COPYRIGHT AND PATENT PROTECTION FOR COMPUTER SOFTWARE: ARE THEY MUTUALLY EXCLUSIVE? [n.a]

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INTRODUCTION

As early as 1983, it was stated in an article in Computerworld that "[i]t is now 'crystal clear' . . . that 'all computer programs,' fixed in any form by any method, performing any function for any purpose, are entitled to copyright protection." [n.1]

Cases which have been decided over the past six years have proven this statement to be correct. [n.2] It is also clear that software may be entitled to patent protection when it meets the statutory requirements for patentability. [n.3]

The eligibility of software for both copyright and patent protection has given rise to an additional issue which has not yet been directly considered by the courts: should copyright and patent protection for software be mutually exclusive? Recently, some people have argued that *266 software developers should be required to elect between one or the other of these types of protection. [n.4] But an analysis of the Constitution, the federal statutes and case authority reveals that there is no sound justification for denying joint patent protection and copyright protection to software which is otherwise eligible for both forms of protection.

This article will begin with a summary of the current law concerning the copyrightability of software and the eligibility of software for utility and design patents. The second part of this article will examine the different aspects of computer software which patents and copyrights protect and the differing scopes of these forms of protection. Finally, this article will examine case law and existing copyright and patent regulations to determine their influence on the joint protection issue.

I. The Availability of Copyright, Utility Patent and Design Patent Protection for Software

A. Copyright Protection of Computer Programs

The Copyright Office began registering copyrights on computer software in 1964. [n.5] Registration by the Copyright Office, however, raised only a presumption in favor of copyright validity. [n.6] This presumption was vulnerable to challenge in the courts.

Any doubts as to whether software could be the subject of copyright were dispelled by the passage of the Computer Copyright Act of 1980. [n.7] According to the House Report, the effect of this brief amendment was to "clearly [apply federal copyright law] to computer programs. . . ." [n.8]

Over the years following the enactment of the Computer Copyright Act, the courts have explored the issue of whether copyright protection *267 extends to computer programs in all of its forms and classifications. Copyright protection has been held to subsist in both source code and object code. [n.9] Furthermore, copyright has been held to extend both to programs designed to perform a particular task (application programs) and to those designed to control the inner operation of the computer system (operating systems programs). [n.10] Moreover, copyright protection has been recently held to extend to microcode (the interface between software written in object code and the physical operation of the hardware). [n.11]

Copyright protection is also available for video games and other programs with complicated and creative audiovisual displays. The key operative components of video games are silicon chips acting as memory storage devices, called ROM's or PROM's. [n.12] Cases which have addressed the issue have consistently held programs imprinted in silicon chips to be copyrightable. [n.13]

B. Copyright Protection of Screen Displays

Protection of the programs contained in the silicon chips, however, is not in itself sufficient for video game authors since video game audiovisual displays can often be replicated by means of computer programs which are markedly dissimilar and, therefore, noninfringing. *268 Thus, the courts have permitted authors of video games to independently register the sights and sounds of their games as audiovisual works. [n.14]

Where stylistic creativity constitutes a minor aspect of an audiovisual display (as in many textual screen displays), the Copyright Office will consider the creative aspects of the screen display to be covered by the underlying computer program and will not require separate registration. [n.15]

C. Utility Patent Protection of Computer Programs

The United States Supreme Court has held that otherwise patentable processes implemented via computer software constitute patentable subject matter. [n.16] Thus, computer algorithms (or methodologies for solution of a problem in a finite number of steps), [n.17] when associated with a computer to accomplish specific purposes, [n.18]

have been held to be protectable by utility patents as long as they do not recite or preempt mathematical *269 equations. [n.19] Furthermore, media such as ROM's, tapes, or diskettes embodying computer programs may be patentable as falling within the statutory subject matter of patentable articles of manufacture. [n.20]

D. Design Patent Protection of Software Screen Displays

While utility patents protect the functional aspects of technology, design patents protect their ornamental aspects. Thus, Xerox Corporation has sought and obtained design patents on ornamental designs used in its graphical screen displays. The first group of design patents on computer screen displays was granted on May 10, 1988. [n.21] Design patents which Xerox has obtained have covered, among other things, icons (screen display images) for wastebaskets, [n.22] broken documents [n.23] and file dividers. [n.24]

II. Patents and Copyrights Are Essentially Different Forms of Protection

A. Patents Provide a Stronger Form of Protection

Congress enacted the copyright and patent statutes [n.25] under the power *270 granted to it in Article I, § 8, Clause 8 of the Constitution. [n.26] Neither the Constitution nor federal statutory law provides that patent and copyright protection should be an either/or proposition. On the contrary, Title 17 (Copyrights) unambiguously states that "[n]othing in this title annuls or limits any rights or remedies under any other Federal statute." [n.27]

Opponents of joint patent and copyright protection for computer software argue that joint protection constitutes an illegal extension of the patent grant. [n.28] They maintain that since patent protection expires after seventeen years [n.29] (or fourteen years, in the case of design patents), [n.30] while copyright protection lasts for the lifetime of the author plus fifty years, [n.31] the copyright protection which would continue after the expiration of the patent would, in effect, extend patent protection beyond its statutory term.

This argument overlooks the fact that patents and copyrights are very different forms of protection and that patent protection is clearly the stronger form of protection of the two. For example, unlike copyrights, patents protect against infringement even if the infringing program was not copied from the patented program but was independently created.

Furthermore, while neither patents [n.32] nor copyrights [n.33] protect ideas, patents protect embodiments of ideas. Thus, patent protection extends not only to the coding of computer programs which qualify for protecttion, *271[FN34] but to equivalents of such

coding, [n.35] the underlying computer algorithms, [n.36] equivalents of those algorithms and particular applications of those algorithms. [n.37] On the other hand, the courts will probably not extend the scope of copyright protection to a computer program's underlying algorithm. [n.38]

B. The Idea/Expression Merger Limits Copyright Scope

   Moreover, the scope of copyright protection is limited by a doctrine known as the idea/expression merger. As several courts have held, this doctrine provides that where an idea can be expressed in only a narrow variety of ways, copyright protection should protect only against identical copying. [n.39] The Herbert Rosenthal cases well illustrate this doctrine. *272 In Herbert Rosenthal Jewelry Corp. v. Grossbardt, [n.40] defendant had produced jeweled bee pins precisely identical to those of the plaintiff. The court held this to be a clear case of copyright infringement. [n.41] In Herbert Rosenthal Jewelry Corp. v. Kalpakian, [n.42] a case decided a year later, defendant had created jeweled bee pins identical to those of plaintiff except for the pattern of veins in the wings. Noting that "[t]here [was] no greater similarity between the pins of plaintiff and defendants than [was] inevitable from the use of jewel-encrusted bee forms in both," the court found, in accordance with the doctrine of idea/expression merger, that there had been no infringement of copyright. [n.43]

   The doctrine of idea/expression merger may have an impact over the scope of copyright protection for certain operating systems programs. While no court has yet resolved this issue, [n.44] it has been argued that with respect to operating systems programs such as those controlling input/output, scheduling, and process management, only minute changes can be made in the coding of the program before the functionalities of the programs become destroyed. [n.45] If this is indeed correct, the idea/expression merger would require a very narrow scope of copyright protection for operating systems programs.

   *273 A similar issue, which has very recently been decided, is the appropriate scope of copyrights on microcode. It has been held that the idea/expression merger requires a very narrow scope of copyright protection for short microcode sequences since the coding of these sequences may be dictated by rigid constraints. [n.46] Specifically, the District Court of the Northern District of California held "that the expression of the ideas underlying . . . shorter, simpler microroutines may be protected only against virtually identical copying . . . ." [n.47]

   On the other hand, the idea/expression merger is not available as a defense to a patent infringement action. Thus, patents can provide a much broader scope of protection for programs containing algorithms which can only be expressed by a narrow range of possible codings.

C. An Analogy Regarding Joint Patent and Trademark Protection

An analogous issue to that of concurrent patent and copyright protection is the issue of concurrent trademark and copyright protection. In Application of Mogen David Wine Corp., [n.48] the Court of Customs and Patent Appeals held that there is no statutory estoppel to obtaining a trademark on a previously patented work. Decisions of the Court of Customs and Patent Appeals (CCPA) are binding as precedent in the Court of Appeals for the Federal Circuit. [n.49]

In Mogen David, Mogen David Wine Corp. sought trademark registration [n.50] of the configuration of a decanter bottle which was already covered by a design patent. The Trademark Trial and Appeal Board ("TTAB") had refused trademark registration of the configuration of the decanter bottle on the ground that it had been previously granted a design patent. The CCPA reversed the decision of the TTAB on the ground that trademark rights which happen to continue beyond the expiration of a patent do not "extend" the patent grant. In words which could equally well be applied to cases supporting the right to joint patent and copyright protection, the court emphasized that the two forms of intellectual property protectioon "exist independently . . . under different law and for different reasons." [n.51]

*274 III. Federal Regulations and the Yardley Case

A. The Copyright Office Regulations

The Copyright Office has created a direct obstacle to obtaining copyright protection for design patented computer software. Copyright regulations provide that while the eligibility of a work for design patent protection and the application of work for design patent protection will not affect the availability of copyright registration, copyright registration for a work will be denied after a design patent has been issued:

37 C.F.R. § 202.10 Pictorial, Graphic and Sculptural Works

 (a). . . . The potential availability of protection under the design patent law will not affect the registrability of a pictorial, graphic or sculptural work, but a copyright claim in a patented design or in the drawings or photographs in a patent application will not be registered after the patent has been issued.
 (b) A claim to copyright in a scientific or technical drawing, otherwise registrable as a pictorial, graphic, or sculptural work, will not be refused registration solely by reason of the fact that it is known to form a part of a pending patent application. Where the patent has been issued, however, the claim to copyright in the drawing will be denied copyright registration.

The Copyright Office, which implemented this regulation without offering any rationale for its action, has been sharply criticized for promulgating it. [n.52] This regulation has a

direct effect upon the protectability of computer screen displays. The application of this regulation may block any screen display icons previously protected by design patent from eligibility for copyright registration. [n.53]

  The Copyright Office regulation is significant to the actual coding of computer programs only insofar as it would be applied to utility patents as well as to design patents. In a case decided on other grounds, the District Court for the Western District of Pennsylvania expressed the opinion that "[f] rom the language of 37 C.F.R. § 202.10 it is unclear . . . whether its application is limited to design patents, or whether it also extends to . . . utility patents." [n.54] The General Counsel to the U.S. Copyright Office, however, has recently stated that this *275 regulation would not be applied to bar copyright protection of computer programs protected by utility patents. [n.55]

B. The Yardley Case

  The Patent Office has never implemented a regulation reciprocal to 37 C.F.R. § 202.10. Thus, neither the Manual of Patent Examining Procedures, nor the "Rules of Practice in Patent Cases" contained in Part 1 of Title 37 of the Code of Federal Regulations have ever barred a pictorial or graphic work previously registered for copyright protection from being included in an issued patent. Nevertheless, the Patent Office had, in the past, rejected applications for design patent on the ground that the subject matter had been previously copyrighted.

  This practice of the Patent Office was challenged in Application of Yardley. [n.56] This case involved a novelty watch face with a caricature of Spiro Agnew whose extended hands and arms served as the watch's hour and minute hands. The patent examiner had denied design patent protection for the watch face, explaining his position as follows:
   [T]he claim must be rejected on the principle that while the subject matter might be eligible for protection under either copyright or design patent, the obtaining of protection under one constitutes an election of protection, and there is an estoppel to seek the other. [n.57]

  The Court of Customs and Patent Appeals reversed the examiner's rejection of a design patent for the watch face. The court remarked that the U.S. Constitution recites a purpose for providing authors and inventors with legal protection, and that purpose is "To promote the Progress of Science and useful Arts . . . ." [n.58] The court suggested that that purpose is advanced by "the concurrent availability of both modes of securing exclusive rights . . . ." [n.59]

  Furthermore, the court held that the imposition of a requirement that one elect between patent and copyright protection is contrary to the legislative intent behind the patent and copyright statutes. The court explained:
   The Congress has provided that subject matter of the type involved in this appeal is "statutory subject matter" under the copyright statute and is "statutory subject matter"

under the design patent statute, but the Congress has not provided that an author-inventor must elect between securing a *276 copyright or securing a design patent. Therefore we conclude that it would be contrary to the intent of Congress to hold that an author-inventor must elect between the two available modes of securing exclusive rights. [n.60]

The Commissioner of Patents had also opined that joint copyright and patent protection for the Spiro Agnew watch would result in "failure of adequate consideration for the grant of a design patent." [n.61] He argued that a design patent is a written contract under which the government provides the patentee with exclusive rights to the invention for 14 years in exchange for the patentee's promise to dedicate the invention to the public upon expiration of the patent. Applying this theory, he concluded that enforcement of a software copyright after the patent on the software has expired would constitute a breach of the patentee's contractual duty to dedicate his invention to the public.

The Yardley court properly found that the Commissioner's view of a patent as a contract found no support in either the Constitution or in the patent statutes. Specifically, the court held that a patent is not a contract, but an outright grant.
    A patent is not a contract. A patent is "a grant*** of the right to exclude others from making, using, or selling the invention throughout the United States," 35 U.S.C. § 154 (emphasis added). A patent has "*** the attributes of personal property," 35 U.S.C. § 261 (emphasis added). [n.62]

The concept of copyrights and patents as grants and not contracts has been iterated by the C.C.P.A. on other occasions. In Application of Mogen David, [n.63] for example, the court held:
    When the patent. . . ends, it ends. . . .We know of no provision of patent law, statutory or otherwise, that guarantees to anyone an absolute right to copy the subject matter of any expired patent. Patent expiration is nothing more than the cessation of the patentee's right to exclude held under the patent law. [n.64]

Similarly, in Application of Deister Concentrator Co., [n.65] the court stated that "the right to copy is not derived in any way from the patent law; it is a right which inheres in the public under the general law except to the extent the patent law may remove it. The same is true of copyrights."

The Yardley case is probably controlling law with respect to the availability of joint copyright and design patent protection for computer *277 software. Thus, previously copyrighted icons which are part of a computer screen display should not be estopped from receiving design patents. Furthermore, while the Yardley case did not involve utility patents, the considerations which the Yardley court addressed would be equally applicable to cases involving utility patents. Thus, Yardley is strong authority for the proposition that previously copyrighted computer programs are not estopped from obtaining utility patent protection.

C. The Patent Office Regulation

In response to the Yardley case, the Patent and Trademark Office enacted regulation 608.01(v) of the Manual of Patent Examining Procedures (MPEP). This regulation provides that "the Patent and Trademark Office will permit the inclusion of a copyright or mask work [n.66] notice in a design or utility patent application, and thereby any patent issuing therefrom, which discloses material on which copyright or mask work protection has previously been established. . . . ," As long as

the following authorization is included at the beginning. . . of the specification to be printed for the patent:

A portion of the disclosure of this patent document contains material which is subject to [copyright or mask work] protection. The [copyright or mask work] owner has no objection to the facsimile reproduction by anyone of the patent disclosure, as it appears in the Patent and Trademark Office patent files or records, but otherwise reserves all [copyright or mask work] rights whatsoever. [n.67]

The practical effect of this regulation on computer software is that previously copyrighted screen display icons can be included with a copyright notice on design patent applications and on granted design patents. Thus, while the Copyright Office regulations probably prohibit previously design patented icons from being registered for copyright, [n.68] one can obtain joint copyright and design patent protection by obtaining the copyright registration first.

The MPEP regulation, however, has no controlling effect on software utility patents. This is because the actual coding of computer software (which is the precise matter subject to the copyright protection), does not need to be disclosed in the specification of a software utility patent. *278 In fact, the Patent and Trademark Office actually discourages the filing of this level of detail. [n.69] Nevertheless, the Patent Office regulation and the Yardley decision provide authority by analogy to support the availability of joint copyright and utility patent protection for computer software since the rationale supporting them is equally applicable to both design and utility patents.

CONCLUSION

It is crystal clear that software is entitled to both copyright and patent protection. It should also be crystal clear that these forms of protection should not be mutually exclusive. There is no justification whatsoever in the Constitution, the federal statutes, or the case law to justify a denial of joint patent and copyright protection to computer software. While the Copyright Office regulations may create an obstacle to obtaining copyright protection for previously design-patented icons in computer screen displays, the Patent and Trademark Office regulations expressly permit items which are previously copyrighted to later be the subject of design patents.

While the case law and federal regulations do not directly address the availability of joint copyright and utility patent protection for computer software, the same considerations apply as in the design patent context. Joint copyright and patent protection

for software, regardless of whether the patent is a design or utility patent, does not constitute an illegal extension of the patent grant because copyrights and patents are very diiferent types of protection--each protecting computer programming at differing levels of generality and to differing extents.

[n.1]. Boorstyn, Software Copyright Litigation: After Apple vs. Franklin, Computerworld, November 21, 1983, p. 31 (In Depth Section) at 38.

[n.2]. See, e.g., Apple Computer, Inc. v. Formula Int'l. Inc., 725 F.2d 521, 221 U.S.P.Q. 762 (9th Cir.1984) (copyright protection available for both applications programs and operating systems programs); NEC Corp. v. Intel Corp., No. C-84-20799-WPG, slip op. (N.D.Cal. Feb. 6, 1989) (copyright protection available for microcode). As the lower court in the affirmed Formula case explained, "There is nothing in any of the statutory terms which suggest a different result [concerning copyrightability] for different types of computer programs based upon the function they serve within the machine." 562 F.Supp. 775, 780, 218 U.S.P.Q. 47, 51 (C.D.Cal.1983).

[n.3]. See, e.g., Diamond v. Diehr, 450 U.S. 175 (1981); Paine, Webber, Jackson & Curtis, Inc. v. Merrill, Lynch, Pierce, Fenner & Smith, Inc., 564 F.Supp. 1358, 218 U.S.P.Q. 212 (D.Del.1983).

[n.4]. See, e.g., Kline, Requiring an Election of Protection for Patentable/Copyrightable Computer Programs, 6 Comp./L.J. 607 (1986); L. Kutten, Computer Software, § 2.01[3](1987).

[n.5]. See Banzhaf, Copyright Protection for Computer Programs, 14 Copy.L.Symp. 118 (1966).

[n.6]. It has always been the policy of the Copyright Office to "register material which [it feels] a court might reasonably hold to be copyrightable. . . ." Library of Congress, Department & Divisional Manual, No. 7, Copyright Office 38 (1950), quoted in Banzhaf, supra, at 143 n. 102.
  While some courts state that the presumption of validity shifts the burden of persuasion (see, e.g., Wihtol v. Wells, 231 F.2d 550, 553 (7th Cir.1956)), others contend that it merely shifts the burden of production (see, e.g., H.M. Kolbe Co. v. Armgus Textile Co., 184 F.Supp. 423 (S.D.N.Y.), aff'd, 279 F.2d 555 (2d Cir.1960).

[n.7]. Act of Dec. 12, 1980, Pub.L. No. 96-517, § 10, 94 Stat. 3015, 3028 (1980).

[n.8]. H.R.Rep. No. 1307, Part 2, 96th Cong., 2d Sess. 19 (1980), reprinted in 1980 U.S.Code Cong. & Admin.News 6492, 6509.

[n.9]. See Tandy Corp. v. Personal Micro Comps., 524 F.Supp. 171, 214 U.S.P.Q. 178 (N.D.Cal.1981); Apple Computer v. Franklin Computer Corp., 714 F.2d 1240, 219 U.S.P.Q. 113 (3d Cir.1983), cert. dismissed, 464 U.S. 1033 (1984).
   "Source code" is a program in a "high-level" language which is often a variation of the English language, such as BASIC or PASCAL. "Object code", is a program consisting of a sequence of machine language instructions in base two, base eight or base sixteen.

[n.10]. See, Apple v. Franklin, 714 F.2d 1240, 219 U.S.P.Q. 113 (3d Cir.1983), cert. dismissed, 464 U.S. 1033 (1984); Apple Computer, Inc. v. Formula Int'l. Inc., 725 F.2d 521, 221 U.S.P.Q. 762 (9th Cir.1984).

[n.11]. NEC Corp. v. Intel Corp., No. C-84-20799-WPG, slip op. (N.D.Cal. Feb. 6, 1989).

[n.12]. Some video games contain ROM'S, or Read-Only-Memories. Information is imprinted in a ROM when a device is manufactured and cannot henceforth be altered in any way. Other video games contain PROM'S or Programmable-Read-Only- Memories, into which new information can be imprinted after manufacture.

[n.13]. See, e.g., Apple v. Franklin, 714 F.2d 1240, 219 U.S.P.Q. 113 (3d Cir.1983), cert. dismissed, 464 U.S. 1033 (1984); Midway Mfg. Co. v. Artic Int'l., 547 F.Supp. 999, 216 U.S.P.Q. 413 (N.D.Ill.1982), aff'd, 704 F.2d 1009, 218 U.S.P.Q. 791 (7th Cir.), cert. denied, 464 U.S. 823 (1983); Williams Elec. v. Artic Int'l., 685 F.2d 870, 215 U.S.P.Q. 405 (3d Cir.1982); Midway Mfg. Co. v. Strohon, 564 F.Supp. 741, 219 U.S.P.Q. 42 (N.D.Ill.1983); Tandy Corp. v. Personal Micro Comps., 524 F.Supp. 171, 214 U.S.P.Q. 178 (N.D.Cal.1981).

[n.14]. See, e.g., Williams Elecs. v. Artic Int'l., 685 F.2d 870, 215 U.S.P.Q. 405 (3d Cir.1982); Stern Elecs. v. Kaufman, 669 F.2d 852, 856, 213 U.S.P.Q. 443, 446 (2d Cir.1982); Midway Mfg. Co. v. Strohon, 564 F.Supp. 741, 746, 219 U.S.P.Q. 42, 46 (N.D.Ill.1983). The Copyright Office may deny an application to register a claim to copyright in the output of a video game, however, if the expressive value in the screen

display is de minimis. See, Atari Games Corp. v. Ralph Oman, 693 F.Supp. 1204, 8 U.S.P.Q.2d 1426 (D.D.C.1988).

[n.15]. See, Library of Congress, Copyright Office Notice of Registration Decision: Registration and Deposit of Computer Screen Displays, [Docket No. 87- 4], June 6, 1988, reprinted in 36 Pat., Trademark & Copyright J. (BNA) 152 (June 9, 1988).

[n.16]. Diamond v. Diehr, 450 U.S. 175 (1981).

[n.17]. Algorithms can be implemented by many different computer programs sufficiently dissimilar in arrangement to entitle each of them individually to copyright protection.

[n.18]. "[A] computer language listing of instructions, when not associated with a computing machine to accomplish a specific purpose, would not constitute a machine implemented process, but would constitute non-statutory subject matter as the mere idea or abstract intellectual concept of a programmer, or as a collection of printed matter." Manual of Patent Examining Procedures, § 2106 at 2100-4 (1988).

[n.19]. Paine, Webber, Jackson & Curtis, Inc. v. Merrill, Lynch, Pierce, Fenner & Smith, Inc., 564 F.Supp. 1358, 218 U.S.P.Q. 212 (D.Del.1983). While the process employed in the U.S. Supreme Court case of Diamond v. Diehr employed the Arrhenius equation (a well known mathematical formula), the patentees did not seek to preempt use of that equation, except in conjunction with all of the other steps of the process.
  While mathematical formulas may not be patented in the abstract, however, a computer algorithm which applies a mathematical equation and does not merely recite one is patentable. Manual of Patent Examining Procedures, § 2106 at 2100-3 (1988); Diamond v. Diehr, 450 U.S. 175 (1981).
  Software may be patentable whether or not the process which it implements is patentable. In Application of Toma, 575 F.2d 872, 877, 197 U.S.P.Q. 852, 857 (C.C.P.A.1978), for example, the court held a machine running a program that translated Russian into English to be patentable, explaining that the appropriate inquiry must "focus on whether the claimed subject matter (a method of operating a machine to translate) is statutory, not on whether the product of the claimed subject matter (a translated text) is statutory . . . ."

[n.20]. See, 35 U.S.C. § 101.

[n.21]. See, Kluth and Lundberg, Design Patents: A New Form of Intellectual Property Protection for Computer Software, 5 Comp. Lawyer 1 (Aug.1988).

[n.22]. U.S. Design Patent No. 295,632, dated May 10, 1988.

[n.23]. U.S. Design Patent No. 295,637, dated May 10, 1988.

[n.24]. U.S. Design Patent No. 295,631, daEed May 10, 1988.

[n.25]. Title 17, U.S.Code and Title 35, U.S.Code, respectively.

[n.26]. "The Congress shall have Power . . . To promote the Progress of Science and the useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries. . . ."

[n.27]. 17 U.S.C. § 301(d).

[n.28]. See, e.g., Kline, supra, n. 4 at 638 ff.

[n.29]. 35 U.S.C. § 154.

[n.30]. 35 U.S.C. § 173.

[n.31]. 17 U.S.C. § 302(a). In the case of works made for hire, the copyright lasts for a period equal to seventy-five years from the date of first publication, or one hundred years from the date of creation, whichever period expires first. 17 U.S.C. § 302(c). A recent Ninth Circuit case has defined "works made for hire" as including "only works produced by formal, salaried employees." Dumas v. Gommerman, 865 F.2d 1093, 1105 (9th Cir.1989).

[n.32]. Diamond v. Diehr, 450 U.S. 175, 185 (1981); Rubber-Tip Pencil Co. v. Howard, 87 U.S. (20 Wall.) 498, 507 (1874) ("An idea of itself is not patentable"). Thus, "Einstein could not patent his celebrated law that Eemc2; nor could Newton have patented the law of gravity." Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980).

[n.33]. 17 U.S.C. § 102(b).

[n.34]. Many programs are not eligible for patent protection because patent protection would effectively bar use by others of the mathematical formulae implemented by the software. (See n. 19, supra). Many other programs are ineligible for patent protection because they do not meet the difficult statutory requirement of non-obviousness. "A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103.

[n.35]. See Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608 (1950).

[n.36]. See § I.B., supra.

[n.37]. See Paine, Webber, Jackson & Curtis, Inc. v. Merrill Lynch, Pierce, Fenner & Smith, Inc., 564 F.Supp. 1358, 218 U.S.P.Q. 212 (D.Del.1983) (holding as protectable by patent a cash management system implemented through the use of software).

[n.38]. "In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work." 17 U.S.C. § 102(b).

[n.39]. See, Sid & Marty Krofft Tel. Prods. v. McDonald's Corp., 562 F.2d 1157, 1168, 196 U.S.P.Q. 97, 105-106 (9th Cir.1977); Atari Inc. v. North Am. Philips Consumer Elecs. Corp., 672 F.2d 607, 616, 214 U.S.P.Q. 33, 40 (7th Cir.), cert. denied, 459 U.S. 880 (1982); Midway Mfg. Co. v. Bandai-America, Inc., 546 F.Supp. 125, 148, 216 U.S.P.Q. 812, 828 (D.N.J.1982).
  As an extension of this reasoning, the Commission on New Technological Uses of Copyrighted Works has argued:
    In the computer context, [the idea/expression merger] means that when specific instructions, even though previously copyrighted, are the only and essential means of accomplishing a given task, their later use by another will not amount to an infringement. Final Report of the National Commission on New Technological Uses of Copyrighted Works at 20 (1979).

[n.40]. 436 F.2d 315, 168 U.S.P.Q. 193 (2d Cir.1970).

[n.41]. See also Herbert Rosenthal Jewelry Corp. v. Grossbardt, 428 F.2d 551, 166 U.S.P.Q. 65 (2d Cir.1970) (identical copying of plaintiff's jeweled turtle pin held to constitute copyright infringement).

[n.42]. 446 F.2d 738, 170 U.S.P.Q. 557 (9eh Cir.1971).

[n.43]. Id. at 742, 170 U.S.P.Q. at 560.

[n.44]. The closest that the courts have come to addressing this issue has been in the case of Apple Computer Inc. v. Franklin Computer Corp., 714 F.2d 1240, 219 U.S.P.Q. 113 (3d Cir.1983), cert. dismissed, 464 U.S. 1033 (1984). In that case, the appellate court noted:
   The district court made no findings as to whether some or all of Apple's operating programs represent the only means of expression of the idea underlying them . . . . [W]e do not believe that the record on that issue is so clear that it can be decided at the appellate level. Therefore, if the issue is pressed on remand, the necessary finding can be made at that time.
Id. at 1253, 219 U.S.P.Q. at 124. The case was settled prior to remand, see generally Apple and Franklin Settle--Who Really Won?, 2 Software Protection 1 (January 1984).

[n.45]. Operating systems programs with large numbers of entry points would be particularly difficult to rewrite. Entry points are the specific locations in the programs where control can be passed between the operating system and the application programs. A significant shift in the location of the entry points would probably result in nonattainment of the desired level of compatibility.

[n.46]. NEC v. Intel Corp., No. C-84-20799-WPG, slip op. (N.D.Cal. Feb. 6, 1989).

[n.47]. Id.

[n.48]. 328 F.2d 925, 140 U.S.P.Q. 575 (C.C.P.A.1964).

[n.49]. South Corp. v. United States, 690 F.2d 1368, 1370-71, 215 U.S.P.Q. 657, 658 (Fed.Cir.1982).

[n.50]. On the Principal Register.

[n.51]. 328 F.2d at 930, 140 U.S.P.Q. at 579.

[n.52]. See, e.g., M. Nimmer & D. Nimmer, Nimmer on Copyright, § 2.19 at 2-224 (1988).

[n.53]. Note, however, that because of U.S. adherence to the Berne Convention, foreign authors do not need to register their copyrights prior to bringing a copyright infringement suit. Thus, this regulation may present no obstacle to foreign software developers who wish to assert the copyrights on their patented screen display icons in the U.S.

[n.54]. Clarke v. G.A. Kayser & Sons, Inc., 472 F.Supp. 481, 483, 205 U.S.P.Q. 610, 612 (W.D.Pa.1979), aff'd, 631 F.2d 725 (3d Cir.1980).

[n.55]. Telephone interview with Dorothy Schrader, General Counsel to the U.S. Copyright Office, on November 18, 1988.

[n.56]. 493 F.2d 1389, 181 U.S.P.Q. 331 (C.C.P.A. 1974).

[n.57]. 493 F.2d at 1391, 181 U.S.P.Q. at 332.

[n.58]. Article I, § 8, cl. 8.

[n.59]. 493 F.2d at 1396, 181 U.S.P.Q. at 336.

[n.60]. Id. at 1394, 181 U.S.P.Q. at 335.

[n.61]. Id. at 1395, 181 U.S.P.Q. at 335.

[n.62]. Id.

[n.63]. 328 F.2d 925, 140 U.S.P.Q. 575 (C.C.P.A.1964).

[n.64]. Id. at 931, 140 U.S.P.Q. at 579.

[n.65]. 289 F.2d 496, 501 n. 3 (C.C.P.A.1961).

[n.66]. A "mask work" is a series of related images which together represent the three-dimensional topography of a semiconductor chip's surface. 17 U.S.C. § 901. The Semiconductor Chip Protection Act provides ten-year protection against direct replication of mask works fixed in semiconductor chips. 17 U.S.C. § 904.

[n.67]. MPEP, § 608.01(v) at 600-47 (1988).

[n.68]. See Section III.A., supra.

[n.69]. See, 37 C.F.R. § 1.83(a)(1988).