiff establishes ownership of the copyright. *Id.* § 13.01[A]. The copyright registration certificate facilitates the plaintiff's satisfaction of the ownership requirement insofar as it constitutes prima facie evidence of copyright. See *id.*; see also 17 U.S.C. § 410(c) (Supp. III 1979). To prove that there has been a copying by the defendant, the plaintiff usually must establish that the defendant had access to the copyrighted work and that there was a substantial similarity between the copyrighted work and the alleged duplication. 3 M. NIMMER, *supra* note 60, § 13.01[B]; *e.g.*, *Ferguson v. National Broadcasting Co.*, 584 F.2d 111, 113 (5th Cir. 1978); *Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp.*, 562 F.2d 1157, 1162 (9th Cir. 1977); *Novelty Textile Mills, Inc. v. Joan Fabrics Corp.*, 558 F.2d 1090, 1092 (2d Cir. 1977); *Reyher v. Children's Television Workshop*, 533 F.2d 87, 90 (2d Cir. 1976).

<sup>65</sup> 209 U.S. at 17. Based upon expert testimony given during the proceedings, the Court defined a copy of a musical work as "a written or printed record of it in intelligible notation." *Id.* Prior to its being reduced to written or printed form, the Court stated, a musical composition is an idea existing in the mind of the composer. *Id.*

<sup>66</sup> See H.R. REP., *supra* note 57, at 52 (stating that the "broad language [of section 102(a)] is intended to avoid the artificial and largely unjustifiable distinctions, derived from

the copyrightability of computer programs.<sup>67</sup>

Turning to the Act, prior to its revision in 1980,<sup>68</sup> section 117 was a source of consternation for courts attempting to decipher its meaning.<sup>69</sup> That section provided in part:

Notwithstanding . . . sections 106 through 116 and 118, this 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 [computers] . . . than those afforded to works under the law . . . in effect on December 31, 1977. . . .<sup>70</sup>

The legislative history of the original section 117 plainly reveals that Congress was concerned with a copyright owner's rights respecting "computer uses of copyrighted works," and not with the copyrightability of programs themselves.<sup>71</sup> Moreover, the introductory language of the original section 117 itself indicates that it was not intended by the legislature to be a modification of section 102, the subject matter provision of the Act.<sup>72</sup> Nevertheless, a few lower

cases such as *White-Smith*"). Unlike the reasoning relied upon in *White-Smith*, the legislative history indicates that the forms, manner, or medium of fixation is irrelevant to the determination whether particular subject matter is copyrightable. *See id.*

<sup>67</sup> *See infra* text accompanying notes 74-78. The rule derived from the *White-Smith* case, *see supra* text accompanying note 65, is still controlling "for many pre-1978 works, including computer programs." Schmidt, *supra* note 1, at 367. One commentator even has expressed the opinion that the *White-Smith* rationale should continue to apply. *See* Prasinios, *Worldwide Protection of Computer Programs by Copyright*, 4 RUT. J. COMPUTERS & L. 42, 47 (1974).

<sup>68</sup> Section 117 of the 1976 Copyright Act, in its original form, was intended to maintain the status quo in the area of computer program copyrightability until further investigation of the issue could be made. *See* Schmidt, *supra* note 1, at 369. The effect of the section, however, has been to require that courts consider the question whether computer programs may be copyrighted. *Id.*

<sup>69</sup> *See infra* text accompanying notes 74-87.

<sup>70</sup> 17 U.S.C. § 117 (Supp. III 1979), amended by Act of Dec. 12, 1980, Pub. L. No. 96-517, § 10(b), 94 Stat. 3028 (1980) (presently codified at 17 U.S.C. § 117 (Supp. IV 1980)); *see infra* note 91.

<sup>71</sup> *See* H.R. REP., *supra* note 57, at 116. As gleaned from the legislative history, Congress intended that copyrightability of computer programs themselves would be governed by the 1976 Copyright Act. *See id.*

<sup>72</sup> *See* 17 U.S.C. § 117 (Supp. III 1979), amended by Act of Dec. 12, 1980, Pub. L. No. 96-517, § 10(b), 94 Stat. 3028 (1980) (presently codified at 17 U.S.C. § 117 (Supp. IV 1980)). The legislative history of section 117 makes clear that such provision dealt only with the "exclusive . . . bundle of rights" possessed by a copyright owner under section 106 and limited under sections 107 through 116 and 118. *See* H.R. REP., *supra* note 57, at 116.

The "bundle of rights" which may be possessed by a copyright owner includes the rights of reproduction, adaptation, publication, performance and display. *See* 17 U.S.C. § 106(1)-(5) (Supp. III 1979); 2 M. NIMMER, *supra* note 60, §§ 8.02, 8.09, 8.11, 8.14, 8.20. Whether copyright protection is obtained by registering a work which is not published, or

federal courts have had differing views as to the effect of the original section 117 upon the copyrightability of computer programs in their "object" stage.<sup>73</sup>

In *Data Cash Systems, Inc. v. JS&A Group, Inc.*,<sup>74</sup> for example, the plaintiff alleged, *inter alia*, copyright infringement of a program developed for the plaintiff's computer chess game.<sup>75</sup> The program was in the form of a silicon chip installed in the computer's circuitry.<sup>76</sup> The court, using the *White-Smith* rationale, concluded that any duplication of the chip was not actionable.<sup>77</sup>

---

by providing notice on a published work, the "bundle of rights" remains the same. *See id.* § 8.01[A], at 8-12. A copyright owner's rights will vary, however, depending upon the kind of work that has been copyrighted. *Id.* (citing *Blazon, Inc. v. Deluxe Game Corp.*, 268 F. Supp. 416, 433 (S.D.N.Y. 1965)). Nevertheless, an unauthorized assertion of any of the rights granted to a copyright owner is an infringement of the copyright. *See* 2 M. NIMMER, *supra* note 60, § 8.01[A], at 8-12 (citing *T.B. Harms Co. v. Eliscu*, 266 F. Supp. 337, 339 (S.D.N.Y.), *aff'd*, 339 F.2d 823 (2d Cir. 1964) and *United States v. Wells*, 176 F. Supp. 630, 633 (S.D. Tex. 1959)). For a discussion of the various qualifications of a copyright owner's "bundle of rights," *see* 2 M. NIMMER, *supra* note 60, §§ 8.02-.08, 8.12-13, 8.15-18, 8.20.

<sup>73</sup> *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171, 174-75 (N.D. Cal. 1981); *Data Cash Sys., Inc. v. JS&A Group, Inc.*, 480 F. Supp. 1063, 1068 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038 (7th Cir. 1980). In *Data Cash*, the court, relying upon the original section 117, applied pre-1978 law to determine whether a computer program in its object stage, *see supra* note 59, may be copyrighted. *See* 480 F. Supp. at 1068. The *Tandy* court, on the other hand, considered the original section 117, and thus pre-1978 law, to be inapplicable to the question of a computer program's copyrightability. *See* 524 F. Supp. at 174-75.

<sup>74</sup> 480 F. Supp. 1063 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038 (7th Cir. 1980).

<sup>75</sup> 480 F. Supp. at 1065. In addition to alleging copyright infringement, the plaintiff asserted that the defendant engaged in unfair competition "by importing, distributing, selling, marketing and advertising as its own copies of plaintiff's ROM." *Id.* at 1069-70 (footnote omitted). The court denied the plaintiff's motion to enjoin the alleged unfair competition, *id.* at 1072, however, because the plaintiff could not prove any of the required elements for a preliminary injunction, *id.* at 1071-72. *See generally* *Ekanem v. Health & Hosp. Corp.*, 589 F.2d 316, 319 (7th Cir. 1978) (*per curiam*); *Kolz v. Board of Educ.*, 576 F.2d 747, 748 (7th Cir. 1978) (*per curiam*) (specifying the requirements for obtaining a preliminary injunction). Furthermore, the court noted that, based upon the facts presented by the parties, it could not even determine if the defendants engaged in unfair competition since the manner in which the ROM chip was duplicated was unclear. *See* 480 F. Supp. at 1071 (citing *Capitol Records, Inc. v. Spies*, 130 Ill. App. 2d 429, 264 N.E.2d 874 (App. Ct. 1970)).

<sup>76</sup> 480 F. Supp. at 1066; *see supra* note 59.

<sup>77</sup> 480 F. Supp. at 1068-69. The court stated that the defendants' ROM silicon chip was not really a copy of the computer program developed for the plaintiff. *Id.* In reaching this conclusion, the court found analogous support in several cases which have held that a completed building is not a duplication of its architectural outline. *Id.* at 1068 (citing *Nucor Corp. v. Tennessee Forging Steel Serv., Inc.*, 476 F.2d 386, 391 n.8 (8th Cir. 1973) and *Smith v. Paul*, 174 Cal. App. 2d 744, 755, 345 P.2d 546, 553 (Ct. App. 1959)); *see Katz, Copyright Protection of Architectural Plans, Drawings and Designs*, 19 LAW & CONTEMP. PROBS. 224, 236 (1954). Thus, the court reasoned, a computer program can be copied at common law



Stating that the chip is merely a mechanical part of the computer which cannot be "'see[n] and read' with the naked eye," the court determined that it was improper subject matter for copyright protection.<sup>78</sup>

Subsequent to the decision in *Data Cash*, however, the importance of the *White-Smith* case waned.<sup>79</sup> In *Tandy Corp. v. Personal Micro Computers, Inc.*,<sup>80</sup> a federal district court in California encountered the issue of whether the copying of a silicon chip was an infringement of the copyright obtained for the written program.<sup>81</sup> The defendants argued that because the plaintiff's chip was not a "copy" of the computer program itself, there was no infringement of the copyright on the program.<sup>82</sup> The court rejected this argument, holding that a computer program fixed in the form of a silicon chip is covered by the copyright laws.<sup>83</sup> Reasoning that

---

only by "another computer program in its flow chart or source phase because these are comparable technical writings." 480 F. Supp. at 1068. In dictum, the court noted that even under the 1976 Act, copyright protection does not extend to the object stage of a computer program. *Id.* at 1066-67 n.4; see *supra* note 62.

<sup>78</sup> 480 F. Supp. at 1069. The *Data Cash* decision, especially its dictum, see *supra* note 62, "provoked acute concern within the microcomputer industry," an industry in which piracy of computer programs has flourished, Schmidt, *supra* note 1, at 368. Nevertheless, on appeal from the lower court's opinion, the Seventh Circuit Court of Appeals side-stepped the issue of computer program copyrightability and affirmed the district court's decision on the ground that the plaintiff's ROM chip did not bear a copyright notice. *Data Cash Sys., Inc. v. JS&A Group, Inc.*, 628 F.2d 1038, 1043 (7th Cir. 1980), *aff'g on other grounds* 480 F. Supp. 1063 (N.D. Ill. 1979). For an in-depth discussion of the statutory formality requirement of copyright notice, see 2 M. NIMMER, *supra* note 60, §§ 7.02-15.

<sup>79</sup> See *infra* text accompanying notes 80-84.

<sup>80</sup> 524 F. Supp. 171 (N.D. Cal. 1981).

<sup>81</sup> *Id.* at 173. The plaintiff, Tandy Corporation, claimed that, with the exception of several items of identification, the defendants had copied the computer program used in connection with plaintiff's Radio Shack TRS-80 home computer. *Id.* In addition, Tandy Corporation alleged that the defendants then used this program in their own home computer, the PMC-80. *Id.*

<sup>82</sup> *Id.* In the *Data Cash* case, both parties assumed that the silicon chip was a duplication of the plaintiff's computer program. 480 F. Supp. at 1068. Consequently, it was the *Data Cash* court which raised the question of whether the ROM chip was, in fact, a "copy" of the original computer program. See *id.*

<sup>83</sup> 524 F. Supp. at 173. Relying upon the legislative history of the 1976 Copyright Act, the court stated that the form in which a particular work is fixed has no effect upon the copyrightability of the work. *Id.*; *supra* note 66. Indeed, the legislative history clearly reveals that the basic copyright requirement of fixation is satisfied where the subject matter is fixed in words, numbers, notes, sounds, pictures, or any other graphic or symbolic indicia, . . . [or is] embodied in a physical object in written, printed, photographic, sculptural, punched, magnetic, or any other stable form, . . . [or is] capable of perception directly or by means of any machine or device now known or later developed.

H.R. REP., *supra* note 57, at 52. The legislative history further indicates that the fixation

"a computer program is a 'work of authorship' . . . , and . . . that a silicon chip is [a] 'tangible medium of expression,'" the court concluded that such a device falls clearly within the purview of the Act.<sup>84</sup>

It is submitted that misinterpretation of the original section 117 led the *Data Cash* court to apply pre-1978 law, in the form of the *White-Smith* rationale, and thus to hold that the silicon chip was improper subject matter for copyright protection.<sup>85</sup> As the *Tandy* court later recognized, however, the "duplication of a chip . . . is simply the copying of a chip," rather than a computer use of copyrighted material.<sup>86</sup> As such, the court determined, the original section 117 is inapplicable when the copyrightability of a computer program is at issue.<sup>87</sup> Despite *Tandy's* unequivocal treatment of the issue, however, uncertainty still remains as to the copyrightability of a computer program in its "object" stage.<sup>88</sup>

---

concept is also significant to the question whether a work is entitled to statutory or common law copyright protection. *Id.* Indeed, while a fixed subject matter is eligible for federal statutory copyright protection, the protection afforded to an unfixed work is limited to a state's common law of copyright. *Id.*

<sup>84</sup> 524 F. Supp. at 173. In addition to claiming that the "copy" of the chip evidenced an infringement of its copyright, the plaintiff contended that the defendants may have duplicated the ROM chip by copying a visual or printed readout of the program, and then impressing it on the silicon chip. *Id.* at 174. In dictum, the court stated that if such an "unauthorized duplication" could be established, then it would certainly be actionable under the copyright laws. *Id.* at 175.

A somewhat related issue has arisen concerning the availability of copyright protection for the electronically displayed visual images appearing on the screen of a video game. See *Stern Elecs., Inc. v. Kaufman*, 669 F.2d 852, 853 (2d Cir. 1982). In *Stern*, the defendants argued that copyright protection could be secured only for the written computer program that determines the visual images displayed in the game, rather than for the images themselves. *Id.* at 855. The court rejected this argument, and, after carefully examining the various sights and sounds of the game, concluded "that its repetitive sequence of images is copyrightable as an audiovisual display." *Id.* at 857. In reaching this decision, the court further noted that the player's participation in the game did not prevent the audiovisual work from being copyrighted, even though the sequence of images might vary from game to game. *Id.* at 856-57.

<sup>85</sup> See *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171, 174-75 (N.D. Cal. 1981) ("[t]his court is not . . . convinced of the merits of the basis of . . . [the *Data Cash*] decision"); 2 M. NIMMER, *supra* note 60, § 8.08, at 8-108.2 (characterizing the *Data Cash* holding as "questionable").

<sup>86</sup> 524 F. Supp. at 175 (emphasis in original).

<sup>87</sup> *Id.* at 174-75. The *Tandy* court observed that the original section 117 was not intended by Congress to be a "loophole" which would allow a computer program, fixed in the form of a silicon chip, to be copied. *Id.* at 175. To construe it as such, the court noted, would severely limit the potential ability to copyright computer programs. *Id.*; see *infra* text accompanying note 95.

<sup>88</sup> See *supra* text accompanying notes 67 & 74-84. The difference of opinion exemplified

It is suggested that the continuing confusion regarding the ability to copyright "object" programs stems from both judicial and legislative inertia. In *Data Cash*, the Seventh Circuit declined to address dictum in the district court's opinion which explicitly asserted that computer programs in their "object" stage are not copyrightable under the 1976 Act.<sup>89</sup> Additionally, although Congress' recent Software Copyright Amendment has added a definition of "computer program" to section 101<sup>90</sup> and has revised section 117 to clarify the proprietary rights of owners of copies of computer programs,<sup>91</sup> both the amendment and its legislative his-

---

by the *Data Cash* and *Tandy* decisions reflects, to a certain degree, the disagreement among members of the National Commission on New Technological Uses of Copyrighted Works (CONTU). Schmidt, *supra* note 1, at 369. CONTU was established by Congress in 1974, *see* Act of Dec. 31, 1974, Pub. L. No. 93-573, § 201(a), 88 Stat. 1873 (1974), to make specific recommendations as to the necessity for legislative change in the area of computer software copyrightability, *see id.* § 201(c), 88 Stat. at 1873-74. The CONTU final report, however, evidenced a sharp division of opinion among some of the Commission's members. *See NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT* 29, 92 (1978) [hereinafter cited as CONTU, FINAL REPORT]. While the CONTU majority expressed the view that copyright protection should extend to computer programs, *see id.* at 29, Commissioner Hersey, in a dissenting opinion, argued that a computer program, being merely "a machine control element," should not be considered copyrightable subject matter, *id.* at 69-70 (Hersey, Comm'r, dissenting). Notably, several commentators have expressed some measure of support for Commissioner Hersey's observations. *See, e.g.,* M. Pope & P. Pope, *supra* note 59, at 529, 553; Schmidt, *supra* note 1, at 371.

<sup>89</sup> *See Data Cash*, 628 F.2d at 1041; *supra* note 78.

<sup>90</sup> 17 U.S.C. § 101 (1976), as amended by Act of Dec. 12, 1980, Pub. L. No. 96-517, § 10(a), 94 Stat. 3028 (1980); *see supra* note 58. The recent amendment adding a definition of "computer program" to section 101 describes a program as "a set of statements or instructions to be used directly in a computer in order to bring about a certain result." Act of Dec. 12, 1980, Pub. L. No. 96-517, § 10(a), 94 Stat. 3028.

<sup>91</sup> Section 117 was amended in 1980 to read as follows:

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. Adaptation so prepared may be transferred only with the authorization of the copyright owner.

Act of Dec. 12, 1980, Pub. L. No. 96-517, § 10(b), 94 Stat. 3028 (1980) (amending 17 U.S.C. § 117 (Supp. III 1979)) (presently codified at 17 U.S.C. § 117 (Supp. IV 1980)).

tory fail to address the copyrightability of an "object" program.<sup>92</sup> It is submitted, therefore, that further legislation is necessary in this area.<sup>93</sup> Indeed, because the object code may, in fact, be copied,<sup>94</sup> it is illogical to afford copyright protection to the written "source" stage of a computer program if such protection effectively will be lost by a subsequent duplication of the silicon chip.<sup>95</sup>

---

<sup>92</sup> See *supra* notes 90-91 and accompanying text; see also H.R. REP. NO. 1307, 96th Cong., 2d Sess. 23, reprinted in 1980 U.S. CODE CONG. & AD. NEWS 6460, 6482. The legislative history of the Software Copyright Amendment merely states that the amendment was designed to clarify the law of copyright governing computer software. See *id.*

<sup>93</sup> See *infra* text accompanying notes 148-59.

<sup>94</sup> See *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171, 175 (N.D. Cal. 1981); *Data Cash Sys., Inc. v. JS&A Group, Inc.*, 480 F. Supp. 1063, 1066 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038, 1040 (7th Cir. 1980). In *Data Cash*, the Seventh Circuit observed that the plaintiff had "the erroneous belief that [its] program could not be copied directly from the ROM [chip] . . . ." 628 F.2d at 1043 (emphasis added). The court reasoned, however, that this belief was insufficient to excuse the plaintiff from its failure to have a copyright notice affixed to the ROM or to any other part of the plaintiff's computer chess game. *Id.* at 1043-44.

<sup>95</sup> See *supra* note 87. A number of commentators have attacked the law of copyright as an inadequate means of protecting computer software. See, e.g., Breyer, *The Uneasy Case For Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 344-48 (1970); Note, *Software Protection: Patents, Copyrights, and Trade Secrets*, 35 ALB. L. REV. 695, 709-10 (1971) [hereinafter cited as Albany Note]; Note, *Computer Software: Beyond the Limits of Existing Proprietary Protection Policy*, 40 BROOKLYN L. REV. 116, 121-23 (1973) [hereinafter cited as Brooklyn Note]; Note, *Protection of Computer Software—A Hard Problem*, 26 DRAKE L. REV. 180, 194-96 (1977) [hereinafter cited as Drake Note]; Note, *supra* note 2, at 1549-50. The major argument raised against copyright protection of computer programs is that it only protects the form of a particular work's expression, not the ideas contained in the work. See, e.g., *Baker v. Selden*, 101 U.S. 99, 105 (1879); see Albany Note, *supra*, at 709; Drake Note, *supra*, at 194; Note, *supra* note 2, at 1550; *supra* note 57. Another alleged disadvantage of copyright protection is that such protection is subject to the "fair use" doctrine, which permits reasonable use of copyrighted material without the copyright owner's consent. E.g., *Rosemont Enters., Inc. v. Random House, Inc.*, 366 F.2d 303, 306 (2d Cir. 1966), *cert. denied*, 385 U.S. 1009 (1967); *Toksvig v. Bruce Pub. Co.*, 181 F.2d 664, 666 (7th Cir. 1950); see Albany Note, *supra*, at 709-10; Brooklyn Note, *supra*, at 122. Notably, section 107 of the 1976 Copyright Act adopts the "fair use" rule "for purposes such as criticism, comment, news reporting, teaching . . . , scholarship, or research . . . ." See 17 U.S.C. § 107 (Supp. III 1979). The difficulty in detecting piracy of computer programs is a third argument raised by commentators against copyright protection. See Albany Note, *supra*, at 170; Note, *supra* note 2, at 1550. Finally, it has been asserted that antitrust problems may arise if a large manufacturer, such as IBM, obtains copyrights on many or all of the programs that it creates. See Breyer, *supra*, at 348. For a discussion of the first amendment limitation upon copyright protection, see 1 M. NIMMER, *supra* note 60, § 1.10[A]-[D].

## TRADE SECRET PROTECTION

*The Preemption Issue*

In contrast to the areas of patent and copyright protection, there exists today no dispute as to the applicability of trade secret protection<sup>96</sup> to computer software.<sup>97</sup> Notwithstanding the consensus that software is suitable subject matter for trade secret protection, developers of computer programs may encounter an initial obstacle to securing this protection. The issue that arises is whether state-created trade secret laws are preempted by federal patent and copyright laws covering the same subject matter.<sup>98</sup>

With respect to the federal patent laws, it appears settled that state trade secret law is not preempted.<sup>99</sup> The leading case in this

---

<sup>96</sup> There appear to be two major grounds upon which trade secret protection is based. The first is that a trade secret is a property right. *E.g.*, *Allen-Qualley Co. v. Shellmar Prods. Co.*, 31 F.2d 293, 296 (N.D. Ill. 1929), *aff'd*, 36 F.2d 623, 625 (7th Cir. 1930); *Herold v. Herold China & Pottery Co.*, 257 F. 911, 913 (6th Cir. 1919); *see* *Schmidt*, *supra* note 1, at 389. This position, however, is against the weight of authority. *See* R. ELLIS, *TRADE SECRETS* § 6, at 12 (1953). The United States Supreme Court itself has eschewed the property rationale as the basis for trade secret protection. *See* *E.I. DuPont DeNemours Powder Co. v. Masland*, 244 U.S. 100, 102 (1917). In *Masland*, the Court observed that the true basis for an action for trade secret misuse is the desire to maintain the confidentiality of business relationships. *Id.* Indeed, the Court declared that "[t]he property may be denied but the confidence cannot be." *Id.* Notably, some courts have relied upon both the property and confidentiality concepts as grounds for trade secret protection. *See, e.g.*, *International Indus., Inc. v. Warren Petroleum Corp.*, 99 F. Supp. 907, 915 (D. Del. 1951), *aff'd in part, rev'd in part*, 248 F.2d 696 (3d Cir. 1957). Regardless of the ideological ground for trade secret protection, however, it is clear that a right of protection does exist. R. ELLIS, *supra*, § 7, at 13. Indeed, in 1979, the National Conference of Commissioners on Uniform State Laws approved a "Uniform Trade Secrets Act" which subsequently was approved by the American Bar Association. *See* D. BENDER, *supra* note 1, § 4A.03[3], at 4A-83 to -85 & n.26.

<sup>97</sup> *See* D. BENDER, *supra* note 1, § 4A.03, at 4A-79 ("[u]nlike its statutory cousins, whose applicability is in issue, traditional trade secret law clearly applies to programs"). At least one court has declared expressly that "computer software is protectable under the trade secret doctrine," *Cybertek Computer Prods., Inc. v. Pinckney Whitfield, Tracor Computing Corp.*, 6 Computer L. Serv. Rep. (Callaghan) 999, 1003 (Cal. Super. Ct. 1977), while other courts have held in favor of such protection in the computer area, *see, e.g.*, *University Computing Co. v. Lykes-Youngstown Corp.*, 504 F.2d 518, 535 (5th Cir. 1974).

<sup>98</sup> *See infra* text accompanying notes 99-132.

<sup>99</sup> *See infra* text accompanying notes 100-09. At one time, the very existence of trade secret law was uncertain. *See* *Albany Note*, *supra* note 95, at 714. In *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225 (1964), the Supreme Court addressed the question of whether a state's unfair competition law was preempted by the federal patent laws. *Id.* at 230-31. The Court concluded that there was indeed such a conflict between the laws as to result in preemption, reasoning that to permit "a State by use of its law of unfair competition to prevent the copying of an article which represents too slight an advance to be patented would be to permit the State to block off from the public something which federal law has said belongs to the public." *Id.* at 231-32; *accord* *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234,

area is *Kewanee Oil Co. v. Bicron Corp.*,<sup>100</sup> decided by the United States Supreme Court in 1974. In holding that Ohio's trade secret law did not conflict with the federal patent laws,<sup>101</sup> Chief Justice Burger examined the interaction of the basic policies underlying these two methods of protection.<sup>102</sup> Initially, the Court dismissed the possibility that an inventor of unpatentable subject matter would apply for a patent, observing that the availability of trade secret protection would not affect such a decision.<sup>103</sup> Thus, Chief Justice Burger reasoned, the existence of concurrent trade secret protection would not endanger the patent law policy objective of

---

237-38 (1964). Fearful that the *Sears* doctrine would be applied to state trade secret law, several lower courts attempted to distinguish between the law of unfair competition and trade secret law upon the ground that the latter involves the concept of confidentiality. *See, e.g.,* *Servo Corp. of Am. v. General Elec. Co.*, 337 F.2d 716, 724 (4th Cir. 1964), *cert. denied*, 383 U.S. 934 (1966); *Schulenburg v. Signatrol, Inc.*, 33 Ill. 2d 379, 385-87, 212 N.E.2d 865, 868-69 (1965), *cert. denied*, 383 U.S. 959 (1966); *Van Prods. Co. v. General Welding & Fabricating Co.*, 419 Pa. 248, 254, 213 A.2d 769, 772-73 (1965). In *Lear, Inc. v. Adkins*, 395 U.S. 653 (1969), the Supreme Court was faced squarely with the question whether state laws governing trade secrets were preempted by the federal patent laws. *Id.* at 672. The Court openly avoided the issue, however, leaving it to the state courts to determine whether these two areas of state and federal law could be reconciled. *See id.* at 675. The dissenters contended that the majority's failure to address definitively the issue presented was in direct conflict with the *Sears* decision. *Id.* at 676-77 (Black, J., concurring in part and dissenting in part). As a result of the Supreme Court's irresolution, differences of opinion developed among the circuit courts of appeals as to whether federal patent law preempted state trade secret law. *See, e.g.,* *Kewanee Oil Co. v. Bicron Corp.*, 478 F.2d 1074, 1086-87 (6th Cir. 1973) (preemption), *rev'd*, 416 U.S. 470, 493 (1974); *Painton & Co. v. Bourns, Inc.*, 442 F.2d 216, 225 (2d Cir. 1971) (no preemption); *Dekar Indus., Inc. v. Bissett-Berman Corp.*, 434 F.2d 1304, 1306 (9th Cir. 1970) (no preemption), *cert. denied*, 402 U.S. 945 (1971); *Water Servs., Inc. v. Tesco Chems, Inc.*, 410 F.2d 163, 172 (5th Cir. 1969) (no preemption).

<sup>100</sup> 416 U.S. 470 (1974). The plaintiff in *Kewanee* alleged that the defendant had misappropriated trade secrets in the form of certain processing and manufacturing techniques relating to the production of synthetic crystals. *Id.* at 473. Although both the district court and the Sixth Circuit Court of Appeals agreed that the defendants had, indeed, violated Ohio's trade secret law, the Sixth Circuit found this law to be in conflict with the federal patent laws and thus preempted. *Id.* at 474.

<sup>101</sup> *Id.*

<sup>102</sup> *See infra* text accompanying notes 103-08. The Court stated generally that the primary objectives of the patent laws are the encouragement of invention, increased public disclosure, and promotion of the policy that information "which is in the public domain cannot be removed therefrom" by state action. 416 U.S. at 480-81. The Court also noted that the encouragement of invention, the maintenance of fair dealing in business relationships, and "the subsidization of research and development . . . within large companies" have been recognized as the main goals of trade secret protection. *Id.* at 481-82. Chief Justice Burger focused upon the patent policy of disclosure because that, according to the Chief Justice, is the "[most] difficult objective of the patent law to reconcile with trade secret law." *Id.* at 484.

<sup>103</sup> 416 U.S. at 483.

increased public disclosure.<sup>104</sup> Additionally, the Court declared, the existence of trade secret laws would not affect an innovator's decision to forego the cost and risk of patent protection when the subject matter's patentability is uncertain.<sup>105</sup> Finally, the Court examined the situation in which the invention is "clearly patentable."<sup>106</sup> After addressing the comparative shortcomings of trade secret protection,<sup>107</sup> the Court concluded that in such a situation, there is a greater likelihood that the innovator would choose to patent his discovery, but that, regardless of the choice, the ultimate congressional objective of public disclosure would not be defeated.<sup>108</sup> Notably, the *Kewanee* rationale has been applied in the context of protection of computer systems.<sup>109</sup>

Copyright preemption of state trade secret protection, unlike patent preemption, remains an unsettled area of the law.<sup>110</sup> Under section 301 of the 1976 Copyright Act,<sup>111</sup> state rights "that are equivalent to any of the exclusive rights within the general scope of copyright" are preempted.<sup>112</sup> The resolution of the preemption

<sup>104</sup> *Id.*

<sup>105</sup> *Id.* at 487.

<sup>106</sup> *Id.* at 489.

<sup>107</sup> *Id.* at 489-90. The Court observed that the protection provided by the law of trade secrets is somewhat "weaker" than that afforded by the patent laws. *Id.* While trade secret law permits a competitor to independently discover and use the same subject matter as the original, patent law, on the other hand, forbids any use of the invention for at least a limited period of time. *Id.* at 490 ("[w]here patent law acts as a barrier, trade secret law functions relatively as a sieve").

<sup>108</sup> *Id.* at 489-91. The Court noted that, according to the ripeness-of-time concept of invention, subsequent independent discovery within a relatively short period of time would be inevitable, even if an inventor chooses to keep his discovery a secret and avoids the patent law disclosure requirement. *Id.* at 490-91. Additionally, the Court stated that the risk of unintentional disclosure which accompanies trade secret protection is considerable. *Id.* Thus, concluded the Court, in the long-run, society's interest in disclosure would be furthered. *Id.*

<sup>109</sup> See, e.g., *Analogic Corp. v. Data Translation, Inc.*, 371 Mass. 643, 645-46, 358 N.E.2d 804, 806-07 (1976); *People v. Serrata*, 62 Cal. App. 3d 9, 19-20, 133 Cal. Rptr. 144, 150 (Ct. App. 1976); *Data Gen. Corp. v. Digital Computer Controls, Inc.*, 357 A.2d 105, 111-12 (Del. Ch. 1975).

<sup>110</sup> See D. BENDER, *supra* note 1, § 4A.03, at 4A-77 to -78; *infra* text accompanying notes 111-32.

<sup>111</sup> 17 U.S.C. § 301 (1976).

<sup>112</sup> *Id.* § 301(a). Section 301(b) serves as a qualification of the broad preemption language of section 301(a), reading in part:

Nothing in this title annuls or limits any rights or remedies under the common law or statutes of any State with respect to

. . . .

. . . .

(3) activities violating legal or equitable rights that are not equivalent to any of

issue in this area, therefore, seems to hinge upon whether state trade secret protection is equivalent to copyright protection.<sup>113</sup> As indicated by the following discussion, courts have reached differing conclusions when faced with this question.<sup>114</sup>

In *Avco Corp. v. Precision Air Parts, Inc.*,<sup>115</sup> a federal district court in Alabama held that section 301, by virtue of its preemptive effect, precluded the plaintiff's cause of action against a competitor for misappropriation of secret drawings and specifications of certain aircraft engines.<sup>116</sup> In so deciding, the court reasoned that the state claim was, in effect, an attempt to enforce the same rights as those contained in the federal copyright law.<sup>117</sup> Although other courts have followed the line of reasoning exemplified by *Avco*,<sup>118</sup> none of these cases dealt with copyright preemption in the context of computer programs.<sup>119</sup>

the exclusive rights within the general scope of copyright.

*Id.* § 301(b). For a discussion of the rights protected by copyright law, see *supra* note 72. The final report of the CONTU specifically stated that trade secret protection for computer programs is not entirely precluded merely because copyright protection is also available. See CONTU, FINAL REPORT, *supra* note 88, at 44.

<sup>113</sup> See *Warrington Assocs., Inc. v. Real-Time Eng'g Syss., Inc.*, 522 F. Supp. 367, 368 (N.D. Ill. 1981); *Avco Corp. v. Precision Air Parts, Inc.*, 2 COPYRIGHT L. REP. (CCH) ¶ 25,207, at 16,157 (M.D. Ala. 1980), *aff'd on other grounds*, 676 F.2d 494 (11th Cir. 1982).

<sup>114</sup> See *infra* text accompanying notes 115-32.

<sup>115</sup> 2 COPYRIGHT L. REP. (CCH) ¶ 25,207, at 16,155 (M.D. Ala. 1980), *aff'd on other grounds*, 676 F.2d 494 (11th Cir. 1982).

<sup>116</sup> 2 COPYRIGHT L. REP. (CCH), at 16,159; *cf.* *BPI Syss., Inc. v. Leith*, 532 F. Supp. 208, 211 (W.D. Tex. 1981) (implying that in the context of computer software, misappropriation of trade secret cause of action would be preempted by Copyright Act if the property allegedly misappropriated had been copyrighted). The Eleventh Circuit in *Avco*, unlike the district court, found it unnecessary to address the preemption issue, ruling instead that the plaintiff's causes of action were time-barred. 676 F.2d at 495. This finding, the court commented, "'preempts the preemption question' on appeal." *Id.* at 498. It appears likely, however, that should the issue again come before the federal district court in Alabama, the result would be the same.

<sup>117</sup> 2 COPYRIGHT L. REP. (CCH), at 16,157. The court stated that the plaintiff's claim, alleging that the defendant copied and prepared derivative works from certain drawings and specifications in order to obtain approval to sell airplane engine parts, "fits squarely into" the 1976 Copyright Act sections which permit only the copyright owner to reproduce the copyrighted work and prepare derivative works. *Id.* at 16,157 & n.2; see also 17 U.S.C. § 106(1)(2) (Supp. III 1979).

<sup>118</sup> See, e.g., *Harper & Row, Publishers, Inc. v. Nation Enters.*, 501 F. Supp. 848, 852-54 (S.D.N.Y. 1980) (state claims of conversion and tortious interference with contract preempted); *Mitchell v. Penton/Indus. Publishing Co.*, 486 F. Supp. 22, 26 (N.D. Ohio 1979) (state misappropriation claim preempted).

<sup>119</sup> In *Harper & Row, Publishers, Inc. v. Nation Enters.*, 501 F. Supp. 848 (S.D.N.Y. 1980), the plaintiffs entered into a contract with former President Ford to publish his memoirs and subsequently negotiated an exclusive agreement with Time, Inc. for the publication of certain excerpts of the memoirs, promising not to authorize any other publication



In *Warrington Associates, Inc. v. Real-Time Engineering Systems*,<sup>120</sup> an Illinois federal district court decided the copyright preemption issue in a manner contrary to *Avco*.<sup>121</sup> In *Warrington*, the plaintiff alleged, *inter alia*, that the defendant had misappropriated the plaintiff's secret computer software programs.<sup>122</sup> The defendant moved to dismiss the claim on the ground that it was preempted by the 1976 Copyright Act.<sup>123</sup> The court denied the motion,<sup>124</sup> holding that the Act did not preempt the trade secret cause of action.<sup>125</sup> Recognizing the distinctions between the scope

---

in Canada or the United States prior to April 23, 1979. *Id.* at 849. On April 7, 1979, however, an article appeared which focused upon former President Ford's account of the Nixon pardon, allegedly prepared from a copy of the unpublished Ford memoirs. *Id.* The plaintiffs brought suit against the publishers of that article, alleging copyright infringement, conversion, and interference with contract. *Id.* at 849-50. The court held that the latter two assertions were preempted by section 301 of the Copyright Act because they sought to protect rights which were equivalent to the rights protected by the copyright laws. *See id.* at 852-54. The court imposed a strict test for the determination of the equivalence of protected rights, declaring that "[t]he state cause of action must protect rights under the facts of a particular case which are qualitatively different from the rights of reproduction, performance, distribution, or display." *Id.* at 852 (emphasis in original). Upon examination of the facts and the allegations of conversion and tortious interference with contract, the court concluded that the rights protected under these causes of action were not qualitatively different from the rights of reproduction, distribution, and preparation of derivative works already protected by copyright. *See id.* at 852-53.

In *Mitchell v. Penton/Indus. Publishing Co.*, 486 F. Supp. 22 (N.D. Ohio 1979), the plaintiff, in a two-count complaint, alleged that the defendant had both infringed plaintiff's copyright on a book and misappropriated specific information contained in the book. *Id.* at 22-23. The court concluded that, on the basis of the pleading, the two counts could not be distinguished and, therefore, the misappropriation claim was preempted under section 301 of the Copyright Act. *Id.* at 25-26.

<sup>120</sup> 522 F. Supp. 367 (N.D. Ill. 1981).

<sup>121</sup> *Id.* at 369.

<sup>122</sup> *Id.* at 368. The facts in *Warrington* raised the additional issue of whether the plaintiff forfeited its ability to obtain trade secret protection because it had disclosed certain confidential information, in the form of a user's manual, in order to secure copyright protection. *Id.* The court stated that such a disclosure could result in the unavailability of trade secret protection. *Id.* at 369. Because it could be inferred from the record, however, that the plaintiff may have relied upon "assurances of confidentiality from the users" of the plaintiff's software, the court declined to render a final determination on the disclosure issue. *Id.*

<sup>123</sup> *Id.* at 368. The defendant's motion to dismiss the plaintiff's misappropriation claim was treated by the court as a motion for summary judgment. *See id.*

<sup>124</sup> *Id.* at 370.

<sup>125</sup> *Id.* at 369; *cf.* *Data Gen. Corp. v. Digital Computer Controls, Inc.*, 297 A.2d 433, 435 (Del. Ch. 1971) (trade secret claim not preempted notwithstanding that plaintiff failed to secure copyright protection for design drawings of its computer), *aff'd*, 297 A.2d 437, 439 (Del. 1972); *Allied Artists Pictures Corp. v. Rhodes*, 496 F. Supp. 408, 443-44 (S.D. Ohio 1980) (Ohio statute regulating licensing and distribution of motion pictures not preempted by the Act); *Amana Refrigeration, Inc. v. Consumers Union of United States, Inc.*, 431 F. Supp. 324, 325 (N.D. Iowa 1977) ("[f]ederal copyright law preempts only state unfair com-

of protection afforded by the two methods,<sup>126</sup> the court stated that copyright protection extends to the "particular expression" of an idea,<sup>127</sup> whereas trade secret law provides protection for the idea itself.<sup>128</sup> Additionally, noted the court, the basis for the wrong sought to be redressed by trade secret law necessarily involves some form of breach of trust or confidentiality, whereas the prohibition imposed by copyright law extends merely to copying.<sup>129</sup> The court further reasoned, based upon the legislative history of the Act, that Congress did not intend to preempt the common law cause of action for trade secret misappropriation.<sup>130</sup> Finally, the court observed that the law of trade secrecy<sup>131</sup> is more likely to conflict with, and thereby be preempted by, the patent rather than the copyright laws, and noted that the *Kewanee* Court effectively had silenced any such claim.<sup>132</sup>

petition laws which clash with federal law"). *Contra* Avco Corp. v. Precision Air Parts, Inc., 2 COPYRIGHT L. REP. (CCH) ¶ 25,207, at 16,159 (M.D. Ala. 1980), *aff'd on other grounds*, 676 F.2d 494 (11th Cir. 1982); *cf.* Harper & Row, Publishers, Inc. v. Nation Enters., 501 F. Supp. 848, 852-54 (S.D.N.Y. 1980) (Copyright Act preempted state claims of conversion and tortious interference with contract).

<sup>126</sup> 522 F. Supp. at 368.

<sup>127</sup> *Id.*; see *supra* note 57; see also Synercom Tech., Inc. v. University Computing Co., 462 F. Supp. 1003, 1010 (N.D. Tex. 1978) (expression is protected "by forbidding copying").

<sup>128</sup> 522 F. Supp. at 368 (citing, for example, Ferrolene Corp. v. General Aniline & Film Corp., 207 F.2d 912, 921 (7th Cir. 1953)). For a criticism of the distinction which has been made between the expression of an idea and the idea itself, see Libott, *Round the Prickly Pear: The Idea-Expression Fallacy in a Mass Communications World*, 16 ASCAP 30 (1968).

<sup>129</sup> 522 F. Supp. at 369; see *Eutectic Welding Alloys Corp. v. West*, 281 Minn. 13, 18, 160 N.W.2d 566, 570 (1968).

<sup>130</sup> 522 F. Supp. at 368-69. As the court observed, the legislative history of section 301 indicates that "[t]he evolving common law [right] of . . . trade secrets . . . would remain unaffected as long as the [cause] of action contain[s] elements, such as an invasion of personal rights or a breach of trust or confidentiality, that are different in kind from copyright infringement." H.R. REP., *supra* note 57, at 132, *reprinted in* 1976 U.S. CODE CONG. & AD. NEWS 5659, 5748.

<sup>131</sup> It should be noted that trade secret law is not entirely decisional. Criminal statutes directly or indirectly dealing with theft of trade secrets, for example, have been enacted by approximately one-half of the states. D. BENDER, *supra* note 1, § 4A.03[4], at 4A-86; see, e.g., COLO. REV. STAT. § 18-4-408 (1973); ILL. ANN. STAT. ch. 38, § 15-1 (Smith-Hurd 1977); MASS. ANN. LAWS ch. 266, § 30(4) (1970); MICH. COMP. LAWS ANN. § 752.771(3)-.772 (Supp. 1968-1982); N.Y. PENAL LAW §§ 155.00(6), 165.07 (McKinney 1975); N.C. GEN. STAT. § 14-75.1 (1981). For a discussion of other state and federal statutes which may impact upon the law of trade secrets, see Bender, *Trade Secret Protection of Software*, 38 GEO. WASH. L. REV. 909, 944-47, 955-56 (1969-1970) [hereinafter cited as Bender, *Trade Secret Protection*]. For a discussion of the criminal law aspects of trade secrets in the context of computer systems, see D. BENDER, *supra* note 1, § 4.07.

<sup>132</sup> See 522 F. Supp. at 369. *Compare* Synercom Tech., Inc. v. University Computing Co., 474 F. Supp. 37, 44 (N.D. Tex. 1979) (misappropriation claim preempted if it merely

### *The Disclosure Problem*

Notwithstanding the preemption obstacle, trade secret law has been the most frequently used method of computer software protection.<sup>133</sup> Unlike patent and copyright protection, however, trade secrecy necessarily precludes public disclosure of the alleged secret.<sup>134</sup> Does this mean that total nondisclosure is a prerequisite to

alleges copying of computer software) with *Compumarketing Servs. Corp. v. Business Envelope Mfrs., Inc.*, 342 F. Supp. 776, 777-78 (N.D. Ill. 1972) (misappropriation claim not preempted since the allegations go beyond mere copying). For a criticism of the "slippery" distinctions made between misappropriation and copying, see Note, *The "Copying-Misappropriation" Distinction: False Step in the Development of the Sears-Compco Pre-Employment Doctrine*, 71 COLUM. L. REV. 1444, 1461-63 (1971). Notwithstanding such criticism, most courts have held that the protections against copying and misappropriation are sufficiently distinguishable so as to permit the latter to be governed by state law. See, e.g., *Tape Indus. Ass'n of Am. v. Younger*, 316 F. Supp. 340, 351 (C.D. Cal. 1970), *appeal dismissed*, 401 U.S. 902 (1971); *Grove Press, Inc. v. Collectors Publications, Inc.* 264 F. Supp. 603, 606 (C.D. Cal. 1967); *Capitol Records, Inc. v. Erickson*, 2 Cal. App. 3d 526, 537-38, 82 Cal. Rptr. 798, 806 (Ct. App. 1969), *cert. denied*, 398 U.S. 960 (1970); *Capitol Records, Inc. v. Greatest Records, Inc.*, 43 Misc. 2d 878, 881-82, 252 N.Y.S.2d 553, 556-57 (Sup. Ct. N.Y. County 1964).

<sup>133</sup> See D. BENDER, *supra* note 1, § 4.05[3], at 4-53; Bender, *Trade Secret Protection*, *supra* note 131, at 909; Schmidt, *supra* note 1, at 386. Indicative of the widespread use of trade secret law as a method of computer software protection are the numerous cases concerning misuse or misappropriation of software-related trade secrets. See, e.g., *University Computing Co. v. Lykes-Youngstown Corp.*, 504 F.2d 518, 534 (5th Cir. 1974); *Electronic Data Syss., Corp. v. Kinder*, 497 F.2d 222, 224 (5th Cir. 1974); *Structural Dynamics Research Corp. v. Engineering Mechanics Research Corp.*, 401 F. Supp. 1102, 1111 (E.D. Mich. 1975); *Telex Corp. v. IBM*, 367 F. Supp. 258, 315-16 (N.D. Okla. 1973), *aff'd in part, rev'd in part per curiam*, 510 F.2d 894, 933 (10th Cir. 1975), *cert. dismissed*, 423 U.S. 802 (1975); *Com-Share, Inc. v. Computer Complex, Inc.*, 338 F. Supp. 1229, 1236 (E.D. Mich. 1971), *aff'd per curiam*, 458 F.2d 1341 (6th Cir. 1972); *Sperry Rand Corp. v. Pentronix, Inc.*, 311 F. Supp. 910, 913 (E.D. Pa. 1970); *Cybertek Computer Prods., Inc. v. Pinckney Whitfield, Tracor Computing Corp.*, 6 Computer L. Serv. Rep. (Callaghan) 999, 1000-01 (Cal. Super. Ct. 1977); *Data Gen. Corp. v. Digital Computer Controls, Inc.*, 297 A.2d 433, 435 (Del. Ch. 1971), *aff'd*, 297 A.2d 437 (Del. 1972). The software industry's preference for trade secret protection is based primarily upon the perceived advantages of such protection. See D. BENDER, *supra* note 1, § 4.05[3], at 4-59. These advantages include the absence of a public disclosure requirement, the favorable domestic and foreign attitudes toward trade secrets, and the potential for unlimited duration of trade secret protection. See *id.* (citing the results of a study conducted by Kidder, Peabody, & Co.). There are, however, a number of alleged disadvantages of trade secret protection. See *infra* text accompanying notes 144-47.

<sup>134</sup> See Bender, *Trade Secret Protection*, *supra* note 131, at 913. In the copyright area, there is a general requirement that published works be deposited in the Copyright Office for use by the Library of Congress. See 17 U.S.C. § 407(a)(b) (Supp. III 1979). The Register of Copyrights, however, has exempted computer programs, in their "machine-readable" form, from this general requirement. See 37 C.F.R. § 202.19 (c)(5) (1981); see also 17 U.S.C. § 407(c) (Supp. III 1979) (Register of Copyrights has the power to exempt materials from the deposit requirement). With respect to computer programs which are sought to be registered with the Copyright Office, the Code of Federal Regulations provides for the following

securing trade secret protection? If not, then what is the permissible breadth of disclosure?<sup>135</sup> These inquiries are central to an investigation into whether computer program developers can avail themselves of trade secret protection.<sup>136</sup>

In determining whether particular subject matter is, indeed, a "secret,"<sup>137</sup> courts necessarily have engaged in case-by-case examinations of the factual circumstances surrounding the claim of trade secrecy.<sup>138</sup> Illustrative of this approach is *Motorola, Inc. v.*

mandatory deposit:

(A) For published or unpublished computer programs, one copy of identifying portions of the program, reproduced in a form visually perceptible without the aid of a machine or device, either on page or in microform. For these purposes, "identifying portions" shall mean either the first and last 25 pages or equivalent units of the program if reproduced on paper, or at least the first and last 25 pages or equivalent units of the program if reproduced in microform, together with the page or equivalent unit containing the copyright notice, if any . . . .

37 C.F.R. § 202.20(c)(2)(vii)(A) (1981). Patent law requires that an applicant submit the following material to the Patent or Trademark Office: an oath or declaration; drawings, if applicable; a specification, including a detailed description of the invention; and a filing fee. P. ROSENBERG, *supra* note 12, § 13.00, at 13-2. It should be noted that, notwithstanding the Freedom of Information Act, 5 U.S.C. § 552 (1976), such material is not subject to public scrutiny by reason of express congressional mandate. See 35 U.S.C. § 122 (1976); P. ROSENBERG, *supra* note 12, § 3.09, at 3-13. For discussions of the utility of public disclosure, see Stedman, *Trade Secrets*, 23 OHIO ST. L.J. 4, 31-32 (1962); Comment, *Industrial Espionage: Piracy of Secret Scientific and Technical Information*, 14 U.C.L.A. L. REV. 911, 913-14 (1967).

<sup>135</sup> The Restatement of Torts appears to suggest that trade secret protection may be obtained despite the absence of total nondisclosure. See RESTATEMENT OF TORTS § 757 comment b (1939) ("a substantial element of secrecy must exist"); see also Bender, *Trade Secret Protection*, *supra* note 131, at 928 ("[s]ecrecy need not be absolute"). The fact that a particular work is copyrighted, for example, "does not . . . disclose the trade secret or eliminate its mantle of confidentiality." *Warrington Assocs., Inc. v. Real-Time Eng'g Sys., Inc.*, 522 F. Supp. 367, 368 (N.D. Ill. 1981).

<sup>136</sup> Cf. Schmidt, *supra* note 1, at 387 (rapid growth in the number of computer programs may result in the unavailability of trade secret protection).

<sup>137</sup> If particular information is generally known, then it is clear that it is not a protectable trade secret. See *Sperry Rand Corp. v. Pentronix, Inc.*, 311 F. Supp. 910, 913 (E.D. Pa. 1970); *Cybertek Computer Prods., Inc. v. Pinckney Whitfield, Tracor Computing Corp.*, 6 Computer L. Serv. Rep. (Callaghan) 999, 1008 (Cal. Super. Ct. 1977); Bender, *Trade Secret Protection*, *supra* note 131, at 928. The specific use of a combination of several general ideas, however, may be considered a trade secret. See *Cybertek Computer Prods., Inc. v. Pinckney Whitfield, Tracor Computing Corp.*, 6 Computer L. Serv. Rep. (Callaghan) 999, 1008 (Cal. Super. Ct. 1977); cf. *Winston Research Corp. v. Minnesota Mining & Mfg. Co.*, 350 F.2d 134, 139 (9th Cir. 1965) (specifications for, and relationships of, publicly known mechanical parts constitute a trade secret since neither the specifications nor the relationships were themselves generally known).

<sup>138</sup> See, e.g., *Sperry Rand Corp. v. Pentronix, Inc.*, 311 F. Supp. 910, 913-23 (E.D. Pa. 1970); see also *infra* text accompanying notes 139 & 141.

*Fairchild Camera & Instrument Corp.*,<sup>139</sup> in which the court's rejection of the plaintiff's misappropriation claim was based upon a distinct lack of effort on the part of the plaintiff to keep the material secret.<sup>140</sup> The court found particularly significant the plaintiff's failure to implement the nondisclosure agreement between itself and the defendants, former employees, as well as the fact that "substantially all of the claims were revealed [in the marketed product itself,] in patents and trade literature or [were] generally known in the trade . . . ." <sup>141</sup> It should be noted that the court's analysis was grounded upon the widely recognized approach of the Restatement of Torts, which lists several factors to be considered in the evaluation of a trade secret.<sup>142</sup>

---

<sup>139</sup> 366 F. Supp. 1173 (D. Ariz. 1973). In *Motorola*, the plaintiff-employer initially alleged that almost every step in its semiconductor manufacturing process was a trade secret. *Id.* at 1184. Prior to trial, most of these allegations were dropped. *Id.* The alleged trade secret items which remained related to the manufacture of two semiconductor devices, a plastic encapsulated TO-92 and an aluminum-packaged TO-3. *Id.* at 1184-85. Although upon termination of the defendants' employment the plaintiff-employer reminded them of their entrance into a restrictive nondisclosure agreement, the defendants were not informed as to what the agreement covered. *Id.* at 1185. Additionally, the evidence established that the plaintiff's records did not even contain a statement of what the plaintiff believed to be its trade secrets. *Id.*

<sup>140</sup> *Id.* at 1183-88.

<sup>141</sup> *Id.* at 1188. The court observed that the plaintiff had permitted tours of the semiconductor production line, which included the viewing of the items claimed as trade secrets, and did not require any type of nondisclosure acknowledgment. *Id.* at 1186. Furthermore, the court noted, the "succession and order of manufacturing and testing steps" was revealed by the nature of the product itself. *Id.* at 1187. Finally, the court stated that many of the claimed trade secrets were disclosed in the plaintiff's own patents. *Id.*

<sup>142</sup> See RESTATEMENT OF TORTS § 757 comment b (1939). After providing that a trade secret is not susceptible of precise definition, *see id.*, the Restatement lists the following criteria to be considered in determining whether particular information is a trade secret:

- (1) the extent to which the information is known outside . . . the employer's business;
- (2) the extent to which it is known by employees and others involved in his business;
- (3) the extent of measures taken by him to guard the secrecy of the information;
- (4) the value of the information to him and to his competitors;
- (5) the amount of effort or money expended by him in developing the information;
- (6) the ease or difficulty with which the information could be properly acquired or duplicated by others.

*Id.*; *see, e.g.,* *Sarkes Tarzian, Inc. v. Audio Devices, Inc.*, 166 F. Supp. 250, 263-64 (S.D. Cal. 1958), *aff'd per curiam*, 283 F.2d 695 (9th Cir. 1960), *cert. denied*, 365 U.S. 869 (1961); *Cybertek Computer Prods., Inc. v. Pinckney Whitfield, Tracor Computing Corp.*, 6 Computer L. Serv. Rep. (Callaghan) 999, 1007-09 (Cal. Super. Ct. 1977). In an employment relationship, the employer has the burden of proving that the given information is a trade secret. *See Sperry Rand Corp. v. Pentronix, Inc.*, 311 F. Supp. 910, 913 (E.D. Pa. 1970). Satisfaction of this burden alone, however, will not entitle the employer to equitable relief. *See Van Prods. Co. v. General Welding & Fabricating Co.*, 419 Pa. 248, 259, 213 A.2d 769, 775 (1965) (specifying four elements that the employer must establish); *see also* *Wexler v.*

In the context of computer software, it thus appears that a program owner's willingness to enter into numerous licensing arrangements will not automatically preclude trade secret protection, provided that the licensee is contractually bound to keep his use of the program confidential.<sup>143</sup> It must be emphasized, however, that such protection may be lost by virtue of some factual circumstance surrounding the arrangements.<sup>144</sup> Furthermore, given the extensive distribution of computer programs,<sup>145</sup> detection of those persons skilled "in deciphering and penetrating valuable programs" becomes difficult, thereby increasing the risk of unintentional disclosure.<sup>146</sup> The fact that antitrust claims may be lodged against large developers is an additional disadvantage of trade secrecy.<sup>147</sup> Recog-

---

Greenberg, 399 Pa. 569, 577, 160 A.2d 430, 434 (1960) (specifying two elements that the employer must prove). For a discussion of the relief to which an employer is entitled in the absence of a nondisclosure agreement, see McClain, *Injunctive Relief Against Employees Using Confidential Information*, 23 Ky. L.J. 248 (1935).

<sup>143</sup> See *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 475-76 (1974) (subject matter remains secret even if divulged, provided there is an obligation of nondisclosure or nonuse); *Data Gen. Corp. v. Digital Computer Controls, Inc.*, 357 A.2d 105, 110-11 (Del. Ch. 1975) (trade secrets exist in plaintiff's logic design of minicomputer since parties with access to the material were under an obligation of confidence); see also *Management Science Am., Inc. v. Cyborg Sys., Inc.*, 6 Computer L. Serv. Rep. (Callaghan) 921, 925-26 (N.D. Ill. 1978) (extensive leasing of computer payroll system under licensing agreements requiring confidentiality does not destroy, as a matter of law, a claim of trade secrecy). Rather than selling a computer program, the program owner usually chooses to enter into a licensing agreement whereby the licensee is permitted to use the program for a specified fee. See Raysman & Brown, *Trade-Secret Law Protection of Software*, N.Y.L.J., Mar. 4, 1982, at 1, col. 1. Typically, the licensee's use of the program is limited to one computer located at the customer's facilities. *Id.*

<sup>144</sup> See *supra* text accompanying notes 137-42; *supra* notes 141-42. It has been stated that effective secret protection is dependent upon a program owner's ability to "take extraordinary precautions" to maintain the program's secrecy. See M. Pope & P. Pope, *supra* note 59, at 533. Compare *Motorola, Inc. v. Fairchild Camera & Instrument Corp.*, 366 F. Supp. 1173, 1186-88 (D. Ariz. 1973) (indicating the lack of precautionary measures taken by plaintiff) with *Com-Share, Inc. v. Computer Complex, Inc.*, 338 F. Supp. 1229, 1234-35 (E.D. Mich. 1971) (plaintiff acted with the "utmost caution"), *aff'd per curiam*, 458 F.2d 1341 (6th Cir. 1972). Furthermore, trade secret rights will be lost if competitors are able to independently discover the same information or process. M. Pope & P. Pope, *supra* note 59, at 533.

<sup>145</sup> See Schmidt, *supra* note 1, at 345 ("more than 15,000 programs . . . are written each day in the United States"). It appears that this extensive development is intended partly to satisfy the high demand for computer programs in the areas of bookkeeping, payroll, and inventory control. See *id.* at 354.

<sup>146</sup> See *id.* at 389. Various technical protections of computer programs, which have the effect of rendering the programs difficult to decipher and analyze, have been suggested as additional protective devices which program developers may use. See, e.g., D. BENDER, *supra* note 1, § 4.05[3], at 4-59; Schmidt, *supra* note 1, at 388-89.

<sup>147</sup> Schmidt, *supra* note 1, at 389. A number of recent antitrust cases have involved litigants who were either computer manufacturers or software developers. See, e.g., Sym-

nizing these inadequacies of trade secret protection, it is submitted that legislative action is necessary to ensure more effective trade secret protection of the computer software industry.

### A PROPOSAL FOR REFORM

Having discussed the major shortcomings of the current forms of computer program protection, it is appropriate to propose remedial statutory measures. The following statute, by accounting for the unique characteristics of computer programs,<sup>148</sup> is designed primarily to remedy the inadequacies that have developed within the existent areas of protection.<sup>149</sup>

(1) *Definition: Computer Program.*

A computer program is a set of statements or instructions to be used directly or indirectly in a machine capable of being programmed to bring about a certain result, or to perform a certain function or task.<sup>150</sup> A machine possessing such capability or capabilities shall be known as a computer.

A computer program is expressible in any one or more of the following forms:<sup>151</sup>

a) Schematic Program. A schematic program includes, but is not limited to, any detailed and concise charts, diagrams, and tables used in the development of a source program.

b) Source Program. A source program is any computer programming language, whether written or imprinted on discs, tapes, drums, or otherwise, derived from a schematic program. Examples of source programs include, but are not limited to, FORTRAN, BASIC, and COBOL.

c) Assembly Program. An assembly program is any mechanically readable computer language derived from a source program.

---

bolic Control, Inc. v. IBM, 643 F.2d 1339, 1340 (9th Cir. 1980); California Computer Prods., Inc. v. IBM, 613 F.2d 727, 731 (9th Cir. 1979); Greyhound Computer Corp. v. IBM, 559 F.2d 488, 491-92 (9th Cir. 1977).

<sup>148</sup> See *supra* note 59.

<sup>149</sup> See *supra* text accompanying notes 8-10.

<sup>150</sup> The definition of computer program contained in the proposed statutory scheme is derived substantially from the definition which recently has been added to section 101 of the 1976 Copyright Act. See 17 U.S.C. § 101 (1976), as amended by Act of Dec. 12, 1980, Pub. L. No. 96-517, 94 Stat. 3028. For the text of the definition of computer program contained in section 101, see *supra* note 90.

<sup>151</sup> The characterizations of the various stages of a computer program included in the proffered legislation stem from a variety of sources. See, e.g., Data Cash Sys., Inc. v. JS&A Group, Inc., 480 F. Supp. 1063, 1065 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038, 1040 (7th Cir. 1980); M. Pope & P. Pope, *supra* note 59, at 530-31. For a brief discussion of the four phases of a computer program, see *supra* note 59.

d) Object Program. An object program is any mechanical derivation of the assembly program, including but not limited to a silicon chip, which is capable of being inputted into the computer itself.

(2) *Computer Program: Copyrightability; Patentability.*

As of the effective date of this section:

a) A computer program expressed in any of the forms defined in section (1) shall be considered a copyrightable work of authorship within the meaning of section 102(a) of Title 17 of the United States Code.<sup>152</sup>

b) The particular ideas, methods, and/or procedures embodied in a computer program which is expressed in any of the forms defined in section (1) shall be considered a patentable process within the meaning of section 101 of Title 35 of the United States Code.<sup>153</sup>

(3) *State Trade Secret Law Not Preempted By Federal Copyright Law.*<sup>154</sup>

Any right received by a computer program owner under state trade secret law shall not be preempted automatically by the federal copyright laws. In any case wherein state trade secret law and federal copyright law are applicable, such laws must be construed, if it is reasonable to do so, in such manner as to favor mutual accommodation.

(4) *Disclosure Provisions.*

a) Entry by a program owner into one or more lawful arrangements, contractual or otherwise, for another party's confi-

---

<sup>152</sup> The proposed remedial measure which brings a computer program, in any of its expressed forms, within the subject matter provision of the copyright laws is based upon the underlying rationale of *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171, 173 (N.D. Cal. 1981). For a discussion of *Tandy's* treatment of the question whether computer programs in their "object" stage are copyrightable, see *supra* text accompanying notes 83-84.

<sup>153</sup> Because copyright protection extends only to the particular expression of certain subject matter, see *supra* note 57; *supra* text accompanying note 127, "blanket protection for the idea embodied in programs" has been "a longtime goal of a portion of the [software] industry," Root, *Protecting Computer Software in the 80's: Practical Guidelines for Evolving Needs*, 8 RUT. COMPUTER & TECH. L.J. 205, 218 & n.71 (1981) (footnote omitted). It is submitted that the suggested legislation, by allowing program owners to avail themselves of patent protection, permits the realization of this objective.

<sup>154</sup> The provision in the proposed statutory scheme which declares that state trade secret protection and federal copyright protection may coexist is derived from the reasoning of various cases. See *Warrington Assocs., Inc. v. Real-Time Eng'g Syss., Inc.*, 522 F. Supp. 367, 368-69 (N.D. Ill. 1981); *Allied Artists Pictures Corp. v. Rhodes*, 496 F. Supp. 408, 443-44 (S.D. Ohio 1980); *Amana Refrigeration, Inc. v. Consumers Union of United States, Inc.*, 431 F. Supp. 324, 325 (N.D. Iowa 1977); *Data Gen. Corp. v. Digital Computer Controls, Inc.*, 297 A.2d 433, 435 (Del. Ch. 1971), *aff'd*, 297 A.2d 437, 439 (Del. 1972); *supra* note 125 and accompanying text.



dential use of an otherwise secret computer program expressed in any one or more of the forms defined in section (1), shall not result in the loss of any rights received under state trade secret law.<sup>155</sup>

b) A computer program expressed in any one or more of the forms defined in section (1) need not be deposited, in whole or in part, with any governmental agency. Such deposit shall not be required for copyright or patent registration, or for use by the Library of Congress or any other governmental agency.<sup>156</sup>

(5) *Criminal Sanctions; Civil Liability; Injunctions.*

a) Any person or corporate entity who wilfully and for purposes of commercial advantage or private financial gain violates the rights secured by a program owner under the federal copyright or patent laws, or under the applicable common law or statutes of a State, is subject to appropriate criminal penalties.<sup>157</sup>

b) Any person or corporate entity who, for any reason, violates the rights secured by a program owner under the federal copyright or patent laws, or under the applicable common law or statutes of a State, is subject to civil liability in a suit for damages.<sup>158</sup>

c) If the rights secured by a program owner under the federal

<sup>155</sup> The proffered statutory provision which permits a program owner to enter into numerous arrangements for the confidential use of a computer program without a resulting loss of trade secret rights is derived from several decisions suggesting such a result. See *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 475-76 (1974); *Management Science Am., Inc. v. Cyborg Syss., Inc.*, 6 Computer L. Serv. Rep. (Callaghan) 921, 925-26 (N.D. Ill. 1978); *Data Gen. Corp. v. Digital Computer Controls, Inc.*, 357 A.2d 105, 110-11 (Del. Ch. 1975); *supra* note 143.

<sup>156</sup> Cf. 37 C.F.R. § 202.19(c)(5) (exempting computer programs, expressed in "machine-readable" form, from requirement of deposit with Library of Congress for copyright registration); *id.* § 202.19(e)(1) ("special relief" from deposit with Library of Congress may be granted by the Register of Copyrights for any published work not exempt from deposit); *id.* § 202.20(d)(1) ("special relief" from deposit required for copyright registration may be granted by the Register of Copyrights). See generally *id.* §§ 202.19-20; *supra* note 134.

<sup>157</sup> See 17 U.S.C. § 506 (Supp. III 1979) (detailing specifics of criminal offenses with respect to copyright infringement). A number of jurisdictions have enacted criminal statutes dealing with theft of trade secrets. See *supra* note 131. Computer crime, a tangentially related problem, also has been the subject of legislation in various states. D. BENDER, *supra* note 1, § 4.07, at 4-71 & n.44; see, e.g., CAL. PENAL CODE § 502 (West Supp. 1982). It should be noted that the proposed statute adds a criminal dimension to cases involving a patent infringement of computer programs. See D. BENDER, *supra* note 1, § 4A.03[4], at 4A-86 (criminal sanctions do not exist for patent infringements).

<sup>158</sup> See 17 U.S.C. § 504 (Supp. III 1979) (detailing specifics of civil remedy for copyright infringement); 35 U.S.C. §§ 281-289 (1976) (detailing civil remedies available for patent infringement). The Uniform Trade Secrets Act, see generally D. BENDER, *supra* note 1, § 4A.03[3], adopted, as of 1981, by Arkansas and Minnesota, provides a civil remedy "for the actual loss caused by misappropriation." *Id.* § 4A.03[3], at 4A-84; see ARK. STAT. ANN. § 70-1003(a) (Supp. 1981); MINN. STAT. ANN. § 3250.03(a) (West 1981).

copyright or patent laws, or under the applicable common law or statutes of a State, are violated, a court having jurisdiction of the matter may grant an injunction to prevent or restrain further violation.<sup>159</sup>

It is submitted that the proposed statute effectively permits the obtainment of maximum protection for a computer program at any stage of its development. By clarifying the definition of a computer program and declaring that copyright and patent protection are available for each of its expressed forms, the proposal eliminates uncertainties pertaining to whether a particular program is proper subject matter for such protection.<sup>160</sup> Furthermore, the disclosure provisions of the suggested legislation aid in assuring adequate trade secret protection by permitting a program owner to enter into numerous arrangements for the confidential use of a computer program without a resulting loss of trade secrecy rights,<sup>161</sup> and, additionally, by preventing any governmentally required disclosure of the details of a computer program.<sup>162</sup> The final section of the statute is intended to deter potential piracy of computer programs,<sup>163</sup> and, in the event of such piracy, to provide a program owner with several adequate avenues of redress.

It is further suggested that a program owner, in order to maximize the benefits conferred by the proposed legislation, should attempt to secure more than one form of protection. Particularly useful in this regard is section 3 of the suggested statutory scheme, for it permits the coexistence of the available methods of computer program protection.<sup>164</sup> Because the nature of the protection afforded by the copyright<sup>165</sup> and patent<sup>166</sup> laws differs, it would ap-

---

<sup>159</sup> See 17 U.S.C. § 502 (Supp. III 1979) (injunctive relief available for copyright infringement); 35 U.S.C. § 283 (1976) (injunctive relief available for patent infringement). The Uniform Trade Secrets Act, *see supra* note 158, also provides that a court may grant an injunction for "[a]ctual or threatened misappropriation." ARK. STAT. ANN. § 70-1002(a) (Supp. 1981); MINN. STAT. ANN. § 3250.02(a) (West 1981).

<sup>160</sup> See *supra* text accompanying notes 53-79.

<sup>161</sup> See *supra* text accompanying notes 137-44.

<sup>162</sup> See *supra* note 134.

<sup>163</sup> See *supra* text accompanying note 146.

<sup>164</sup> See *supra* text accompanying notes 96-98.

<sup>165</sup> See *Giangrasso v. CBS, Inc.*, 534 F. Supp. 472, 476 (E.D.N.Y. 1982); *Signo Trading Int'l, Ltd. v. Gordon*, 535 F. Supp. 362, 365 (N.D. Cal. 1981); *supra* note 57; *supra* text accompanying note 127; *see also Synercom Tech., Inc. v. University Computing Co.*, 462 F. Supp. 1003, 1010 (N.D. Tex. 1978) (expression is protected by "forbidding copying").

<sup>166</sup> See, e.g., *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1159 n.7 (6th Cir. 1978); *In re Taner*, 681 F.2d 787, 789-91 (C.C.P.A. 1982); *see also Schmidt, supra*

pear beneficial for a program owner to employ both methods so as to obtain protection for the particular expression of, and procedures embodied in, a computer program. Alternatively, if the program owner wishes to forego the expense of securing both patent and copyright protection,<sup>167</sup> or if lasting protection is desired for the techniques contained in a computer program,<sup>168</sup> then it is suggested that copyright and trade secret law be used in tandem. The program owner who chooses to utilize this alternative method of protection, however, should be aware that the underlying concepts of the program may be used by competitors who are able to make fair discoveries of those ideas.<sup>169</sup> Such would not be the case if patent law, rather than the law of trade secrets, is used in conjunction with copyright protection, since patent protection is not lost if the processes embodied in a computer program are uncovered independently.<sup>170</sup>

The measures proposed in this Note, by permitting program owners to obtain clear and comprehensive protection for computer programs, also foster several important public policies. First, the computer program industry will continue to grow because developers, investors, and lending institutions will be assured that their

---

note 1, at 362-63; Brooklyn Note, *supra* note 95, at 123.

<sup>167</sup> See generally 17 U.S.C. § 708(a) (Supp. III 1979) (copyright fees); 35 U.S.C. § 41(a)(b) (1976) (patent fees); G. ROSE, 1980-1981 PATENT LAW HANDBOOK 343, 371 (1981) (increased patent fees for international applications); WHAT EVERYBODY SHOULD KNOW ABOUT PATENTS, TRADEMARKS, AND COPYRIGHTS (D. Dible ed. 1978) (discussing need for, and fees charged by, patent attorneys or patent agents with regard to the preparation of patent applications).

<sup>168</sup> 35 U.S.C. § 154 (1976). Section 154 limits the duration of a patent obtained for a particular invention to a 17-year period. Trade secrecy, on the other hand, is capable of protecting the underlying concepts contained in a computer program until such time as they are no longer secret. See D. BENDER, *supra* note 1, § 4A.03[5], at 4A-91; see also A. SEIDEL & R. PANITCH, WHAT THE GENERAL PRACTITIONER SHOULD KNOW ABOUT TRADE SECRETS AND EMPLOYMENT AGREEMENTS 15 (1973).

<sup>169</sup> *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476 (1974); M. Pope & P. Pope, *supra* note 59, at 533. In *Kewanee*, the Supreme Court declared that trade secret protection may be lost if the secret is discovered "by independent invention, accidental disclosure, or . . . reverse engineering, that is by starting with the known product and working backward to divine the process which aided in its development or manufacture." 416 U.S. at 476 (footnote omitted); see *supra* note 144 and accompanying text.

<sup>170</sup> See *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 477-78 (1974) (patent law protects against both "copying" and "independent creation" of the patented subject matter); *supra* note 107; cf. 35 U.S.C. § 154 (1976) (a patentee has the "right to exclude others from making, using, or selling the invention"). For a discussion of a patentee's "right of exclusion," see R. ELLIS, PATENT ASSIGNMENTS AND LICENSES § 4, at 5-3 (2d ed. 1943).

interests are protected fully.<sup>171</sup> Moreover, the ability to obtain complete protection will stimulate competition with hardware developers, thereby "unleash[ing] important innovative talent" in the software industry.<sup>172</sup> Consequently, individual licensees of computer programs will not be forced to create their own programs at exorbitant expense.<sup>173</sup> Finally, a large developer, assured of total postemployment protection, will be able to entrust its employees with confidential information relating to potential technological improvements, which in turn will contribute indirectly to the continued expansion of the software industry.<sup>174</sup>

### CONCLUSION

Both courts and commentators have become embroiled in the controversy over proprietary protection of computer programs. As evidenced by the growing body of case law and literature, however, a workable solution to this multi-faceted problem has yet to be formulated. The production of computer programs nevertheless has proceeded at a staggering rate. In view of this rapid expansion of the software industry, this Note has attempted to identify the gaps existing within the current forms of protection, and, more importantly, to remedy such weaknesses. It is hoped that Congress will act to facilitate the obtainment of maximum proprietary protection for computer programs. Indeed, until such remedial measures are effected by the legislature, the computer software industry will remain exposed to potentially devastating financial loss.

Kevin F. Cavaliere

---

<sup>171</sup> See Bender, *supra* note 4, at 244-46; cf. COMPUTER PROGRAMS & DATA BASES 15 (D. Brooks & M. Keplinger co-chairmen 1981) ("[c]apital recovery and a profit . . . are necessary incentives" to growth in the computer industry (emphasis in original)).

<sup>172</sup> Diamond v. Diehr, 450 U.S. 175, 217 n.42 (1981) (Stevens, J., dissenting) (quoting amicus curiae brief in Parker v. Flook, 437 U.S. 584 (1978)). For a brief discussion of the various segments of the computer hardware industry, see D. BENDER, *supra* note 1, § 1.04.

<sup>173</sup> See Raysman & Brown, *Trade-Secret Law Protection of Software*, N.Y.L.J., Mar. 4, 1982, at 1, col. 1. Extensive testing of a computer program is an essential stage in the programming process. See D. BENDER, *supra* note 1, § 2.06[3]. This "debugging" phase probably accounts for at least "half the effort [expended] in software development." *Id.* at 2-141. Because a program must be perfect in order for the computer to function as desired, see *id.* § 2.06[1], at 2-112.4, it is not surprising that program development expenses constitute nearly "90% of total computer system costs," *id.* § 2.06[3], at 2-141 n.75.1 (Supp. 1981).

<sup>174</sup> See Wexler v. Greenberg, 399 Pa. 569, 578, 160 A.2d 430, 435 (1960).