

## THE COPYRIGHTABILITY OF COMPUTER SOFTWARE CONTAINING TRADE SECRETS

Trade secrecy<sup>1</sup> is the most common form of legal protection for computer software.<sup>2</sup> Despite its popularity, state trade secret protection may be costly or burdensome to maintain.<sup>3</sup> A prudent trade secret holder therefore may seek other forms of legal protection.<sup>4</sup>

Federal copyright law provides an additional source of legal protection.<sup>5</sup> First, copyright,<sup>6</sup> which extends to tangible forms of an author's

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1. See *infra* notes 14-20 and accompanying text.

2. See Bender, *Trade Secret Protection of Software*, 38 GEO. WASH. L. REV. 909 (1970); Bieglow, *Legal Protection of Software: A Matter of Monumental Insignificance?*, [1978] 3 Computer L. Serv. Rep. (Callaghan) § 4-1, art. 5, at 120.

"Computer software" is the information that runs the machinery ("hardware") of a computer. Software consists of magnetic pulses arranged in specific patterns on tapes or disks, or in the main memory of the computer. J. SOMA, *COMPUTER TECHNOLOGY AND THE LAW* 22 (1983). The three forms of software are computer programs, data bases, and documentation. Bender, *Computer Software Licensing*, in *PROTECTING TRADE SECRETS* 349 (1981) [hereinafter cited as Bender, *Software Licensing*].

Congress defined a "computer program" as a "set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." 17 U.S.C. § 101 (1982); see also *Data Cash Sys. v. JS&A Group, Inc.*, 480 F. Supp. 1063, 1065 (N.D. Ill. 1979) ("a set of precise instructions that tells a computer how to solve a problem"); Bender, *Software Licensing, supra*, at 349 ("the intelligence communicated to the computer by the human in his attempt to get the machine to do his bidding"). Programs may be written in three computer languages—"high level language," "assembly language," and "machine language." For definitions of those terms, see *infra* note 61.

"Data bases" are machine-readable lists of information, such as customer and employee lists, which are entered into the computer. Bender, *Software Licensing, supra*, at 349. "Documentation" includes flow-charts or print-outs which "explain the operation of other software or hardware." *Id.*

This Note uses "software" to refer to all three forms of software. The use of "program" only refers to computer programs, not data bases or documentation.

For nontechnical descriptions of computer operations, see, e.g., R. RAYSMAN & P. BROWN, *COMPUTER LAW — DRAFTING AND NEGOTIATING FORMS AND AGREEMENTS* § 1.01-13 (1984); Note, *Copyright Protection of Computer Program Object Code*, 96 HARV. L. REV. 1723 (1983); Note, *Copyright Protection for Computer Programs in Read Only Memory Chips*, 11 HOFSTRA L. REV. 329 (1982).

3. See *infra* notes 15 & 25-29 and accompanying text.

4. Trade secrecy's disadvantages may encourage the software owner to seek alternative forms of legal protection, such as patent protection under federal law. See 35 U.S.C. §§ 101-376 (1982). The availability of patent protection for computer software, which is currently in doubt, is beyond the scope of this Note. For a thorough examination of the possibility of federal patent protection for computer software, see Stout, *Protection of Programming in the Aftermath of Diamond v. Diehr*, 4 COMPUTER L.J. 207 (1983). This Note assumes that the software owner has material that qualifies for trade secret protection and that he or she wishes to protect the trade secret.

5. See *infra* notes 30-65 and accompanying text.

expression,<sup>7</sup> complements trade secret law, which protects the author's underlying ideas.<sup>8</sup> Second, copyright may provide supplemental protection in the event of accidental dissemination of the software into the public domain and attendant loss of trade secret status.<sup>9</sup> Thus, trade secret and copyright coverage together provide the software owner with greater protection than he or she could obtain from either alone.<sup>10</sup>

This Note explores the feasibility and desirability of supplementing trade secret protection of software with federal copyright protection. Parts I and II examine the availability of trade secret and copyright protection for computer software.<sup>11</sup> Part III analyzes the effect of copyright notice and registration on trade secrecy.<sup>12</sup> Part IV discusses policy concerns and preemption problems that may stand as obstacles to dual trade secret/copyright protection.<sup>13</sup> The Note concludes that a software owner may obtain the dual protection of copyright and trade secrecy if he or she takes proper precautions to secure the confidentiality of the trade secret.

## I. TRADE SECRECY

### A. Introduction

Trade secret protection derives exclusively from state law.<sup>14</sup> State trade secret protection generally extends to ideas and concepts, regardless of their physical embodiment.<sup>15</sup> Most states and all federal jurisdictions follow the *Restatement of Torts* definition of a "trade secret" as

6. Federal copyright is governed by the 1976 Copyright Act. Act of October 19, 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended at 17 U.S.C. §§ 101-810 (1982)).

7. 17 U.S.C. § 102(a) (1982); see *infra* notes 31-34 and accompanying text.

8. See *infra* note 15 and accompanying text.

9. See *infra* notes 25-27 and accompanying text.

10. The software owner would not be protected against honest or independent discovery of his or her work. See *infra* note 15.

11. See *infra* notes 14-95 and accompanying text.

12. See *infra* notes 96-140 and accompanying text.

13. See *infra* notes 141-59 and accompanying text.

14. State unfair competition laws usually protect trade secrets. A 1976 survey of state trade secret statutes by a committee of the American Bar Association Section of Patent, Trademark, and Copyright Law revealed that twelve states do not have any laws protecting trade secrets and that the other 38 states have statutory provisions offering various degrees of legal protection to trade secrets. A.B.A. SECTION OF PATENT, TRADEMARK, AND COPYRIGHT LAW, COMMITTEE REPORTS 212-14 (1976), reprinted in 12A R. MILGRIM, BUSINESS ORGANIZATIONS app. B (1983).

15. *E.g.* *Technicon Medical Information Sys. v. Green Bay Packaging, Inc.*, 687 F.2d 1032, 1038 (7th Cir.) (trade secret law protects the contents or ideas in a work), *cert. denied*, 459 U.S. 1106 (1983); *Warrington Assocs., Inc. v. Real-Time Eng'g Sys.*, 522 F. Supp. 367, 368 (N.D. Ill. 1981) (trade secrecy protects an author's ideas); *M. Bryce & Assoc., Inc. v. Gladstone*, 107 Wis. 2d 241,

“any formula, pattern, device, or compilation of information which is used in one’s business and which gives him an opportunity to obtain an advantage over competitors who do not know or use it.”<sup>16</sup>

Traditional elements of a trade secret include secrecy,<sup>17</sup> novelty,<sup>18</sup> and competitive value in a trade or business.<sup>19</sup> The *Restatement* definition presents six factors to define the crucial element of “secrecy”: (1) knowledge of the information outside one’s business, (2) knowledge of the information by employees and other persons inside one’s business, (3) security measures designed to guard the secrecy of the information, (4) the value of the information to the owner and his competitors, (5) the amount of money and effort invested in developing the information, and (6) the accessibility of the information to others.<sup>20</sup>

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258, 319 N.W.2d 907, 915 (Wis. Ct. App.) (trade secrecy protects contents of a work regardless of form of expression), *cert. denied*, 459 U.S. 944 (1982).

Trade secrecy does not, however, protect against honest or independent discovery of the secret. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476 (1974). Trade secrecy thus does not protect the trade secret holder against “reverse engineering,” the process of “starting with the known product and working backward to divine the process which aided in its development.” *Id.*

16. RESTATEMENT OF TORTS § 757 comment b (1939) [hereinafter cited as RESTATEMENT]; *see* 12 R. MILGRIM, *supra* note 14, § 2.01 n.2. The proposed Uniform Trade Secrets Act provides the following definition of a “trade secret”:

“Trade secret” means information, including a formula, pattern, compilation, program, device, method, technique, or process, that

- (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and
- (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

UNIFORM TRADE SECRETS ACT § 1(4) (1973), *reprinted in* 12A R. MILGRIM, *supra* note 14, app. A.

17. *See Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 475 (1974) (trade secret must be secret, not a matter of public knowledge or general knowledge in the owner’s business); RESTATEMENT, *supra* note 16, § 757 comment b (subject of a trade secret must remain secret); *see also infra* notes 22-24 and accompanying text.

18. A trade secret need not be “novel” in the patent law sense. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. at 476. Rather, trade secrecy requires novelty only in the sense that “that which does not possess novelty is usually known” and therefore no longer secret. *Id. Cf. Telex Corp. v. International Business Machines Corp.*, 510 F.2d 894 (10th Cir. 1975) (a valuable combination of nonnovel features satisfies the novelty requirement); *Cataphote Corp. v. Hudson*, 422 F.2d 1290 (5th Cir. 1970) (“relative novelty” all that is required for trade secret protection).

19. RESTATEMENT, *supra* note 16, § 757 comment b; *see* 12 R. MILGRIM, *supra* note 14, § 2.02[1] (defensive “protective” use of a trade secret does not satisfy the requirement of continuous use).

20. RESTATEMENT, *supra* note 16, § 757 comment b.

The holder of a trade secret is entitled to various remedies under state law, including injunctive relief and damages. *See Brooks, Computer Programs and Data Bases: Acquisition of Rights by Vendors from Independent Developers and Users from Custom Designers*, in SOFTWARE PROTECTION

### B. Trade Secrecy and Computer Software

State trade secret protection clearly extends to computer software.<sup>21</sup> As a practical matter, however, the software owner may find that he or she must expend large sums of money and conduct business in an encumbered manner to maintain the secrecy of his or her trade secret.<sup>22</sup> Absolute secrecy is not essential to the protection of a trade secret.<sup>23</sup> The owner of computer software containing trade secrets may market the software as long as he or she takes reasonable steps to maintain its confidentiality—typically by licensing the software subject to a contractual duty not to disclose.<sup>24</sup>

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AND MARKETING 244-48 (1983). A few states provides criminal penalties for the theft of trade secrets. See 12A R. MILGRIM, *supra* note 14, app. B.

21. Bender, *Software Licensing*, *supra* note 2, at 376; see, e.g., *Structural Dynamics Research Corp. v. Engineering Mechanics Research Corp.*, 401 F. Supp. 1102 (E.D. Mich. 1975) (trade secret in software support for structural analysis programs); *Digital Dev. Corp. v. International Memory Sys.*, 185 U.S.P.Q. (BNA) 136 (S.D. Cal. 1973) (trade secret in disc memory); *Com-Share, Inc. v. Computer Complex, Inc.*, 338 F. Supp. 1229 (E.D. Mich. 1971) (trade secrets in both hardware and software); *Sperry Rand Corp. v. Pentronix, Inc.*, 311 F. Supp. 910 (E.D. Pa. 1970) (trade secrets in magnetic memory cores).

22. See *infra* notes 24-27 and accompanying text. The Commission on New Technological Uses acknowledged the costs associated with trade secrecy as follows:

[U]sers must cover the sellers' expenses associated with maintaining a secure system through increased prices. Their freedom to do business in an unencumbered way is reduced, since they may need to enter into elaborate non-disclosure contracts with employees and third parties who have access to the secrets and to limit that access to a very small number of people. Since secrets are by definition known to only a few people, there is necessarily a reduced flow of information in the marketplace, which hinders the ability of potential buyers to make comparisons and hence leads to higher prices.

COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT 17 (1978) [hereinafter cited as CONTU REPORT].

23. "There are two common law doctrines on secrecy: (1) absolute secrecy and (2) relative secrecy." *K-2 Ski Co. v. Head Ski Co.*, 506 F.2d 471, 473 (9th Cir. 1974); see also *E.W. Bliss. Co. v. Struthers-Dunn, Inc.*, 291 F. Supp. 390, 400 (S.D. Iowa 1968) (recognizing "qualified secrecy"), *remanded on other grounds*, 408 F.2d 1108 (8th Cir. 1969); *Data Gen. Corp. v. Digital Computers Controls, Inc.*, 297 A.2d 437, 439 (Del. 1972) ("absolute secrecy is not essential").

24. 12 R. MILGRIM, *supra* note 14 § 3.01. For a comprehensive list of contractual restrictions that a trade secret holder may impose on a user of the trade secret, see Gilburne & Johnson, *Trade Secret Protection of Software Generally and in the Mass Market*, 3 COMPUTER L.J. 211, 225 (1982). The most common form of contractual software protection is the restrictive license agreement, which restricts the licensee's use of the software and prohibits disclosure to third parties. R. RAYSMAN & P. BROWN, *supra* note 2, § 6.01 [1].

Wrongful disclosure or use entitles the trade secret holder to relief. See *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 475 (1974). The Restatement definition of a trade secret emphasizes wrongful disclosure and use of the trade secret:

One who discloses or uses another's trade secret, without privilege to do so, is liable to the other if

(a) he discovered the secret by improper means, or

The trade secret holder loses all trade secret protection<sup>25</sup> if he or she places the secret in the public domain through either inadequate internal security<sup>26</sup> or unrestricted distribution to the public.<sup>27</sup> Thus, while prudent distribution of the trade secret will not destroy its protection,<sup>28</sup> courts probably will not extend trade secret protection to mass-distributed software intended for commercial markets.<sup>29</sup>

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- (b) his disclosure or use constitutes a breach of confidence reposed in him by the other in disclosing the secret to him, or
  - (c) he learned the secret from a third person with notice of the fact that it was a secret and that the third person discovered it by improper means or that the third person's disclosure of it was otherwise a breach of his duty to the other, or,
  - (d) he learned the secret with notice of the facts that it was a secret and that its disclosure was made to him by mistake.

RESTATEMENT, *supra* note 16, § 757.

Absent an express agreement, courts may provide a trade secret holder with equitable protection if he or she reveals the secret to another in confidence and under an implied obligation not to disclose it, such as in the employer/employee relationship. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. at 475; see *Bender, Software Licensing, supra* note 2, at 376. See generally 12 R. MILGRIM, *supra* note 14, § 4.01.

25. *Gilburne & Johnson, supra* note 24, at 224; see 12 R. MILGRIM, *supra* note 14, § 2.05[1]-[2].

26. A software owner must employ reasonable precautions to guard the "internal secrecy" of his or her trade secret. The prudent software owner should obtain nondisclosure, noncompetition, and confidentiality agreements from employees and business associates. R. RAYSMAN & P. BROWN, *supra* note 2, § 6.01[3]. Additional security measures include use of exit interviews, legends, passwords, and controlled access to the trade secret. See *Brooks, supra* note 20, at 239-40. For an examination of trade secret protection in the employment relationship, see Note, *Trade Secrets and the Skilled Employee in the Computer Industry*, 61 WASH. U.L.Q. 823 (1983).

27. The software owner should place proprietary notices at the beginning or end of all computer printouts to give notice of the author's claimed rights to all persons coming into contact with the software. R. RAYSMAN & P. BROWN, *supra* note 2, § 6.01[3].

28. For example, in *Data Gen. Corp. v. Digital Computer Controls, Inc.*, 357 A.2d 105 (Del. Ch. 1975), a minicomputer manufacturer distributed its maintenance diagrams to over 6,000 customers. The court rejected an infringing customer's claim that the manufacturer inadequately protected the secrecy of the diagrams' design logic. Instead, the court held that the manufacturer's extensive use of security devices, including proprietary legends restricting use of the diagrams to maintenance needs only, were sufficient to protect the trade secret. *Id.* at 110-11; see also *Management Science America, Inc. v. Cyborg Sys.*, 6 Computer L. Serv. Rep. (Callaghan) 921, 924-26 (N.D. Ill. 1978) (trade secret protection not destroyed when software distributed to 600 licensees subject to agreement not to resell or disclose).

29. The "mass consumer market" generally consists of owners of small or personal computers. *J. SOMA, supra* note 2, at 74. Sales are typically conducted through mail orders and retail stores at low prices. *Id.* A software owner could not practically obtain nondisclosure agreements from thousands of customers. *Gilburne & Johnson, supra* note 24, at 227. Even if the software owner could obtain confidentiality agreements from its customers, the distribution of thousands of copies of the software may nevertheless lead a court to find the contents insufficiently "secret" to warrant protection. *Id.* at 228.

## II. COPYRIGHT UNDER THE 1976 COPYRIGHT ACT

### A. Introduction

Federal copyright law under the 1976 Copyright Law Revision Act<sup>30</sup> ("Copyright Act") protects an author's original form of expression,<sup>31</sup> rather than the underlying idea or process that is the subject of expression.<sup>32</sup> Copyrightable subject matter under the Copyright Act must satisfy two basic requirements: it must be an "original work[ ] of authorship,"<sup>33</sup> and it must be "fixed in any tangible medium of expression."<sup>34</sup>

A federal copyright owner holds exclusive rights to reproduce and distribute the copyrighted work, to prepare derivative works, and to perform or display the work publicly.<sup>35</sup> Generally, the duration of a

30. Act of October 19, 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended at 17 U.S.C. §§ 101-810 (1982)). The copyright clause of the United States Constitution empowers Congress to enact legislation for the protection of an author's work: "The Congress shall have Power . . . [t]o promote the Progress of Science and Useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." U.S. CONST. art. I, § 8, cl. 8. Congress enacted the first copyright statute in 1790. Act of May 31, 1790, ch. 15, 1 Stat. 124 (1790). Congress revised federal copyright law three times prior to the 1976 Act: Act of February 3, 1831, ch. 16, 4 Stat. 436 (1831); Act of July 8, 1870, ch. 230, 16 Stat. 198 (1870); Act of March 4, 1909, ch. 320, 35 Stat. 1075 (1909). Sixteen years of debate preceded enactment of the 1976 Act.

31. 17 U.S.C. § 102(a) (1982).

32. *Id.* § 102(b). Courts traditionally have refused to extend federal copyright protection to ideas. See *Mazer v. Stein*, 347 U.S. 201, 217 (1954) ("[copyright] protection is given only to the expression of the idea - not to the idea itself"); *Baker v. Selden*, 101 U.S. 99, 105 (1879) (copyright protects the "description of the art," not the "art itself").

33. 17 U.S.C. § 102(a) (1982). "[A]uthor . . . in its constitutional sense, has been construed to mean an 'originator,' 'he to whom anything owes its origin.'" *Goldstein v. California*, 412 U.S. 546, 561 (1973) (quoting *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884)).

Section 102(a) lists seven general categories of copyrightable works:

Works of authorship include the following categories:

- (1) literary works;
- (2) musical works, including any accompanying words;
- (3) dramatic works, including any accompanying music;
- (4) pantomimes and choreographic works;
- (5) pictorial, graphic, and sculptural works;
- (6) motion pictures and other audiovisual works; and
- (7) sound recordings.

17 U.S.C. § 102(a) (1982).

34. 17 U.S.C. § 102(a) (1982). The constitutional requirement of a "writing" must be embodied in a tangible form of expression. 1 M. NIMMER, *NIMMER ON COPYRIGHT* § 1.03[c] (1983). A "writing" has been "interpreted to include any physical rendering of the fruits of creative intellectual or aesthetic labor." *Goldstein v. California*, 412 U.S. 546, 561 (1973).

35. 17 U.S.C. § 106 (1982).

copyright is the life of the author plus fifty years.<sup>36</sup> In the event of copyright infringement, the copyright owner may resort to a number of statutorily defined remedies, including injunctive relief,<sup>37</sup> actual damages,<sup>38</sup> assignment of the infringer's profits,<sup>39</sup> statutory damages,<sup>40</sup> costs and attorney's fees,<sup>41</sup> and impoundment or destruction of infringing articles.<sup>42</sup> An infringer may receive criminal penalties.<sup>43</sup>

### B. Copyrightability of Computer Software

In 1964, the Copyright Office of the Library of Congress decided that computer programs were eligible for copyright registration<sup>44</sup> as "books" under the 1909 Copyright Act,<sup>45</sup> though it questioned whether a computer program was a "writing of an author."<sup>46</sup> In *Data Cash Systems v. JS&A Group, Inc.*,<sup>47</sup> a district court rejected this decision and held that a computer program written in object code<sup>48</sup> did not qualify for copyright

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36. *Id.* § 302(a). The copyright duration of a "work for hire," as well as an anonymous or pseudonymous work, is 75 years from the date of publication or 100 years from the date of creation, whichever is less. *Id.* § 302(c). The copyright duration of a work prepared by two or more authors who did not work for hire is the life of the last surviving author, plus an additional 50 years. *Id.* § 302(b).

37. *Id.* § 502.

38. *Id.* § 504(a)-(b). For computations of actual damages, see *Szekely v. Eagle Lion Films, Inc.*, 242 F.2d 266 (2d Cir.), *cert. denied*, 354 U.S. 922 (1957); *Universal Pictures v. Harold Lloyd Corp.*, 162 F.2d 354 (9th Cir. 1947).

39. 17 U.S.C. § 504(a)-(b) (1982).

40. *Id.* § 504(c). The amount of statutory damages is between \$250 and \$10,000, as the court sees fit to award. *Id.* § 504(c)(1). In the event of willful infringement, the court may raise the maximum to \$50,000. *Id.* § 504(c)(2). "[S]tatutory damages may often constitute the only meaningful remedy available to a copyright owner for infringement of his work. . . ." 2 M. NIMMER, *supra* note 34, § 7.16[c]. Copyright registration is a condition precedent to recovery of statutory damages. *See infra* notes 84-95 and accompanying text (discussing copyright registration).

41. 17 U.S.C. § 505 (1982). Registration is a condition precedent to recovery of attorney's fees. *See infra* note 86 and accompanying text.

42. 17 U.S.C. § 503 (1982).

43. *Id.* § 506(a). In the event of willful infringement, section 506(a) imposes a fine, imprisonment, or both. *Id.*

44. *See infra* notes 84-95 and accompanying text (discussing copyright registration).

45. *Copyright Registration for Computer Programs—Announcement from the Copyright Office*, 11 BULL. COPYRIGHT SOC'Y 361 (1964).

Because computers only date back to 1954 with the development of the Electronic Numerical Integrator and Computer (ENIAC), the Copyright Act of 1909 did not contain any special provisions for the copyright of computer software.

46. *Id.* The Copyright Office also questioned whether a machine-readable copy of a computer program is the proper subject of copyright protection. *Id.*

47. 480 F. Supp. 1063 (N.D. Ill. 1979).

48. *See infra* note 61 (describing object code).

protection under the 1909 Act.<sup>49</sup>

The 1976 Copyright Act, as originally enacted, did not specifically provide for copyright protection of computer software.<sup>50</sup> The legislative history of the Copyright Act, however, suggests that Congress considered computer programs copyrightable as "literary works."<sup>51</sup> In *Tandy Corp. v. Personal Micro Computers, Inc.*<sup>52</sup> the court examined the legislative history and concluded that the 1976 Copyright Act extended federal copyright protection to computer programs.<sup>53</sup> The court decided that a computer program clearly satisfies the statutory requirements of "authorship"<sup>54</sup> and "fixation."<sup>55</sup>

The Computer Software Copyright Act of 1980<sup>56</sup> dispelled any doubts

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49. 480 F. Supp. at 1068-69. The court analogized the copyrightability of computer programs with the copyrightability of architectural plans and piano rolls. *Id.* at 1068. In particular, the court relied on *White-Smith Music Publishing Co. v. Apollo Co.*, 209 U.S. 1 (1908). In *White-Smith Music*, the Supreme Court held that an unauthorized piano roll of a copyrighted musical composition did not infringe the plaintiff's "right to copy." *Id.* at 18; *cf.* *Synercom Technology, Inc. v. University Computing Co.*, 462 F. Supp. 1003 (N.D. Tex. 1978) (computer program for solving engineering problems not copyrightable).

50. See 17 U.S.C. § 117 (Supp. I 1977). In 1974, Congress commissioned the National Commission on New Technological Uses of Copyrighted Works ("CONTU"), Act of December 31, 1974, Pub. L. No. 93-573, § 201, 88 Stat. 1873, to recommend new provisions in the copyright laws that would apply to computer technology. CONTU REPORT, *supra* note 22, at 1. Section 117 of the 1976 Copyright Act, as originally written, merely preserved the status quo while awaiting CONTU's final report; it neither expanded nor contracted the proprietary rights of software owners. 17 U.S.C. § 117 (Supp. I 1977); see also *infra* notes 56-58 and accompanying text (discussing 1980 amendments to the 1976 Copyright Act).

51. The statutory definition of "literary works" includes all "verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as . . . tapes, disks, or cards in which they are embodied." 17 U.S.C. § 101 (1982). The House Report acknowledged that the definition of "literary works . . . includes computer data bases, and computer programs to the extent that they incorporate authorship in the programmer's expression of original ideas, as distinguished from the ideas themselves." H.R. REP. NO. 1476, 94th Cong., 2d Sess. 54 (1976) [hereinafter cited as HOUSE REPORT], reprinted in 1976 U.S. CODE CONG. & AD. NEWS 5659, 5667. Furthermore, the CONTU Final Report concluded that "it was clearly the intent of Congress to include computer programs within the scope of copyrightable subject matter" in the 1976 Copyright Act. CONTU REPORT, *supra* note 22, at 16.

52. 524 F. Supp. 171 (N.D. Cal. 1981).

53. *Id.* at 173-75.

54. The court's examination of the Copyright Act's legislative history led it to conclude that a computer program is a "work of authorship" subject to copyright protection. *Id.* at 173.

55. The court found that the placement of a program upon a silicon chip clearly satisfied the "fixation" requirement. *Id.*

56. Act of December 12, 1980, Pub. L. No. 96-517, § 10, 94 Stat. 3015, 3028. The House Report to the Computer Software Copyright Act of 1980 concluded that the Act "ha[d] the effect of clearly applying the 1976 law to computer programs . . ." H.R. REP. NO. 1307, 96th Cong., 2d Sess. 19 (1980), reprinted in 1980 U.S. CODE CONG. & AD. NEWS 6509.



as to the copyrightability of computer programs. The Act added a definition of "computer program"<sup>57</sup> and created a special exception for computer programs to the normal proscriptions against copying of copyrighted works.<sup>58</sup> Subsequent court decisions have firmly established the copyrightability of computer programs.<sup>59</sup>

A recent line of court decisions<sup>60</sup> has extended copyright protection to computer programs written in "object code,"<sup>61</sup> a binary language that is unintelligible to the human eye. Commentators and copyright infringement defendants had contended that a copyrightable work "must be intelligible to human beings and must be intended as a medium of communication to human beings."<sup>62</sup> The United States Court of Ap-

57. 17 U.S.C. § 101 (1982); see *supra* note 2 (quoting definition).

58. Revised section 117 provides that "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" when necessary to "the utilization of the computer program" or "for archival purposes only." 17 U.S.C. § 117 (1982). "The language of [section 117], by carving out an exception to the normal proscriptions against copying, clearly indicates that programs are copyrightable and are otherwise afforded copyright protection." *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1248 (3d Cir. 1983), *cert. dismissed*, 104 S. Ct. 690 (1984); see 1 M. NIMMER, *supra* note 34, § 2.04[c].

59. See, e.g., *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1248 (3d Cir. 1983), *cert. dismissed*, 104 S. Ct. 690 (1984); *Williams Elecs., Inc. v. Artic Int'l, Inc.*, 685 F.2d 870, 875 (3d Cir. 1982); *Midway Mfg. Co. v. Strohon*, 564 F. Supp. 741, 749 (N.D. Ill. 1983).

60. See *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983), *cert. dismissed*, 104 S. Ct. 690 (1984); *Williams Elecs., Inc. v. Artic Int'l, Inc.*, 685 F.2d 870 (3d Cir. 1982); *Midway Mfg. Co. v. Strohon*, 564 F. Supp. 741 (N.D. Ill. 1983); *Hubco Data Prods. Corp. v. Management Assistance, Inc.*, 219 U.S.P.Q. (BNA) 450 (D. Idaho 1983); *GCA Corp. v. Chance*, 217 U.S.P.Q. (BNA) 718 (N.D. Cal. 1982); *Tandy Corp. v. Personal Micro Computers, Inc.*, 524 F. Supp. 171 (N.D. Cal. 1981).

61. "Object code" is the lowest of three levels of computer languages. See Note, *Copyright Protection of Computer Program Object Code*, 96 HARV. L. REV. 1723, 1724-26 (1983). Object code consists of extremely long sequences of "O" and "I" symbols called "bits" which represent the presence or absence of an electrical charge. *Midway Mfg. Co. v. Strohon*, 564 F. Supp. 741, 750 (N.D. Ill. 1983). A computer program written in object code is called "machine language" because it is the only form of programming language that a digital computer comprehends. *Id.*; Note, *supra*, at 1724. For example, the binary figure "01101001" orders the Apple computer to add two numbers and save the result. *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1243 (3d Cir. 1983), *cert. dismissed*, 104 S. Ct. 690 (1984).

A computer programmer usually writes a program in a "high-level" language such as FORTRAN, COBOL, or BASIC that utilizes English-like words and symbols. Note, *supra*, at 1725. "GO TO 40," for example, tells a computer to proceed immediately to the instruction on line 40. 714 F.2d at 1243. A "compiler" translates high-level language into "assembly language," which is a series of alpha-numeric labels such as "ADC" that instructs the Apple computer to "add with carry." *Id.* A computer program written in high-level or assembly language is called source code. *Id.* An "assembler" translates source code into object code. J. SOMA, *supra* note 2, at 23.

62. *Williams Elecs., Inc. v. Artic Int'l, Inc.*, 685 F.2d 870, 876-77 (3d Cir. 1982). This argu-

peals for the Third Circuit dismissed this "communicative function" requirement in *Apple Computer, Inc. v. Franklin Computer Corp.*<sup>63</sup> The Third Circuit examined the language of the Copyright Act and its legislative history and concluded that a computer program expressed in either object code or source code is a "literary work"<sup>64</sup> under the 1976 Copyright Act.<sup>65</sup>

### C. *Mechanics of Obtaining Copyright Protection*

Adherence to formalities such as notice of copyright,<sup>66</sup> registration,<sup>67</sup> and deposit<sup>68</sup> is a prerequisite to protection under the Copyright Act. Failure to observe statutory formalities may result in the loss of the copyright or forfeiture of particular remedies.<sup>69</sup> Unfortunately, strict observation of all formalities may endanger trade secret protection. The owner of computer software containing trade secrets has three options in procuring copyright under federal law.

#### 1. *Do nothing*

Satisfaction of the "authorship" and "fixation" requirements of section 102 automatically secures copyright protection.<sup>70</sup> A computer software owner need not satisfy any additional formalities unless he or she desires

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ment stems from *White-Smith Music Publishing Co. v. Apollo Co.*, 209 U.S. 1 (1908). In *White-Smith*, the Supreme Court held that a piano roll was not copyrightable as a musical composition, as it was not in a form that most persons could perceive.

63. 714 F.2d 1240 (3d Cir. 1983), *cert. dismissed*, 104 S. Ct. 690 (1984). The court noted that in passing the 1976 Copyright Act, Congress clearly "intended to obliterate [the] distinctions engendered by *White-Smith*." *Id.* at 1248.

64. *Id.* at 1249. The court examined section 101's definition of a "literary work" and concluded that literary works under the Copyright Act are "not confined to literature in the nature of Hemingway's 'For Whom the Bell Tolls.'" *Id.*

65. *Id.* at 1248-49. The court held that a computer program written in object code and embedded in a "Read Only Memory" ("ROM") satisfied the statutory requirement of "fixation." *Id.* at 1249.

In general, a computer program written in object code must be stored or fixed in a memory device. *Id.* at 1243. One such device is a "floppy disk," a small flexible magnetic disk which may be inserted into the computer's external circuitry. Note, *supra* note 61, at 1725. A "ROM," on the other hand, is an integrated circuit that is permanently plugged into the interior of the computer. *Id.*

66. See *infra* notes 79-83 and accompanying text.

67. See *infra* notes 84-91 and accompanying text.

68. See *infra* notes 91-95 and accompanying text.

69. 2 M. NIMMER, *supra* note 34, § 7.01.

70. "Copyright in a work . . . subsists from its creation . . ." 17 U.S.C. § 302(a) (1982). Thus, the author of a private diary unknowingly procures federal copyright protection and is entitled to the exclusive rights enumerated under § 106. See *supra* text accompanying note 35.

to "publish" the work. "Publication," as defined in section 101, is the distribution or offer to distribute "copies or phonorecords of a work to the public by sale or other transfer of ownership, or by rental, lease, or lending."<sup>71</sup> With a few exceptions, failure to place a notice of copyright<sup>72</sup> on copies of a published work will inject the work into the public domain with attendant loss of copyright protection.<sup>73</sup>

The owner of a copyrighted work without copyright notice may selectively distribute the work without loss of copyright status. The common law distinguished between "general publication"<sup>74</sup> and "limited publication."<sup>75</sup> Only the former divested a work of copyright protection.<sup>75</sup> A limited publication "must be restricted both as to persons and purpose."<sup>76</sup> The Copyright Act does not specifically refer to limited publication,<sup>77</sup> but the statute defines "publication" as "distribution of copies . . . of a work to the public."<sup>78</sup> Thus the distribution of a copyrighted work without copyright notice will not place the work in the public domain if distribution is restricted to a small group of persons under an obligation not to disclose or circulate.

71. 17 U.S.C. § 101 (1982).

72. "Whenever a work protected under this title is published . . . by authority of the copyright owner, a notice of copyright . . . shall be placed on all publicly distributed copies . . ." *Id.* § 401(a); see *infra* notes 79-83 and accompanying text (describing copyright notice).

73. *American Vitagraph, Inc. v. Levy*, 659 F.2d 1023, 1026 (9th Cir. 1981); 2 M. NIMMER, *supra* note 34, § 7.14[A]; see *King v. Burnett*, 1983 COPYRIGHT L. REP. (CCH) ¶ 25,489 (D.D.C. 1982) (copyright lost because notice was omitted from more than 300 of 1,335 copies sold).

Public distribution of a copyrighted work without notice will not automatically forfeit copyright protection. See, e.g., *Florists' Transworld Delivery v. Reliable Glassware and Pottery Co.*, 213 U.S.P.Q. (BNA) 808, 811 (N.D. Ill. 1981). The copyright owner may retain copyright protection by registering the work within five years of publication without notice and by making a reasonable effort to add notice to all publicly distributed copies upon discovering the omission. 17 U.S.C. § 405(a)(2) (1982). Furthermore, a public distribution of a copyrighted work not containing copyright notice does not destroy copyright protection if publication occurs without "the authority of the copyright owner." 2 M. NIMMER, *supra* note 34, § 7.03; see *supra* note 70.

74. The statutory definition of "publication" in section 101 essentially codifies the common law definition of "general publication." 1 M. NIMMER, *supra* note 34, § 4.04.

75. *Id.* § 4.13[A].

76. *American Vitagraph, Inc. v. Levy*, 659 F.2d 1023, 1027 (9th Cir. 1981) (quoting *White v. Kimmell*, 193 F.2d 744, 746-47 (9th Cir. 1952)). A limited publication "communicates the content of a [work] . . . to a definitely selected group and for a limited purpose . . ." *Id.* See also 1 M. NIMMER, *supra* note 34, § 4.13[A] (the distribution of copies of an author's work to a few persons under an understanding that the copies would not be duplicated or circulated would constitute a "limited publication").

77. 1 M. NIMMER, *supra* note 34, § 4.13[B].

78. 17 U.S.C. § 101 (1982) (emphasis added). Professor Nimmer suggests that Congress intended to maintain the doctrine of limited publication under the 1976 Copyright Act. 1 M. NIMMER, *supra* note 34, § 4.13[B].

## 2. *Affix notice of copyright to the software*

Statutory notice of copyright contains three elements: the word "copyright" or a prescribed variation,<sup>79</sup> the date of first publication,<sup>80</sup> and the name of the copyright owner.<sup>81</sup> The software owner should place copyright notice near the title or end of the computer printouts or on a terminal at sign-on, or should continuously display the notice on the terminal or "permanent" container for the software.<sup>82</sup> Publication with defective notice of copyright may place the work in the public domain.<sup>83</sup>

## 3. *Register the software*

"Registration" with the Copyright Office is not a condition of copyright.<sup>84</sup> Timely registration is, however, a prerequisite to filing an infringement action<sup>85</sup> and a condition to recovery of statutory damages and attorney's fees.<sup>86</sup> Under the Copyright Act, a copyright owner may preserve these rights by registering his or her work within three months after publication.<sup>87</sup> Failure to register within the three-month period does not affect the copyright owner's right to other remedies.<sup>88</sup>

Copyright registration generally requires delivery of an application for registration<sup>89</sup> to the Copyright Office, accompanied by a fee<sup>90</sup> and a "de-

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79. 17 U.S.C. § 401(b)(1) (1982). The word "copyright," the abbreviation "copr.," or the symbol © will suffice. *Id.*

80. *Id.* § 401(b)(2).

81. *Id.* § 401(b)(3). No specific order is required under the Copyright Act; however, most copyright owners choose to place the word "copyright," or its equivalent, first, the year of first publication second, and the name of the owner last. 2 M. NIMMER, *supra* note 34, § 7.05.

82. 37 C.F.R. § 201.20(g) (1984).

83. *See, e.g.,* American Vitagraph, Inc. v. Levy, 659 F.2d 1023, 1026 (9th Cir. 1981); *see also supra* notes 71-78 and accompanying text (discussing publication without notice).

84. 2 M. NIMMER, *supra* note 34, § 7.16[A].

85. 17 U.S.C. § 411(a) (1982).

86. *Id.* § 412 (1982); *see supra* notes 38-39 and accompanying text. In addition, registration of a work within five years of publication constitutes "prima facie evidence of the validity of the copyright." 17 U.S.C. § 410 (1982).

87. 17 U.S.C. § 412(2) (1982). The House Report to the Copyright Act justified this special provision as "needed to take care of newsworthy or suddenly popular works which may be infringed almost as soon as they are published, before the copyright owner has had a reasonable opportunity to register his claim." HOUSE REPORT, *supra* note 51, at 158.

88. L. KNOBBE, ATTORNEY'S GUIDE TO TRADE SECRETS § 7.4 (Supp. 1983); *see supra* notes 37-39 & 42-43 and accompanying text (discussing other statutory remedies).

89. 17 U.S.C. § 408(a) (1982). Section 409 governs the content of the application. 17 U.S.C. § 409 (1982). The registrant of a "literary work" such as computer software must file Copyright Office Form TX. For a copy of Form TX and instructions, see A. LATMAN & R. GORMAN, COPYRIGHT FOR THE EIGHTIES 300-01 (1982).

posit”<sup>91</sup> of copies of the registered work. Computer software is subject to special deposit regulations.<sup>92</sup> For “machine-readable works,”<sup>93</sup> the Copyright Office requires only the deposit of “one copy of the identifying portions” in lieu of complete copies.<sup>94</sup> For computer software, the “identifying portions” consist of the “first and last twenty-five pages or equivalent units” of the program or data base.<sup>95</sup>

### III. THE EFFECT OF COPYRIGHT FORMALITIES ON TRADE SECRECY

#### A. Notice

Placement of a notice of copyright on computer software does not destroy the owner’s claim to trade secret protection of the contents.<sup>96</sup> The use of a copyright notice is just one factor relevant to a factual determination of whether the trade secret owner has taken reasonable security measures to protect the trade secret.<sup>97</sup>

The distribution of software containing copyright notice to customers arguably constitutes publication<sup>98</sup> of the software’s contents.<sup>99</sup> Courts have refused, however, to hold that copyright notice alone destroys trade

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90. 17 U.S.C. § 480(a) (1982). The registration fee is \$10.00. *Id.* § 708(a)(1).

91. *Id.* § 408(a). The owner of a published work must deposit two complete copies of the “best edition” of the work with the Library of Congress. *Id.* § 408(b). The owner of an unpublished work need deposit only one copy. *Id.*

92. *See* 37 C.F.R. § 202.19-.21 (1984). The Copyright Office derives its authority to issue special deposit regulations from section 702, which permits the Register of Copyrights “to establish regulations not inconsistent with law for the administration of the function and duties made the responsibility of the Register under this title.” 17 U.S.C. § 702 (1982); *see also id.* § 408(c) (authorizing the Register to issue “optional deposit” regulations).

93. “Machine-readable works” are literary works which are fixed “only in the form of machine-readable copies (such as magnetic tape or disks, punched cards, or the like) from which the work cannot ordinarily be perceived except with the aid of a machine or device. . . .” 37 C.F.R. § 202.20(c)(2)(vii) (1984). Computer programs and data bases are “machine-readable works.” *Id.*

94. *Id.* *See* 37 C.F.R. § 202.21 (1984) (describing procedure for depositing “identifying material”).

95. 37 C.F.R. § 202.20(c)(2)(vii) (1984). These special regulations are pertinent to computer programs and data bases, regardless of whether they are published or unpublished. Computer software is exempt from the mandatory deposit requirements of section 407. 37 C.F.R. § 202.19(c)(5) (1984); *see supra* note 91 (describing mandatory deposit).

96. *See* *Technicon Medical Information Sys. v. Green Bay Packaging, Inc.*, 211 U.S.P.Q. (BNA) 343 (E.D. Wis. 1980), *aff’d*, 687 F.2d 1032 (7th Cir. 1982), *cert. denied*, 459 U.S. 1106 (1983); *Management Science America, Inc. v. Cyborg Sys.*, 6 Computer L. Serv. Rep. (Callaghan) 921 (N.D. Ill. 1981).

97. *See* *Gilburne & Johnson*, *supra* note 24, at 231.

98. *See supra* note 71 and accompanying text (defining “publication”).

99. 1 M. NIMMER, *supra* note 32, § 1.01[B] n.48.1.

secrecy.<sup>100</sup> In *Management Science America, Inc. v. Cyborg Systems*,<sup>101</sup> a software distributor accused a competitor of wrongfully appropriating trade secrets. The defendant argued that the plaintiff published its software and dedicated the contents to the public use by placing notice of copyright on its manuals.<sup>102</sup> The court disagreed, holding that the "mere act of affixing a copyright notice does not preclude the claim of secrecy."<sup>103</sup> The court further held that placement of copyright notice on the manuals did not constitute a waiver of the plaintiff's trade secret rights in favor of federal copyright protection.<sup>104</sup>

In *Technicon Medical Information Systems v. Green Bay Packaging, Inc.*,<sup>105</sup> the court rejected a more complex argument that notice amounted to publication. The plaintiff provided computerized office services and disseminated to its customers a reference manual that contained copyright notice. The defendants observed that a copyright notice contains the date of "first publication."<sup>106</sup> They argued that the copyright notices in the manuals represented to plaintiff's customers that the contents had been published in the year stated and therefore were no longer secret.<sup>107</sup> The district court, however, held that an author does not, by placing copyright notice on his or her work, acknowledge to the public that the work has been published.<sup>108</sup> Rather, copyright notice merely notifies the public that the owner has claimed a copyright in the work commencing from the date in the notice.<sup>109</sup>

### B. Registration

Copyright deposits are available for public inspection at the Library of Congress for at least five years.<sup>110</sup> Despite special regulations,<sup>111</sup> the de-

100. See, e.g., *American Vitagraph, Inc. v. Levy*, 659 F.2d 1023, 1028 (9th Cir. 1981).

101. 6 Computer L. Serv. Rep. (Callaghan) 921 (N.D. Ill. 1981).

102. *Id.* at 923.

103. *Id.* at 924.

104. *Id.* at 924, 926. The defendant argued that the plaintiff, by affixing copyright notice to its manuals, "elected" to pursue federal copyright protection and chose to waive its rights under state trade secret law. The district court found that the defendant's "election" argument "merely begs the issue" of whether the plaintiff adequately protected the confidentiality of his trade secrets. *Id.* at 926; see Brooks, *supra* note 20, at 228-29 ("election of remedies" argument unsound).

105. 211 U.S.P.Q. (BNA) 343 (E.D. Wis. 1980), *aff'd*, 687 F.2d 1032 (7th Cir. 1982), *cert. denied*, 459 U.S. 1106 (1983).

106. *Id.* at 345; see *supra* note 80 and accompanying text.

107. 211 U.S.P.Q. at 345.

108. *Id.* at 347.

109. *Id.* at 346.

110. 17 U.S.C. § 705(b) (1982). Once received by the Copyright Office in connection with the

posit of computer software as part of the registration process arguably publishes the software and discloses its contents to the public.<sup>112</sup> Common sense suggests that an item on public display cannot be secret; however, as a matter of law, the deposit of computer software does not preclude trade secrecy.

### 1. Purpose of deposit

The text of the Copyright Act reveals that the purpose of copyright deposit is not public disclosure of all copyrighted works.<sup>113</sup> Congress authorized the Copyright Office to issue regulations permitting the deposit of "identifying material."<sup>114</sup> The Copyright Office accordingly issued regulations exempting certain works from the deposit component of registration.<sup>115</sup> The registration of "secure tests"<sup>116</sup> and other special works discloses nothing to the public. The deposit of "identifying material" reveals only that the owner has claimed copyright in the work.

Copyright deposit serves a largely archival function.<sup>117</sup> The Copyright Office uses the deposit to determine whether the copyright applicant has

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registration process, deposits must be held "open to public inspection." *Id.* § 705(b). The Library of Congress will retain most published deposits for five years. 48 Fed. Reg. 12,862 (1983). The Library of Congress will retain all unpublished deposits for their term of copyright unless the copyright owner submits a reproduction of the entire deposit. 17 U.S.C. § 704(d) (1982).

111. See *supra* notes 92-95 and accompanying text.

112. See *Warrington Assocs., Inc. v. Real-Time Eng'g Sys.*, 522 F. Supp. 367, 369 (N.D. Ill. 1981) ("that [plaintiff] registered its User's Manual for a copyright might well affect the continued secrecy of the ideas in that manual . . .").

113. See *Washingtonian Publishing Co. v. Pearson*, 306 U.S. 30, 38-39 (1939) (purpose of deposit under the 1909 Act is not to create a collection of copyrighted works for public inspection); *National Conference of Bar Examiners v. Multistate Legal Studies, Inc.*, 692 F.2d 478, 486 (7th Cir. 1982) (the purpose of the deposit regulations is not public disclosure), *cert. denied*, 104 S. Ct. 69 (1983).

114. 17 U.S.C. § 408(c) (1982); see *supra* note 92 and accompanying text.

115. Many published works, including computer software, are exempt from the mandatory deposit requirements of section 407. 37 C.F.R. § 202.19(c) (1984). In addition, the owner of certain testing material, whether published or unpublished, does not have to place his or her copyright deposit on public display with the Copyright Office. See *id.* § 202.20(c)(2)(vi).

116. A "secure test" is a "nonmarketed test administered under supervision at specified centers on specific dates, all copies of which are accounted for and either destroyed or returned to restricted locked storage following each administration." *Id.* § 202.20(b)(4). The Copyright Office will return the deposit of a "secure test" to a copyright applicant promptly after submission and examination. *Id.* § 202.20(c)(2)(vi); see *supra* note 115. The Seventh Circuit sustained the constitutionality of the secure test regulations in *National Conference of Bar Examiners v. Multistate Legal Studies, Inc.*, 692 F.2d 478 (7th Cir. 1982).

117. See 48 Fed. Reg. 22,953 (1983).

submitted an original work of authorship.<sup>118</sup> The general public relies on the deposit collection in copyright infringement actions and business transactions.<sup>119</sup>

Thus, copyright deposit, like copyright notice, is just one factor in determining whether the trade secret holder has adequately protected the trade secret.<sup>120</sup> In *Warrington Associates, Inc. v. Real-Time Engineering Systems*,<sup>121</sup> a designer and marketer of financial software registered its user's manual with the Copyright Office. The district court observed that the registration and deposit of the manual may have affected the secrecy of the ideas contained therein.<sup>122</sup> The court refused, however, to grant the defendant's motion for summary judgment, holding that "the mere fact that an expression is copyrighted does not, in and of itself, disclose the trade secret or eliminate its mantle of confidentiality."<sup>123</sup>

Similarly, in *GCA Corp. v. Chance*,<sup>124</sup> a manufacturer of machines used in processing silicon chips deposited the first and last twenty-five pages of its source code with the Copyright Office as part of the registration process.<sup>125</sup> The court observed that the manufacturer signed confidential information agreements with its employees and held that former employees breached their contractual duty not to disclose the contents of the manufacturer's software.<sup>126</sup> The court accordingly granted the manufacturer's motions for injunctive relief for copyright infringement and trade secret misappropriation, notwithstanding the manufacturer's registration of the software.<sup>127</sup>

## 2. Public access to deposits

As a practical matter, deposit of software with the Copyright Office

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118. See HOUSE REPORT, *supra* note 51, at 171 (value of deposits in "identifying copyrighted works").

119. 48 Fed. Reg. 22,953 (1983). The House Report to the Copyright Act noted the "many difficulties encountered when copies needed for identification in connection with litigation or other purposes have been destroyed." HOUSE REPORT, *supra* note 51, at 171.

120. See *supra* text accompanying note 97.

121. 522 F. Supp. 367 (N.D. Ill. 1981).

122. *Id.* at 369.

123. *Id.* at 368.

124. 217 U.S.P.Q. (BNA) 718 (N.D. Cal. 1982).

125. *Id.* at 719.

126. *Id.* at 721.

127. *Id.* at 720-21. The defendants contended that the manufacturer failed to obtain copyright protection for its object code. *Id.* at 719. The court rejected this argument, holding that "copyright of the source code protects the object code as well." *Id.* at 720.



may reveal nothing to persons who wish to examine the deposit. The Copyright Office's indexing system makes deposits extremely difficult to locate.<sup>128</sup> An examiner who does locate the desired deposit may find only the first and last twenty-five pages of a computer program or data base with all trade secrets carefully excised from the deposit.<sup>129</sup> Furthermore, Copyright Office regulations forbid copying of a deposit unless the examiner is the owner of the copyrighted work or a litigant.<sup>130</sup> Finally, the Copyright Office does not furnish copies.<sup>131</sup>

### 3. *Relief from deposit requirements*

As an added measure of security, a copyright applicant may elect to deposit only the object code version of his software with the Copyright Office.<sup>132</sup> The Copyright Office prefers the deposit of source code, as it constitutes the "best representation of authorship."<sup>133</sup> Under its "rule of doubt," however, the Copyright Office will accept the deposit of object code "for whatever it may be worth."<sup>134</sup> If a letter from the author certifying that the deposit represents an "original work of authorship" accompanies the deposit, the Copyright Office will issue a certificate of registration.<sup>135</sup> This certificate, however, does not provide prima facie

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128. Copyright Office deposits are indexed according to author, title, and number. 48 Fed. Reg. 22,953 (1983). The identifying features may not be very helpful. Authors are frequently unknown contributors or employees, and the title of a deposit is often completely uninformative. Brooks, *supra* note 20, at 214.

129. The intelligent software owner will carefully hide all trade secrets between the first and last 25 pages of a deposited computer program or data base. See R. RAYSMAN & P. BROWN, *supra* note 2, § 5.03[2].

130. 37 C.F.R. § 201.2(d)(4) (1984).

131. The Freedom of Information Act, Pub. L. No. 89-554, 80 Stat. 383 (1966) (codified as amended at 5 U.S.C. § 552 (1982)), specifically exempts trade secrets and confidential commercial information from its disclosure provisions. 5 U.S.C. § 522(b)(4) (1982).

132. See *supra* note 61 (defining object code). Object code is illegible to all but a few experts. Public inspection of a long string of "O" and "I" symbols should not disclose the software's unique design or logic.

133. 48 Fed. Reg. 22,952 (1983).

134. *Id.* A registrant depositing object code receives a GLR-70 letter from the Copyright Office, notifying him or her of acceptance of the deposit. R. RAYSMAN & P. BROWN, *supra* note 2, § 5.03[3].

135. See L. KNOBBE, *supra* note 88, § 7.3; Brooks, *supra* note 20, at 218-19. Commentators have criticized the Copyright Office's "rule of doubt" as overly favorable to the deposit of object code. See J. SOMA, *supra* note 2, at 48 n.177. Many deposited materials, such as foreign language books and source code, may also be difficult to examine yet are not subject to the rule. *Id.*

evidence of the copyright's validity.<sup>136</sup> Thus, the copyright holder may have difficulty obtaining a preliminary injunction or bringing an infringement action.<sup>137</sup>

A software owner may, upon written request, seek "special relief" from the deposit requirements.<sup>138</sup> "Special relief," however, may consist of nothing more than permission to deposit "identifying material" in lieu of complete copies<sup>139</sup> — relief that the software owner already possesses. In addition, the software owner may have difficulty demonstrating "special" circumstances justifying such relief.<sup>140</sup>

#### IV. OTHER OBSTACLES TO DUAL PROTECTION

##### A. Policy Considerations

The coexistence of copyright and trade secrecy in a single work raises the basic policy question whether the benefits of federal copyright protection should be extended to an author who is unwilling or unable to dis-

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136. Brooks, *supra* note 20, at 219; *see supra* note 86 (registration generally constitutes prima facie evidence of validity).

137. J. SOMA, *supra* note 2, at 48 n.177.

138. 37 C.F.R. § 202.20(d) (1984).

139. *Id.*

140. The Copyright Office receives many requests for "special relief" from owners of works containing trade secrets and other confidential material. 48 Fed. Reg. 22,952 (1983). The possibility of "special relief" is greatest when the copyright applicant can "excise the confidential material and deposit a substantial representation of the authorship in the work[ ]." *Id.*

Congress considered but rejected legislation that would have directed the Register of Copyrights to "prescribe regulations for the secure deposit of material, including computer software, which is maintained or distributed on a confidential or restricted basis." H.R. 6983, 97th Cong., 2d Sess. (1982). The legislation also would have clarified the extent of federal preemption by amending section 301 to read: "Nothing in this title shall alter or limit any right or remedy which the owner of a copyright may have under state trade secret law that is not equivalent to any of the exclusive rights within the general scope of copyright as specified by section 106." *Id.* *See infra* notes 149-59 and accompanying text (discussing the possibility of federal preemption of state trade secret law).

The Copyright Office is presently reviewing its deposit regulations and is considering the possibility of special deposit provisions for computer programs and other works that contain trade secrets. 48 Fed. Reg. 22,951 (1983). The Copyright Office proposes promulgating special deposit regulations that are similar to regulations governing the deposit of secure tests. *See supra* note 116 and accompanying text (discussing secure test regulations). The Copyright Office intended the secure test regulations to address the "special problems of confidentiality faced by creators and administrators of secure tests." 48 Fed. Reg. at 22,952. The proprietor of computer software and other works containing trade secrets faces similar problems of confidentiality in securing copyright protection under the Copyright Act. Based on *National Conference of Bar Examiners v. Multistate Legal Studies, Inc.*, 692 F.2d 478 (7th Cir. 1982), *cert. denied*, 104 S. Ct. 69 (1983), which upheld the constitutionality of secure test regulations, the Copyright Office should have the authority to issue similar regulations for the deposit of computer software and other works containing trade secrets.

close his or her work to the public.<sup>141</sup> Courts and commentators frequently perceive the major purpose of copyright law as promoting disclosure of the author's work and view trade secrecy as inherently inconsistent with this goal.<sup>142</sup>

Traditionally, copyright has served to encourage disclosure of intellectual ideas to the public.<sup>143</sup> Disclosure remains a vital, if not primary, purpose of copyright law.<sup>144</sup> Increasingly, however, courts are willing to recognize the value of copyright protection as a "reward" for the author's labors.<sup>145</sup> The Supreme Court recently characterized federal copyright protection as a "balance" between the private interests of authors in

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141. See 48 Fed. Reg. 22,954 (1983).

142. In 1981, the American Bar Association Section of Patent, Trademark, and Copyright Law summarized the perceived conflict between copyright and trade secret law as follows:

The conflict in the dual use of state trade secret and federal copyright protection stems from the *inherent substantive differences* between them. Copyright protection is the manifestation of the constitutional power to extend a limited commercial monopoly to creators in order to promote the general public good through the diffusion of knowledge and the concomitant stimulation of progress and competition in a free society. Copyright protection requires the creator to relinquish, however, all rights save for those reserved and enumerated by the Copyright Act, i.e., the control of copying and reproduction of the work. Copyrighting a work therefore results in its divulgation to the public, including the ideas inherently embodied therein, and the public may make "open and free" use of such material within the strictures of the copyright law.

Conversely, secrecy and non-disclosure are the very essence of state trade secret protection. The creator has a right to perpetual protection of the secret as long as secrecy is maintained, but the risks are substantial. Trade secret protection evaporates upon any disclosure, whether intentional or inadvertent. Nor is any protection afforded against any independent development of the same secret by another or "reverse engineering" of it. In summary, a choice is offered—an exclusive federal right for a limited time versus an imperfect state law perpetual remedy.

A.B.A. SECTION OF PATENT, TRADEMARK, AND COPYRIGHT LAW, COMMITTEE REPORTS 91-92 (1981) (emphasis added).

143. The traditional purpose of public disclosure follows from the copyright clause of the Constitution. See U.S. CONST. art. I, § 8, cl. 8 ("to promote the progress of science and useful arts"). In *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151 (1975), the Supreme Court declared that although federal copyright protection serves the private interests of authors, copyright "must ultimately serve the cause of promoting broad public availability of literature, music, and the other arts." *Id.* at 156; see also *Mazer v. Stein*, 347 U.S. 201, 219 (1954) (purpose of copyright is to promote the public welfare); *Fox Film Corp. v. Doyal*, 286 U.S. 123, 127 (1932) (primary purpose of copyright is to enhance public welfare through the labor of authors).

144. See *Sony Corp. v. Universal City Studios*, 104 S. Ct. 774, 782 (1984) (federal copyright law primarily serves "an important public purpose"); 1 M. NIMMER, *supra* note 34, § 104[A].

145. See *Sony Corp. v. Universal City Studios*, 104 S. Ct. 774, 782 (1984) (copyright law "motivate[s] the creative activity of authors and inventors by the provision of a special reward"); see also *Gilliam v. American Broadcasting Co.*, 538 F.2d 14, 23 (2d Cir. 1976) (copyright law recognizes "important role of artists in society" and encourages "production and dissemination of artistic works"); *Quinto v. Legal Times of Washington, Inc.*, 511 F. Supp. 579, 581 (D.D.C. 1981) (purpose of copyright law is "to encourage people to devote themselves to intellectual and artistic creation").

exploiting their works and the competing interests of society in receiving a "free flow" of ideas and information.<sup>146</sup>

The structure of the Copyright Act indicates that the public disclosure of an author's ideas is not the price of copyright protection. The statute places little emphasis on disclosure or publication; indeed, copyright protection "subsists" in a work from the moment of its creation.<sup>147</sup> A "limited publication" of a copyrighted work reveals little to the public.<sup>148</sup> Thus, the software owner who markets his or her trade secrets to a carefully selected group of customers should not run afoul of the purpose of copyright law.

### B. Preemption

The supremacy clause of the United States Constitution<sup>149</sup> prohibits states from impeding the effectiveness of congressional legislation.<sup>150</sup> Section 301 of the Copyright Act preempts state protection of rights that are "equivalent to any of the exclusive rights" of copyright in "works of authorship that are fixed in a tangible medium of expression and come within the subject matter of copyright . . . ."<sup>151</sup> State trade secret law protects many works that are eligible for federal copyright protection and provides many remedies that are similar to the exclusive rights of copyright.<sup>152</sup> The overlap between copyright and trade secret rights has provoked concern that the Copyright Act preempts state trade secret

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146. *Sony Corp. v. Universal City Studios*, 104 S. Ct. 774, 782 (1984).

147. 17 U.S.C. § 302(a) (1982); *see supra* note 70 and accompanying text (copyright protection automatically follows from satisfaction of "authorship" and "fixation" requirements).

148. *See supra* notes 75-78 and accompanying text.

149. The supremacy clause states "This Constitution, and the laws of the United States which shall be made in Pursuance thereof . . . shall be the supreme law of the land, and the judges in every state shall be bound thereby . . . ." U.S. CONST. art. VI.

150. Federal law preempts state law whenever the latter "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress." *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941); *see Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 479 (1974); *Sears, Roebuck, & Co. v. Stiffel Co.*, 376 U.S. 225, 229 (1964); *Sola Elec. Co. v. Jefferson Elec. Co.*, 317 U.S. 173, 176 (1942). States may regulate the field of intellectual property as long as they do not act inconsistently with federal law. *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 262 (1979); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 479 (1974).

151. 17 U.S.C. § 301(a) (1982).

152. For example, if a licensee under a duty of confidentiality to a trade secret holder copies a computer program containing trade secrets and subsequently sells the copy, the trade secret holder may obtain injunctive relief under both the Copyright Act and most state trade secret laws. L. KNOBBE, *supra* note 88, §§ 1.9A, 7.13.

law.<sup>153</sup>

Causes of action under state trade secret laws alleging wrongful acts of reproduction, distribution, performance, or display raise preemption problems under section 301. In *Avco Corp. v. Precision Air Parts, Inc.*,<sup>154</sup> for example, a manufacturer of replacement parts for aircraft engines alleged that a competitor appropriated its trade secrets by improperly copying drawings and specifications.<sup>155</sup> The court concluded that section 301 preempted the plaintiff's state law cause of action for misappropriation of trade secrets. The court held that the drawings and specifications fell within the subject matter of copyright and that the reproduction of an author's work is an exclusive right under federal copyright law.<sup>156</sup>

Section 301 should not preempt causes of action under state trade secret laws in which the trade secret holder alleges the wrongful "use" or "disclosure" of his or her trade secret.<sup>157</sup> State trade secret remedies, which protect the content of a work, are not "equivalent" to federal copyright remedies, which only protect the form of a work.<sup>158</sup> Recent

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153. A series of Supreme Court decisions involving the conflict between state and federal law in the field of intellectual property hint that federal copyright law may preempt state trade secrets law. See *Sears, Roebuck, & Co. v. Stiffel Co.*, 376 U.S. 225 (1964) (federal patent laws preempted California unfair competition law); *Compcorp v. Day-Brite Lighting, Inc.*, 376 U.S. 234 (1964) (federal patent laws preempted California unfair competition law). *But see* *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257 (1979) (federal patent laws do not preempt state contract law); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470 (1974) (federal patent laws do not preempt Ohio trade secret laws); *Goldstein v. California*, 412 U.S. 546 (1973) (federal copyright laws do not preempt California criminal statute). See generally *Luccarelli, The Supremacy of Federal Copyright Law Over State Trade Secret Law for Copyrightable Computer Program Marked with a Copyright Notice*, 3 *COMPUTER L.J.* 19 (1981).

154. 210 U.S.P.Q. (BNA) 894 (M.D. Ala. 1980), *aff'd on other grounds*, 676 F.2d 494 (11th Cir.), *cert. denied*, 459 U.S. 1037 (1982).

155. *Id.* at 895-96.

156. *Id.* at 897; see also *Harper & Row Publishers, Inc. v. Nation Enterprises*, 723 F.2d 195, 199-201 (2d Cir. 1983) (causes of action for conversion and tortious interference with contractual rights held preempted when defendants wrongfully obtained an unpublished manuscript and copied portions), *cert. granted*, 104 S. Ct. 2655 (1984); *Mitchell v. Penton Indus. Publishing Co.*, 486 F. Supp. 22 (N.D. Ohio 1979) (unfair competition cause of action held preempted when defendant copied portions of plaintiff's book for defendant's article); *Orth-O-Vision, Inc. v. Home Box Office*, 474 F. Supp. 672 (S.D.N.Y. 1979) (counterclaim under state unfair competition law for the misappropriation and public performance of broadcast signals held preempted).

157. See *L. KNOBBE, supra* note 88, at § 1.9A; *Brooks, supra* note 20, at 221-22; see also *supra* note 24 (discussing state law proscriptions against the wrongful disclosure or use of trade secrets).

158. See *M. Bryce & Assocs., Inc. v. Gladstone*, 107 Wis. 2d 241, 258-59, 319 N.W.2d 907, 915-16 (Wis. Ct. App.), *cert. denied*, 459 U.S. 944 (1982). The Supreme Court noted the distinction between copyright and trade secret protection as early as 1879: "The copyright of a work on mathematical science cannot give to the author an exclusive right to the methods of operation which he propounds, or to the diagrams which he employs to explain them . . ." *Baker v. Selden*, 101 U.S.

decisions concerning software have thoroughly examined the preemption issue and have concluded that section 301 does not preempt trade secrecy under state law.<sup>159</sup>

### CONCLUSION

The proprietor of computer software containing trade secrets should secure federal copyright protection. The precise method of procuring copyright depends on the particularities of each case. The formalities associated with securing copyright protection under the Copyright Act<sup>160</sup> may bear on the critical issue of whether the proprietor has adequately protected the confidentiality of his or her trade secret.<sup>161</sup> However, the act of obtaining copyright protection does not, in itself, destroy the copyright owner's right to proprietary protection under state trade secret laws.

In general, the safest course of action available to the software owner is to place a notice of copyright on the software and to refrain from registering the software with the Copyright Office. In the event of accidental and unrestricted dissemination of the software to the public, the copyright owner may register the software within three months of publication without forfeiting any of his or her statutory remedies.<sup>162</sup> The software owner who decides to register his or her work should consider depositing

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99, 103 (1879); see also *Technicon Medical Information Sys. v. Green Bay Packaging, Inc.*, 687 F.2d 1032, 1038 (7th Cir. 1982), ("[t]he Copyright Act is designed to protect the form of a work while trade secret law applies to the contents or ideas in a work"), *cert. denied*, 459 U.S. 1106 (1983); *Warrington Assocs., Inc. v. Real-Time Eng'g Sys.*, 522 F. Supp. 367, 368 (N.D. Ill. 1981) ("neither Congress nor the courts have viewed the federal Copyright Act as preempting the common law of trade secret misappropriation").

159. See *Technicon Medical Information Sys. v. Green Bay Packaging, Inc.*, 687 F.2d 1032, 1038-39 (7th Cir. 1982), *cert. denied*, 459 U.S. 1106 (1983); *BPI Sys. v. Leith*, 532 F. Supp. 208, 211 (W.D. Tex. 1981); *Warrington Assocs., Inc. v. Real-Time Eng'g Sys.*, 522 F. Supp. 367, 368-69 (N.D. Ill. 1981); *M. Bryce & Assocs., Inc. v. Gladstone*, 107 Wis. 2d 241, 257-67, 319 N.W.2d 907, 915-19 (Wis. Ct. App.), *cert. denied*, 459 U.S. 944 (1982). In *Bryce*, the Court of Appeals of Wisconsin examined the legislative history of section 301, decisions of the United States Supreme Court, and the distinction between copyright and trade secret protection and concluded that the Copyright Act does not preempt state trade secret law:

Since no "unmistakable" indication has been given to the contrary by Congress and the weight of the evidence points to the recognition by Congress and other authorities of the value of state protection of trade secrets, we conclude that state trade secret protection has not been preempted by the federal copyright laws.

*Id.* at 266-67, 319 N.W.2d at 919.

160. See *supra* notes 66-69 and accompanying text.

161. See *supra* note 24 and accompanying text.

162. See *supra* note 87 and accompanying text.

only object code with the Copyright Office.<sup>163</sup>

The combination of copyright and trade secret protection does not provide the software owner with comprehensive legal coverage. The software is still susceptible to honest or accidental discovery.<sup>164</sup> Moreover, the software owner must continue to protect the security of his or her trade secret at great effort and expense. The added measure of copyright provides the trade secret holder with relief in the event of accidental injection of the trade secret into the public domain with attendant loss of trade secret protection.

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163. *See supra* notes 132-37 and accompanying text.

164. *See supra* note 15.

