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COMPUTER PROGRAM PROTECTION: THE NEED TO LEGISLATE A SOLUTION

For several years, attorneys, the computer industry, and the government agencies responsible for protecting intellectual property have been concerned with the desirability and manner of giving legal protection to computer programs. Possible areas of protection are patents, copyrights, and state unfair competition laws. This comment examines the existing means of protection and suggests a more effective approach.

I

THE PROGRAM IN A COMPUTER SYSTEM

A computer system is generally described as having two major parts: "hardware" and "software."\(^1\) Hardware, the core of the computer system, consists of the physical equipment that makes the desired computations.\(^2\) Software comprises the peripheral equipment, including the programs used to feed data and instructions to the hardware in an orderly fashion and to obtain and sort the outputs.\(^3\)

When a computer user has a specific problem, he contacts a programmer, who breaks the problem into its most elementary mathematical components and arranges these components into steps comprehensible to the computer. The resulting program is then transferred onto a medium such as magnetic tape or punch cards, depending on the hardware design, and is fed to the computer hardware with the raw data. The program is analogous to the operator of a machine; it directs the computer along each step in assimilating data and making computations.

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\(^{1}\) Despite the risks of oversimplification and of possibly offending professionals, this layman's explanation of computer operations is intended only to give the average reader a starting point in understanding the problems and the terminology.

\(^{2}\) There are presently two types of computers, analog and digital. Analog computers constitute only a small part of the computer market and are of much less significance than digital computers. This note will concentrate primarily upon the digital computer and the programs required in its operation.

\(^{3}\) "Software" is a misnomer, because it embraces some of the peripheral physical equipment such as card sorters and compilers.
Although technological advances in hardware have dominated the industry's advances in the past, software has now surpassed hardware in dollar volume and draws most of the research attention. This growth of software volume has been accompanied by a parallel growth in the number of independent, specialized software firms. These firms have developed programs to solve problems common to a number of lessee-clients. The lessee gets the advantage of pre-testing and saves money because development costs are spread among many users. Of course, the software firms view programs as proprietary products; lack of protection against piracy is their potential Achilles' heel. Consequently they have organized to gain patent protection, arguing that the vital nature of the industry cloaks protection with the national interest. Organized opposition to patent protection comes from the hardware firms who want to retain or increase their own share of the

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4 The revolutionary advances in hardware technology have been the result of developments in electronic components. The first generation of computers was built with vacuum tubes; the second, with transistors; and today's third generation computers incorporate integrated circuits. A fourth generation, expected in the early 1970's will not be as revolutionary as the last two generations, but will merely be more highly refined versions of the basic types already in use.

There are currently 35,000 computers in use in the United States and this number is expected to increase to 60,000 by 1970 and to 85,000 by 1975. Bylinsky, Help Wanted: 50,000 Programmers, 75 FORTUNE, March 1967, at 141, 176.


7 An estimated 425 software companies in the United States (N.Y. Times, Oct. 23, 1968, at 59, col. 3 (city ed.)) lease more than 100 programs at prices of from $600 to $20,000. Their gross annual income is about $4 million. Software Gets a Hardsell Approach, BUSINESS WEEK, Oct. 21, 1967, at 171.

8 Common programs are leased for about 10-20% of the cost of their production. Head & Linick, Software Package Acquisition, DATAMATION, Oct. 1968, at 22, 24.

9 BUSINESS WEEK, supra note 7, at 176: "Not every software company is ready to plunge into proprietary products. . . . [A great hindrance] is that computer programs apparently cannot be adequately protected by existing patent and copyright laws."


11 The [software] industry is now campaigning to have computer programs included under the patent revisions now before Congress. One of the leaders in the campaign . . . says such protection is necessary if software companies are to survive in competition with computer manufacturers who include programs in their equipment prices. BUSINESS WEEK, supra note 7, at 178.
software market. However, the general practice in the industry of tying software to hardware under a single pricing system is under challenge from two quarters: antitrust action, and merchandising initiatives by one hardware company now marketing hardware and software separately.

There are two strong policy-level arguments for protection. First, there is a critical shortage of programmers. Protection would combat this in two ways: bathing the field with greater economic security would be an encouragement to enter the field, and duplication of effort would be avoided by utilizing a licensing system. Second, the premise behind

12 IBM, with over 70% of the market, still dominates the industry, but other manufacturers are likely to increase their share in the future.

Although program protection would apparently aid the hardware and software companies equally, the hardware companies do not favor protection. They develop software as a necessary adjunct of manufacturing and testing hardware. At one time, hardware manufacturers were the exclusive computer system suppliers and treated programs like any other competitive machine component. In addition, since infringers of program patent rights could be customers, the manufacturer is not likely to benefit from protection—an infringement suit would obviously be bad business practice.

13 The Justice Department recently instituted an antitrust suit against IBM; tying arrangements will probably be a focal point of attack. N.Y. Times, Jan. 18, 1969, at 1, col. 8 (city ed.).

Courts have consistently repudiated tying practices. In Standard Oil Co. v. United States, 337 U.S. 293, 305-06 (1949), Mr. Justice Frankfurter stated, "Tying agreements serve hardly any purpose beyond the suppression of competition." The general rule appears to be that tying is illegal unless justified. IBM was involved in an earlier tying case, IBM Corp. v. United States, 298 U.S. 131 (1936), when under a single pricing system it sold its punch cards as part of its data processing machine. IBM contended that tying was justified in order to assure satisfactory performance of the machine. IBM lost the case when the government produced its own cards which ran the machine satisfactorily. Now that there are hundreds of software companies selling programs, it may be difficult for hardware manufacturers in an antitrust action to justify tying software onto hardware. See generally Baldwin & McFarland, Tying Arrangements in Law and Economics, 8 ANTITRUST BULL. 743 (1963); Corbett, Licensing and Tie-In Sales: How Far Can the Seller Go?, 9 ANTITRUST BULL. 701 (1964); Frost, Tying Clauses and Package Licensing, 28 U. PITT. L. REV. 207 (1966).

14 Scientific Data System's Sigma 7 computer now has separate price tags. With separate pricing, the software companies will obviously be in a better position to increase their share of the market.

15 IBM is apparently reconsidering its pricing structure. N.Y. Times, Dec. 7, 1968, at 73, col. 6 (city ed.); id., Jan. 18, 1969, at 15, col. 5 (city ed.). Because it dominates the computer field, any change by IBM will undoubtedly be followed by all other hardware manufacturers.

16 With approximately 100,000 persons employed as programmers today, it is variously estimated that a shortage of from 50,000 to 60,000 exists. Newsweek, Aug. 19, 1968, at 69; Bylinsky, supra note 4, at 141. Apparently, the demand for programmers will be considerably greater in the future. Id. at 176.
patents, that successful initiative should be rewarded, applies equally to programs.\textsuperscript{17} But how much protection is there under existing law?\textsuperscript{18}

III

CURRENT PROTECTION FOR PROGRAMS

Notwithstanding the reasons for giving legal protection to programs and the pressure of software companies, there has been only limited success in obtaining effective protection on the national level. The apparent reason is that the computer program, part science and part art,\textsuperscript{19} is neither clearly a writing that can be protected by copyright

\textsuperscript{17} \textit{President's Comm'n on the Patent System}, Report 2-3 (1966) [hereinafter cited as \textit{President's Commission}] discusses the policy reasons favoring the patent system as a means of protecting intellectual property.

Because of the large dollar and manpower investment required to produce a program, the rationale of protecting and encouraging investment risks applies equally to programs. The annual estimated value of programs is from one to three billion dollars. Reynolds, \textit{Software Protection and Software Sale}, DATA PROCESSING MAG., May 1967, at 50. A single program may require the work of 1,000 programmers, Nievergelt, \textit{supra} note 6, at 61, and cost hundreds of thousands of dollars. The upper limit on program development costs is a function of how difficult the program is and how much money is available. "Installing even a relatively simple credit-information system, for example, can use up something like 30,000 man-hours of systems analysis and programming, at about $15 per man-hour." Burck, \textit{supra} note 5, at 142. Even the less costly programs developed by the software companies under multiple leasing arrangements may cost $60,000. \textit{Business Week}, \textit{supra} note 7, at 171.

Persons investing such large amounts of time and expense to develop these programs deserve and need protection, for "[t]here is no question, that a program which can cost as much as a quarter of a million dollars to produce, but perhaps $50 or less to copy, will attract infringers and piraters." Reynolds, \textit{supra}, at 50.

\textsuperscript{18} This note briefly discusses the areas of trade secret, patent, and copyright protection to highlight the need for uniform congressional action to clear up the doubt and confusion in these areas regarding program protection and to give adequate protection to computer programmers. For other comments raising some of the issues in particular areas, see Bender, \textit{Computer Programs: Should They be Patentable?}, 68 COLUM. L. REV. 241 (1968); Note, \textit{Copyright Protection for Computer Programs}, 64 COLUM. L. REV. 1274 (1964); Note, \textit{Computer Programs and Proposed Revisions of the Patent and Copyright Laws}, 81 HARV. L. REV. 1541 (1968). For an excellent commentary which combines a discussion of all three areas of protection, see Note, \textit{Adequate Legal Protection for Computer Programs}, 1968 UTAH L. REV. 369.

\textsuperscript{19} The techniques of instructing the computer what to do involve both science and art. The \textit{science} of programming lies in the ability to analyze a problem and then reduce it to a logical sequence of small steps the computer can perform. The \textit{art} of programming, on the other hand, consists of the programmer's ingenuity in using the basic operating steps of the machine in an endless variety of ways.

nor an invention that can be protected by patent. Perhaps by default rather than design, state unfair competition law has therefore been used to fulfill the need for program protection.

A. Trade Secrecy

Unfair competition is an equitable doctrine regulating business conduct by enforcing "business integrity." The branch of state unfair competition law most relevant to program protection is trade secrecy. Several writers have suggested that programmers seek protection under trade secret laws; the suggestion seems sound since only limited protection can be obtained elsewhere.

To come within the purview of trade secrecy, the programmer's prime objective must be to keep the program a secret from his competitors. The secret may be shared with another in confidence or with a person owing fiduciary duties to the programmer. There are two contractual methods of creating a fiduciary duty not to disclose. One is to procure restrictive employment contracts, whereby employees promise not to divulge secrets. Another is to obtain contracts with program lessees whereby they also promise not to divulge the secret. Remedies against a person disclosing the secret include both damages and an injunction against further disclosure.

For a number of reasons, it is questionable whether encouragement of trade secret protection is in the national interest. The chief argument against the use of trade secrecy is that information useful to the country is not made commonly available. Although both patents and trade secrecy have the end of promoting competition, their methods are directly contradictory and provide grounds for inevitable conflict. Patent policy is directed toward complete disclosure, while success in trade secrets requires concealment. Successful trade secret protection might retard software development. Not only would tech-

21 See generally R. Ellis, TRADE SECRETS (1953).
23 1 Nims, supra note 20, § 142.
24 Id. § 149.
25 Id. § 143.
26 Ellis, supra note 21, § 224.
28 A second important aspect of the patent system is that it encourages disclosure of technical advances and discourages secrecy. To the extent scientific information is kept secret, there is a strong retarding factor in the advance of
nological advances be kept secret from potential users, but there would necessarily be a duplication of effort by different persons seeking to achieve the same results. Moreover, uniform national law is preferable to dissimilar state laws in regulating interstate commerce.\textsuperscript{29}

In addition to these general criticisms of the policy of trade secrecy, there are many practical pitfalls. A trade secret is not a property right in the same sense as is an idea or invention given monopoly protection under patent law. And although a person can seek an injunction to prevent illegal disclosure of an idea given in confidence,\textsuperscript{30} there are many ways in which a secret may be legally disclosed. Once it is so disclosed, there will be no protection.\textsuperscript{31} Legal disclosure can occur by publication,\textsuperscript{32} "by accident, by independent invention or discovery, by inspection of the proprietor's goods on the open market, or in any circumstances in which no duty of confidence is imposed."\textsuperscript{33} Also, since the software industry increases program exposure by leasing technology. The free flow of both basic and applied scientific knowledge is absolutely essential to the most rapid rate of progress and maximum utilization of our scientific resources. . . . There are many fields where trade secrets are now the practical substitute or alternative to patent protection . . . . To the extent secrets such as these are relied upon and maintained, the patent system has failed and the interchange of scientific information is retarded.


\textsuperscript{29} The uniform body of substantive federal trade secret law developed before \textit{Erie R.R. v. Tompkins}, 304 U.S. 64 (1938), was discarded after that decision. Since 1938 the states have developed their own trade secret law with little uniformity or certainty. It is likely that the variations in state law will hinder blanket program protection. For a summary of the problem and suggested future approaches, see Dole, \textit{The Uniform Deceptive Trade Practices Act: Another Step Toward a National Law of Unfair Trade Practices}, 51 Minn. L. Rev. 1005 (1967); Lunsford, \textit{Trademarks and Unfair Competition: Need for Uniform State Laws}, 58 Trademark Rep. 77 (1968); Note, \textit{The Trade Secret Quagmire—A Proposed Federal Solution}, 50 Minn. L. Rev. 1049 (1966).

\textsuperscript{30} See Ellis, \textit{supra} note 21, §§ 6, 8; 1 Nims, \textit{supra} note 20, § 141.

\textsuperscript{31} See Houser v. Snap-On Tools Corp., 202 F. Supp. 181 (D. Md. 1962). In discussing plaintiff's claim to trade secrecy protection for a nut-spinner, the court describes what may happen to this protection when a device is marketed:

\textit{Here there is no information that can be kept secret, as the nut-spinner itself fully reveals its elements and the manner of its construction. The secret is worthless unless the device is marketed; and, once the device is marketed, the secrecy evaporates. The evanescent value of the information never materializes. Although such value might be given substance by the patent and copyright laws, it cannot be coined by hollow confidence.}

\textit{Id. at 187. Computer programs have the same disadvantage as the nut-spinner; despite its complexity, the elements of the program are clearly apparent, and there is no process or mathematical formula behind it that will not appear on the face of the program.}

\textsuperscript{32} 1 Nims, \textit{supra} note 20, § 146.

programs to many users, keeping a program secret is unlikely notwithstanding restrictive contract provisions obtained from the immediate lessee—others not bound by the contract may legally disclose the program.

A further area of uncertainty concerning state trade secret law has arisen as a result of the Sears\textsuperscript{34} and Compco\textsuperscript{35} cases. In Sears, plaintiff invented and patented a lamp. Thereafter Sears marketed a replica of the lamp, and plaintiff sued in the federal courts for patent infringement. The lower courts found that the lamp failed the patent law's inventiveness requirement but held Sears liable under state unfair competition laws because of a "likelihood of confusion . . . as to the source of the lamps."\textsuperscript{36} The Supreme Court reversed, holding that the federal patent policy preempted state unfair competition laws in this area. States thus could not extend protection which was unavailable within the framework of the federal patent system. Because many statements in the opinion can be used to exclude state protection of computer programs under trade secret law,\textsuperscript{37} this is an area of uncertainty. However, some state court decisions since Sears have apparently held that state unfair competition laws are not appreciably affected.\textsuperscript{38}

B. Copyright Protection

Much has been published regarding the need for copyright protection\textsuperscript{39} and considering whether programs are writings within the

\textsuperscript{34} Sears, Roebuck & Co. v. Stiffel Co., 376 U.S. 225 (1964).
\textsuperscript{36} Stiffel Co. v. Sears, Roebuck & Co., 313 F.2d 115, 118 (7th Cir. 1963) (footnote omitted).
\textsuperscript{37} Just as a State cannot encroach upon the federal patent laws directly, it cannot, under some other law, such as that forbidding unfair competition, give protection of a kind that clashes with the objectives of the federal patent laws.
\textsuperscript{39} For an excellent discussion of this topic see Note, \textit{Copyright Protection for Computer Programs}, 64 COLUM. L. REV. 1274 (1964).
meaning of the statute. The 1908 opinion of White-Smith Music Publishing Co. v. Apollo Co., involving the use of perforated paper rolls in player pianos, is representative of case law development that appears most analogous to the problems raised with program copyrights. At one point the opinion indicated that because these perforations were unintelligible to the average person and merely parts of a machine, they would fail to meet copyright standards. There are obvious parallels between the use of programs in computers and perforated rolls in player pianos; if similar reasoning were applied, programs would also fail to qualify as writings.

In contrast to the case law, however, the Copyright Office decided in 1964 to permit registration of computer programs. Although acknowledging its precarious position, the Copyright Office nevertheless adhered to its policy of resolving doubtful issues in favor of registration and established three conditions for copyright registration as a Class A book. These conditions are fairly easily met, and neither the courts nor Congress has yet contravened the Copyright Office's decision.

Indeed, Congress appears willing to protect programs under the comprehensive language of the Copyright Revision Bill. The bill contains language that apparently would include programs as copyrightable subject matter.

209 U.S. 1 (1908).

The fact is clearly established in the testimony in this case that even those skilled in the making of these rolls are unable to read them as musical compositions...

These perforated rolls are parts of a machine which, when duly applied and properly operated in connection with the mechanism to which they are adapted, produce musical tones in harmonious combination. But we cannot think that they are copies within the meaning of the copyright act.

Id. at 18.


1) The elements of assembling, selecting, arranging, editing, and literary expression that went into the compilation of the program are sufficient to constitute original authorship.

2) The program has been published, with the required copyright notice: that is, "copies" bearing the notice have been distributed or made available to the public.

3) The copies deposited for registration consist of or include reproductions in a language intelligible to human beings. If the only publication was in a form that cannot be perceived visually or read, something more (e.g., a print-out of the entire program) would also have to be deposited.

Id.


Section 101 of the bill, id., defines literary works as "works expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of
The availability of a program copyright is really irrelevant, however, when one considers the limited range of protection copyright law would afford to computer programs. Unlike the Patent Office, the Copyright Office is not organized to deal with scientific works generally. More significantly, copyright does not carry a large umbrella of protection, but only protects the form of expression. As stated in *Mazer v. Stein*, "Unlike a patent, a copyright gives no exclusive right to the art disclosed; protection is given only to the expression of the idea—not the idea itself." Thus, a system of bookkeeping did not infringe the copyright of a similar plan with similar results as long as the alleged infringer made a different arrangement of columns and used different headings. In addition, copyright protection is based on originality rather than novelty. Thus, an identical city directory the material objects, such as books, periodicals, manuscripts, phonorecords, or film, in which they are embodied."

Copyrightable subject matter includes literary works and is further defined as "original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device." *Id.* § 102 (emphasis added).


50 *Id.* at 217 (footnote omitted); *accord*, Dymow v. Bolton, 11 F.2d 690, 691 (2d Cir. 1926).

51 Baker v. Selden, 101 U.S. 99 (1879). Numerous other cases point to difficulties in obtaining adequate program protection for form of expression rather than the idea behind it under existing copyright laws. In Whist Club v. Foster, 42 F.2d 782 (S.D.N.Y. 1929), the court held that defendant's book on the laws of auction bridge did not infringe plaintiff's copyright of a similar book. The court stated, "Defendant has not infringed, because he has not copied the literary composition of the plaintiff's publication, but, in language quite distinctly his own, has restated the same set of conventional precepts." *Id.*

Similarly, in DeSilva Constr. Corp. v. Herrald, 213 F. Supp. 184 (M.D. Fla. 1962), the court did not prohibit the use of copyrighted architectural plans in building an identical home. Apparently, the copyright prohibited only the copying and distribution of the architectural plans themselves. The court stated:

In the light of the established legal principle that the building of a structure from copyrighted architectural plans is not an infringement of the architectural plans themselves, it is difficult to comprehend how the building of a structure amounts to a publication of the architectural plans themselves. *Id.* at 196.

52 The language in some court opinions seems to confuse the law of copyrights with that of patents. The Constitution itself differentiates between "authors" and their "writings" from [sic] "inventors" and their "discoveries." A copyright protects an original work and is not dependent upon novelty. Wihtol v. Wells, 231 F.2d 550, 553 (7th Cir. 1956).
would not infringe a previously copyrighted directory if the second were compiled by wholly independent work.\textsuperscript{53}

These cases illustrate the difficulties of obtaining adequate protection for programs under the copyright law. A program may consist of millions of instructional steps\textsuperscript{64} that can be arranged in many different combinations to produce the same result.\textsuperscript{65} Unlike a musical composer, a programmer is typically not interested in protecting his particular sequence of steps; rather he is concerned with producing a certain result and protecting the idea behind the result. If copyright protection can be avoided by rearranging some of the steps, a programmer seeking protection might better secrete the program. The scarcity of program copyright registrations underscores this problem.\textsuperscript{66}

C. Patent Protection

Although the software industry has not enthusiastically embraced copyright protection, the prospect of obtaining program patents with very broad monopoly protection seems alluring. Unlike the Copyright Office, however, the Patent Office has showed consistent reluctance to granting programs protection. Guidelines issued in August 1966\textsuperscript{57} protect programs meeting either process or apparatus standards.\textsuperscript{58} These standards, however, are sufficiently stringent to render patent protection exceedingly difficult to obtain. The latest Guidelines, issued in October 1968,\textsuperscript{59} essentially repeat the earlier ones in defining potential patentability in terms of process or apparatus, but they conclude with the restrictive approach of the Patent Office toward program patents: "The basic principle set forth in the foregoing guidelines is that computer programming per se, whether defined in the form of process or apparatus, shall not be patentable."\textsuperscript{60}

A Presidential Commission, established to examine the patent system, also concluded that patents should not be granted for computer programs.\textsuperscript{61} Shortly after the Commission's recommendation

\begin{itemize}
\item Sampson & Murdock Co. v. Seaver-Radford Co., 140 F. 539, 541 (1st Cir. 1905).
\item Bylinsky, \textit{supra} note 4, at 142.
\item "There are ninety ways to write a program." \textit{Id.} at 141.
\item By June 1966, only 52 programs had been copyrighted. \textit{See Note, supra} note 22, at 1550 n.91.
\item Patentable subject matter is defined in 35 U.S.C. § 101 (1964).
\item \textit{Id.} at 830.
\item President's Commission, \textit{supra} note 17, at 12: "The Commission believes strongly that all inventions should meet the statutory provisions for novelty, utility and un-
\end{itemize}
was issued, the Patent Reform Bill of 1967\textsuperscript{63} was introduced in Congress and included a provision expressly excluding computer programs as patentable subject matter.\textsuperscript{63}

Case law generally reinforces the position against patentability whether the program is viewed as a process or an apparatus.

1. Programs Viewed as Processes

Two lines of cases seemingly prohibit process patents for programs under the present statutory interpretation of a process: the "change of state" and the "mental step" cases.

A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.\textsuperscript{64}

The Patent Office cites this statement to justify excluding program patents as a process since no change of state occurs.\textsuperscript{65} One commentator, however, has suggested submitting a program patent application in the form of a block diagram which indicates the change of state of the electronic components in the computer.\textsuperscript{66} Although block diagrams are permissible in patent applications for both electronic patents generally and computer hardware specifically, their use in these areas is distinguishable from their use in program patent applications. First, block diagrams for hardware symbolize an apparatus or device and not a process. Second, the program causes only a temporary electronic change of state in the computer components. A distinction thus exists on the basis of the permanence of the change of state.

The mental step cases present the greatest obstacle to patenting obviousness and that the above subject matter [including programs] cannot readily be examined for adherence to these criteria."

Beyond this desire to have all patent applications subject to the same criteria, the Commission was also concerned with lack of a classification technique and search files for programs. It was also feared that searches would be prohibitively expensive in view of the tremendous volume of prior art being generated. \textit{Id.} at 13.

\textsuperscript{62} \textit{H.R. 5924, 90th Cong., 1st Sess. (1967); S. 1042, 90th Cong., 1st Sess. (1967). This bill was not enacted into law in the last Congress but will undoubtedly be resubmitted for consideration by the present Congress.}

\textsuperscript{63} Section 106 of \textit{H.R. 5924} and \textit{S. 1042, supra note 62}, states: "A plan of action or set of operating instructions, in whatever form presented, to cause a controllable data processor or computer to perform selected operations shall not be patentable." Industry political pressure has probably ensured the absence of any such provision in future patent reform legislation. Bigelow, \textit{Legal Aspects of Proprietary Software}, DATAMATION, Oct. 1968, at 32, 34.

\textsuperscript{64} Cochrane v. Deener, 94 U.S. 780, 788 (1876).


programs as a process; they hold that ideas expressed as purely mental processes are not patentable. Moreover, as set forth in In re Abrams, if the method has both physical and mental components but only the mental component represents an advance, a patent will be denied. For example, color selection of an artificial eye is merely judgment, a mental step, and is not patentable; and mathematical formulae proposed on a patent application for “new and useful improvements in Low Drag Airfoil” are likewise merely mental steps. Computer programs fall within the reasoning of these cases, for the novel idea in a program is the logical arrangement of instructions, which are merely mental processes of the programmer. All invention naturally requires intelligent mental processes, but, to obtain a patent, such processes must be reduced to a novel physical invention; i.e., either an apparatus or a method resulting in a change of state.

2. Programs Viewed as Apparatus
The other suggested approach for patenting programs is as an apparatus, since a form of the program may consist of tangible items such as magnetic tape or punch cards, physically altered to represent the program. This approach also fails to meet current patentability requirements, since the program exists apart from these items. In an analogous situation, a court held that certain business steps, consisting of a “process for producing a periodically issued credit authorization form,” were essentially mental steps in character. They could not become patentable merely because they were imprinted on paper. The imprinting was only incidental to the scheme; the novel idea was embodied in the mental business steps. Likewise, a stack of perforated

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67 188 F.2d 165 (C.C.P.A. 1951). The court seemingly accepted the rules proposed by Abrams' counsel as applicable to process claims. Ironically, even though these rules were accepted, the court held that Abrams' alleged invention did not meet his test. This "seeming acceptance" has been used by the Patent Office as further grounds for rejecting program patent applications, but the rule was recently rejected in In re Prater & Wei, 159 U.S.P.Q. 583 (C.C.P.A. 1968), rehearing granted, 160 U.S.P.Q. 230 (C.C.P.A. 1969).

Prater accepted as patentable an invention consisting largely of mental steps.


69 In re Shao Wen Yuan, 188 F.2d 377 (C.C.P.A. 1951).


71 In the instant claims, the final step, imprinting, is the only step which could be argued as falling within the statute. Its value as part of the method, however, depends upon the significance of what is imprinted upon the sections, since printing per se is conventional.

Id. at 75.
punch cards, no matter how unique their perforations, are not the ideas of the programmer. Not only are they merely incidental, but they also fall within the Abrams rule requiring the advance to be embodied in something more than a mental step.

3. The Obviousness Standard

Even if a program could fit into either the process or apparatus category, it seems doubtful that most could clear the additional statutory hurdle of non-obviousness. Although a "flash of genius" is no longer required, a patent will not be issued if the program "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." Skilled programmers are not generally groping on the edge of the unknown; with sufficient time and money, a program to solve a particular problem within the capability of the hardware is possible. Is this result a non-obvious invention or merely the work of a programmer normally skilled in the art? Although courts have not as yet applied this test to programs, the non-obvious requirements are clearly stringent. Since the individual instruction steps in a program are

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72 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. Patentability shall not be negatived by the manner in which the invention was made.


73 E.g., Cuno Eng'r Corp. v. Automatic Devices Corp., 314 U.S. 84, 91 (1941): "That is to say, the new device, however useful it may be, must reveal the flash of creative genius, not merely the skill of the calling." The flash of genius cases held that a discovery had to be accidental or represent a sudden insight to meet patent requirements. However, the statute has been amended to state that "[p]atentability shall not be negatived by the manner in which the invention was made." 35 U.S.C. § 103 (1964). This wording is intended specifically to include situations where, as with programs, the product is designed through methodical and purposeful research, not suddenly or by accident. This rationale is supported by cases like Aluminum Co. of America v. Thompson Prods., Inc., 25 F. Supp. 175 (N.D. Ohio 1938):

The patent law has always recognized the propriety and necessity of investigation and experiment to reach a definite end; and a patent is not to be condemned merely because it is the result of that sort of research. A patent is not granted only for results obtained by chance.

Id. at 184.


75 Cuno Eng'r Corp. v. Automatic Devices Corp., 314 U.S. 84, 90 (1941): "Since Hotchkiss v. Greenwood, 11 How. [52 U.S.] 248, 267, decided in 1851, it has been recognized that if an improvement is to obtain the privileged position of a patent more ingenuity must be involved than the work of a mechanic skilled in the art."

76 See, e.g., Graham v. John Deere Co., 383 U.S. 1, 19 (1966). This case described the test: "He who seeks to build a better mousetrap today has a long path to tread before reaching the Patent Office."
generally well-known, cases indicate that the best way to qualify under the test is to demonstrate that the particular arrangement or the particular results produced by it are new and useful. However, here also past cases indicate that the requirements will be difficult to meet.77

4. Cases Supporting Program Patents

Notwithstanding the foregoing reasons against patent protection for computer programs, two cases have supported the concept of program patents. In the 1960 case of Ex parte Egan, Kister & Scott,78 a process patent was granted for a time-saving machine operation method. The holding itself does not support program patents, for the patentees had developed novel, positive, and physical charts to be used in the process.79 Dicta, however, indicated that computer programs were analogous to the situation before the Board of Appeals.80 This case encouraged program patent proponents, but a court did not actually uphold a program patent until the recent case of In re Prater & Wei.81

The Court of Customs and Patent Appeals in Prater, a "landmark case in patent law,"82 reversed the Patent Office stance against program patents by saying that the mental step and change of state cases were not a bar to granting a patent on an analog computer program. The applicants devised an admittedly novel method of scanning the peaks...
of a spectrogram of a mixture of gases, and of selecting the optimum set of peaks corresponding to the particular subset of equations needed to determine the precise concentrations of the constituent gases in the mixture. The claim was set forth as both a process and an apparatus, for the applicants had also devised the electrical and mechanical components that performed the scanning, selecting, and mathematical functions of the invention.

However, mathematical computations carried out by the machine could theoretically have been carried out mentally with the aid of paper and pencil. The invention, therefore, was within the limitations imposed by the mental step cases. On this basis, the patent examiner rejected the claims under the categories of both apparatus and process, and alternatively stated that the idea was obvious. The court reversed this rejection by distinguishing the process cases, and concluding that they were not a bar to patent protection:

This distinction ... leads us to our present holding which is that patent protection for a process disclosed as being a sequence or combination of steps, capable of performance without human intervention and directed to an industrial technology—a "useful art" within the intendment of the Constitution—is not precluded by the mere fact that the process could alternatively be carried out by mental steps.

Clearly this case profoundly affects the rules governing process patents and increases the statutory limits of patentable subject matter. But how broadly can it be read? Taken very broadly, the mental step and change of state cases could be deemed sufficiently distinguished so that there are fewer restrictions for all process applications. Alternatively, the case can be read to permit patentability of all computer programs, analog and digital, providing that novelty tests are met. The application also provided a method for making the computation on a

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83 Cochrane v. Deener, 94 U.S. 780 (1876), was said not to be applicable, for the portion of that opinion dealing with change of state was dictum. "Such a result misapprehends the nature of the passage quoted as dictum, in its context, and the question being discussed by the author of the opinion." 159 U.S.P.Q. at 592.

In re Abrams, 188 F.2d 165 (C.C.P.A. 1951), was the biggest obstacle faced by the court, for its rules were clear and it had been followed in several later cases. The court distinguished Abrams on two grounds. First, the rules proposed by Abrams were not adopted by the court and were not, therefore, holding. 159 U.S.P.Q. at 591. Second, unlike Prater, Abrams' method claim "disclosed no means whatever for performing the claimed steps ... of calculation and comparison. ... Thus, Abrams disclosed a claimed process including steps which could only be performed in the mind insofar as the teachings of the application were concerned." Id. at 590 (emphasis in original).

84 159 U.S.P.Q. at 593.
digital computer,\textsuperscript{85} and the court clearly pointed this out.\textsuperscript{86} If the impact is restricted to the facts of this case, so that only analog computer programs are patentable, and then only when they are an integral part of the total process, this case may not appreciably affect the computer industry.\textsuperscript{87}

None of the above three approaches presently available for the protection of intellectual property appears to fit the needs of computer program protection. Patents, depending on the ultimate disposition of \textit{Prater}, are probably not available, since the subject matter appears to be nonstatutory; copyright and trade secrecy fail to give adequate protection, and the latter also runs contrary to policies favoring disclosure. To meet the demands for protection, in which direction should the law proceed?

\section*{IV}
\textbf{Patent Protection: A Suggested Approach}

\subsection*{A. Considerations Favoring Patent Protection}

Although new statutory provisions would be required, the best method of program protection appears to be within the patent system. The federal government recently started moving toward this position. The Ninetieth Congress expressed its intent by deleting section 106 of the Patent Reform Bill of 1967\textsuperscript{88} which would have specifically exempted programs from patent protection; a federal court has declared that programs should receive patent protection;\textsuperscript{89} and the Patent Office has requested comments on the need for patent protection and ways to achieve it.\textsuperscript{90} In addition to the inadequacies of the other two principal means of protection,\textsuperscript{91} there are several positive reasons for selecting patents as the appropriate means of protection.

\textsuperscript{85} Id. at 586.
\textsuperscript{86} Additional teaching is also provided in the present application that the steps can \textit{alternatively} be performed on other apparatus, i.e., a properly programmed digital computer, which would equally permit the process to be performed without involving steps performed in the mind by those skilled in the art informed of appellants' novel discoveries.
\textsuperscript{87} Id. at 590 (italics in original).
\textsuperscript{88} The Patent Office and hardware manufacturers have strenuously objected to this decision. The court has agreed to a rehearing of \textit{Prater} in the present term. 160 U.S.P.Q. 230 (C.C.P.A. 1969). \textit{See} \textit{N.Y. Times}, March 1, 1969, at 43, col. 1 (city ed.).
\textsuperscript{89} \textit{In re} Prater & Wei, 159 U.S.P.Q. 583 (C.C.P.A. 1968).
\textsuperscript{90} 855 O.G. Pat. Off., Oct. 15, 1968, at 555. After this request for comments, the next issue of the \textit{Official Gazette} carried the most stringent requirements to date for patent protection of programs. \textit{See} 855 O.G. Pat. Off., Oct. 29, 1968, at 829.
\textsuperscript{91} Copyright and trade secrecy are discussed at pp. 590-95 \textit{supra}.
One reason is that the general policies behind the patent system apply to computer programs as well. The Presidential Commission on Patents justified the patent system as socially desirable because it "provides an incentive to invent" and "stimulates the investment of additional capital." Applying this "economic philosophy" to programs, development of more expensive and complex programs would be encouraged by eliminating risk of investment loss through unauthorized copying. Another justification for the patent system is that it stimulates competition. Since software companies link their survival in competition with hardware companies to such protection, and since the hardware companies disagree, resolution of this policy conflict is best left to Congress.

Another reason given by the Commission for maintaining the patent system is that it encourages "early public disclosure of technological information." This reasoning is certainly applicable to

92 "First, a patent system provides an incentive to invent by offering the possibility of reward to the inventor and to those who support him. This prospect encourages the expenditure of time and private risk capital in research and development efforts." President's Commission, supra note 17, at 2.

93 Second, and complementary to the first, a patent system stimulates the investment of additional capital needed for the further development and marketing of the invention. In return, the patent owner is given the right, for a limited period, to exclude others from making, using, or selling the invented product or process.

Id.

94 The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in "Science and useful Arts."


95 The patent system provides a protected market with the opportunity for profit .... [T]his same protected market provides a wedge by which a business enterprise entering a new field can overcome the obstacles that otherwise discourage entry into an industry already populated. .... [T]he everpresent threat of new firms with exclusive rights to new technologies compels existing enterprises to explore avenues of improvement upon pain of sudden obsolescence. All of these effects aid in generating a dynamic progressive environment .... It is this encouragement of competition by the patent system which stimulates invention and progress in our economy.


96 See note 11 supra.

97 The hardware manufacturers are afraid that patent protection might limit computer use. It is felt, for example, that their customers would not know whether the programs they are writing are "free from infringements from valid patents," and that "the patenting process would slow the dissemination of programs." N.Y. Times, Oct. 23, 1968, at 59, col. 5 (city ed.).

98 Third, by affording protection, a patent system encourages early public disclosure of technological information, some of which might otherwise he kept
programs, since today they are best protected by trade secrecy. By failing to afford adequate protection at the national level, the federal government is put in the ironic position of promoting industrial secrecy when the national interest requires that secrecy and duplication of effort be avoided because of the dearth of programmers.

Subject to the ultimate disposition of Prater, current patent law apparently does not protect programs. This is probably proper in view of the practical problems program patents could cause. Not only would they burden patent office processing procedures, but also it would be difficult to fit programs into current definitions and standards of patentability. The legal obstacle to patenting programs is the mental step doctrine. However, programs may be distinguished from mental step cases in several respects. A program is intimately and directly connected with useful and productive hardware; it is not detachable from the material manifestations as was the unpatentable petroleum prospecting method of Abrams. Also, unlike the unpatentable low drag airfoil which could have been further reduced to a tangible and useful form, the program has been reduced to its most practical form. And finally, although the coloring selection of an artificial eye was unpatentable because it was a matter of subjective judgment, a program is not wholly an art or a science but a combination of the two.

Even if the judgment aspect of a program is not patentable, the scientific aspect need not be placed in the same category as a mere matter of convenience.

The arguments against patent protection are perhaps best expressed by the President's Commission on Patents. These objections may be summarized as follows: (1) Current classification techniques and search files are inadequate; (2) searches would be neither feasible nor economic because of the tremendous volume of prior art; (3) programs have had satisfactory growth in the past; and (4) copyright pro-

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secret. Early disclosure reduces the likelihood of duplication of effort by others and provides a basis for further advances in the technology involved.

President's Commission, supra note 17, at 3.

See also Sinclair Co. v. Inter-Chemical Corp., 325 U.S. 527 (1945):
The primary purpose of our patent system is not reward of the individual but the advancement of the arts and sciences. Its inducement is directed to disclosure of advances in knowledge which will be beneficial to society; it is not a certificate of merit, but an incentive to disclosure.

Id. at 330-31 (footnote omitted).

99 In re Abrams, 188 F.2d 165 (C.C.P.A. 1951).
100 In re Shao Wen Yuan, 188 F.2d 377 (C.C.P.A. 1951).
102 See note 19 supra.
tection is available. Any proposal to change the patent law must carefully weigh these reasons against those favoring protection. Though valid, however, these objections are more mechanical than doctrinal, and accordingly, they lend themselves readily to correction.

B. Method of Approach

Changes in the patent law to encompass computer programs can be made by the Patent Office, the courts, or the Congress. The Patent Office has consistently shown opposition to protecting programs and is probably not the most appropriate agency for changing the law. It weighs the mechanical problems heavily, since including programs would impose a tremendous burden at a time when it is desperately trying to decrease its backlog. In addition, it must follow court decisions which generally have deemed programs non-statutory subject matter under the mental step doctrine.

The courts might also change the law, but such a change would be inadequate since courts lack the means for hearing all sides of an essentially political and economic issue. Also, by granting program protection the courts could swamp the unprepared Patent Office.

Expanding patent protection to programs can best be effectuated by Congress. Because of the sui generis nature of programs—half art and half science—Congress should develop the new statutory standards required. Congress has the power and flexibility to focus on other areas of the law, like copyright and a better classification system, that will require simultaneous attention. It also has the advantage of currently reviewing the patent law and could expand its inquiry by calling witnesses from all sides of this controversy.

Under article I, section 8 of the Constitution, Congress has authority to extend protection under separate statutory provisions. Design and plant patents are precedent for extending separate

103 President's Commission, supra note 17, at 12-13.
104 See pp. 605-08 infra.
105 For the current backlog see, e.g., 856 O.G. Pat. Off., 668 (1968), listing the applications pending action on November 4, 1968 (total of 187,351 pending applications, excluding Designs). The oldest case awaiting action for new application in each category of patents was: Chemical Examining Operation—33 months; Electrical Examining Operation—37 months; Mechanical Examining Operation—29 months. These figures show a considerable improvement in the backlog over the figures cited and estimated in Railton, supra note 48.
106 U.S. Const. art. I, § 8: “To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”
statutory provisions to those areas which are not only worthy of protection, but also sufficiently different from other areas of invention not to fit the general standards of patentability.\textsuperscript{109}

\subsection*{C. Areas to be Considered by a Statutory Revision}

The major criticism of the Commission and an obvious shortcoming of the Patent Office is the present lack of an adequate classification and file search system. This deficiency can only be compounded by allowing program patents.\textsuperscript{110} With patent protection for programs, "a tremendous burden will be imposed on the Patent Office, with the filing of thousands of applications."\textsuperscript{111} To meet this problem, the classification and search of prior art could be done by computer.\textsuperscript{112} Mechanizing the entire search procedure has been slow because the wide diversity of inventions defies easy classification. However, since computer programs are quite uniform, they could be classified, for example, according to subject matter, type of computer language, and type of hardware for which the program is designed.

By means of such classification, a mechanized information retrieval system could readily locate prior art for comparison with the current program application. This mechanization is critical in program patents. Since patents become obsolete after a relatively short time,\textsuperscript{113} the current three to five year delays would render program protection almost worthless. A subsidiary advantage of mechanized search techniques is that the modernized Patent Office could also serve as a clearing house.

\textsuperscript{109} The President’s Commission on Patents was opposed not only to program protection but also to continuing the special protection for design and plant patents. \textsc{President’s Commission}, supra note 17, at 12-13. The theory behind this proposal was to make all patent applications subject to the same standards of inventiveness, and these three categories did not fit neatly into the proposed scheme. This plan is not very realistic, since the Commission recognizes the need for design and plant protection, but merely declares that protection should be “outside the patent system” without specifying where. Until a better scheme for protecting designs, plants, and computer programs is suggested, extending patent protection would be better than leaving these areas without any protection at all.

\textsuperscript{110} With over three million patents already granted and applications for new ones running at the rate of 100,000 per year, the Patent Office is greatly burdened trying to classify patents granted and then attempting to search its files for the status of the prior art. This flood of applications has resulted in a backlog which causes delays ranging from 3 to 5 years between the date of application and the date of the actual issue of a new patent. See generally Railton, supra note 48.

\textsuperscript{111} N.Y. Times, Oct. 23, 1968, at 65, col. 2-3 (city ed.).

\textsuperscript{112} Computerizing the entire classification and search system is not a new idea. There have been numerous proposals, both within and outside of the Patent Office for instituting the computerized system. See, e.g., Thompson & Church, \textit{Computer Docket and Retrieval System}, 1968 \textsc{Patent Law Annual} 51.

\textsuperscript{113} Reynolds, supra note 17, at 50. “It now takes approximately five years to get a patent and few programs have five-year lives.”
for programs. Potential users could approach the Patent Office to find out whether a program had previously been patented, and if so, could make leasing or sale arrangements with the patentee.

Furthermore, Congress should consider basing program patents not on the usual first-to-invent basis, but on a first-to-file basis. The European nations which follow the first-to-file rule give patent rights to the first person filing a valid patent application. In the United States, however, unless there has been an abandonment, the patent will issue to the first person inventing a patentable item, regardless of priority in getting to the Patent Office. Critics of the United States system label it inefficient, since it tends to cause long and costly lawsuits between competing claimants. Defenders of the system justify it as a protection for the workshop inventor who, unaware of legal technicalities, could lose proprietary rights to his invention to another who filed a prior claim. Programmers, however, are typically not small inventors but rather are associated with large institutions having ample knowledge of patent laws. Furthermore, a first-to-file system for program patents will promote the prompt disclosure of new programs and will avoid the delays and expenses of interference proceedings. The first-to-file system was recommended by the Commission for all patents and was proposed in the Patent Reform Bill of 1967. This recommendation is the most controversial section of the bill, and acceptance appears doubtful. However, since the objections to first-to-file do not apply to programs, adoption of this system for programs only should be considered by Congress.

114 See, e.g., The Patents Act, 1949, 12, 13 & 14 Geo. 6, c. 87. § 5.
115 35 U.S.C. § 102(c) (1964). Under the first-to-file system, the concept of abandonment would no longer be necessary.
A person shall be entitled to a patent unless—
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent . . . .
This section precludes patents for all existing programs, since they are prior art.
117 [It would] encourage prompt disclosure of newly discovered technology; substitute for the delays and expense of interference proceedings a fair and inexpensive means by which an inventor can establish priority; and bring U.S. practice into harmony with that prevailing in almost all other industrial nations.

President's Commission, supra note 17, at 6.
119 The patent bar has indicated strong opposition to the first-to-file system. The American Patent Law Ass'n, the Patent Section of the ABA, and the Patent Committee of the Nat'l Ass'n of Manufacturers have all disapproved the proposal. On the other hand, some commentators have indicated approval of the proposed change. See, e.g., Goldsmith, Why Not a First-To-File System?, 49 J. Pat. Off. Soc'y 699 (1967).
Congress will face a difficult task in designating standards of patentability for computer programs. There are two primary standards available: the basis of novelty used by the Patent Office\textsuperscript{120} and the basis of originality used in copyrights.\textsuperscript{121} Under the former test, a patent will issue if the object of invention is a new and useful product which did not exist previously. The originality test permits a copyright if the form of expression is independent authorship, whether or not the art existed previously. Of the two, the novelty test should be adopted for program patents. The Patent Office novelty test could easily be expanded to fit programs if the classification and search files were mechanized for rapid search. In addition, the novelty test provides greater protection, since copying is difficult to prove in a copyright infringement action. Finally, a standard based on originality gives no protection if the same program is independently produced elsewhere. There is, therefore, less of an incentive to check prior art. A standard of novelty would require a routine investigation of Patent Office files, resulting in less duplication of effort if the program already existed. The precise standard for program patents could best be resolved in open congressional hearings with representatives of the Patent Office, patent attorneys, and the hardware and software manufacturing industries.

A problem related to selecting a standard of invention is whether to follow the examination system used by the Patent Office\textsuperscript{122} or the registration system of copyright.\textsuperscript{123} In the former, if examination of Patent Office files, books, and journals reveals the existence of prior art, a patent will not be issued. Under the registration system in the Copyright Office, subject matter must meet certain routine standards, but no research is conducted. Any conflict is left for litigation in the courts. A program patent based on novelty would invariably require an adequate system of classification and search technique in looking for prior art. If one is not developed, then, to meet the Presidential Commission’s objection of burdening the Patent Office, a standard based


\textsuperscript{121} See Whittol v. Wells, 231 F.2d 550, 553 (7th Cir. 1956); “A copyright protects an original work and is not dependent upon novelty”; Stein v. Mazer, 204 F.2d 472, 474 (4th Cir. 1953): “Since a copyright is intended to protect authorship, the essence of copyright protection is the protection of originality rather than novelty or invention.”

\textsuperscript{122} 35 U.S.C. § 131 (1964): “The Commissioner shall cause an examination to be made of the application and the alleged new invention; and if on such examination it appears that the applicant is entitled to a patent under the law, the Commissioner shall issue a patent therefor.”

There are no significant changes in the Patent Reform Bill of 1967.

on originality, accompanied by a registration system, will be necessary. A classification system with mechanized search techniques would permit the use of an examination system with the novelty standard. A middle position, proposed in the Copyright Revision Bill,\textsuperscript{124} suggests the development of more stringent rules under the registration system.

Several additional statutory determinations should be made. First, the present system of claims on a patent\textsuperscript{125} should be continued, to enable a patentee to receive protection only for those claims made on the application. Second, since the Patent Office will be acting as program clearing house for potential users, each program should be accompanied by proof of workability for each claim. Alternatively, the program could be tested at the Patent Office. Third, although there are apparently no constitutional objections to issuing both patent and copyright on the same object,\textsuperscript{126} the copyright protection, which gives only minor protection, should be abolished, thus avoiding confusion and contradiction between the two laws and duplication of effort by the two offices. Fourth, state trade secret law should be preempted by statute to avoid a conflict between state and federal agencies over program protection. Such a statute would merely codify the Sears and Compco decisions and prohibit further erosion of this concept by state courts.\textsuperscript{127} Fifth, although seventeen year monopoly protection is given other patentable objects,\textsuperscript{128} programs, most of which are obsolete within five years, do not require similar protection. Furthermore, shortening the time may lead to more pressure on patentees to grant licenses.

CONCLUSIONS

In view of the need to protect computer programs and the apparent limitations of copyright law and state unfair competition law in effecting this change, the court in \textit{Prater} probably reached a just

\textsuperscript{125} Claims are presently required for patents. See 37 C.F.R. § 1.75 (1967).
\textsuperscript{126} Katona, \textit{Legal Protection of Computer Programs}, 47 J. PAT. OFF. SOC'y 955, 958-60 (1965).
\textsuperscript{127} There is precedent and perhaps even a model for this preemption in the Copyright Revision Bill:

\[\text{[A]ll rights in the nature of copyright in works that come within the subject matter of copyright . . . are governed exclusively by this title. Thereafter, no person is entitled to copyright, literary property rights, or any equivalent legal or equitable right in any such work under the common law or statutes of any State.}\]

result even though it departed from past cases. However, Congress would be in a better position to make the final decision on this question and to attend to the peripheral problems of establishing standards, setting up a mechanized classification and search procedure, and resolving the other technical matters. Since Congress is currently investigating the Patent Reform Bill, it is appropriate for it to pass legislation in this area. Congress need not await a decision from the Supreme Court in Prater. If the Court overrules the Court of Customs and Patent Appeals, then Congress should pass the legislation because of the demonstrated need for protection. Alternatively, if the Court agrees with Prater, then legislation will be necessary to implement the decision. Such an abrupt change in the case law would put a tremendous burden on the Patent Office, necessitating appropriate legislative reforms and guidance.

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